REPORT ON FINANCIAL STABILITY
April 2012

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 the Executive Board of the MNB.

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The *Report* incorporates the Monetary Council's valuable comments and suggestions following its meetings on 10 April and 24 April 2012. 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 10 April 2012.

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Overall assessment

Key risks:	Risk mitigating measures:
1. Strong outflow of external funds in regional comparison continues or accelerates, as a result of the following:	1.1. Maintaining prudent domestic fiscal policy, further credible reduction of government debt.
1.1. stronger deleveraging in the euro area banking sector;	1.2. Earliest possible conclusion of the EU/IMF negotiations and strengthening parent bank commitment in funding domestic subsidiaries.
1.2. persistently weak or further deteriorating ability of domestic banks to attract capital and funds.	1.3. Restoration of the banking sector's ability to accumulate capital and generate income, improvement of competitiveness.
2. High reliance of the banking sector on the FX swap market results in significant vulnerability:	2. Regulatory intervention may be needed to impede a rapid, significant build-up of the banking sector's on-balance-sheet open position. This may mitigate the financial stability risks posed by the business model that provides FX liquidity via the FX swap market.
2.1. liquidity buffers may shrink due to the depreciation of HUF;	
2.2. the substitution of external funds to predominantly short-term FX swap exposure results in growing maturity mismatches;	
2.3. central bank interventions against FX swap market turbulences may lower foreign exchange reserves.	
3. Further deterioration in corporate portfolio quality may significantly weaken the banking sector's lending capacity:	3. Accelerated portfolio cleaning requires: • faster insolvency procedures, • facilitating the transfer of collaterals, • dismantling barriers to efficient corporate restructuring (e.g. tax policies), • improving the efficiency of out-of-court agreements.
3.1. the NPL portfolio diverts a vast amount of funds from new lending;	
3.2. it does not create income, and thus impairs the ability to accumulate capital and attract external funds.	

4. Credit supply constraints can be still attributed to a reduced willingness to lend, but deteriorating lending capacity stemming particularly from above mentioned liquidity considerations raises the risk of a credit crunch, mainly in the corporate sector.

4.1. Measures of the Magyar Nemzeti Bank for stimulating lending:

- two-year collateralized lending facility,
- easing eligibility criteria of collaterals for central bank operations,
- adopting a universal model for mortgage covered bond issuance and relaunching the central bank mortgage bond purchase programme.

4.2. Further increase of the guarantee programmes' capacity, in order to facilitate lending to the SME sector.

Many of the risks identified in the previous *Report on Financial Stability* have decreased

The autumn issue of the *Report on Financial Stability* identified several key risks, the size of which have declined considerably as a result of interventions by the government and the central bank. In terms of the negative effects of early repayment of households' foreign exchange loans, supply pressure on the forint exchange rate was mitigated by the central bank by using part of the foreign exchange reserves via spot tenders. In order to reduce the risks of insufficient retail price competition, based on the proposal of the HFSA and the central bank, the government set up a complete credit registry system for the household segment and made the pricing of household mortgage loan products more transparent. In addition, as a result of capital injections by parent banks, the capital position of the domestic banking sector strengthened; consequently, from the capital side the risks of a deterioration in shock-absorbing capacity, and thus a weakening of the ability to lend, declined materially. The risks related to the sovereign debt crisis of euro area periphery countries remain elevated, despite the fiscal and monetary steps which have been taken. In the domestic banking sector, there is still a risk of inefficient management of non-performing loan portfolios. Moreover, this risk is becoming increasingly pronounced in the corporate sector.

Accelerated outflow of external funds from the domestic banking sector may become the cause of subdued lending

External funds in the banking sector decreased significantly last year. In part, this is a natural process, as a consequence of contraction in loans outstanding. Nevertheless, there is a rising risk that the outflow of funds will become the cause rather than the consequence of subdued domestic lending. Given that the dynamics of outflow are very high by regional standards, and that the outflow leads to a build-up of FX swap exposure, this points to an excessive outflow of external funds. Subsidiaries decrease their external funds in many cases before the maturity of their foreign currency assets. Thus, HUF liquidity is depleted through FX swap markets to obtain foreign currency. A steady outflow of external funds is a key risk due to the following two underlying reasons: the deleveraging of the euro area banking sector and the low competitiveness in terms of profitability of the domestic banking sector, coupled with its ability to attract capital.

Pace of the deleveraging in the European banking sector is a risk factor

The deleveraging of the European banking sector is partly a healthy process, as neither the current market nor the regulatory environment supports the high leverage that was previously built up. However, the pace of deleveraging can be considered as a significant risk. As a result of the Greek debt restructuring and the 3-year loan tender of the ECB, the risk of excessive deleveraging and a credit crunch was mitigated significantly. Nevertheless, these risks remain elevated due to the unfavourable funding conditions, as well as tighter capital adequacy requirements by regulatory authorities (Basel 2.5 and III) and markets.

The currently low competitiveness of the domestic banking sector in terms of profitability needs to be restored over the medium term

In 2011, the Hungarian banking sector booked substantial losses, mostly due to one-off items. Looking forward, the persistently uncertain operating and regulatory environment may prove to be a significant disadvantage in competition for external funds. Excluding these effects, underlying profitability is rather favourable. Income losses, stemming from a decrease in well-performing loans (an outcome of the early repayment scheme of foreign currency mortgage loans), may be offset by a lower bank levy, ceasing one-off profitability shocks and moderating loan losses. If a high interest margin can prevail, the profitability of the banking sector may

improve over the medium term, which is of key importance in terms of the regional allocation of funds.

Conclusion of an EU/IMF agreement and stronger parent bank commitment are key to prevent excessive deleveraging

Hungary's net external debt may decrease in the future, which could, in turn, mitigate the country's vulnerability. The model shift in funding of the state and the banking system entails a greater reliance on domestic savings in order to reduce reliance on external funds. This does not mean that the banking system should operate without external funding, but that heavy reliance on such funds needs to be reduced. The fact that the growth of domestic savings is slow and that the outflow of external funds is fast renders the shift difficult. This leads to strong deleveraging and growth sacrifice. In turn, this may affect concerns about the sustainability of sovereign debt. A steep fall in net external debt triggered by an accelerating outflow of foreign funds from the banking system would be rather unwelcome. An EU/IMF agreement could serve as a safety net, mitigate the country's sensitivity to risk premium shocks and reduce the funding costs of the state and the banking system, while facilitating an orderly balance sheet adjustment in the banking sector. The latter could be supported by a stronger parent bank commitment associated with an EU/IMF agreement.

High FX swap exposure adds to liquidity risks to an extent that may necessitate regulatory intervention

Key risks related to the outflow of external funds are the surging on-balance-sheet foreign exchange position and the FX swap exposure hedging it. The FX swap exposure peaked at a historic record in early 2012, which is mainly attributable to the fact that foreign currency funding through FX swap markets is an accepted business model as of 2008. However, the high FX swap exposure entails considerable financial stability risks, not just because swap markets have dried up in the past on several occasions, but also because even in a well-functioning swap market meaningful risks can be identified. Roll-over needs and margin call requirements increase the exchange rate sensitivity of banks, which may lead to lower liquidity. Heavier reliance on swap markets may also interfere with maturity transformation, because the average original maturity of swap deals is shorter than that of foreign funds. Turbulence in the swap market may also increase reliance on the MNB, which, in turn, could result in a reduction of FX reserves. To mitigate these risks, introduction of regulation is worth considering in order to prevent rapid build-up of sizeable FX swap exposure.

Steady portfolio quality deterioration in the corporate segment fundamentally weakens lending capacity in terms of liquidity

Non-performing corporate loans continued to increase in 2011 H2. Accounting for restructured loans as well, the impaired ones comprise one quarter of the total loan portfolio. With a steady increase in the share of non-performing loans, Hungary diverged from the Visegrád countries, with its ratio being among the highest in Europe. Looking ahead, the share of non-performing corporate loans may continue to increase over the next two years due to the contraction in lending, slow portfolio cleaning and subdued economic outlook. Fundamentally, deterioration in the corporate loan portfolio poses risks on the liquidity side rather than on the capital side. Provisions for non-performing portfolios and the capital buffer are sufficient to absorb losses. At the same time, over the longer term, the funding of non-performing loans may limit the liquidity and profitability of banks due to lost interest income, which may result in a weaker ability to attract foreign funds.

Efficiency of portfolio resolution must be improved

Accelerating the portfolio cleaning of non-performing corporate loans or recoveries from impairment through reorganisation are key factors for a rebound in lending. The former is impeded by the low demand of domestic and foreign companies specialising in work-out; therefore, the focus should be on restoring solvency in the case of viable business models. The greatest obstacle in this regard is the regulatory environment, which now drives work-out in the direction of liquidation proceedings. In order to avoid this, the obstacles to efficient restructuring (for example tax rules) should be removed and the possibility of out-of-court agreements should be expanded, in line with best international practices. In the event that liquidation is unavoidable, it would be necessary to improve the efficiency and transparency of procedures, facilitate the transfer of collaterals and reduce related costs.

Deterioration in household portfolio quality may come to a halt

The proportion of non-performing loans in the household segment is expected to increase further in early 2012, which is partly attributable to the considerable decrease in well-performing loans (as a result of the early repayment scheme) and partly attributable to slow portfolio cleaning. However, from mid-2012 on, the exchange rate cap scheme will considerably reduce the probability of default of foreign currency mortgage loans. Thus, the ratio of NPLs will peak at close to 15 percent in early 2013. Concurrently with the probability of default, loan loss provisioning may also fall. An important tool of managing outstanding non-performing loans could be the adoption of a personal insolvency legislation, which can, as international practice reveals, accelerate portfolio cleaning significantly.

As a result of capital injections by parent banks, credit risk stress tests indicate strong shock-absorbing capacity

As a result of a capital injection of approximately HUF 370 billion by parent banks at end-2011 and early 2012, the shock-absorbing capacity of the banking sector has improved markedly. However, the distribution of the capital buffer continues to show strong asymmetry; accordingly, some banks need a capital injection already in the baseline scenario. In the stress scenario, a capital injection of HUF 83 billion (a lower amount than in the previous stress test) is needed to comply with the minimum regulatory capital. The capital need for the stress scenario affects only a few banks and is of a manageable size.

The liquidity stress test indicates adequate shock absorbing capacity, but foreign currency liquidity is scarce, which may impede lending

The domestic banking sector must comply with two regulatory liquidity indicators: as of January the short-term liquidity indicators and, as of June, the foreign exchange funding adequacy ratio (FFAR). Banks are in compliance with the required short-term liquidity indicators, ensuring adequate shock-absorbing capacity. It is reflected in the fact that, even under stress, each bank would be liquid; however, the proportionate regulatory surplus of total assets would fall almost 4 percent short of the 10 percent requirement, which would result in considerable funding needs or deleveraging. A real threat emerges as foreign currency liquidity needs would account for 4 percent of total assets, posing a material risk due to the vulnerability of swap markets which ensure exchangeability among currencies. Scarce foreign exchange liquidity, exacerbated by the outflow of external funds, may strongly constrain lending.

Corporate lending is characterised by exacerbated credit contraction

Since the start of the crisis, the corporate loan market has been characterised by steady deleveraging. This has been due, to a large extent, to credit supply constraints. However, it cannot yet be considered a credit crunch, which leads to the destruction of production capacities through the bankruptcy of

viable enterprises. Nevertheless, even the current level of credit contraction is detrimental, because it results in the postponement or cancellation of new investments intended to replace or improve amortised capacities. Due to a further decline in willingness to take risks and strong outflows of external funds, companies are facing tighter credit conditions, which are also confirmed by our latest lending survey. Accordingly, the corporate lending forecast was revised further downward; an upswing is thus expected to take place only from end-2013 on. As the outflow of external funds is becoming the cause of deleveraging to a larger extent, the risk of a credit crunch is rising.

Rebound in lending to households may take place, following the resolution of problems related to outstanding loans

The most important factor in lending to households was the early repayment of foreign currency loans at a preferential exchange rate at end-2011, which resulted in a nearly one-quarter contraction in outstanding foreign currency mortgage loans. Although the second exchange rate cap and measures related to non-performing household debtors may improve banks' willingness and capacity to lend, it requires substantial operational capacities from banks. Over the short term, capacity constraints may hinder new lending in the household segment; consequently, any material increase in lending may only be expected after the conclusion of these programmes. As principal repayments remain large-scale, an increase in household loans outstanding is expected only from end-2013 on.

The Magyar Nemzeti Bank is ready to facilitate lending via numerous measures at its disposal

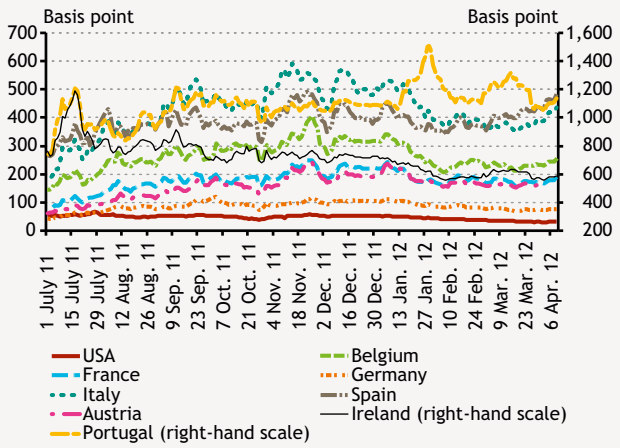
The MNB considers the improvement of the Hungarian banking sector's stability and ability to lend to be important; therefore, it announced a threefold package in March 2012. The most important element of the package is a two-year collateralised loan tender with a monthly frequency and variable interest rate on the prevailing central bank discount rate. Recourse to this facility may reduce deteriorating lending capacity stemming from forint liquidity. As the second element, the central bank further expanded the range of eligible collateral for central bank operations to also ease liquidity constraints. Lastly, the acceptance of the proposal on introduction of universal mortgage covered bond issuance, an important tool in improving maturity mismatches in household mortgage lending, is intended to improve market liquidity with the relaunch of a mortgage covered bond purchase programme. While the first two instruments may facilitate an upturn in corporate lending, the third one may contribute to a rebound in household lending.

1 The operating environment of domestic financial institutions

1.1 Stronger deleveraging of the euro area banking sector is a risk

International markets were characterised by significant volatility in the past half year. The protracted escalation of the sovereign debt crisis in the euro area due to shrinking risk appetite considerably worsened the funding conditions of European governments and banking sectors, as evidenced in reduced funding and surging risk premia. These negative trends were reversed in early 2012 by the second Greek rescue package, following the successful Greek bond exchange programme, and the liquidity injections of the ECB. The ECB significantly improved the longer-term funding of banks by two 3-year loan tenders at the end of 2011 and the beginning of 2012. Even though the ECB's steps significantly mitigated the risk of excessive deleveraging and a credit crunch in the European banking sector, risks remains. These are attributable to still unfavourable funding conditions and stricter capital adequacy requirements by the regulatory bodies and markets.

Chart 1
5-year sovereign CDS spreads

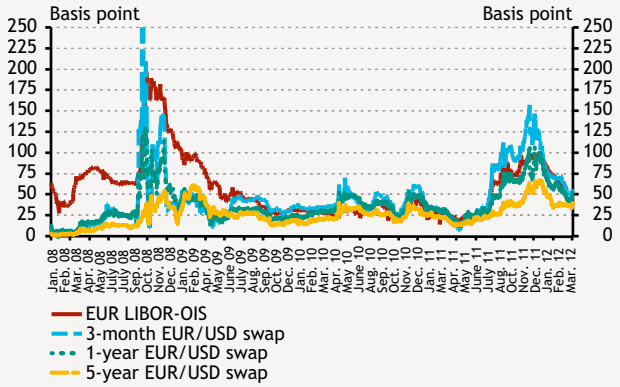


Source: Bloomberg.

The period since the previous Report on Financial Stability can be divided into two distinct parts. In 2011 H2, in parallel with escalating sovereign and banking sector turmoil, market conditions deteriorated considerably. However, after the introduction of mechanisms for managing the sovereign debt crisis and the new unlimited liquidity facilities of ECB, significant improvement took place in early 2012.

Elevated sovereign risks led to downgrading of several euro area countries. The risk of an extreme financial crisis increased considerably in 2011 H2. Investor confidence in euro area member states plummeted, as reflected in falling financial asset prices and surging risk premia (Chart 1). Weakened investor confidence culminated in domestic political crises in Italy and Greece. In the last quarter of 2011, due to rising concerns over sovereign debt sustainability and declining economic growth, the credit ratings of many euro area countries were downgraded: Austria and France lost their triple-A ratings; Cyprus, Ireland and Portugal were downgraded into non-investment grade; and Greece was placed in the extreme speculative category. Within six months, the 'voluntary' write-off of private investors' exposure vis-à-vis Greece grew from 20 percent to above 50 percent at par value.

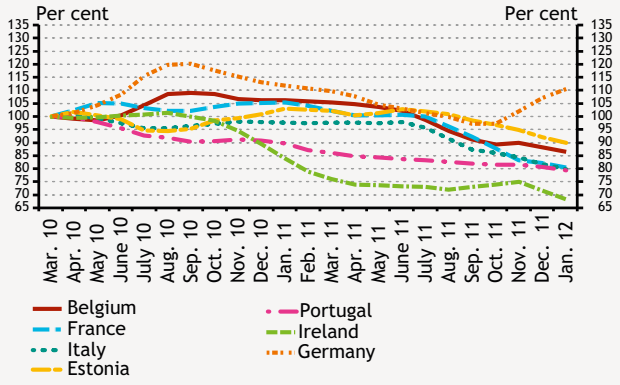
Chart 2
LIBOR-OIS spread and EUR/USD swap spreads



Source: Bloomberg.

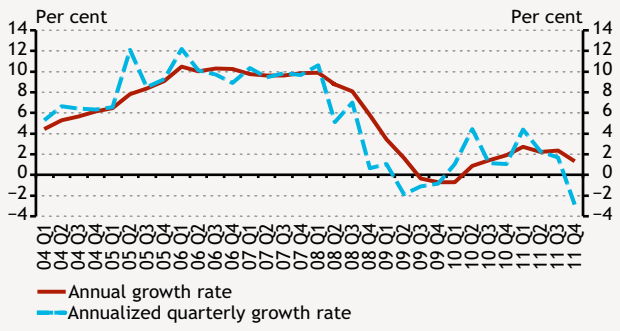
Chart 3
Non-euro area liabilities of the banking sectors of selected countries

(March 2010 = 100 percent)



Source: ECB.

Chart 4
Private sector lending in the euro area



Source: ECB.

Due to the turmoil in the euro area, by end-2011 access to market funding became increasingly difficult and expensive for the banking sector. Deterioration in funding conditions could be observed on both short-term (Chart 2) and long-term wholesale markets at end-2011. Senior bank bond markets were severely impaired and issuance dropped markedly. Meanwhile, external funding of the euro area, mainly USD funding, also fell considerably in 2011 H2, not only affecting the countries hit by the sovereign debt crisis, but Belgium and France as well (Chart 3). The drop in USD funding increased reliance on the FX swap market, leading to tensions there as well.

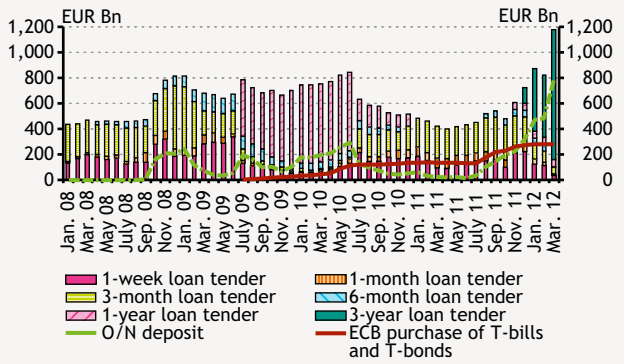
Bank lending contracted considerably in the euro area. The upswing in private sector lending in the earlier quarters came to a halt in 2011 H2. Moreover, compared to Q3, household and corporate loans outstanding fell by 3 percent on an annualised basis at the end of the year (Chart 4), which is partly attributable to the decline in euro area GDP and partly to the increase in the liquidity and capital tensions in the banking sector. Based on data available until February 2012, deleveraging continued with contraction in loans outstanding.[1]

Several major central banks decided to take concerted steps to ease USD funding tensions. The maximum premium on the central bank US dollar swap facilities between the FED and the ECB were reduced by 50 basis points, and they committed themselves to maintaining the facility until February 2013. Furthermore, until withdrawal, the ECB announced one-week and three-month US dollar swap tenders and the easing of margin requirements.

In 2011 Q4, the ECB intensified its government securities purchases and introduced secured 3-year loans. In addition to the above concerted action, the ECB took several measures to mitigate the escalation of the sovereign debt crisis and to ease liquidity tensions. These steps included the reduction of the policy rate by a total of 50 basis points, the reserve ratio from 2 percent to 1 percent, purchases of government securities, the easing of eligibility criteria of collaterals for central bank operations and the introduction of 3-year loan tenders. In two rounds, banks borrowed a total of EUR 1,000 billion from the ECB within the framework of the 3-year LTRO (Long-Term Refinancing Operation). Due to the favourable pricing conditions, these ECB funds (Chart 5) may improve not only the liquidity situation, but also profitability (and thereby the capital position as well).

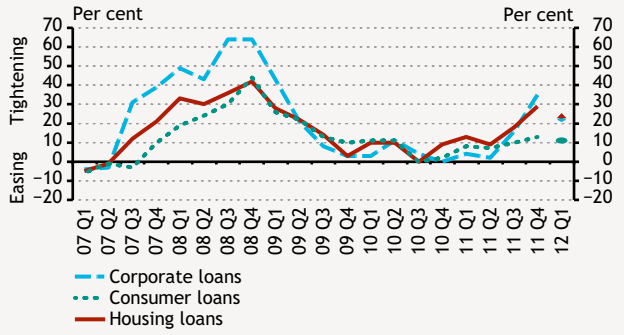
[1] A decline in assets can be considered severe if banks tighten non-price credit conditions and, due to deteriorating lending capacity (capital and liquidity position) or lower risk appetite, there is a material reduction in the number of creditworthy customers, who otherwise would have demand for loans. This increases the risk of the financial accelerator mechanism (the development of a negative spiral, with credit supply constraints and economic growth reinforcing one another), which could lead to a credit crunch and to widespread bankruptcy in the corporate sector.

Chart 5
Monthly average utilisation of the facilities of the ECB and its securities purchase programme



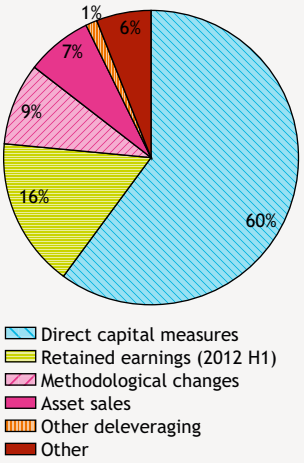
Source: ECB.

Chart 6
Credit conditions in the euro area



Note: Data for 2012 Q1 are forecasts.
Source: ECB.

Chart 7
Compliance with EBA capital requirements



Note: Distribution of capital impact (EUR 97 billion) of the planned measures by banks.
Source: EBA.

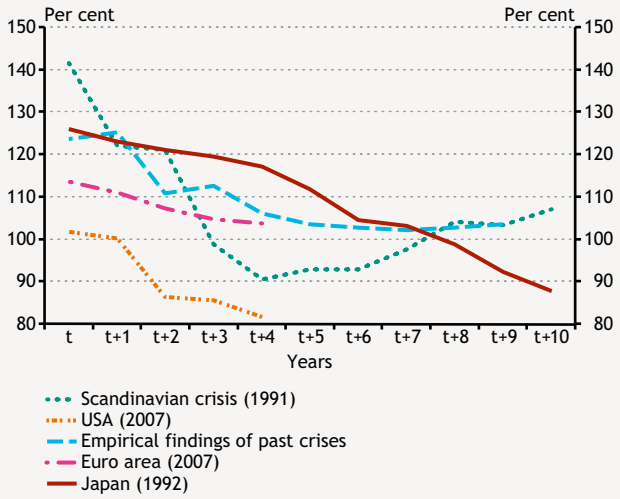
The 3-year LTRO mitigated the risk of excessive deleveraging, but its channelling to the real economy is still doubtful. The ample liquidity provided by the ECB's 3-year secured lending facility mitigated the risk of excessive deleveraging and of a credit crunch, but it is unlikely that banks will extend vast amount of long-term loans from these funds. One indication of this is found in the latest ECB lending survey, as the number of banks tightening credit conditions to the private sector was at a high level (Chart 6) and continued to rise in 2012 Q1 as well. The liquidity provided by the LTRO may primarily be used to purchase government securities and later for the replacement of still expensive market funding.

The risk of excessive deleveraging still exists in the euro area banking sector. First, numerous European banks (primarily ones that received state assistance) have not yet completed the removal of bad assets from their balance sheets. Secondly, due to the rising costs of market funding and the new Basel liquidity regulations, banks are reducing reliance on wholesale (so-called unstable) funding. Thirdly, due to large government deficits and debt in many European countries, there is a vast amount of net issuance and roll-over needs, which may result in crowding-out between governments and banking sectors. Lastly, over the short term the strict capital requirements of the EBA and Basel 2.5 may result in meaningful balance sheet adjustments.

Preparation for the Basel III regulations significantly influences the deleveraging of the banking sector. Although banks only need to comply with the stricter capital requirements from 2015 on, in response to the confidence crisis several authorities – including the European Banking Authority (EBA), as well as the Slovak, Swedish and Austrian authorities – require stricter capital requirements sooner. The EBA prescribed a 9 percent core tier-1 ratio from the major European banks, which must be met by June 2012, resulting in a total EUR 97 billion of additional capital need.

Banks are planning moderate deleveraging to meet the capital requirements, according to their plans submitted to the EBA. As regards adjustments on the assets side, a decline in risk-weighted assets would account for EUR 16 billion (Chart 7), whereas asset sales would represent a further amount of approximately EUR 85-90 billion; the latter, however, does not mean a reduction in the financing of the real economy. In addition, a capital need of EUR 16 billion would be raised from retained earnings in 2012 H1. However, the feasibility of the plans is clouded by various uncertainties due to the tight deadline and the turbulent market environment, which hinders asset sales and the

Chart 8
Loan-to-deposit ratios on the basis of crisis experiences



Note: The dates of the peaks are given in brackets.
Source: Felcser et al. (2010)[2], based on the FED, the BoJ and the ECB.

attainment of profit targets. Consequently, there is a significant risk that the higher capital adequacy required by the regulatory authority will be attained through stronger deleveraging.

Empirical analyses of past crises also suggest that further deleveraging can be expected in the euro area. In most of the past crises, the loan-to-deposit ratio of banking sectors declined to 100 percent or below as a result of balance sheet adjustment (Chart 8). Consequently, there is still room for deleveraging, especially given the aforementioned regulatory requirements.

[2] Felcser, Dániel and Gyöngyi Körmendi (2010): International experiences of banking crises: management tools and macroeconomic consequences. *MNB Bulletin*, June.

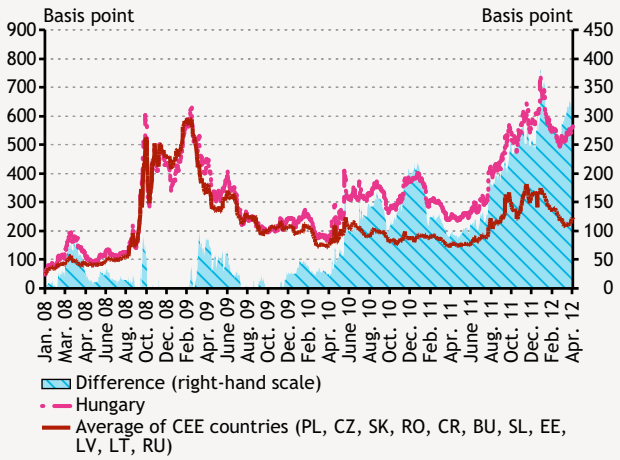
1.2 The EU/IMF agreement stabilizes the domestic financial markets and the economy

1.2.1 RISK PERCEPTION OF HUNGARY IS EXTREMELY VOLATILE; REACHING AN AGREEMENT WITH THE EU/IMF IS AN URGENT NECESSITY

At end-2011, the impact of the escalating sovereign debt crisis on the risk perception of Hungary was primarily reflected in the HUF exchange rate and Hungarian asset prices. In addition to the decline in global risk appetite, country-specific factors also contributed to the negative sentiment, which culminated in the turbulence experienced in early January 2012. In April, the Hungarian 5-year sovereign CDS spread reached the same level as in October 2011.

Since the last Report, due to global factors alone the risk premium would have decreased, but country-specific factors led to an increase. These country-specific factors included economic policy steps which amplified the uncertainty of the investment environment and uncertainties regarding the commencement and outcome of the EU/IMF loan negotiations. Improvement in the country-specific factor requires the earliest possible conclusion of the EU/IMF loan negotiations and a rebound in economic growth.

Chart 9
Hungarian sovereign CDS spread in regional comparison



Source: Bloomberg.

The extreme risk aversion resulting from the escalation of the sovereign debt crisis also reached Hungary through the risk premium shock channel. Along with the extremely volatile global risk appetite, the Hungarian risk premium was affected by analysts' expectations about the timing of an EU/IMF loan agreement (Box 1). At end-2011, the risk premium stemming from economic policy steps that exacerbated uncertainty of the investment environment was gradually built into asset prices. This was also reflected in the credit rating decisions by the end of the year. All the three credit-rating agencies downgraded Hungary to the non-investment grade category. As a result of all this, there was a substantial increase in the Hungarian sovereign CDS spread until early 2012 (Chart 9). Starting from early 2012, the deterioration reversed and Hungarian asset prices improved significantly. This was attributable to the salient recovery in global risk appetite and a more pronounced commitment by the government to the EU/IMF loan agreement, which boosted investor confidence even before the conclusion of the agreement. From March 2012, led by global and country-

specific factors, risk perception of Hungary started to deteriorate again and the 5-year sovereign CDS spread reached the same level as in October 2011.

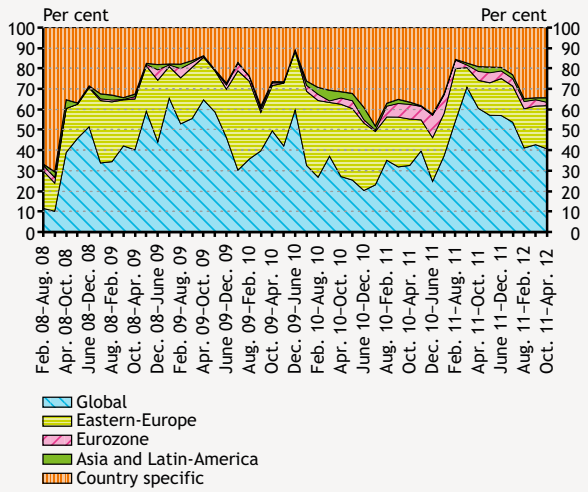
Box 1

Decomposition of the 5-year Hungarian CDS spread

The strong correlation between the CDS spreads of developed and developing countries in past years indicates the existence of common risk shocks. The co-movement of spreads takes place at a high frequency (intraday), and in most countries it accounts for more than half of the changes in the CDS. In terms of a long-term average, approximately two thirds of the daily changes in the Hungarian 5-year CDS spread are related to mainly global and partially regional factors (i.e. developments in other CDS spreads than Hungary are generally in line with the changes in the Hungarian CDS), while individual factors account for roughly one third of the variance.[3] Individual factors are comprised by the effect of country-specific events on risk perception and the measuring error of common effects as well.

Explaining power of certain factors in the Hungarian sovereign 5-year CDS spreads

(six month moving window)



Source: Bloomberg, MNB.

By means of factor analysis, the correlations of CDS spreads can be classified into global and regional blocks. Then, the time series of the common elements of factors can be generated from the global and regional blocs. This method may be used for answering two important questions. First, the factor structure indicates which regions determine the Hungarian CDS spread. Based on changes in factor structure, both global and East European regional factors determine the Hungarian CDS spread; accordingly, the developed euro area and periphery countries showed their effects mainly in terms of the global factor. Secondly, the method provides an answer to the question of how much the changes in the CDS spread are related to country-specific and external factors. This method takes into account the sensitivity of the Hungarian spread to common shocks, which is different (typically higher) than that of other countries. Therefore, it provides a much more precise estimate than a simple comparison of the Hungarian CDS spread with other regional spreads or an average of spreads.

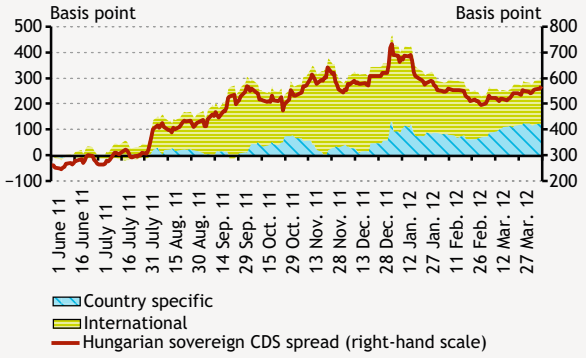
The significant increase in the Hungarian CDS spread (approximately 300 basis points) during the summer and early autumn of 2011 was almost entirely explained by the global factor. Other factors, including the individual (country-specific) component, had a minimum impact on the spread in this period.

However, this picture changed as of October 2011. The global risk factor continued to have a significant impact on the Hungarian spread, but favourably overall, leading to a decline in the CDS spread. The optimism preceding the October EU summit resulted in a decline of 150 basis points. This was before the deteriorating atmosphere, due to the announcement of the referendum in Greece, lifted the factor back to the level observed in early October. From December on, however, improving international investor sentiment gradually reduced CDS spreads all over the world, resulting in an approximate 150 basis point decline in the Hungarian CDS spread this year as well.

Starting from 2011 October, the individual (country-specific) factor had a more significant effect on developments in the Hungarian CDS spread. At the same time, this component became considerably more volatile than in previous months. The increase in the individual factor in October was attributable to market participants' risk perception related to the early repayment scheme of

[3] The analytical background of the findings presented here is described in: Zalán Kocsis and Dénes Nagy: Variance decomposition of sovereign CDS spreads, *MNB Bulletin,* October 2011. The difference compared to the article is that the estimates here are for the period between 1 May 2009 and 31 August 2011, ignoring the time series for Greece and Japan. In lieu of the six factors presented in the article, five factors are taken account of here: the PIIGS region is treated together with the other euro area countries.

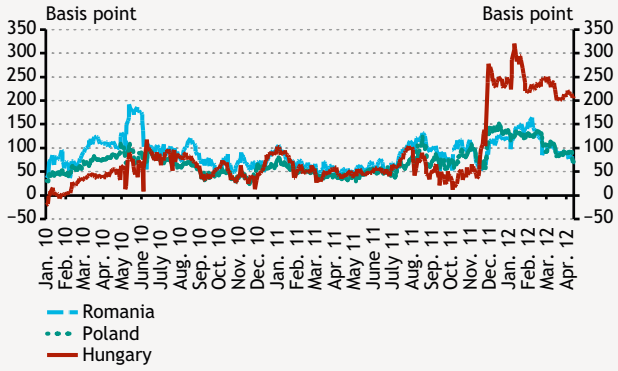
CDS spread and its components



Note: The figure shows the cumulated effects of the components (from June 2010). The increase of the time series is due to the estimated effect of the components on the increase – the deterioration of the risk sentiment – in the Hungarian sovereign CDS spread.
Source: MNB.

mortgage loans and then to concerns related to potential downgrading of the country. Subsequently, negotiations with the Hungarian Banking Association and then the prospect of an EU/IMF loan reduced the individual factor again. During December, downgrades and the sharpening conflict between the government and the EU may have added 100 basis points to the Hungarian CDS spread again. Then, as a result of more conciliatory government communications abroad from January on, the market excluded some of the country-specific risks from the pricing. However, owing to more pessimistic analyst expectations about the postponement and the possible outcome of the EU/IMF talks, the country-specific component has deteriorated again since end-February. Overall, the CDS spread should have improved substantially since the 2011 autumn Report on Financial Stability, but due to the deterioration in the highly volatile country-specific component, the improvement was unable to materialise.

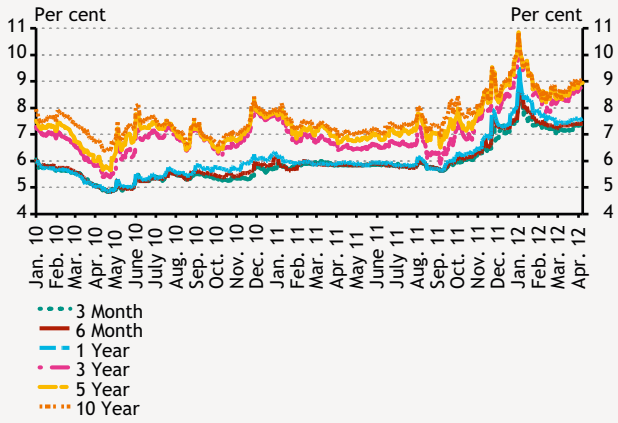
Chart 10
Difference between the Euro EMBI Global spread and the 5-year sovereign CDS spread in regional comparison



Source Bloomberg.

At the same time, downgrading into the non-investment grade category may also have a persistently unfavourable effect on the roll-over of Hungary's external liabilities. In parallel with the downgrade of the Hungarian credit rating, its foreign currency bond yield grew by a greater extent than the 5-year sovereign CDS spread. This difference, following some correction, was persistent even after the improvement in the global risk appetite in early January. Although the divergence between the foreign currency bond yield and the CDS spread was observed at a regional level as well, it was more pronounced in Hungary; this is attributable to the exclusion of euro bonds from eligible ECB collaterals (Chart 10). The unfavourable effect of the high yield, which is around 8 percent at present, may be exacerbated by recent market reaction to the postponement of the expected date of an EU/IMF agreement.

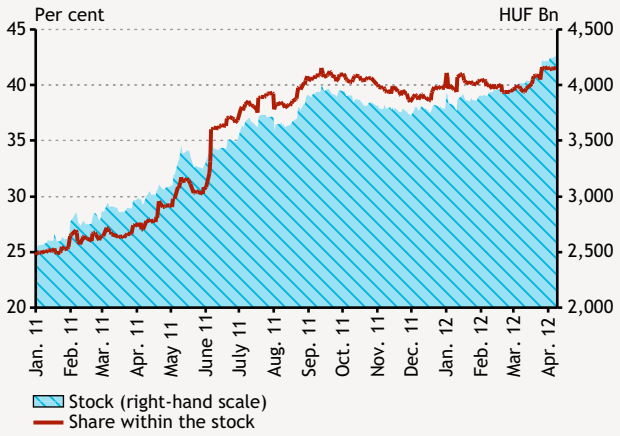
Chart 11
Reference yields of the Hungarian government securities



Source Bloomberg.

Similar to the development of sovereign risk indicators, global risk shocks also prevailed in the yields of forint government securities. Benchmark yields rose gradually until the peak of the turbulence observed in the first week of January 2012, followed by a decline in yields as a result of the favourable external environment and the shift in government communication (Chart 11). Due to worsening investor sentiment in March, HUF yields are significantly higher compared to the mid-October levels. The effect of the tense period in December and early January was reflected in subdued asset prices as well as in issued quantities. In this period, there was a marked drop in auction demand, and the debt management agency was compelled to cut or cancel primary issuance on several occasions. At the same time, following the temporary decline until early December, non-residents' forint-

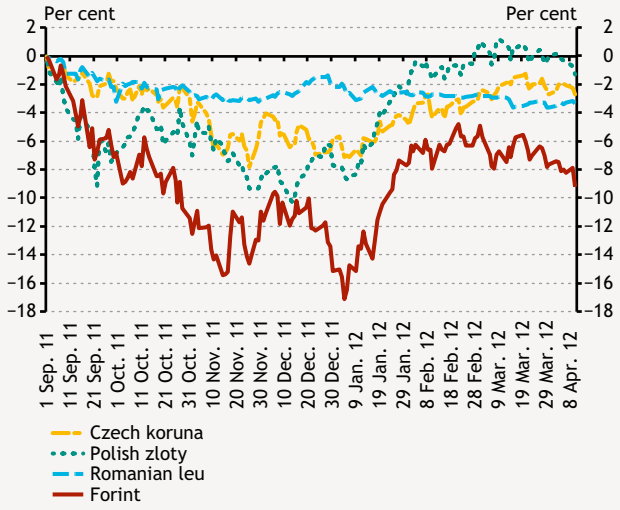
Chart 12
Non-residents' government securities holdings and their share within total holdings



Source: MNB.

Chart 13
Exchange rate changes of regional currencies against the euro

(1 September 2011 = 100 percent)



Source: Thomson-Reuters.

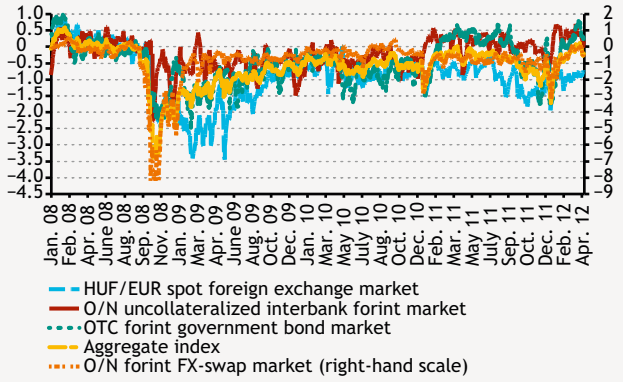
denominated government securities portfolios increased to a record HUF 4,200 billion (Chart 12). The ownership structure of the non-resident sector continues to be concentrated, and it seems that the loss of the investment grade category did not generate any critical wave of sales, although the ownership structure was somewhat rearranged.

Changes in the risk premium during the last half year appeared in the development of the EUR/HUF exchange rate as well. At the end of the period under review, the forint slightly depreciated against the euro compared to mid-October, while the Polish zloty – which exhibits an empirically similar sensitivity to global shocks – appreciated by 2.5 percent versus the euro (Chart 13). The forint's divergent path from the zloty, considered as a benchmark currency, was especially striking at the beginning of January 2012, when in addition to global and country-specific factors the change in behaviour of foreign exchange market participants contributed also to the extremely weak HUF. To mitigate EUR/HUF volatility during period of the early repayment scheme, the central bank of Hungary launched a new euro tender. In the framework of this new instrument, the central bank sold EUR 2.6 billion to the domestic banking sector.

1.2.2 MARKET LIQUIDITY FOLLOWED THE RISK ASSESSMENT OF THE COUNTRY; MEANWHILE, THE FOREIGN EXCHANGE SWAP MARKET IS HIGHLY FRAGILE

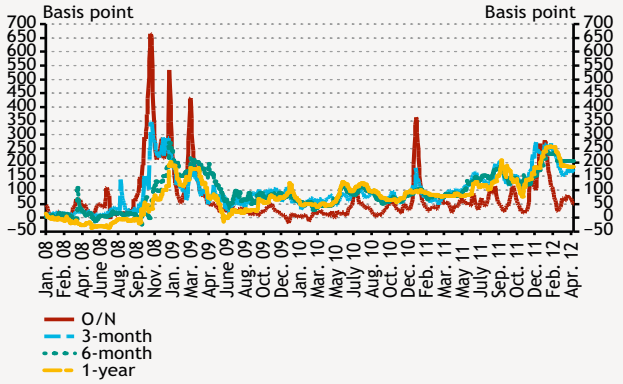
The liquidity of markets – apart from the government securities market – continues to be below the average of the period preceding the autumn 2008 crisis, mainly in terms of price indicators. Starting from August 2011, market indicators worsened because of global economic and financial turbulences. The deterioration culminated at the end of the year, when – as a result of seasonal effects and the weakening risk perception of Hungary – the aggregate liquidity indicator sank to the February 2009 level. In the FX swap market, in several maturity segments the difference between implied foreign currency yields and reference yields of corresponding maturities reached a multi-annual peak, in parallel with the increase in sovereign risks. This posed a considerable risk to the domestic banking sector, which predominantly keeps its open foreign exchange position at a stable low level through FX swap transactions. Following a strong adjustment in 2012, the liquidity of the markets returned to the mid-2011 level. At the same time, the events at end-2011 and early 2012 continue to draw attention to the vulnerability of liquidity on the key markets and, accordingly, to the banking system.

Chart 14
Aggregate market liquidity index and its sub-indices
(exponential moving averages)



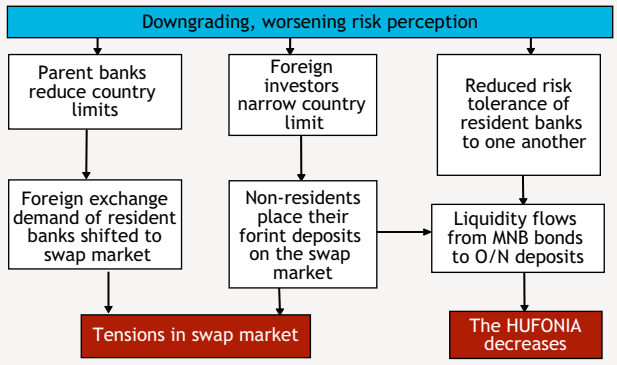
Source: MNB.

Chart 15
O/N, 3-month, 6-month and 1-year forint FX-swap spreads
(exponential moving averages)



Source: MNB.

Chart 16
Flow chart of FX swap and deposit market tensions as at mid-January 2012



Source: MNB.

The liquidity of domestic financial markets has remained broadly unchanged during the past half year. In August 2011, the liquidity indicator started to weaken, in parallel with the worsening economic outlook in developed economies and escalation of sovereign debt concerns in the euro area (Chart 14).[4] Then, towards the end of the year, in addition to external effects (a series of downgrades and gloomy growth prospects of emerging markets), country-specific factors may also have played a role in the deterioration of the liquidity indicator to a low level not seen since February 2009. However, with an improvement in risk appetite and appreciation of the forint, liquidity tensions eased in the first months of 2012, presumably in part as a result of steps taken towards co-operation with international organisations. The indicator of the unsecured overnight interbank and overnight FX swap market remained practically unchanged for a year, while deterioration was observed in the spot foreign exchange market.

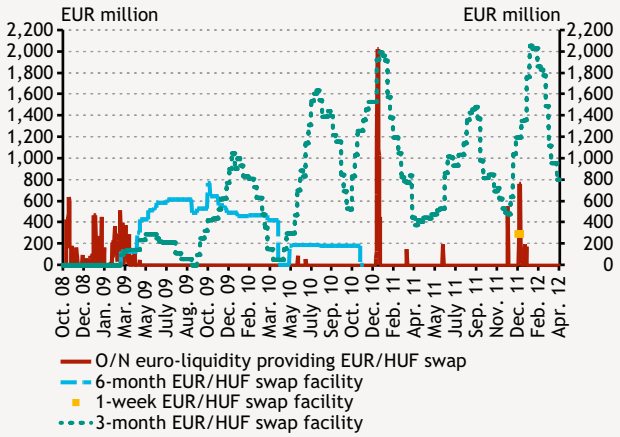
Similar to earlier periods, liquidity tensions were observed in the HUF/FX swap market in the past half year as well. Since the spring of 2011, the on-balance-sheet foreign exchange position and net swap exposure of the banking sector have increased, leading to increasing tensions in the swap market. Spreads widened sharply at end-2011, and by the turn of the year they exceeded the 250 basis point level for maturities of up to one year (Chart 15).

In January 2012, the domestic FX swap market was highly turbulent. Although the tension in the swap market due to the closing of positions at the end of 2011 was lower than a year earlier, unusual turbulence commenced in the second week of January. Worsening risk perception of Hungary and the downgrading of the sovereign credit rating resulted in tighter counterparty limits on forint assets (Chart 16). The tightening of limits of non-resident participants on Hungary and limits of domestic banks *vis-à-vis* one another drove the supply of forints and the demand for foreign exchange to the FX swap markets, where transactions are considered to be secured. The increased foreign exchange demand on the 3-month segment resulted in a nearly 2 percentage point increase in the implied yield spread. Forint assets flowing to the swap market, which was enhanced by the closing of short forint positions and the building up of long positions, resulted in a further increase in forint liquidity.

In order to ease market tensions, the MNB provided foreign exchange liquidity for the banking sector via its FX swap facilities. In early September 2011, the outstanding amount of the MNB's euro liquidity providing 3-month EUR/

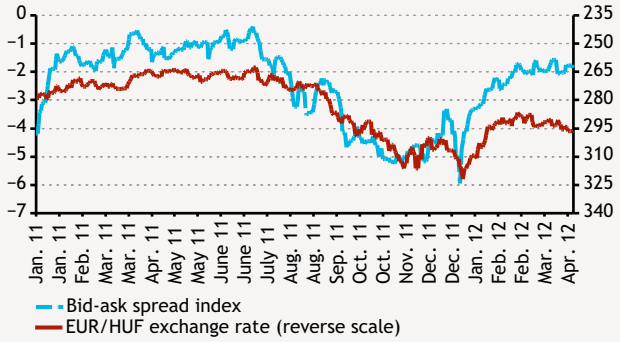
[4] For more details on the aggregate liquidity indicator see: Judit Páles and Lóránt Varga: Trends in the liquidity of Hungarian financial markets – What does the MNB's new liquidity index show?. *MNB Bulletin*, April 2008.

Chart 17
Outstanding amount of the central bank EUR/HUF swap instruments



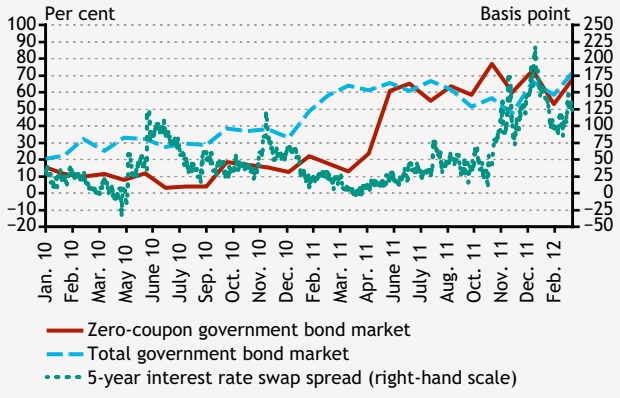
Source: MNB.

Chart 18
Forint/euro exchange rate and the bid-ask spread index of the spot forint/euro foreign exchange market



Source: MNB.

Chart 19
Share of non-residents in the government bond market turnover and the 5-year interest rate swap spread



Sources: ÁKK, Bloomberg.

HUF FX swap facility increased to a local peak (Chart 17). In turn, during the tensions of January 2012, the outstanding amount reached an all-time high of EUR 2,055 million, followed by a gradual decline since then. In order to prevent a recurrence of the previous year's turbulence, the MNB announced a one-off euro liquidity providing operation against forint collateral for one-week maturity as well at end-December 2011.

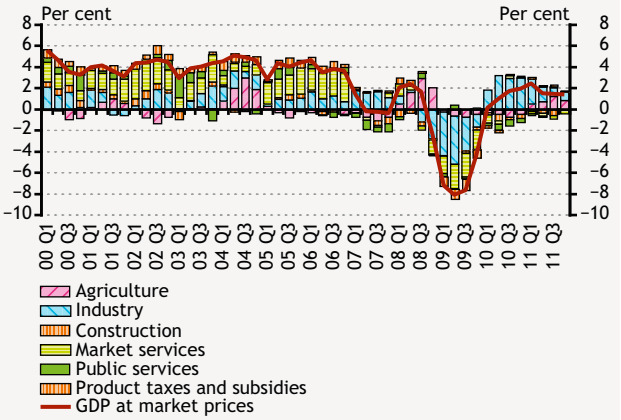
The liquidity of the EUR/HUF spot foreign exchange market showed strong co-movement with changes in the exchange rate. In the autumn of 2011, exchange rate depreciation was accompanied by deteriorating liquidity on the market, which was primarily reflected in an increase in the bid-ask spread (Chart 18). In parallel, non-residents built up a significant synthetic forward position against the forint by means of spot and FX swap transactions. Later, in early January 2012, as a correction took place in the exchange rate, the bid-ask spread also started to narrow. It could be observed that in non-residents' speculation, the trend reversal (i.e. the considerable reduction of positions against the forint) already took place at the beginning of December 2011 (i.e. earlier than that of the exchange rate).

The improvement in the liquidity of forint-denominated government bonds came to a halt by the autumn. In 2011, non-residents' share in both the outstanding amount and the turnover of total government securities increased, compared to previous years. While non-residents had accounted for 20-40 percent of the turnover in previous years, their share reached 40-70 percent in 2011 (Chart 19). Accordingly, non-residents' activity contributed to the improvement in the liquidity of the government securities market. In addition, the spread between the government securities yield and the interest rate swap yield also had a rather low range in H1, an indication of the favourable liquidity position of the government securities market. Starting from the autumn of 2011, with a general deterioration in liquidity, the interest rate swap spread surged. At the same time, non-residents' share in the turnover declined. Accordingly, at the end of the year, similar to the FX swap market, deterioration in liquidity was caused by the bid-ask spread and price impact indicators as well. In early 2012, however, signs of consolidation were seen here as well.

1.2.3 UNFAVOURABLE ECONOMIC GROWTH PROSPECTS, SLOWLY DECLINING EXTERNAL DEBT INDICATORS

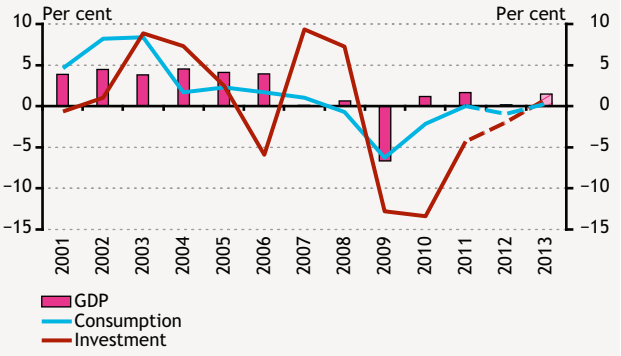
The Hungarian economy is likely to stagnate in 2012, with growth expected to resume in 2013. Domestic demand continues to be low, and growth is driven by exports. In

Chart 20
Contributions of the main sectors to GDP growth
(annual growth rates)



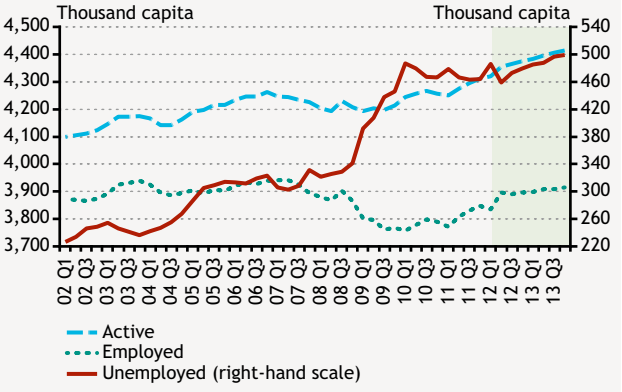
Sources: HCSO, MNB.

Chart 21
Forecast of annual changes in GDP, investment and consumption



Sources: HCSO, MNB.

Chart 22
Changes in major labour market indicators



Sources: HCSO, MNB.

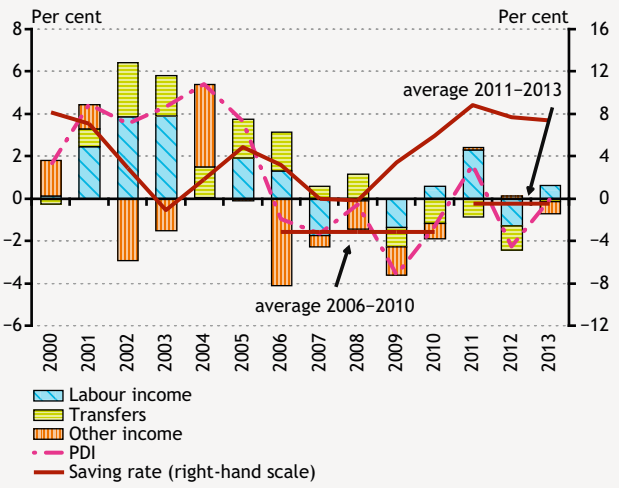
keeping with the decline in household income, consumption is expected to remain subdued. The uncertain outlook for growth may lead to weak investment activity. Labour market conditions are expected to remain slack, as the increase in activity is coupled with restrained demand for labour.

The net external debt of Hungary, a key vulnerability of the country, will continue to decline but remain high. The reduction of vulnerability requires a change of model in the funding of the state and the banking system, which means greater reliance on domestic savings and lower reliance on external funding. In the current uncertain external environment, the risk is high that funding conditions of the Hungarian state and the banking sector will be hit by a strong negative shock. At the same time, the EU/IMF agreement may work as a safety net, resulting in markedly lower sensitivity to risk premium shocks and lower external funding costs; hence, the agreement may facilitate a managed shift to the new funding model.

Slackening growth is expected over the short term. Our latest forecast points to a slowdown of the Hungarian economy. Although the growth data at the end of last year was better than expected (Chart 20), it is largely attributable to the one-off performance of the agricultural and construction sectors (the latter being due to infrastructure investments by the state). With the end of these impacts, growth is expected to decline this year (Chart 21). Household labour income in real terms and direct fiscal transfers will decrease this year; therefore, household consumption expenditures are expected to fall in 2012 and to increase only slightly next year. The uncertain growth outlook and tight credit conditions may restrain corporate investment. Aside from the effect of some large projects, investment will only consist of amortisation replacement. The deteriorating profitability of firms also suggests low investment activity. In addition to subdued domestic demand – due to unfavourable global growth prospects – export dynamics are also expected to slow down. The output gap may continue to widen in 2012 and remain negative, in spite of its gradual closing from next year on.

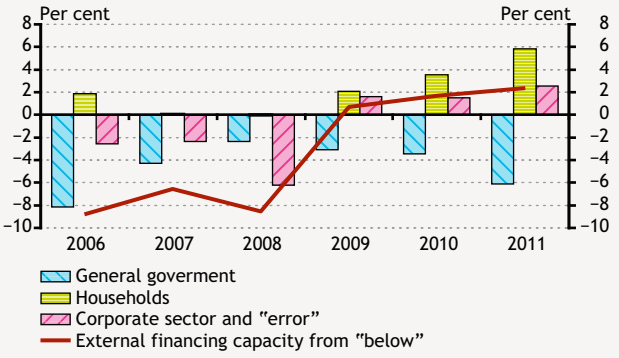
Labour market conditions will remain slack over the next two years. As a result of government measures aimed at increasing the activity rate, the previous expansion of labour supply may continue over the forecast horizon. However, employment will continue to be determined by the weak growth outlook; therefore, employment may decline over the short term, and no major increase in the number of employed is expected in the private sector in the coming two years. In line with that, unemployment may continue to rise (Chart 22).

Chart 23
Changes in household income and their savings rate



Sources: HCSO, MNB.

Chart 24
Net financing capacity of sectors



Source: MNB.

Chart 25
External financing requirement and fundraising by banks

Source: MNB.

Households' disposable income may markedly decline in 2012. Household income positions will weaken in the first half of the forecast period, while a slight increase is expected in 2013 (Chart 23). Although for those with low incomes the increase in the minimum wage and wage compensation keep net nominal wages at an unchanged level, the purchasing power of their income is declining as a result of higher-than-expected inflation. Moreover, government measures focused on meeting the fiscal deficit target also reduce households' direct fiscal transfers.

The savings rate may remain above its pre-crisis level. The early final repayment of foreign exchange loans resulted in a significant improvement in the wealth of the households that participated in the scheme, but its beneficial impact is likely to take longer to be reflected in terms of consumption. Over the short term, however, due to the uncertain economic environment, decisions about consumption may continue to be characterised by strong precautionary considerations. Consequently, the savings rate may remain above its pre-crisis level.

The external financing capacity of the economy continued to increase slightly in 2011. The developments in savings in individual sectors were determined by general government easing. Compared to the significant increase in the financing requirement of the government – excluding pension funds – to 7 percent of GDP, the net financial savings of corporations and households increased considerably. In the case of the corporate sector, still weak investment and the accounting of the VAT refund awarded by the European Court continue to be the main underlying reasons for higher savings. In the case of the household sector, financial savings were augmented by tax amendments favourable for households with higher income and lower consumption, the disbursement of pension funds' real yields and the considerable decrease in loans outstanding as a result of the early repayment scheme. In addition, the EU transfers that increased significantly at end-2011 also resulted in a further improvement in the net financial position of domestic participants (Chart 24).

On the financing side, the increase in the net financial savings of the private sector was primarily related to the increase in bank loan repayment. The main underlying reason for the conversion of the net financing capacity of the private sector into net savings following the crisis was the decline in borrowing from banks. In 2011, the early repayment scheme, which reduced households' outstanding debt by nearly 2 percent of GDP, contributed considerably to the increase in loan repayments and thus to the net financing capacity as well. In the corporate sector, significant amounts of both bank loans and intercompany

Table 1
External financing capacity as a proportion of GDP

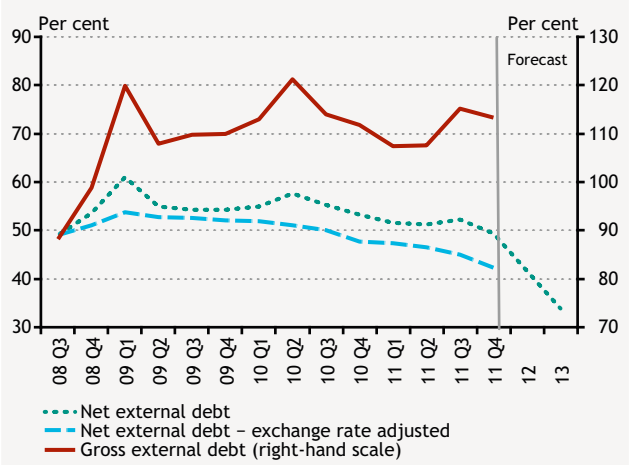
	2007	2008	2009	2010	2011	2012	2013
	Fact/Preliminary fact					Forecast	
I. Current account (1+2+3)	**−7.3**	**−7.3**	**−0.2**	**1.2**	**1.4**	**3.1**	**3.7**
1. Balance of wares and services	*0.7*	*0.3*	*4.7*	*6.3*	*7.2*	*8.6*	*9.9*
2. Balance of income	*−7.4*	*−7.1*	*−5.3*	*−5.5*	*−6.3*	*−6.3*	*−7.1*
3. Balance of unrequited transactions	*−0.5*	*−0.5*	*0.5*	*0.4*	*0.5*	*0.7*	*0.9*
II. Capital account	**0.7**	**1.0**	**1.2**	**1.8**	**2.1**	**2.6**	**3.2**
III. Net errors and omissions	**0.0**	**−2.2**	**−0.4**	**−1.7**	**−1.8**	**−1.3**	**−1.2**
External financing ability "from above" (I+II)	**−6.6**	**−6.4**	**1.0**	**3.0**	**3.6**	**5.7**	**7.0**
External financing ability "from below" (I+II+III)	**−6.6**	**−8.5**	**0.6**	**1.3**	**1.7**	**4.4**	**5.7**

Source: MNB.

loans from parents were repaid. At the same time, it is important to complete the picture of external funds of corporations with the fact that no decline in equity-type liabilities was experienced; this may be explained by the fact that, within groups of companies, the passage between loan-type and equity-type financing is very frequent.

External financing capacity, which is expected to continue to increase, makes further withdrawal of funds likely. A further decline in domestic demand and an improvement in terms of trade may add to the surplus of the goods and services balance in coming years as well. Moreover, an acceleration in external economic activity, as well as the increasing export performance of the automotive industry, may also contribute to this in 2013. Meanwhile, in parallel with higher interest expenditures and a considerable increase in the profit of foreign-owned companies in 2013, the deficit of the income balance may grow. However, it is expected to be more than offset by the balance improving effect of the increase in EU transfers. Overall, the net savings position of Hungary may continue to increase in coming years, and the external financing capacity "from below" (that is important from a financing aspect) may reach 5.7 percent of GDP by 2013 (Table 1). However, these developments also mean that the outflow of debt-type liabilities from the economy may continue to an increasing extent. Considering the reliance of the government securities market on foreign participants, this may materialise in an increasing withdrawal of funds by foreign banks.

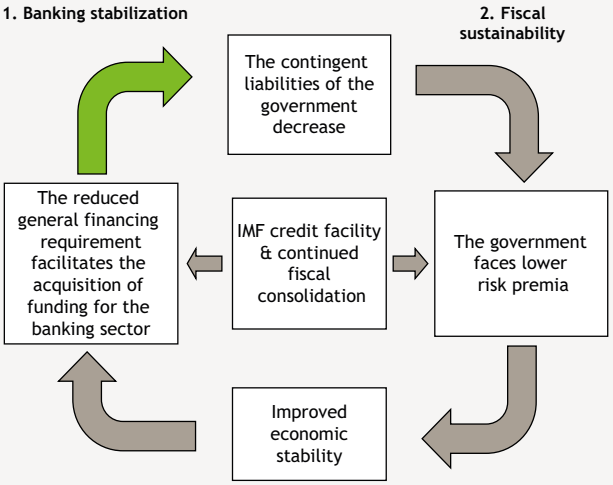
Chart 26
External debt indicators as a proportion of GDP



Source: MNB.

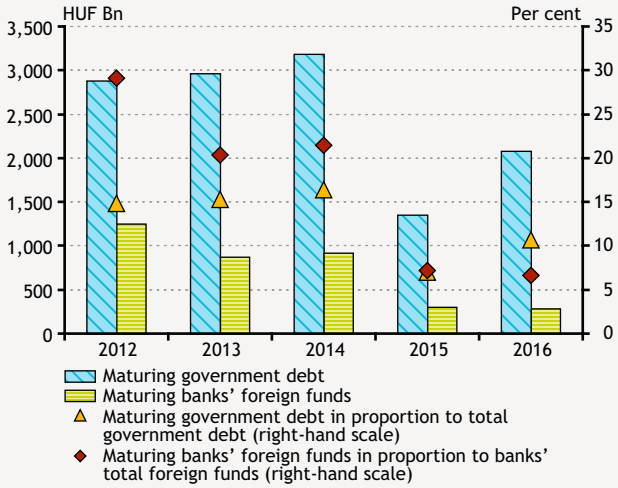
In spite of permanently favourable flow data, there was no decline in debt indicators; however, a significant decrease is expected in the future. The external financing capacity entailed a net decline in debt-type liabilities (Chart 25); within that, external funds of banks decreased considerably. However, external debt ratios as a proportion of GDP, which are important in terms of external

Chart 27
Benefits of the EU/IMF agreement



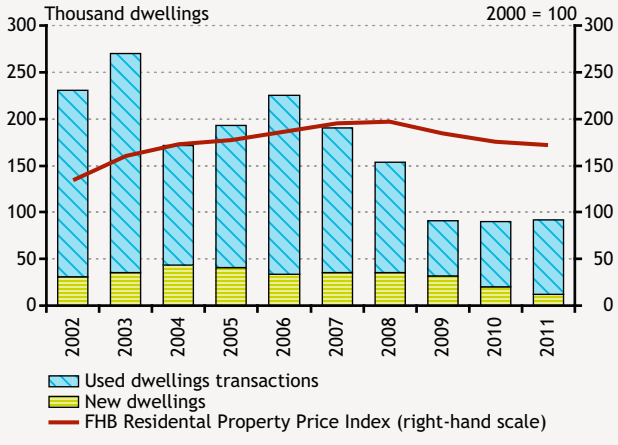
Source: MNB.

Chart 28
Maturing debt of the government and the banking sector



Sources: ÁKK, MNB.

Chart 29
Housing prices and housing market turnover



Sources: FHB, HCSO, MNB.

vulnerability, continue to exceed the levels that were typical prior to the crisis. Namely, the decline in outstanding debt was significantly slowed by the depreciation of the forint and the increase of the risk premium on Hungarian assets. However, assuming a stable exchange rate, the high external financing capacity of the economy may result in a significant decrease in the external debt rate in the coming years (Chart 26).

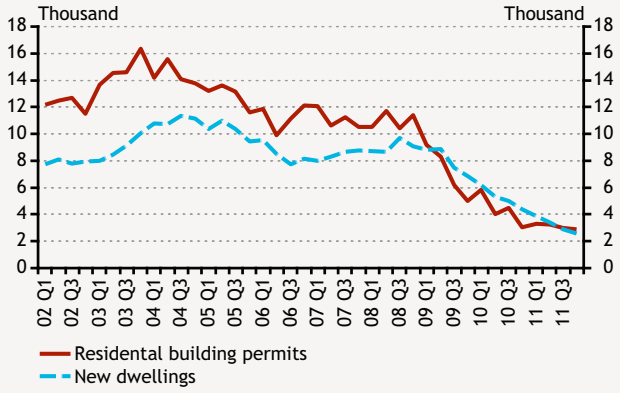
Steep contraction in net external debt should be circumvented. Looking forward, it is favourable that the net external debt may shrink. The pace of the transition from external funds to higher reliance on domestic savings is critical for both the banking sector and the state. Supposing, for instance, that the outflow is faster than the expansion of domestic savings, then banks may be forced into stronger deleveraging, leading to growth sacrifices (stronger pro-cyclicality), which in turn may spiral back into concerns about debt sustainability. In the present uncertain external environment, there is a high risk that the banking sector will be hit by a negative shock, which could facilitate increasing withdrawal of funds by foreign banks. The EU/IMF agreement may first provide a coordinated decrease in net external debt, not hindering the economic growth in the coming years. (Chart 27).

Crowding-out may emerge between the state and banking sector. The shift in the funding model of banking sector is hindered not only by the uncertain global environment, but also by the crowding-out effect of the state. Banks have to compete for domestic savings not only with one another, but also with the state. This may be especially crucial, because both the state and the banking sector will have significant roll-over needs in the coming years (Chart 28). The EU/IMF agreement may alleviate this crowding-out effect.

1.2.4 WEAK ECONOMIC ACTIVITY IN THE RESIDENTIAL HOUSING MARKET, WHICH CAN GRADUALLY REACH A TROUGH OVER THE COURSE OF THE NEXT YEAR

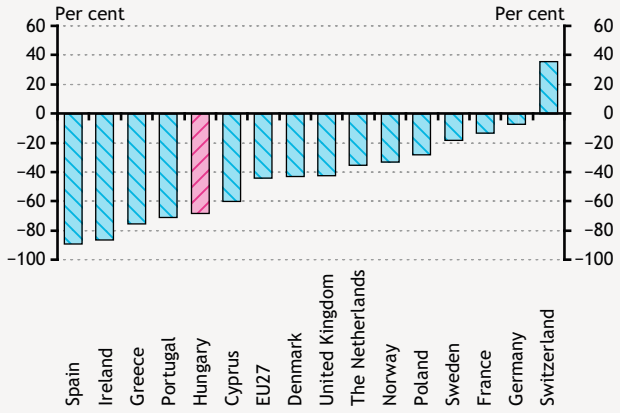
Economic activity in the housing market was restrained in 2011 as well. While the number of housing market transactions stagnated, housing prices continued to decline, albeit at a slower pace. The number of newly built homes reached a historic low during the year. At the same time, stagnation in the number of building permits foreshadows consolidation on the market. The utilisation rate of quotas on foreclosure is high; utilisation exceeded 85 percent during the past two quarters.

Chart 30
Newly built homes and building permits issued



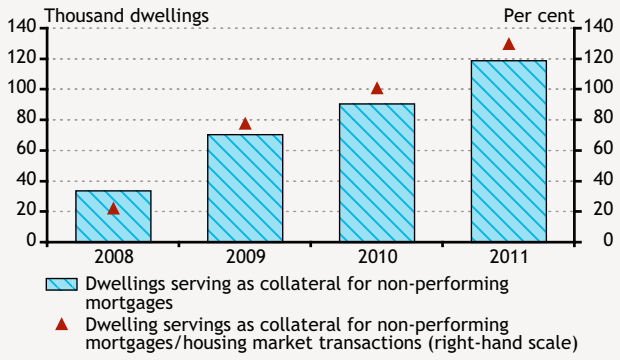
Source: MNB.

Chart 31
Building permits issued between 2007 and 2011 in international comparison



Source: Eurostat.

Chart 32
Comparison between dwellings serving as collateral for non-performing mortgages and housing market transactions



Sources: FHB, MNB.

Housing market turnover stagnated during 2011; the real estate market may gradually reach the bottom this year. Similar to 2009 and 2010, the housing market was characterised by restrained activity in 2011. The estimated number of housing market transactions is 92,000 (Chart 29), which corresponds to the magnitude of the previous two years. The distribution of the transactions during the year was uneven; there was some upswing in turnover in the last months of 2011, which may be related to the early repayment scheme at the favourable exchange rate of mortgage loans.

The weak housing market may be explained by both demand and supply factors. From the demand side, the pick-up in the housing market was hindered by households' high indebtedness, unfavourable income and employment situations, and strict credit conditions. On the supply side, the number of newly built homes plummeted to a historic low. The number of building permits, which is a good predictor of the number of new homes, also dropped (Chart 30). The 68 percent decline in the number of building permits since 2007 is one of the most severe drops in Europe, significantly exceeding the average 44 percent decline observed in the European Union (Chart 31). At the same time, it may be a favourable sign that the number of building permits started to stagnate in the second half of the year, signalling a consolidation of the market of newly built homes.

In 2011, the decline in housing prices that began in 2008 slowed down. Housing prices fell by an average 1.9 percent during 2011, making a total drop of 15 percent since the peak in 2008. However, trends in housing prices over the course of the year diverged somewhat from expectations, as the decline in housing prices as a result of the early repayment scheme has not yet occurred. Moreover, according to the housing price index of the FHB Land Credit and Mortgage Bank Company, housing prices rose slightly in the last quarter of 2011. Nevertheless, it should not be ruled out that adjustments may take place in 2012 Q1, leading to a further drop in prices.

The government's Home Creation Programme adopted in December 2011 may only result in a moderate increase in activity in the housing market. With sustainable fiscal burdens, the objective of the programme is to stop the trend of decline in the construction of new homes and to stimulate the housing market. One of the pillars of the programme is the home-building subsidy,[5] which supports the construction and purchase of new homes. The other

[5] Government Decree 256/2011 (XII. 6.) on the home-building subsidy.

Table 2
Utilisation rate of the quota scheme

	2011 Q4	2012 Q1
Retail properties serving as a basis of the quota	89,753	90,083
Number of retail properties that can be designated according to the quota	1,942	2,854
Number of retail properties designated for forced liquidation	1,690	2,681
Utilisation of the quota (%)	87	94

Note: Data refers to the banking sector and branches.
Source: MNB.

element of the programme is the home-creation interest rate subsidy,[6] which supports both the building and purchasing of new homes and the purchasing and renewal of used dwellings.

The number of homes serving as collateral for delinquent loans rose further in 2011. The number of residential properties securing loans overdue more than 90 days rose by around 30,000 to 119,000 in 2011. The gravity of the problem is clearly reflected in the fact that this exceeds 2011 turnover in the residential market by approximately 30 percent (Chart 32).

Following the lifting of the moratorium on auctions, a quota scheme on foreclosures was introduced. The aim of the quota was to avoid uncoordinated portfolio cleaning and its detrimental impact on the residential property market. The quota regime established a limit for the number of residential properties that can be auctioned. In 2011 Q4, the limit was 2 percent of the homes serving as collateral. Corresponding figures for 2012, 2013 and 2014 are 3, 4 and 5 percent, respectively. The quota scheme applies to residential properties previously not earmarked for forced sales and serving as collateral for mortgage loans at least 90 days past due, irrespective of their market value. At the level of the banking system, the quota for distressed sales covered approximately 90,000 residential properties in 2011 Q4 and 2012 Q1 (Table 2). The utilisation rate of the quota was 87 and 94 percent, respectively, which is considerable high, while number of actors with significant market share had a 100 percent quota utilisation rate. The utilization rate itself does not provide evidence of the extent to which quotas impeded portfolio cleaning, since earmarking for sale does not mean automatic foreclosing. At this time data on foreclosing procedures are not available.

[6] Government Decree 341/2011 (XII. 29.) on the home-creation interest rate subsidy.

2 Stability of the Hungarian financial system

2.1 Risk of a significant credit contraction is increasing in the corporate segment, whereas focus in the household segment is on the management of loans outstanding

In 2011, lending activity continued to decline in the corporate and household segments. On the supply side, the weakening of the banking sector's lending capacity became more pronounced. The outflow of external liabilities from the banking sector may become the reason for – rather than the consequence of – a contraction in lending. Due to a lower willingness to take risks and the substantial outflows of external liabilities, companies are facing tighter credit conditions. Although demand for credit is also decreasing as a result of deteriorating economic prospects and the subsequent downturn in investment, investments are being postponed or cancelled owing to credit supply constraints. Therefore, a turnaround in corporate lending cannot be expected, due to tight credit conditions, until after 2013.

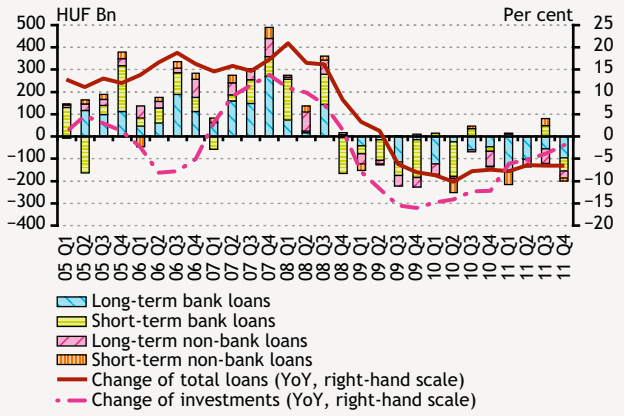
One of the important driving forces of lending to households was the early repayment scheme for foreign currency loans at a preferential exchange rate at end-2011, which resulted in a nearly one-quarter decline in foreign currency mortgage loans outstanding. Both price and non-price conditions of banks became stricter in the household segment during 2011. However, this was mostly a consequence of the effect of the early repayments. Following this scheme of the exchange rate cap and the handling of non-performing household loans (i.e. the solving of problems related to loans outstanding), banks may focus on increasing forint-denominated mortgage lending within new lending. However, new lending will fall below the level of principal repayments of households over the forecast horizon, and thus an increase in loans outstanding should be expected only after 2013.

The current lending forecasts are accompanied by significant risks, both in the positive and negative directions. The intensified interventions of the ECB and the MNB represent an upside. These steps may have positive pass-through effects, which may materialise in a permanent easing of European funding difficulties and a turnaround in business activity. However, a permanent deterioration in the external environment, excessive deleveraging of the euro area banking sector and a disadvantageous regional allocation of funds may result in a tighter credit supply of domestic financial intermediaries, pointing to a credit crunch. In this case, in parallel with the withdrawal of external funds, a faster contraction in corporate lending may take place.

2.1.1 EXCESSIVE OUTFLOW OF EXTERNAL FUNDS MAY FURTHER WEAKEN CORPORATE LENDING

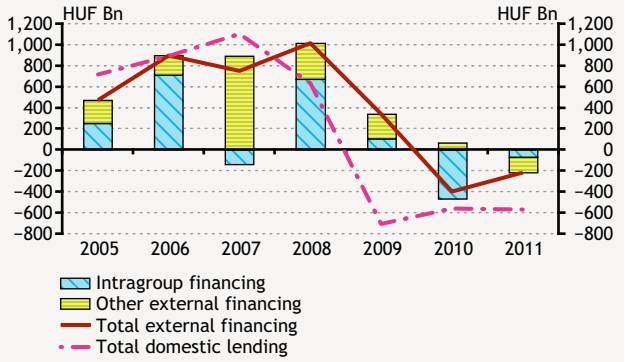
Contraction in corporate loans outstanding continues. Corporate loans outstanding of the domestic financial intermediaries continued to contract in 2011 (Chart 33). In net terms adjusted by exchange rate, domestic corporate loans outstanding shrank by a total of HUF 570 billion, representing an annual decline of 6.6 percent. During 2011,

Chart 33
Domestic investments and net quarterly changes in corporate domestic loans



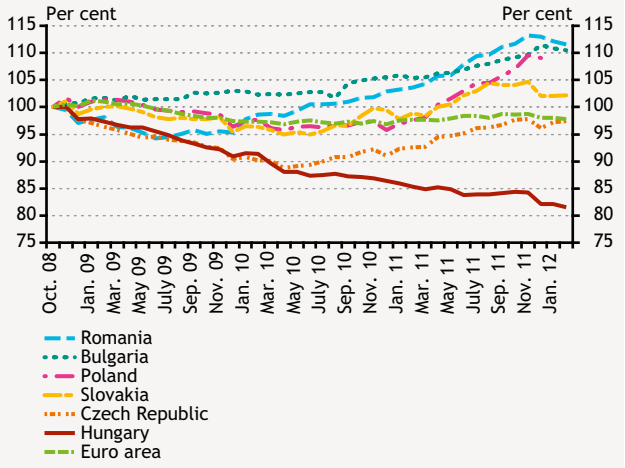
Source: MNB.

Chart 34
Net quarterly changes in foreign loans to corporations



Source: MNB.

Chart 35
Corporate lending in international comparison



Sources: statistics of national central banks, ECB.

the decline in long-term loans dominated on the whole, while short-term loans decreased only to a lesser extent, mainly as a result of some increase offsets in the third quarter. In a breakdown by currencies, the outstanding amount of both forint and foreign exchange denominated loans shrank, the latter to a greater extent. The decline in long-term (foreign currency) loans is not surprising: with the worsening global and domestic economic outlook, corporate investment activity remained modest, and thus long-term borrowing is still not essential.

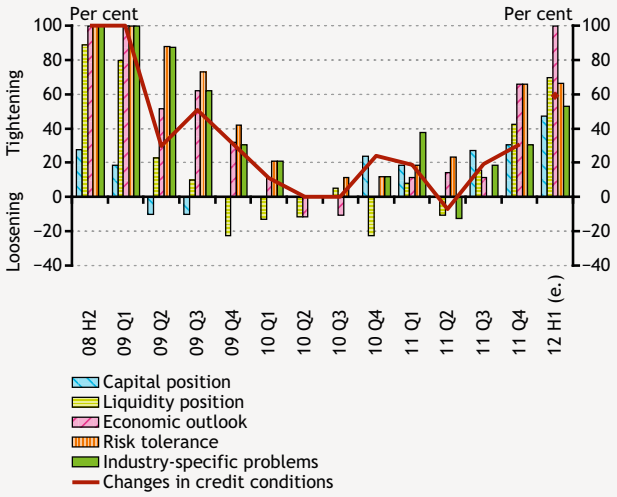
The declining domestic corporate lending is not replaced by external financing. An alternative to lending by domestic financial intermediaries is cross-border lending, which could partially satisfy corporate demand for funding. Although developments in external financing show high volatility, 2011 was the first year in the period since the crisis when in terms of an annual aggregate neither intragroup nor other external financing was able to grow (Chart 34).

The decline in lending by banks to corporations is stronger in Hungary than in the region. In the corporate segment, developments in lending in Hungary continue to diverge from the region: with the exception of Hungary, corporate lending expanded in all countries in the CEE region during 2011, whereas a substantial decline was recorded in Hungary (Chart 35). However, at the end of the year the growth of corporate loans came to a sudden stop or the decline accelerated in almost all countries of the region. Except for in the Czech Republic and Poland, corporate lending in all regional countries remained steady or continued to decline in the first months of 2012, a potential sign of worsening economic outlook in the region and the euro area as well.

Credit supply constraints can increasingly be attributed to deterioration in lending capacity. Previously, demand constraints may have played a smaller role than supply constraints in the decline of lending for the corporate segment.[7] Supply constraints were mainly explained by a low willingness to lend. More recently, due to a decline in their risk tolerance, banks typically intended to only finance more creditworthy companies. However, according to the findings of the latest Senior Loan Officer Survey on Bank Lending Practices, in the case of some banks a deterioration in the capital position and especially the liquidity position already played a significant role in the factors that contributed to tightening (Chart 36). Lending capacity is impaired on the capital side due to rising loan losses and early repayments, whereas on the funding side it

[7] Sóvágó, Sándor (2011), 'Identifying supply and demand in the Hungarian corporate loan market', *MNB Occasional Papers*, 94.

Chart 36
Credit conditions and factors affecting them in the corporate segment



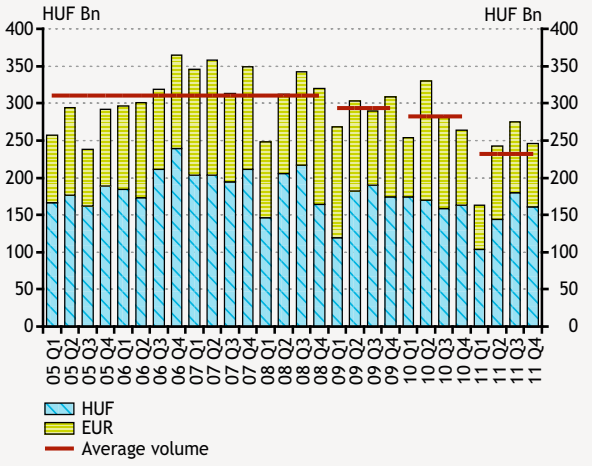
Note: Net percentage balance of respondents tightening/easing credit conditions weighted by market share.
Source: MNB.

is impaired by rising funding costs and the withdrawal of external funds. The last time that such a proportion of banks reported deterioration in funding conditions was at the outbreak of the September 2008 crisis. The deteriorating ability to lend may considerably extend the period of creditless recovery, although it cannot yet be considered a credit crunch (Box 2).

Box 2
Is there a credit crunch in the Hungarian corporate loan market?

Since eruption of the crisis in 2008, there has been a considerable decline in loans outstanding in a regional comparison as well. According to our forecast, no material increase in lending is expected in the corporate segment until end-2013. Accordingly, a creditless recovery will be seen in Hungary (i.e. the increase in output) will not be coupled with an upturn in lending in the post-crisis period. Several analyses prepared by the MNB (Fábián et al., 2010;[8] Sóvágó, 2011) have also pointed out that the decline in credit supply played a major role in contraction in corporate loans outstanding, whereas the study by Tamási and Világi (2011)[9] identified significant growth sacrifice from credit supply shocks, based on domestic data. The *Senior Loan Officer Surveys* suggest that the restrained credit supply can mainly be explained by unfavourable economic prospects, low risk tolerance and, to a lesser extent, the capital and liquidity position of banks. However, it is also important to emphasise that both the creditworthiness and credit demand of companies declined markedly compared to the pre-crisis period.

New disbursements to non-financial corporates
(excluding overdrafts)



Source: MNB.

In terms of an assessment of the effects of constrained credit supply on the real economy, two extremely different cases need to be distinguished. In the first and less serious case, investments are only sufficient for sustaining the level of production capacities. In the second and more drastic case, credit supply constraints result in decaying capital stock. In both cases, the tight credit supply damages potential output; in the first case, this is due to the postponement of investment itself, while in the latter case it is also due to the

[8] Fábián, Gergely, András Hudecz and Gábor Szigel (2010), 'Decline in Corporate Lending in Hungary and across the Central and East European region during the crisis', *MNB Bulletin*, October, pp. 17–28.
[9] Tamási, Bálint and Balázs Világi (2011), 'Identification of credit supply shocks in a Bayesian SVAR model of the Hungarian Economy', *MNB Working Papers*, 7.

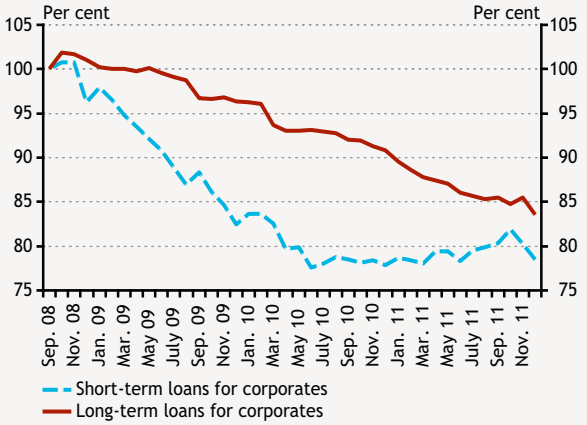
loss of production capacities because of viable enterprises going bankrupt. Although there is a qualitative difference between these two cases, unfortunately they cannot be clearly separated from one another. By presenting the structure of lending and analysing the relationship between lending and sector bankruptcy and default rates, below we attempt to examine whether a milder or more drastic stage of credit contraction (i.e. a credit crunch) can be observed.

Recently, the dynamics of corporate loans outstanding were determined by the change in the relation between loan issues and loan maturities. Examining new loans, it can be concluded that since 2008 the average volume of new corporate loans has declined year after year. This is true for both the overall number and the average amount of loans granted; since the onset of the crisis, fewer and smaller loans have been extended in the corporate segment. The reduction in the original maturity of new loans also contributes to the decline in loans outstanding: compared to contractual maturities in 2007 and 2008, the maturities of loans extended by banks in 2011 were 20 percent shorter on average. However, this picture is refined by the fact that the gross issue of overdrafts has been increasing since mid-2010, and the magnitude of the volume is similar to pre-crisis levels.

The breakdown of loans outstanding by maturities reveals differences between individual types of loans. Following the outbreak of the crisis, in parallel with the economic downturn, short-term loans outstanding declined considerably before becoming stable in June 2010; since then, no major change has taken place in short-term loans outstanding. The stabilisation of short-term, typically working capital financing loans indicates that credit supply constraints have not made the operation of viable companies impossible and have not resulted in a loss of capacities. By contrast, long-term loans (with a maturity of over one year) have declined steadily since the outbreak of the crisis. Following the concentration of maturities, they are declining more slowly, but in a more protracted way. However, the decline in long-term loans suggests that important investments in terms of economic growth have failed to materialise, resulting in a decline in potential output already in the medium term. Even alternative ways of financing have been unable to compensate for the gap in corporate lending since end-2008: borrowing from abroad and trade credit have both remained low, in parallel with the decline in domestic lending.

Corporate loans of the banking sector

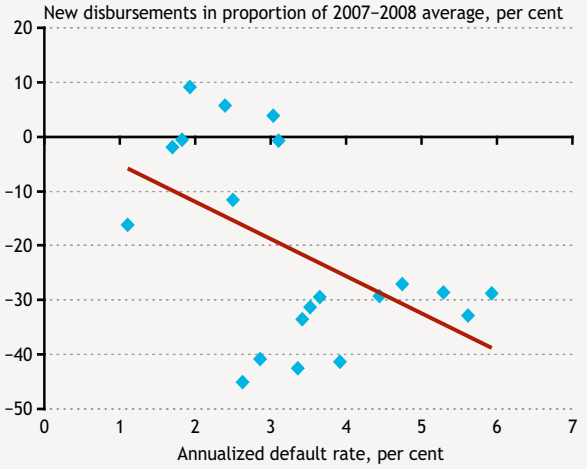
(September 2008 = 100 percent)



Source: MNB.

Annualized quarterly default rates and new disbursements

(2007–2011)



Source: CCIS.

The constraining of the credit supply is inseparable from an increase in risks and, therefore, from developments in the riskiness of individual companies and the frequency of credit defaults. According to the data of the Central Credit Information System (CCIS), in the period since the crisis, in parallel with an increase in defaults, a considerable decline in the number of new loans is observed (i.e. as their risks increased, banks may have permanently reduced their lending). However, the correlation between lending and defaults is different across sectors. In parallel with the increase in defaults, the number of new loan agreements declined particularly in manufacturing and construction, as well as the trading, transportation and catering sectors. With the exception of the trading sector, these are the ones where the average maturity of new loans also declined considerably.

However, the picture is rendered more subtle by the fact that in aggregate terms, corporate deposits did not show any significant decline. On the contrary, their level in 2011 exceeded the end-September 2008 figure by approximately 15 percent. However, in

Granger causality test for the credit stock and the bankruptcy rate on the sector level

	Agriculture	Manufacturing	Construction	Trade and accomodation	Real estate acitivities*
Total loans	–	–	–	–	+
Short-term loans	–	–	–	+	+

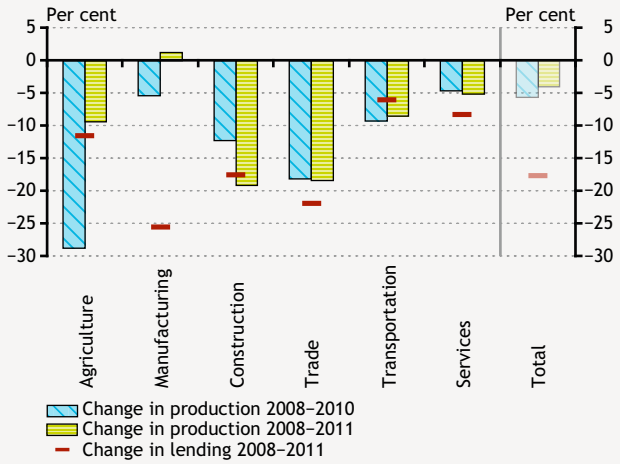
** Real estate activities sector contains the majority of the project loans.*
Note: +: The null hypothesis that the credit variable is not the Granger cause of the bankruptcy rate can be discarded at a significance level of 5%;
–: The null hypothesis that the credit variable is not the Granger cause of the bankruptcy rate cannot be discarded at a significance level of 5%.
Source: MNB.

contrast to the aggregate picture, there may be significant asymmetry between individual sectors. Moreover, in some sectors a reduction of lending may cause a further increase in credit defaults and corporate bankruptcies.

At a sector level, we used the Granger causality test[10] to examine whether developments in lending facilitate forecasting of the bankruptcy rate. The analysis covered the period between 2002 and 2011, examining quarterly data using a three-variable vector autoregressive (VAR) model, which included the sector production volume index, in addition to the bankruptcy rate and loans outstanding of the sector. It was found that a Granger causal relation between loans outstanding and bankruptcy rate can only be detected in the real estate transactions sector. The picture is similar if only short-term loans are examined, instead of total loans outstanding. The findings suggest that outstanding loans facilitate forecasting of the bankruptcy rate in the trading, repair, accommodation services and catering sectors, as well as the real estate transactions sector. Although this simple analysis allows only very limited conclusions to be drawn, with the exception of the real estate transactions sector the findings do not confirm that a tighter credit supply results in an increase in the corporate bankruptcy rate.

Based on the findings presented here, credit supply tightened considerably after the crisis, which resulted in growth sacrifices. The decline in credit supply is partly a cyclical phenomenon, but on the basis of the decline in long-term loans it cannot be excluded that the fall in credit supply also reduced potential growth through unrealised investment. This suggests the presence of tight credit supply constraints. At the same time, the situation is not so serious (i.e. strict credit conditions have not caused a mass bankruptcy of viable enterprises or a loss of capacities), and there is no sign of a credit crunch. However, it is important to emphasise that foreign currency funding tensions have been increasingly contributing to the tightening of credit supply in recent months If this situation was permanent, that could raise the risk of the evolution of a credit crunch.

Chart 37
Relative changes in the production of and lending to selected sectors between 2008 and 2011

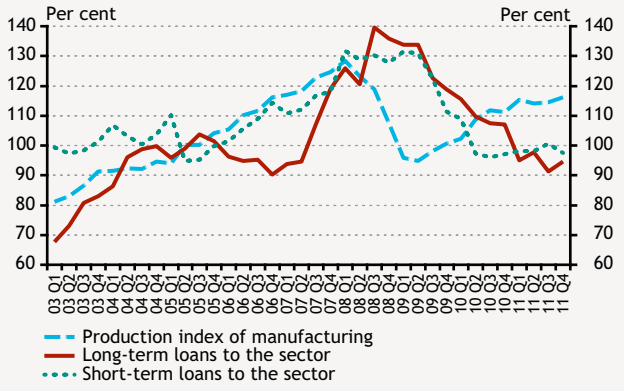


Sources: HCSO, MNB.

In the majority of sectors, neither production nor lending reached pre-crisis levels. Although in terms of economic growth both 2010 and 2011 were characterised by slow recovery, in aggregate terms the production of the sectors of the domestic economy is still 4 percent below the 2008 pre-crisis levels (Chart 37). At the same time, compared to the same year, corporate lending declined steadily by a total of nearly 18 percent. However, some sectors show significant heterogeneity. Of the main sectors, both output and lending in construction and trade fell substantially compared to their 2008 levels, whereas the output of the services sector was around the national economy's average and its borrowing was above it. However, manufacturing differed from the other sectors.

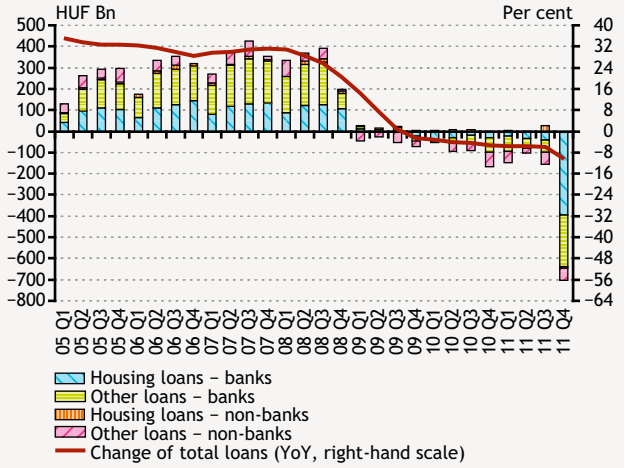
[10] For more details on the method see: Toda, Hiro Y. and Yamamoto, Taku (1995), Statistical inference in vector autoregressions with possibly integrated processes, *Journal of Econometrics,* Volume 66, Issues 1-2, pp. 225–250.

Chart 38
Changes in the production of and lending to manufacturing
(2005 average = 100 per cent)



Sources: HCSO, MNB.

Chart 39
Net quarterly changes in household loans broken down by products



Source: MNB.

Weak borrowing despite the expansion of manufacturing production reflects the postponement of investment. Although the production of manufacturing companies, which represent a significant weight within the export sector, has grown since end-2009, no similar turnaround is recorded in the borrowing by the sector for long-term loans in particular. Despite the increase in production (apart from some individual large projects with intragroup financing), the sector continues to be characterised by postponements of investment decisions; therefore, its related lending activity is also subdued (Chart 38).

2.1.2 BANKS ARE FOCUSING ON MANAGING THEIR HOUSEHOLD LOANS OUTSTANDING RATHER THAN ON INCREASING NEW LENDING

At the end of the year, deleveraging of households was accelerated by the early repayment scheme for foreign currency loans. Households deleveraging continued in 2011, although this decelerated considerably due to the strengthening of the Swiss franc during the year. For the year as a whole, foreign exchange loans declined, while forint lending increased slightly. In 2011 Q4, the preferential early repayments of foreign currency mortgage loans accelerated the decline in loans outstanding (Box 3). By end-2011, households paid back foreign exchange loans amounting to HUF 650 billion, for which they used refinancing loans amounting to a total of HUF 89 billion (Chart 39). As a result, with exchange rate adjustment, the amount of household loans outstanding declined by HUF 1,065 billion (i.e. 10.6 percent among domestic financial intermediaries during 2011, although the rate of decline would have been 5.7 percent without the early repayments).

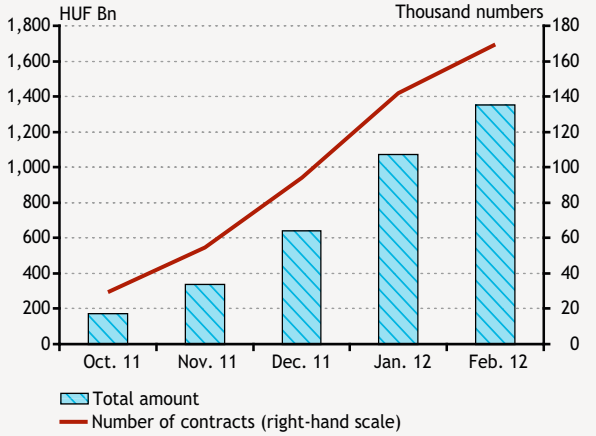
Box 3
Participation and funding sources in the early repayment scheme at preferential exchange rate

In order to reduce the vulnerability stemming from the high foreign exchange exposure of households, the government made early repayment at a preferential fixed exchange rate possible for foreign currency denominated mortgage loan debtors. The central bank expected 20 percent participation as a proportion of all outstanding foreign currency denominated mortgage loans in advance. In connection with the financing of the early repayment, we assumed that around 75 percent of clients would borrow the funds required for early repayment, while the remaining 25 percent would use their savings. By the closing of the early repayment programme at end-February 2012, households had repaid foreign currency denominated loans amounting – at market value – to approximately HUF 1,350 billion. Corresponding to a higher-than-expected participation of 24.1 percent as a proportion of total outstanding loans, this meant the termination of nearly 170,000 loan agreements. In line with our expectations, Swiss franc debtors (with 96 percent of the repaid loans) accounted for the highest proportion of those who seized the opportunity of early repayment. At the same time, households only used HUF 980 billion, corresponding to the value calculated at the fixed exchange rate; the difference between the

amount of loans calculated at the current and preferential exchange rates is recorded as the increment of household net financial assets and banks' loss.

According to the data of the HFSA, the amount of refinancing loans extended for the purpose of early repayment was around HUF 310 billion. Accordingly, households financed two thirds of early repayment from their financial savings. It is especially difficult to assess the impact of the early repayment on financial assets, however, as the sources of early repayment cannot expressly be linked to the changes in individual financial assets. Before drawing conclusions, we attempted to exclude from the data available to us seasonal effects, rearrangements among assets and individual factors.

Fully repayed FX-mortgage loans



Source: HFSA.

Available data suggest that early repayment was mainly financed from bank deposits and securities, including investment fund units in particular. In the early repayment period, these were the assets where a considerable decline was observed compared to the same period of the previous year. Consequently, households may have mostly used these assets as a source of funding for early repayment. However, it is difficult to obtain a clear picture, given that complete data for all financial assets, household income development and consumption behaviour at the beginning of the year are not yet available.

Further information about other sources of early repayment is provided by the 2011 Q4 financial account. Based on the data, in the last quarter of 2011 the redeeming of life insurance and capital outflows from voluntary pension funds also contributed to the funding of early repayment. However, these funds presumably did not exceed HUF 50 billion.

Overall, most of the early repayment was likely funded from domestic, observed financial assets. However, it cannot be ruled out that funds not observed by statistics were used by households for early repayment. For example, they may have used loans from employers or assets held abroad.

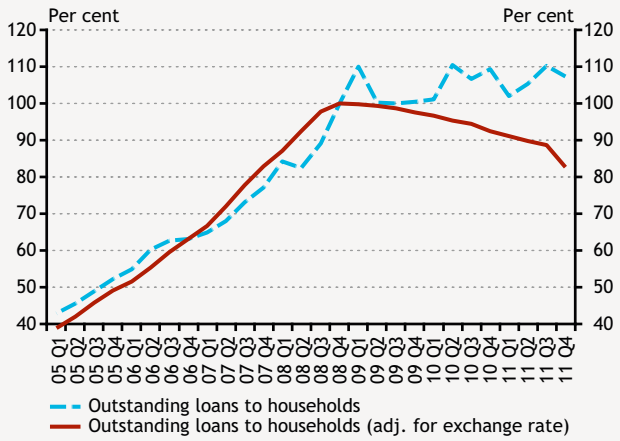
Bank deposit and security transactions of households in October–February

** Data are corrected by one-off factors.*
Note: Savings developments in 2008–2009 and 2009–2010 were significantly influenced by portfolio restructuring during the financial crisis, therefore the data were corrected based on the average transactions of the previous years. The deposit transactions of October 2011 and January 2012 are corrected with the agricultural subsidies received from the EU and the surge in cash demand in January 2012. The data include (except for February) deposit transactions with foreign banks as well.
Source: MNB.

Financing sources in the early repayment scheme	
Source of repayment of outstanding credit	**HUF Bn**
Loan refinancing (new borrowing, fact)	310
Bank deposits and securities (estimate)	600
Redemption of life insurance, withdrawal of voluntary pension fund yield (estimate)	50
Other	20
Total	**980**

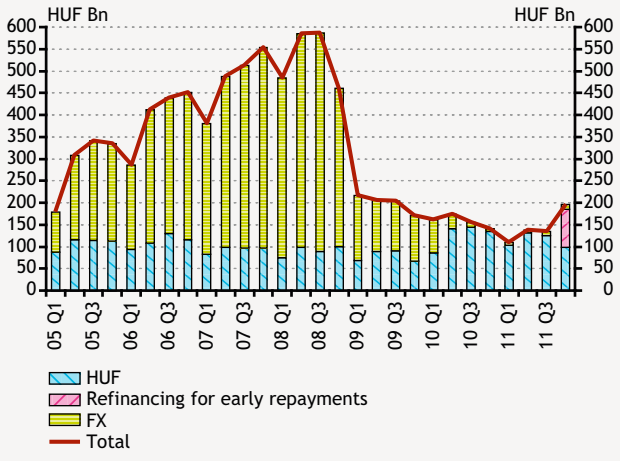
Source: MNB.

Chart 40
Relative level of household loans
(December 2008 = 100 percent)



Source: MNB.

Chart 41
New disbursements of credit institutions in the household segment

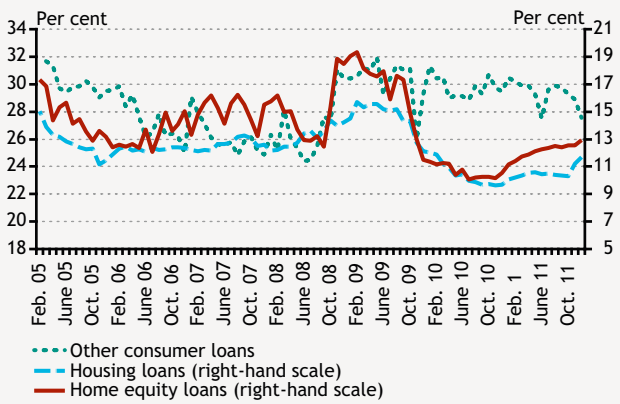


Source: MNB.

Disregarding the impact of the early repayment, household credit demand continues to be weak. Although early repayments accounted for a significant portion of the decline in loans, borrowing by households otherwise remains subdued. The depreciation of the forint against the Swiss franc puts significant pressure on households' deleveraging (Chart 40), as well as their disposable income. Apart from some one-off effects (e.g. real yield disbursements from private pension funds, bonus payments at the end of the year), household consumption remained subdued throughout the year. New borrowing, including refinancing loans, was the lowest in 2011 since the outset of the crisis: 9 percent less than in 2010 and 28 percent less than in 2009 (Chart 41). Nevertheless, a rapid upturn cannot be expected following the early repayments. First, the disposable income of households with foreign exchange loans continues to be burdened by the strong Swiss franc (the exchange rate cap scheme may help this group). Secondly, in the case of households that used the opportunity of early repayment, they are expected to rebuild their depleted savings rather than increase consumption or new borrowing.

In addition to demand constraints, supply constraints are also becoming increasingly pronounced. 2011 was characterised by a tightening of the conditions of lending to households. Interest rates on both housing and home equity loans increased, compared to December 2010 (Chart 42). The increase in APRC was partly attributable to the rise in the central bank base rate, but spreads above the interbank rate also increased by 1-1.3 percentage points. Based on the tightening of price and non-price conditions, banks are focusing on less risky, premium clients. This tightening cannot be separated from other additional risks that arise as a result of early repayments and affect loans outstanding. Over the short term, an attempt to reduce these risks is expected in the banking sector (including the application of the exchange rate fixation and the management of non-performing loans). Only following that will the banking

Chart 42
The annual percentage rate of charge (APRC) of new forint lending for households



Source: MNB.

sector focus on new disbursements and, within that, mainly forint-denominated mortgage loans. In the medium term, interest rate spreads on new loans are expected to decrease, partly due to expected stronger competition in the household segment and partly due to the extension of the complete credit registry to households (Box 4).

Box 4
The complete credit registry system and transparent pricing of mortgages

In the household segment, risk-based pricing in Hungary was seriously constrained by the fact that, until recently for households only negative (i.e. credit default) data were collected. The MNB and the HFSA had advocated the institution of a complete credit registry system for a long time, and with the inclusion of the MNB's proposals regarding transparent pricing in provisions of law, the creation of a database like this became even more important for the purposes of adequate risk assessment and accounting for risks in pricing. Finally, within the framework of the Country Protection Action Plan, the Central Credit Information System Act (CCIS Act) was adopted in September 2011. Pursuant to this Act, a complete credit registry system was set up in both the corporate and the household segments. The scope of the credit data kept on file pursuant to the new CCIS Act has significantly been extended compared to the earlier system (new data are highlighted in red in the chart).

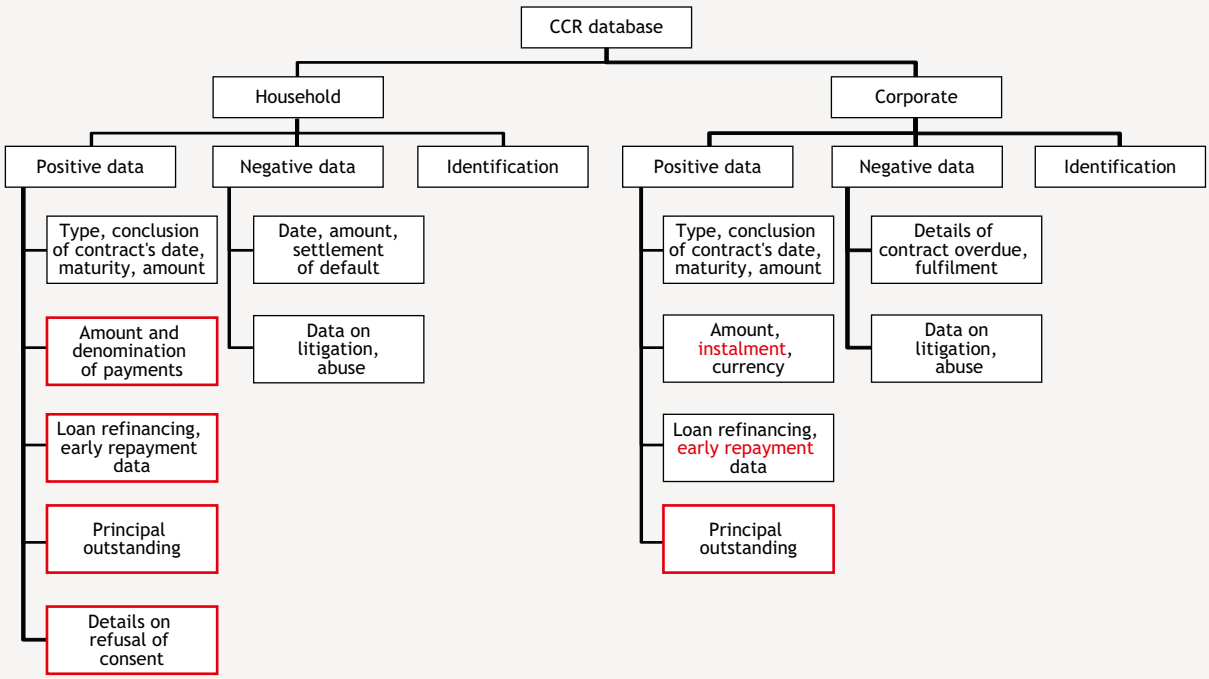
In the case of negative data, debts are included in the CCIS after 30-day past overdue for companies and after 90-day past overdue for retail customers. Positive data are automatically included in the system for both corporate and retail customers, although an important difference exists: upon applying for loans, retail customers may prohibit the retrieval of data in a statement. In practise, this means that in the future a financial institution will only have access to a borrower's positive data if the customer has permitted it in an earlier statement (the retrieval of negative data is automatic). The only exceptions to this rule are the MNB and the HFSA. For the performance of their basic tasks, these two authorities have access to the complete database in an anonymous manner.

During the drafting of the Act, it was an important consideration that the database require a data collection obligation not only for newly granted loans, but outstanding loans as well due to their high amount. If the data of outstanding contracts were excluded, the database would become useful only over the long term, meaning that for the pricing of their loans banks would not be able to obtain essential information from the CCIS for years to come. Therefore, a provision was included to the effect that current, outstanding loan transactions would also be uploaded as an initial database population; the CCIS will be complete by early May 2012.

In relation to an evaluation of the complete credit registry system, it is important to note that on the basis of the prevailing Act, no real credit history of clients can be established. This is because in the case of retrieval, financial institutions may only see the position of a client in a given month. However, this problem is partially solved by the provision that, following the expiry of the contract, a client may permit the CCIS to store his data for another five years. Accordingly, in the case of a future loan application, he can prove that he has duly honoured his earlier contracts.

The MNB played an initiating role in creating provisions about the transparent pricing of mortgages, which entered into force on 1 April 2012. According to these provisions, mortgages can only be priced as the interest rate is tied to a reference rate, or else it will be

Structure of key data stored in the Central Credit Registry

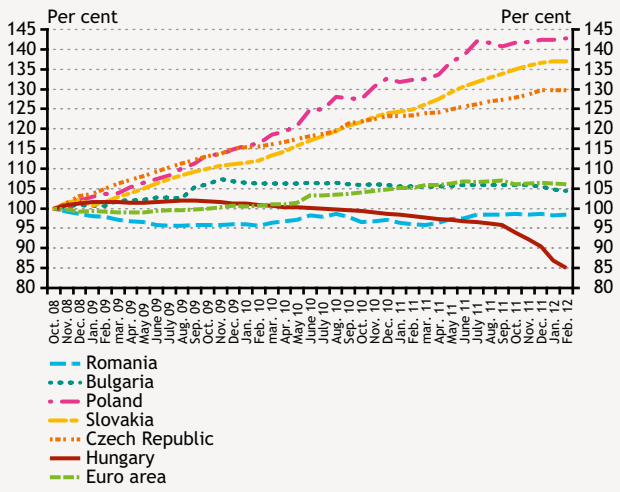


Source: Act CXXII of 2011.

fixed for at least three years. These new rules put an end to the unilateral modifications of interest rates applied by banks and improve the transparency and comparability of mortgage loans. It is an important concern whether transparent pricing can be achieved in the case of outstanding loans as well, not only for newly granted ones. For success in this, the loan refinancing market needs to become stronger and older, opaque loans need to become transparently priced.

The complete credit registry system (especially after the addition of outstanding loan transactions) and the transparent pricing of mortgages (especially if the pricing of already existing loans is changed according to the new rules) will be beneficial for competition between banks, which can result in decreasing interest rates. At the same time, the low level of credit demand and tight supply reduces the positive effects of these new provisions.

Chart 43
Household lending in international comparison



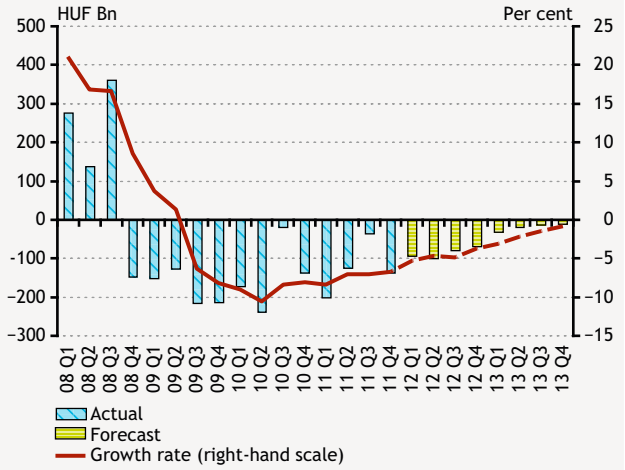
Sources: statistics of national central banks, ECB.

Lending to households in Hungary is the weakest in a regional comparison. In 2011, lending to households in the CEE countries stagnated or increased (Chart 43). By contrast, in Hungary it has steadily contracted since the onset of the crisis. Although this contraction accelerated with early repayments at the end of 2011, household lending has otherwise followed a declining trend in Hungary as a result of deteriorating demand and strict credit supply.

2.1.3 NO TURNAROUND IN LENDING TO THE PRIVATE SECTOR IS EXPECTED UNTIL END-2013

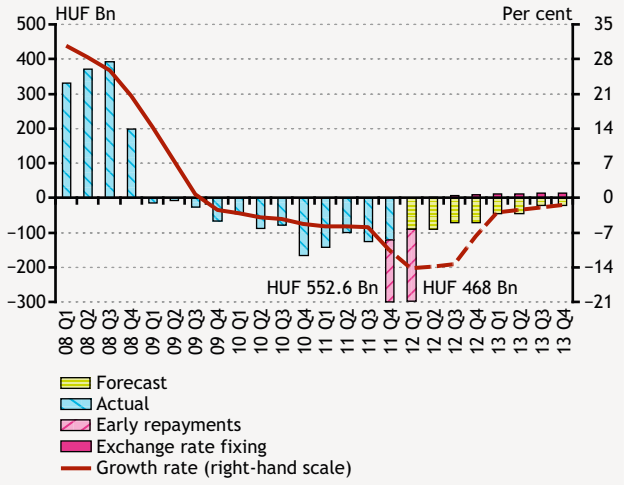
Due to deteriorating lending capacity, the decline in corporate lending seems to exceed earlier expectations. Mainly as a result of the weakening of the domestic banking sector's capacity to lend, our forecast for lending to the corporate sector was revised slightly downwards. Lending

Chart 44
Corporate lending forecast



Source: MNB.

Chart 45
Household lending forecast



Source: MNB.

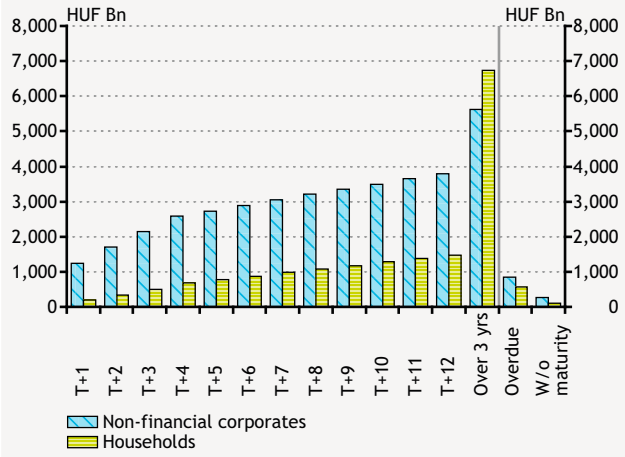
to corporations by domestic financial intermediaries is expected to decline during the entire forecast horizon by 3.7 percent in 2012 and by nearly 1 percent in 2013 (Chart 44). In addition to supply constraints, demand factors also point to a continued decline. In line with weak economic prospects, companies may continue to postpone their investment decisions. Consequently, long-term borrowing may remain below maturating loans.

Besides early repayments, other lending activity may also remain low in the household segment. Credit demand is expected to remain subdued in the segment due to increasingly unfavourable labour market conditions and presumably still strong precautionary motives of households. Supply constraints have also become stricter; therefore, taking everything into account, we expect higher decline in loans outstanding in the household segment as well than before (Chart 45). Our forecast suggests that, with an exchange rate adjustment, household lending may decline by 7.7 percent in 2012 and by 1.4 percent in 2013 (3 percent and 1.3 percent, respectively, excluding the effects of early repayments).

The forecast is accompanied by significant risks, both in the positive and negative directions. The activities and funding allocations of the euro area banking sector have a significant impact on the lending activity of the Hungarian banking sector. Accordingly, a favourable impact on the developments in lending in Hungary would be if the ECB's 3-year lending facility (3-year LTRO) was able to support lending by euro area banks, including parent banks' domestic and foreign subsidiaries, to an extent exceeding current expectations. The 2-year secured loan announced by the MNB in February and the expansion of the range of eligible collateral in corporate lending, as well as the mortgage bond programme concerning household lending, may also be considered as positive risks (Box 5). However, negative risks include escalation of the euro area's sovereign debt crisis and the stronger-than-expected deleveraging of the euro area banking sector. Moreover, in addition to global factors, local risks may also be mentioned. Following the crisis, in a regional comparison, Hungarian subsidiaries considerably underperformed in terms of profitability. Consequently, Hungary's ability to attract capital and funds declined markedly. If parent bank deleveraging is executed through a shift in target markets and not proportionally to current exposures, a considerable further outflow of external funds may occur from the region, including Hungary.

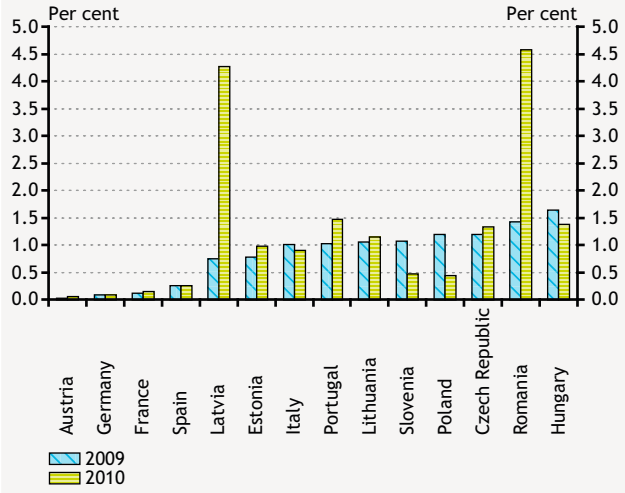
Stronger deleveraging may result in a greater contraction in corporate lending. Stronger deleveraging would presumably affect the corporate sector. The proportion of

Chart 46
Cumulative corporate and household loans maturing quarterly from end-2011 on



Source: MNB.

Chart 47
Capital capacity of guarantee organisations as a proportion of domestic GDP, in international comparison



Sources: AECM, ECB.

short-term loans (40-50 percent) is typically higher in this segment, which would allow rapid and considerable adjustment (Chart 46). A reduction of corporate loans outstanding is also more probable, as much lower margins can be realised in this portfolio; hence, the capital requirement for corporate loans is two to three times higher than for household loans. Short-term loans are typically forint loans with a maturity of some months, and the majority of them contain revolving credit for working capital financing. However, in the case of reductions coupled with the withdrawal of external funds, the maturity of foreign currency loans may be relevant: based on the maturity tables of the banking sector, loans amounting to some EUR 4 billion and an additional EUR 1.5 billion will expire in 2012 and 2013, respectively.

An increase in the willingness to lend to the SME sector may basically be expected with expansion of guarantee programmes in the future as well. Our earlier reports have also discussed the particularly negative impact of weakening lending activity on the SME sector. Under the present circumstances as well, this segment is the most affected by restrained lending; for SMEs, as there is typically no alternative to bank financing. Therefore, we proposed earlier that the role of state guarantee institutions in lending to the SME sector should be increased, in spite of the fact that the Hungarian figure is already outstanding in a regional comparison. This would mean a solution for both willingness and capacity to lend, as a state guarantee would reduce credit risk and thus the capital requirement as well. Presumably, this has induced several countries to considerably strengthen the capital of guarantee organisations in the recent period (Chart 47).

Box 5
The MNB is ready to apply new instruments to support banks' lending capatity

At certain stages of the financial and sovereign debt crisis, in addition to their respective interest rate policies, central banks around the world made efforts to stimulate the economy, to avoid deflation and to ease market tensions by applying a wide range of unconventional monetary policy tools. Generally, with the exception of the ECB, in the first stage of the crisis the world's major central banks reached the zero lower bound. Consequently, they were unable to ease monetary conditions with traditional instruments. In addition, in certain cases unconventional monetary policy tools were necessary in order to efficiently treat liquidity tensions and the unjustified premia of financial markets, which play an important role in monetary transmission.

The following modes of interventions can be distinguished: liquidity provision facilities, direct credit market or credit easing intervention and government bond purchase programmes. Facilities providing liquidity to banks and refinancing transactions (changing the frequency and volume of repurchase agreements, broadening the range of eligible collateral, modifying the reserve ratio and

Non-conventional monetary policy instruments in the Eastern European region during the crisis

Coutry	Instruments used
Czech Republic	2-week secured loan at base rate + 10 bp
	3-month secured loan at base rate + 30 bp
	2-week and 3-month FX swap instrument
Poland	Longer-term secured loans (longest term 1 year)
	FX-swap tenders
	Broadening of the range of eligible collateral
	EUR/CHF swap arrangement with Swiss national bank
	Establishment of euro repo line of EUR 10 billion with the ECB
Romania	Lowering of minimum reserve ratio (from 20% to 15% for RON funds)
Hungary	EUR/HUF FX-swap instrument, CHF/EUR one-week swap instrument
	3- and 6-month EUR/HUF FX swap instrument
	Repo agreement with the ECB
	Repeated expansion of range of collateral, introduction of two-week and six-month credit instrument
	Lowering of minimum reserve ratio, introduction of optional reserve ratio regime
	Government securities purchase on secondary market
	Mortgage bond purchase programme

Source: MNB, national banks of the region.

providing foreign exchange liquidity) may be efficient in terms of lending primarily in cases when banks are struggling with difficulties in obtaining funds, the funding costs of banks are too high compared to the central bank discount rate, or too many assets have become illiquid in the banks' balance sheets. However, this set of instruments is ineffective if bank lending is limited by banks' capital positions or the reduction of their balance sheets. In the case of direct credit market interventions (purchase of corporate securities and mortgage bonds), the central bank directly assumes the credit risk of the private sector. As few countries have a developed securities market, practically the central banks of only some developed countries have used this set of instruments. Typically, the highly creditworthy central banks that reached a zero lower bound (e.g. Fed, BoE, BoJ) used large-volume government bond purchase programmes in order to stimulate aggregate demand and moderate the risk of deflation by reducing longer-term risk-free yields and increasing the amount of money in the economy. According to empirical analyses, these programmes were mostly successful in reducing yields, but they were not efficient in stimulating aggregate demand and the economy. At the same time as a safety net they could hinder a drastic credit crunch.

In the case of emerging countries with a lower credit rating, high external debt and less credible economic policy, there is usually less room for manoeuver to apply unconventional instruments. During the recent crisis, emerging countries also applied facilities to provide liquidity, but direct credit market interventions and government bond purchases occurred only rarely and in the case of emerging markets that were considered more developed. The underlying reason is that the less vulnerable countries embarked on a growth path relatively fast, without central bank interest rates reaching their zero lower bound; therefore, these countries did not need monetary easing. In more vulnerable emerging countries, however, due to the foreign exchange exposure of domestic sectors and the related problems of the banking sector, no major easing of monetary conditions was possible.

Based on available information, with the exception of the MNB, central banks in the Central and Eastern European region only used various types of liquidity-providing, refinancing instruments. Compared to other central banks in the region, the MNB applied its set of instruments more intensively. During the crisis, the MNB was the only central bank in the region that, in addition to foreign exchange liquidity-improving and forint liquidity-providing instruments, purchased government bonds in the secondary market and announced a mortgage bond purchase programme.

The MNB intends to support the stability of the Hungarian banking sector and, if necessary, increase its capacity to lend with three additional instruments announced on 15 February. However, it is important to emphasise that these measures are not suitable for influencing banks' willingness to lend.

In March 2012, the MNB announced a monthly base rate-indexed collateralised loan tender with a maturity of 2 years for credit institutions that undertake that, during the term of the loan, their corporate loans outstanding will not decline compared to the value at end-December 2011; this also supports an increase in corporate lending. As a result of the new facility, banks may have access to long-term funds without a term premium, which may counterbalance the recently observed shortening of maturities on the liability side of banks' balance sheets. Through the attainable improvement in the maturity match, banks' balance sheets may be strengthened, which in turn may offset the decline in capacity to lend.

In order to ease the liquidity constraints that restrain lending, in 2012 the MNB is continuing the expansion of the range of eligible collateral, which was started in 2008. Since October 2008, the MNB has accepted corporate and bank bonds with at least 'BBB–' credit rating as collateral. Following the downgrading of the Hungarian sovereign debt, several state-guaranteed securities ceased to be eligible, owing to the credit rating criterion. Starting from April 2012, the MNB's range of eligible collateral is being expanded with corporate and bank bonds whose credit rating corresponds to or is more favourable than that of the Hungarian State. As of the same date, the MNB also accepts as collateral those corporate, bank and mortgage bonds that meet other eligibility criteria and are issued in any regulated market or non-regulated markets accepted by the MNB, in addition to the BSE. Earlier, in its credit operations the central bank only accepted forint-denominated securities, with the exception of local government bonds. Following the sovereign downgrade, the euro-denominated securities of some Hungarian issuers, primarily those of the Hungarian State, were excluded from the ECB's range of eligible collateral, reducing the liquidity buffer of credit institutions. In this situation, the MNB is able to offset the negative liquidity effect of the downgrade by accepting as eligible collateral those foreign exchange bonds issued by the Hungarian State or Hungarian companies that meet the criteria similar to those of forint-denominated bonds.

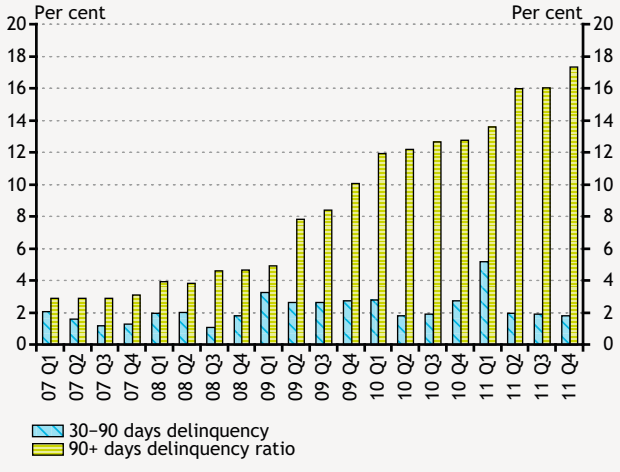
In household mortgage lending, the mortgage bond market plays a key role in banks' funding and the improvement of maturity mismatches. Based on the experiences of the MNB's 2010 mortgage bond purchase programme, the central bank can efficiently support banks' fundraising related to mortgage lending with market purchases only in the case of adequate willingness to issue. To stimulate lending to households, the MNB intends to launch a universal mortgage bond purchase programme, following an amendment to legislation in agreement with the government that allows universal mortgage bond issuance.

2.2 Portfolio quality may deteriorate further in the corporate segment; however, the exchange rate cap scheme may help prevent the build-up of new defaults in the household segments

As a consequence of the deteriorating real economic outlook, non-performing loans continued to rise in the corporate segment in 2011 H2. The ratio of 90-day overdue loans exceeded 17 percent by the end of the year. Parallel with a rise in non-performing loans, loan loss provisioning also went up. Therefore, loan loss coverage increased significantly, which is favourable in terms of prudential point of view. However, asymmetry in coverage among banks continues to pose risks. From a forward-looking perspective, shrinking loan portfolios, slow portfolio cleaning and poor economic growth may trigger a further increase in the ratio of non-performing corporate loans in the next two years, such that it may exceed 20 percent.

Portfolio quality also continued to deteriorate in the household segment in 2011 H2. Deterioration can be attributed mostly to the fact that the early repayment of FX loans at preferential fixed exchange rates led to a reduction in total household loan portfolio. The ratio of 90-day overdue loans was 13.1 percent at the end of December. Banks' loan losses incurred on household loans rose significantly due to the early repayment of FX loans; excluding that effect, there should have been a decline in 2011 H2. There was a slight increase in the loan loss coverage of household loans at a banking system level. As depreciation of the forint resulted in an increased LTV, adequate coverage is of the utmost importance. From a forward-looking perspective, we anticipate a broadly flat or somewhat higher ratio of non-performing household loans. Lower instalments, resulting from the exchange rate cap scheme available for debtors as of 1 April, may counterbalance the adverse impact of a decline in the number of creditworthy customers on the share of non-performing loans due to early repayment.

Chart 48
Ratio of non-performing corporate loans within total loan portfolio

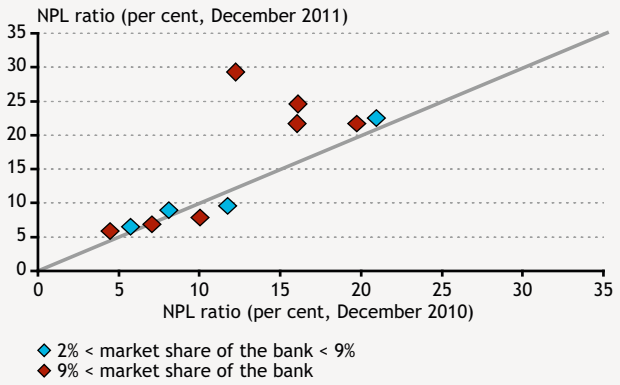


Source: MNB.

2.2.1 STEADILY DETERIORATING PORTFOLIO QUALITY IN THE CORPORATE SEGMENT

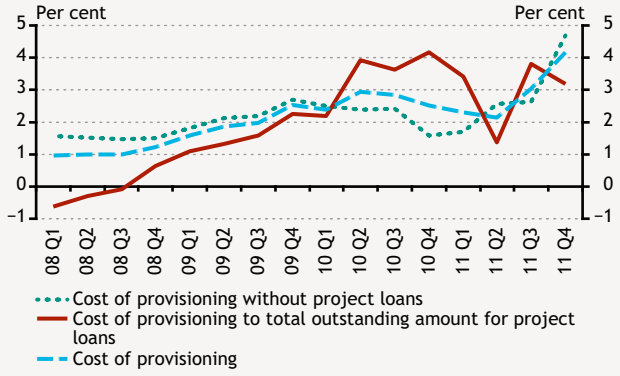
The ratio of non-performing corporate loans continued to rise in 2011 as well, reaching over 17 percent. Since our last Report, weak economic growth, the depreciation of the forint and the steady shrinking of the loan portfolio have led to a rising proportion of non-performing corporate loans in the banking system. As a result, the NPL ratio was over 17 percent at end-December 2011 (Chart 48), representing a 4 percentage point increase over a year earlier. The underlying reasons for such a significant deterioration were delinquent project loans and the significantly weaker performance of other corporate loans in 2011 Q4. Even stronger-than-usual portfolio cleaning was unable to prevent significant deterioration in the final quarter. The fact that deterioration mainly affected those banks that have large exposures and whose portfolio quality was already rather poor adds to systemic risks (Chart 49).

Chart 49
NPL ratios of some banks at end-2010 and end-2011



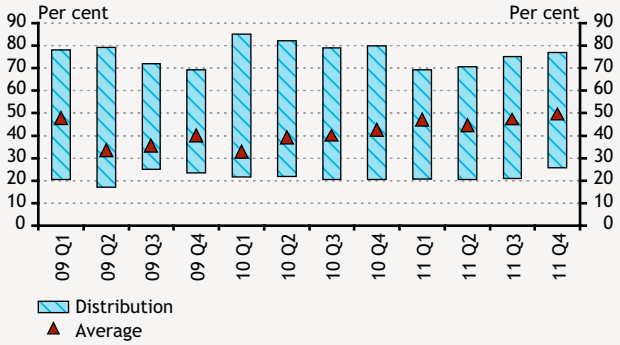
Source: MNB.

Chart 50
Cost of provisioning to total loans in the corporate segment
(12-month moving window)



Source: MNB.

Chart 51
Loan loss coverage of corporate loans in the banking sector



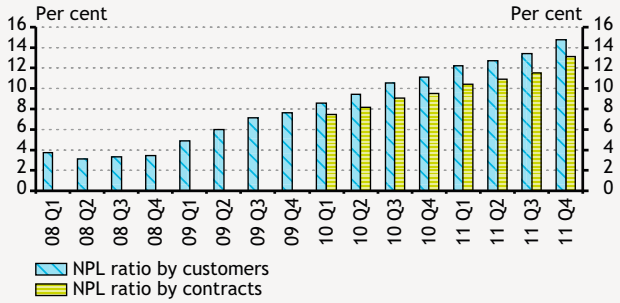
Note: Banks with at least 2 percent share in corporate lending.
Source: MNB.

Sizeable amount of restructured loans means further risks in the corporate portfolio. The significant amount of restructured corporate loans makes the picture of portfolio quality even bleaker. As of end-December 2011, over 25 percent of renegotiated loans were already non-performing. Taking into account restructured loans that were not yet 90 days past due, which amounted to 6.5 percent at the end of December 2011, 25 percent of corporate loans are now problem debt. A nearly indispensable condition for restructured loans to again become performing ones is marked acceleration in economic growth, which remains to be seen.

A rapid rise in the ratio of non-performing loans went hand in hand with higher loan losses in the corporate portfolio. Compared with 2.5 percent in 2010, cost of provisioning stood at an overall 4.16 percent as a proportion of the total portfolio (Chart 50). Reaching an annualised 4 percent, risk cost was the highest ever to date. Such high cost was imputable to a significantly deteriorating portfolio. Not counting portfolio cleaning, the NPL ratio rose by over 2 percentage points in 2011 H2, significantly adding to expected losses. In the last quarter, in response to a rapidly depreciating forint exchange rate and increasingly bleak real economic prospects, banks have likely revised their expectations for the performance of their portfolio. Furthermore, capital injections by parent banks also provided more room for certain financial institutions to absorb higher losses.

Loan loss coverage rose throughout 2011 at the banking sector level, thus reducing prudential risks. Loan loss coverage for the total corporate loan portfolio in the banking sector rose to 50 percent (Chart 51). In our earlier analyses, we consistently urged higher loan loss coverage for non-performing loans; thus, from a financial stability perspective, the fact that this ratio grew by nearly 10 percentage points last year is favourable. A rise in loan loss coverage reduces further possible losses and the amount of non-performing loans to be refinanced. Thus, it is a favourable trend in respect of both solvency and liquidity. Differences among individual banks remain high. In respect to banks heavily engaged in corporate lending, even the lowest ratio rose significantly.

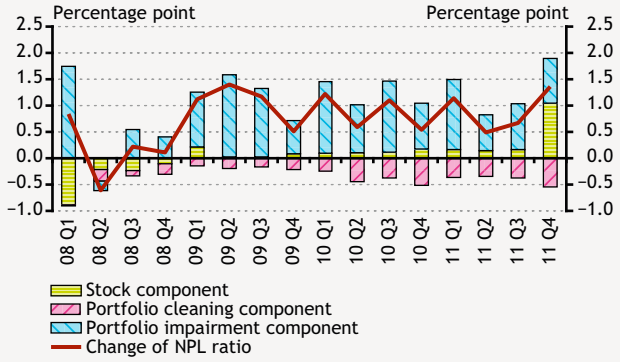
Chart 52
Ratio of non-performing household loans in the banking sector



Source: MNB.

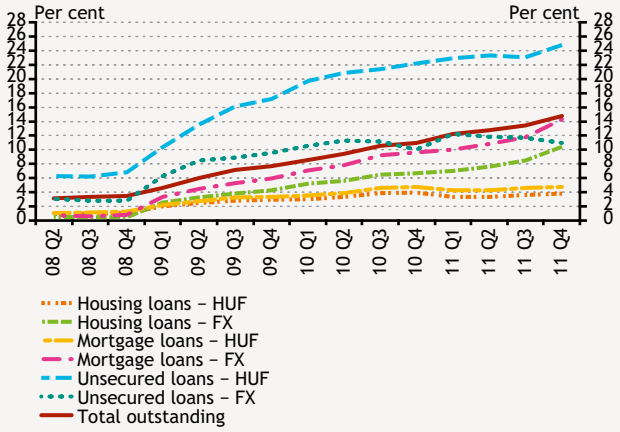
Chart 53
Decomposition of changes in the share of NPLs in household loans

(exchange rate adjusted)



Note: Decomposition based on ratios per client.
Source: MNB.

Chart 54
Ratio of non-performing household loans per product in the banking sector



Source: MNB.

2.2.2 EXCLUDING THE IMPACT OF THE EARLY REPAYMENT SCHEME, LOAN LOSSES WOULD HAVE DECLINED

The ratio of non-performing loans in the household segment continued to grow. The ratio of non-performing loans 90 days past due to total household loans rose from 9.5 percent to 13.1 percent in 2011. There was also significant growth in the NPL ratio by customers. The ratio of non-performing loans increased from 11 percent as of end-2010 to 14.8 percent in end-2011 (Chart 52). Nearly half of the change in 2011 materialised in the final quarter. Clearly, such a significant rise was the result of the early repayment of foreign currency denominated loans. The underlying reason for the rise in the indicator was the drastic contraction in loans outstanding. The early repayment scheme accounted for 86 percent of this contraction in the last quarter. If the portfolio had remained unchanged, the indicator would only have risen by 0.3 percentage point in the final quarter (Chart 53).

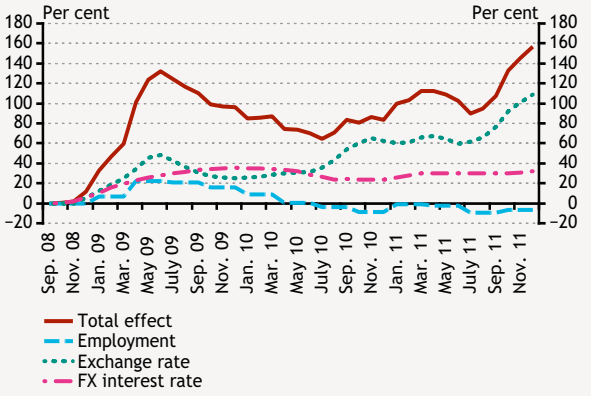
Foreign currency portfolio deteriorated mainly in 2011. Examining the portfolio quality by product breakdown confirms our former picture. There was hardly any increase in the ratio of non-performing loans to total loans in respect of HUF-denominated mortgage loans. By contrast, the ratio of foreign currency denominated mortgage loans rose from 9.6 percent to 14.3 percent in the final quarter (Chart 54). It is important to stress, however, that an increase in impaired loans was prevailing throughout 2011 as a result of the appreciation of the Swiss franc (Box 6). By contrast, there was hardly any change in amount of non-performing HUF loans, and even its impact on the NPL indicator was mitigated by HUF loans granted for refinancing early repayment of FX loans.

Box 6

Reasons underlying the default of foreign currency denominated housing loans

A number of methods have been used to identify the reasons for a sharp rise in non-performing FX housing loans and to assess the extent to which these reasons are responsible for the rise. During the crisis, some banks asked their non-performing customers directly whether it was the loss of their jobs or an increase in their instalments that had led to payment problems. However, these statistics are far from being comprehensive and generally they are rarely made public. Moreover, it is hard to assess the quality of data collection. In their paper published in 2011, Katalin Gáspár and Zsuzsa Varga used a simulation method to analyse the issue.[11] Relying on the HCSO's labour survey and household budget survey for 2008 data, they simulated a rise in the instalments of household loans and trends in household income. Based on this, nearly half of the assumed debt repayment difficulties were due to already strained household budgets; job losses accounted for less than 10 percent of default events.

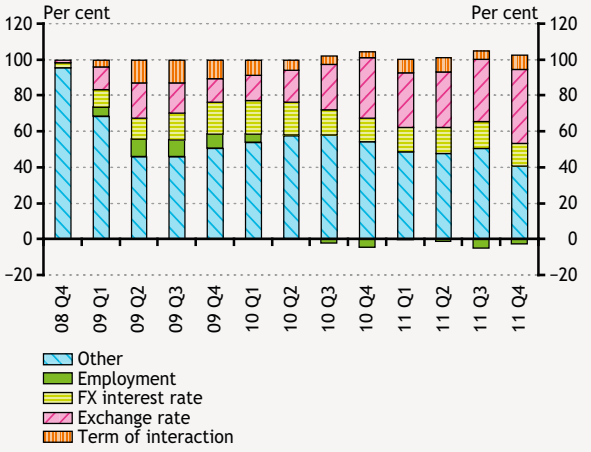
The partial effect of macroeconomic variables on the probability of default



Source: MNB.

In addition to direct questionnaire surveys and simulation, the use of econometric models is a third possible method of analysing the causes of default. In the latter case, we seek to identify statistical relations between various data on default and variables specific to the economy. Dependent variables are mainly the volume of non-performing loans, the ratio of non-performing loans, and the fact of payment arrears. Similar to our stress test, we use the Cox hazard model, taking into account the individual characteristics of debtors and loans, as well as the age of the loan, in estimating the probability of default (PD). The age of loans is especially important because empirical analyses reveal that PD is the highest in the first few years. This period provides evidence whether or not debtors are overstretched, whether they are willing to pay and if their labour market and income position is stable enough. Such problems are likely to be faced in any credit portfolio, with the extent being subject to the rigour of creditworthiness assessment. In carrying out stress tests, we estimate the probability of default (i.e. the probability of being at least 90-days delinquent). This model contains, in addition to customer and loan product characteristics and the age of loans, variables describing macroeconomic conditions. For this exercise, we used the average interest rate applied to CHF housing loans rather than the interbank rates used in stress tests. We fixed a reference situation, which assumes the perseverance of the average interest rate, exchange rate and employment levels as of September 2008; we used this benchmark to assess partial effects in a multiplicative functional form. Accordingly, the partial impact of the exchange rate in any given period gives an indication of the extent, expressed in percentages, to which PD would deviate from the value in macro-economic circumstances selected as a benchmark if, relative to the benchmark, only the exchange rate were changed. The combined impact of all the macro-economic factors is the product of partial impacts.

The quarterly distribution of partial impacts



Source: MNB.

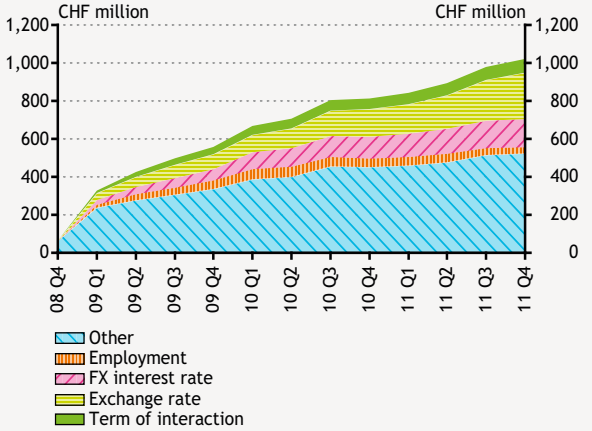
In order to be able to apply the results of modelling PD to non-performing loans, we provided a quarterly time series adjusted for the exchange rate and the impact of portfolio cleaning of non-performing loans. Then, consistent with the extent that the model sample revealed, we formulated simple assumptions for the ratio of non-performing loans that had begun performing

[11] Gáspár Katalin and Varga Zsuzsa (2011), 'A bajban lévő lakáshitelesek elemzése mikroszimulációs modellezéssel', [An analysis of distressed home loan borrowers by means of micro-simulation modelling], *Közgazdasági Szemle*, 53. évf. június.

again. The resulting quarterly new non-performing loan ratio was broken down according to the proportions that the model had revealed. Partial impacts had been available in the form of a product, but we needed sums; while translating the product into sums, besides using partial impacts, we also created a new category consisting of the interactions of macro-variables. Besides applying the proportions that the model had revealed, we also allocated the residual of the estimate to the individual categories; as a result, an error term did not surface in the calculations. It is important in the evaluation of results that the employment variable measures the number of employees and does not show decreases in income due to part-time employment or other reasons. In that case, the effect of labour market conditions might be underestimated and the other parts might be overestimated.

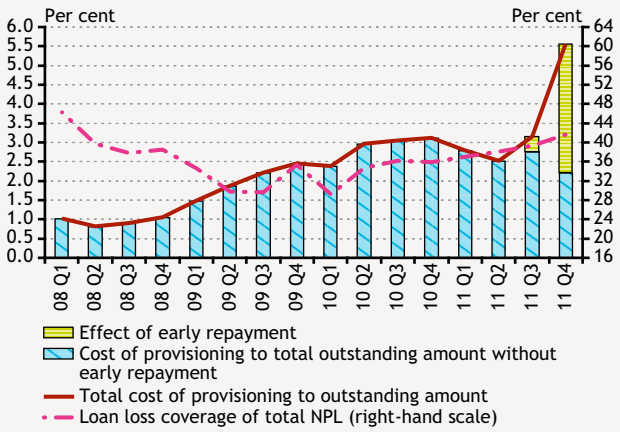
Our results show that the ratio of non-performing loans would be less than half of what it is now if, in response to the financial crisis, the exchange rate of the forint had not depreciated, unemployment had not increased and interest rates had not risen. Loose pre-crisis credit conditions alone would have led to a rapid surge in the ratio of non-performing loans. This situation was exacerbated further by the crisis. It was mainly during the first phase of the crisis that higher unemployment led to a higher proportion of non-performing loans. As regards loan interest rates and the exchange rate of the forint, they both triggered a rise. Persistently high interest rates increased the probability of default and the successive waves of forint depreciation also had an adverse impact. The interaction factor mostly comprises the depreciation of the forint exchange rate and the rising interest rate, so this factor is mainly associated with higher instalments as well. Overall, the rise in instalments affected debt service more than higher unemployment.

The partial breakdown of non-performing FX housing loans according to the likely reason of nonperformance



Source: MNB.

Chart 55
Ratio of loan losses to total loans (12-month rolling average) and loan reserve coverage for non-performing loans in the household segment

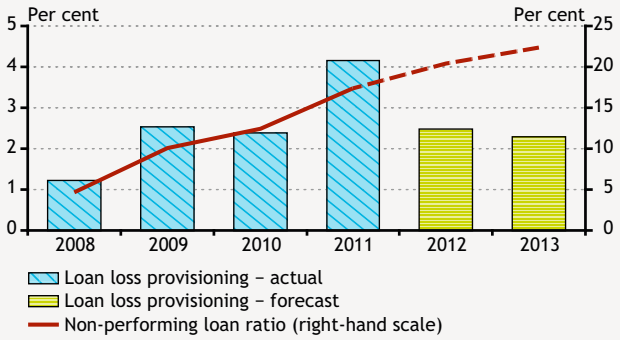


Source: MNB.

The early final repayment scheme led to banks incurring extremely high losses on household loans. With a slightly increasing non-performing portfolio, loan loss provisioning rose significantly. The increase to 5.55 percent at the end of the year was due exclusively to losses incurred owing to the early final repayment scheme. The scheme resulted in banks recognising a total of HUF 150 billion in loan losses in the fourth quarter. Aside from this and charge-offs, the indicator would be 2.2 percent, representing the decline over last year (Chart 55)

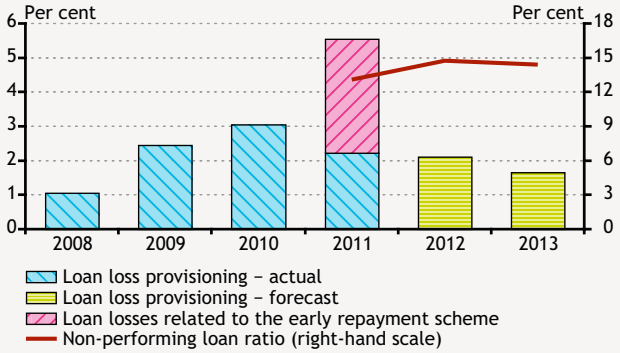
Loan loss coverage for non-performing loans grew in 2011. Banks that are major players in household lending increased their loan loss coverage for non-performing loans in 2011. As a result, the system-level indicator rose from approximately 35 percent in 2010 to 40 percent by end-2011. It should be mentioned that exchange rate depreciation also raised the LTV ratio in the banking system. The average LTV ratio for housing loans was 72 percent; within that, the ratio for FX loans stood at 84 percent. The LTV ratio for non-performing loans exceeds 120 percent.

Chart 56
Ratio of non-performing loans and the cost of provisioning in the corporate segment



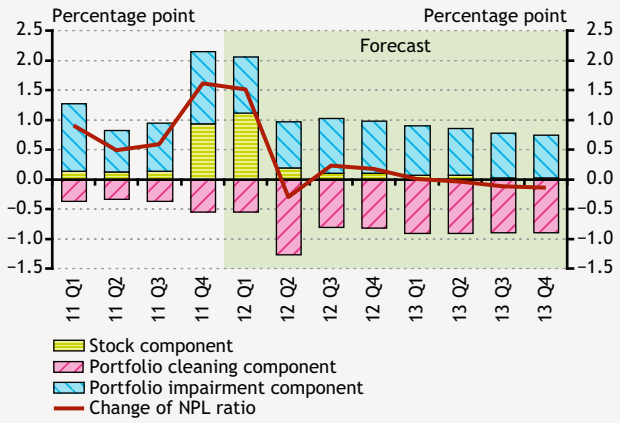
Source: MNB.

Chart 57
Ratio of non-performing loans and the cost of provisioning in the household segment



Source: MNB.

Chart 58
Decomposition of projected non-performing household loans



Source: MNB.

2.2.3 DETERIORATING CORPORATE LOAN PORTFOLIO QUALITY AND PEAK IN THE NON-PERFORMING RATIO WITHIN THE HOUSEHOLD SEGMENT

Due to weak growth prospects and slow portfolio cleaning, the ratio of non-performing loans will not peak in the corporate segment in the forecast horizon. Due to the deteriorating growth prospects for 2012, the non-performing loan ratio will exceed 22 per cent at the end of 2013, which is higher than our earlier expectations (Chart 56). A higher non-performing loan ratio is partly attributable to the fact that the PD of corporate loans will increase in 2012 and only start decreasing from 2013. Furthermore, the corporate loan portfolio will shrink over the forecast horizon, which also implies a higher ratio. The ratio of loan losses to the total portfolio is expected to decline over the next two years; an anticipated 2.5 per cent of loan loss provisioning will be similar to the figures seen in 2009–2010.

With a steady decline in loan losses, the ratio of non-performing loans will peak in early 2013 in the household segments. We expect the non-performing ratio to rise further in the household segment in 2012. This is due in part to a significant shrinking of the performing loan portfolio, triggered by the early repayment scheme, and in part to slow portfolio cleaning. From mid-2012, the exchange rate fixation scheme (Box 7) is likely to reduce the PD of foreign currency mortgage loans. The non-performing ratio will peak at 15 per cent in early 2013 (Chart 57), since portfolio cleaning, which is expected to accelerate due to higher quotas on distressed sales and the operation of the National Asset Management Company, will be able to offset the decreasing volume of new defaults (Chart 58). Lower PDs will also lead to lower loan losses on household loans.

Box 7

Agreement between the government and the Banking Association

On 15 December 2011, the Government and the Banking Association concluded an agreement, the main objectives of which were to find a solution to the situation of household debtors with foreign currency mortgage loans and to restore co-operation between the parties. The impact of the agreement was discussed and assessed in detail in the December 2011 issue of the MNB's *Quarterly Report on Inflation*. The main components of the agreement, which have been implemented in legislation and certain parts of which have been changed since then, are as follows:

A. Conditions of the early repayment scheme were tightened, and banks can deduct 30 per cent of the losses they incur due to early repayment from their 2011 bank levy.

B. Based on the situation as of 30 September 2011, banks convert the foreign currency mortgage loans of defaulted borrowers (with at least 90-day overdue payments of over HUF 78,000) into forint loans and cancel 25 per cent of the converted debt if the debtor requests so and the value of the real property serving as collateral did not exceed HUF 20 million at the time of loan origination. Tapping its FX reserves, the MNB provides the foreign exchange needed for the conversion, which is to be performed by 31 August 2012. Banks can deduct 30 per cent of the cancelled debt from their 2012 bank levy. The state provides interest subsidy for eligible means-tested debtors for five years. The real property and debt of those in the most desperate situations will be taken over by end-2014 by the National Asset Management Company established by the state. This scheme will cover over 25,000 residential properties and be implemented in several phases.

C. Performing FX loan borrowers will be covered by the revised version of an earlier exchange rate fixation scheme. Pursuant to this, performing FX loan borrowers will be allowed to service their loans at an exchange rate that is lower than the actual market rate (HUF/CHF 180, HUF/EUR 250 and HUF/JPY 2.5) for five years, but not longer than June 2017. Given the current exchange rates, this reduction equal to CHF, EUR and JYP is approximately 25, 13 and 6 per cent respectively. Eligibility for admission into the scheme depends on debt upon disbursement not exceeding HUF 20 million. Applications for the scheme will be accepted before end-December 2012. Borrowers can enter into the scheme according to a staged schedule: public sector employees can apply from April 2012, debtors with housing loans other than public sector employees from June 2012, and mortgage debtors with home equity loans from September 2012. In addition to eligibility for the scheme, public sector employees are also granted a one-off transfer by the state. Participants in the scheme share the difference between the fixed exchange rate and the actual exchange rate in a manner that, within the difference, the principal part of the instalment is recorded on a separate HUF technical account under the debtor's name, while the interest part of the instalment is shared 50/50 by the state and banks. Debtors will need to start settling the difference that accrues on their separate HUF accounts after a grace period of five years (during which exchange rates are fixed), according to a repayment schedule corresponding to the term of the original loan. All exchange rate differentials above a certain exchange rate (HUF/CHF 270, HUF/EUR 340 and HUF/JPY 3.3) will be borne by the state.

D. Consistent with the original plan, the government has undertaken to reduce the bank levy to 50 per cent of the current rate in 2013 and phase it out in 2014 (it will levy the bank tax at a rate adopted by the EU or identical to the member state average). Furthermore, banks may deduct loans granted to SMEs in connection with the financing of EU support and new home loans from the base of the bank tax liability. The parties are also committed to further consultations.

As regards the assessment of the impact of the agreement, borrowers' behaviour is still a moot question. We assume that:

- 90-100 per cent of eligible performing borrowers will take advantage of the fixed exchange rate scheme, as this does not entail their having to waive any of their rights (e.g. the right of early payment).

- The situation is much more complex in the case of defaulted debtors: First, only 60 per cent of total non-performing loans meet the quantitative application criteria; secondly, a recent law amendment has excluded debtors with an already terminated loan contract from the program, (although there are still legal uncertainties about this issue). Additional uncertainties include whether all eligible debtors will avail themselves of having their debt converted into HUF; if they do, their monthly instalments would hardly decrease, due to the higher HUF interest rates. Despite debt relief, they would realise the exchange rate losses incurred so far. For the time

being, the pricing of new HUF loans (i.e. former FX loans converted into HUF loans) is still shrouded with a great degree of uncertainty: As this is not part of the agreement, it cannot be ruled out that interest on new loans will be so prohibitively high that, debt relief notwithstanding, conversion will not be a sensible option for debtors. Overall, our estimate for the participation rate is approximately 20-30 per cent of the total non-performing loans, at a maximum.

Fundamentally, the agreement favourably affects financial stability for the following reasons:

- The mere fact that the government and banks decided to put aside their contentions to seek a compromise is a favourable development.

- The fixed rate scheme is another favourable development. Although the FX position of FX debtors will not cease, because debtors will have to continue to service their debts at the actual market rate once the period of fixed exchange rates is over, the amount of the instalments will be 25-30 per cent lower than the current one during the period of fixation. This may halt last year's trend of consistent deterioration in the quality of household loans. Contrary to last summer's version of the fixed exchange rate scheme, under the new scheme a significant part of the exchange rate differential will be borne by the state and the banks. Therefore, the amount of the exchange rate differential to be borne by debtors will not be unbearably high, despite a longer grace period. (For loans with an average outstanding maturity of 15 years, approximately 30 per cent of the exchange rate differential will have to be borne by debtors.) As a result, there will only be a less than 10 per cent increase in the amount of instalments even after the fixed rate period (provided that exchange rates remain unchanged). Although this will represent a significant rise compared to the instalments during the fixed rate period. Taking into consideration the staged schedule for applications, the fixed exchange rate scheme is expected to reduce the debt burden and, hence, the available income of debtors by a total of HUF 35-40 billion (of which close to HUF 30 billion will be a transfer from banks and the state). In 2013, calculated at the current exchange rate, the reduction in the debt burden may amount to HUF 80 billion. Banks and the state will have to absorb an annualised amount of HUF 25 billion each.

- Another favourable development is that the National Asset Management Company established to address the distressed situation of socially vulnerable debtors will take over the loans and real properties of 25,000 debtors from banks, compared with the earlier estimate of 5,000 debtors. By operating the company, the state will be able to find a solution to the situation of approximately 20 per cent of the defaulted debtors until 2014. That said, the fiscal impacts of the scheme are still hard to assess. In our estimate, HUF 100 billion will be needed for the scheme to be financed, with anticipated annual financial costs amounting to HUF 4-6 billion at most.

- The agreement has also been engineered to encourage lending, which is another favourable intention. However, the current rate of the tax relief intended to boost lending is unlikely to generate a marked pick-up in banks' lending activity.

The agreement notwithstanding, there are still substantial risks, especially in the following issues:

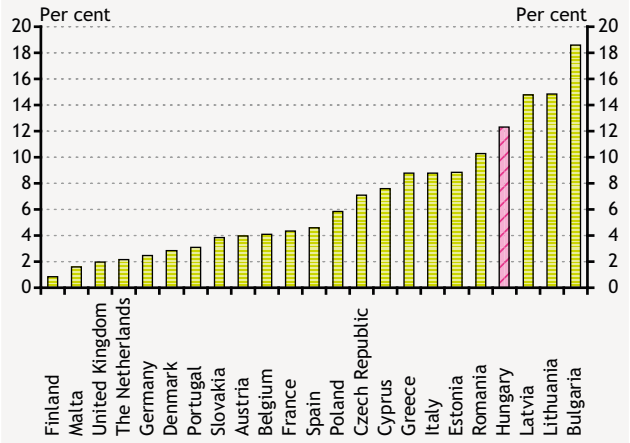
- As regards defaulted debtors, it is still a moot question whether 25 per cent debt forgiveness is sizeable enough for the restoration of solvency of those debtors who can and are willing to participate in the scheme. As FX loans will be converted into HUF loans, interest charged to customers will increase. As a result, debtors' monthly burden will hardly decline despite the 25 per cent debt relief. The interest subsidy granted by the state can only temporarily and not sufficiently mitigate this burden. As a result, there is a considerable risk that debtors who become insolvent, mainly due to becoming unemployed, will not be able to honour their new obligations either, and that they will default again. All in all, this feature of the programme does not offer a proper solution to the situation of troubled debtors.

- Furthermore, the agreement does not address the issue of litigation (court cases) between the state and banks in relation to claims that banks have filed for the compensation of losses stemming from the early repayment scheme. If the courts find against the state, such a ruling will cause a significant fiscal shock and lead to a shift in burden-sharing between the state and the banks at the expense of the former. As was pointed out in the Report on Inflation, with regard to the joint impact of the early repayment scheme and the agreement, this burden-sharing is currently balanced.

- Finally, the exchange rate fixation scheme will not put an end to risks stemming from the exchange rate exposure of FX loan debtors; it will only put off the problem. If the exchange rate depreciates, then with the expiration of the grace period, customers are likely to default en masse and incur significant losses (following hidden tension that mounted during the grace period) to the banking system.

Chart 59
Share of non-performing loans in total loans in international comparison

(June 2011)



Note: Due to difference in practices, data cannot be compared properly.
Source: ECB.

The ratio of non-performing loans is high even in international comparison; for the time being, however, the banking system can still manage this. A steady rise in the NPL ratio sets Hungary apart from the rest of the Visegrád countries. The level of the ratio is among the highest in Europe (Chart 59). The issue is ameliorated by the fact that, due to a relatively long build-up of the current NPLs, losses are materialising over a longer time horizon. Due to these losses, additional capital was raised by several banks; therefore, lending capacity is far less hindered by capital position. The high level of the NPL ratio, nevertheless, may still hinder any recovery of lending because the large stock of NPLs absorbs funds that could be used for financing new loans.

The cleaning of non-performing corporate loans from balance sheets is rather unlikely under the current circumstances. Domestic companies engaged in work-out are facing liquidity constraints; furthermore, a significant difference between prices asked by sellers and offered by buyers makes transactions impossible. Foreign companies with significant capital and, hence, purchase potential are not interested in most regional countries, among them Hungary, due in part to low volumes and in part to an uncertain legal environment.

Fundamentally, changes in the regulatory environment are indispensable for faster portfolio cleaning. Current regulations encourage the bankruptcy of corporate clients with impaired loans. Generally, liquidation is a protracted process. In order to facilitate portfolio cleaning, liquidation and insolvency procedures should be accelerated and the seizure of assets serving as collateral should be streamlined. It would be equally important to seek out-of-court arrangements. Towards this end, barriers to efficient restructuring (e.g. tax laws) should be dismantled and out-of-court arrangements should be applied more extensively in line with international practice (Box 8).

The institution of personal bankruptcy should be introduced. The adoption of personal bankruptcy or the refinement of an existing one formed an important part of policy responses to earlier crises in other countries. Therefore, we strongly suggest that personal bankruptcy would help manage non-performing loans more efficiently, allow insolvent debtors the possibility to start anew and facilitate responsible lending practices in becoming more widespread. Therefore, this should be introduced in the household segment.

Box 8

How to improve the efficiency of corporate portfolio cleaning in Hungary

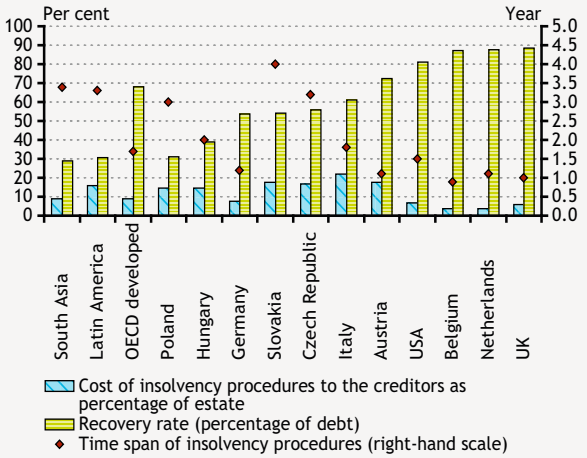
The vast amount of non-performing corporate loans on the balance sheets of banks is to a large extent attributable to the Hungarian business and legal environment, steering undertakings that have a viable business model but have defaulted on their loans towards liquidation by means of court proceedings. It would be more preferable for both the economy and the banks if defaulted borrowers could avoid, as much as possible, enforcement through legal proceedings and viable companies could be kept in operation through reorganisation or partial debt relief.

International best practices of corporate reorganisation include the so-called London Approach and INSOL Principles (International Association of Restructuring, Insolvency and Bankruptcy Professionals), which rely on the voluntary cooperation of creditors. Under this arrangement, a voluntary group of creditors makes a proposal for the financial restructuring of the enterprise and the borrower must cooperate with the creditors, disclosing all information and thereby facilitating a clear understanding of its financial and asset position. When these principles were first introduced, a third-party intermediary was involved in the process. As the principles became part of the general business culture, however, that role became redundant.

Based on the London Approach, the Budapest Principles were introduced in Hungary in 2010 under the auspices of the Hungarian Banking Association. Even though the principles represent a step in the right direction, in the present Hungarian environment the approach has failed to live up to the expectations, often due to insufficient cooperation between creditors and borrowers. The absence of cooperation often comes from mutual distrust, which could be addressed through the involvement of an independent mediator in the process.

In the context of the legal environment, the tax rules concerning debt relief are worth mentioning as they may present significant obstacles to reorganisation. At present, debt forgiveness is not an acceptable method for the restoration of solvency for borrowers because the debtor must pay income tax on the amount forgiven while the bank needs to add the same sum to its taxable income. This issue is known to legislators; indeed, the relevant laws have been temporarily amended for purposes of the early repayment scheme. To make the write-off of debt workable in the case of over-indebted companies, the taxation rules should be amended so that the amount forgiven is not part of the taxable income of the participants in the reorganisation.

Cost and time span of insolveny procedures in international comparison



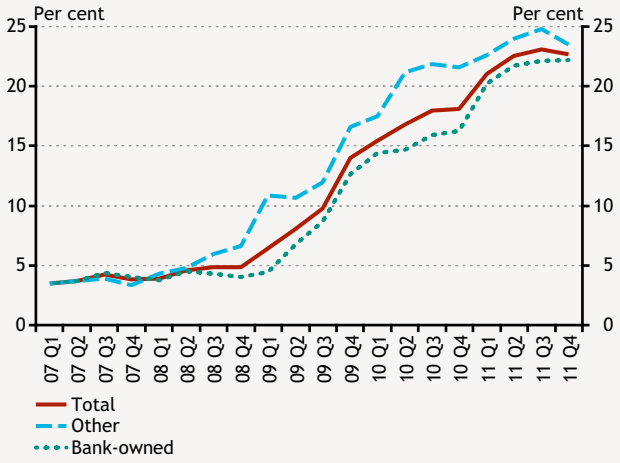
Source: World Bank Doing Business, 2012.

Increasing the efficiency of liquidation proceedings could effectively promote the removal of companies beyond recovery from the portfolio. In Hungary, liquidation through the courts is extremely slow and expensive in international comparison, while the process is often not sufficiently transparent. This is one of the reasons why debtors can easily hide the assets of their company, resulting in a low recovery rate. In developed countries, liquidation is concluded within approximately one year and it costs less than 10 per cent of the value of corporate assets; as a result, creditors recover more than 60-90 percent of their debt. In contrast, in Hungary the procedure takes two years on average (or much longer, even 4-5 years, in the case of complex, high-volume arrangements), it costs 15 per cent of the value of corporate assets and creditors recover less than 40 per cent of the loans.

International experience[12] also indicates that in the course of the crisis, several countries implemented major legislative changes to promote out-of-court arrangements as well as to strengthen the rights of creditors and to improve the efficiency and transparency of insolvency proceedings. Such measures would substantially improve workout procedures in Hungary as well.

[12] Based on the reform database of the World Bank; for details, see: http://www.doingbusiness.org/reforms/overview/topic/resolving-insolvency.

Chart 60
Share of non-performing loans in the financial corporations' portfolio



Source: MNB.

2.2.4 HALT IN THE DETERIORATION OF THE PORTFOLIO QUALITY OF FINANCIAL FIRMS AND CREDIT CO-OPERATIVES

The ratio of financial firms' NPLs to total loans stopped increasing in the final quarter of 2011. After rising in H1, the NPL ratio stopped increasing at the end of 2011 (Chart 60). Based on the final quarter, it is still too early to say that it was a turning point, given that similar stagnation was experienced at the end of 2010. Taking into account the year as a whole, the ratio of NPLs grew by close to 5 percentage points, which entailed serious losses. Loan losses exceeded 3.5 per cent (i.e. they were higher than in 2010). In response, loan loss coverage for NPLs increased, reaching 60 per cent at sectoral level.

The portfolio quality of the credit co-operative sector also deteriorated further in 2011. The quality of both household and corporate portfolio deteriorated in the credit co-operative sector in 2011 H1. This deterioration seems to have stopped in the second half of the year. The increase in the ratio of non-performing loans to total loans remained below 1 percentage point in this period. Despite slower deterioration, loan loss provisioning seen in the first half of the year continued; as a result, loan loss coverage for NPLs grew in the second half of the year. The NPL ratio of household loans at end-2011 was identical to the June level. The early repayment scheme did not hit the credit co-operatives hard because FX lending was only a marginal activity. On the contrary, the scheme benefited them due to the good quality of the disbursed loans. Loan losses increased in 2011, as a result the earlier level of loan loss coverage remained sufficient despite the deteriorating portfolio (Table 3 and Table 4).

Table 3
Major quality indicators of the corporate loan portfolio held by credit co-operatives

Per cent	2008	2009	2010 H1	2010 H2	2011 H1	2011 H2
Share of 90 days past due loans to total loans	12.8	13.8	17.8	17.3	25.0	25.9
Coverage ratio	40.9	42.9	35.0	35.2	30.4	32.2
Loan loss provisioning in the share of total loans	1.2	1.3	–	1.9	2.3	2.0

Source: MNB.

Table 4
Major quality indicators of the household loan portfolio held by credit co-operatives

Per cent	2008	2009	2010 H1	2010 H2	2011 H1	2011 H2
Share of 90 days past due loans to total loans	9.1	11.0	13.0	13.8	16.9	17.0
Coverage ratio	47.9	50.6	46.7	46.6	45.3	46.2
Loan loss provisioning in the share of total loans	0.9	1.3	–	1.2	1.1	1.7

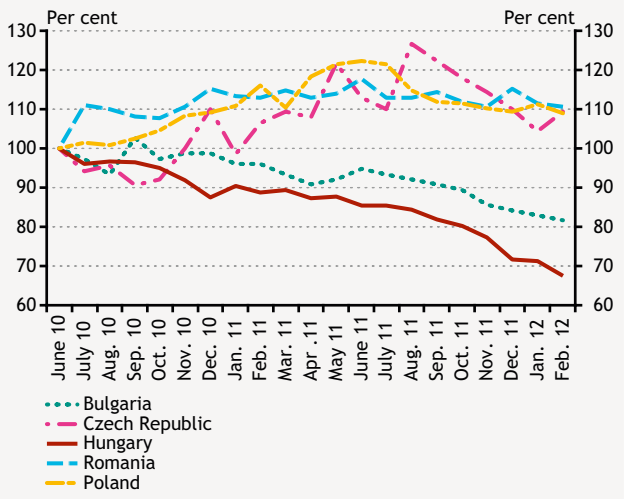
Source: MNB.

2.3 The FX need stemming from outflow of external funds is covered by an increasing FX swap exposure, suggesting excessive withdrawals

The domestic banking sector underwent substantial balance sheet contraction between 2009 and 2011. In the second half of 2011, this was coupled with an acceleration in the outflow of foreign funds. Banks' reliance on the FX swap market and the MNB's swap facilities increased markedly in response to an outflow of foreign funds that was faster than the decrease in foreign currency denominated assets, the conversion of private sector foreign currency denominated deposits into HUF ones, and the significant depreciation of the HUF exchange rate. As a consequence, the exchange rate sensitivity of the domestic banking sector's liquidity position rose significantly.

The funding difficulties of the euro area financial system and the deteriorating profitability of the domestic banking sector pose key challenges to the banking sector. The deleveraging of parent banks in Europe and a low level of the domestic banking sector's competitiveness may lead to an excessive withdrawal of foreign funds. As a result, the risk that an outflow of foreign funds becomes the cause rather than the consequence of subdued lending may materialise. The adverse impacts of an outflow of foreign funds could be mitigated by stronger reliance on domestic deposits. An increase in the proportion of long-term savings could be boosted by the establishment of a universal model of issuing mortgage bonds and the start of a programme where the central bank purchases universal mortgage bonds.

Chart 61
Changes in foreign funds relative to June 2010 in regional comparison

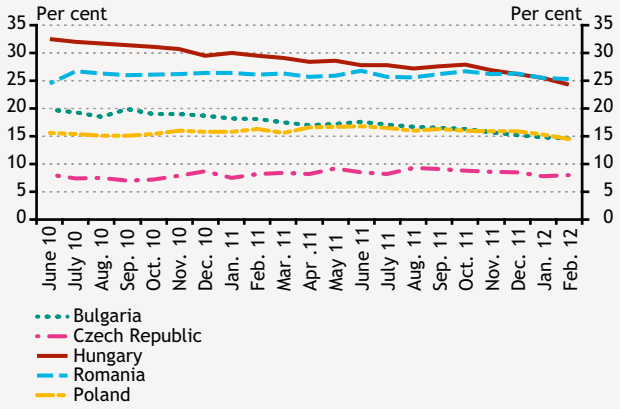


Source: ECB, MNB.

Mainly in response to the escalating sovereign debt crisis in the euro area, an outflow of foreign funds from domestic banks began in 2011 H2. As a response to the termination of the EU/IMF agreement, parent bank maintenance of exposures under the Vienna Initiative was terminated, effective from June 2010. Accordingly, the first Vienna Initiative was unable to prevent a swift outflow of foreign funds. After a temporary lull in the first half of 2011, a new phase of the sovereign debt crisis accelerated the pace of the withdrawal of foreign funds.

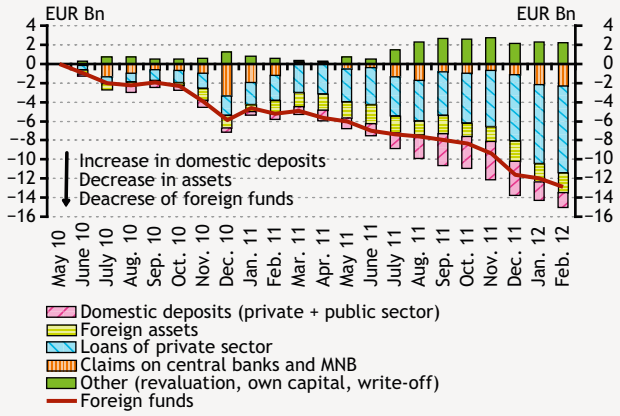
Foreign funds in the Hungarian banking sector decreased faster than elsewhere in the region. As opposed to Hungary, where the withdrawal of funds accelerated in 2011 Q4 (Chart 61 and Chart 62), most regional countries experienced stagnation or only moderate outflows. Following the HUF 1,700 billion outflow in 2010, HUF 1,800 billion was withdrawn from the banking sector in 2011, making a total of HUF 3,500 billion (or over EUR 12 billion) and representing close to a 30 percent decline over one and a half years. It should be added, though, that EUR 6 billion, the largest nominal amount in the region, has been withdrawn from Poland since June 2011. Moreover, there is a significant difference between the regional countries included in the comparison in terms of their reliance on foreign funds. Thus, the joint exposure to Poland and Hungary is significantly higher than that of the rest of the countries combined.

Chart 62
Foreign funds relative to total assets in regional comparison



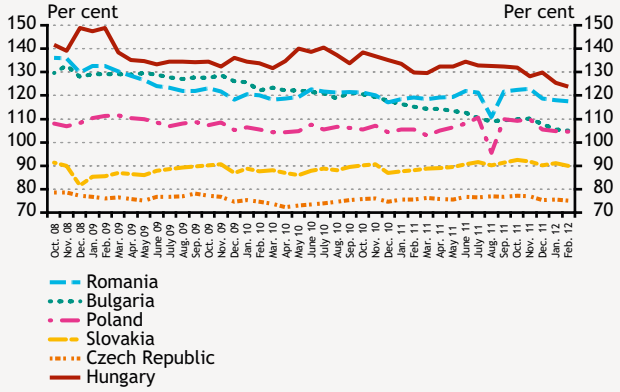
Source: ECB, MNB.

Chart 63
Cumulative changes in the foreign positions of the banking sector and branches relative to end-May 2010



Source: MNB.

Chart 64
Loan-to-deposit ratio of the banking sector and branches in regional comparison



Source: ECB, MNB.

From a liquidity perspective, three major factors made feasible the decrease in foreign funding since June 2010. The domestic banking sector managed to finance the withdrawn foreign FX funds mainly through a decline in private sector lending and, to a lesser extent, through a rise in deposits and by means of a temporary reduction in liquid assets as well (deposits with the MNB and government securities denominated in HUF) (Chart 63). The latter was made possible by the fact that domestic banks accumulated abundant (HUF) liquidity before June 2010. This means that banks sometimes depleted excess liquidity from maturing loans and new deposits to finance the outflow of foreign funds. This is exactly what happened at end-2010, mid-2011 and early 2012.

Balance sheet adjustment led to a lower loan-to-deposit ratio in Hungary. Although the balance sheet total of the domestic banking sector has shrunk materially over the past period, its loan-to-deposit ratio of approximately 130 percent still exceeds the regional average (Chart 64). The average ratio for major banks in foreign ownership stands at around 150 percent; on a stand-alone basis, this ratio is over 200 percent for certain banks. This poses significant risks, especially in light of the fact that, increasingly strict regulatory and investor expectations for capitalisation may trigger further forced balance sheet adjustments at parent banks and, hence, their subsidiaries. At the same time, the ratio was notably influenced by exchange rate movements, as the majority of loans (contrary to deposits) are denominated in foreign currencies. Furthermore, lower balance sheet totals due to final repayments contributed to the indicator only to a lesser extent, because a significant portion of loans was financed from deposits.

The withdrawal of foreign funds may easily become the cause rather than the consequence of subdued lending. It is very difficult to identify whether the outflow of foreign funds is the outcome (consequence) or cause of the deleveraging in the domestic banking sector. A regional comparison and a significant reduction in foreign funds compared with reduction in FX assets (i.e. increasing reliance on FX swap markets) suggest a reversal in the causal relationship. For liquidity and capital reasons, parent banks are making their balance sheets more robust, which may in turn lead to a targeted reduction in lending and, hence, funds to their subsidiaries. Although the introduction of the ECB's 3-year unlimited LTRO funding facility could ease this tension, in light of the above it can only restrain a dramatic balance sheet adjustment. As regards the domestic banking sector, it is the withdrawal of foreign funds that affects the loan-to-deposit ratio and not the other way around; and the extent of the withdrawal of funds will be excessive. The extent to which this will affect the individual

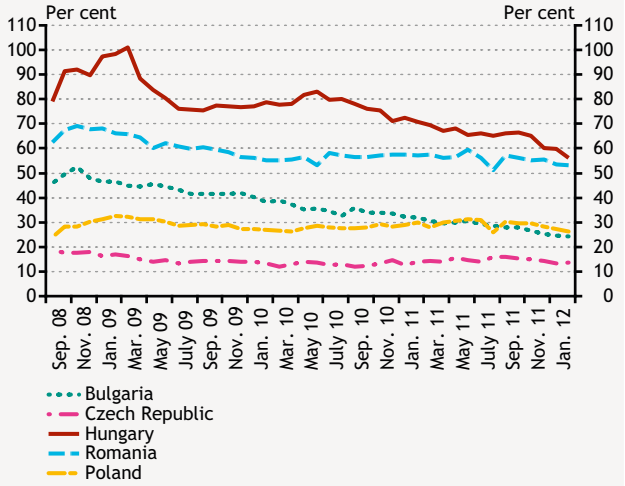
countries will strongly depend on the returns that parent bank funds can earn. In this respect, the low profitability of the domestic banking sector and unfavourable growth prospects are disadvantages when it comes to the regional allocation of capital and funds. A further risk materialises with the fact that parent banks tend to build in the sovereign risk factor of their subsidiaries while calculating their financing costs to an increasingly large extent. This weakens lending capacity through fewer funds in the domestic banking sector.

The adverse impacts of an outflow of foreign funds could be mitigated by stronger reliance on domestic deposits. Problems may emerge if the withdrawal of foreign funds is too fast while domestic deposits and savings build up too slowly. The withdrawal of foreign funds would decelerate if an agreement were concluded with the EU and the IMF and parent banks voluntarily made a commitment to maintain their claims from Hungary at a pre-determined level, similar to the first Vienna Initiative. Furthermore, the restoration of profitability and the competitiveness of the domestic banking sector could also improve its ability to maintain the level of foreign funds. The placement of domestic deposits could be boosted through special deposit campaigns and the working out of longer-term saving facilities.

In spite of a heavy outflow of funds, the reliance of the banking sector on external funds is still significant. The loan-to-deposit ratio is still high in international comparison (Chart 65). Considering that existing stock comprises mainly short-term liabilities (Chart 66) and that domestic banks' funding costs rose significantly in the second half of 2011, it can be concluded that both the lending capacity and the profitability of the banking sector is adversely affected already over the short term. Although a decline in the share of short-term foreign funds is a favourable development, this only relates to the early final repayment of FX loans. The conditions of the EUR sale tender introduced by the MNB stipulate that the FX granted should be used to repay foreign funds first. The risk of renewal is cushioned by the fact that the share of parent bank financing in foreign funds is a sizeable 64 percent in regard to the banking sector as a whole. Although its share in respect of banks with foreign ownership is diminishing, that is still around 77 percent.

An accelerating outflow of foreign funds since early 2011 has led to a steady increase in reliance on swap markets. FX liabilities decreased faster than FX assets on the balance sheet of domestic banks. As a result of this, on-balance sheet FX positions have widened. This also points to the fact that the withdrawal of foreign funds is now swift, as

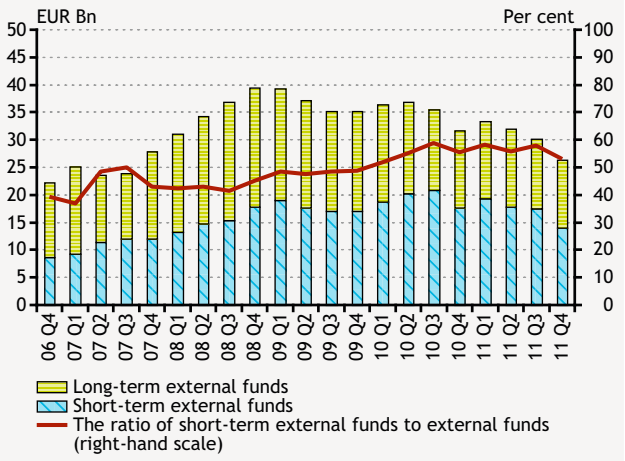
Chart 65
Foreign fund-to-deposit ratio in regional comparison



Source: ECB, MNB.

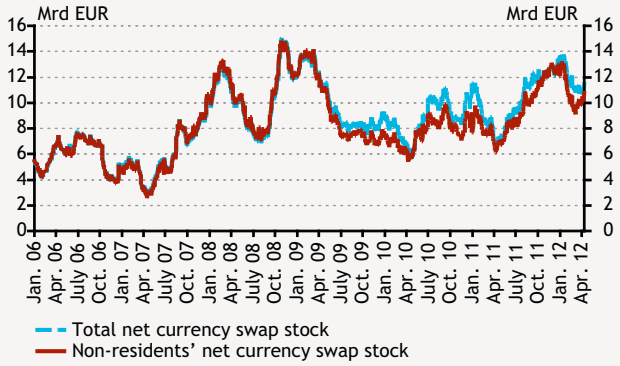
Chart 66
Maturity structure of the Hungarian banking sector's foreign funds

(according to remaining maturities)



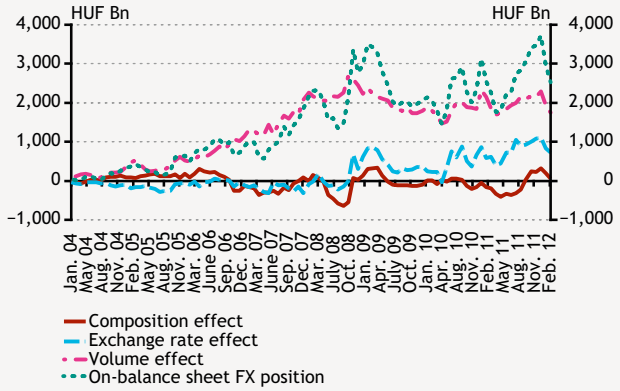
Source: MNB.

Chart 67
The total net swap portfolio of the banking sector and the branches and their net swap portfolio vis-à-vis non-residents



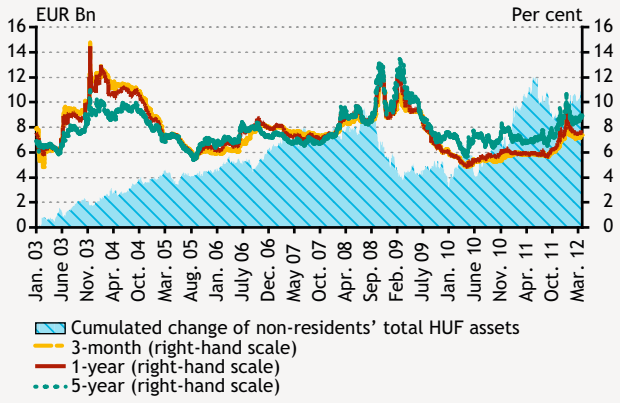
Source: MNB.

Chart 68
Decomposition of the on-balance sheet FX position of the banking sector and the branches



Source: MNB.

Chart 69
Changes in HUF assets held by non-residents relative to end-December 2002 and yields of Hungarian government securities



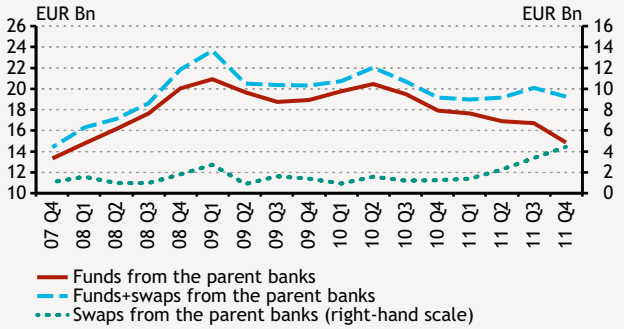
Source: MNB.

banks use up excess liquidity from maturing HUF loans or the placement of new deposits, as well as their available HUF liquidity reserves, to conclude FX swaps to generate FX liquidity and repay foreign funds. The on-balance sheet FX position and net FX swap exposure of the banking sector continuously rose (by approximately EUR 6 billion or HUF 1,800-1,900 billion) between March and December 2011 and reached a historic peak last seen in March 2009 against the backdrop of a rather fragile swap market (Chart 67). The outflow of foreign funds account for one third of this rise. Although net swap exposure has narrowed since early 2011 partially due to temporary factors, it is still significantly higher than the spring 2011 level.

Changes in the on-balance sheet FX position and the FX swap stock hedging it were influenced fundamentally by three factors. The first is a composition effect, which means that customers change the denomination composition of their loans or deposits in such a manner that their sum remains unchanged (conversion of FX deposits into HUF deposits, multicurrency loans). The second is the volume effect, which means that on-balance sheet FX position changes in response to items (entries) that are coupled with an increase or decrease in the balance sheet total. Such an effect is generated by a withdrawal of foreign funds by means of FX swaps using HUF liquidity. The third factor is the exchange rate effect, which means that the value of on-balance sheet FX assets and liabilities is translated into HUF changes due to changes in exchange rates. Based on decomposition, these three factors contributed to an increase in the domestic banking sector's on-balance sheet FX position from spring 2011 until the end of the year to a roughly equal extent (Chart 68). The volume impact (approximately HUF 600 billion) was due to a withdrawal of foreign funds to an extent that exceeds reduction in FX assets (i.e. one that entails the use of HUF liquidity). Due to the early repayment scheme, since the beginning of 20 12 the decrease in FX assets was larger than the size of foreign funds outflow.

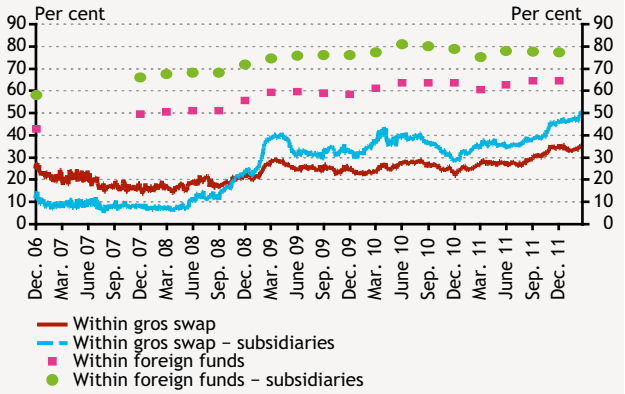
The foreign currency that the banking sector needed in order to fund the withdrawn foreign funds was provided by other non-resident investors and the central bank. Exerting a volume impact, the withdrawal of foreign FX funds from the banking sector by means of HUF assets may occur only if another actor (the other party to the swap transaction) has placed foreign exchange liquidity at the relevant bank's disposal. Over the past period, the required foreign exchange has fundamentally come from two sources: foreign exchange used for the purchase of an increasingly sizeable amount of HUF assets held by non-residents in 2011 H1 (Chart 69) and foreign exchange provided by the MNB in connection with the early repayment scheme in 2011 Q4

Chart 70
Foreign funds and net swaps from the parent banks



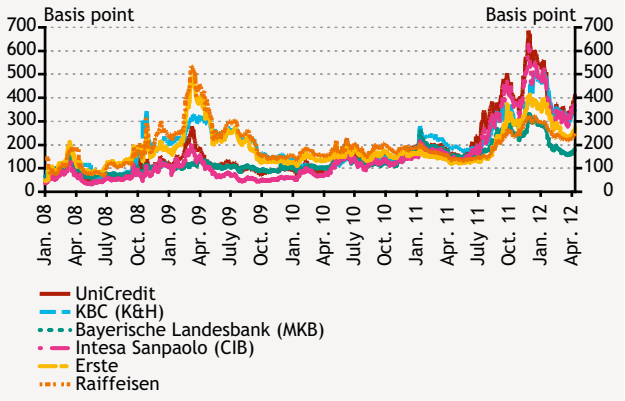
Source: MNB.

Chart 71
Share of intra-group deals within the gross swap stock and the foreign funds



Source: MNB.

Chart 72
5-year CDS spreads of parent banks



Source: Bloomberg.

and early 2012, as well as from an increasingly large number of central bank swap transactions.

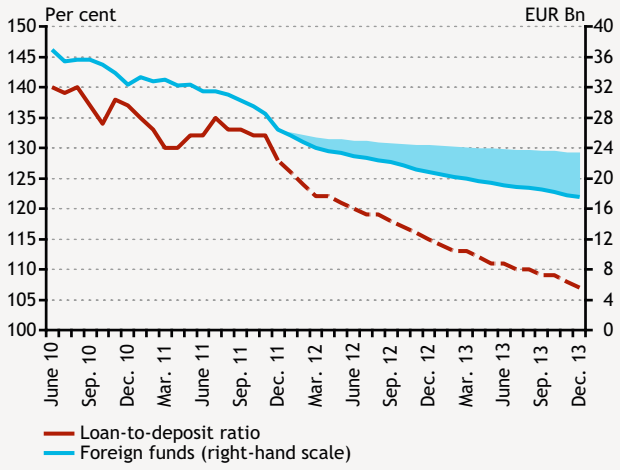
Concurrently with an outflow of foreign parent banks' funds, the stock of parent bank swap transactions increased. During the period of financial turbulence in late 2008 and early 2009 when swap markets dried up, parent banks substituted for swaps concluded with non-group market players, thus providing FX liquidity to their subsidiaries. The share of intra-group transactions within the gross portfolio rose by 7-9 percent between March 2011 and end-2011 (Chart 70 and Chart 71). Since 2009, however, parent bank swaps have been functioning as an intermediary rather than as providers of FX liquidity. This is because parent banks have had to act as intermediaries between their subsidiaries and non-resident actors, due to limit constraints. Some banking groups have been managing liquidity centrally for some time now in order to utilise limits optimally; in keeping with such central management, subsidiaries are not allowed to conclude FX swap transactions on their own. All deals are concluded with the intermediation of parent banks. Concurrently with the downgrading of the country, this trend became increasingly pronounced. Based on replies from banks, on a net portfolio basis at least 60 percent of parent bank swaps are intermediation deals.

There may be two incentives (price and quantity limits) driving the downsizing of foreign funds and the build-up of an FX swap portfolio. From the perspective of profitability, domestic banks may benefit from converting foreign funds into FX swap deals and relying on the MNB's swap facilities, despite FX swap market tensions and a significant rise in implied yield spreads. Parent bank CDS and Hungary's CDS as an approximation of the price of foreign funding is higher (Chart 72) than FX swap market spreads and MNB swap spreads. There are limits imposed on quantity, though. Irrespective of prices, parent banks intend to reduce their respective balance sheet totals. In turn, this means downsizing loans to subsidiaries. If subsidiaries do not have any maturing FX loans or access to FX funds, they have to conclude FX swaps in order to meet parent bank expectations.

A further decline in the loan-to-deposit ratio and foreign funds can be expected. Based on our forecast for the loan-to-deposit ratio of the banking sector[13], it may fall to slightly below 110 percent (Chart 73); however, a significant difference between the individual banks in respect to the ratio may persist. What influences the pace of the outflow of foreign funds is whether banks will resume their earlier strategy (i.e. an excessive outflow materialising concurrently

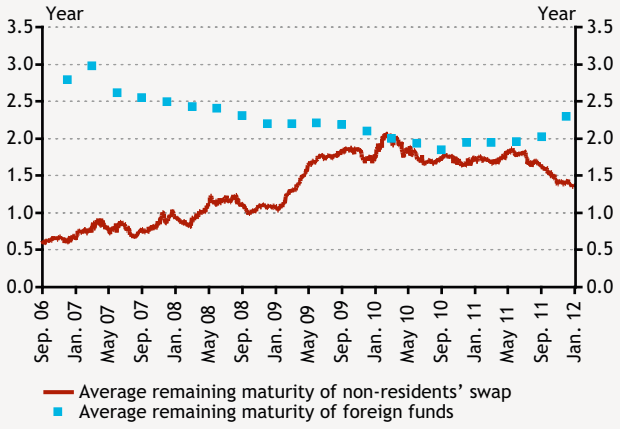
[13] We expect a HUF 650 billion and a HUF 800 billion increase in private sector deposits in 2012 and 2013, respectively.

Chart 73
Banking sector's loan-to-deposit ratio and foreign funds in the baseline scenario



Source: MNB.

Chart 74
The average remaining maturity of foreign funds and gross foreign swaps



Source: MNB.

with a build-up of FX swaps). If this becomes the case, foreign funds should decrease by another EUR 10 billion in the coming two years; in turn, swaps would double. The pace of the outflow of foreign funds would be slower in the baseline scenario that we expect to materialise if liquidity risks were mitigated and the portfolio of FX swaps were to stop increasing (i.e. foreign funds were repaid only at a pace that is identical to the pace of maturing FX assets and the placement of new FX deposits). In this case, foreign funds would only decrease by a total of EUR 3 billion or 10 percent in the next two years.

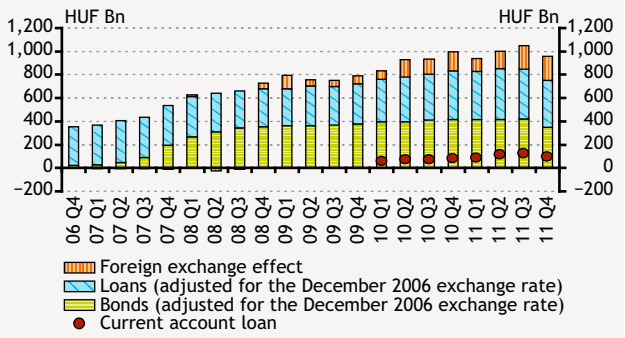
Heavy reliance on swap markets poses a serious risk to financial stability. From the perspective of financial stability, there are basically three differences between direct FX fund raising and swap market hedging. Foreign funds provide liquidity, which increases the balance sheet total of the banking sector; in contrast, FX swaps only change the denomination of existing liquidity without any change in total liquidity and balance sheet totals. Another important difference is that the maturity of FX swap deals has been, generally, shorter than that of foreign funds. As a result, the rollover risk is higher compared with foreign funds (Chart 74). Finally, taking an FX position is riskier from a liquidity point of view, because banks become sensitive to exchange rate volatility through margin calls. Due to the depreciation of the exchange rate, banks have to meet margin requirements to collateralise their FX swaps. Margin requirements are determined in foreign exchange, which may necessitate the conclusion of another FX swap deal, trigger a rise in the portfolio and lead to an increasing FX rate sensitivity of banks' liquidity. From the perspective of the central bank, another major risk entailed by FX swaps is that strong demand for foreign exchange liquidity (volume effect) could trigger a hike in yield spreads and a fall in implied HUF yields. This would make taking a position against the forint less expensive, leading to further depreciation of the exchange rate. In an environment of a high or significantly rising FX swap portfolio, margin requirements and cheaper speculation against the forint together pose a serious risk to financial stability. In light of this, introducing a new regulation should be considered to prevent the evolvement of further swap market risks.

2.4 Government measures mitigated credit risks in the municipality segment only partially

The municipality segment became over-indebted in the pre-crisis years. The repayment burden, which increased after the grace period, has led to payment difficulties for a rising number of municipalities. Banks seek to prevent an increase in the NPL portfolio by debt restructuring, which only temporarily eases tensions in the finances of municipalities. However, banks have hardly set aside any loan loss reserves for the recently restructured loans.

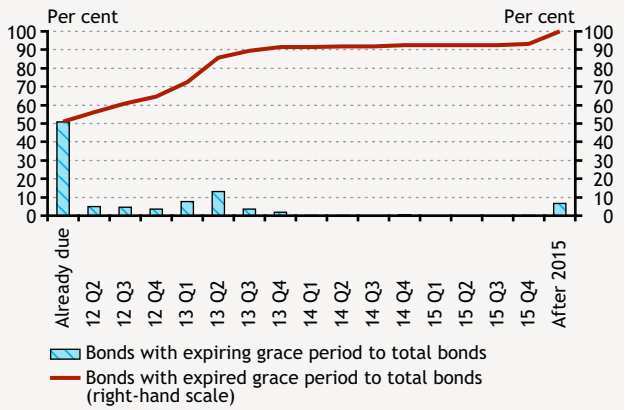
The government took several steps to mitigate the sector's financial woes. The fact that the state assumed the debt of county municipalities resolved the situation of the financially most stressed municipalities. Another important change is that the newly adopted regulations introduce tighter control over credit operations. As a result, the sector's liabilities can only rise moderately. However, for the same reason, municipalities may easily face liquidity problems.

Chart 75
Local government exposure of the banking sector



Source: MNB.

Chart 76
Maturing of grace period of the local government bonds



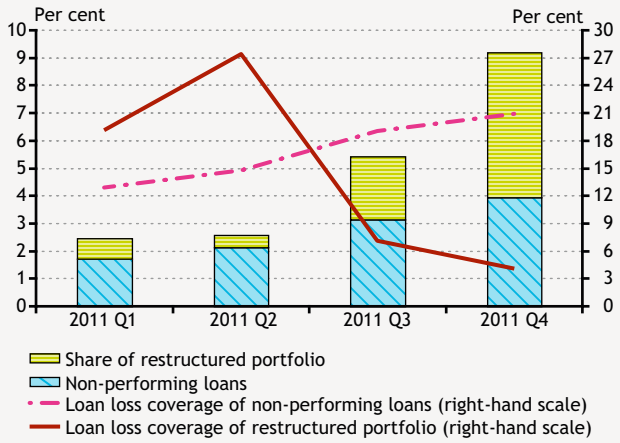
Source: MNB estimates based on MÁK and MNB data.

Municipality debt owed to the banking system dropped at end-2011, due to the assumption of the debt of county municipalities by the state. The total amount of municipality debt fell to HUF 960 billion at end-2011 (Chart 75). This decrease was due to the takeover of county municipalities' debt of approximately HUF 170 billion. This is the more beneficial as, based on annual obligations and income, the finances of large and small villages and county municipalities have been the most stressed over the past few years.

Some 90 per cent of municipality bonds will enter the phase of principal repayment by the end 2013. Nearly 50 per cent of all issued bonds reached the phase of principal repayment by end-2011. This proportion will rise to 90 per cent in 2012 and 2013 (Chart 76). Our calculations reveal that the start of principal repayment will raise the entire sector's debt service by around 20 per cent (HUF 12 billion) in 2012. The impact of the appreciation of the Swiss franc vis-à-vis the forint on instalments was counterbalanced by a lower Swiss base rate. As a result, this contributed to a rise in the debt service only to a limited extent. Banks' profitability may be hurt, however, by the lower interest on FX-based municipality bonds because the liabilities underlying them are re-priced on the basis of CDS spreads.

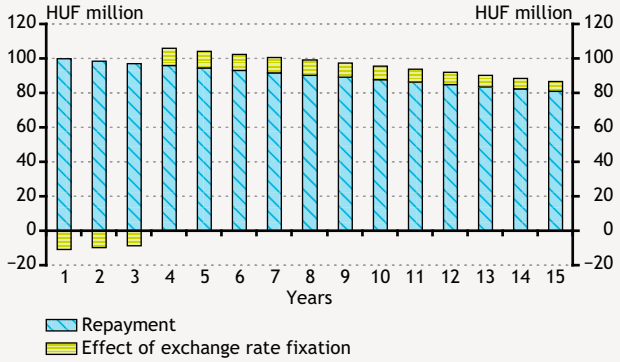
Restructuring can only temporarily help financially stressed municipalities. Debt restructuring can only temporarily improve the situation of the municipalities on the verge of bankruptcy, because only the pace of repayment changes while the overall debt remains the same. Nevertheless, with debt restructuring banks can charge an interest premium that reflects the altered risk profile of the portfolio and its cost of financing. This may

Chart 77
Portfolio quality indicators of local government portfolio in the banking sector



Source: MNB.

Chart 78
Change in debt service due to the exchange rate fixation



Note: Calculations regards a bond of 15 year-long remaining maturity and face value of 6,25 million Swiss francs. An unchanged exchange rate of 240 HUF/CHF is a part of the assumptions.
Source: MNB.

ease tensions in profitability and also points to further increase in the interest margin on the foreign interbank interest rate.

Loan loss provisioning for restructured debt falls behind the increase in the portfolio. Currently standing at 4 per cent, the 90-day delinquency rate increased markedly last year. Banks strive to slow the deterioration in the municipality loan portfolio by restructuring. The share of restructured loans rose from 0.5 per cent in June 2011 to 5 per cent by the end of 2011 (Chart 77). While banks set aside loan loss provision for the NPL portfolio on an ongoing basis, there was practically no change in those for restructured debt in 2011. As was pointed out in our earlier report, restructured corporate and household loans should be covered by higher loan loss provisions , and this also holds for municipality loans.

A scheme similar to the exchange rate cap scheme may help financially stressed municipalities. However, it also carries risks over the long term. One of the banks actively engaged in the municipality segment announced a programme similar to the exchange rate cap scheme introduced for household FX mortgage loans. Municipalities can join the programme on a voluntary basis. Participants in the programme can repay their debt at a HUF/CHF 200 exchange rate until end-2014. The difference between the prevailing market rate and the capped rate will accrue on a separate account. Upon restructuring interest premium on bonds will rise. Overall, the total debt service calculated until the end of the term of the loan will rise, but the repayment burden will be lower until 2014 (Table 5). The most important risk inherent in this scheme is that the financial mitigation available currently will be charged to the budgets subsequent periods (Chart 78).

Increasingly severe borrowing limits put further indebtedness under control, however, they may also lead

Table 5
Comparison of exchange rate cap within the household and the municipality sector

	Exchange rate cap for household foreign currency loans	Exchange rate cap for local government bonds
Total repayment obligation to maturity	decreases	increases
Interest payment obligation on the buffer account?	no	yes
Interest on original loan/bond	unchanged	increases
Interest on the principal between the fixed rate and the market rate	shared 50/50 by the bank and the state	no sharing
Burden sharing above the specified rate (270 HUF/CHF, 340 HUF/EUR, 3.3 HUF/JPY)	the state only	no sharing
Duration of exchange rate fixing	max. 5 years	< 5 years

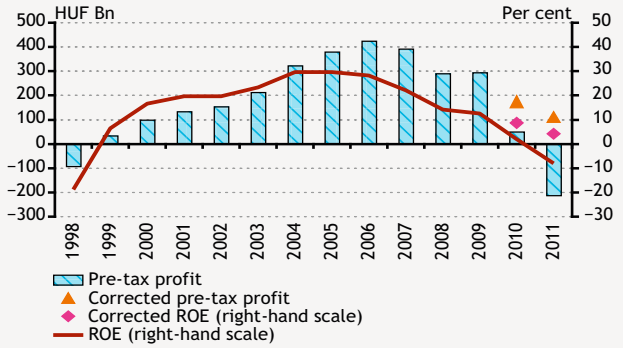
Source: MNB.

to liquidity problems. With effect from 1 January 2012, municipalities have to obtain the government's consent in order to be able to conclude a transaction incurring debt. Exemptions include loans serving as an advance on, own funds in respect of development aids from international organisations, loans maturing in less than 1 year, reorganisation loans and loans in an amount not exceeding the certain threshold levels prescribed for different types of settlement . Borrowing conditional on government approval and low threshold values represent significant tightening. Debt service may become increasingly difficult for those financially stressed municipalities whose institutions (i.e. entities operated by municipalities) will be taken over by the state, because the funds for the financing of these institutions will no longer be provided. As a result, there will be less room for re-allocation of some of these funds for the purpose of the payment of the instalments that fall due.

2.5. Even though one-off effects have caused the banking sector to record losses, high interest margins make its earning potential competitive over the medium term

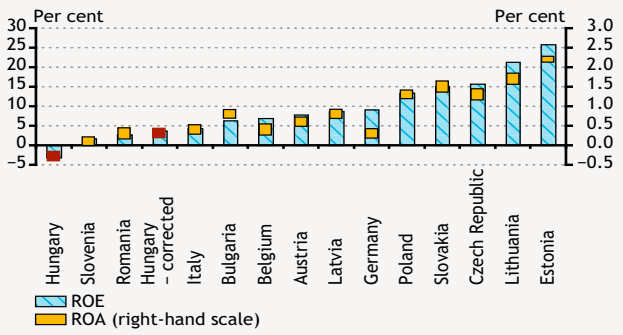
The banking sector booked losses in 2011 due to losses on the early repayment scheme. Adjusting for the bank levy and the impact of the early repayment scheme, however, the banking sector would have been profitable, although the adjusted profitability indicators are rather low in an international comparison. There is a particularly striking asymmetry in profitability, as the overwhelming majority of both positive and negative earnings are attributable to a few major banks. From a 2-3 year perspective, the profitability of the banking sector may be compromised by the decrease of best-performing customers under the early repayment scheme, while the decrease of the bank levy, the absence of one-off profitability shocks and lower risk costs may have a positive impact. Sector-level capital adequacy is high, albeit asymmetrical: at year-end, two thirds of the regulatory capital buffer was held by three banks, reflecting the vulnerability of individual banks. Parent banks are committed to preserve the capital positions of their subsidiaries in Hungary, as evidenced by the substantial capital injections at the end of the last year. Still, there is a growing risk that capital injections are later followed by deleveraging.

Chart 79
Aggregate pre-tax profit and ROE of the banking sector and branches



Note: Corrected data adjusted for bank levy and early repayment.
Source: MNB.

Chart 80
After-tax profitability indicators of the banking sector



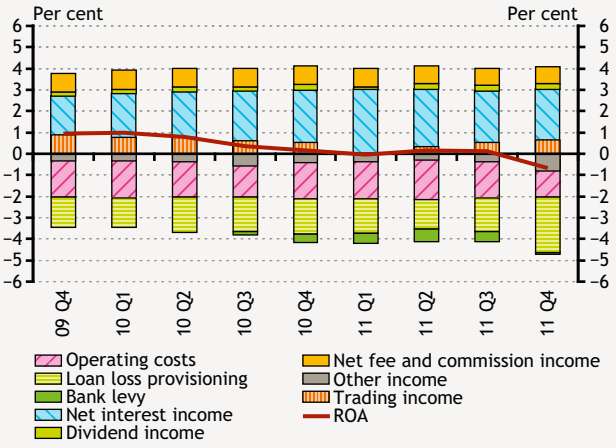
Note: Adjusted figure excluding the impact of early repayment and the bank levy. For Hungary: bank data calculated from end-2011 individual bank level figures, other countries: June 2011 consolidated figures.
Source: MNB, ECB CBD database.

The banking system has booked losses, mostly due to one-off effects; adjusting for those, the sector is profitable. At the end of December 2011, the banking sector reported a pre-tax loss of HUF 212 billion, a significant deterioration from the pre-tax profit of HUF 50 billion in the previous year (Chart 79). After adjusting the 2011 loss for the bank levy and the loss attributable to the early repayment scheme, estimated to be HUF 330 billion by the MNB, the profit before taxes would be approximately HUF 110 billion at the end of the year.

The profitability indicators adjusted for one-off effects place the banking sector in the lower third of the region. The year-end figures also pushed profitability indicators into the negative range. The 12-month rolling ROA for the banking sector was -0.7 percent while its ROE was -8.1 percent. Adjusting for the bank levy and the impact of the early repayment scheme, the ROA would be 0.4 percent and the ROE 4.2 percent, it is quite favourable but still considerably below the pre-crisis levels. The adjusted profitability indicators are also low in an international comparison (Chart 80).

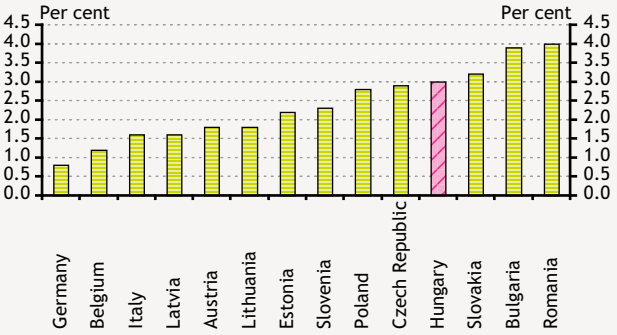
Net interest income consistently provides most of the income. Interest income is the largest and also the most stable source of income for banks. Its amount and its ratio to total assets remained practically unchanged in the past year. The volume of net fees and commissions declined slightly while their share remained stable. Trading income increased substantially over the level of the previous year, which is attributable to the income from and revaluation of other derivative transactions. Dividend income, mostly

Chart 81
Aggregate 12-month rolling key profit components of the banking sector and branches as a proportion of 12-month average total assets



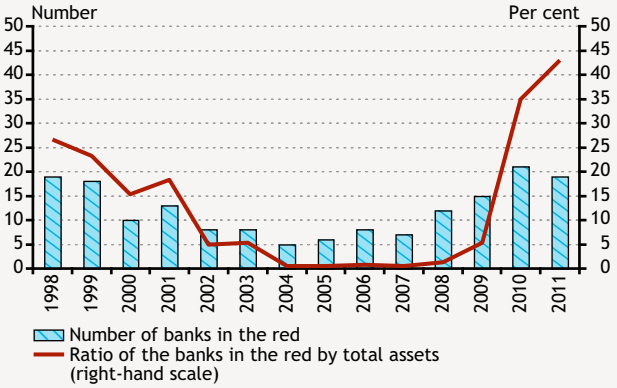
Source: MNB.

Chart 82
Net interest margin
(net interest/balance-sheet total)



Note: For Hungary: bank data calculated from end-2011 individual bank level figures, other countries: June 2011 consolidated figures.
Source: MNB, ECB CBD database.

Chart 83
Number and market share of banks and branches in the red on the basis of pre-tax losses



Source: MNB.

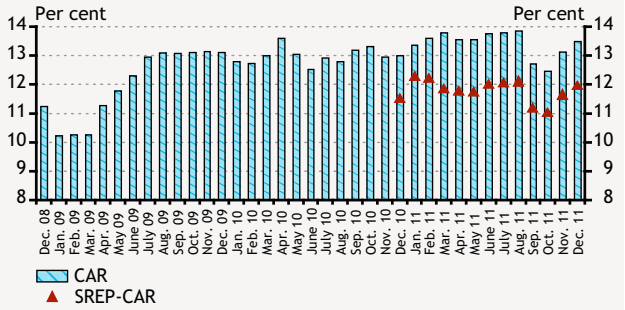
originating abroad, played an important role in maintaining the level of income. On the expenditure side, the level of operating costs decreased slightly, by close to four percent, while their share within the components of profits remained effectively unchanged. By contrast, there was a significant increase in provisioning: its ratio to total assets has increased as the provisioning requirement on loans to corporations and to households (including the provisioning requirement due to the early repayment scheme) was outstandingly high (Chart 81). The bank levy had significantly smaller effect than in the previous year, as 30 percent of the losses suffered due to the early repayment scheme can now be offset against the levy; thus the cost recorded in this respect declined substantially. The other losses was caused mostly by write-offs of goodwill.

Interest margin is high in international comparison. The positive profitability of the banking sector, after adjustment for government measures, is attributable for the most part to the interest margin. Its level is in the high range in an international comparison (Chart 82). The pass-through of risk costs to performing customers and the weakening of the forint also had a positive impact on net interest income and, consequently, on interest margins. The high interest margin can be considered as a market failure. The regulator eliminated all obstacles to refinancing loans; in addition, transparent pricing stimulates stronger competition on the market. Since it would be disadvantageous for banks due to the decreasing margin, there will not be a considerable refinancing activity from the supply side.

Nevertheless, there is very high asymmetry in profitability within the banking sector. The number of loss-making banks dropped from 21 in December 2010 to 19 at end-2011; however, the market share by total assets of banks in the red increased from 35 percent to 43 percent in one year as more large banks drifted into this category. The unadjusted pre-tax loss of HUF 212 billion results from a profit of HUF 260 billion and a loss of HUF 472 billion. Close to three fourths of the total profit was achieved by three banks. Banks' losses were also highly concentrated, with the three banks with the highest losses being responsible for 70 percent of the gross losses of the banking sector. Large banks dominate among banks posting either profit or loss, while the majority of the other banks booked a pre-tax profit/loss of around zero (Chart 83). The six foreign-owned banks that dominate corporate and household lending produced an aggregate loss of HUF 363 billion, compared to almost HUF 100 billion in 2010.

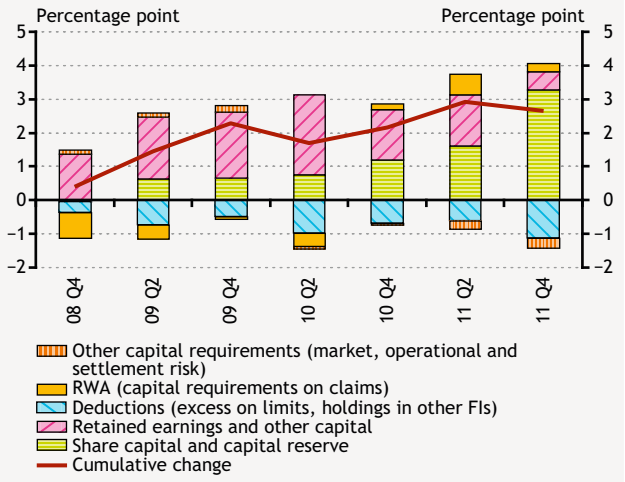
We expect the profits of the banking sector to remain low in 2012 and the profitability potential to improve over the medium term. The banks may no longer count on

Chart 84
CAR and SREP CAR of the banking sector



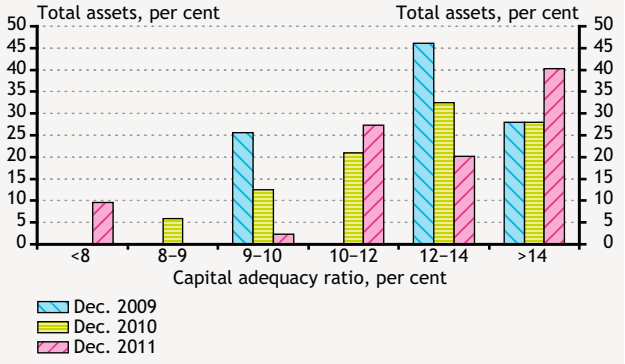
Source: MNB.

Chart 85
Factors affecting the cumulative changes in the capital adequacy ratio of the banking sector



Source: MNB.

Chart 86
Dispersion of the banking sector's total assets by capital adequacy ratio



Source: MNB.

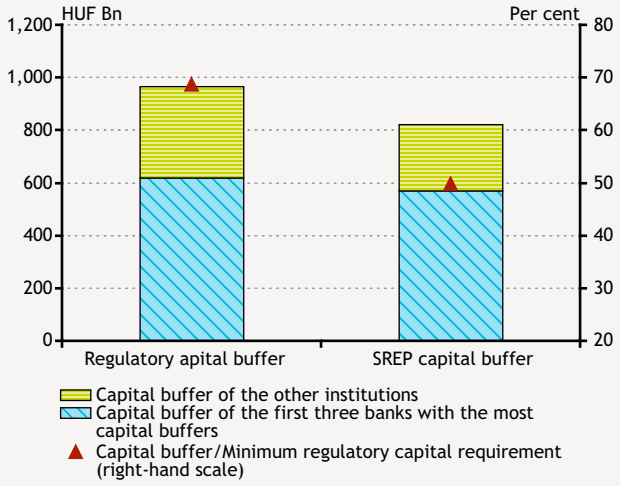
the margin that they had achieved with the previously healthy portfolio, which is now disappearing under the early repayment scheme. Even though we expect lower provisioning requirements because of the exchange rate cap, our calculations show a higher revenue shortfall due to the approximately 1 percent interest foregone by the banks under the exchange rate cap regime at the current level of the exchange rate. Our forecast suggests that in the next two years, the loan portfolios will continue to shrink, which may cut into the return on equity. Some of the losses from the early repayment scheme will also reduce the year 2012 profits. Nevertheless, following the decrease of the bank levy and the absence of one-off profitability shocks, in the longer term the banking sector should have a strong potential for profitability.

To offset losses, foreign parent banks have raised capital in several major banks. The capital adequacy ratio of the banking sector was close to 13.5 percent at the end of last year. Until August, the CAR of the banking sector increased due to the shrinking outstanding loan portfolio and the growth of available capital. In September, however, the capital adequacy ratio of the banking sector fell to 12.7 percent (Chart 84), predominantly due to the surge in losses. To address losses resulting from the early repayment scheme and the high provisioning requirement, foreign parent banks implemented capital increases at their subsidiaries in the aggregate amount of approximately HUF 350 billion (Chart 85). Even though parent banks are committed to consolidating the capital positions of their subsidiaries in Hungary, there is a growing risk that capital will later be followed by deleveraging. The fact that banks foresaw a significant drop in their risk-weighted asset values in the Market Intelligence Survey may foreshadow such a development (Box 9).

The distribution of capital buffers is concentrated. At the end of the year, the market share by total assets of banks with a capital adequacy ratio of less than eight percent was close to 10 percent (Chart 86). The owners of these banks increased capital early in 2012. At year-end, two thirds of the HUF 968 billion regulatory capital buffer was held by three banks, which shows the vulnerability of individual banks (Chart 87).

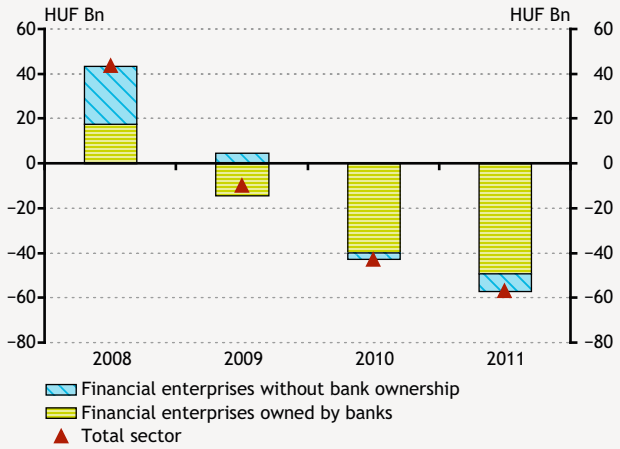
In the financial enterprises sector, enterprises owned by banks suffered material losses. At the end of 2011, the entire sector of financial enterprises realised pre-tax losses of HUF 57 billion of which HUF 49 billion was recorded by bank-owned financial enterprises (Chart 88). Bank-owned financial enterprises restrained their activities considerably. As a result – together with deteriorating portfolio quality – they have booked continually worsening

Chart 87
Capital buffer of the banking sector



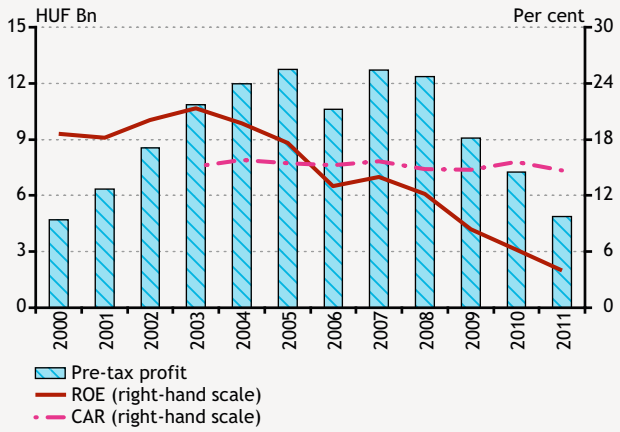
Source: MNB.

Chart 88
Pre-tax profit/loss of financial enterprises



Source: MNB.

Chart 89
CAR and ROE indicator and pre-tax profit of the co-operative credit institutions



Source: MNB.

losses for the past three years, forcing owners to repeatedly raise capital.

The income of the savings cooperatives sector continued to fall, and their capital accumulation capacity is weakening. The pre-tax profit of savings cooperatives dropped further from the base of 2011, mainly due to declining trading (Chart 89). Because the share of corporate and household loans is low and the presence of foreign currency denominated loans is minimal, loan loss provisioning is also lower. Consequently, they were less affected by the early repayment scheme. The majority of cooperative credit institutions have an adjusted balance sheet total below HUF 50 billion, and thus they were subject to a lower bank levy rate.

At the sector level, sufficient capital adequacy conceals asymmetries. At the end of 2011, cooperative credit institutions had a capital adequacy ratio of 14.7 percent, showing a strong capital position, but significant asymmetry can be observed. Additional risks pertaining to the sector are shown by the SREP CAR indicator of 11.6 percent at end-2011.

Box 9

Business expectations of Hungarian banks for 2012

Within the context of the Market Intelligence Survey, using questionnaires and meetings with senior management, early in 2012 the MNB approached the eight largest Hungarian commercial banks and two branches of foreign banks active on the money markets to obtain information about banks' expectations for 2012. Against the backdrop of a high degree of uncertainty, their objectives include intensifying deposit collection, strengthening profitability and efficiency positions, and increasing self-financing capabilities.

Banks' target figures for the financial year of 2012

Indicators	Surveyed banks		Banking sector	
	End of 2011 values	Plans for 2012	End of 2011 values	Plans for 2012
I. Balance sheet developments				
1. Increase of balance sheet total (YoY)	2.3%	–3.6%	2.8%	–3.0%
2. Credit growth targets				
a. Households	–12.0%	–8.4%	–10.3%	–5.9%
b. Non-financial corporations	–7.3%	–3.2%	–5.2%	–3.6%
c. Financial corporations	–22.6%	–9.6%	–22.0%	–3.4%
3. Growth targets for deposit taking				
a. Households	3.3%	4.5%	4.5%	3.6%
b. Non-financial corporations	–0.3%	0.3%	–0.3%	1.3%
c. Financial corporations	10.8%	–0.6%	11.9%	–1.6%
II. Liquidity, asset-liability matching				
1. Loan-to-deposit ratio (change in percentage point)	–7,8 percentage point	–15 percentage point	–20 percentage point	–4 percentage point
2. Foreign funding/balance sheet total (percent)	24.8%	20.7%	26.2%	24.6%
3. On balance sheet open FX position (percent)	16.0%	11.8%	13.6%	not enough reponses for drawing conclusion
III. Portfolio quality				
1. Non-performing loans' ratio (percent)				
a. Households	12.5%	15.6%	13.1%	
b. Non financial corporations	17.7%	19.3%	17.4%	
c. Total loans	13.5%	16.0%	13.3%	
2. Loan loss provisiong (as percent of total loans)				
a. Households	5.3%	4.6%	5.6%	
b. Non financial corporations	3.7%	2.1%	4.2%	
c. Total loans	2.6%	n. a.	2.7%	
III. Profitability				
Profit before tax (HUF billion)	–66	67	–212	
ROA (%) (before tax)	–0.3%	0.4%	–0.7%	
ROE (%) (before tax)	–3.2%	0.5%	–8.1%	
IV. Capital position				
Growth in Risk Weighted Assets total	–1.0%	–4.5%	–0.7%	
Capital adequacy ratio	13.3%	14.5%	13.5%	
VI. Other goals				
Number of employees	24 688	23 844	30 738	
Branches (number)	1 362	1 318	1 691	

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.

In 2012, banks are planning substantial balance sheet contraction, potentially resulting in a drop in the loan-to-deposit ratio. Underlying factors include the contraction of corporate and household loans and an expansion of deposits at a rate similar to the one projected by the MNB. Competition may be intensified in the deposits market as banks are targeting greater deposit growth than forecasts for the entire sector would support. As evidenced by their budgeted figures, the foreign funding of banks will decrease; banks intend to achieve this through other means than expanding their currency swap stock. If banks pursue the course outlined in 2012, the speed of outflow of external funds and vulnerability in the currency swap market will both be reduced.

Banks expect the ratio of loans overdue more than 90 days to increase for both household loans and loans to non-financial corporations. In the household segment, institutions expect a greater rise in the non-performing portfolio than the MNB forecast. The growth of the non-performing ratio is attributable partly to the better performing customers lost through the early repayment scheme and partly to the fact that banks do not expect the new arrangements aiming to help borrowers in foreign currency to significantly reduce the non-performing portfolio. In the corporate portfolio, banks envisage a more modest increase in the NPL ratio; thus they projected a lower rate than the MNB. In 2012, the banking sector may return to profitability.

2.6 Stress tests underline strong shock-absorbing capacity

Over the next two years, the Hungarian banking system will have to operate in a subdued growth environment, with a weaker HUF/EUR exchange rate level than previously envisaged. However, the capital injections by parent banks at the end of last year and the beginning of this year consolidated the capital position of the banking sector and thus, on the whole, its resilience has increased. Nevertheless, one of the banks needs to raise additional capital even in the baseline scenario. According to our stress test, in the event of a persistent two-year shock, additional capital of HUF 83 billion would be required for the banking system as a whole to meet the 8 percent minimum capital requirement. In the stress scenario, three-quarters of the requirement is linked to a single bank. This capital need is significantly lower and much more concentrated than the previous stress test result published in autumn 2011 (for a period of one and a half years), as a result of the sizeable capital injections.

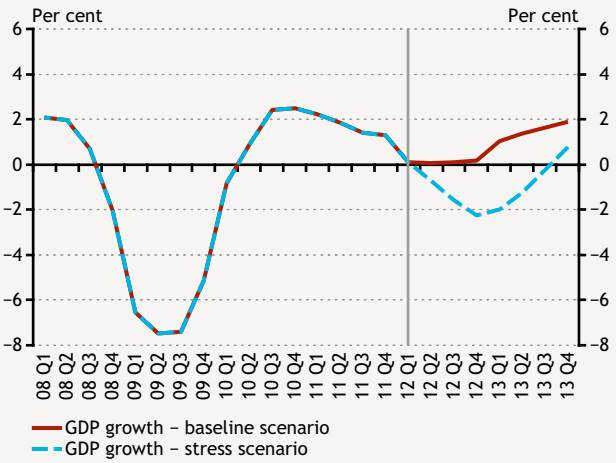
The banks are meeting the liquidity requirements imposed in January 2012. In the event of a low probability complex stress, which simulates simultaneous occurrence of financial market turmoil, deposit withdrawal and exchange rate shock, the aggregate liquidity buffer remains positive but its level falls below the regulatory requirement. In this event, meeting the balance-sheet coverage ratio of 10 percent of total assets would require additional liquidity equivalent to 4 percentage point of total assets, while FX liquidity need would amount to EUR 3.4 billion.

2.6.1 CAPITAL INJECTIONS BY PARENT BANKS HAVE INCREASED THE RESILIENCE OF THE BANKING SECTOR

The macroeconomic baseline scenario is less favourable than in the Autumn 2011 report. The current baseline scenario is identical to the forecast in the March issue of the Quarterly Report on Inflation. This scenario points to a less favourable outlook for 2012 than the one applied in the November Report on Financial Stability. The deteriorating global economic outlook and surrounding risks – and, in connection with that, the slowdown in the domestic economy – has contributed to the worse baseline scenario. Expected growth is lower (Chart 90), while the forint has depreciated against both the euro and the Swiss franc. In the baseline scenario, employment (Chart 91) increase only by substantial expansion of public work programmes, though this tends not to improve the labour market prospects of performing borrowers.

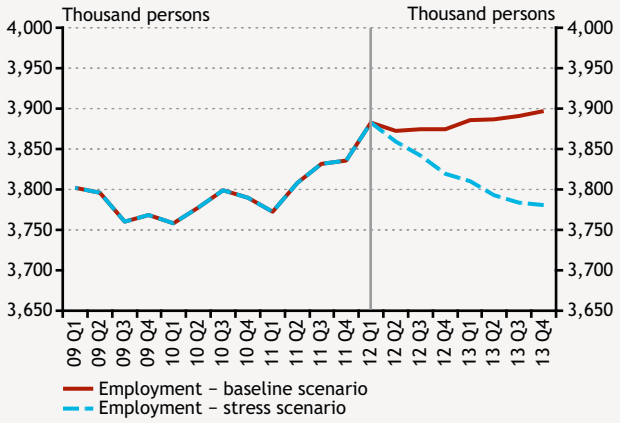
Escalation of the European sovereign debt crisis and the consequences of the related global economic downturn are quantified in the stress scenario. While the baseline scenario represents the most likely course of events, the stress scenario examines the consequences of a low-probability, severe but plausible series of events. We assume that the problems of the European sovereign debt crisis will escalate again and, as a result, the euro area will fall into a recession deeper than previously envisaged. Declining external demand will curb Hungarian exports and

Chart 90
GDP growth rate in the scenarios
(YoY)



Source: MNB.

Chart 91
Employment in the scenarios



Source: MNB.

the costs of external financing will rise. Hungarian risk premia will increase considerably and the exchange rate of the forint will depreciate notably. In this scenario, monetary policy will start a tightening cycle, attempting to forestall both financial stability risks and inflationary effects of the exchange rate depreciation. The persistently high risk premium will make borrowing more difficult for companies, which in turn will curb economic growth. Thus, in the stress scenario, the economy will slide into a severe, protracted recession in 2012, with recovery starting only in Q4 2013 (Table 6). As a result of more severe risks and worsening growth prospects, companies will cut employment, undermining the income position of households. Considering the commitment of the Swiss National Bank to the exchange rate of the Swiss franc, we expect an exchange rate of EUR/CHF 1.2 over the entire horizon.

Several assumptions were made for the quantification of the effects of government programmes aimed at managing the difficulties of foreign currency borrowers. Our calculations are based on the preliminary balance sheet and profit and loss account figures of banks for end-December 2011, adjusted by the effects of early repayment in January and February 2012. Thus, the entire effect of early repayment is reflected in the lower loans outstanding, capital requirements and capital levels. The new exchange rate cap is taken into account at several points (Table 7). As the programme will also result in a lower net present value of instalments, participation is worthwhile for every eligible borrower. We estimate that 90 percent of the performing loans outstanding satisfy the eligibility criteria for the programme; thus these borrowers are taken into account in the expected loan losses as of H2 2012 with the lower debt servicing burden. The lower instalment is the result of the burden-sharing between the banks, the state and borrowers. The resulting costs are deducted from the profits of banks. We assume that 20 percent of the non-performing mortgage

Table 6
Macroeconomic scenarios in the stress test

	Baseline scenario		Stress scenario	
	2012	2013	2012	2013
GDP*	0.1	1.5	–1.1	–0.7
Sovereign CDS spread (bp)	546	475	743	811
Yearly average of HUF/EUR exchange rate	297		331	
Yearly average of HUF/CHF exchange rate	247		276	
Employment* – public sector	–2.0	–0.2	–2.0	–0.2
Employment* – private sector	–0.1	0.5	–1.0	–2.0
House prices*	0.0	0.0	–10.0	–10.0

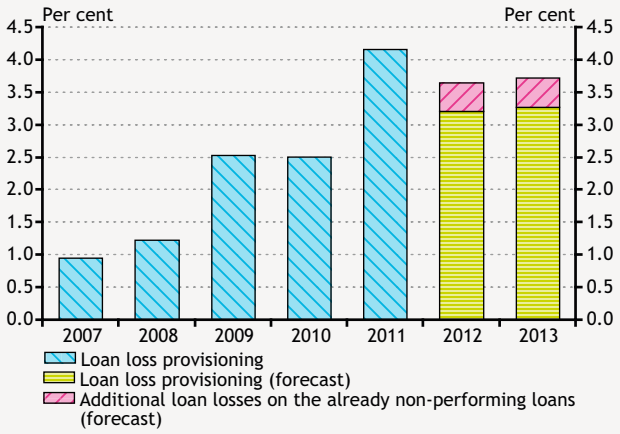
** yoy percentage change.*
Source: MNB.

Table 7
Assumptions on schemes targeting foreign currency denominated mortgage loans of households
(per cent)

Ratio of borrowers opting for the new exchange rate cap	90
Ratio of non-performing FX mortgage loans eligible for conversion into HUF	20
Rate of debt cancellation on loans converted into HUF	25
The relief on bank levy for debt cancellation	30
Rate of converted loans regaining performing status	50

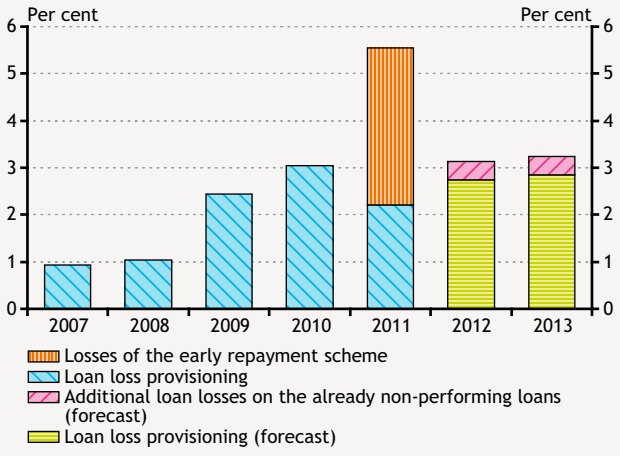
Source: MNB.

Chart 92
Loan loss ratio for the corporate portfolio in the stress scenario



Source: MNB.

Chart 93
Loan loss ratio for the household portfolio in the stress scenario



Source: MNB.

loans may be eligible for conversion into forints and partial debt relief. We reckoned on the debt cancellation of 25 percent in these cases, 30 percent of which have been deducted from the bank levy. We assumed the HUF/CHF exchange rate to be 247 for both the baseline and stress scenarios; that is, in the stress scenario, forint conversion would occur before the exchange rate shock. We assume that 50 percent of the portfolio converted into forint loans would regain performing status, and the other half would redefault.

Both in the baseline and the stress scenario, a decline in earnings before loan losses of individual institutions (adjusted for the impact of the early repayment) is assumed. In order to determine profitability, operating profit was taken as a basis. Added to this were exceptional impairment, loan loss provisioning, bank levy and losses on early repayment. Profitability in the baseline scenario was forecasted on the basis of the empirical relation between adjusted income calculated as described above, as well as performing loans and certain financial variables (e.g. short and long forint yields, 3-month EURIBOR, Hungarian 5-year CDS spread), while in the stress scenario 90 per cent of that figure was used. The forecasts were modified in certain respects on the basis of additional information received. Earnings before loan losses will be worsened in the forthcoming years by the significant contraction of the household portfolio due to the early repayment scheme. Furthermore this lost portfolio was decidedly well-performing and highly profitable. Consequently, income before loan losses will decline even in the baseline scenario, falling to 89 percent and 85 percent of the prior period (2007–2011) in 2012 and 2013, respectively, for the entire banking sector. In the stress scenario, the corresponding ratios are 80 and 77 per cent.

Loan losses were taken into account not only for corporate and household loans, but also for local government portfolio. The probability of default (PD) and loss given default (LGD) of corporate and household portfolio elements in the macroeconomic scenarios were estimated with the methodologies used for our previous reports. We used these figures to establish the expected loan loss rates on the two respective portfolios (Chart 92 and Chart 93). For corporate loans; we expect higher loan losses in the stress scenario than in 2009–2010, the worst crisis years. However, losses are lower than in 2011. We consider the 2011 loss to be an outlier. In that year banks significantly increased the loan loss coverage of non-performing loans. Loan loss provisioning for local government exposures was quantified again because, after a grace period, the first principal payments on a substantial part of the bonds will become due. Based on expert judgement we

calculated loan loss provisioning on loans and bonds (an annual 0.5-0.8 percent in the baseline and 1.2-1.4 percent in the stress scenario, depending on the product).

Even though the loan loss coverage on non-performing loans increased substantially in 2011, additional provisioning may be required in the event of a stress. Similarly to our earlier stress test, an additional loss on non-performing loans was calculated again in the stress scenario. Additional substantial losses may be incurred on these loans as a result of the deteriorating macroeconomic environment (due to the drop in real estate prices and the depreciation of the forint); therefore, they aggravate the vulnerability of the banking sector both in terms of profitability and funding.

Due to the deterioration of the economic environment, we continue to expect significant loan losses. The weaker growth prospects attributable to the euro area sovereign debt crisis and the weaker HUF exchange rate both add to the expected loan losses. In the case of the household portfolio, the introduction of the exchange rate cap has a slight mitigating effect but its impacts will not be perceivable before the second half of 2012. Accordingly, for 2012 we expect high loan losses in line with the Report on Stability published in November, while for 2013 a slight decrease is expected. In the stress scenario, due to the persistent and significant worsening of the macroeconomic environment, the losses in 2012 would be 39 per cent higher than in the baseline, without any in 2013; thus the stress scenario would yield close to 56 per cent higher losses (Table 8).

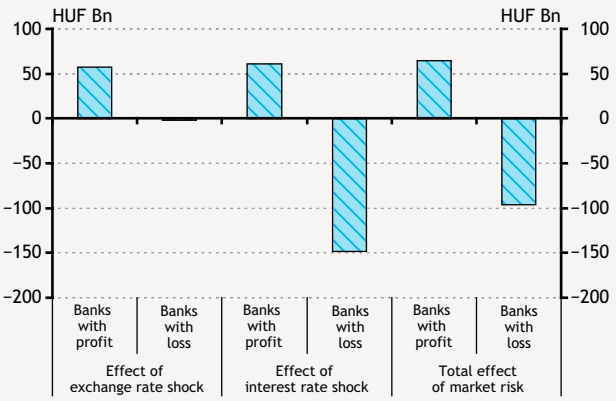
In the stress scenario, a rise in government bond yields would have a significant negative effect on profitability. In the market risk stress test we look at the impact of

Table 8
Main components of the losses of the banking sector in the stress test over a two-year horizon

	Main components of losses of banking system in eight quarter horizon (HUF Bn)			
	Baseline scenario		Stress scenario	
	2012	2013	2012	2013
Loan losses on corporate and household portfolio	**327**	**276**	**538**	**526**
Loan losses on new non-performing corporate loans	165	151	235	229
Loan losses on new non-performing household loans	162	126	234	233
Additional loan losses on the already non-performing loans			68	65
Loan losses on local government portfolio	6	6	13	12
Exchange rate risk of open position			–28	–28
Interest rate risk			43	43
Bank levy	113	61	113	61
Interest cost of the exchange rate cap scheme	14	26	18	41

Source: MNB.

Chart 94
Market risk stress test results



Source: MNB.

interest and exchange rate shocks through the immediate revaluation of market exposures. The average exchange rate and interest rate difference between the baseline and stress scenarios was taken into account market risk stress test as well. The resulting profit impact was evenly distributed over the two-year horizon. An approximately 300 basis point parallel upward shift of the yield curve results in an almost HUF 80 billion loss at the banking sector level, mainly due to the revaluation of the government securities portfolio (Chart 94).

The impact of the exchange rate shock is positive, but smaller in comparison with the previous market risk stress test. On aggregate, the banking sector is holding an open position against the forint; therefore, the depreciation of the exchange rate has a positive effect on profitability. In the stress scenario, the exchange rate would depreciate by 12 percent on average, which ceteris paribus would increase the profits of banks with long FX positions, i.e. the majority of banking sector, by approximately HUF 53 billion and reduce the profits of banks with forint surpluses by HUF 2 billion in aggregate through the total open FX position (Chart 94).

Table 9
Stress test results based on 8 percent regulatory capital requirement

	Baseline scenario		Stress scenario	
	2012	2013	2012	2013
Capital need of banks (HUF Bn)	0	12	27	83
Capital buffer of banks above 8 percent CAR (HUF Bn)	1,117	1,294	803	691
Total capital buffer (HUF Bn)	**1,117**	**1,282**	**776**	**608**

Source: MNB.

In the baseline scenario, due to the material capital injections by parent banks in 2011–2012, the banks will meet the 8 percent capital requirement by end-2013 except one. At the end of 2011 and early this year, several Hungarian banks received capital injections from their parents to absorb the losses resulting from the deteriorating economic environment and the early repayment scheme. The new capital allowed banks to weather outstanding losses in 2011, with adequate capital levels and to be able to absorb further losses. One bank, however, will need significant additional capital, amounting to HUF 12 billion, even in the baseline scenario (Table 9). The other banks will have capital adequacy ratios above 9 percent and the capital buffer of the banking sector will increase over the forecast horizon.

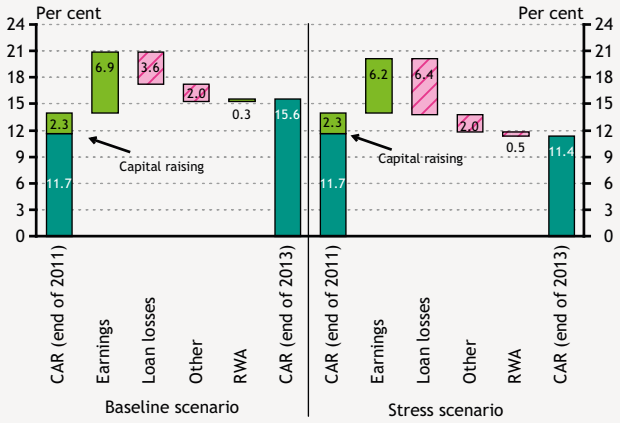
Table 10
Stress test results based on 9 percent regulatory capital requirement

	Baseline scenario		Stress scenario	
	2012	2013	2012	2013
Capital need of banks (HUF Bn)	12	29	51	153
Capital buffer of banks above 9 percent CAR (HUF Bn)	960	1,143	642	583
Total capital buffer (HUF Bn)	**948**	**1,114**	**591**	**430**

Source: MNB.

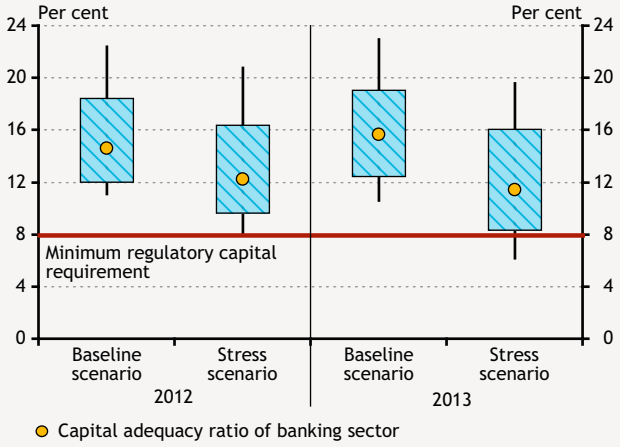
As a result of the capital injections, the shock-absorbing capacity of banks has improved, and thus the additional capital requirement in the stress scenario is lower but more concentrated than in the November report. The better capital position is also reflected in the stress scenario. In 2012, under the stress scenario, HUF 27 billion capital would need to be raised for a single bank so that each bank meets the 8 percent requirement. The 9 percent level would require HUF 51 billion capital injection for two banks (Table 10). As a result of a persistent stress, in 2013 banks would need significantly greater amounts of capital injections, but the capital need of HUF 83 billion to meet the 8 percent minimum CAR is still significantly below the

Chart 95
Factors affecting CAR



Note: Rose bars denote CAR-decreasing, green bars denote CAR-increasing factors.
Source: MNB.

Chart 96
Distribution of CAR based on number of banks



Note: Vertical stick refers to the interval of 10-90 percent, while rectangle refers to the interval of 25-75 percent
Source: MNB.

level envisaged in our autumn report. Furthermore effects of the shock would ebb away considerably the capital buffer of the banking sector, which would worsen the lending capacity. Despite the significant contraction, capital buffer will be higher in the recent stress test than in the results half year ago, even though shorter forecast horizon was covered that time. Still, it should be emphasised that the commitment of parent banks to their Hungarian subsidiaries is critical because of the expected capital needs and to boost lending.

Although systemic capital adequacy seems to be adequate, the aggregate indicator conceals significant asymmetry. The capital adequacy ratio of the banking sector is robust, reaching 15.6 percent by end-2013 in the baseline scenario and approaching 11 percent in the stress scenario following a two-year shock (Chart 95). This seemingly favourable figure conceals very high asymmetry; capital adequacy ratios of individual institutions are widely dispersed. Furthermore, poor performers include several major institutions including one with additional capital need even in the baseline scenario (Chart 96).

2.6.2 THE LIQUIDITY STRESS TEST INDICATES A CONSIDERABLE SHORTAGE OF FOREIGN CURRENCY

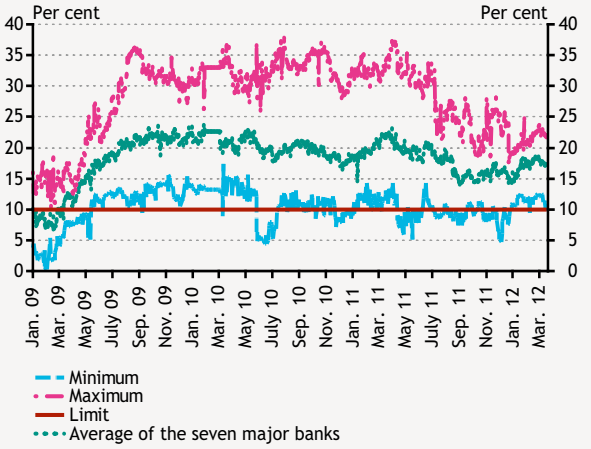
The short-term liquidity of the seven large banks is adequate. Two new indicators were introduced in January 2012 to ensure short-term liquidity of banks (Box 10). Banks have been complying with these requirements continuously, but there is an asymmetry in the case of the liquidity surplus in excess of the mandatory liquidity requirement. Some banks maintain their ratios close to the regulatory minimum liquidity requirement, while others have considerably higher surplus, and thus the free liquidity reserve is concentrated in a few banks.

Box 10
New elements in the Hungarian liquidity regulations

The 2008 crisis highlighted that the drying up of both interbank and swap markets can cause severe liquidity tensions in the banking system. In order to prevent such situations, the Hungarian Financial Supervisory Authority and the Magyar Nemzeti Bank initiated the introduction of two short-term liquidity indicators supervised daily and one long-term indicator regulating the maturity mismatch in foreign exchange positions. The relevant regulation was promulgated at the end of December 2011.

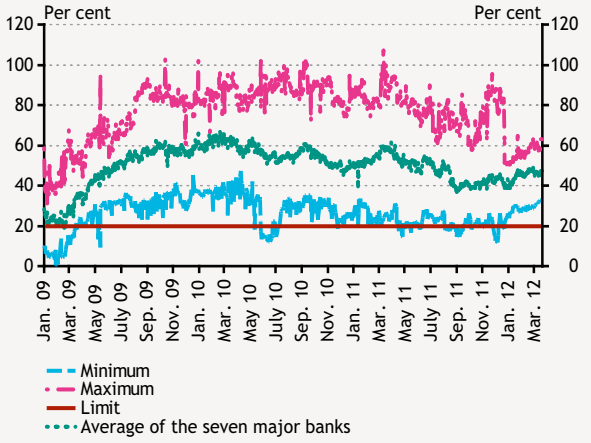
The daily indicators aim to assure that banks have sufficient liquidity buffers in proportion to their balance sheet total or deposit portfolio on a 30-day horizon. The liquidity surplus of banks is the sum of the cumulative surplus or deficit resulting as the difference of present and future assets and liabilities relating to treasury transactions and the available liquid reserves.

Balance sheet coverage ratio of the seven major banks



Source: MNB.

Deposit coverage ratio of the seven major banks



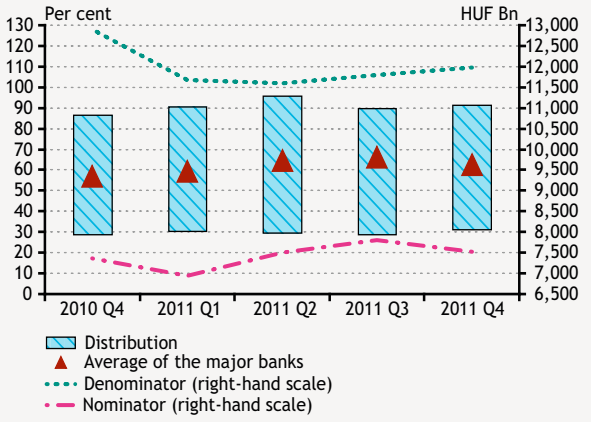
Source: MNB.

Credit institutions must determine their liquidity surplus in proportion to the prevailing daily balance sheet total (balance sheet coverage ratio) and also to the stock of corporate and household deposits (deposit coverage ratio). The minimum level of the balance sheet coverage ratio is 10 percent; the required level of the deposit coverage ratio is 20 percent. Credit institutions must meet at least one of these two minimum levels. The seven large banks comply with the minimum liquidity levels set out in the government decree. However, a number of banks have liquidity surpluses as a percentage of the balance sheet total close to the regulatory limit. Most of the other banks meet both indicators, some can meet only one of the requirements but there is no market participant that fails to comply with either.

In addition to short term liquidity risks, the Hungarian banking system also faces a significant risk in the medium term: that is the maturity mismatch in foreign exchange positions. To manage this risk, the MNB proposed the foreign exchange funding adequacy ratio (FFAR), which is the quotient of stable foreign exchange funds plus the net foreign exchange swap stock with a maturity over one year divided by the weighted foreign currency denominated assets to be financed (the method of calculation of the ratio is explained in details in the Report on Financial Stability of November 2011). As of 1 July 2012, banks will have to comply not only with the daily liquidity indicators but also with the 65 percent minimum for the FFAR. The most recent available data indicate that an overwhelming majority of large banks meet the regulatory requirement.

Previously there was no quantified liquidity or maturity mismatch requirement for the Hungarian banking system; the new rules amend this situation. Recently, the problem of daily liquidity and maturity mismatch has become the focus of international regulation as well. The primary objective of the LCR (Liquidity Coverage Ratio) to be implemented as of 2015 is to assure that in a stress situation banks have an adequate amount of liquidity up to 30 days to meet their obligations, while the Hungarian regulation requires banks to maintain adequate liquidity under normal business conditions, but making conservative assumptions. The maturity mismatch will be regulated by the NSFR indicator proposed to be introduced in 2018, which, in contrast with the FFAR, expects the matching of maturities irrespective of denomination.

The distribution, the nominator and the denominator of the major banks' FFAR



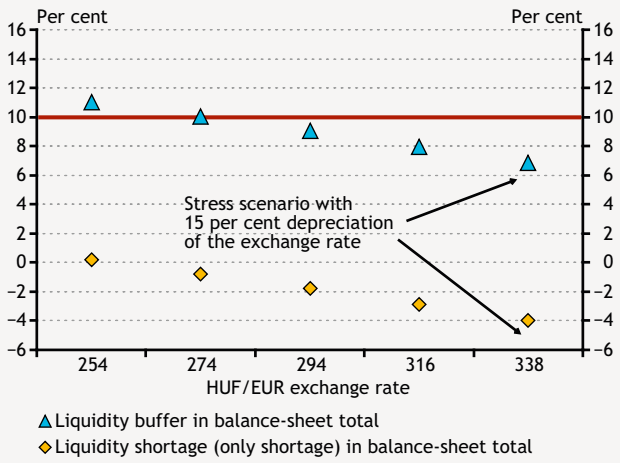
Source: MNB.

Table 11
Main parameters of the liquidity stress test

Assets			Liabilities		
Item	Degree (percent)	Currencies affected	Item	Degree (percent)	Currencies affected
Default on interbank assets	20	HUF	Withdrawals in household deposits	10	HUF/FX
Exchange rate shock on swaps	15	FX	Withdrawals in corporate deposits	15	HUF/FX
Depreciation of assets eligible at the central bank	10	HUF			

Note: The forward-looking treasury gap assumes no active treasury management on the part of the bank; thus it does not take into account the potential rollovers of maturing interbank and foreign funds.
Source: MNB.

Chart 97
Liquidity buffer after a stress and foreign exchange liquidity shortage (only shortage) as a percentage of the balance-sheet total



Note: Based on 31 January 2012 data.
Source: MNB.

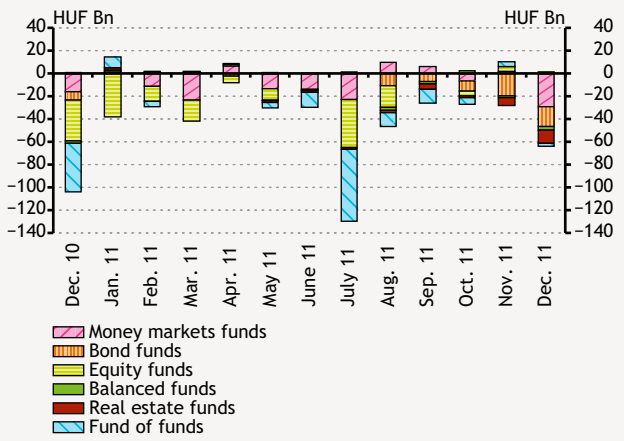
Low probability complex stress test: simultaneous occurrence of financial market turmoil, deposit withdrawal and exchange rate shock. In addition to forint depreciation, we determined household and corporate deposit withdrawals as well as the price decline of central bank eligible securities using the data of the seven largest banks, applying value-at-risk (VaR) based stresses relying on historical data. The size of the exchange rate shock is identical to the one applied in the macro stress scenario, whereas mainly empirical crisis experiences were used in determining the other parameters (Table 11).

The entire liquidity buffer remained positive under the complex stress scenario, but the regulatory liquidity surplus declined substantially while a considerable foreign currency shortage emerged. Even in the complex stress scenario, each banks' liquidity would be positive while the total assets proportionate regulatory surplus would fall almost 4 percent below the 10 percent requirement (Chart 97). In the event of turmoil on the swap markets – which play a key role in the foreign exchange refinancing of the domestic banking sector – foreign currency may become hard to obtain. In an extreme case, exchangeability between currencies may not be possible. Under stress, a foreign currency liquidity requirement of an amount below the forint surplus, corresponding to 4 percent of total assets amounting to EUR 3.4 billion, may arise.

2.7 Both the abolition of the mandatory private pension fund system and the early repayment scheme deplete the assets managed by Hungarian investment funds

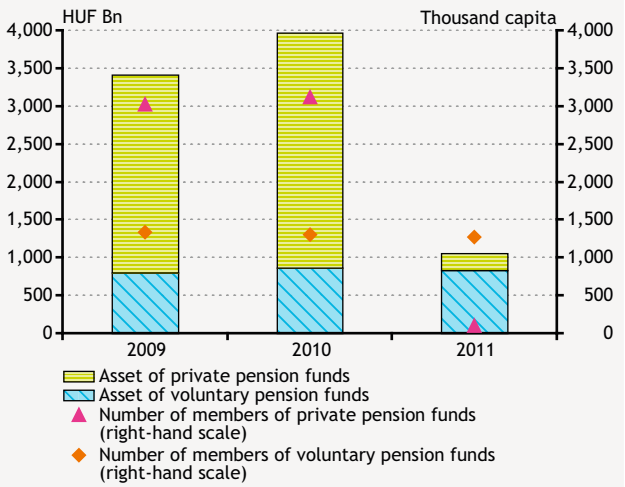
The redirection of all private pension contributions into the state pillar has practically abolished mandatory private pension funds. Even though the overhaul of the private pension fund system heightened the importance of private pension savings, this is not yet noticeable in the assets of voluntary pension funds. The capital withdrawal of former private pension funds has significantly reduced the volume of assets managed by investment funds, and their income dropped accordingly. In line with European developments, the negative growth prospects are likely to reduce demand for insurance products in both the life and non-life business.

Chart 98
Net monthly sales of Hungarian investment funds



Source: BAMOSZ.

Chart 99
Assets and membership of private and voluntary pension funds



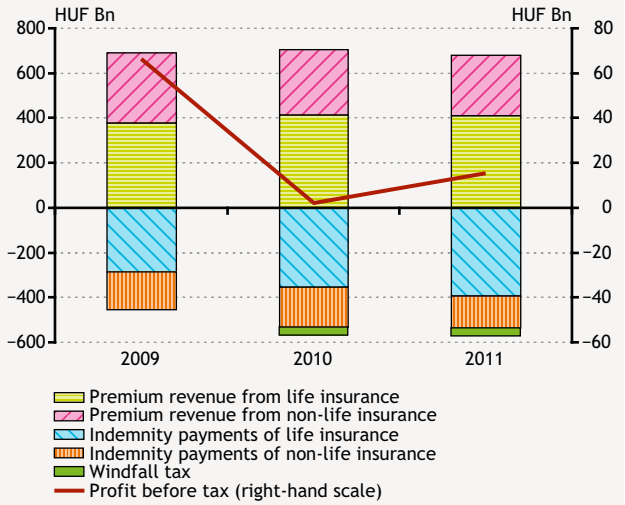
Source: HFSA.

The assets managed by investments funds fell substantially, due to the changes in the pension system. Overall, the assets managed by investment funds were reduced by HUF 260 billion in 2011. The decline was most marked in July (Chart 98), when the government started the redemption of the assets managed in private pension funds. Capital was continuously withdrawn from the sector throughout the year and the adverse economic climate forced private investors to redeem their savings as well. The decline in Q4 may be partly attributable to the need to raise funds for the early repayment of foreign currency denominated mortgage loans. The major drop in the assets managed may trigger restructuring in the market of investment funds, those funds that had the management of private pension fund assets as their dominant activity are the most vulnerable.

Redirection of all of the private pension fund contributions into the state pillar practically means the abolition of the private pension fund system. With the change of the pension fund system, the assets of private pension funds plummeted by 92 percent in one year by the end of 2011 (Chart 99). The dominance of the pay-as-you-go pillar in the pension insurance field has been restored in full: from 2012 on, all of the individual pension contributions will be paid into the state pillar, and participants can maintain their membership in private pension funds only if they make voluntary payments into the funds. Thus private pension funds have no revenues to cover their operating costs. Therefore, the operation of pension funds cannot be maintained in the long term. The consolidation of pension funds has already started; two of them have announced their termination and more closures and mergers are expected in the near future.

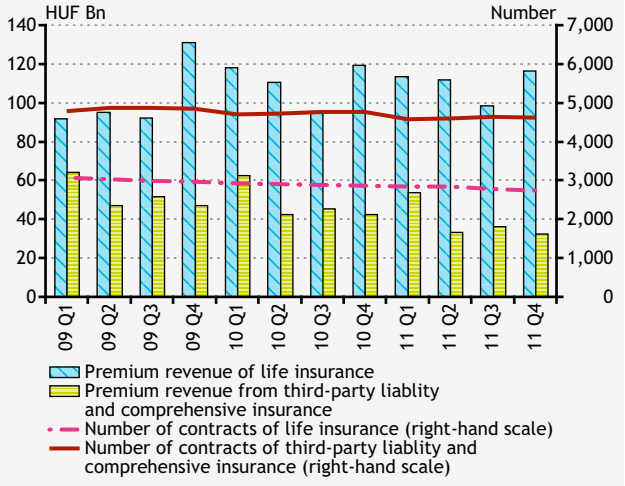
The assets of voluntary pension funds have not shown any noticeable change. With the disappearance of the

Chart 100
Annual premium income, claim payment and pre-tax profit of insurance companies



Source: HFSA.

Chart 101
Premium income and number of policies for selected insurance products



Source: HFSA.

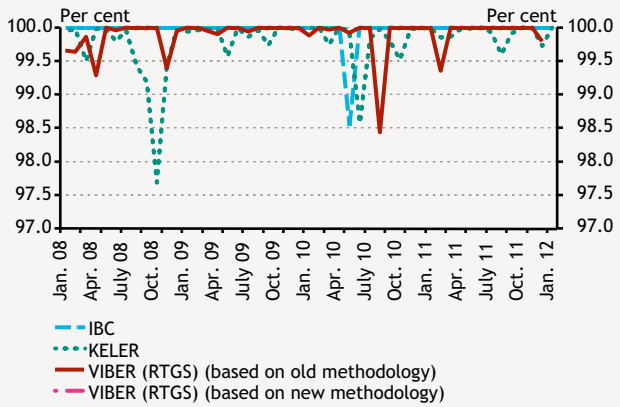
private pension fund pillar, private pension savings have become even more important. Nevertheless, the popularity of voluntary funds has been declining for years. Though increasing numbers of new members have been joining, this is offset by the growth in the number of exists, which is explained by the crisis and the related adverse economic situation. Furthermore, the lowering of the tax deduction on voluntary pension fund contributions has also undermined the appeal of such funds. The changes in the cafeteria system have also had a detrimental effect on voluntary pension funds as employees tend to prefer consumption-related options.

The profitability of the Hungarian insurance sector increased slightly in 2011 (Chart 100). The profit of the life business was significantly below the previous year level, which is attributable to the increase in indemnity payments. By contrast, the profits of the non-life business improved because of lowering expenditures explained by the absence of flood and storm damage. In addition, the non-life business also contracted because both the third party liability and the comprehensive insurance products generated less revenue. The average premia have been declining in this segment, due to the continuously strong competition. (Chart 101).

2.8 Hungarian payment and settlement systems have operated at a low risk level

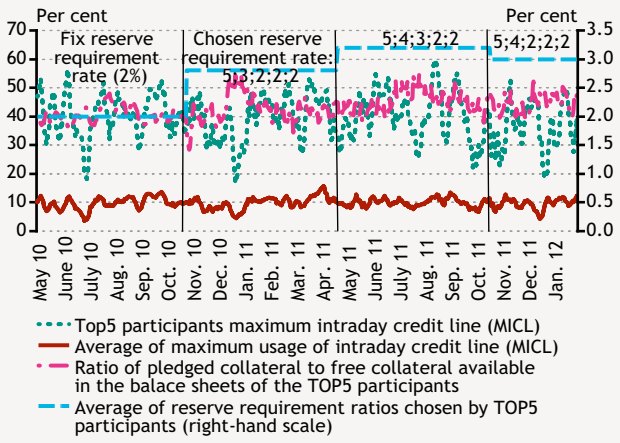
The operation of Hungarian payment and settlement systems continued to be stable in 2011, with adequate liquidity and system availability. The monitoring of availability of the VIBER has been expanded from settling payment transactions and VIBER monitor service to all business functions. The ICS and the VIBER as the settlement platform of the ICS, together with the sector of credit institutions, continued the preparation for the ICS intraday clearing to be implemented on 1 July 2012.

Chart 102
Availability of domestic overseen systems (IBC, KELER, VIBER)



Note: The calculation methodology for the availability ratio of VIBER was changed in January 2012. The ratios based on the new and old methodologies are not comparable.
Source: KELER, MNB.

Chart 103
Average utilisation of the maximum credit line in the whole system and for the 5 VIBER members with the highest turnover



Note: 5-day moving average. The ranking of VIBER members by turnover recalculated from the dates of selection of the minimum reserve ratio. Stocks of disposable securities and securities provided as collateral to the MNB are compared at nominal value.
Source: MNB.

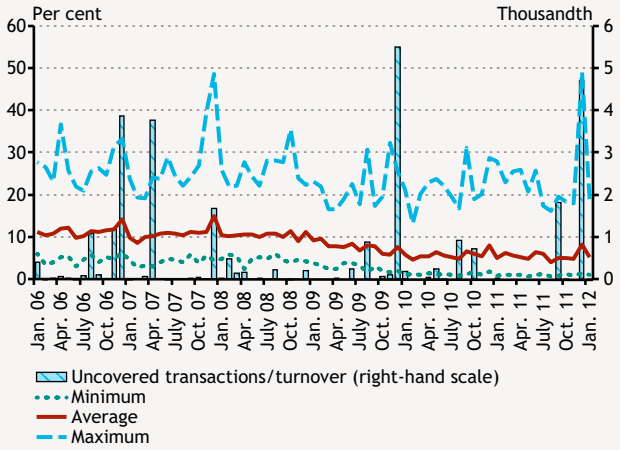
Availability of operation of the VIBER was above the expected level in 2011. The average availability ratio was 99.96 percent in 2011 (Chart 102). In 2012, the methodology for monitoring the availability of VIBER was changed, consisting primarily in the expansion of the tools of oversight to monitor any operational risk events in the VIBER. Thus, monitoring of VIBER has been expanded from settling payment transactions and VIBER monitor service to all business functions.

Last year, intraday liquidity was abundant in VIBER. In 2011, the turnover of VIBER exceeded the average of the previous year but characterised with more fluctuations. Analysis of the liquidity risk indicates that the credit institutions in the system continued to maintain high credit lines; as a result, the level of intraday liquidity remains ample both at the aggregate and individual levels.

Liquidity in VIBER was also promoted by the optional reserve requirement ratio regime introduced in November 2010. Several of the 5 VIBER members with the largest debit turnover, have made use the opportunity to flexibly change the reserve requirement ratio (Chart 103). Credit institutions with high turnovers in VIBER tended to increase their reserve ratio above 2 percent. The potential collateral available in the individual banks' balance sheets and not yet pledged for central bank credit operations alleviates the liquidity risk of the system.

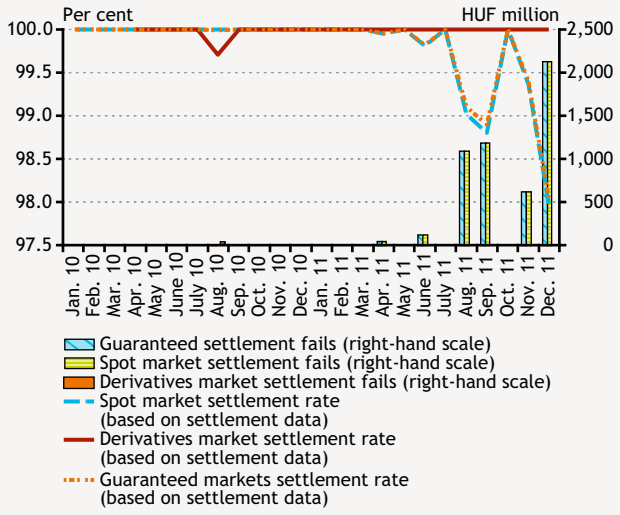
In VIBER, the "payment versus payment" method has been introduced for executing linked payments and operating hours have been extended by one hour. Since 12th December 2011, the "payment versus payment" method offers an opportunity for settling large offsetting customer transactions with substantial intraday liquidity saving and without increasing intraday counterparty exposures at the Hungarian VIBER participants toward their customers. As part of the preparation for the intraday ICS clearing to be launched on 1st July 2012, the operating hours of VIBER were extended by one hour as of January 2012.

Chart 104
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 105
Value of fails and the ratio of properly settled transactions in CCP-cleared securities markets



Source: MNB.

Liquidity in the Interbank Clearing System (ICS) was also abundant in 2011. The ratio of unfunded queuing transactions to turnover remains insignificant. The liquidity in the ICS was abundant (Chart 104) as the ICS and VIBER use practically the same liquidity pool for settlement, while the turnover of the ICS is less than 5 percent of the turnover of VIBER. Consequently, any queuing can be considered as a result of the inadequate collateral management procedures of clearing members as members would have been able to fill in the liquidity gap from the eligible, but not yet pledged collateral available in their balance sheets.

Intraday clearing of electronically submitted credit transfers in ICS will be introduced on 1st July 2012. The introduction of intraday clearing is required by the MNB decree on execution of payment transactions, thus after July 2012, domestic electronic credit transfers shall take no longer than 4 hours to arrive at the recipient credit institution.

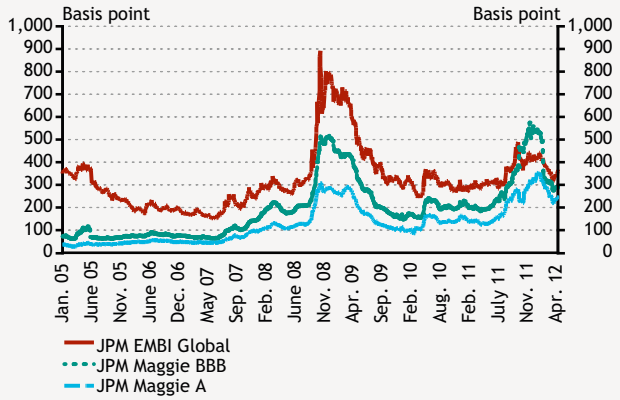
The intraday ICS clearing regime will force some credit institutions to slightly adjust their intraday transaction and liquidity management. VIBER will be the settlement platform for the ICS in the case of intraday clearing as well. The settlement for intraday clearing will be time critical in VIBER as depending on the clearing cycle, clearing members have 15 or 60 minutes to provide sufficient liquidity. However, the available current account balance and intraday credit lines not yet utilised may also serve as liquidity for the settlement. Furthermore, in VIBER, ICS settlements will have the second highest priority after MNB initiated transactions. Consequently, some credit institutions may have to adjust their intraday transaction and liquidity management. This is because there are days when some credit institutions experience high maximum intraday credit line utilisation in VIBER.

Availability of the securities settlement system was sufficient. In 2011, the settlement rates for the markets guaranteed by KELER KSZF deteriorated as compared to the previous year. Close to 85 percent of settlement fails related to two clearing members, and half of the settlement fails extended beyond the day (Chart 105).

Appendix: Macro-prudential indicators

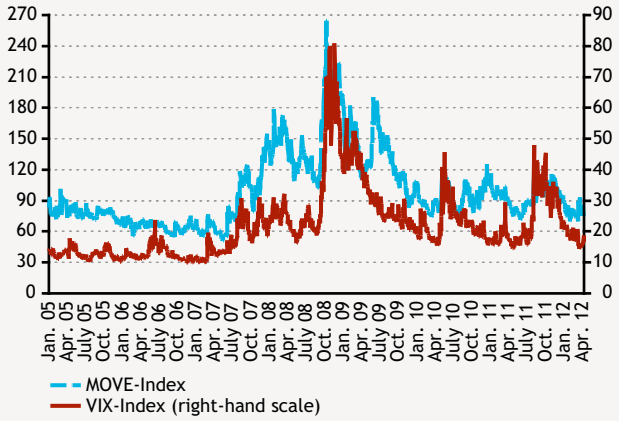
1 RISK APPETITE

Chart 1
Primary risk indicators



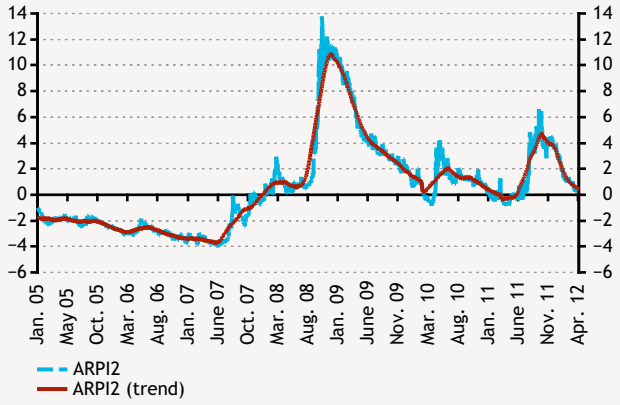
Source: Datastream, JP Morgan.

Chart 2
Implied volatility of the primary markets



Source: Datastream, Bloomberg.

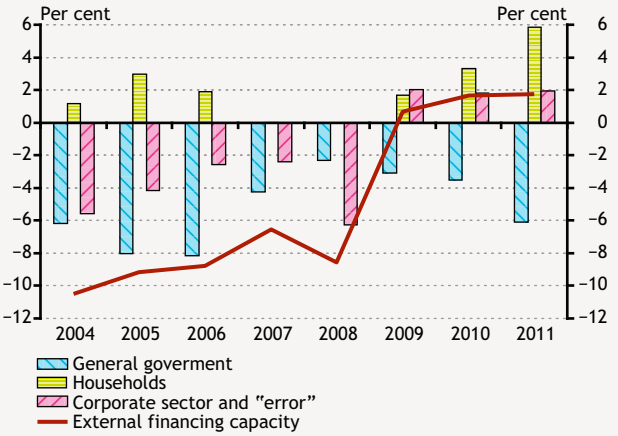
Chart 3
Dresdner Kleinwort indicator



Source: DrKW.

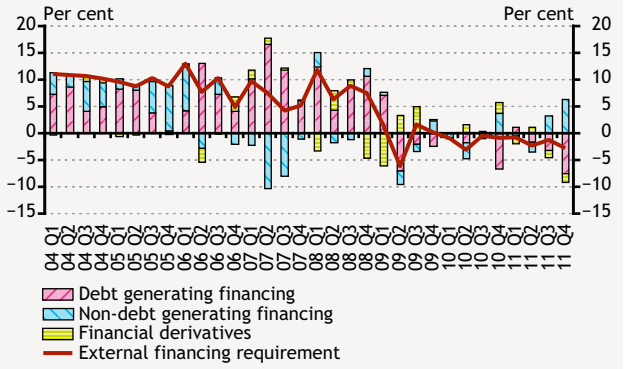
2 EXTERNAL BALANCE AND VULNERABILITY

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



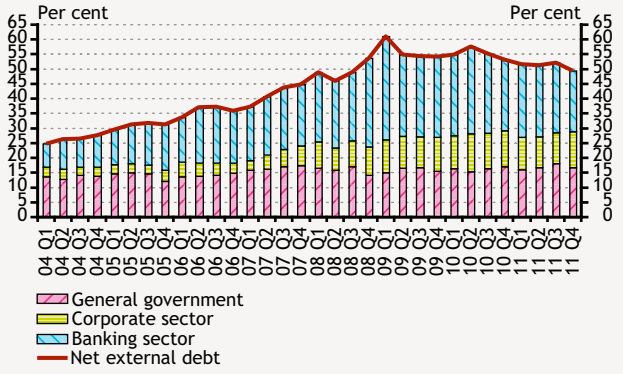
Source: MNB.

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



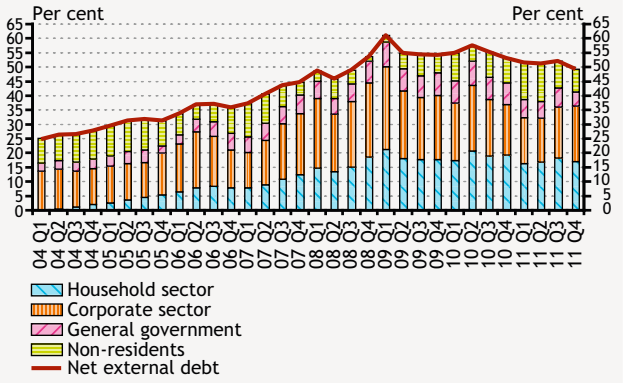
Source: MNB.

Chart 6
Net external debt as percentage of GDP



Source: MNB.

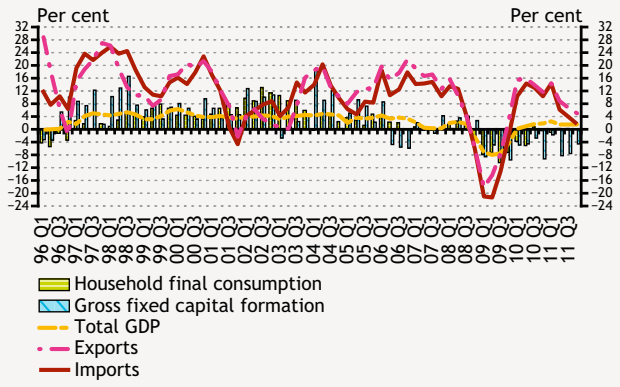
Chart 7
Open FX position of the main sectors as percentage of GDP



Source: MNB.

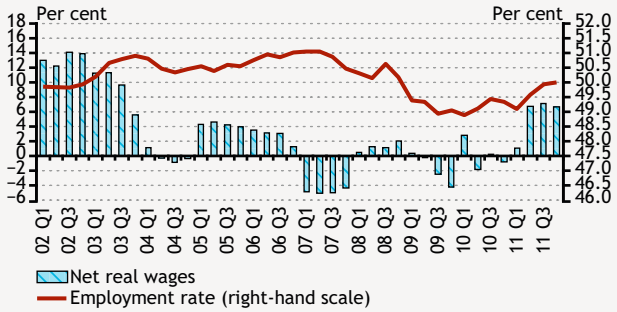
3 MACROECONOMIC PERFORMANCE

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



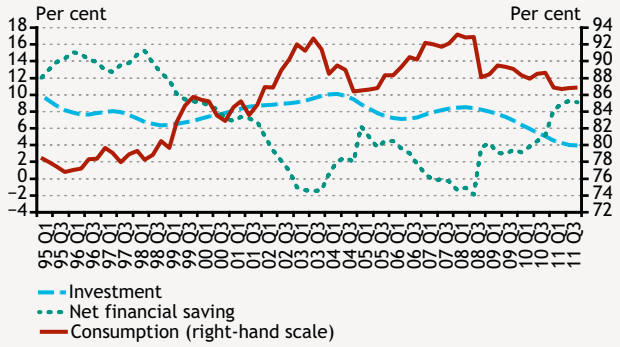
Source: HCSO.

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



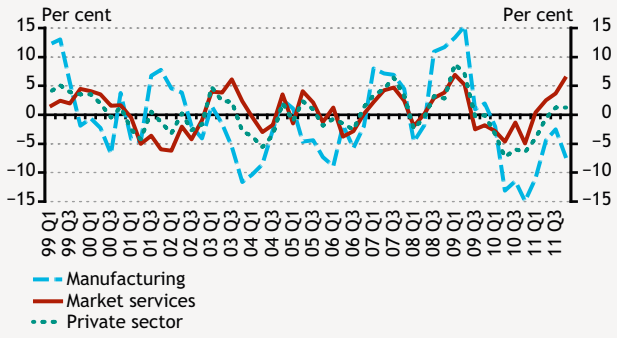
Source: HCSO.

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



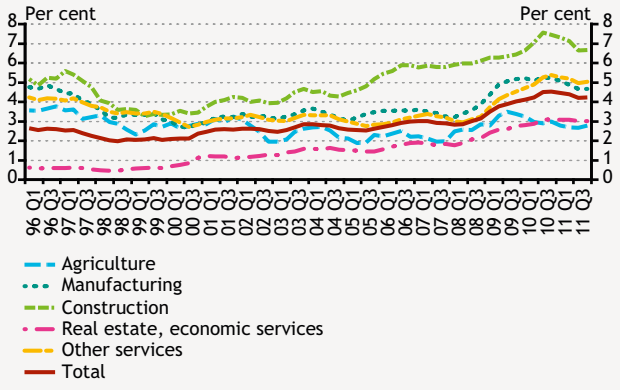
Source: HCSO, MNB.

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



Source: HCSO, MNB.

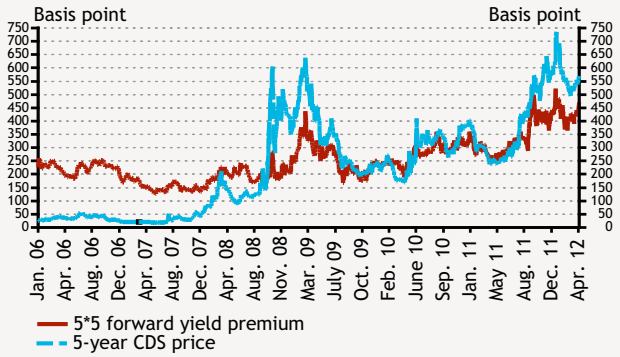
Chart 12
Sectoral bankruptcy rates



Source: Opten, MNB, HCSO.

4 MONETARY AND FINANCIAL CONDITIONS

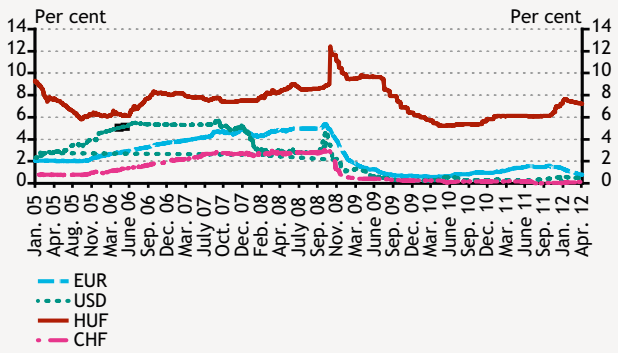
Chart 13
Long-term default risk and forward premium of Hungary



Source: Datastream, Reuters.

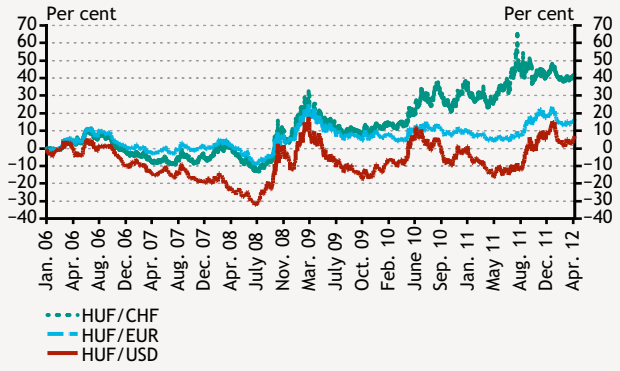
Chart 14
Three-month EUR, USD, CHF and HUF money market interest rates

(LIBOR and BUBOR fixing)



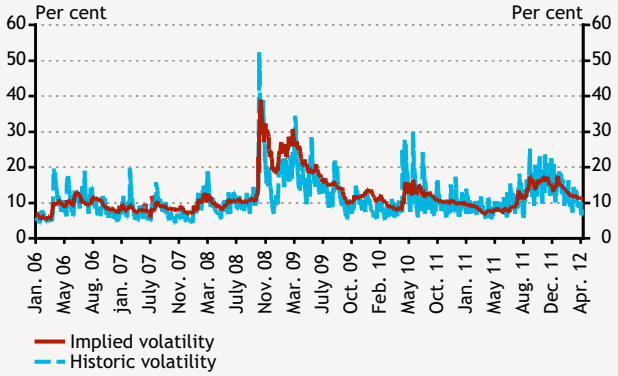
Source: Reuters.

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



Source: Datastream, Reuters.

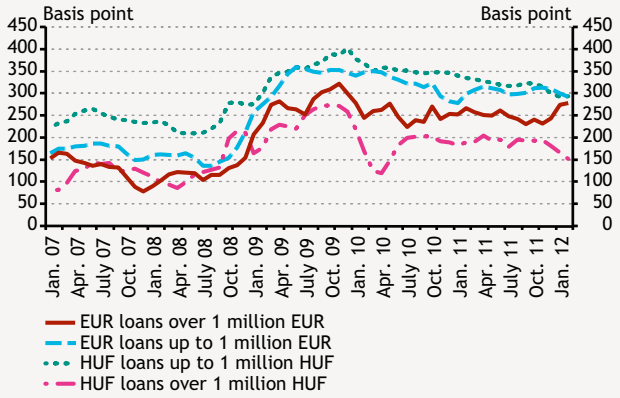
Chart 16
Volatility of the HUF/EUR exchange rate



Source: Reuters, MNB.

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

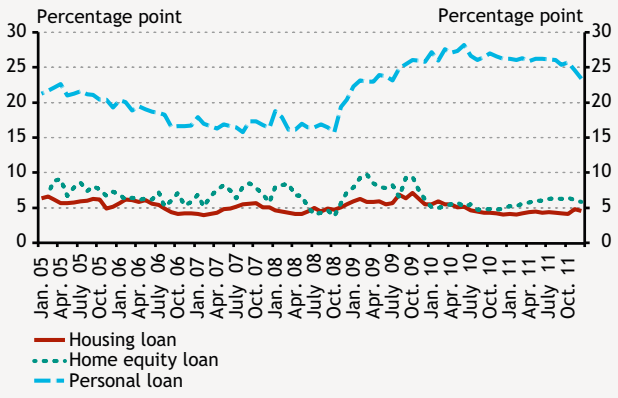
(over 3-month BUBOR and EURIBOR, respectively, 3-month moving average)



Source: MNB, EURIBOR.

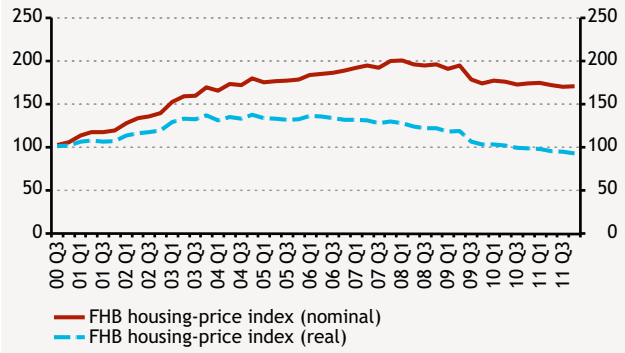
Chart 18
Interest rate premium of new HUF loans to households

(over 3-month BUBOR)



Source: MNB.

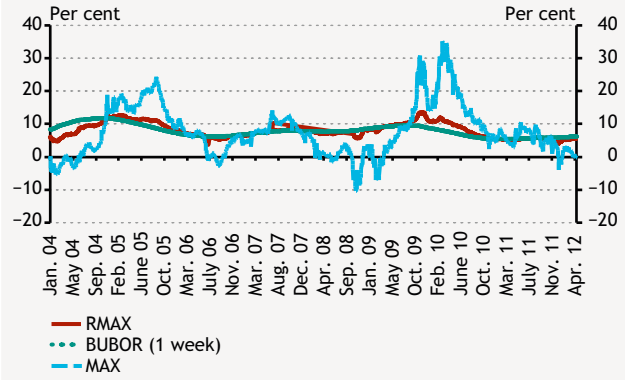
Chart 19
FHB housing-price index
(2000 = 100)



Source: FHB.

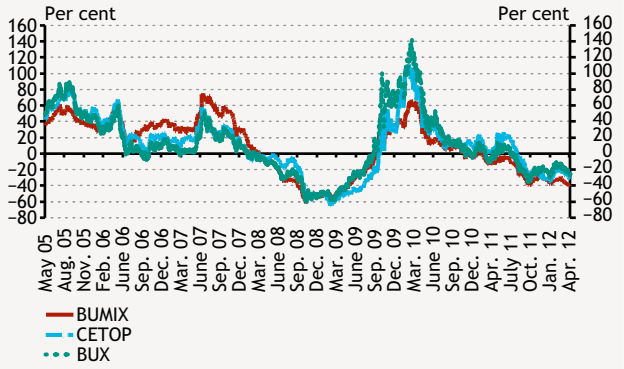
5 PRICES OF INSTRUMENTS

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



Source: FHB.

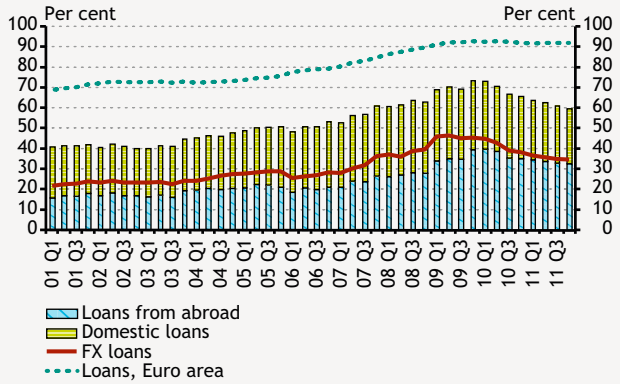
Chart 21
Annual yield of key Hungarian and Central and Eastern European stock market indices



Source: ÁKK, portfolio.hu, MNB.

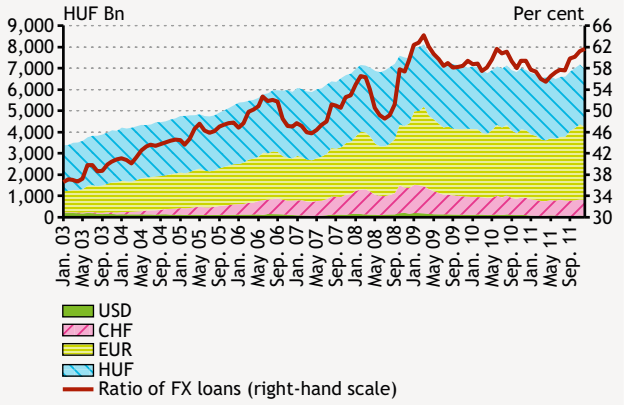
6 RISKS OF THE FINANCIAL INTERMEDIARY SYSTEM

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



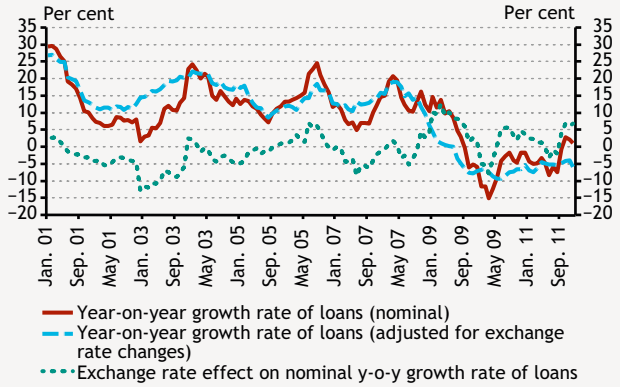
Source: MNB, Eurostat.

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



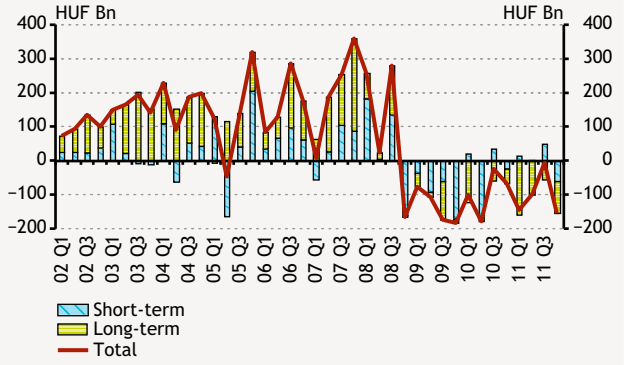
Source: MNB.

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



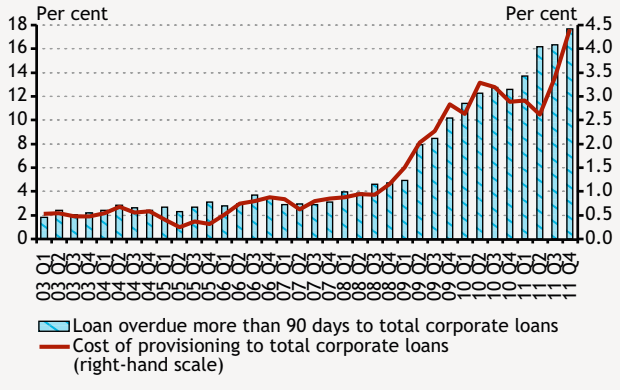
Source: MNB.

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



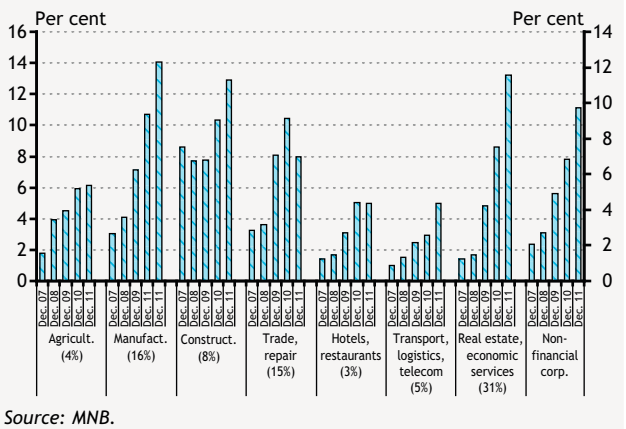
Source: MNB.

Chart 26
Quality of the corporate loan portfolio



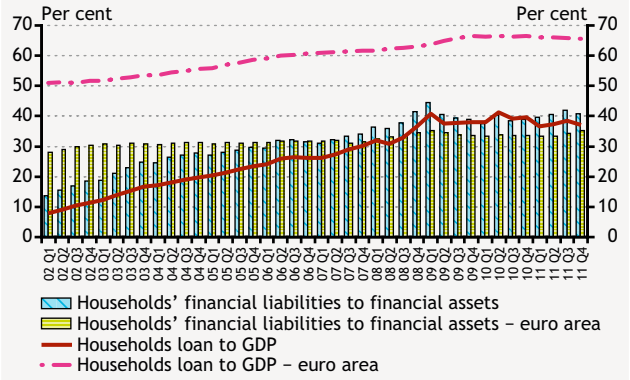
Source: MNB.

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



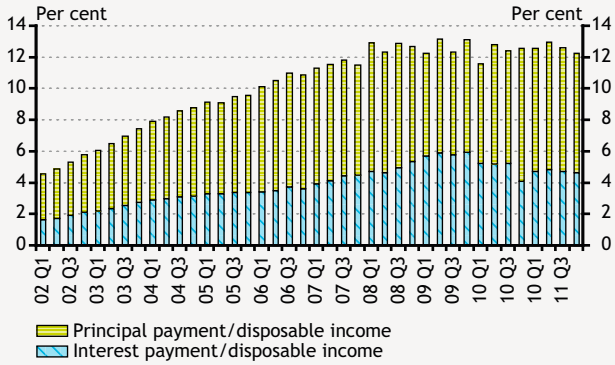
Source: MNB.

Chart 28
Indebtedness of households in international comparison



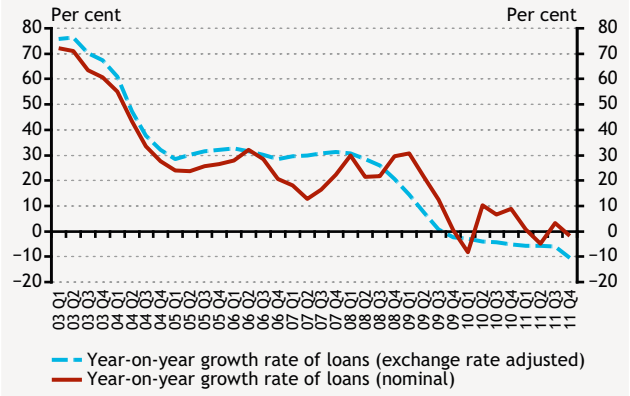
Source: MNB, ECB.

Chart 29
Debt service burden of the household sector



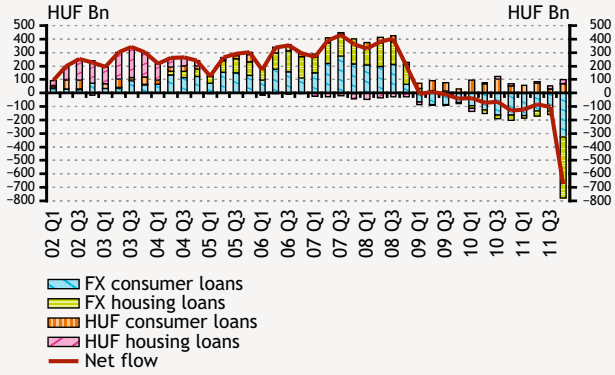
Source: MNB.

Chart 30
Annual growth rate of total household loans



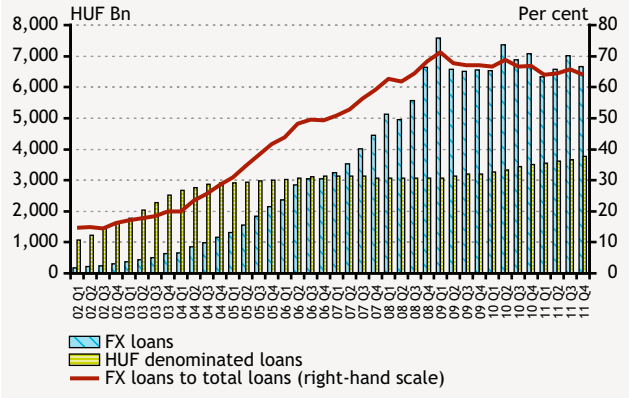
Source: MNB.

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



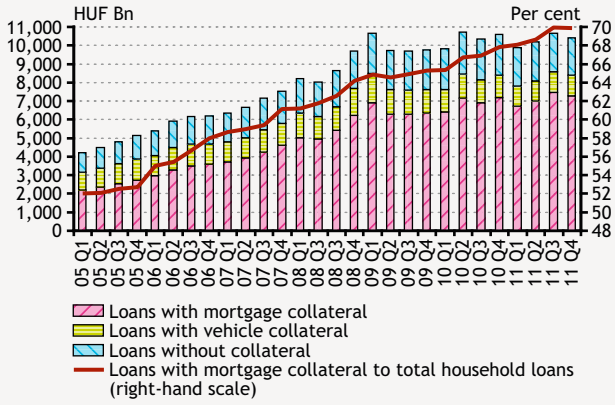
Source: MNB.

Chart 32
Household loans distribution by denomination



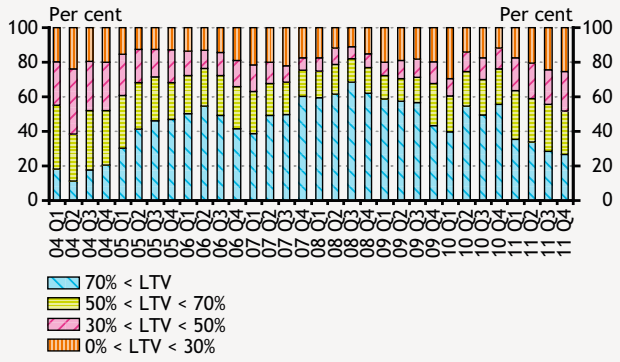
Source: MNB.

Chart 33
Household loans distribution by collateral



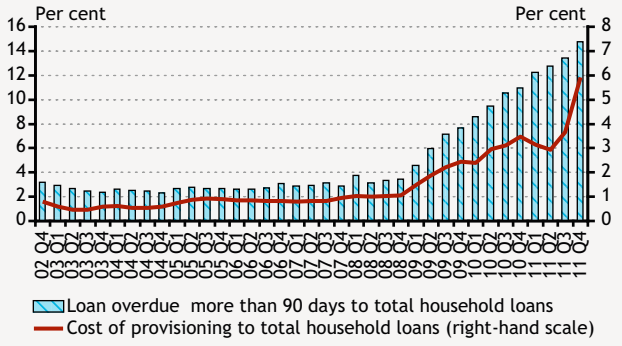
Source: MNB.

Chart 34
Distribution of new housing loans by LTV



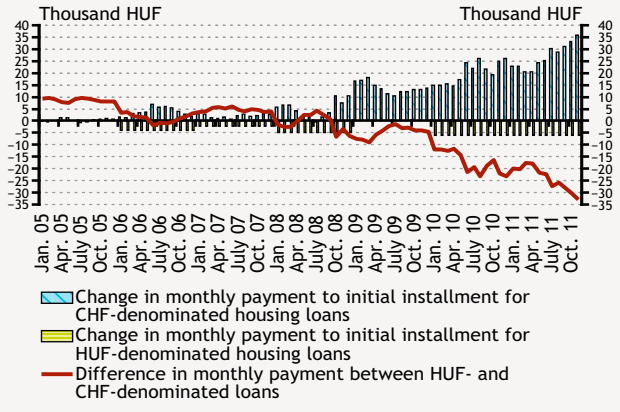
Source: MNB.

Chart 35
Quality of the household loan portfolio



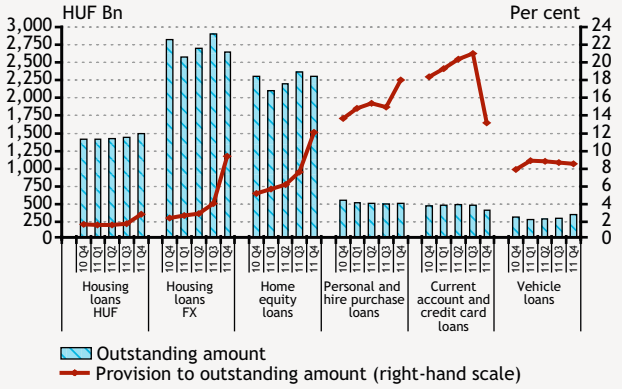
Source: MNB.

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



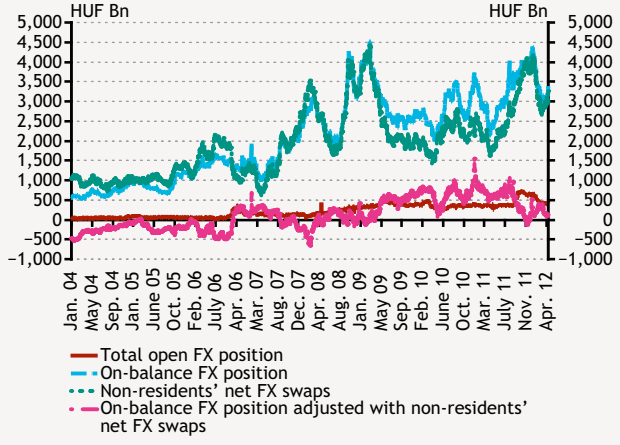
Source: MNB.

Chart 37
Provisioning on household loans



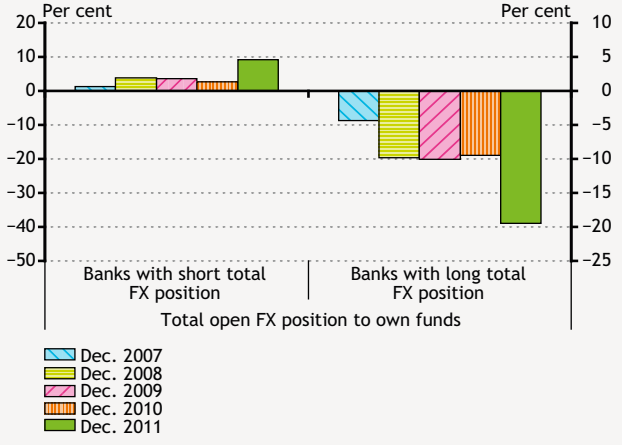
Source: MNB.

Chart 38
Open FX position of the domestic banking sector



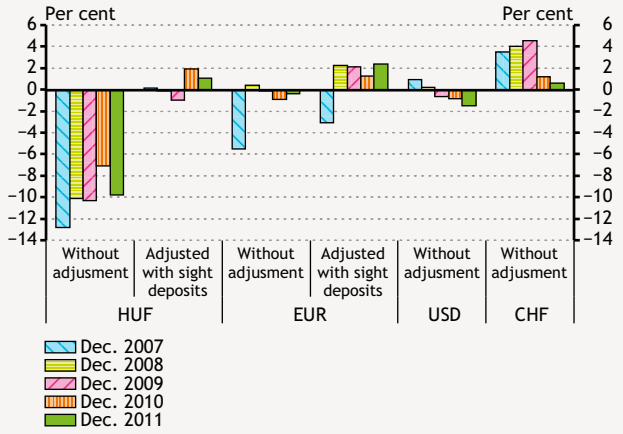
Source: MNB.

Chart 39
Banking sector's exchange rate exposure



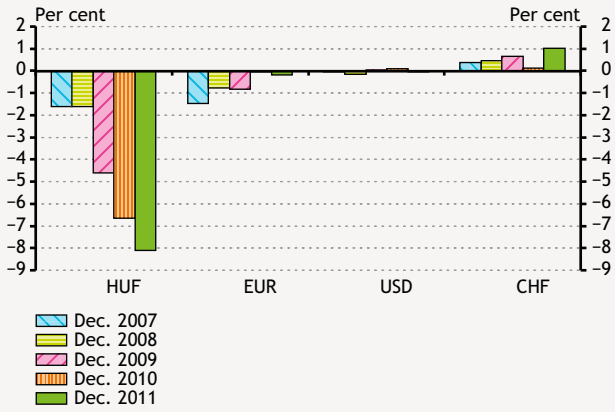
Source: MNB.

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



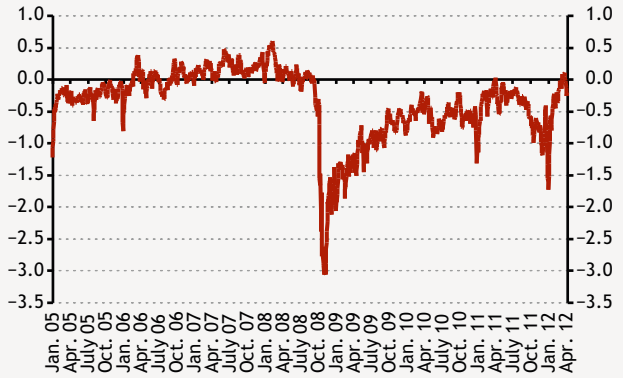
Source: MNB.

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



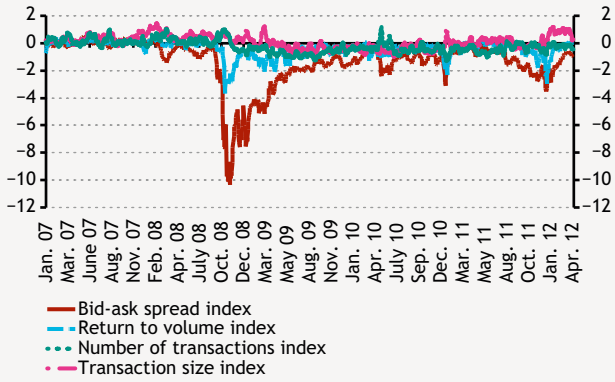
Source: MNB.

Chart 42
Liquidity index
(exponentially weighted moving average)



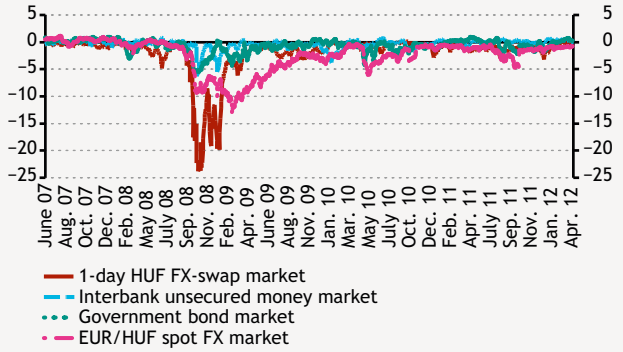
Source: MNB, KELER, Reuters, DrKW.

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



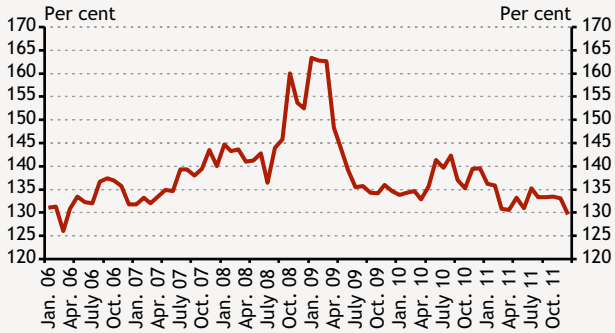
Source: MNB, KELER, Reuters, DrKW.

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



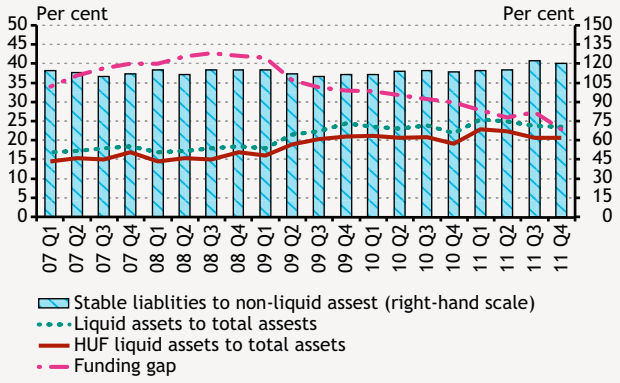
Source: MNB, KELER, Reuters, DrKW.

Chart 45
Credit to deposit ratio of the banking sector
(adjusted for exchange rate changes)



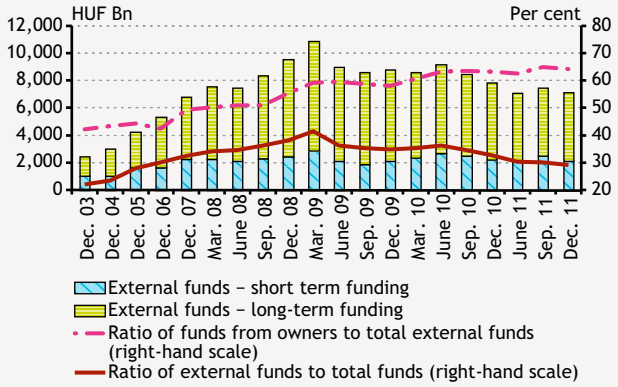
Source: MNB.

Chart 46
Liquidity ratios of the banking sector



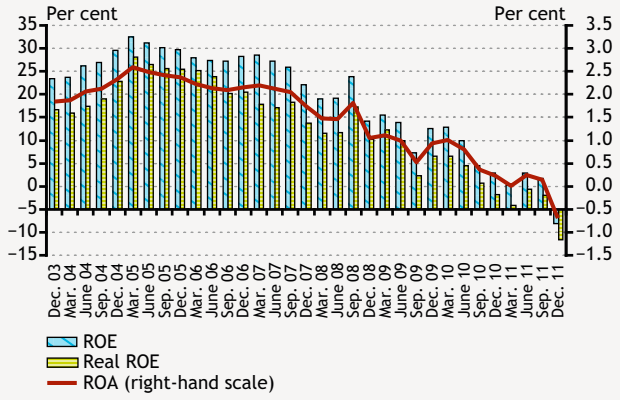
Source: MNB.

Chart 47
External funds of the banking sector



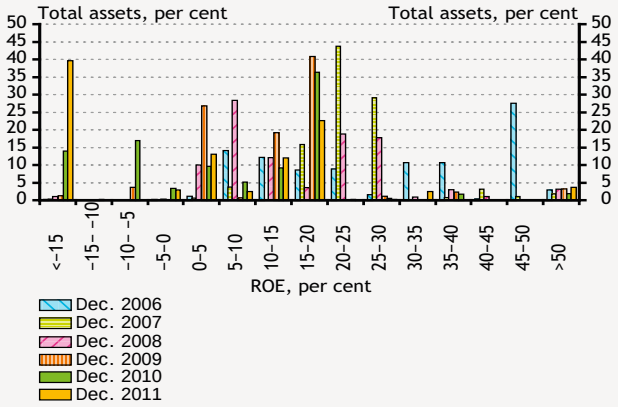
Source: MNB.

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



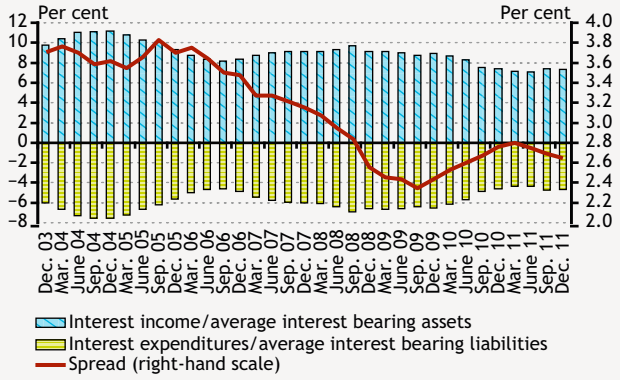
Source: MNB.

Chart 49
Dispersion of banks' total assets by ROE



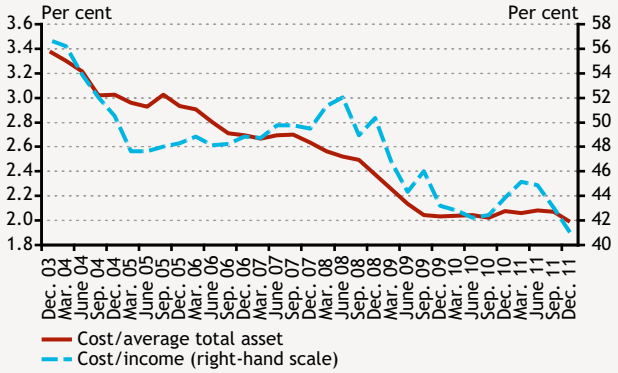
Source: MNB.

Chart 50
Banking sector spread and its components



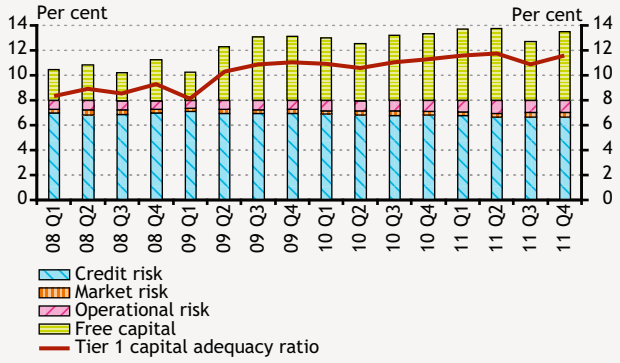
Source: MNB.

Chart 51
Operating efficiency indicators of the banking sector



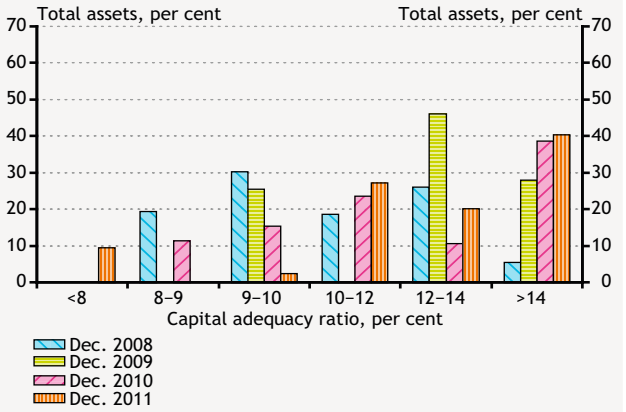
Source: MNB.

Chart 52
Banks' capital adequacy ratios



Source: MNB.

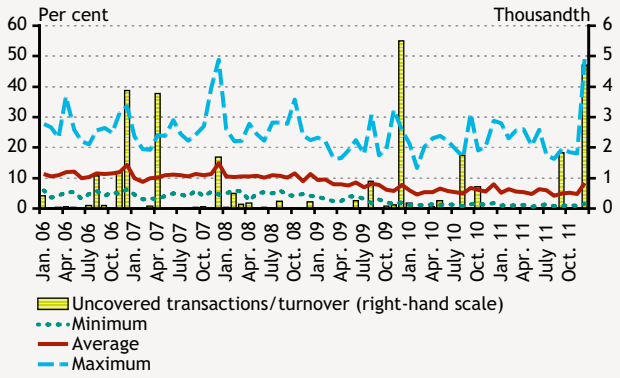
Chart 53
Dispersion of banks' minimum capital requirement by capital adequacy ratio



Source: MNB.

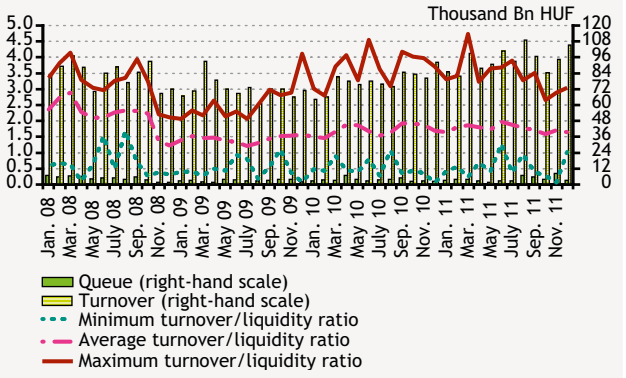
7 RISKS OF THE PAYMENT SYSTEMS

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



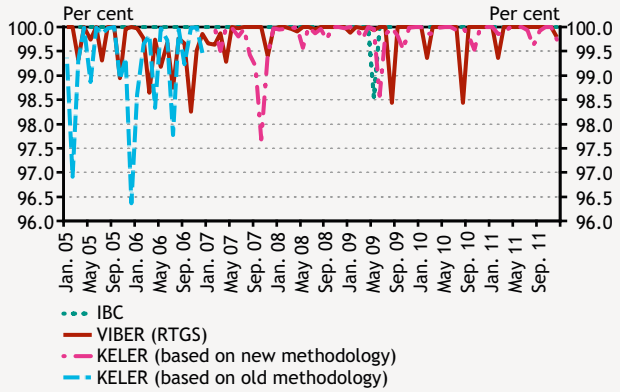
Source: MNB.

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:
General government: according to SNA methodology.

Corporate sector and "error": the financing requirement of corporate sector is calculated as a residual, so it includes errors.

External financing requirement: adjusted by the difference caused by imports brought forward on account of EU accession and by the import increasing impact generated by customs warehouses terminated due to EU accession and Gripen acquisitions.

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.

REPORT ON FINANCIAL STABILITY

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