



MAGYAR NEMZETI BANK

**REPORT
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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 and a Memorandum of Understanding on co-operation between the Hungarian Financial Supervisory Authority, the Ministry of Finance and the Magyar Nemzeti Bank.

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 on 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 Péter TABÁK, Director. The project was managed by Márton NAGY, Deputy Head of Financial Stability. The *Report* was approved for publication by Júlia KIRÁLY, Deputy Governor.

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The *Report* incorporates the Monetary Council's valuable comments and suggestions following its meetings on 23 March and 6 April 2009. 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 15 March 2009.

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Overall assessment

Growth and liquidity related risks highlighted in previous Reports have materialised

The operating environment of the financial intermediary system has changed significantly since the publication of the April 2008 issue of the Report on Financial Stability and its periodical update in October. The risks of worse-than-expected economic performance and deteriorating liquidity conditions were highlighted on several occasions in the Magyar Nemzeti Bank's previous Reports. Both the global and the Hungarian economy experienced a earlier and greater fall, and the liquidity position of the financial system deteriorated more sharply than expected. The shocks affecting the domestic economy had an overall negative effect on the stability of the Hungarian financial system.

The sharp deterioration in global investor sentiment in the autumn of 2008 had significant effects on Hungary

After the default of Lehman Brothers in September 2008 and amid mounting fears of global recession, the financial crisis entered a new phase. Liquidity dried up in financial markets and problems with the adequacy of bank capital came to the fore, driven by a general lack of confidence, increasing risk aversion and rapid deleveraging of balance sheets. Real economic performance has also weakened sharply. The deterioration in global investor sentiment in September-October 2008 had significant adverse effects on the Hungarian economy, due mainly to the uncertainty about the country's debt-servicing ability. Hungarian foreign exchange, stock and government securities markets came under more severe pressure than justified by economic fundamentals.

The international financial support package, coupled with the measures taken by the MNB and the government, have reduced the country's vulnerability

In these extreme conditions, the Bank raised its official interest rates by 300 basis points at the end of October 2008, in order to maintain the stability of the financial intermediary system and to prevent further increases in capital outflows and expectations of exchange rate depreciation. The International Monetary Fund and the European Union approved a joint financing package of nearly EUR 20 billion for Hungary. The main objectives of the package are to help to finance balance of payments, to raise its foreign exchange reserves and to set up a bank support scheme. From the autumn of 2008, the Bank has promoted the smooth operation of the domestic banking sector by introducing new instruments providing forint and foreign currency liquidity. The Bank has also broadened the range of eligible collateral for its operations, extended the maturity of tenders for forint loans and FX swaps, and reduced the mandatory reserve ratio.

Market sentiment on the Central and Eastern European region diverged from emerging markets in January–February 2009

Since October 2008, international investors have increasingly sought to differentiate among financial products and countries with different risks. General risk appetite declined further at the beginning of 2009 due to deepening recessionary fears. The latest wave of market turbulences had a stronger impact on regions heavily dependent on the global economic cycle and international financial market developments, including Central and Eastern Europe, than on others. The deterioration in sentiment towards the CEE region was reflected in several markets: currencies weakened more markedly, government securities markets faced greater operational disruptions and spreads on credit default swaps providing protection in the event of default on foreign currency sovereign bonds rose more sharply than in other emerging regions. The market sentiment of the region, including Hungary is also influenced by increasing political uncertainties.

Hungary's external financing requirement may fall over medium term, while the economy moves towards a recession

Domestic economic agents have adjusted their economic activity and borrowing need due to the adverse economic and financial market developments. The private sector's investment spending, consumption and credit demand has fallen in response to declining external demand and rising debt burdens. Consequently, the sector's propensity to save has increased. Banks' price competition for household deposits has intensified as they experienced difficulties accessing market financing and their willingness to lend has fallen due to the higher risk aversion. The gradual reduction of the fiscal deficit which began in 2006 has continued. As a result, Hungary's external financing requirement may fall over the medium term along the macroeconomic path published in the February 2009 issue of the Quarterly Report on Inflation, but the economy is likely to slip into recession.

A greater-than-expected economic decline poses a serious risk...

Domestic economic activity may suffer a deeper and more protracted decline, due to the worse-than-expected external or domestic environment. As a consequence of the economic downturn, corporate demand for loans may weaken even in the baseline scenario. This could be further amplified by two possible negative feedback loops. First, due to the higher credit risk banks may raise the costs of access to finance for firms, which, in turn, may lead to a further reduction in credit demand. Second, banks' supply of credit – mainly to the corporate sector – may drop by more than expected, due to declining risk tolerance.

...which may be mitigated by measures supporting bank lending to the corporate sector

Authorities have a range of instruments available to mitigate the risk of a deeper-than-expected recession. These include the Magyar Nemzeti Bank's six-month FX swap facility, the government's direct lending to banks offering easier access to funding as part of the bank support package, and loans to small and medium-sized enterprises with low interest rates. The first two instruments are conditional on the commitment by participating banks to maintain lending to the corporate sector.

Banks' liquidity and solvency risks are rising

The domestic banking sector has been exposed to increasing liquidity and solvency risks, due to deteriorating financial market conditions and the adverse economic environment. Outstanding debts can be refinanced in the money market at higher costs and at shorter maturities than previously, due to international investors decreasing risk appetite. Meanwhile, the economic downturn and the depreciated forint exchange rate are adding to the burden of households whose debts are denominated mainly in foreign currency. As a consequence, the quality of banks' and closely-related leasing companies' loan portfolios has been deteriorating. Particular attention should be paid to the expected deterioration in the quality of corporate commercial property related loans, in addition to households' foreign currency loans.

Intervention by the authorities and parent banks' commitment have reduced liquidity risks

The bank support scheme as part of the financial support package of the IMF and the EU facilitating banks' access to liquidity, coupled with the Magyar Nemzeti Bank's measures to ensure forint and foreign currency liquidity, support the smooth operation of the domestic banking sector. The commitment of foreign parent banks towards their Hungarian subsidiaries is also a key factor in maintaining financial stability. So far, banks with foreign parents have had no difficulty in rolling over their foreign funds and FX swaps. All of this has mitigated the role of liquidity factors in banks' lending decisions.

The banking sector has adequate capital along the projected macroeconomic path

Banks should have adequate capital to absorb losses from the economic downturn. The capital adequacy ratio of the banking sector was around 11 per cent at the end of 2008, significantly higher than the regulatory minimum. The economic downturn and the weakening exchange rate both have led to a slowdown in lending and a deterioration of the loan portfolio's quality. This, in turn, is likely to cause a sharp decrease in profitability and a modest decline in capital adequacy in 2009. Nevertheless, the banking sector's capital adequacy ratio may remain above 10 per cent at the end of 2009 along the baseline macroeconomic scenario.

The effects of increasing credit risk on bank profitability may be mitigated by several factors

The depreciation of the forint and the economic downturn put downward pressure on the domestic banking sector's profitability through the deterioration in the quality of the loan portfolio. However, a number of factors may reduce potential losses arising from increasing risks. First, the loan-to-value ratios of Hungarian banks' mortgage loans are relatively low by international standards. Second, in contrast to some other European countries, there was no housing price bubble in Hungary in the years prior to the crisis. Third, borrowers' willingness to repay their debts may remain strong, due to the high percentage of owner-occupied housing. And, finally, banks are open to adjust characteristics of credits in order to help borrowers preserve their ability to repay debt, which may help manage loans in arrears.

Some banks may need to raise additional capital in order to strengthen their resilience to potential shocks

Reinforcing banks' capital position, particularly of those with capital adequacy ratios close to the regulatory minimum, may help cushion the effects of a worse-than-expected economic environment. To this end, banks should reinvest their earnings for 2008 and 2009, boosting their capital base. Capital raising by owners or investors may be another way of strengthening banks' financial position. This may be facilitated by the fact that last year a number of European banking groups active in the region strengthened their balance sheets. This may contribute to improving the capital position of their subsidiaries operating in emerging countries. And, finally, the option of capital injection by the government as part of the Hungarian bank stabilisation programme may also help banks shore up their capital bases.

Authorities should focus on prevention rather than on ex-post intervention

The authorities responsible for the prudential oversight of the financial system should also monitor the risks to the financial system and those engendered by macroeconomic imbalances, in addition to the prudent operation of individual institutions. Authorities should shift their focus from ex-post intervention to mitigating risks and avoiding potential negative shocks. Analytical work should place more emphasis on the development and operation of early warning systems as well as on the use of regular stress tests. Regulatory actions should focus on the expansion of the supervisory authority's powers based on micro- and macro-prudential risk assessment, on the importance of strengthening lending discipline (with special regard to lending through agents), on reducing the procyclical behaviour of the financial system, on limiting maturity mismatches and on developing banks' credit and liquidity risk management.

The Report on Financial Stability, published regularly by the Magyar Nemzeti Bank, provides an overview of the macroeconomic and financial developments influencing the domestic financial system. The Report is based on the baseline macroeconomic scenario of Quarterly Report on Inflation published in February 2009. Amidst the ongoing financial and economic crisis, the domestic and international environments of the banking sector may undergo rapid changes. Consequently, there is a higher probability that the baseline macroeconomic scenario and certain assessments of the Report may be relevant only for a short period of time.

1 Money market and macroeconomic environment





As a result of the global decline in risk appetite, emerging markets have been negatively impacted by the financial stability and macroeconomic problems originated from the developed markets. In addition, despite being Member States of the European Union, foreign investors consider Central and Eastern European economies to be more vulnerable than other emerging markets, which further increases the risk premia associated with countries in the region, including Hungary. Thus, the risks identified in the Report on Financial Stability published in April 2008 and its update in October have materialised in several respects.

The sharper-than-expected and more prolonged global economic downturn is the key risk in the near future.

Although in the developed countries central bank and government measures contribute to mitigating the interbank confidence crisis and tensions on money market as well as to the stabilisation of the international financial system, a turnaround in the economic activity is still not in sight.

As in other developed countries shrinking credit supply may exacerbate the slowdown in household consumption and corporate investment activity in Hungary. Fiscal adjustments and the deteriorating labour market conditions, together with unfavourable income prospects further increase the risks related to economic performance.

1.1 Money market environment

Since the autumn of 2008 the deepening confidence crisis in the global interbank market and the mounting risk of recession and risk to financial stability have necessitated the active participation of central banks and governments in developed countries. While measures to expand liquidity and support banks have helped alleviate the pressure on developed interbank markets, operations have still not yet returned to normal. Interbank financing provided through traditional channels is primarily available over the short term only; and the long-term funding of the international banking sector mainly relies on state guaranteed rather than unguaranteed capital market debt issuance. Meanwhile, due to write-offs and the deepening recession, banks' capital requirements continue to grow. Investor risk appetite is extremely subdued and investors are turning away from high-risk assets and markets. Emerging markets in general, and our region in particular, have been severely affected by the withdrawal of capital from riskier assets and markets ("flight to quality").

In conjunction with the international financial package, central bank and government measures have reduced Hungary's vulnerability to a significant degree. The stability of Hungarian financial markets has improved, but developments in domestic asset prices still clearly reflect a general risk aversion and the deteriorating risk perception on the region. Risk premia on Hungarian assets are high and the liquidity of the market is still significantly lower than before. This is reflected by weaker exchange rates, higher yields and increased volatility.

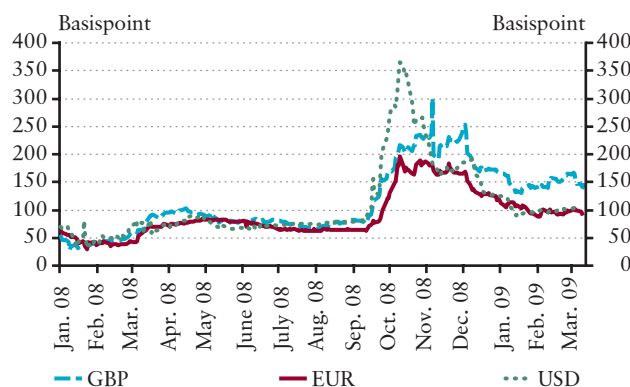
1.1.1 INTERNATIONAL MONEY MARKET ENVIRONMENT

International money market stress have eased, but not ended

The global financial crisis entered a new period in the autumn of 2008, which was characterised by increasing concerns about recession and deteriorating financial stability. Risk appetite started to decline in the wake of bad news about the liquidity and solvency problems at overseas financial institutions, followed by the default of Lehman Brothers in September, which resulted in fundamental changes in the operation of international financial system. Radical deterioration in investor sentiment, record high risk aversion and a general loss of confidence among banks prompted financial institutions to reduce their credit activity substantially. The confidence crisis led to a freeze-up in interbank dollar liquidity, and with the market

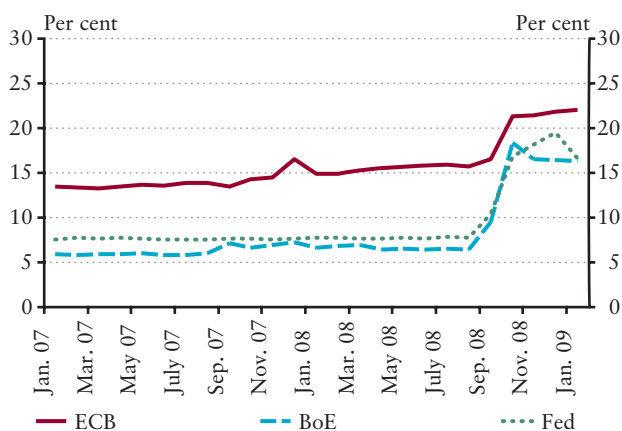
drying up, short-term interbank interest rates climbed to record highs. As the problems of several European banks escalated to such alarming levels that government funds were required to raise their capital, the lack of confidence rapidly spread to the European interbank market leading to similar developments there as well, albeit at a lower scale. By mid-October 2008 dollar and euro TED spreads, which reflect the risk premium of interbank interest rates against government securities yields, as well as LIBOR-OIS spreads which show the difference between interbank and swap rates rose to all-time highs (see Chart 1-1).

Chart 1-1
Developments in 3-month LIBOR-OIS spread



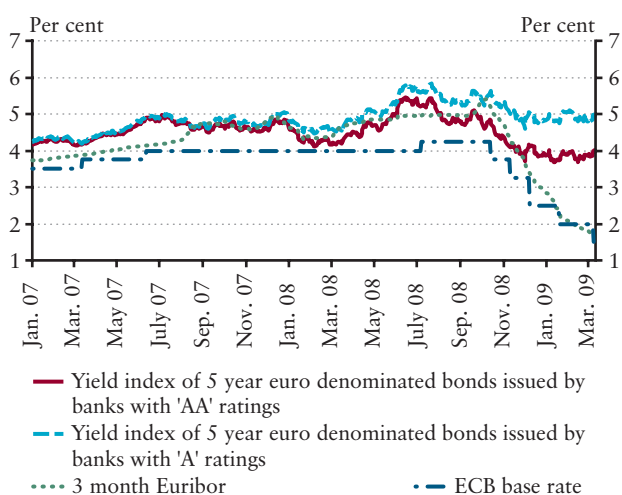
Source: Reuters.

To address the rapid deterioration in the situation central banks in the developed countries attempted to ease the tensions seen on the interbank market by introducing liquidity-providing measures. In addition to rapid interest rate cuts central banks significantly extended the list of eligible collaterals and conducted asset purchases in several markets. However, the impact of these actions was initially limited to central banks stepping between market players as a third party and taking on the role of the interbank market, while their balance sheet increased substantially as a result of a simultaneous recourse to both the lending and the deposit facilities. Recourse to the standing facilities remained high over a long period of time, and it was not until the end of 2008 for the Federal Reserve (Fed) and the Bank of England (BoE) and until February for the European Central Bank (ECB), that declining use of the standing facilities led to a narrowing of balance sheet totals (see Chart 1-2). One contributing factor behind the change was the modifications to monetary policy instruments (more restrained liquidity provision, suspension of the USD-

Chart 1-2**Balance sheet totals-to-GDP of developed countries' central banks**

Source: Bloomberg, Fed, ECB, Bank of England.

denominated swap transactions of the ECB, widening the width of the interest rate corridor) which became possible as interbank tensions eased and the financial system's demand for US dollars declined prompted banks to return to the interbank market to re-allocate liquidity. At the same time, it became common practice during this period that the Fed, the ECB and the Swiss National Bank provided USD, EUR and CHF liquidity, albeit with significantly different terms and conditions, to smaller countries and emerging countries.¹

Chart 1-3**Changes in the banks' euro-denominated funding costs across different maturities**

Source: Bloomberg.

Thanks to central bank and government measures, short-term interbank conditions are improving, but longer-term financing remains limited. Continuous and excess liquidity supply from large central banks combined with the massive bank support packages set up by the national governments eventually succeeded, and during the months to follow declining interbank yields and narrowing spreads indicated that tensions in the interbank market had gradually subsided. At the same time, the above measures taken mainly achieved a significant reduction of short-term funding costs primarily (see Chart 1-3). For the time being, banks have primarily easy access to short-term market funds only²; to obtain loans with longer maturities, they need a government guarantee for the most part. While this situation allows for low-cost longer-term financing, it discourages the recovery of traditional financing forms and prevents the injection of fresh private capital into the banking sector.

Large-scale recapitalisation programme in the international banking sector

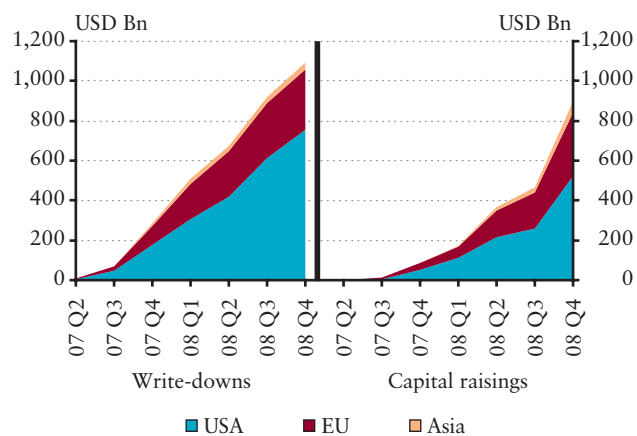
Developed countries' governments are facilitating improvement of the banking sector's capital adequacy levels via bank support packages. In addition to central banks' liquidity-providing operations, several countries resorted to government intervention in order to prevent banks' solvency problems from escalating. The first financial stimulus package, which was set up in the United States in the amount of USD 700 billion, was aimed at the recapitalisation of financial institutions and the purchase of troubled assets held on banks' balance sheets. Several European countries restructured the deposit guarantee scheme as a first step (higher statutory limit, no co-insurance), then implemented stabilisation packages for the banking sector, including state guarantees of bank debt issuance and public equity capital injections. Capital injections were necessary as the amount of losses write-offs increased substantially and banks' stock prices fell sharply as the financial crisis unfolded. The recapitalisation process peaked in 2008 Q4, when – primarily as a result of the government measures – its volume significantly exceeded that of write-offs. In total, banks received an unprecedented amount of USD 262 billion in the USA, and USD 142 billion in Europe during this period. Nevertheless, the total amount of capital injected into the banking sectors of developed countries still falls behind the total amount of losses banks have suffered since the onset of the crisis, which is a rather negative development (see Chart 1-4). Both in the United States and in several European

¹ The Fed provides USD-liquidity to several emerging countries in exchange for their own national currencies. The Swiss National Bank concluded an FX swap agreement initially with Poland, then with Hungary; however, the swap line provided under the agreement is for euro rather than the national currency in each case. The ECB provides an EUR/DKK swap line to the Danish central bank.

² In previous month the Fed and the BoE started to purchase long-term government securities.

Chart 1-4

Write-downs and capital raisings in international banking sectors



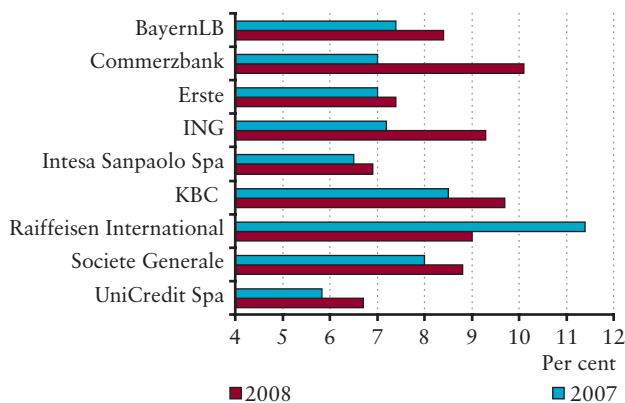
Source: Bloomberg.

countries (Germany, France, Denmark, United Kingdom), further bank support packages are currently being created, suggesting that the initial measures taken by the governments in the wake of the autumn wave of the crisis have proved to be insufficient.

European banking groups in the region are also strengthening their capital base. With a view to improving

Chart 1-5

Tier 1 ratio of euro area banking groups with an interest in the Central and Eastern European (CEE) region



Source: Annual and quarterly reports of individual banks.

capital adequacy ratios in 2008 several large European banks used internal (retaining profits) or external sources (issue of hybrid instruments, government capital injection) for the purposes of capital increase. As a result, the Tier 1 capital adequacy ratio increased on average from 7.6 per cent to 8.2 per cent in H1. By the end of the year, however, additional capital losses had driven the ratio down to 7.9 per cent. Moreover, capital increases were performed last year by most bank groups with a presence in the region, partly to compensate for the losses they suffered in relation to their structured product portfolios, and partly on account of their significant cross-border exposures (see Chart 1-5). Recapitalisation of parent banks also largely contributes to improving the capital position of their subsidiaries in region.

The capital requirements of the banking sectors in developed countries continuously exceed expectations, which preserve the confidence crisis. Banks' increasing capital requirements stem from three main factors: the larger-than-expected depreciation and pricing issues of "toxic" assets, deepening economic recession and investors' increased expectations regarding capital requirements. In light of unfavourable money market developments, in January the IMF increased the amount of expected losses³ on structured instruments linked to the lending market of the USA from USD 1,400 billion to USD 2,200 billion, of which losses amounting to nearly USD 1,000 billion have been realised to date. This clearly suggests that, while banks have either write-down or reclassified in their balance sheets the majority of non-performing, poor quality, "toxic" assets, a large portion of the tasks related to cleaning up their portfolios and selling off their troubled assets⁴ is still ahead of them. Decision-makers have also recognised this problem, which is reflected by recent bank stabilisation packages with a new focus on asset-side consolidation in addition to actions affecting the liabilities side (borrowing, guarantee and recapitalisation).⁵ As a further challenge, financial institutions must prepare themselves for an unfavourable economic environment and potential credit losses. This preparation process is very difficult, because – partly due to the very pro-cyclical behaviour of the banking sector – economic forecasts continuously anticipate greater-than-expected declines. Finally, investors demand banks' capital adequacy to increasingly exceed the regulatory requirement with a view to improve their shock-absorbing capacity.

³ The value of the expected losses represents 9 per cent of the total loan portfolio of the USA, and 16 per cent of annual US GDP.

⁴ Due to a lack of market prices, selling these assets is very difficult. They are usually priced based on expert opinion provided by third parties with no interest in the transaction, or by means of micro-based fundamental models.

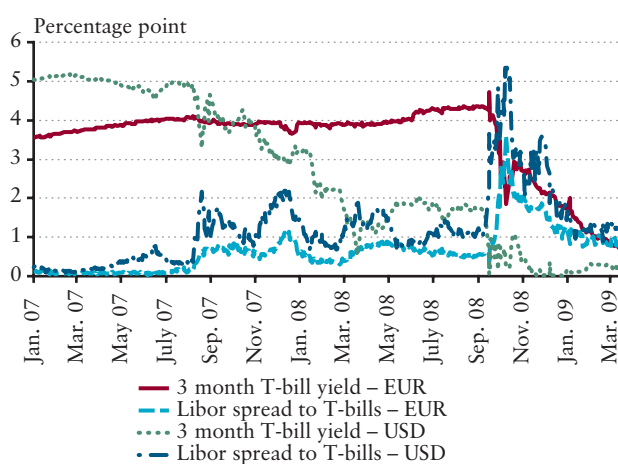
⁵ Asset-side consolidation is performed by means of two main methods: asset purchase and insurance. In the first case, troubled assets are removed from the bank's balance sheet and transferred to a separate fund (SPV) or a bank ("bad bank") established solely for this purpose. Examples include the crisis management of SachsenLB and WestLB in Germany and UBS in Switzerland. In the second case, troubled assets remain on the bank's balance sheet, while the government assumes a part of the credit risk by providing a state guarantee. Examples include asset consolidations by Citibank and Bank of America in the USA and ING in Europe.

Investors turn away from high-risk assets and countries

Demand for low-risk instruments has significantly increased and remained strong despite low yields. As a result of unprecedented levels of risk aversion, the sell of risky assets and deleveraging have become a general trend worldwide, which investors often exercised regardless of the price or realised losses. Extremely low risk appetite and investors' flight to quality were reflected by the appreciated USD and JPY exchange rates, the latter signalling a marked decline in trading practices that take advantage of the yield spreads between developed (safe) and emerging (riskier) markets. Seeking low-risk investment opportunities, capital migrated to government securities – which are considered the safest – particularly to US Treasury bills, pushing their yields down significantly. Demand for these instruments did not decline, even though their yields stayed close to 0 for a large part of the period, and increased only marginally from January 2009 (see Chart 1-6).

Chart 1-6

3-month USD and EUR Treasury bill yields and the TED spread



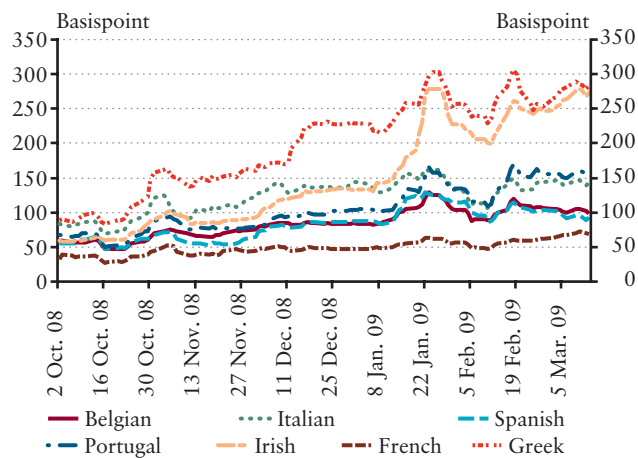
Source: Reuters.

The market differentiates regarding expected yields between developed countries with different growth prospects and financial stability risks, much more than before. The economic recovery programmes announced in developed countries involve a significant increase in government expenditures. As a result of the increased volume of government securities issues through which these expenses are covered, even in developed markets investors are distinguishing strongly between individual issuers with respect to credit and liquidity risks. Excess demand for government securities perceived to be safe drove yields on such instruments lower, while there was an excess supply of securities issued by countries with lower credit rating. Thus,

in the case of certain developed countries, financing the increased expenditure through securities issued by the government led to an increase in risk premia despite the fact that on the whole, demand for safe government papers continued to remain high in an environment characterised by low risk appetite. Spreads on euro area government papers relative to the benchmark German bond yields widened to historical levels particularly for peripheral euro area Member States (see Chart 1-7), which is partly attributed to the excessive issuance of government securities resulting in excess supply, and partly due to downgrades in the credit ratings for these sovereign issuers (Spain, Portugal, Greece, Ireland). The reason for the downgrades was typically the deteriorating effect of financial support packages on the general governments' fiscal position. Due to the increasing imbalances these countries is now more sensitive to the narrowing credit availability, thus expensive external financing imposes a larger burden on their central budget balance.

Chart 1-7

Yield spreads on the 10-year government papers of certain euro area Member States relative to German government bonds



Source: Reuters.

Declining risk appetite had a large impact on asset prices in emerging markets as well. While emerging markets were previously less affected by the financial crisis, as the deteriorating investor climate spread from developed markets, significant capital outflows and increasing risk premia have been observed in these countries as well since October 2008. No market segment was left unaffected by the decline in risk appetite. To further aggravate the situation, some of the measures which were implemented in developed markets had an adverse impact on emerging markets (e.g. the expansion of the list of ECB's eligible collateral did not extend to securities issued in the EU, but denominated in non-euro currencies, and CEE subsidiaries were excluded

from the guarantees covering interbank lending). Under these circumstances, at the end of January 2009 international sentiment on the Central and Eastern European region diverged from that of the rest of emerging markets, and since then it has deteriorated significantly in a relative term as well. The underlying reason for this development is the fact that, despite their Member State status in the European Union, investors consider most CEE countries vulnerable both in terms of financial stability and the real economy. The deteriorating perception of the region is reflected by several markets: the currencies of countries with a floating exchange rate regime depreciated, and spreads on CDS providing coverage in case of a default of sovereign issuer on foreign currency bond increased more substantially in CEE countries than in any other emerging regions.

Assessments of market analysts and credit rating institutions point to a worsening perception on the region as well. Several market analyses compare the ongoing developments in the region to those observed during the 1997-98 crisis in Asia, stressing the fact that, in light of a more unfavourable global environment, countries in the region should experience more serious problems for a more prolonged period of time. On the other hand, the picture is somewhat brighter when the difference in financing structure is taken into account, namely, the strong presence of non-resident parent banks providing external funding. In the wake of the unfavourable developments during the period of October and November 2008, credit rating agencies announced downgrades and worse outlook for a series of countries in the region. In terms of credit rating (or outlooks) practically all the CEE countries – with the exception of

Slovakia and Poland – faced downgrades. Between October and November 2008 all three major credit rating agencies lowered Hungary’s credit rating by one notch. The underlying reasons behind the downgrades include Hungary’s high current account deficit, and its large stock of short-term foreign liabilities. Another wave of downgrades took place in February 2009: Latvia’s credit rating was revised to non-investment grade, as the second CEE country after Romania to receive non-investment grade rating. Estonia and Lithuania were put on credit watch and Fitch Ratings downgraded Hungary’s outlook from stable to negative (see Table 1-1). In their reasoning the agencies cited the intense pressure on the rigid exchange regime of the Baltic states; and also pointed out that a deteriorating export environment might jeopardise the success of the economic recovery package in Latvia, while Lithuania faced a deep recession. Considering that CDS spreads in the region rose well above the level justified by the credit ratings of the countries, the market appears to expect further downgrades.

1.1.2 DOMESTIC MONEY MARKET ENVIRONMENT

Domestic money markets were stabilised by the international financial package and actions taken by Hungarian authorities

In the 2008 autumn the perception on Hungary diverged from the region. The general deterioration in global investor sentiment, which was observed in September and October 2008 had a devastating effect particularly for Hungary. Despite the improving trends observed in recent

Table 1-1
Long-term foreign currency debt ratings of CEE countries

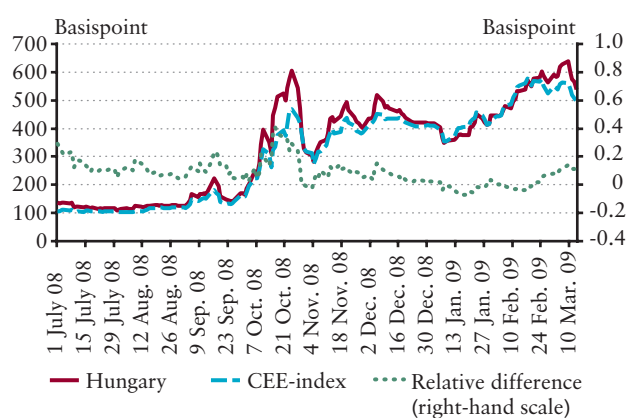
Moody's	Hungary			Slovakia			Czech Republic			Poland			Romania			Bulgaria			Estonia			Latvia			Lithuania			S&P; Fitch			
	M	SP	F	M	SP	F	M	SP	F	M	SP	F	M	SP	F	M	SP	F	M	SP	F	M	SP	F	M	SP	F				
Aaa																															AAA
Aa1																															AA+
Aa2																															AA
Aa3																															AA-
A1																															A+
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Baa2																															BBB
Baa3																															BBB-
Ba1																															BB+

Source: Moody's, S&P, Fitch Ratings.

years in Hungary's equilibrium indicators (budget deficit, current account balance), investors considered Hungary a vulnerable country due to a combination of high external and government debts and a low growth rate. As the combined effect of several negative factors – including a marked decline in general risk appetite, shrinking global liquidity and a growing lack of confidence in the ability to finance the external debts of the country – the amount of pressure on domestic markets in the middle of October 2008, particularly on the FX market and the FX swap market, was larger than fundamentally justifiable. For domestic agents, FX funding became harder and more expensive to obtain, which increased the rollover risk of both private and public sector debt. Deteriorating market perception on Hungary quickly appeared in increasing CDS spreads (spreads increased nearly four fold in two months, see Chart 1-8), which was soon followed by the downgrade of its sovereign foreign currency debt. The increasing lack of confidence was reflected in the government securities market drying up and the yield curve rising across all maturities.

Chart 1-8

Changes in the CDS spreads in regional countries



Note: The CEE index was computed as the average of CDS spreads in eight regional countries (Czech Republic, Slovakia, Poland, Romania, Bulgaria, Croatia, Estonia, Latvia). The relative difference was calculated as follows: $(\text{Hungary CDS} - \text{CEE index CDS}) / \text{CEE index CDS}$.

Source: Thomson Datastream.

The international financial package combined with central bank and government measures have significantly reduced Hungary's vulnerability. In this extraordinary situation the central bank raised the base rate

by 300 basis points, in order to preserve the stability of the financial intermediary system, to restrain further capital outflows, and devaluation expectations, and to render any speculative attacks against the forint more expensive. At the same time, the government and the central bank initiated discussions with several international organisations to ensure that the country has access to sufficient foreign funds. The planned fiscal adjustments combined with the credit line provided by the IMF and the European Commission in the total amount of nearly EUR 20 billion, significantly reduced the risks associated with the financing of the country's external debts (for further details, see Box 1-1). In addition to the interest rate policy the central bank also introduced new monetary tools to facilitate consolidation of the domestic financial markets.

As a result of central bank and government measures, the external perception on Hungary has improved, the regional co-movements has become relevant. From November developments in Hungarian asset prices – which had previously departed from the movements observed in the region – returned to moving in tandem with regional trends, and tensions characterising certain markets eased significantly. In addition to the above measures, non-resident parent banks of Hungarian credit institutions played an important role in easing the country's foreign currency liquidity problems, as they provided more assistance to their subsidiaries than before, not only in the form of loans but also as counterparties in FX swap transactions. Despite the relative improvement, Hungarian markets were not unaffected by the general increase in risk premia which has characterised the CEE region in particular since the end of January 2009, with an impact on all market segments. The exchange rate depreciated, volatility increased, and CDS spreads started to climb. Similarly to other European countries, the operation of the government securities market faltered, and yields increased on Treasury on the primary and on the illiquid secondary markets. However, there has been a difference of crucial importance between the rise in risk premia experienced during January and February 2009 and the turbulences in October 2008. While in October Hungary's risk perception significantly diverged from that of the region, in the beginning of 2009 the premium shock mainly originated in regional factors. This phenomena is well illustration by the significant co-movements of relative changes in risk measures and asset prices during the latter period of deterioration (see Chart 1-8).

Box 1-1: Credit agreements with international organisations

In an attempt to address the financial market turbulence unfolding in October 2008, the Hungarian government and the central bank jointly initiated negotiations with international organisations on conditions for a credit facility to be provided to Hungary. The credit agreement was aimed at the following objectives: supporting the sustainability of the balance of payments through increasing the foreign exchange reserves, and providing funds for the national bank stability package.

The agreement on the credit facility was concluded with the International Monetary Fund (IMF) and the European Commission (EC) in November 2008, while further negotiations are required with the World Bank (WB). Under the agreement Hungary has access to a standby credit facility of up to EUR 20 billion, which can be disbursed in several instalments until 2010 (see Table 1-2). While each instalment must be disbursed in one sum, the government has relatively free choice in utilising the available credit line.

The Hungarian government called the first instalment (EUR 6.9 billion) of the standing facility in 2008 Q4, which led to an increase in both the government debt and the share of foreign currency loans in that. The disbursed amount was credited to the government's FX account with the Magyar Nemzeti Bank (MNB). The ÁKK used around EUR 2 billion of the European Commission facility for financing the fiscal deficit and HUF 600 billion (around EUR 2 billion) of the nearly EUR 5 billion IMF credit

to support the financial stability of the banking sector. The rest of the loan amount remained on the FX deposit account with the MNB.

It should be noted that, in line with the practice of previous FX bond issuances, if the IMF or EC loan amount deposited on the FX account is converted into forint at the central bank, not just the government debt but also the foreign exchange reserves increase. The loan converted into forint can be utilised without a decline in the level of the foreign exchange reserves.

Repayment of the IMF loan begins 27 months following the draw-down of the loan, carried out quarterly in eight equal parts. However, there is an option to postpone the beginning of repayments by 1 year. Daily interest is accrued on the utilised loan amount, which is 100 basis points higher than the weighted average of the interest rates on the currencies comprising the SDR,⁶ the official currency of the IMF. Depending on the size of the disbursed IMF loan relative to the quota of the specific Member State, an interest rate premium is also charged by the financial institution. The maturity of the instalments of the EC credit facility may not exceed 5 years on average, and each instalment must be repaid in one sum. It is a fixed-rate loan. The EC obtains the resources for the loan from the market, so the interest on the given instalments depends on actual market yields. The first instalment is financed by issuing euro bond with a yield of 3.25 per cent.

Table 1-2**Disbursement schedule of the standing facility provided by international organisations⁷***(EUR billions)*

Facility schedule	Amount of instalments	
	IMF	EC
2008 Q4	4.9	2.0
2009 Q1	2.4	2.0
2009 Q2	1.4	1.5
2009 Q3	1.4	–
2009 Q4	1.4	1.0
2010 Q1	0.5	–
Total	12.0	6.5

Source: MNB.

⁶ The SDR is currently comprised of US dollar (44 per cent), euro (34 per cent), pound sterling (11 per cent), and Japanese yen (11 per cent).

⁷ The IMF loan is denominated in SDR, the official currency of the IMF, which was converted to euro at the official exchange rate prevailing at the time of the loan agreement.

1.2 Macroeconomic environment

Due to the interaction between the financial crisis and the real economy beside the financial sector the private sector agents have also taken major steps to deleverage their balance sheets. The prospects for global economic activity worsened significantly, and the pessimistic expectations were basically confirmed by the released macroeconomic data and corporate results: several economies faced a prolonged period of deep recession, further aggravated by mounting risks of deflation. These developments led to a paradigm change in global economic policy, shifting the focus of measures to economic recovery, monetary easing and the alleviation of tensions on the credit markets. The governments' and central banks' leveraging balance sheets may ameliorate the negative effects of massive deleveraging of private sector and the adverse feedback loop developing between the financial sector and the real economy.

Significant declines in demand in the export markets have an adverse impact on emerging markets with small, open economies, such as Hungary. Parallel to this, fiscal adjustments, a shrinking credit supply and the deteriorating labour market environment discourage internal demand: the corporate sector responds with reduced production and employment/wage adjustments, while households restrain consumption. As a result, Hungarian economic output began to fall off as early as 2008 Q4, and a marked downturn is expected for 2009 with a more moderate decline in 2010. A further decline in external demand and lending activity represent the key risk to the Hungarian real economy.

Despite the decreasing current account and fiscal deficits Hungary's debt indicators are at high levels both historically and in international comparison. However, risks arising from the country's high net external debt may be mitigated by two factors. First, a large portion of the net external debt is linked to funding from parent banks, and based on past experience, their rollover risk is relatively low. Second, Hungarian market agents' reduction of external receivables may reduce dependency on debt-generating liabilities. In the period of 2009-2010 the debt ratios are expected to increase, even if the primary balances indicated a surplus for both. Over the long run, a pronounced decline in the net external debt ratio can only occur with GDP growth close to its potential or a persistently low primary financing requirement. In the case of government debt, the debt ratio may decrease only with positive primary balance.

1.2.1 INTERNATIONAL MACROECONOMIC ENVIRONMENT

As the financial crisis spread to the real economy, the outlook for global economic performance worsened.

Deleveraging by financial institutions was soon followed by an inevitable adjustment in the real economy. As banks restrained lending activity and tightened credit standards, households and firms started to reduce leverage as well. As declining indebtedness in the real sector leads to a marked decline in economic activity, with the strengthening financial acceleration mechanism the outlook for global economic performance deteriorated significantly. Therefore, despite the easing of interbank market liquidity tensions and government support packages, turmoil in the markets did not abate as market agents were gripped by fears of a recession affecting developed markets. Besides the sharply falling consumer and corporate confidence indices, this sentiment was also reflected by the substantial downward revisions in the growth projections of market analyst groups, research institutes and international organisations. According to the IMF's forecast, in 2009 the economy could decelerate by 2.6 per cent in the US and by 3.2 per cent in the euro area. These economic regions may see growth rates of 0.2 per cent and 0.1 per cent in 2010, respectively (Table 1-3). As opposed to the previous forecast of a V-shaped growth path (featuring a rapid rise soon after hitting the bottom), current forecasts predict a U-shaped curve (with a prolonged period of persistently slow growth), with no recovery in sight for the time being.

Government and central bank measures increasingly focused on economic recovery and the enhancement of banks' lending activity.

The deteriorating state of the real economy demanded and fading inflation risks allowed for a paradigm change in economic policy worldwide, prompting decision-makers to shift their primary objective to mitigating recession risks. With a view to facilitating economic recovery, governments and central banks were the only economic agents to increase leverage. This implied increased spending in the case of governments, and liquidity provision and increased balance sheet totals in the case of central banks. The announced economic stimulus packages are expected to increase government expenses by around 1.5 per cent of GDP in the European Union, and 3.5-7 per cent of GDP in the United States. In addition, in an attempt to

Table 1-3**Changes in GDP growth forecasts***(per cent and percentage point)*

	GDP growth – 2009		GDP growth – 2010	
	March forecast	Difference from January forecast	March forecast	Difference from January forecast
World output	-1.0 to -0.5	-1.5 to -1.0	1.5 to 2.5	-1.5 to -0.5
USA	-2.6	-1.0	0.2	-1.4
EU	-3.2	-1.2	0.1	-0.2
Japan	-5.8	-3.2	-0.2	-0.8
Advance economies	-3.5 to -3.0	-1.5 to -1.0	0.0 to 0.5	-1.5 to -0.5
Emerging and developing economies	1.5 to 2.5	-2.0 to -1.0	3.5 to 4.5	-1.5 to -0.5

Source: IMF.

moderate the extent of the economic recession and to prevent a drastic credit rationing or crunch, most central banks have eased their monetary stance. As a result of the ongoing aggressive interest rate cuts, central bank base rates fell to historical lows in several developed countries. In the case of certain economies (USA, Japan) where the base rate was lowered close to 0 and the interest rate policy was left with extremely limited room for manoeuvre, central banks have inevitably resorted to unorthodox measures outside of the set of tools normally applied in monetary policy. In several cases, this involves a shift towards quantitative easing; while the Fed – adopting a somewhat unconventional approach – is employing a new form of credit easing through its recently introduced, alternative instruments. Different asset purchase facilities are being offered with the main objective of alleviating the existing tensions in the lending process: central banks are using the new instruments primarily in an attempt to reduce the costs of long-term financing.

The unfavourable economic conditions in developed economies lead to a downturn in emerging economies as well. Emerging markets have been particularly hard hit by the erosion of demand in important export markets and drastic declines in commodity prices. At the same time, the impact of plummeting commodity prices on the economic outlook of certain emerging countries varied significantly. The growth outlook and investor sentiment on commodity-exporting countries took an even more unfavourable turn than sentiment on countries with a more diversified export structure, such as Hungary. Although the significant depreciation of CEE currencies did stimulate the competitiveness of these countries, it was not sufficient to compensate for the shrinking export markets. The growth outlook for the region was further weakened by the dispute between Russia and Ukraine over gas supplies and the protectionist ambitions of certain developed countries. The

situation is further aggravated by the fact that, of the three large economic regions, economic recovery is currently expected to begin last in the euro area. Consequently, several countries in the region are expected to face a recession.

1.2.2 DOMESTIC MACROECONOMIC ENVIRONMENT

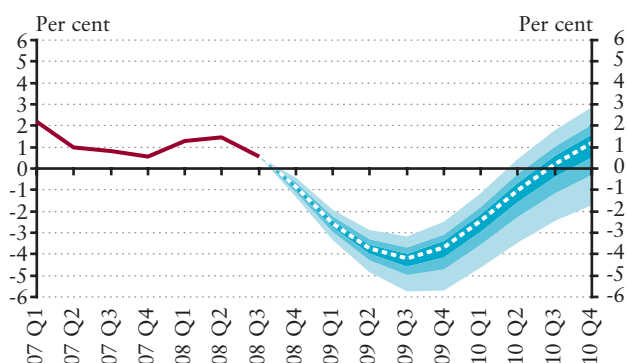
Deteriorating international economic conditions have also surfaced in the developments observed in Hungary in recent months. In 2008 H2, firms faced a shrinking volume of orders and tightening credit conditions. This affected consumer durables initially, which led to a significant decline in industrial output and consequently, a profound deterioration in general European economic conditions. Confidence indices signalling short-term developments in global economic activity (EABCI, IFO) remain at or near all-time lows. Meanwhile, international institutions (IMF, European Commission) released forecasts anticipating a more prolonged recession and slower recovery than before. All this may lead to subdued foreign trade activity, which could have a particularly negative effect on Hungary.

Domestic demand is unable to compensate for the increasingly deteriorating external environment. Growth has been fuelled by exports in recent years, while the contribution of domestic demand – primarily due to the fiscal adjustments in 2006 – was rather minor to begin with. Households are cutting back on consumption spending, due to the deteriorating labour market conditions, shrinking borrowing opportunities and the tax package announced by the government. Firms may postpone their scheduled investment projects on account of tighter financing conditions and worsening profitability prospects (although funds received from the EU might partly offset these effects). On the whole, a combination of these factors led to a 2.5 per

Chart 1-9

Fan chart of Hungarian GDP

(MNB forecast for 2009-2010)



Sources: HCSO, MNB.

cent⁸ annual decline in total whole-economy output as early as 2008 Q4. While industrial output experienced the most severe downturn, all sectors were affected by the recession. According to the forecast released by the Magyar Nemzeti Bank in February, in the macroeconomic baseline scenario⁹ GDP may decrease by 3.5 per cent this year, which could be followed by a further decrease by 0.5 per cent in 2010 (see Chart 1-9).

Profitability in the corporate sector is deteriorating.

Declining production shows that firms are facing deteriorating profitability prospects. Tighter corporate financing conditions primarily affect small and medium-size enterprises, as such companies typically rely on short-term loans for financing current assets. Firms adjust to these conditions in part by subdued production, and in part by wage reductions. However, as wage and employment adjustments have lagged behind the rapid declines in production, unit labour costs have increased. Weak demand prevents firms from incorporating their rising costs in prices, which drags down profitability further.

The recession has triggered a more substantial adjustment in wages and employment than the adjustments seen in previous years.

In 2008 Q4 employment decreased by 34,000. The production sectors (manufacturing and related suppliers) laid off employees in the largest numbers. However, the decline in employment is only partly reflected by an increase in unemployment as the level of inactivity has increased substantially as well. Simultaneously, slowing wage dynamics increasingly reflect the effects of the negative output gap. Adjustment pressures triggered by dwindling demand, employers' improved

bargaining position owing to a higher unemployment rate, an environment of lower inflation and nominal wage reductions in the public sector all point to a deceleration of wage dynamics.

The income position of households has deteriorated, due to worsening labour market conditions, increasingly tight lending and strict government measures. While a decline in income would not necessarily lead to a comparable decline in consumption spending, under the current circumstances attempts at consumption smoothing are discouraged by a number of factors. Borrowing opportunities have become scarce and only a small portion of households have financial savings. Moreover, a large part of household savings are expensive to liquidate (mandatory pension funds savings, life insurance policies). Finally, deteriorating labour market conditions warrant increased caution, which in turn encourages financial savings. Consequently, consumption expenses are expected to be broadly restrained.

The stronger-than-expected fall in external demand and lending activity constitute the most important downside risks.

If the recovery in global economic activity starts later than expected, the unfavourable export sales opportunities would have a significant impact on economic growth in 2010. As far as lending is concerned, it cannot be ruled out that both households' and corporations' net borrowing will remain negative over the coming two years, as a result of tighter borrowing conditions and deterioration in borrowers' income situation. This would mainly impair growth prospects for 2009 to a considerable degree. Pieces of international and domestic macroeconomic information since the publication of the *Quarterly Report on Inflation* in February 2009 confirm the realisation of significant downside risks regarding growth prospects for this year. On the one hand, the latest projections (IMF, OECD and ECB) estimate the extent of the downturn in the euro area in 2009 to be one percentage point higher than previously expected. On the other hand, Hungarian economic indicators suggest a steeper fall in both the domestic and export components of GDP than we had previously anticipated. Consequently, there is an increased probability that the GDP growth rate in 2009 will be in the lower part of the fan chart shown in Chart 1-9.

1.2.3 DEVELOPMENTS IN EXTERNAL EQUILIBRIUM AND DEBT INDICATORS

In the period 2009-2010, the worsening foreign funding conditions are expected to necessitate a significant

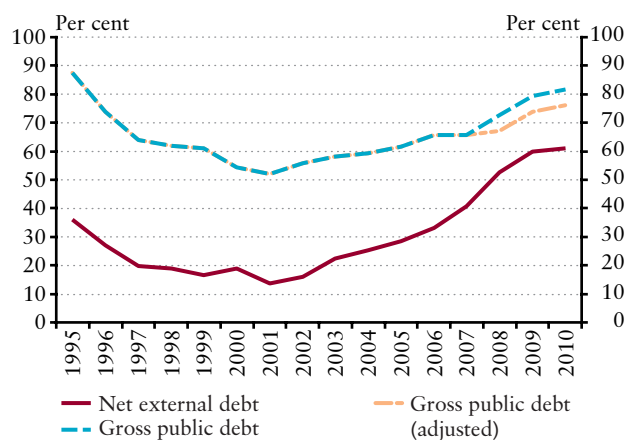
⁸ Adjusted by calendar effects.

⁹ A detailed description of the macroeconomic baseline scenario can be found in the publication *Quarterly Report on Inflation*, February 2009.

adjustment of the external financing requirement.

Falling import demand – triggered by a decline in domestic demand – may considerably exceed the expected decline in exports. Consequently, we expect a significant increase in the surplus on the balance of goods and services – by 2.7 per cent of GDP. According to our forecast, the deficit on the income balance may remain stable. The effect of the increasing interest burden on outstanding debts may be offset by a decline in foreign-owned companies' profit, which signals a moderation in the income outflow related to direct investment. Combined with an expected rise in EU transfers, these developments may result in a decline in Hungary's external financing requirement to 2.1 per cent of GDP. If government expectations hold true with respect to the volume of EU fund inflows in 2010, a further modest improvement in the external balance may be possible.

Despite rapid improvement in the balance of payments, debt indicators are rising. The upward trend of GDP-proportionate debt indicators may indicate mounting sustainability risks, deteriorating repayment ability, and growing rollover risks (see Chart 1-10). It should be stressed that according to the literature, there are no debt levels – both for external debt or government debt¹⁰ – which play a significant role in the assessment of vulnerability risks.

Chart 1-10**Debt-to-GDP ratios of Hungary***(MNB forecast for 2009-2010)*

Note: The methodological changes implemented with respect to the balance of payments represent a change of around 5 per cent in the growth of net external debt for 2008. The projection for the government debt is based on FX funding of the ÁKK's financing plan published on 10 December 2008. Gross public debt is adjusted by foreign currency deposit of the government held at the MNB.

Source: MNB.

Box 1-2: Interpretation of different external debt indicators

The literature on macroeconomic vulnerability uses various types of indicators to quantify a country's indebtedness vis-à-vis the rest of the world. In order to understand the exact content of the indicators, two questions need to be clarified: 1) exactly what financial instruments are classified as debt elements, and 2) whether the notion of external debt is used in gross or net terms.

In specifying debt instruments, the classification of intercompany loans and financial derivatives can present a problem. Equities (e.g. shares, other equity) are clearly regarded as non-debt generating instruments. However, the classification of intercompany loans recorded among direct investments is questionable: although formally they represent debt relationship, according to experiences, there is easy passage between intercompany loans and equity-type direct investments.¹¹ Therefore, many analyses consider the external debt calculated with the exclusion of intercompany loans as the more adequate indicator of external vulnerability.

Financial derivatives (forward transactions, options, swaps) are also special instruments. On the one hand, depending on the price developments of the underlying product, the value of the conditional debt or claim they embody may change significantly. On the other hand, in case of these transactions one cannot talk about principal to be paid back and interest income. Due to their special character, financial derivatives are usually not classified among debt-type instruments.¹²

The conclusions which can be drawn from the level of debt-type external liabilities (gross debt) may be qualified if we take account of the country's debt-type assets as well (net debt). As a result of the liberalisation of capital flows it has become typical that many countries act at the same time as borrowers and lenders as well in international financial markets. Consequently, it often occurs that high external indebtedness is coupled with an also high level of the country's debt-type assets. In cases like this, instead of the so-called gross debt indicators, which include liabilities, it

¹⁰ In the case of the general government debt, in line with the Maastricht criterion, the debt-to-GDP ratio may not exceed 60 per cent. If the fiscal deficit is higher, the Maastricht criteria require the reduction of the debt ratio.

¹¹ Loans within a company group are also accounted here; although in legal terms they do not represent a debt relationship between parent company and subsidiary, but in economic terms their behaviour is the same.

¹² See for example: External Debt Statistics: Guide for Compilers and Users (IMF 2003).

may be more expedient to monitor net debt indicators, which deduct the value of assets.¹³ Hungary's net debt indicators show a considerably more favourable picture than the gross values, which disregard the assets of the country.

In international comparative analyses, the handling of off-shore-type companies which are resident in legal terms but have a loose relationship with the national economy may present a further problem. Based on international methodological recommendations, the data of the so-called special purpose enterprises (SPEs) should be stated in gross terms, which, in turn, may significantly distort official statistics. The underlying reason is that these entities usually settle in a given country only to exploit tax benefits. By means of the funds

flowing through them they only play an intermediate role within the group of companies, rather than being actual targets of direct investments. In Hungary, for the sake of economically established analysis, external debt statistics are also compiled without these companies. However, for the time being, in the databases of international organisations (e.g. Eurostat) statistics covering the complete range of companies are available, in accordance with methodological standards.¹⁴

Based on the above considerations, the MNB's analyses are based on the balance of payments excluding the SPEs, and in terms of external vulnerability they focus on debt indicators without intercompany loans and financial derivatives (Table 1-4).

Table 1-4

Hungary's external debt indicators as a proportion of GDP

(end-2008 Q3 data, per cent)

	Gross	Net
Excluding SPEs		
Including intercompany loans	105,3	50,5
Excluding intercompany loans	85,1	47,6

Note: Excluding financial derivatives.

Source: MNB.

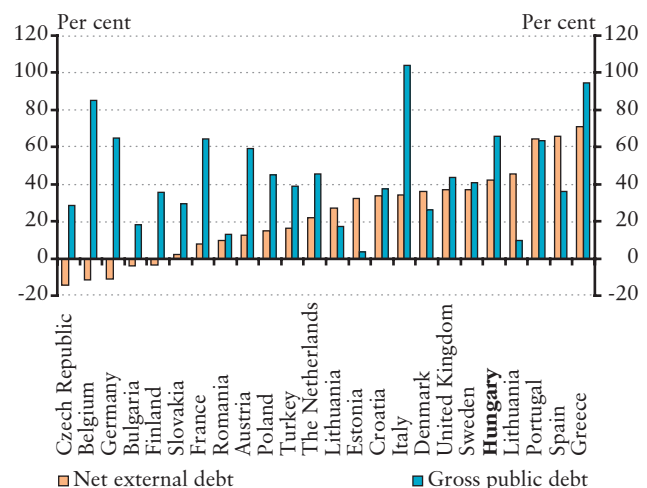
Government debt and net external debt indicators are at high levels both historically and in regional comparison. For Hungary, both the net external debt and gross government debt¹⁵ – the latter of which also indicates the country's compliance with the Maastricht criterion – have grown in recent years as a proportion of GDP. By the end of 2008, government debt and net external debt had risen to 73 per cent and more than 52 per cent of GDP, respectively (see Box 1-2 for details on external debt indicators). These debt ratios are considered high both in regional and in international comparison (see Chart 1-11).

Risks arising from the high ratio of external debt may be mitigated by a number of factors. The rapid increase in banks' external funds played a key role in the growth of the debt ratio. In 2008 nearly 50 per cent of total net external debt was related to the sector of credit institutions. At the same time, more than half of domestic banks' external financing is comprised of parent bank funds. Recent experiences indicate that, in the period of unfavourable

Chart 1-11

Net external debt and gross government debt as a proportion of GDP

(as of 31 December 2007)



Source: IFS, Eurostat.

¹³ This phenomenon is also contributed to by the fact that multinational companies and banking groups often provide funding to group member operating in a third country through a subsidiary resident in an intermediary country. In this case the mediating country's debt-type liabilities and assets also increase, while the net external debt remains unchanged.

¹⁴ Just like Hungary, some other countries (e.g. Luxembourg) also publish their balances of payments which exclude the special purpose enterprises. Steps have been taken in international statistical rule-making to make the reporting of both balances of payments to international organisations possible in the future.

¹⁵ In our analysis, net external debt excludes intercompany loans and financial derivative liabilities.

external funding conditions, the role of parent bank funding gained even more significance. Moreover, risks associated with the debt level may be also mitigated by the fact that direct investment abroad and the volume of foreign shares purchased by resident institutional investors have been rather high in Hungary in recent years relative to other countries in the region. Difficulties in rolling over external funds may encourage domestic market agents to dispose of their external assets, which may reduce dependency on debt-creating financing. Finally, the international financial package also contributes to the mitigation of risks related to the debt ratio.

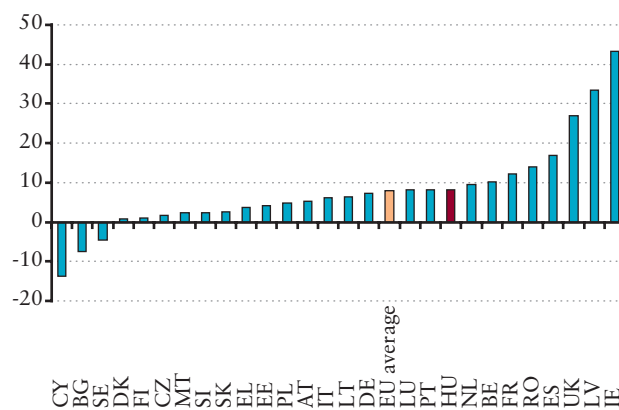
In the period 2009-2010 net external debt and government debt may increase further. Based on the exchange rate assumption and macroeconomic path outlined in the February issue of the *Quarterly Report on Inflation* and current yield curves, the net effect of the changes in the real interest rate, real exchange rate and real growth may increase the net external debt-to-GDP ratio by nearly 10 percentage points in 2009-2010. Therefore, despite the fact that – due to a significant adjustment of the external imbalance – the primary balance vis-à-vis the rest of the world may indicate a surplus for the first time after a long period, the debt ratio may reach 61 per cent of GDP by the end of 2010 (see Chart 1-10). Gross government debt may increase also despite the surplus on the fiscal primary balance in both years and approach 82 per cent of GDP by the end of 2010¹⁶.

Over the long run, the debt ratios may decline gradually. In the medium run, we face substantial uncertainties in connection with the development of the debt indicators. Looking ahead over a longer period in time, if we assume GDP growth close to its presumed potential, a stable nominal exchange rate, an inflation rate close to the target and real interest on debt dropping to its historical average, we can calculate the primary financing requirement which would lead to stable debt indicators: the primary financing requirement should be maximum 0.4 per cent of GDP for stabilisation of the net external debt ratio. Based on the

financing structure of past years, this implies that the external financing requirement must be consistently under 4 per cent of GDP in order to achieve a decline in the debt ratio. In the case of the government debt, the debt ratio can decrease only with positive primary balance. At the same time it is important to emphasize that in addition to low potential growth and real interest rates being above the historical average, a significant decline in the debt ratio can be achieved only by a considerable reduction in the fiscal deficit, i.e. an increase in the primary surplus.¹⁷

As a result of the global economic recession, government debt as a proportion of GDP is expected to increase significantly in most countries. In contrast to Hungary, the majority of developed countries are reacting to the economic downturn with fiscal easing, which, through the deterioration of the primary balance, directly leads to an increase in the debt ratio (see Chart 1-12). In addition, the decline in GDP considerably increases the debt indicator in countries with high debts. Based on the January 2009 forecast of the European Commission, in international comparison the expected increase in Hungary's debt ratio cannot be considered as extremely high.

Chart 1-12 Change in the public debt in the countries of the EU between 2007 and 2010



Source: European Commission (January 2009 forecast).

¹⁶ If the local governments will use the bank deposits for financing their requirements instead of further indebtedness the debt ratios would be 0,5 percentage points lower.

¹⁷ In the past, losses suffered by publicly owned transport companies (i.e. MÁV and BKV) often imposed a burden on the government budget in the form of debt assumption or capital injection. Among other factors, that posed a significant risk to the sustainability of the debt-to-GDP ratio. To prevent such events from contributing to government debt in the future, these companies should be recapitalised, ensuring that their operations will remain sustainable over the long term. In the absence of such measures, stabilising the debt may require a higher primary surplus compared with the official deficit indicator over the medium term.

2 Stability of the financial intermediary system





Due to the deteriorating money market situation and an increasingly gloomy economic environment, the domestic banking system is confronted with heightened liquidity and solvency risks. As international investors became more risk averse, the banking system can roll over its existing debt from the market only at higher costs and with shorter maturities. The economic downturn and a weaker forint exchange rate are further increasing the debt burden of the private sector which is indebted mainly in foreign currency. This results in a deterioration of the credit portfolio quality in the banking system and in leasing companies closely related to them.

The concerted action of international organisations and the planned fiscal adjustments significantly reduce the risks involved in rollover the government's and the banking systems' external debt. Furthermore, in addition to the interest rate policy steps taken, the central bank's new measures introduced recently are also improving the liquidity

conditions in the banking sector. Finally, the firm commitment of parent banks in financing their subsidiaries also helps to ease the liquidity tensions.

The banking system's capital adequacy ratio increased to around 11 per cent at the end of 2008, well above the regulatory minimum requirements. The economic downturn and a depreciated HUF exchange rate – via declining the lending activity and the deteriorating portfolio – are leading to a significant drop in profitability and a moderate fall in the capital adequacy ratio. In line with the 3.5 percentage points decrease in the GDP in the baseline macro-economic scenario, the banking system's capital adequacy ratio may remain above 10 per cent at the end of 2009. However, in order to withstand the negative effects of an even higher economic downturn than currently expected, banks may have to improve their shock-absorbing capacity by strengthening their capital position.

2.1 Risks of the banking system¹⁸

2.1.1 CREDIT RISKS

Credit demand from the corporate and household sector is dwindling in response to the deteriorating macroeconomic environment, and supply is also drying up as banks are becoming increasingly risk averse. Within the corporate sector, SMEs operating in the trade and the construction industry in particular may have been hit hardest by the increasingly tight financing conditions.

In line with the macroeconomic baseline scenario, owing to the negative economic growth and the worsening labour market conditions, credit growth for both the corporate and household sector continues to decelerate, and the quality of the credit portfolio is deteriorating further. The latter phenomenon may be particularly substantial in the case of commercial real estate projects and households with debts denominated in foreign currency. However, for households the high share of real estate collateral and strong willingness to repay mortgage loans may mitigate the elevated credit risks.

The corporate sector faces with more stringent financing conditions

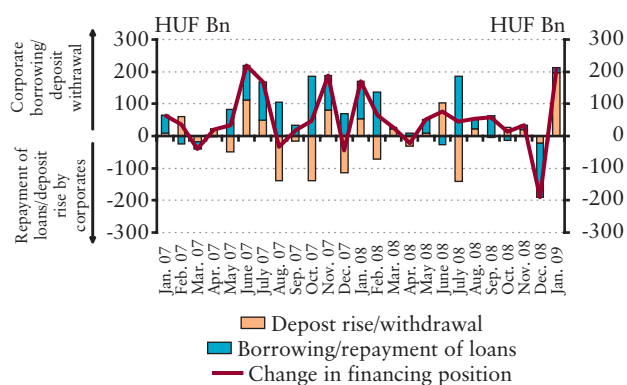
The deteriorating liquidity position of firms may be mitigated by central bank and government measures.

Since the onset of the crisis in October 2008 banks have been reducing their credit supply to the corporate sector, as the worsening funding conditions forces them to curb their lending activity, meanwhile their risk tolerance has also diminished. At the same time, corporate credit demand became weaker due to the higher HUF interest rates and sluggish business activity due to the economic downturn. As a result, net growth in corporate credit was markedly negative in December 2008 compared with previous years. As there was a moderate rise in corporate deposits, the financing position of banks vis-à-vis firms contracted (see Chart 2-1). However, companies withdrew a significant portion of their deposits in January, which suggests that their financing needs remain stronger than banks' willingness to lend, i.e. supply or rather the lack of thereof should be the main underlying reason for subdued lending.

Chart 2-1

Monthly changes in the net financing position of the banking sector¹⁹ vis-à-vis the corporate sector

(adjusted for exchange rate movements)



Source: MNB.

One promising development is that the banking sector has shown marked interest for the MNB's 6 months FX-swap tender, where maintaining the bank's corporate credit portfolio at least at the level of 31 December 2008 is an eligibility criterion. To fulfil this, banks can also rely on both national and European state subsidised refinancing programmes to a larger extent than previously. This may suggest a more moderate downturn in credit supply than earlier expected.

Last year, in response to the volatile HUF exchange rate, firms changed the currency composition of their assets and liabilities frequently, mainly for speculative purposes. In 2008, as soon as the exchange rate of the forint departed from the historic average of EUR/HUF 250-255, as a rule, firms concluded foreign exchange transactions that reflected expectations for the forint to return to that average. Thus, when the domestic currency weakened in February and October, they responded by converting their FX deposits to HUF and, in case of multi-currency loans, they converted HUF-denominated loans into foreign currency ones (see Chart 2-2). The appreciation of the forint in late spring/early summer led to the emergence of opposite trends²⁰ (though not reflected in the change of the net position, gross

¹⁸ The banking system means the credit institutional sector, excluding Eximbank, MFB, KELER and savings cooperatives.

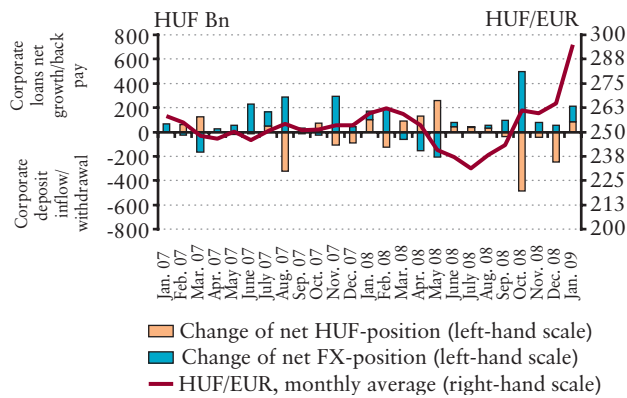
¹⁹ Including the branches licensed to operate in Hungary. MOL's one-off deposit placement transactions of technical nature were excluded from the 2008 data.

²⁰ In addition to immediate conversion, during the period of the significant appreciation of the forint last summer, a smaller portion of companies, typically the ones with export sales revenues, built up forward positions with the help of leveraging to neutralise the strengthening of the forint. In many cases here the expected future export sales revenue would have been the natural hedge. The spreading of the financial crisis to real economies significantly reduced export opportunities, and thus the positions remained unhedged. Therefore, on these kinds of positions sizeable losses may have arisen on these kinds of positions, and in the event that the depreciation of the forint remains permanent, significant liquidity tensions and deterioration in profitability may occur at these companies.

Chart 2-2

Monthly changes in the net financing position of the banking sector²¹ vis-à-vis the corporate sector in a breakdown by foreign currency

(adjusted for exchange rate movements)



Source: MNB.

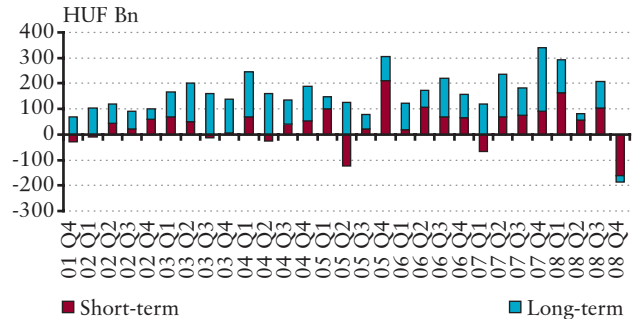
placement of FX deposits was more significant in the summer than usual). This put the banking sector in a quandary in October, when firms' foreign currency transactions alone increased credit institutions' balance-sheet foreign currency position by nearly HUF 500 billion (due to the conversion of foreign currency deposits into HUF deposits and the conversion of HUF loans into FX loans). This occurred at a time when the liquidity of the foreign exchange swap market – where open FX positions are hedged – dried up. It is true, however, that this corporate attitude bolstered HUF demand when the domestic currency was weakening and dampened it when it was strengthening.

The slowdown in lending was felt most acutely in the short-term lending of working capital.

There was practically no change in the volume of the long-term investment loan portfolio. This is not altogether surprising; adjustment warranted by weaker credit supply and demand first occurs in the segment of credit with shorter maturities; in case of investment credit, it is more like a lack of the growth of the portfolio (see Chart 2-3). A fall in short-term loans is probably mainly the outcome of banks' weak credit supply, whereas the main reason for the corresponding decline in investment loans might be the lower demand. Restricted access to funds may contribute to the deepening of the recession as failure to roll over short-term liabilities can easily obstruct the operation of businesses which are otherwise economically sound. If, however, credit squeeze eases and short-term liabilities can be rolled over, the impact of this risk factor will be less severe.

Chart 2-3

Seasonally and exchange rate adjusted increase in the quarterly net flows of the corporate loans of the banking sector



Source: MNB.

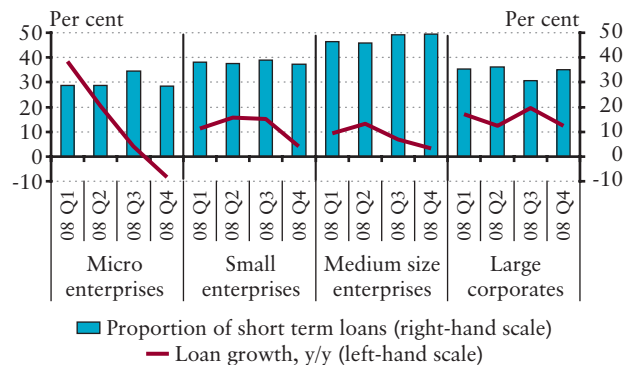
The decrease in the lending dynamics is more pronounced in the small and medium sized enterprises (SME) segment than for large corporates.

Although loans to large firms shrank to the largest degree in the last quarter (by 4.3 per cent on a q/q basis) when measured on an annual basis, the credit to SMEs grew at a slower rate. The credit portfolio of microenterprises was even lower at the end of 2008 than a year before (see Chart 2-4). Nevertheless, the situation of small and medium sized enterprises is the most fragile, as they have a higher-than-average proportion of short-term loans, which means that the adverse impacts of tighter financing conditions emerge sooner in this segment. On a favourable note, this sector benefiting the most strongly from domestic and European state subsidised refinancing programmes.

Chart 2-4

The maturity structure and the annual growth rate of corporate loans in a breakdown by firm size

(adjusted for exchange rate movements)



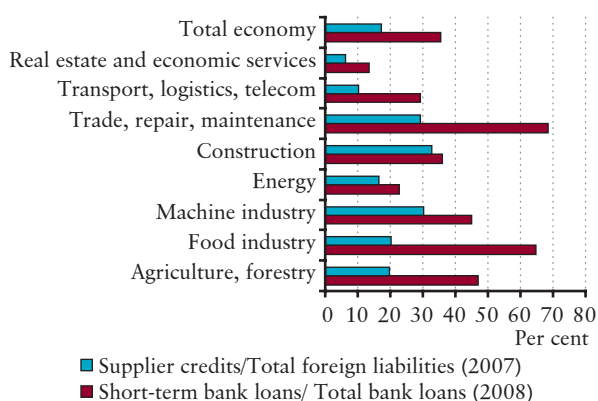
Source: MNB.

²¹ Including the branches licensed to operate in Hungary. MOL's one-off deposit placement transactions of technical nature were excluded from the 2008 data.

Availability of trade credit may also decline. Certain sectors are overly reliant on external financing or have high short-term leverage: for instance, over 50 per cent of bank loans to commercial enterprises and food industry are short-term loans (see Chart 2-5). As a result, these sectors are hit by not only the general drop in demand, but also by the increasingly limited availability of new funds. Simultaneously, alternative sources of financing are also becoming difficult to access: deterioration in the general liquidity position of market participants prevents firms from refinancing their bank credit with commercial loans. In fact, in sectors such as trade, construction and the machinery industry, where the proportion of trade credit is already very high, reliance on bank loans will likely increase further due to the liquidity problems faced by contractual partners. As for alternative sources of financing, large firms with foreign parent companies can borrow abroad or receive working capital credit. In contrast, smaller companies can only draw on the refinancing facilities provided by the government or EU-based refinancing schemes.

Chart 2-5

Characteristics of the liability structure of certain key economic sectors



Sources: For bank loans, the MNB, for trade credit APEH (Hungarian Tax and Financial Control Administration) Panel data.

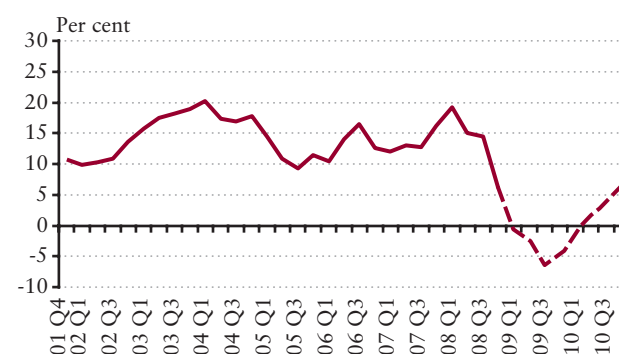
Lending standards are tightening. The previous lending surveys conducted by the MNB show that banks have been tightening their lending conditions since early 2008 and based on their stronger bargaining position due to a general shortage of funds, have successfully been able to pass the increased cost of funding on to their corporate customers. Accordingly, average corporate interest premia have nearly doubled over the past 6 months. In the meantime the benchmark HUF interest rate (BUBOR) has also increased and as a result corporate HUF loans have also become more expensive in absolute terms. A lower reference interest rate (EURIBOR) in case of euro-denominated loans more or less offsets the increase in interest rate premia, thus nominal lending interest rate remained nearly unchanged.

Overall, outstanding corporate credit is likely to decrease in 2009, while banks participating in the MNB's FX-swap tender with a maturity of 6 months are expected to maintain their credit portfolios. In all likelihood, corporate credit demand will weaken in response to higher financing costs stemming from the deteriorating economic environment, higher interest on HUF and foreign currency loans. Weaker demand for inventory financing and lower capacity utilisation will dampen demand for working capital loans and investment credit, respectively. Banks' increasing reluctance to lend will restrict credit supply, as well. This has two reasons: the increasingly short maturities and higher costs of external financing on the liquidity side and banks' reduced risk appetite on the capital side. This is likely to be reflected in a decrease of overall exposure and in portfolio restructuring. Based on the above assumption, the baseline scenario for lending (see Chart 2-6) has not yet incorporated the facts that banks participating in the MNB's FX-swap tender have made a commitment to maintain their corporate credit portfolios at their 31 December 2008 levels, and that the government has introduced several measures to support the financing of SMEs (for further details, see Box 2-1). This may mitigate the actual slowdown in lending. It is important to reiterate that the curbing of lending carries risks because it may further aggravate the economic downturn, which in turn may also diminish the quality of the portfolios held by households due to a higher rate of unemployment. Therefore, from the perspective of improved economic performance and financial stability, corporate lending should be prioritised even if this could lead to temporary losses for the banking sector in the short run.

Chart 2-6

Annual growth rate of corporate lending by the banking sector²²

(adjusted for exchange rate movements; MNB forecast for 2009-2010)



Note: Data projection for 2009 and 2010 along the macroeconomic baseline scenario.

Source: MNB.

²² Including the branches licensed to operate in Hungary.

Box 2-1: Government measures to promote domestic corporate lending

The government has introduced four new programmes and has eased the conditions of some existing ones since November 2008 in order to mitigate the funding problems faced by SMEs. Three of the new programs (Új Magyarország Working Capital Credit Program, SME Credit Program, Venture Capital Program) provide real new funds for the banking system to refinance corporate loans; other measures aim to make the conditions on banks' existing offers more favourable i.e. by providing subsidies on interest or guarantee schemes. Thus the total volume of new funds for refinancing

amounts to HUF 225 billion, of which HUF 140 billion is allocated to providing the most crucial short-term loans for financing working capital. This can be regarded as a significant support since it amounts to 10 per cent of the total volume of SME loans maturing within a year of approx. HUF 1,405 billion. The new funds to refinance banks' corporate loans come mainly from EU-sources, while Hungarian government budget financing is used instead for guarantee and interest subsidies, as these types of subsidy put less pressure on the budget deficit (see Table 2-1).

Table 2-1**Government measures to boost lending of resident enterprises**

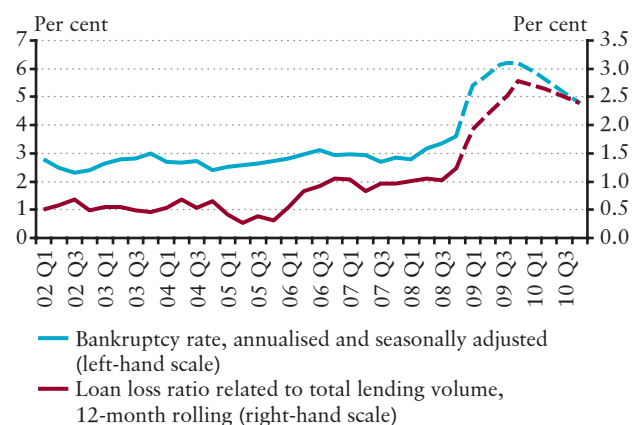
Program	Type of support	Budget (Bn HUF)	Target group	Supported activity	Source	Introduction
Új Magyarország Working Capital Credit Program	New funds with favourable interest to refinance corporate loans	140	SME	working capital loans	EU	New programs launched from 2009
Új Magyarország SME Credit Program	New funds with favourable interest to refinance corporate loans	50	SME	investments	EU	
Új Magyarország Guarantee Program	State guarantee up to 80% on banks' corporate loans	67	SME	working capital and investment loans	Hun. Gov.	
Új Magyarország Venture Capital Program	New funds with favourable interest for venture capital funds	35	< HUF 1,5 bn turnover	-	Hun. Gov.	
Új Magyarország Microcredit	New funds with favourable interest to refinance corporate loans	83	Micro-enterprises	working capital and investment loans	EU	Program launched in 2008
Új Magyarország Investment Credit Program	New funds with favourable interest to refinance corporate loans	104	SME	investments	Hun. Gov.	Program launched in 2008
Other subsidies by MFB related to agriculture	New funds with favourable interest to refinance corporate loans	56	SME in agr.	working capital and investment loans	Hun. Gov.	Older programs
Széchenyi-card	Interest subsidy	-	SME	working capital loans	Hun. Gov.	Since 2009, interest subsidy has risen from 1% to 2%
Garantiqa Hitelgarancia Zrt.	State guarantee up to 70% on banks' corporate loans	900	SME	working capital and investment loans	Hun. Gov.	Since 2009 program budget has risen from HUF 450 bn to HUF 900 bn
EU Structural Funds	Subsidy	-	SME	investments	EU	Older programs with more favourable conditions from 2009

Source: National Development Agency, MFB, Ministry of National Development and Economy.

The quality of the corporate portfolio may deteriorate mainly in case of commercial property loans

Rising rates of bankruptcy in the corporate sector are compromising the quality of the credit portfolio. Although the economic climate was far more benign in 2008, corporate solvency weakened during the year both in terms of bankruptcy rates and corporate credit delinquencies. Nevertheless, impairments recognised by banks did not rise, except in 2008 Q4, as credit institutions managed to cover new losses using the provisions that they had already formed. From 2009, however, a rising bankruptcy rate of corporate and impairments may adversely affect banks' profitability²³ (see Chart 2-7).

Chart 2-7 Corporate credit risk in the banking sector
(MNB forecast for 2009-2010)



Note: Data projection for 2009 and 2010 along the macroeconomic baseline scenario.

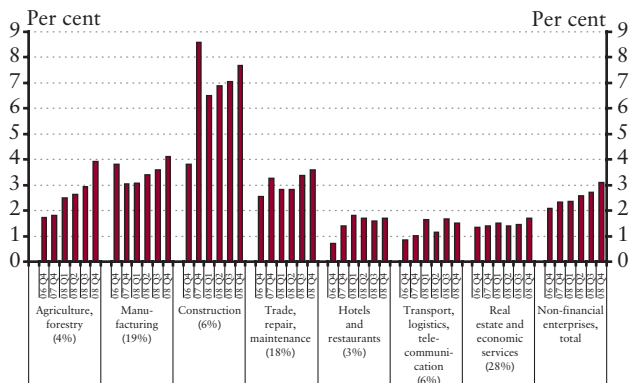
Source: MNB.

The risks arising from the economic downturn are not evenly distributed between economic sectors. Banks have already incurred higher-than-average loan losses in the construction, manufacturing and agriculture industry (see Chart 2-8). In addition to weaker demand, liquidity problems – as pointed out above – also render other industries vulnerable. The recession may affect commercial real estate investment projects particularly severely (for the details, see Box 2-2).

Portfolio deterioration may be greater for corporate FX loans without natural hedges. The share of FX-

Chart 2-8 Impairments on bank loans in a breakdown by economic sector²⁴

(the share of the debts of the individual sectors in the total corporate credit portfolio held by banks is shown in brackets)

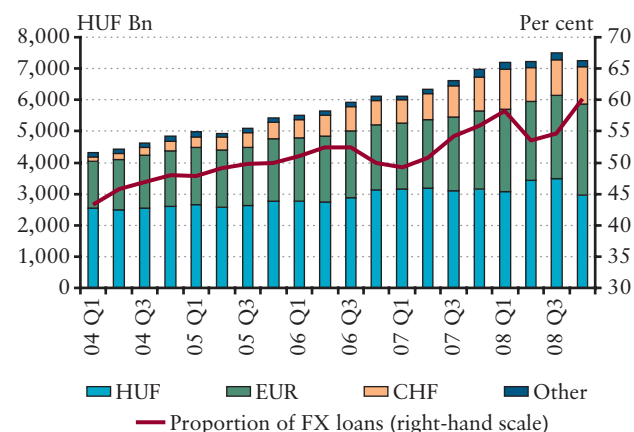


Source: MNB.

denominated loans in total loans to corporations exceeds 70 per cent, and such loans account for around 55-60 per cent of funds originating from the domestic banking sector (see Chart 2-9). Within FX loans from banks, the proportion of Swiss franc loans has reached nearly 30 per cent, and this ratio does not correspond to the geographical distribution of Hungary's exports. Therefore, a significant part of these loans presumably does not have any natural hedge. In addition, it is also a general phenomenon that even small and medium-sized enterprises with no export sales revenues at all have become

Chart 2-9 Distribution of the banking sector corporate credit portfolio by denomination

(exchange rate as of 31 December 2008)



Source: MNB.

²³ We used the number of companies either under liquidation or already wound up to approximate corporate default probability at a whole-economy level. We used a regression model based estimate in order to be able to predict the number of the corporations threatened by bankruptcy. In doing so, we analysed the effect of macro-variables on the rate of bankruptcies. Explanatory variables were the growth rate of GDP, domestic and European nominal and real interest rates, nominal and real HUF exchange rates and inflation. We also considered possible non-linearity impacts. (For a detailed discussion of this issue, see Valentinyiné Endrész Marianna and Vásáry Zoltán, 'Macro-stress tests performed with sector specific models of rates of bankruptcy', MNB Working Paper 2008/2).

²⁴ As a different methodology has been applied to data series since 2008 Q1, last year's data can only be compared to pre-2008 data to a limited extent.

indebted in foreign currency. At the same time, this group typically does not conclude hedging transactions either: thus they practically keep an open FX position. Consequently, a

permanent, significant depreciation of the forint may result in such an increase in the repayment burden, which may considerably affect these companies' solvency.

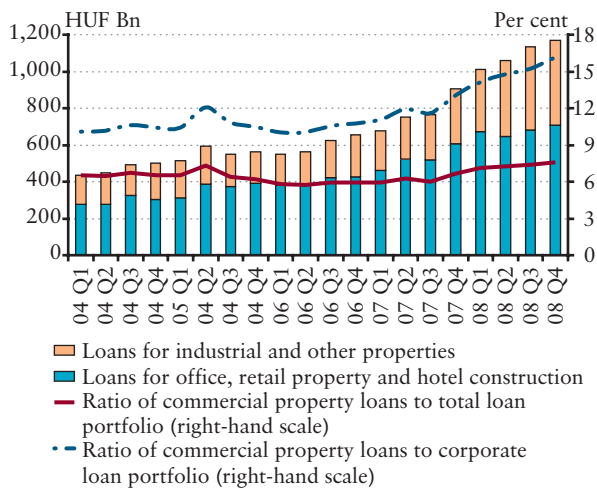
Box 2-2: Trends in the domestic commercial property market²⁵

The commercial property sector is of key importance from a financial stability perspective due to its reliance on bank financing. Although the proportion of commercial property related loans within the corporate and the total loan portfolio has increased in recent years (see Chart 2-10), this ratio cannot be considered high by international standards. The proportion of commercial property related loans within total loans is around 8 percent which approximately corresponds to the EU average.²⁶ However, the high level of concentration in commercial real estate financing increases risks: the top 3 banks account for over 70 per cent of the market; as a result, the exposure of some banks to the commercial real estate business is significantly higher than the average.

immune to the international slowdown, the adverse trends in the sector are much less dramatic in Hungary than those in certain developed economies (e.g. in the UK).

As a sign of the adjustment to the new environment, the value of new investments fell by a considerable 80 per cent in 2008 compared to 2007 due to the expected weaker demand in the future (i.e. adjustment to economic slowdown) and financing difficulties. According to the lending survey of the MNB, banks tightened their lending standards applicable for project loans substantially and reduced their credit supply, while also experiencing a marked fall in credit demand. Nevertheless, in the wake of the dynamic investment activity seen in recent years, a significant amount of new commercial property stock came on the market in 2008. Although demand also picked up, it was unable to keep pace with the increasing supply, resulting in a steep rise in vacancy rates. This, along with rising yields in Western Europe and rising risk premia in Hungary, led to a significant increase in the expected yields in the domestic market compared to the end of 2007 (see Chart 2-11) and an ensuing fall in commercial property prices.

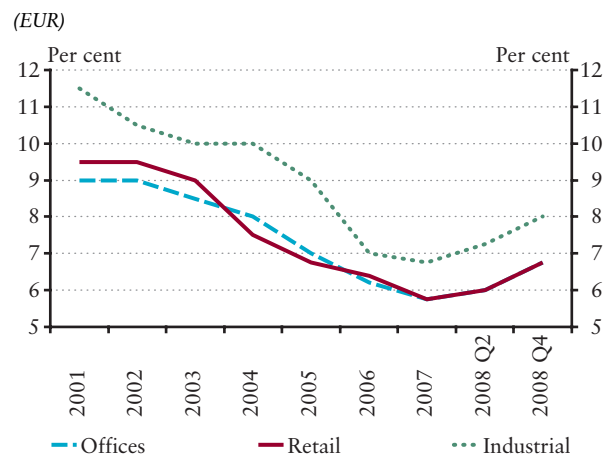
Chart 2-10
Banking sector's exposure to the commercial property market, stock at exchange rate of Dec 31, 2008



Source: MNB.

In 2008 the activity of commercial property sector slowed globally. The slowdown was the most pronounced in those countries which had experienced the most vigorous growth in the commercial real estate sector during the previous years (e.g. the US and the UK). Global trends included a significant fall in investment activity, increasing vacancy rate, stagnating or falling rents and rising yields due to increased risk premia. Taken together, these effects led to a steep fall in commercial property prices. Although the Hungarian market did not remain altogether

Chart 2-11
Yields of the Hungarian commercial property market (EUR)



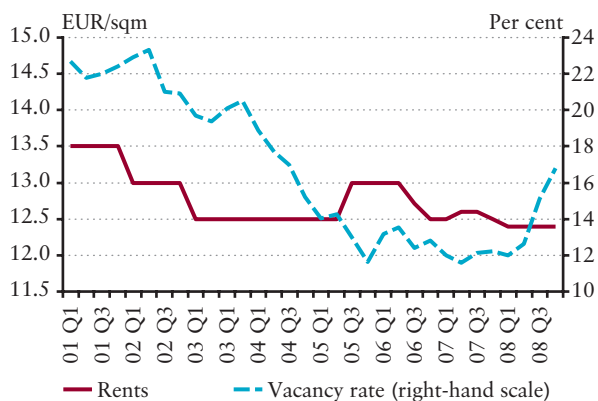
Source: CBRE.

²⁵ Based on data from CB Richard Ellis and DTZ.

²⁶ Source: ECB: Commercial Property Markets: Financial stability risks, recent developments and EU banks' exposures, 2008/12.

Chart 2-12

Rents and vacancy rates of the Budapest office market



Source: CBRE.

Office market: As a result of a surge in investment in the previous years, growth in total office space peaked in 2008 and although take-up exceeded all previous levels, vacancy rate still edged higher to 16.8 per cent by the end of the year (see Chart 2-12). One of the significant trends in the office market is market segmentation. While the premium category of downtown office space can still be rented out at the prices charged so far, demand has weakened for office space at the lower end of the market, suggesting a future reduction in rents in this sub-segment. Expected return on prime office space rose from 5.75 per cent to 6.75 per cent over the span of one year.

Industrial property: New supply in this segment also reached record highs, while take-up increased by over 50 per cent relative to 2007. However, supply outpaced demand in this segment as well. The vacancy rate thus grew by 6 percentage points to 16.4 per cent and average yield increased from 7.25 per cent to 8 per cent. Due to a sharp fall in industrial output and the fact that supply is expected to grow dynamically in 2009 H1, the above trends are likely to continue for the rest of 2009.

Retail outlet segment: Although new retail space decreased by 40 per cent in 2008 compared to 2007, the annual growth rate of the total stock is still above 10 per cent. Approximately 1 million sqm of new retail space is slated for construction in the next 3 years, half of which is expected to be in Budapest. However, the decreasing retail sales figures are likely to lead to lower demand for outlets.

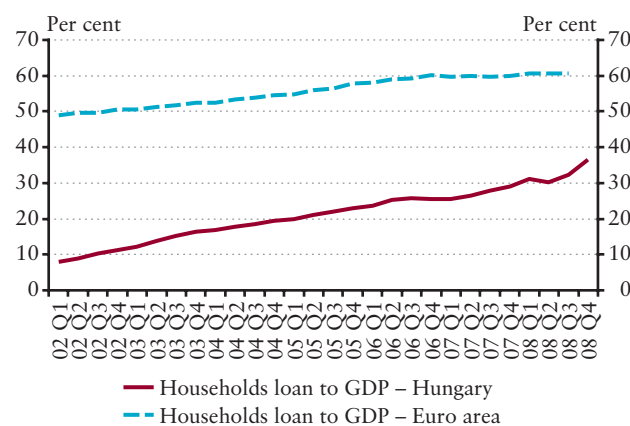
In summary, a significant amount of commercial property stock will come onto the market in nearly every segment in 2009 as well, which may – along with lower demand – exert pressure on the market. The vacancy rate and expected yields are likely to increase further in each segment and rents are expected to stagnate or decline depending on category and location. New investment activity will likely remain sluggish due to the economic downturn and the limited availability of funds. The above factors will reduce the future profitability of investment projects and erode the quality of the project loan portfolio, which may adversely affect banks with large exposure to this segment.

Slowdown in households' FX lending

Households' net position vis-à-vis credit institutions is improving. Although household indebtedness increased in previous years as a result of strong credit supply and the real convergence effect, it still remains far below the euro area average (see Chart 2-13). An increasingly large proportion of households' disposable income finances consumption, while credit institutions' position vis-à-vis households has deteriorated due to the dynamic credit growth. As borrowing grew at a faster pace than savings, by the end of 2007 the credit portfolio exceeded deposits from households. This trend continued until October 2008 and then reversed. Lending stopped growing, while savings with banks increased at a faster pace than earlier²⁷ (see Chart 2-14).

Chart 2-13

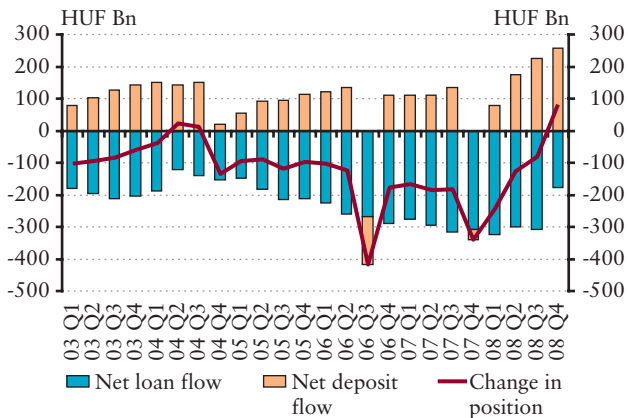
Household indebtedness in international comparison



Source: ECB, MNB.

²⁷ The likely underlying reasons are banks' deposit campaigns offering high interest rates, the increase in coverage of deposit guaranty scheme and poor performance of alternative saving forms.

Chart 2-14

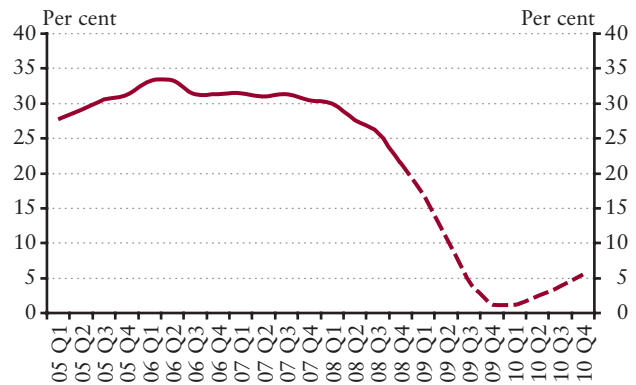
Quarterly changes in credit institutions' net position vis-à-vis households*(exchange rate and seasonally adjusted)*

Source: MNB.

Household credit demand is weakening. Households are becoming increasingly aware of the global financial crisis, which primarily manifests itself in bleaker income perspectives. Credit demand also depends on the extreme sensitivity of Hungarian households to the repayment burden; accordingly, higher interest rates may dampen their willingness to borrow. The higher the instalment-to-income ratio, the lower the amounts they can borrow. A further factor is that – given the currently high exchange rate volatility – households are unwilling to become indebted in foreign currency. On the other hand, due to the increasingly high risk premia, interest rates on HUF loan are high, hindering indebtedness in forint. Taken together, the impact of the economic downturn and the adverse money market trends are resulting in weaker household credit demand.

Risk-based competition between banks is abating, while both price and non-price credit conditions are worsening. In the case of CHF-denominated loans – the most popular FX-denominated loan, accounting for 80-85 per cent of all new loans – nearly all banks have discontinued selling the loans under a favourable interest rate scheme and no longer waive upfront costs. Of those banks that did not suspend CHF lending altogether raised their interest rates significantly, by 200-350 basis points. As this increase is substantially higher than growth in the cost of funds, this is more about putting a prohibitive price on CHF-based products. This assumption is supported by the fact that the interest rate increase for existing customers was a mere fraction of the rates set for new

Chart 2-15

Annual growth rate of household credit from banking sector*(adjusted for exchange rate movements; MNB forecast for 2009-2010)*

Note: Data projection for 2009 and 2010 along the macroeconomic baseline scenario.

Source: MNB.

contracts. Simultaneously with the pricing trends, banks also tightened their non-price conditions. They phased out several existing products including purely collateral-based loans, in mortgage lending they decreased the LTV value and they apply a higher discount for determining the collateral value of real estate. Supply is further weakened by the fact that credit institutions only accept new loan applications to a limited extent via agency intermediation²⁸ – which previously accounted for an approximately 50 per cent share of total sales.

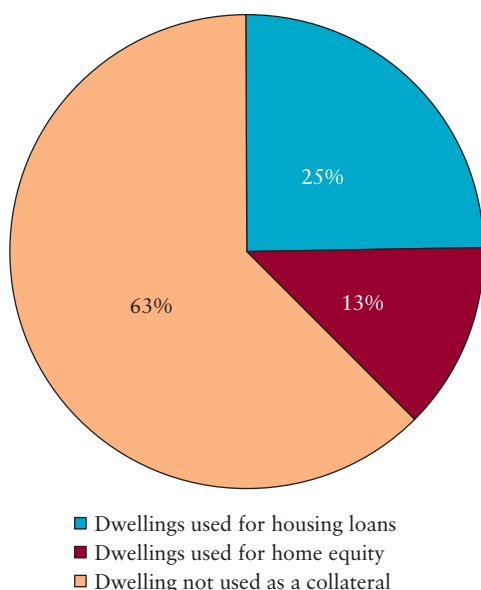
Lending dynamics are decelerating significantly. As a combined result of dwindling demand and more limited credit supply, lending dynamics have been decelerating significantly. By the end of 2008 the annual rate of household credit growth dropped to around 20 per cent from its earlier level of 30 per cent or more. As the recession deepens and banks adjust on the credit side, lending dynamics will decelerate further in 2009. They are only likely to rebound again from 2010 (see Chart 2-15).

The share of mortgage loans within loans is expected to grow. The fact that 90-95 per cent of all residential real estate in Hungary is privately owned is outstanding by international standards. Over recent years mortgage collateral has been registered on approximately 40 per cent of the existing housing stock (see Chart 2-16). As a result, due to a high proportion of unencumbered collateral, mortgage lending still has further significant potential.

²⁸ For details, see the *Report on Financial Stability – update, October 2008*.

Chart 2-16

Distribution of the domestic housing stock based on its encumbrance with mortgage collateral



Source: MNB estimate.

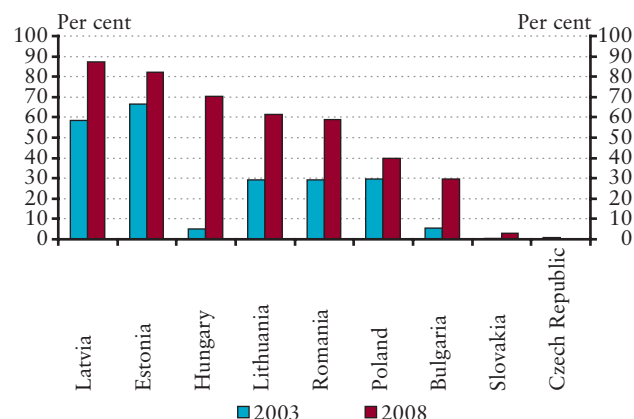
Although the quality of the household credit portfolio has been deteriorating, the proportion of non-performing loans remains low in regional comparison

There was a moderate deterioration in the quality of the household portfolio by the end of 2008. Within loans to households, the proportion of loans over 90 days overdue rose during the year, while a similar increase in loans overdue for 30-90 days also suggests further deterioration. The adverse impact of provisions on profits also increased slightly in 2008 (see Chart 2-22), but risk premia still provide adequate coverage despite the increase in funding cost.

Strong growth in FX lending in previous years has increased risks to financial stability. The HUF-FX interest margin stemming from high risk premia, coupled with stable exchange rates and strong credit supply led to households predominantly becoming indebted in foreign currency in recent years. As a result, the proportion of FX loans is currently over 70 per cent (see Chart 2-17). As the majority of customers failed to consider exchange rate risks, the lack of natural hedge makes them extremely vulnerable to changes in the HUF exchange rate. It follows that a permanently weak forint increases the probability of defaults. Moreover, the banks are passing the higher funding costs on customers, which also increase debt service burden and probability of default in the future.

Chart 2-17

Share of FX loans within the banks' household loan portfolio in international comparison

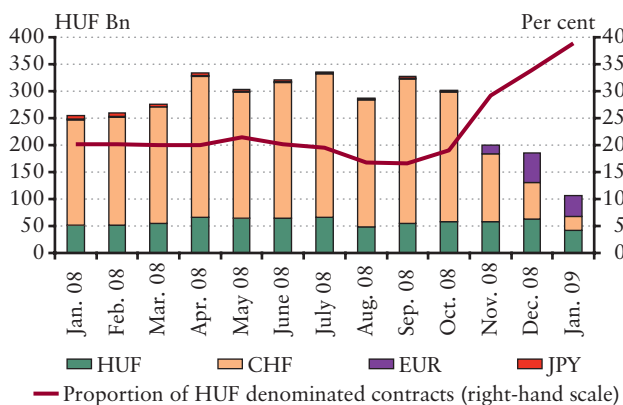


Source: National central banks, MNB.

The total value of new foreign currency loans is significantly lower. Tighter conditions in foreign funding and difficulties in FX financing through FX swaps have had a significant impact on both the dynamics of household borrowing and the composition of household new debt over recent months. Borrowing in foreign currency has fallen markedly. By contrast, there has only been some minor decline in borrowing in HUF. This is a positive development from a financial stability perspective, as it reduces the share of foreign currency loans in household debts, albeit slowly. Furthermore, since November 2008 within the new FX lending the euro has been gaining ground against the Swiss franc (see Chart 2-18). This process is favourable from the financial stability point of view, because it contributes to the decrease of FX loan proportion in the total households' loans, however slowly and on a long-term basis.

Chart 2-18

Composition of new household loan contracts of credit institutions by denomination

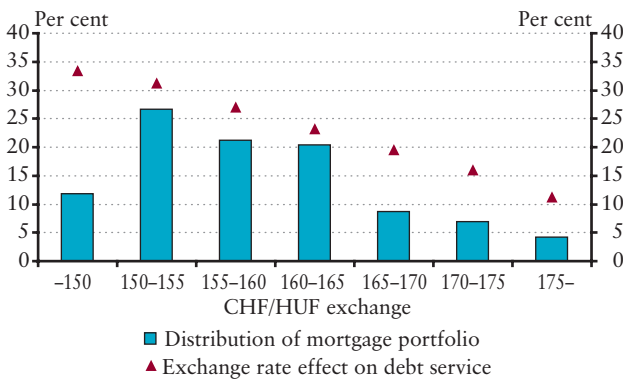


Source: MNB.

A weaker forint and the high sovereign risk premia may impair households' ability to repay their debts. Most CHF loans – which account for the majority of foreign currency-denominated loans – were granted during a carry trade period, i.e. when the exchange rate of the Swiss franc was relatively weak (see Chart 2-19). An increasingly broad liquidity crunch and reduced risk appetite put an end to the exchange rate weakening impact of the carry trade transactions based on interest margin. As a result, the exchange rates of the original (initial) underlying currencies

(JPY and CHF) have appreciated markedly. Another compounding factor was that the above events occurred at a time when confidence in emerging countries decreased. Thus, weakening of the region's currencies occurred in conjunction with an increase in sovereign risk premia. Therefore, although the central bank base rates were lowered significantly abroad, Hungarian borrowers were faced with an increased interest burden.²⁹ These two phenomena result in higher instalments for households (see Chart 2-20).

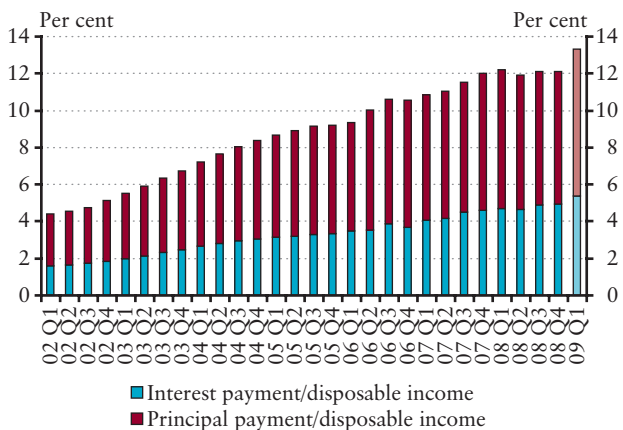
Chart 2-19
Distribution by exchange rates prevailing at the dates of loan approval of foreign currency loans taken out by households and the impact of forint weakening against the Swiss franc at CHF/HUF 200 on instalments



Source: MNB questionnaire survey.

In respect of mortgage-backed loans the initial conservative loan-to value (LTV) ratio mitigates risks to financial stability. From the perspective of the financial system, the availability of real estate collateral mitigates potential loan losses. However, due to a build-up of concentration related to the real property market, the financial intermediary system may become more sensitive to changes residential property prices. In our opinion, this does not entail any significant risk in Hungary, as neither the current level of nor the past trends in housing prices suggest a price bubble (for further details, see Box 2-3). Although the share of loans with an LTV ratio over 70 per cent in new loans has increased consistently, the average ratio relative to the entire portfolio remained around 65 per cent at the end of 2008³⁰, which is still conservative in international comparison (see Chart 2-21). Further mitigating the risks is the fact that in many cases a generous valuation haircut is applied to the determination of the loan collateral value, resulting in lower value than their real market prices. When evaluating the LTV ratio, it is important to emphasize that

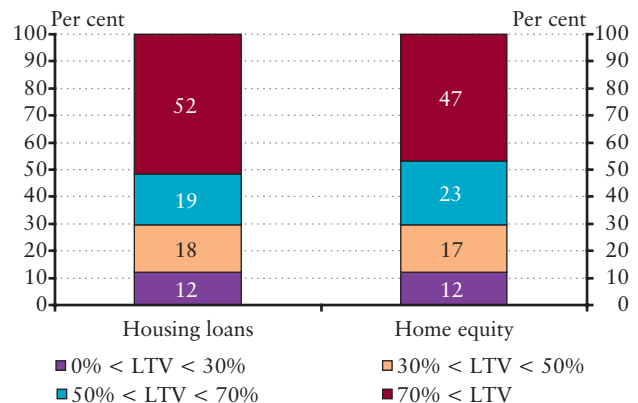
Chart 2-20
Households' debt service burden to the disposable income



Note: For 2009 Q1: MNB estimate.

Source: MNB.

Chart 2-21
Distribution of households' mortgage loans by LTV ratio, end of 2008



Source: MNB.

²⁹ However, it should be noted that banks can exercise discretion in the extent to which they pass higher funding costs on to customers.

³⁰ In calculating LTV, the value of real estate is generally historical, if nominal prices increase, this ratio is substantially lower.

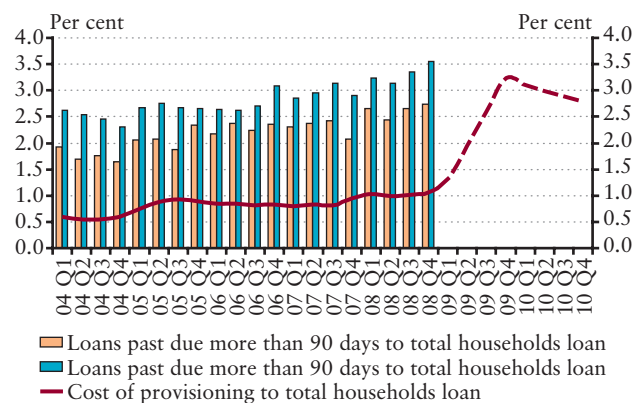
while house prices are virtually independent from the exchange rate, the HUF equivalent of the foreign currency loans moves in conjunction with it; it follows that the ratio may rise significantly when the forint undergoes significant weakening. Assuming an exchange rate such as that seen in March 2009 (EUR/HUF 300 and CHF/HUF 200), the average LTV ratio may reach 70 per cent.

Portfolio quality may deteriorate further in 2009. The slowdown in lending or credit squeeze and unfavourable macroeconomic processes (declining GDP, falling real income and rising unemployment) may lead to higher provisions³¹ in the macroeconomic baseline scenario as well (see Chart 2-22), thus weakening the profitability and undermining the equity position of the banking sector. Potential losses may be reduced by the fact that Hungarian households' willingness to repay their mortgage loans is outstandingly high. This could be originated from the fact that the house-rental market is underdeveloped, while the ratio of owner-occupied homes is very high, almost exclusive, thus banks' clients are to avoid losing of the properties at any cost. Losses on mortgage loans may be further mitigated by the fact that banks are placing intense scrutiny on non-performing loans³². One of the tools in this regard is reducing

the debt service burden by lengthening the maturity of the loans. Since the average original maturity of mortgage loans in Hungary is around 18-20 year, there is substantial room for doing so.

Chart 2-22 Portfolio quality of households' credit in the banking sector

(MNB forecast for 2009-2010)



Note: Data projection for 2009 and 2010 along the macroeconomic baseline scenario.

Source: MNB.

Box 2-3: Trends on the domestic residential property market

Falling house prices may hinder economic growth and deteriorate the position of the financial institutions via several channels (e.g. reduction in consumption due to wealth effect, sluggish lending activity due to reduction of the collateral value, increasing losses in case of loan defaults and slowing activity in real estate investments).

A number of countries, including the US, the UK, Ireland, Spain and the Baltic states experienced a sharp rise in real estate prices in recent years

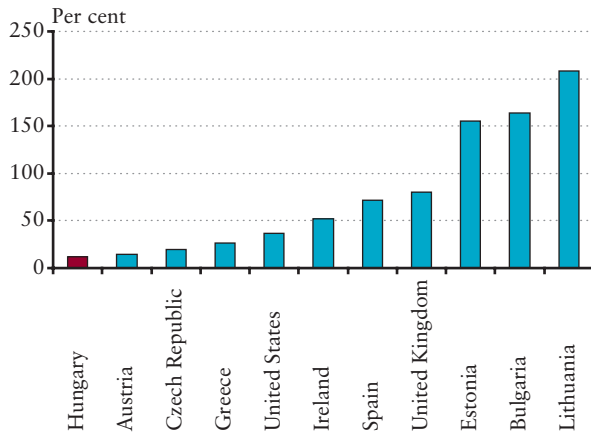
(see Chart 2-23). However, there has been a marked fall in real residential prices in these countries since the onset of the global downturn.

In contrast to other countries in the region (e.g. Bulgaria and the Baltic states), no price bubble has developed in Hungary recently. Based on data for offer prices, it is safe to say that since the 2004 peak, the real value of the housing stock in the capital has been declining consistently (see Chart 2-24).

³¹ We performed a survival analysis in order to gauge default probability for household debt. We quantified an increase in default probability in the macroeconomic baseline scenario by means of the income reserve method. (For further details see: Dániel Holló-Mónika Papp: Assessing Household Credit Risk: Evidence from a Household Survey, MNB Occasional Paper 2007/70.)

³² In order to increase the efficiency of debt recovery, banks have hired professionals for workout department that is responsible for the management of non-performing loans. Due to higher profits in previous years, loans were sold to collection companies even if this meant incurring substantial losses, since 2008 H2 loans are sold only if no other solution is found, which is especially true for mortgage debt.

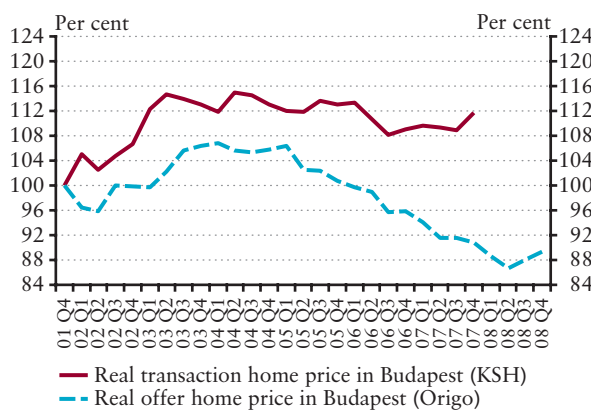
Chart 2-23
Increase of real home prices from 2001 to 2007 in international comparison



Note: The chart shows the transaction prices published by the HCSO for Hungary. For the Czech Republic real price increase between 2001 and 2006 is shown.

Source: BIS, HCSO and the Case-Shiller Index.

Chart 2-24
Real home prices in Budapest



Note: Dec. 2001 = 100 per cent.

Source: Origo, HCSO.

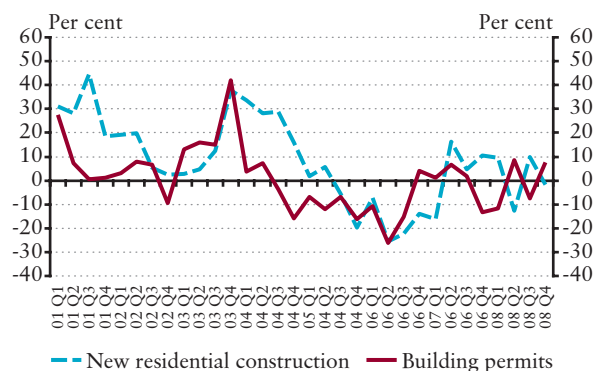
Real prices are expected to decline further or stagnate at best in the residential real estate market over the short term. Domestic demand for

housing property will weaken primarily due to the economic downturn and the resulting tighter lending standards³³. The drying up of the previously abundant liquidity and the increasing risk awareness will also discourage real estate purchases by foreigners.

In 2008 the number of the new houses sold roughly fell by half, housing investment declined and unsold housing stock increased. However, neither the number of construction permits issued nor houses completed showed any major decline in 2008 Q4 (see Chart 2-25). The likely reason for this is that authority permission processes are long, and protracted, and the issuance of quite a large number of permits will continue well into Q4. Furthermore, some developers probably have not cancelled their applications for authority permits in case of terminated projects. The number of issued construction permits is likely to decline in 2009 however, and there will be some lag (one or two years) before this decline is reflected in the number of completed houses.

Overall, the underlying processes suggest an unfavourable process in residential property market but it is not expected to pose a major threat to financial stability in the future. Although real prices will probably continue to decline or stagnate and housing investment is expected to remain sluggish in the near future, prices are unlikely to fall rapidly due mainly to the absence of a price bubble.

Chart 2-25
Annual growth rate of the number of construction permits issued and completed residential constructions



Source: HCSO.

³³ Based on the lending survey of the MNB.

2.1.2 LIQUIDITY RISKS

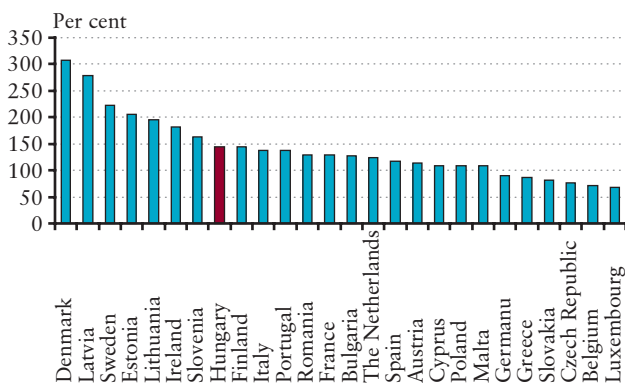
The domestic banking sector, which relies on external funding due to a high loan-to-deposit ratio, has not remained unaffected by the global financial market turmoil. The conditions for raising FX funds became more stringent than earlier, for both direct, on balance-sheet external funding and currency swap deals. Domestic participants were faced with increasingly shorter maturities and rising costs. The turmoil in the currency swap markets also contributed to the tightened liquidity in the interbank HUF market. Due to lower risk tolerance, tensions in the government bond market occurred in the region as well.

However, the active role of the MNB and the parent banks improved the liquidity situation significantly. In response to money market turbulences, the MNB introduced new currency swap and HUF money market instruments, supporting banks' liquidity management in stressed markets. The firm commitment of parent banks is reflected in their increased activity during periods of turmoil, ensuring FX funding for their local subsidiaries.

Foreign funding is becoming expensive and the maturity of available funds is shortening; but roll-over risk is low

Due the high loan-to-deposit ratio, dependence on external funding is high. The measure of the tightness of banks' liquidity is the loan-to-deposit ratio, because funds must be raised in the money and capital markets due to a relatively low level of customer deposits. The 145 per cent figure for the loan-to-deposit ratio in the Hungarian banking system is high even by international standards (see Chart 2-26). Although the value of the ratio has increased over recent years, it still falls behind that of certain developed

Chart 2-26
Comparison of end of 2008 loan to deposit ratios of EU banking sectors



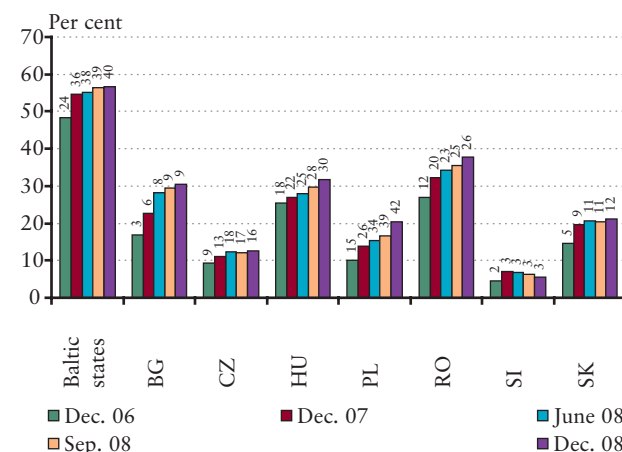
Source: ECB, MNB.

Western European economies (Denmark, Sweden and Ireland) and the Baltic States (Latvia, Estonia and Lithuania).

The inflow of external funds was continuous in 2008.

The share of foreign loans within the total debt of the domestic banking system was 32 per cent as of end-December 2008. With the securities issued abroad taken into account, this ratio stood at 38 per cent (see Appendix Chart 48). The reliance on funds raised abroad in the region is the strongest in the Baltic States. The share of foreign loans of the Hungarian banking system is broadly identical with that in Bulgaria and Romania (see Chart 2-27). The ability to roll over foreign debt is crucial to the operation of the domestic banking system and the economy as a whole. A hitch in foreign funding would incur real economy costs through a sharp fall in domestic lending. No difficulty was experienced in 2008 in rolling over of foreign debt or the inflow of foreign funds. Moreover, additional foreign funds flowed into the domestic banking system in significant amounts in 2008 Q4. In addition to parent banks' commitments, the conditions of the MNB's tendering procedures for swap agreements ensuring euro financing with a maturity of 6 months have helped to reduce the risks of curtailing lending and foreign capital outflow from the banking sector in the future. The success of the new facility is highlighted by the fact that domestic banks have already applied for HUF 3 billion of the announced HUF 5 billion.

Chart 2-27
Foreign loans to the banking sectors of CEE member states of the European Union and its ratio to total funds



Note: Values above columns indicate the value of total foreign loans in billion EUR.

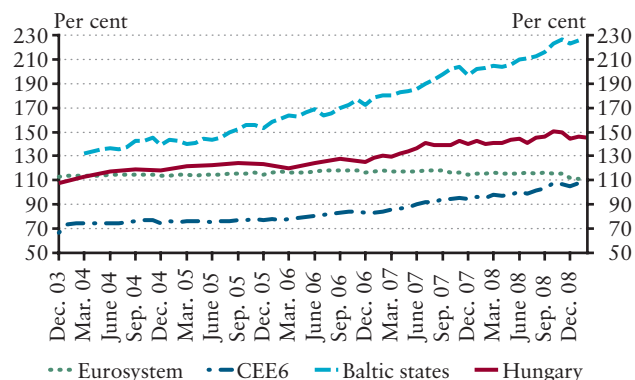
Source: ECB.

Domestic banks are adjusting to the tighter liquidity conditions by lowering the loan-to-deposit ratio, thus through a gradual reduction of their reliance on

external funding. Tight liquidity in the money markets renders it more difficult to maintain the loan-to-deposit ratio, which is high in international comparison. Due to the unfavourable environment this ratio needs to be reduced. There are two ways of achieving this. One is deposit collection, where – in order to create a more prudent financing structure – the customer deposit base is strengthened via money market based financing. This approach is observed at nearly all domestic banks, as they offer high deposit interests rates to encourage households to place deposits with them. The other is asset-side adjustment: restraining lending to improve the liquidity situation and reduce the funding needs. This is also discernible: in December 2008 both corporate and household lending fell or remained broadly flat due to a more modest supply and demand. Thanks to this “two-sided” adjustment, the loan-to-deposit ratio improved slightly at the end of 2008, falling by 5 percentage points from 150 per cent at the end of November 2008 to 145 per cent. Due to adjustment on both the asset and liability side, the foreign debt-to-total debt ratio declined in the second half of 2008 Q4. This adjustment is not unique: a fall in the proportion of money and capital market financing was experienced by other countries of the region, as well as by the majority of euro area countries (see Chart 2-28). Tighter credit conditions may lead to limited credit supply and thus a decline in economic performance. Therefore, the extent and rate of reduction in the loan-to-deposit ratio is a source of uncertainty in respect of the performance of the economy and the financial system.

Chart 2-28

Development of loan to deposit ratios in the different EU banking sectors



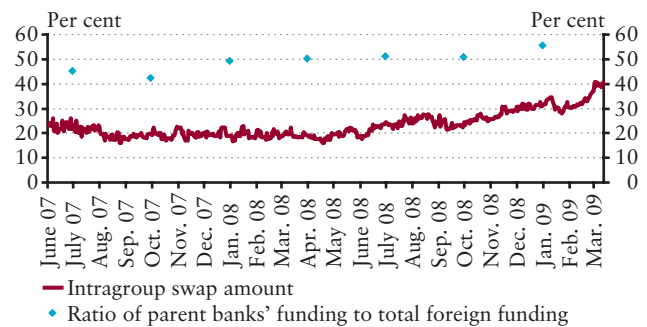
Note: CEE6 (Bulgaria, Romania, Hungary, Poland, Czech Republic, Slovakia); Hungarian data is adjusted by December 2003 exchange rate.

Source: ECB, MNB.

The role of parent banks in satisfying increased FX liquidity need is strengthening. Domestic banks can ensure FX financing in two ways: either by raising FX funds and issuing foreign currency-denominated bonds (on-balance sheet liquidity generation) or by swapping their HUF liquidity with FX liquidity through currency swap transactions (off-balance sheet liquidity generation). Parent banks’ contribution is observable in both types of liquidity generation, as a result of which the share of parent bank financing in foreign debt and the proportion of intra-group forint/foreign currency swap transactions have been increasing (see Chart 2-29).

Chart 2-29

Role of foreign parent banks in providing external funding and proportion of forint/foreign currency swap deals with banking group members



Note: The chart shows the proportion of intra-group deals of gross forint/foreign currency swaps of credit institutions with foreign parent banks (HUF sale on the spot leg).

Source: MNB.

Access to foreign funding by domestic banks is becoming more difficult: maturities are becoming shorter and costs are higher. The measures adopted by the European Central Bank mainly contributed to stabilising the market of short-term euro financing. The drying up of the long-term financing market, however, affects the maturity structure of euro area banks adversely (see Chart 1-3). Due to its strong reliance on external funding, the Hungarian banking sector is also affected by the abovementioned trends. The duration of foreign debt is becoming shorter (see Chart 2-30). For longer maturities, both price factors and quantity limits come into play. There were no debt issuances with long maturities (usually with a maturity of over 3 years), and short-term debts are becoming predominant in the interbank market. Though maturities are becoming shorter, the cost of short-term financing remains high. Whilst short-term euro-denominated interbank rates are falling, this is largely offset

by Hungary's rising sovereign risk premia. Increasingly costly borrowing abroad is likely to have raised the total cost of funding³⁴ for the Hungarian banking sector by 90-100 basis points in 2008 Q4 alone, and at the beginning of 2009 a further increase in the costs of funding may have occurred (see Chart 2-30).

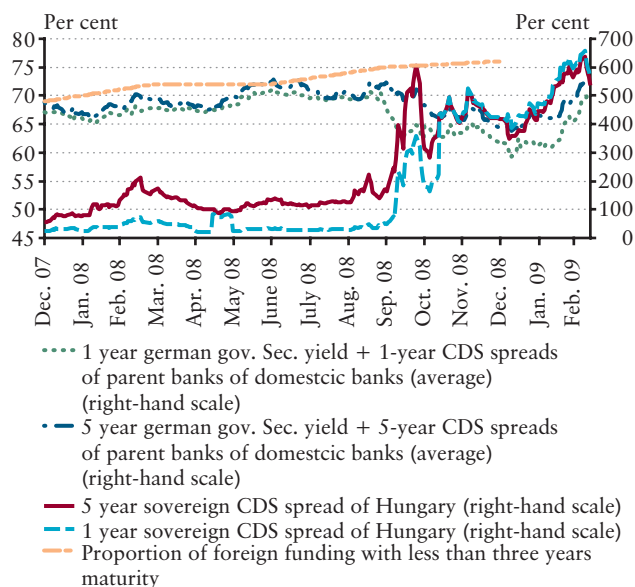
Liquidity situation in the financial markets is stabilising

From the perspective of the operation of the banking sector, four financial markets play a key role: the FX swap market, the spot FX market, the unsecured interbank HUF market and the government bond market. Domestic banks use the FX swap market to manage their on-balance sheet positions by swapping liquidity available in a currency for liquidity needed in the currency of their loan exposure. They use the spot FX market to conclude transactions mainly for servicing non-resident and non-bank customers. The unsecured interbank market is

where HUF liquidity is redistributed among domestic banks. Furthermore, the government bond market, which serves the financing needs of the general government, also provides the possibility for the redistribution of liquidity among banks.

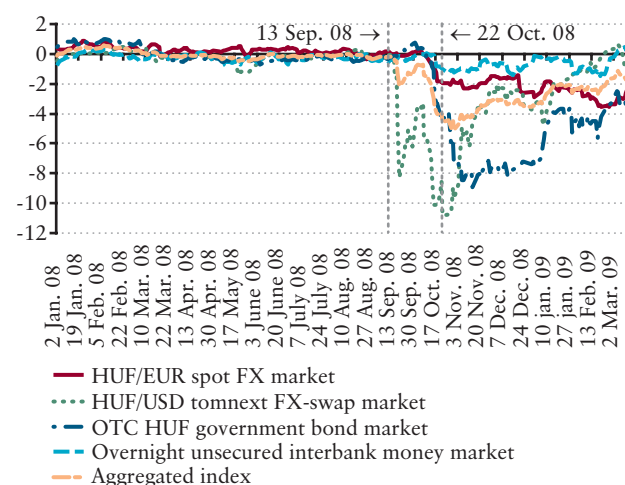
Non-resident participants were discouraged from taking on risks vis-à-vis emerging markets, which was reflected in tightening liquidity in the domestic money markets in the autumn of 2008. Foreign counterparties have consistently lowered their limits set for resident partners and required higher risk premia on their investments, which worsened liquidity of all the 4 key segments in September-October 2008 (see Chart 2-31). The domestic banking sector-reliant on FX financing has resorted to FX swap market more and more to ensure FX liquidity. Simultaneously, foreign participants, who previously secured the forint liquidity they needed for their investments in this market and whose risk tolerance had diminished began selling their government securities. As a result, their role in government securities and FX swap market weakened. It led to tensions in government securities and the forint/FX swap market. Tight liquidity in the swap market

Chart 2-30
Maturity composition and costs' development of foreign funding



Source: MNB, Datastream, Bloomberg and EBF.

Chart 2-31
Aggregated liquidity index³⁵ and liquidity indices of certain market segments³⁶



Source: MNB based on the data of DRKW and Reuters.

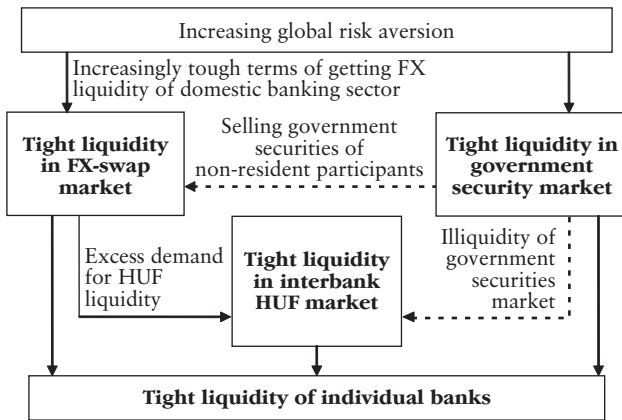
³⁴ Our conclusion is based on three factors: a) relative to September 2008, by the end of the year yields on German government bonds with a maturity of 1 year had dropped by approximately 160 basis points; b) premia on 1-year CDSs for the foreign parent banks of the Hungarian subsidiaries had risen by approximately 40 to 50 basis points and simultaneously, c) the premium on the 1-year CDS for Hungary's sovereign debt had grown by approximately 370 basis points. In calculating the rise in the cost of capital, we accommodated for the approximately 38 per cent foreign debt-to-total debt ratio.

³⁵ Indicators were normalised on the basis of their long-term averages and distribution. In order for absolute shifts in the liquidity situation to be tracked and the effect of high volatility in the autumn be excluded, we used data on the period prior to 31 March 2008 to normalise indices. For the details of the liquidity indices calculated by the MNB, see Judit Páles-Lóránt Varga: Trends in the liquidity of Hungarian financial markets – What does the MNB's new aggregate market liquidity index show? MNB Bulletin, April 2008.

³⁶ The aggregate liquidity index contains the data of the USD/HUF tomnext swap market because when it was created, this market's role was the most significant within the currency swap market as a whole, and it still accordingly reflects the forint/foreign currency swap market's liquidity situation, although the role of the EUR/HUF swap market has also gained importance since autumn of 2008.

Chart 2-32

Channels of spillover of the global crisis in the domestic financial markets

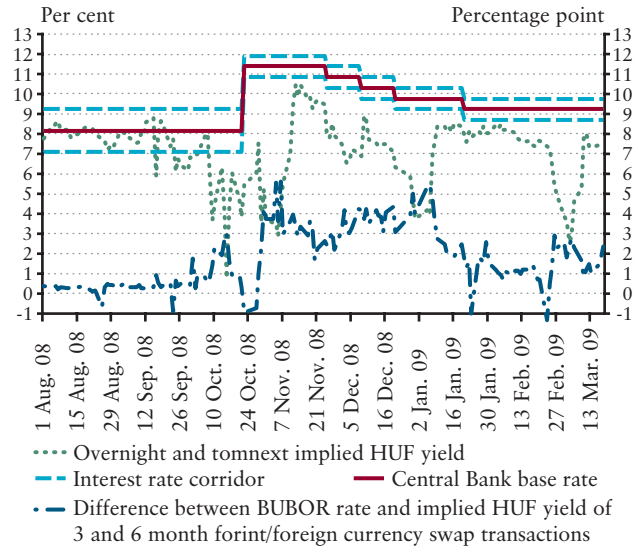


adversely hit the spot market as well, the liquidity of which was also reduced by a global decline in risk appetite. The exchange rate of the forint, which was volatile due to the tight liquidity in the spot market and depreciating due to the declining global risk appetite, interacted adversely with the operation of the swap market. Due to the high on-balance sheet position of resident credit institutions (see Appendix Chart 39) and the large FX swap portfolio hedging this position, the depreciation of forint raised demand on HUF liquidity via the renewing of maturing FX swap deals and the growing volume of margin calls. At the same time, limits in the unsecured interbank HUF market, which plays a dominant role in the redistribution of forint liquidity, were lowered. Lowering each other's limits led to limitations on quantity, which in turn constrained market participants – already facing scarce liquidity – from fully satisfying their HUF demand in the interbank market (see Chart 2-32).

The turbulences in the forint/FX swap market in October 2008 were reflected in implied FX yields and shortening maturities, then the market has begun to stabilise since November. As a combined effect of changes emerging simultaneously on both the FX demand and FX supply sides, implied FX yields rose, i.e. implied HUF yields dropped. Yields left the interest rate corridor temporarily in mid-September 2008 and permanently in early October 2008 (see Chart 2-33). In addition to harsher price factors, there were also fewer market opportunities to conclude transactions with longer maturities. Transactions with a maturity of less than 3 months accounted for nearly half of the swaps that had been built up by autumn 2008. From November 2008, the market showed some improvement and HUF yields with high volatility approached the bottom of interest rate corridor. Moreover, deals with longer maturity were available again.

Chart 2-33

Overnight and tomnext implied HUF yields, interest rate corridor, and difference between BUBOR rate and implied HUF yield of 3 and 6 month forint/foreign currency swap transactions



Source: MNB.

Foreign parent banks played a major role in satisfying the swap demand of their subsidiaries when the FX swap market was tight. Domestic credit institutions with a foreign parent bank conclude a large amount of intra-group transactions. As liquidity has become increasingly scarce in the FX swap markets since mid-2008, intra-group transactions have grown in importance. While in the first half of 2008 foreign subsidiaries concluded 15-20 per cent of their swap transactions converting HUF into foreign currencies at spot legs with group members, the corresponding figure was 35-40 per cent at the end of the period. Thus, as mentioned above, the commitment of parent banks was reflected not only in providing FX funds directly, but also in currency swap transactions (see Chart 2-29).

In response to the tensions in the FX swap market, the MNB introduced new FX swap instruments. Initially the MNB introduced a two-way overnight EUR/HUF swap tender facility in October 2008, acting as an intermediary between market participants in order to mitigate counterparty risks. Subsequently, thanks to an agreement concluded with the European Central Bank, it introduced overnight, 6- and 3-month EUR/HUF swap instruments. Since February 2009, under an agreement concluded with the Swiss National Bank, it has been providing 1-week CHF/EUR swap instruments for market participants. These measures help the roll-over of domestic banks' debt at a time when market liquidity is tight.

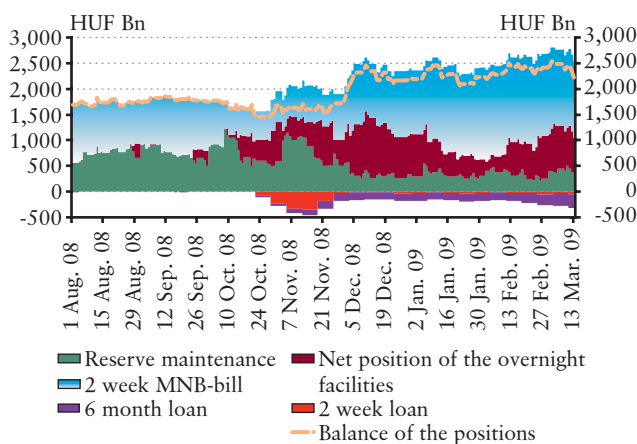
The active role of the MNB mitigates interbank turbulence as well. As mentioned above, the distrust among credit institutions observed from October 2008 in response to the financial turmoil resulted in lowering each other's credit limits. In addition, the fact that banks satisfied the part of their FX liquidity demand which they could not do by direct FX financing through forint/FX swaps led to elevated demand in the HUF market. Any bank that was unable to secure the required amount of HUF liquidity in the interbank HUF market could resort to the central bank's overnight credit facility. The costs involved in using this instrument were reduced by a narrower interest rate corridor. As of 22 October the counterparties of the MNB are charged the base rate plus 0.5 percentage point rather than the former 1 percentage point for the overnight credit facility. The central bank also responded to tensions in the HUF interbank market by further measures from October 2008: a) it widened the range of central bank instruments it used to apply, b) it widened the range of eligible collateral and c) it lowered the minimum reserve ratio³⁷. In order to alleviate the HUF liquidity problems faced by banks, the MNB also introduced 2-week and 6-month secured credit facilities in October 2008. In addition to the MNB's liquidity-providing measures, the liquidity of the HUF market was supported by the fact that from early December the Government Debt Management Agency replaced the maturing government securities with the credit provided by

international organisations. It converted the needed FX credit at the MNB increasing FX reserves, and by curbing the issuance of government securities, it also eased HUF liquidity tightness. Although interbank market stabilized due to authority measures, its liquidity remained low. The fact that the asset and liability side instruments of MNB are used simultaneously in large volumes clearly indicates tight liquidity in the interbank HUF market (see Chart 2-34).

Lower global risk appetite led to regional level tightness in the government securities market. The liquidity of the government securities market fell significantly from the end of September 2008. Swap spread³⁸ approximating liquidity premia stood at a historically high level in Hungary in mid-October and remained broadly at this high level until early December. A sharp fall in the index in the final month of 2008 was followed by another rise, which was smaller than the one in October 2008. This indicator almost reached its October 2008 value in the middle of March 2009. In autumn 2008, it was still followed by bid-ask spreads illustrating the level of market liquidity, but this was not the case in spring 2009 (see Chart 2-35). Tighter liquidity was also apparent in other countries of the region, though to a lesser extent than in Hungary, as trends in swap spread approximating liquidity premia show.

Chart 2-34

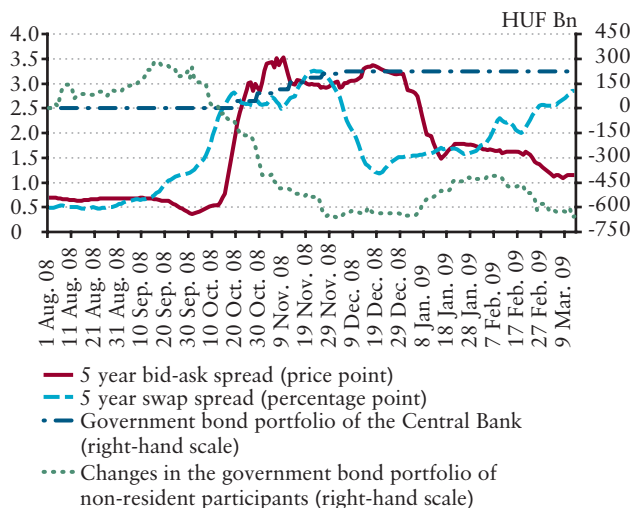
Central Bank instruments' usage by credit institutions



Source: MNB.

Chart 2-35

Bid-ask spread and swap spread in Hungary, and changes in the government bond portfolio of non-resident participants



Source: DRKW, MNB.

³⁷ Reserve ratio used to determine the statutory reserve that credit institutions are required to set aside on their certain liabilities was reduced from 5 to 2 per cent with effect from 1 December 2008, as a result of which a large amount of freely disposable HUF liquidity was channelled into the banking system relative to the previous period; based on monthly average data, this translated into approximately HUF 500 billion in excess liquidity.

³⁸ For the characteristics of the swap spread, see Csaba Csávás-Lóránt Varga-Csaba Balogh: The forint interest rate swap market and the main drivers of swap spreads, *MNB Occasional Papers* 64.

The MNB's secondary market auctions for government securities purchase contributed to easing HUF market liquidity tightness. Starting on 17 October 2008 and ending in late November, the MNB's secondary market auctions for government securities purchases (a total of HUF 243 billion at notional value) increased HUF liquidity available for the banking system. A further aim of the auctions was to increase the liquidity of the secondary market for government securities. The central bank auctions could have contributed to the narrowing of swap spread temporarily and bid-ask spreads steadily.

At the beginning of 2009, the crowding out effect of elevated government bond issues in countries with higher credit ratings result in permanent low demand in government bond markets of higher risk countries. In the first months of 2009, there was a considerable excess supply of low-risk government bonds in the international financial markets, as countries affected by the crisis moved to finance their bail-outs and stimulus plans through bond issues. Since risk aversion remains high, these low-risk securities are crowding out high yield bonds from the market. In the last few months, the amount of sovereign debt issues rose significantly in developed markets. Meanwhile, the risk premium, stemming from higher debt ratio, has not yet been observed in the yields, which might have been supported by central banks' extensive government securities purchases.

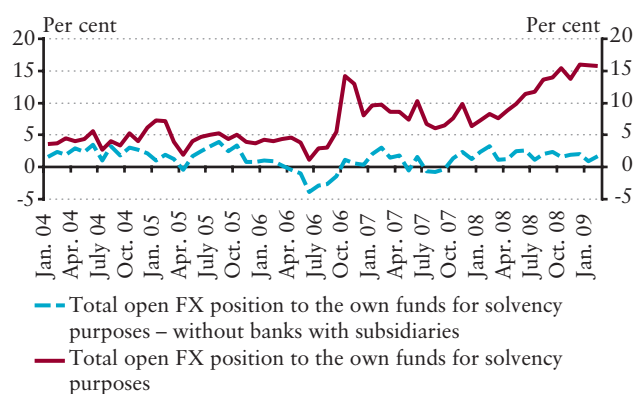
2.1.3 MARKET RISKS

The FX swap market continues to play an important role in hedging the exchange rate risks of the domestic banking system. Therefore its smooth operation remains crucial for the stability of the banking system. Except for the banks expanding abroad, the banking system keeps its total open FX position at a consistently low level. However, exchange rate risks are on the rise due to the difficulties related to the rolling over of swap transactions. The rollover risks associated with hedging may be mitigated by the firm commitment of the parent banks and an active role of MNB. Even though the interest rate risk of the banking sector is slightly increasing, its level is still within a moderate range. Given the money and capital market exposure, the high yields attributable to the financial turmoil in the spring and autumn of 2008 and in early 2009 have resulted in losses for domestic banks through the revaluation of fixed income portfolio.

Except for internationally active banks, domestic banks keep the total open FX position at a stable low level, for which the sound operation of the FX swap

market and an active role assumed by the parent banks and the MNB are important prerequisites. The banking system hedges its on-balance sheet foreign exchange position attributable to FX lending financed from HUF funds by borrowing abroad and through forint/FX swap transactions, the forward leg of which is an off-balance sheet item. This way the banking system can keep the total open FX position at a low level (see Chart 2-36). Hedging of exchange rate risks has become increasingly difficult since the end of 2007, due to limited access to and the high costs of FX liabilities with longer maturities, and since the autumn of 2008 attributable to tight liquidity in the currency swap market and lower counterparty limits, so several banks had to resort to the MNB's FX swap instruments. From the perspective of exchange rate risk management, the fact that the related rollover risk has increased and the maturities of the FX swap transactions have become shorter is an adverse development. Renewal risks may be mitigated by the commitment of the parent banks and an active role assumed by the MNB. In the case of internationally active banks, the total FX position is larger due to the significant volume of FX exposure. This, however, also hedges the open FX positions of other banking group members and their net income subject to changes in the exchange rate.

Chart 2-36 Total open FX position of the banking sector



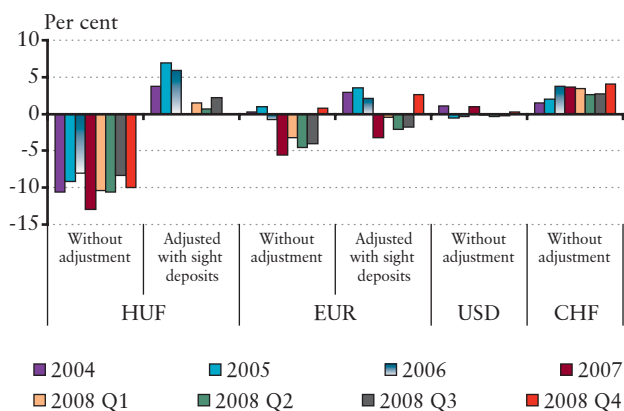
Note: The total open FX position is the sum of on-balance sheet FX assets and off-balance sheet FX receivables net of on-balance sheet FX liabilities and off-balance sheet FX debts. The chart includes end-of-month data.

Source: MNB.

The interest rate risks of the banking sector cannot be considered high, although they have been increasing slightly since 2008 Q4. In the case of the forint, due to the conversion of FX deposits to HUF in October 2008 and in part to a decrease in the portfolio of securities purchased for trading in 2008 Q4, the 90-day cumulated re-pricing gap³⁹ widened in a negative range. Following adjustment with

³⁹ Interest rate risk includes both on-balance sheet and off-balance sheet items.

Chart 2-37

90-day cumulated re-pricing gap of the banking sector⁴⁰

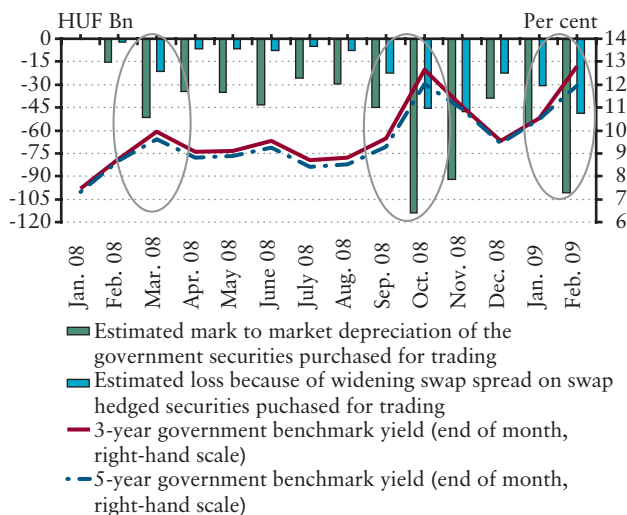
Source: MNB.

interest rate rigid sight deposits, the gap can be considered low as well (see Chart 2-37). In case of the EUR, USD and CHF the re-pricing gap is also low.

The financial turmoil in the spring and autumn of 2008, and in early 2009 has resulted in losses through the revaluation of the government securities portfolio.

The capital market exposure of the banking system accounts for 8-10 per cent of total assets. The overwhelming majority of this exposure is comprised of the government securities portfolio. Within this, the proportion of the government securities for investment purposes and that of the government securities purchased for trading are roughly similar. At the end of the year, however, the share of the securities purchased for trading fell significantly, mainly because a significant part of this had been reclassified as securities held to maturity following a change in the applicable accounting regulations.⁴¹ The duration of the HUF government securities portfolio is approximately two years, therefore a persistent and substantial rise in HUF yields could result in significant losses for the banking system on the government securities purchased for trading.⁴² The extent of losses depends on the share of government securities covered by interest rate swaps or other derivatives and the accounting standards applied by banks. Accordingly, during the financial turmoil last spring and autumn (in September and especially in October) and in early 2009, the banking system suffered

Chart 2-38

Estimated depreciation of government securities portfolio purchased for trading of the banking sector since early 2008⁴³

Note: The values related to the given months represent potential losses suffered by the banking sector and branches since the beginning of 2008 due to the estimated mark to market depreciation of the government securities purchased for trading attributable to changes in yields and interest rate swap spreads.

Source: MNB.

significant losses on government securities because of rising yields and the widening of interest rate swap spreads. According to our estimates, potential losses arising from the revaluation of the portfolios were the largest last March and October and this February⁴⁴ (see Chart 2-38).

2.1.4 FINANCIAL POSITION OF THE BANKING SECTOR

In accordance with our expectations, the profitability of the banking sector declined in 2008. Increased funding costs, narrowing spreads due to stronger competition, declining income from financial transactions, dynamic increases in operating costs and the slightly increasing loss provisioning played a major role in the slackening of profitability.

In the macroeconomic baseline scenario, we expect a further, sharper decline in profitability of the banking sector in 2009. A major role is played in this process by the deceleration of

⁴⁰ The re-pricing gap denotes the difference between the assets and liabilities that are to be re-priced in 90 days as a proportion of the balance sheet total. If the re-pricing gap is negative, the re-pricing of the liabilities is faster than that of the assets. Therefore, in the case of a rate hike, a negative income effect emerges.

⁴¹ With effect from 10 December, financial instruments held for trading can be reclassified if the purpose of their holding has changed due to extraordinary events.

⁴² The government securities purchased for trading can be used to approximate the mark-to-market evaluated government securities portfolio.

⁴³ For the purpose of our calculation, we assumed that the end-of-month government security portfolios existed at the beginning of 2008. Therefore, data on monthly revaluation provide an estimate on the revaluation potential of the end-of-the month portfolio. We determined the revaluation potential taking into consideration of changes in yields relative to early 2008.

⁴⁴ We approximated potential losses by the following formula: (estimated government security portfolio duration – estimated swap duration) * end-of-month government security portfolio * changes in the interest rate swap spread observed since the beginning of the year.

credit dynamics and portfolio deterioration due to the economic downturn, the depreciation of the exchange rate of the forint and the higher external funding costs. This year the banking sector's capital position may also deteriorate, although the capital adequacy ratio may remain above 10 per cent, which continues to be sufficient on aggregate level to absorb possible shocks. However, the capital adequacy ratio of some banks, mainly those which pursue an active management of their capital position, is around 8 per cent. These banks capital adequacy ratio should be raised to an adequate level – around 9-10 per cent – in order to withstand shocks easily. There may be three sources of strengthening the capital position. Firstly, reinvesting 2008 and 2009 profit to reinforce the capital position; secondly, raising additional capital from the parent bank or external sources if it becomes necessary at an individual level; and thirdly, using domestic authorities' bank support package.

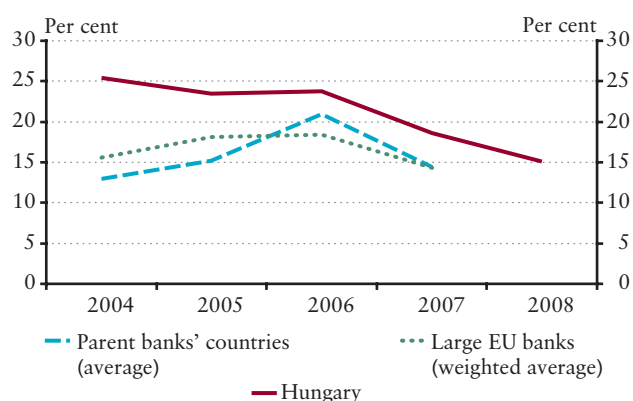
The income-gearing capacity of the domestic banking sector is weakening in the recessionary environment

The profitability of the domestic banking sector is declining, but it continues to exceed the levels of parent banks' countries. In the two years preceding 2006, the domestic banking sector had a remarkable competitive advantage over the profitability of the banking sectors of some major parent countries. Compared to parent banks' markets, this competitive advantage became narrower in 2006 and 2007, but still remained in place (see Chart 2-39). In 2008, the ROE indicator of the domestic banking sector

Chart 2-39

ROE in international comparison

(After-tax profit/Tier 1)



Note: Parent bank countries: Austria, Belgium, Italy.

Source: MNB, ECB.

moderated further, but the Hungarian banks' advantage in profitability probably continued to exist compared to parent banks' markets.

The decline in profitability indicators was caused by increased provisioning, the rise in operating costs exceeding inflation, the stagnation of interest income, fall in income from financial transactions and one-off effects.

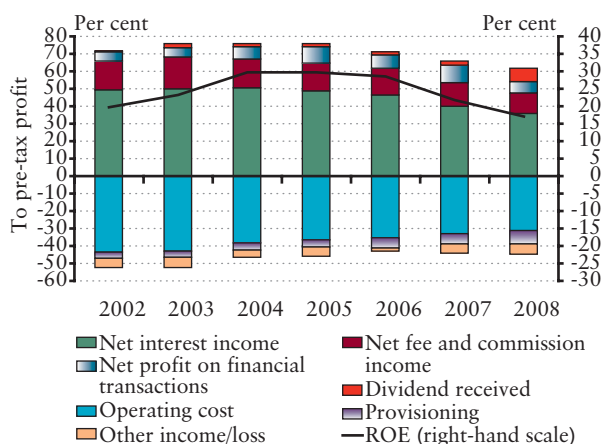
In 2008, the profit before taxes of the banking sector – under Hungarian Accounting Standards – reached HUF 346 billion (see Chart 2-40). Unfavourable developments can be observed on the expenditure side. Net income related to receivables sold and related to loan loss provisions is deteriorating, while operating costs are increasing faster than inflation. Therefore, the efficiency of the banking sector continues to be low. In terms of its level, the cost/balance sheet total ratio⁴⁵ (2.4 per cent) still remains higher than the data typical of developed countries (0.7-1.6 per cent). Unfavourable developments can be observed in interest income as well. As a result of a general narrowing of liquidity and an increase in the country risk premium, foreign liabilities became more expensive and shorter last year. The price of forint funds is increased due to the high expected risk premium on the one hand, and to the competition among banks for household deposits on the other hand. Banks attract an increasing share of household savings, mainly through deposit campaigns. Another problem was caused by passing the increasing costs of funds on to existing clients, because due to the longer period time need for the growth rate of interest revenue becomes considerably lower than that of interest expenditure. As a result, the spread is put under pressure from both the expenditure and the revenue sides.⁴⁶ A further negative trend is that the interest income constitutes nearly two thirds of revenues. Consequently, diversification of the revenue structure of the domestic banking sector is low in European comparison; the European average of this ratio is around 50 per cent. In terms of the commission and fee income no material change can be observed, whereas the income from financial transactions fell by nearly one third. The losses suffered on securities purchased for trading, mainly government, play a decisive role in deteriorating profits. Finally, one-off banking transactions also had a substantial effect on profit. For the majority of banks the ROE (17 per cent) and the ROA (1.3 per cent) calculated with the pre-tax profit is declining or stagnating. Based on the distribution of the ROE indicators, banks' individual performance on the basis of their market weight is mainly within the 20-30 per cent range, although the ratio of banks with a loss or a 0-10 per cent performance is increasing.⁴⁷

⁴⁵ See the developments in efficiency indicators on Chart 53 of the Appendix.

⁴⁶ See developments in spread on Chart 52 of the Appendix.

⁴⁷ See banks' ROE distribution on Chart 51 of the Appendix.

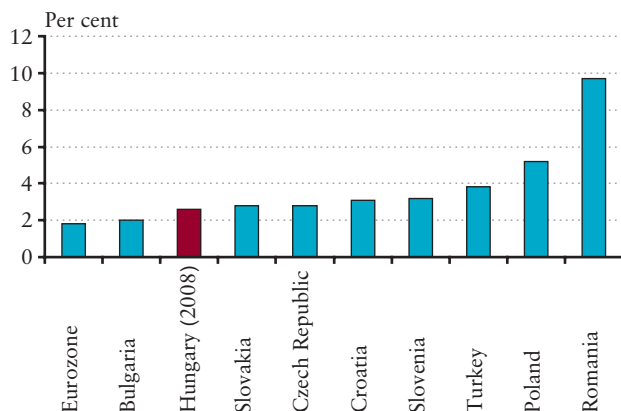
Chart 2-40
ROE with the pre-tax profit and its main components⁴⁸



Note: Components of ROE: certain component of pre-tax profit / equity.
 Source: MNB.

Despite deterioration in the loan portfolio, the ratio of domestic banks' non-performing loans will remain in 2009 at a low level in international comparison. At end-2008, the ratio of non-performing loans of the domestic banking sector stood at a low level of 2.6 per cent (see Chart 2-41). In the macroeconomic baseline scenario – 3.5 per cent recession –, the ratio of non-performing loans may rise to a level of 6-7 per cent in 2009, and may decline to a level of 5-6 per cent in 2010. Considering that due to the global economic recession the quality of banks' portfolios will deteriorate in every country, the value for Hungary is still not expected to be extremely high in regional comparison.

Chart 2-41
The ratio of non-performing loans (NPL) within the total loan portfolio in international comparison (2007)

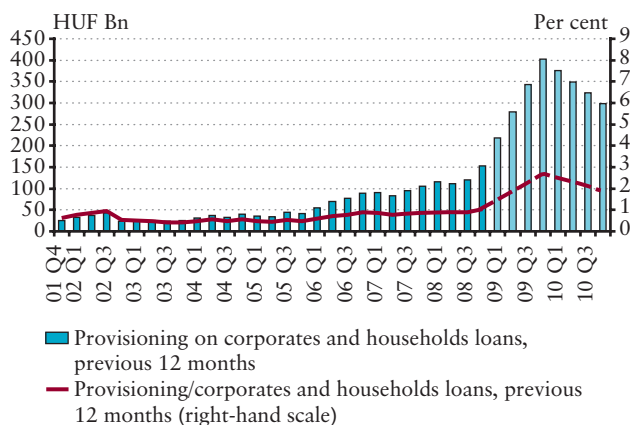


Sources: MNB, OeNB, ECB.

The profit-reducing effect of loan loss provisioning may also increase in 2009, and then decrease slightly in 2010. The deterioration in loan portfolio quality leads to a decline in profit in the macroeconomic baseline scenario (see Chart 2-42). The increase in the ratio of non-performing loans generates growing loan loss provisioning. In 2009, the magnitude of loan loss provisioning as a proportion of the loan portfolio may increase from 1.1 per cent to nearly 2.5 per cent. However, this ratio may still be considered as a low value, and, with a moderation in the economic downturn, it may improve in 2010.

Chart 2-42
Loan loss provision and its estimation

(MNB forecast for 2009-2010)



Note: Data projection for 2009 and 2010 along the macroeconomic baseline scenario.

Source: MNB.

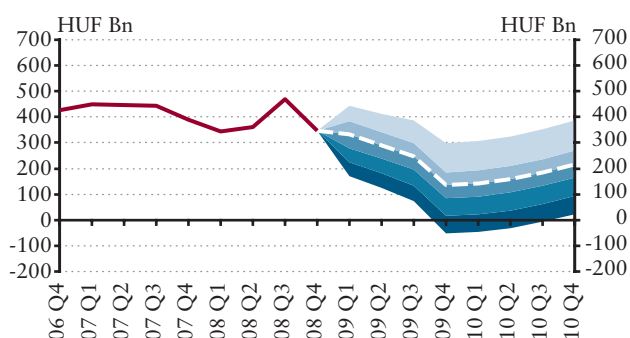
The income generating capacity of the banking sector may deteriorate further in 2009, but it may improve in 2010. As a result of the worsening macro environment and the depreciating exchange rate of the forint, according to the Hungarian Accounting Standards the pre-tax profit of the banking sector is expected to decline from HUF 350 billion to HUF 100-200 billion in 2009, while it may increase to HUF 150-250 billion in 2010, after the negative shock fades (see Chart 2-43). With these results, the ROE may stand at around 5-10 per cent at end-2009 and at around 7-12 per cent at end-2010. The forecast is very sensitive to future developments in loan loss provisioning, the net interest margin and the loan to deposit ratio. Our assumptions may be significantly influenced by future developments in the demand for and supply of loans, in household savings and the deterioration of the loan portfolio. In the macroeconomic baseline scenario, for 2009 we assume a nearly two and a half times greater loan loss provision, an unchanged interest

⁴⁸ ROE: Pre-tax profit / (average shareholders' equity – profit or loss for the financial year).

Chart 2-43

Pre-tax profit

(MNB forecast for 2009-2010)



Note: Data projection for 2009 and 2010 along the macroeconomic baseline scenario. The uncertainty in the fan chart is caused by the developments in the loan loss provision, the loan-to-deposit ratio and the interest margin.

Source: MNB.

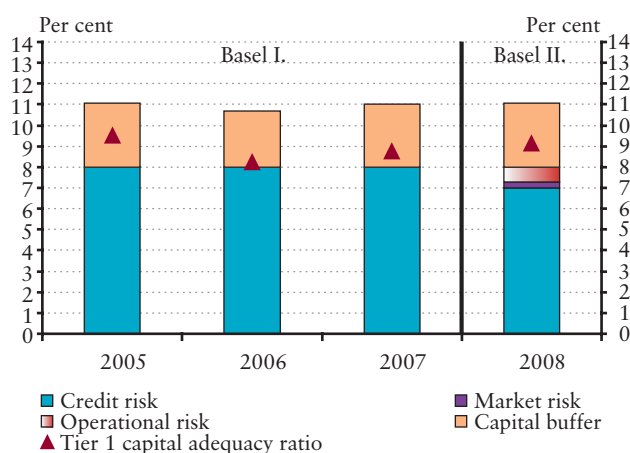
margin and a quarterly 4 percentage point decline in the loan/deposit indicator. In respect of the macroeconomic baseline scenario, the downside risk is significant in 2009. If the recession is deeper than 3.5 per cent, the profit of the banking sector may be closer to the lower part of the fan chart.

Satisfactory capital adequacy at the banking sector level, while at the level of individual banks the shock-absorbing capacity is recommended to be strengthened in some cases

In 2008, the capital adequacy ratios of the banking sector remained practically unchanged and they are satisfactory at system level as well. Disregarding mid-year profits, the CAR was around 11 per cent, while the Tier1 capital adequacy ratio amounted to around 9 per cent at end-2008, representing a slight increase compared to the end of the previous year⁴⁹ (see Chart 2-44). However, it is an unfavourable trend that at the level of the individual banks the share of banks with a ratio of 8-10 per cent has increased further.⁵⁰ Some credit institutions actively manage their capital, i.e. they make a conscious effort to keep their capital adequacy ratio above the regulatory minimum requirement by 1-2 percentage points. However, the low capital adequacy ratio entailed by the active capital position management also means that in a deteriorating macroeconomic environment amid exchange rate volatility, providing for proper capital adequacy requires more attention from banks. Smaller banks which need to keep a substantially higher capital level for compliance with large

Chart 2-44

Regulatory capital adequacy ratio and Tier 1 ratio of the banking sector



Note: End-2008 figures also include the profits audited during the year.

Source: MNB.

exposure limits typically have a ratio significantly exceeding the legally required minimum.

In the macroeconomic baseline scenario, the functioning of the banking sector is smooth, although injections of capital may be justified at individual level. Based on the profit forecast described above, we assume that the profitability of the Hungarian banking sector will deteriorate in 2009, and thus the resulting capital accumulation may taper off. At the same time, increasing credit risks and depreciation of the exchange rate through the rise in risk-weighted assets in nominal terms may result in a decline in capital adequacy ratios. In turn, the currently high capital reserves at the banking sector level ensure that in the macroeconomic baseline scenario the sector-level capital adequacy at end-2009-2010 may remain above 10 per cent. However, taking account of downside risks, the MNB considers it important that banks ensure at least the 9-10 per cent capital adequacy ratio at the level of individual banks as well. Enforcement of this expectation, i.e. increasing the resilience to shocks is especially necessary in the case of banks which pursue active capital management and have low capital adequacy (see Chart 2-45).

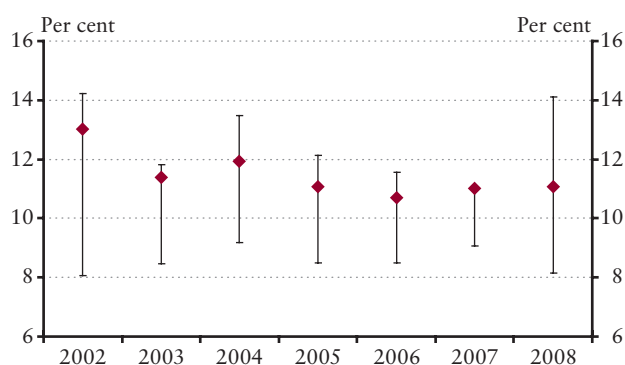
There may be three sources of strengthening banks' capital position: first, using the realised profit to increase capital; second capital injections by owners or new participants; third, using the capital enhancement fund as part of the domestic authorities' banking support package. Reinvesting the profits is one of the most

⁴⁹ Using the opportunity provided by law, some banks had their mid-year profit audited, thus increasing their available capital.

⁵⁰ See banks' CAR distribution in Chart 55 of the Appendix.

important means of strengthening the capital position. Over the last eight years, owners took an average 28 per cent of the banking sector's profit out of the country (see Chart 2-46). In order to improve and strengthen the capital position of banks, a conservative approach to dividend policies is justified; the banking sector can adjust to the increasing risks by reducing the ratio of repatriated profit. In order to have sufficient capital reserve to fend off shocks and offset the

Chart 2-45
CAR minimum, maximum and banking sector level

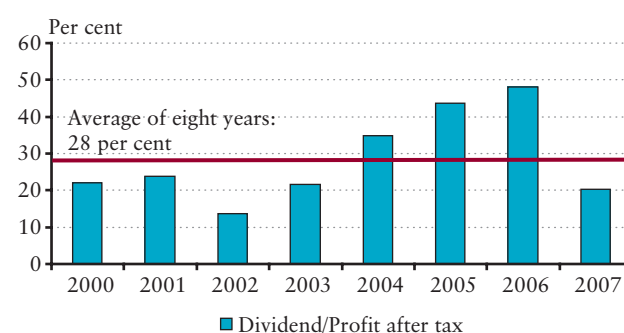


Note: When determining the minimums and maximums, banks with a market share above 3 per cent have been taken into account. End-2008 figures also include the profits audited during the year.

Source: MNB.

negative effects of an environment which is less favourable than the macroeconomic baseline scenario, capital increases by owners or from external sources may also become necessary. Finally, the domestic authorities' bank support package can also serve strengthening the capital base (for more details, see Box 2-5). In the spirit of preparing for a worse-than-expected economic environment, it is worthwhile for the banks to increase their capital adequacy in advance, as subsequent capital raising may become difficult because of a possible loss of confidence (for more details on stress testing results, see Box 2-4).

Chart 2-46
Dividend to after-tax profit



Source: MNB.

Box 2-4: Credit risk stress test

Credit risk stress testing is used to measure the shock-absorbing capacity of banks. With this stress testing, we analyse the solvency of each bank in various macro scenarios for 2009. We assume that apart from credit risk, all risks (market, accounting, operational, and other) and their capital requirements remain at the 2008 level. Macro scenarios thus affect only the banks' credit risk profiles. The calculated level of sufficient capital is compared with the actual capital level of the individual banks.

Each bank's capital must cover its unexpected losses in 2009. The difference between the actual capital and the capital level required by the bank's risk profile is referred to as excess capital or the capital buffer. If the capital buffer is negative, then the bank's capital level is insufficient, and the institution thus requires a capital injection.

We consider one baseline and one stress macroeconomic scenarios. Based on the *Quarterly Report on Inflation* published in February 2009, in the baseline scenario exchange rate is HUF/EUR 290 and GDP contraction amounts to 3.5 per cent in 2009. In the stress scenario, in

2009 the exchange rate is weaker by 15 per cent⁵¹ and GDP contraction is higher by 7 percentage points than in the baseline scenario.

The macro environment influences banks' credit losses only through the probability of default (PD). We estimate the effects of the macroeconomic environment on the PDs of the banks' corporate credit portfolios using an aggregate bankruptcy rate model. Since bank-level data are not available, we estimate a regression model of aggregate bankruptcy rate in order to forecast PDs in the various scenarios. The model includes GDP growth, domestic and foreign (euro area) real interest rates, exchange rates and inflation as explanatory variables. We also take possible non-linear effects into account.⁵²

The PD levels of the retail credit portfolio are estimated by a parametric duration model, while the dynamics of default probabilities in macroeconomic scenarios are calculated with the so-called financial margin approach,⁵³ in order to take into consideration non-linear effects.

⁵¹ The EUR/CHF exchange rate is assumed to be constant.

⁵² For a more detailed description of the method see: Marianna Valentinyi-Endrész-Zoltán Vásáry: Macro stress testing with sector specific bankruptcy models, *MNB Working Paper* 2008/2.

⁵³ See: Dániel Holló-Mónika Papp: Assessing Household Credit Risk: Evidence from a Household Survey, *MNB Occasional Paper* 2007/70.

According to our estimations corporate default probability in 2009 will be 5.5-6.5 per cent in the baseline scenario and 13-14 per cent in the stress scenario. The default probability of retail loans may reach 12-13 per cent in the baseline scenario and could be as high as 18-19 per cent in the stress scenario.

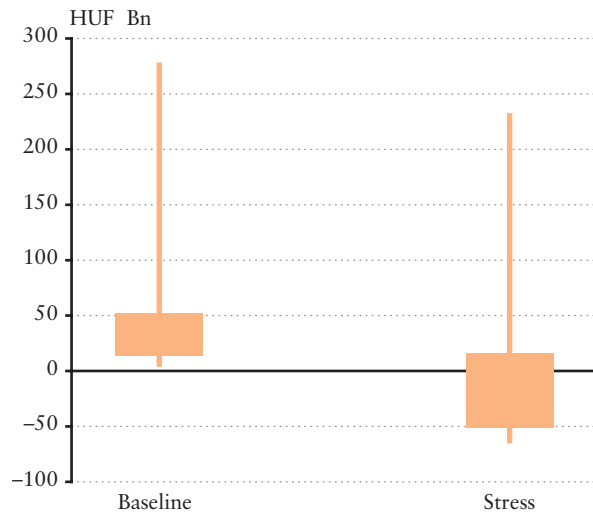
Our results show that in the baseline scenario, even without raising new capital, the capital adequacy ratio at the banking system level would be over 10 per cent, with the sum of excess capital at approximately HUF 500-550 billion. In the baseline scenario every single bank's capital adequacy ratio would remain above the regulatory requirement.

In the stress scenario, the banking system's capital adequacy ratio will be around 8 per cent, with approximately HUF 150 billion in excess capital. However, the distribution of excess capital matters a great deal. At the individual bank level, there are many banks, almost half of the banking system according to total assets, which will experience a capital shortage, i.e. their adequacy will be lower than the regulatory requirement. In order to ensure that none of the banks have problems meeting their individually calculated capital needs, altogether a capital injection of HUF 250-300 billion (EUR 0.7-0.9 billion) would be required.

The distribution of excess capital is also displayed in the two different scenarios. The vertical lines on Chart 2-47 run from the first to the ninth decile of distribution of excess capital, i.e. represent the middle 80 per cent of the distribution. The rectangles show the middle 50 per cent of the distribution, i.e. the values between the first and third quartile. Capital buffer is understood here as the banking system's excess capital that is held above the regulatory minimum, i.e. above the 8 per cent capital adequacy ratio. Below the zero line capital injection is required.

The calculations described above are characterised by considerable uncertainty. We have not taken into account any sort of liquidity or contagion risks. When estimating the effect of macro shocks on default

Chart 2-47
Distribution of excess capital



Source: MNB.

probabilities we were only able to consider non-linearities only in a very restricted manner. This makes our PD, and hence credit risk forecasts very uncertain for extreme movements in macro variables.

In the estimation of household PDs we could only calculate using documented income. Actual incomes might be higher though, which would mean overestimation of household PD levels and dynamics. In estimating corporate PDs, bank exposures to the corporate sector are treated as homogenous, and thus sectors and products are not differentiated in the model.

Several studies have shown that similarly to PDs, recovery risk (LGD) varies with macroeconomic fluctuations as well. As we have no adequate model for capturing such relationships, LGDs are assumed identical in the various scenarios.

Box 2-5: Comparison of international and domestic bank support packages

Starting from September 2008, owing to the shaking of financial system already indicated by liquidity and solvency problems of individual institutions and to the increasing risk of global recession, EU countries announced a series of bank support measures. In order to strengthen confidence, some Member States expanded their deposit guarantee schemes (sometimes to an unlimited extent), and then, because of the freezing of the interbank market, even the issue of providing guarantee for interbank liabilities arose. Initially, the programmes were

uncoordinated. Moreover, they created a kind of a competitive situation, which sometimes had a negative impact on other member countries, or at least forced them to take steps as well.⁵⁴

National measures were eventually coordinated by the action plan announced by euro area countries on 12 October and endorsed by the European Council on 15 October 2008. The participants then declared that they would ensure the stability of the financial system and through

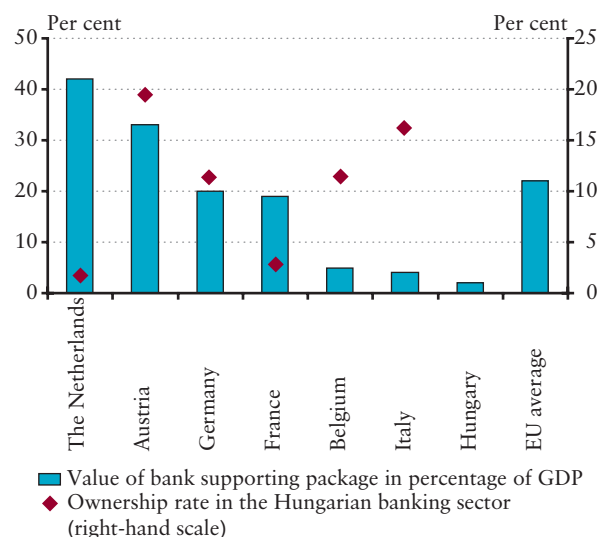
⁵⁴ An example for externalities was that following the announcement of the unlimited Irish deposit guarantee scheme, which also covers interbank loans, deposits started to flow from UK institutions to ones in Ireland.

that the financing of the economy. Accordingly, they would provide guarantees for certain medium-term liabilities of credit institutions, and strengthen institutions' capital positions. Drawing up and implementing the practical measures was left to the Member States, but in the course of the autumn, as a result of the recommendations issued by the European Commission and the European Central Bank, eventually convergence in the main details of the national programmes could be observed as well.⁵⁵ Thus, most support packages contain an option for capital increase and one for the guarantee of liabilities that are in some cases complemented by other support possibilities adjusted to the financial system of the specific countries.

Despite this "convergence", the risks and possible unintended negative consequences of bank support programmes also need to be mentioned. On the one hand, although the European Union has a number of requirements in connection with the stabilisation packages to ensure level playing field, due to the different fiscal opportunities of the members, certain countries can better strengthen their domestic banking sectors, which may significantly reshape market structure on European level, as well as induce a kind of a "subsidy competition". The risk of protectionism and fragmentation of the single market also arises. For example, in exchange for the capital increase and the undertaken guarantee – in addition to the dividend to be paid for the capital, the fee to be paid for the guarantee and the limitations on the salaries of the management – most governments expressly prescribed lending to their domestic economies, which may also result in decreasing cross-border capital flow. It is also a question whether governments have an adequate exit strategy from the banking sector which heavily relies on the state, in order to restore the normal market operation as soon as possible.

Thus the European bank support packages from last autumn mainly applied a liabilities side approach, as opposed to the US TARP programme with a volume of USD 700 billion, which was announced nearly at the same time, and originally aimed at buying up the troubled assets of credit institutions by the state.⁵⁶ In Europe, portfolio cleaning was initially regarded as a peripheral means, and only Spain announced an asset purchase programme, although Germany and Italy also created the legal background for this type of measure. In January 2009, however, several states announced assets-side programmes, as balance sheets continued to be surrounded by high uncertainty because of the "toxic" assets of unknown value.⁵⁷ Purchasing or guaranteeing troubled assets may strengthen banks' confidence in one another, improve banks' liquidity, and thus may also reduce the pressure on reduction in credit supply.

Chart 2-48
Value of bank support packages as a proportion of national GDP and ownership structure of the Hungarian banking sector by nationality



Note: Bank support packages according to announcements before 19 February 2009. Ownership ratio as a proportion of the banking sector's balance sheet total, including branches and specialised credit institutions, but excluding the MFB, Eximbank and Keler.

Source: ECB, MNB, HFS data tables.

Up to mid-February 2009, EU Member States created bank support programmes corresponding to approximately a total 22 per cent of the GDP of the EU (see Chart 2-48). In the aforementioned period, a total capital increase of nearly EUR 170 billion as well as guaranteed borrowing or bond issues with a total value of nearly EUR 200 billion took place.

As the banking sector of Hungary – similarly to the countries of the region – relies significantly on external funding, the support provided for the domestic banking sector must be implemented through two channels. On the one hand, foreign parent banks should strengthen their own subsidiaries, even using Western European bank support packages. On the other hand, supporting credit institutions which do not have a parent bank is mainly the responsibility of domestic authorities.

Hungary also created a liabilities-side bank support programme, setting aside an amount of HUF 600 billion from the IMF loan. Act CIV of 2008

⁵⁵ Based on the consensus, the states only guarantee new liabilities with maturities between three months and five years, against a fee proportionate to the risk. The directive on deposit guarantee schemes was amended. Consequently, the minimum value ceiling of the deposit insurance is at least EUR 50,000 in the member countries. (Accordingly, the guaranteed amount increased to HUF 13 million in the Banking Act of Hungary.)

⁵⁶ Nevertheless, the first part of the amount available for the TARP programme was basically used for capital increases (i.e. on the liabilities side), but the second part was spent on the purchase of assets in 2009.

⁵⁷ As an example, the GBP 50 billion programme of the United Kingdom can be mentioned, in which the subsidiary of the Bank of England will be able to purchase asset backed securities, corporate bonds and syndicated loans.

on Strengthening the Stability of the Financial Intermediary System adopted on 15 December 2008 allowed undertaking guarantees and increasing capital by the state. The quality of the assets of Hungarian banks is adequate, so the fundamental aim of the domestic bank support programme is to ease foreign financing tensions. The capital enhancement fund can provide safety net for a possible deterioration in asset quality.

Based on the March 2009 amendment to the Act on Public Finances, the state can support the rollover of domestic credit institutions'

liabilities by two further tools. On the one hand, the state can extend loans to them directly, and on the other hand, it can purchase and lend bonds issued by the MNB to banks, which may receive liquidity through them. These possibilities also follow similar international examples: for instance, direct lending is in the Slovenian programme, while state bond lending is in the Greek programme. The banks which benefit from public liquidity-providing program pay a fee (guarantee fee, loan interest or bond lending fee) to the Hungarian State, and undertake to provide loans to resident corporate sector at a certain level.

2.2 Risks of the non-bank financial intermediary system

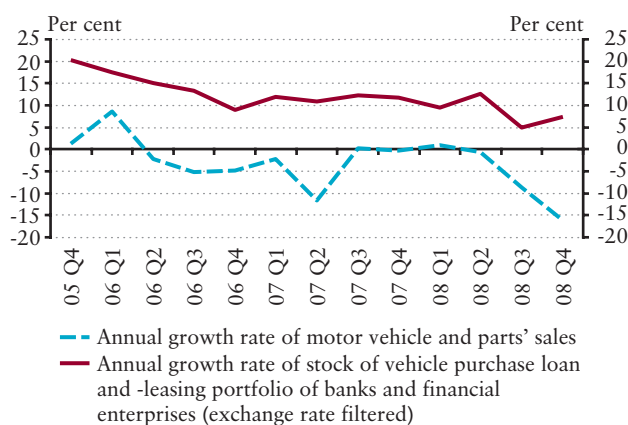
Risks of non-bank financial intermediaries are increasing. Problems inherent in the activity of financial enterprises are growing, and portfolio quality is deteriorating. However, for the time being, expected losses can be covered by interest income. As a result of the crisis, tightening of lending conditions and standards is being experienced in this sector as well, resulting in a decline in credit growth from its previously fast rate. In the last quarter of 2008, there was a capital outflow from investment funds, which, in addition to the weak performance of the funds, is also explained by the changing conditions of bank deposits (increasing deposit guarantee limit, keener price competition). Real estate funds experienced the largest losses on invested capital. The money market turmoil which emerged in the second half of last year left its mark on the performance of pension funds as well. For the first time in its history, both types of pensions funds (private and voluntary funds) closed the year with negative yields. A similar trend is observed for insurance companies as well: yields earned on investments became negative in many cases. In particular, this phenomenon affected unit-linked type insurance portfolios. Unit-linked products combined with loans may constitute a contagion channel towards banks.

Lending by financial enterprises is declining, and their portfolio quality is deteriorating

Restructuring of the activity of financial enterprises slowly continues. In their lending portfolio, more than 50 per cent of which consist of loans to households, there was some decline in the share of vehicle financing, whereas a dynamic increase was registered in personal loans and home leasing. The home leasing scheme introduced at end-2005 was made attractive by special tax allowances (the possibility of VAT refund, exemption from duty when transferring the financing), but an increase of leased volumes is strongly limited by the generally low willingness to grant housing loans and the decline in demand.

Car purchase loans are characterised by declining growth and by increasing risks; lenders are reacting to the latter by tightening their lending standards and conditions. Motor vehicle sales exhibited a strong decline as of 2008 Q3, thus the growth rate of residential vehicle financing loans is decelerating (see Chart 2-49). This slowdown is partly offset by an increase in commercial fleet finance, although as a result of the problems experienced in the transport and trucking industry, the growth rate of

Chart 2-49 Annual growth rates of vehicle sales and vehicle financing by banks and financial enterprises



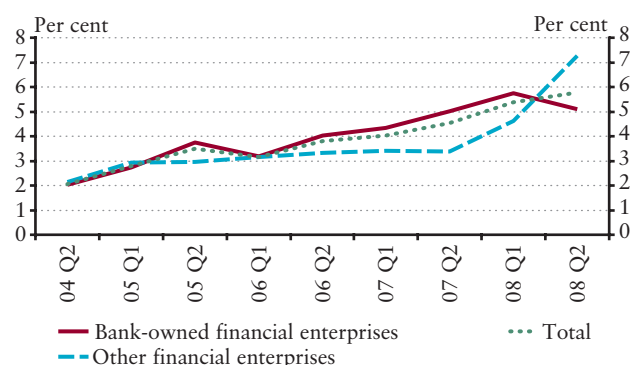
Source: MNB.

financing truck and vehicles for professional activities is already showing a decline. Lenders are reacting to the risks seen in residential motor vehicle financing, the deterioration in clients' creditworthiness and in the economic outlook by tightening their lending conditions. Banks' more risk-conscious behaviour in this segment is strengthened by the fact that, in its recommendation published in December 2008, the HFSÁ (in conformity with its earlier, 2007 CEO circular) classified loan transactions where the customer's own stake is less than 20 per cent or the maturity is longer than 8 years as extremely risky. Starting from January 2009, additional capital has to be provided for up to 50-100 per cent of the amount of loans classified as risky according to the supervisory authority's recommendation, which makes these products more expensive.

Portfolio quality is deteriorating. An increase in overdue payments was most typical for households' loans. The share of loans overdue by over 90 days and, in parallel with this, the recorded loan loss provision is also increasing in loans' and leasings' portfolio as well (see Chart 2-50). Nevertheless, the profitability of financial enterprises does not yet reflect the deterioration in portfolio quality. Although the sector-level pre-tax profit declined compared to 2007, it was still very high, amounting to nearly HUF 50 billion at end-2008. The profit figures, which were relatively favourable in spite of the deterioration in the portfolio, suggest that the pricing practices have been appropriate and risk premia has been adequate to cover the losses stemming from the increase in

Chart 2-50

Share of loans overdue by over 90 days in the loan portfolio of financial enterprises



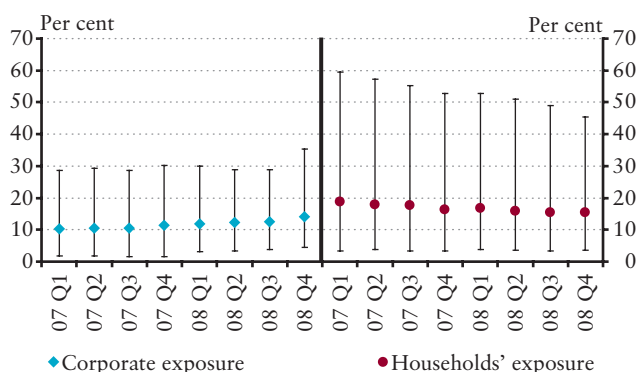
Source: MNB.

defaults. Beside that, a significant number of enterprises have reached the level in economies of scale necessary for profitable operation. At the same time, it is important to call attention to the fact that some actual losses are presumably not reflected in the profit figures because of counterincentives in the sale of bad debts to collection companies, and in loan loss provisioning of a realistic magnitude.

Liquidity position of financial enterprises is mainly determined by the banks providing the necessary funding for the sector; in some banking groups – due the ownership and financing relations- the risk of financial enterprises may increase the credit risk of the group. The activity of the financial enterprises is predominantly funded by the Hungarian banking sector (more than 75 per cent of the resources of the sector comes from domestic credit institutions). In addition, especially in the case of enterprises belonging to international financing corporations, the weight of foreign funding is also considerable. Thus the strong deterioration in the liquidity of domestic banks and the international money markets in 2008 fundamentally determines the growth potential of financial enterprises. The banks pass on the increase in the costs of funds to the financial enterprises they finance, which may result in shrinking margins or increasing client interest rates within the range of possibilities. The interdependencies between financial enterprises and the Hungarian banking sector are very strong; over 70 per cent of clients' outstanding debt is provided by financial enterprises belonging to the sphere of interest of domestic banking groups. The credit risk exposure of financial enterprises closely related to the banking sector increases the risk of the latter. At end-2008, the total exposure of financial enterprises to the private sector amounted to 20 per cent of total exposure of the banking sector to private sector as a

Chart 2-51

Ratio of bank-backed financial enterprises' client exposure to the banking system client exposure in the household and corporate portfolio



Note: In addition to the average value, the minimum and maximum of values calculated for individual banks for the given period are also shown
Source: MNB.

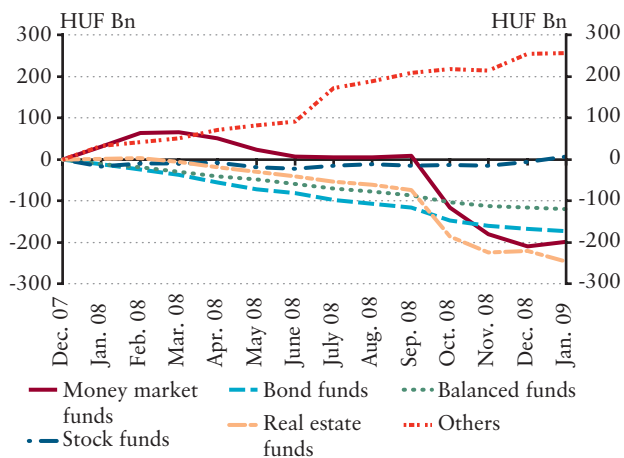
whole, while this ratio for the portfolio of financial enterprises exclusively with banking backgrounds is 15 per cent (see Chart 2-51). Although on the whole this ratio cannot be considered high, the weight of subsidiary financial enterprises varies across banking groups, exceeding 30-40 per cent of the banking portfolio for some of them. Adding to the risks arising at banking group level is the fact that households presumably consider mortgage loans more important than their liabilities vis-à-vis financial enterprises. Therefore, in scaling back banking group activity, cutting the activity of the group's own leasing firms is a clear target.

Most capital outflows from investment funds are re-channelling into the banking sector

Outflows were observable from the investment funds in the last quarter of 2008. The international market turmoil resulted in a decline of the prices of financial assets in Hungary as well. A direct consequence of this was that the performance of investment funds, which had reliably granted high yields, also declined, yields fell into negative territory sometimes, and developments in the prices of investment fund shares also became unpredictable. At the same time, there were significant changes in the conditions for bank deposits as well. On the one hand, the upper limit of the deposit guarantee scheme was increased, and the coinsurance of depositors was eliminated. Moreover, the government undertook a guarantee for the entire amount of deposits even above this limit. On the other hand, deposit rates rose, partly due to the increase in the central bank base rate in October and partly due to the increasing competition for household liabilities, which are considered to be stable, and as a result these rates exceeded the yields offered by funds. Overall, this

Chart 2-52

Cumulated net sales at investment funds by types



Note: The 'other' category comprises guaranteed funds, derivative funds, closed-end funds and non-classified funds.

Source: BAMOSZ (Association of Hungarian Investment Fund and Asset Management Companies).

dual effect encouraged investors to withdraw assets from the investment funds (see Chart 2-52). Although the developments varied across investment categories, a decline in total asset values was seen in almost each type. There were two big winners during this period: guaranteed funds and various closed-end funds (although with regard to them it is important to note that the increase in their net asset value was partly a result of the establishment of new funds). The total net asset value of money market funds and real estate funds declined to the greatest extent.

As a consequence of their special investment policy, real estate funds found themselves in the most difficult situation in the last quarter of last year.

At the other types of funds, most of the assets are liquid instruments (shares, bonds, bank deposits etc.), which can be sold in full, although at a loss, if necessary. However, a significant part of the portfolio of real estate funds is real property, which can be sold quickly only at a loss even under normal market conditions. However, in the autumn of 2008, demand almost completely disappeared from the domestic real estate market, and thus the rapid capital outflow gradually consumed the liquid assets of real estate funds. On 10 November 2008, according to the decision of the HFSZ, trading in these types of funds was suspended for ten days. In the meantime, the opportunity was created for real estate funds to be transformed into closed-end funds, and funds were able to amend their statutes in this period. Thus, many of the funds changed the term of payments to T+90 from the earlier time

span of a few days. In addition, several funds were transformed into closed-end funds. In accordance with market conditions, the real estate portfolio of funds was devalued, since it had become obvious that they could not be sold at the earlier valuation level. However, for the funds it continues to be a risk that there is weak demand in the real estate market both on the part of buyers and tenants, which fundamentally determines the position and performance of these funds.

Savings placed in investment funds and re-channelled into the banking sector (as deposits) is declining. Investment funds' assets in bank deposits are stable at around 40 per cent, and although they represent a more expensive funding source than household deposits, they are still cheaper than foreign funds for the banking sector.

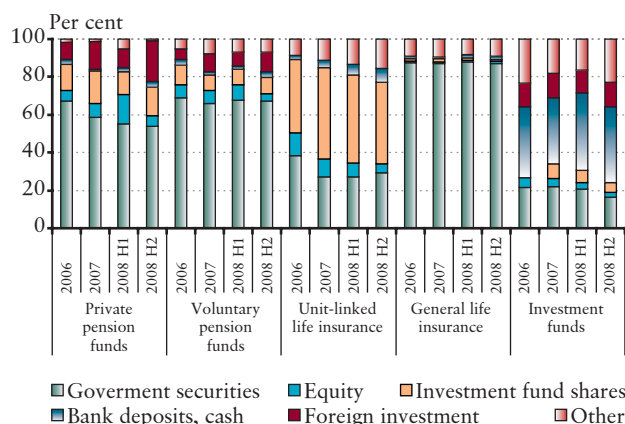
However, as investment funds lose popularity, this form of re-channelling is diminishing. Nevertheless, in terms of total funding this was not a drawback for the banking sector, as the increase in direct liabilities from households (mainly into bank deposits) was greater than the decline in indirect liabilities (assets placed in mutual fund shares).

Increasing portfolio losses for pension funds and insurance companies

The profit on investment activities by pension funds (both the private and the voluntary funds) in 2008 was negative.

The changeover to the optional portfolio system continued at the private pension funds last year.⁵⁸ Accordingly, a further shift from safer assets to riskier ones was observed (the proportion of government securities

Chart 2-53
Portfolio composition of institutional investors



Source: MNB.

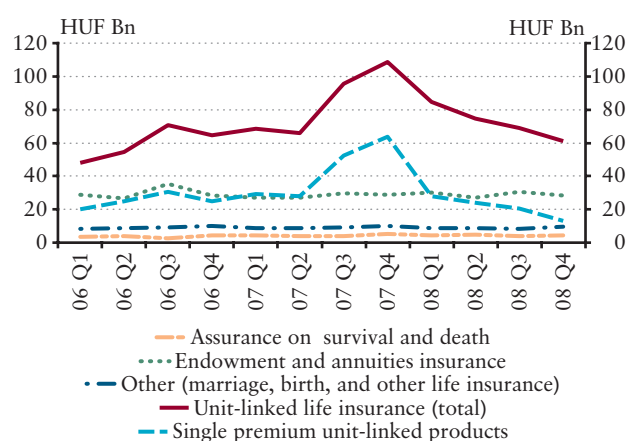
⁵⁸ The optional portfolio system had to be introduced before 1 January 2009, while the final deadline for attaining the portfolio composition specified in its rules was amended from 30 June 2009 to 30 June 2011.

declined, while the proportion of shares increased) (see Chart 2-53). This trend slightly changed in the last quarter, as risk aversion strengthened due to the market turbulence, and thus the proportion of domestic shares within the portfolio fell drastically, and the weight of foreign investments continued to increase. The yield of private pension funds still turned negative, at -20.4 per cent, while the figure for the voluntary branch is -10.7 per cent.

Yields on insurance companies' investments are declining, especially on unit-linked insurances, where even the growth in the annual income from insurance premiums is decreasing. No material changes can be observed in the composition of the portfolio for life insurances (see Chart 2-53), but the level of reserves related to unit-linked insurances declined by approximately 10 per cent over the period of one year, as a result of the strong fall in yields. In 2008, insurance companies achieved negative yields on their investments; the yields of individual quarters and the yield on the basis of the annual average of investments amounted to -14 per cent at level of the insurance sector as a whole. The fall in yields particularly affects the unit-linked type insurance portfolio, where even 50 per cent negative yields could emerge in case for some asset portfolios. The risk of unit-linked insurances which reached a reserve amount of nearly HUF 600 billion at end-2008, is increased by the fact that a part of the portfolio is in very risky asset funds tied to international or emerging markets. On the other hand, it may represent a contagion channel towards banks in case of transactions combined with loans if the client has to pay off from an investment with negative yield. This may even cause a major problem when transactions contracted in the past reach the period of loan repayment. While the number of life insurances remained

nearly unchanged in 2008, the annual income from insurance premiums fell by approximately 10 per cent. The decline experienced in unit-linked type life insurances, which are linked to investments, played a decisive role in the fall in the premium income from insurance premiums. This product (i.e. unit-linked) constituted 60 per cent of the income from insurance premiums of the life insurance business in 2008. In this product group the stock continued to increase, although in a less dynamic manner. At the same time, the incomes from insurance premiums relating to this product range fell sharply (see Chart 2-54). This can partly be explained by household investors shifting towards other investments, presumably deposits in particular. In addition, the decline in (mainly housing) loans to households, may have reduced the popularity of the combination of loans with unit-linked insurance.

Chart 2-54
Quarterly incomes from insurance premiums of life insurance product groups



Source: MNB.

2.3 Risks of financial market infrastructure

Reacting to the domestic and international money and capital market turbulences, VIBER participants, partly with a precautionary objective, are increasing their intraday credit lines available for settling their transactions. In addition to the change in the liquidity stance, banks respond to the new market situation with higher risk awareness in their transaction management, lower average payment sizes and changing the timing of submission. As a result of increasing liquidity for payment and settlement purposes, the liquidity risk of the ICS remains low. With the help of the built-in risk management tools, the Hungarian securities clearing and settlement system has proven to be robust vis-à-vis money and capital market events.

2.3.1 VIBER

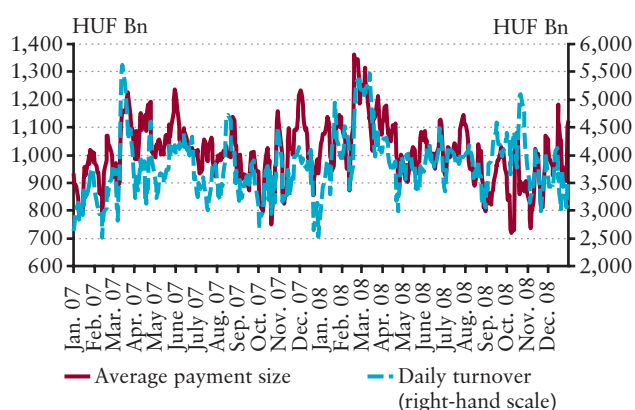
In 2008, in the turbulent money and capital market situation VIBER functioned smoothly, as a result of central bank measures and the relatively fast adjustment by participants. Last year's events also had an influence in VIBER on the liquidity-delay trade-off as well as the features of turnover. Based on the settled transactions, in 2008 there were periods when, compared to the previous year, VIBER coped with very high turnover both in terms of volume and value. In this respect, October 2008 was extraordinary, then turnover somewhat returned to its earlier lower levels (see Chart 2-55). The value of queues as per cent of debit turnover and the turnover to liquidity ratio⁵⁹ declined, both with regard to the system as a whole and to the first five and ten participants with the highest debit turnover⁶⁰ (see Appendix Chart 57). The system was able to handle the higher turnover smoothly, the relatively fast adjustment of system members to the new situation and central bank measures also facilitated this process.

The liquidity stance of VIBER improved as a result of the intraday credit lines being increased (partly) with a precautionary objective and the central bank measures extending the list of eligible collateral. In October 2008, in accordance with international experience,

Chart 2-55

Value of daily turnover and average payment size in VIBER

(2007-2008)



Note: The chart was prepared on the basis of the debit turnover. Start-of-day balance adjustments are excluded from the data series. 5-day moving average.

Source: MNB.

VIBER participants increased the liquidity available in the payment systems, which was mainly shown in higher intraday credit lines⁶¹ (see Chart 2-56). Intraday credit line usage indicators⁶² suggest that raising the intraday credit lines was rather precautionary. Owing to the increased (credit and liquidity) risk sensitivity, system members presumably did not trust that financing by incoming payments in VIBER would be possible to the extent and with the same intraday pattern as it had been typical earlier. The impact of the reduction in the minimum reserve ratio, which had an opposite liquidity effect compared to the above, was first felt in December, although the liquidity available in the system at end-2008 was still at a higher level than in September or the period prior to that.⁶³

As a result of higher risk awareness in transaction management, the average payment size declined. In parallel with the improvement in the liquidity stance of the system, VIBER participants moved in the direction of higher

⁵⁹ In VIBER, the turnover to liquidity ratio is the ratio of the debit turnover value settled to the liquidity available for system members (opening account balance plus the intraday credit line available in exchange for the collateral – or a part of it – pledged by them).

⁶⁰ The list of the first five and ten VIBER participants with the highest turnover has been stable for years; their share in the value of debit transactions is continuously around 60 per cent (CR5) and 80-85 per cent (CR10), respectively.

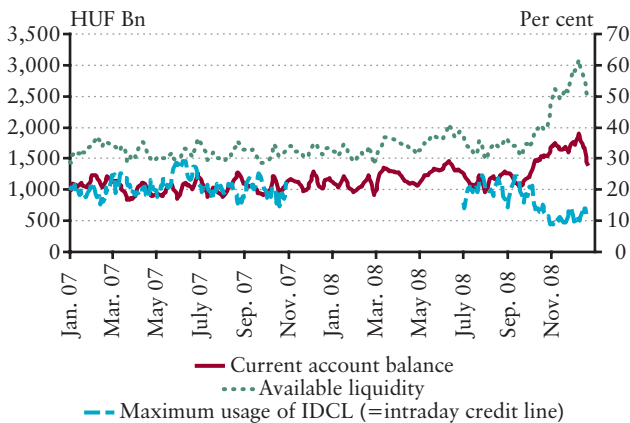
⁶¹ The securities portfolio pledged as collateral provides collateral for monetary policy operations as well, i.e. for the 2-week and 6-month collateralised loans which were introduced in October 2008.

⁶² Intraday credit line utilisation shows the extent of the maximum percentage value to which the system member used its credit line.

⁶³ This is partly supported by the MNB as well, as when settling central bank operations (both initially and at maturity), without taking credit risk it adopts an order which is favourable for credit institutions' liquidity situation (i.e. re-payment of O/N deposits is settled at the start of the business day in order to give back the liquidity to credit institutions and they can use that already in VIBER).

Chart 2-56

Current account balance and available liquidity as well as the maximum usage of intraday credit line in the system



Note: Start-of-day balance adjustments and central bank's transactions were excluded from the data series. The usage of intraday credit line data is available only for January-November 2007 and starting from July 2008. 5-day moving average.

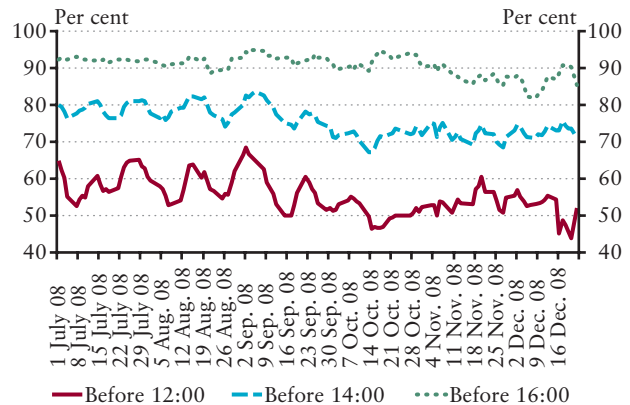
Source: MNB.

risk awareness in transaction management and timing behaviour. This risk awareness reflected the increased credit and liquidity risk sensitivity in relation to the market situation. The declining average payment size (see Chart 2-55) indicated that domestic credit institutions' earlier practice of submitting the transactions into the system 'in large packages' – often on account of uncovered intraday credit lines approved for clients or correspondents – changed. This was supported by information obtained during credit institutions' interviews by the central bank, just as the fact that domestic credit institutions introduced stricter credit risk control vis-à-vis their foreign correspondents also in their intraday credit line policy.

As a result of more conscious submission control, initiating transactions has been somewhat delayed in comparison with our earlier findings, but this did not cause any incident in the operation of VIBER. In parallel with the above experiences, system members implemented stricter submission control as well. Accordingly, initiating transactions was somewhat delayed, although towards the end of the year this finding reversed to some extent (see Chart 2-57). Based on information on the system, this delayed sending did not result in any trouble in the functioning of VIBER. At the end of the day no transaction were rejected due to insufficient funds ; operating hours were extended less often than in previous years, and whenever it happened it was due to technical and not liquidity reasons.

Chart 2-57

Intraday submission pattern in VIBER



Note: The chart shows the daily debit turnover until 12:00, 14:00 and 16:00 hours as a percentage of the daily total debit turnover. Start-of-day balance adjustments and central bank's transactions are excluded from the data series. The time stamps of system's receipt were used.

Source: MNB.

The availability ratio improved. Implementation of the action plan drawn up in 2008 to reduce the operational risk is continuing.

The average availability ratio of VIBER was amounted to 99.82 per cent in 2008, which is an improvement compared to previous years (2006: 99.8 per cent, 2007: 99.4 per cent). The monthly availability ratio dropped below 99.7 per cent (the internationally expected service level) in a total of 4 months (see Chart 58 of the Appendix). There was one system disruption which lasted more than one hour, but its duration did not reach two hours. Implementation of the action plan drawn up in order to reduce operational risk started in 2008; the performance of the tasks specified there is continuing in 2009 as well.

VIBER handled 'record' volume of transactions in October without any capacity problem.

According to internal estimations the central settlement engine of VIBER, which settles most of the domestic financial market transactions, has adequate capacity to withstand an even higher turnover. In 2008 VIBER has been assessed against national and international oversight standards. The VIBER, on the whole, basically meets overseers' expectations formulated on the basis of international standards, however there were some further tasks identified relating to the operational risk management, cost-calculation and pricing.

2.3.2 INTERBANK CLEARING SYSTEM (ICS)

The liquidity risk in the ICS continues to be low; functioning of the system is facilitated by the ample liquidity resulting from the increase in intraday credit

lines analysed above in connection with VIBER. The value of uncovered transactions is low. On average the liquidity needed for settlement is significantly lower than the available liquidity (see Chart 56 of the Appendix). The excess liquidity in the ICS is partly due to the fact that credit institutions are required to hold minimum reserve balances with monthly averaging, and the end-of-day balance is a part of the liquidity available in the ICS. On the other hand, they can pledge collateral to obtain an intraday credit line, which they usually use in VIBER, and which they maintain overnight due to the low opportunity costs and the transactions costs entailed by pledging and releasing the collateral. Consistent with what was written earlier regarding VIBER, the impact of the reduction in the minimum reserve ratio effective as of December 2008 was offset by the increased intraday credit lines. Based on the current operational procedures,⁶⁴ the two payment systems (ICS and VIBER) do not compete for liquidity, which, of course, continues to lead to ample liquidity in ICS.

The operational reliability of the ICS system is very high. Because of the duplicated hardware components and communication channels potential technical failures and line disruptions do not affect the availability of the system. In 2009, the clearing engine of the ICS will undergo an IT renewal; GIRO Zrt., which runs the ICS, took into consideration all the requirements regarding the above redundancy in the specifications.

2.3.3 THE SECURITIES CLEARING AND SETTLEMENT SYSTEM OPERATED BY KELER ZRT.

On 1 January 2009, the central counterparty function, which carries credit risk, was separated from the central securities depository activity. Stemming from the integrated nature of the infrastructure run by KELER Zrt., before 1 January 2009 KELER Zrt., as central counterparty, faced credit risk as well. The concentration of the central securities depository and the central counterparty functions in a single legal entity entailed risks, because if a central counterparty took a principal risk equal to or exceeding its capital base and if this risk crystallised, using up own funds or the insolvency of the company could disrupt the functioning of the central securities depository as well. The project, which was launched on the basis of international and domestic recommendations, required the cooperation of a number of stakeholders and was completed on 1 January

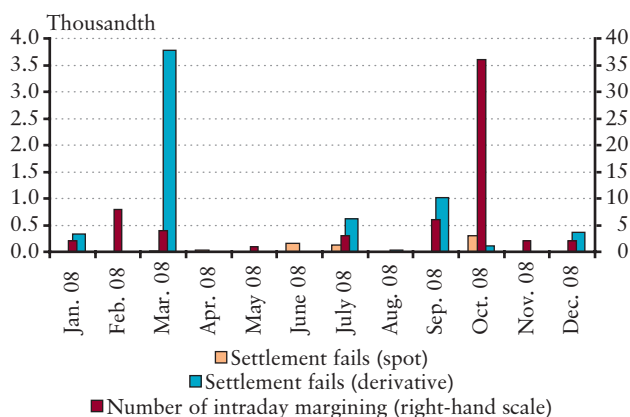
2009: it aimed at separating the credit risk stemming from the central counterparty function from the central securities depository activity.

In 2008, the securities clearing and settlement system, which was still operating in an integrated manner, proved to be resistant in times of turbulences as well. Based on value of turnover, KELER Zrt. faced temporarily surges and then subsequent declines in turnover both in the spot and derivative markets of the BSE and in the OTC market. In international comparison, the settlement fails-to-turnover ratio is low (see Chart 2-58), which is obviously also a result of the fact that in some foreign systems settlement fails of defaulted members also had to be taken into account. In the securities clearing and settlement system operated by KELER Zrt. a settlement fail over the settlement date happened only once, but the settlement finally occurred on the day following the settlement date. In October 2008, KELER Zrt. had to initiate intraday margining in a number of cases (mainly in the case of shares), because the price fluctuation of the underlying products was significant (see Chart 2-58).

The availability of the domestic securities clearing and settlement system is acceptable. Compared to the levels of previous years (2006: 99.1 per cent, 2007: 99.4 per cent), the availability ratio, which indicates the disruptions directly felt by clearing members and participants, improved and amounted to 99.5 per cent in 2008 (see Appendix Chart 58).

Chart 2-58

Settlement fails to turnover in the spot and derivative markets of the BSE and the number of intraday margining



Source: KELER.

⁶⁴ After the closure of VIBER and then that of the MNB's account keeping system, the ICS 'receives' the total available liquidity of credit institutions (which enables it to operate as a gross system with checking the available funds). Bookings resulting from the ICS clearing are settled in the MNB's account keeping system prior to VIBER opening.

This level of availability can still be considered as adequate. In 2008, the implementation of measures improving the operational reliability of KELER Zrt. and already at the same time of KELER KSZF Kft. continued. Thus, for example, the operational reliability of the IT infrastructure supporting the aforementioned intraday margining also increased.

Appendix: Macro-prudential indicators

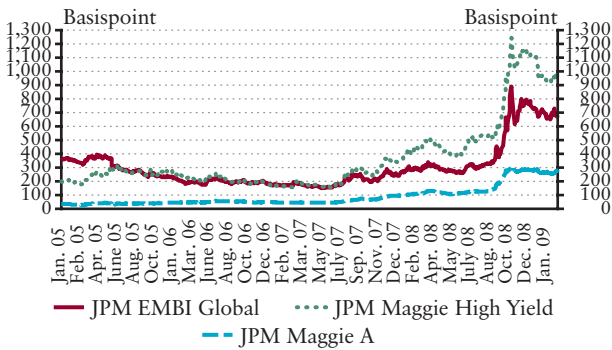




1 Risk appetite

Chart 1

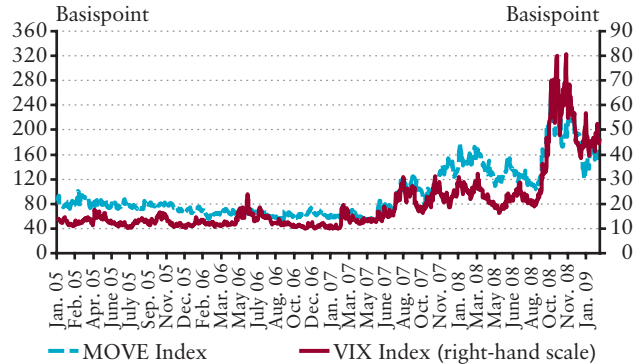
Primary risk indicators



Source: Datastream, JP Morgan.

Chart 2

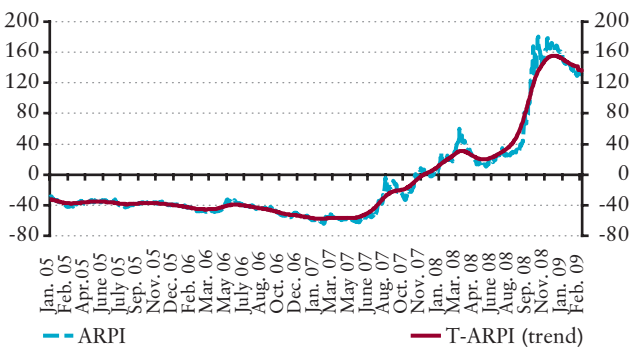
Implied volatility of the primary markets



Source: Datastream, Bloomberg.

Chart 3

Dresdner Kleinwort indicator



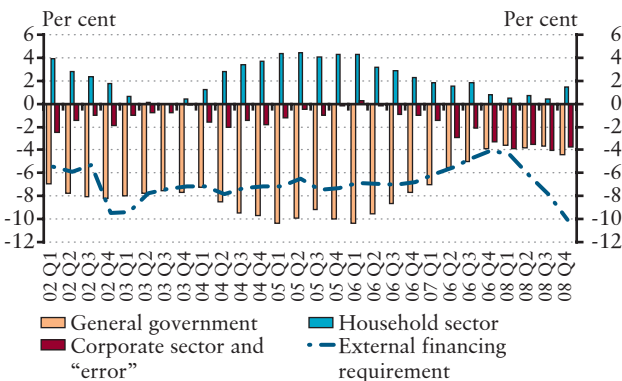
Source: DrKW.

2 External balance and vulnerability

Chart 4

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

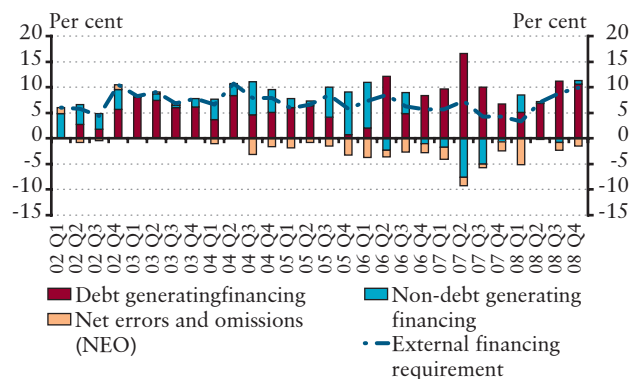
(seasonally adjusted)



Source: MNB.

Chart 5

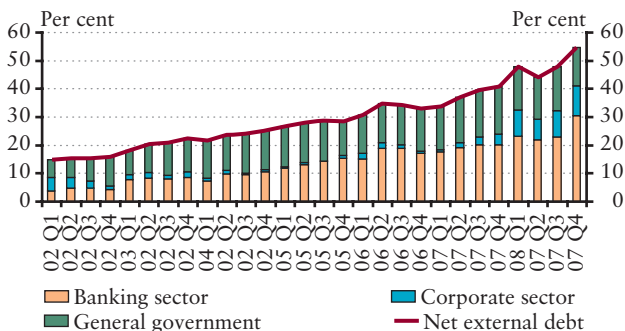
External financing requirement and its financing as percentage of GDP



Source: MNB.

Chart 6

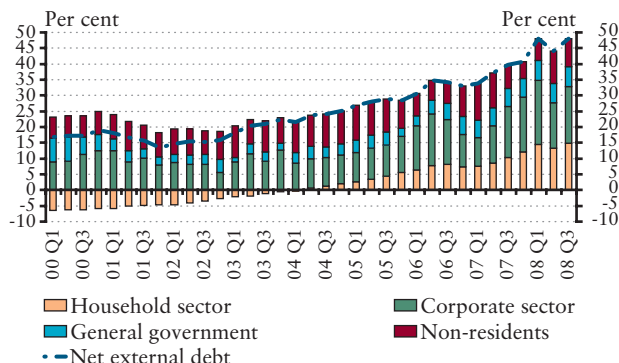
Net external debt as percentage of GDP



Source: MNB.

Chart 7

Open FX position of the main sectors as percentage of GDP



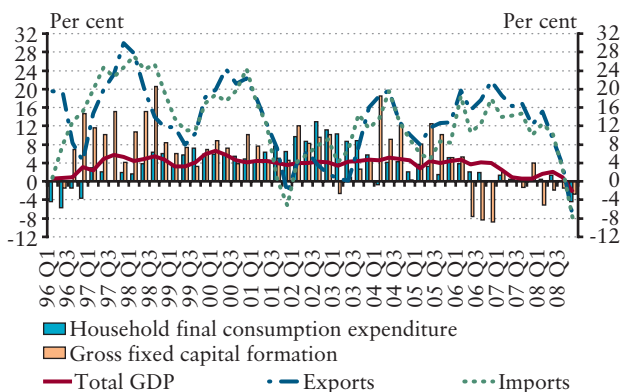
Source: MNB.

3 Macroeconomic performance

Chart 8

GDP growth and its main components

(annual growth rate)

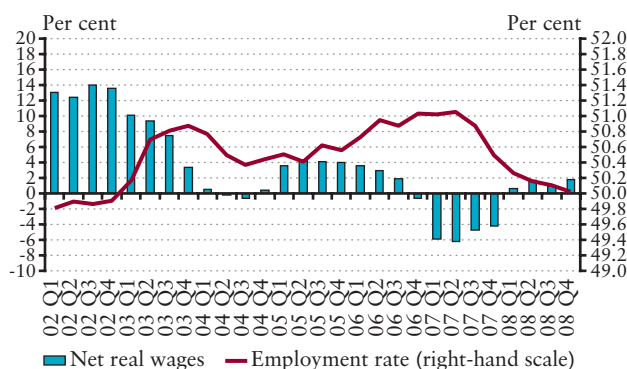


Source: HCSO.

Chart 9

Employment rate and net wage developments

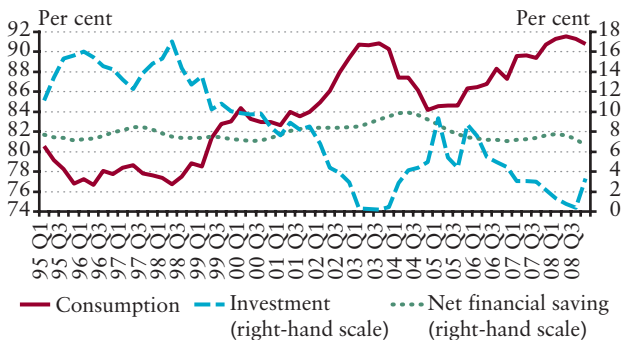
(annual growth rate)



Source: HCSO.

Chart 10

Use of household income as a ratio of disposable income

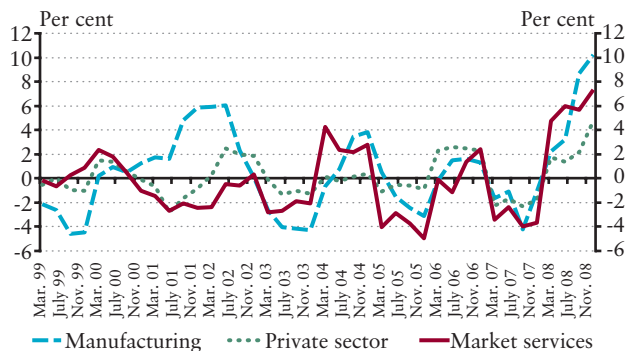


Source: HCSO, MNB.

Chart 11

Corporate real unit labour cost in the private sector

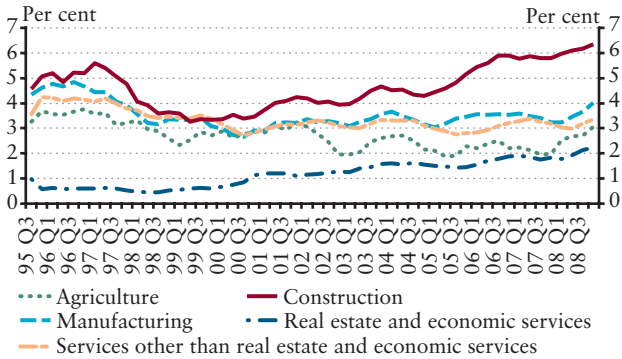
(annual growth rate)



Source: HCSO, MNB.

Chart 12

Sectoral default rates

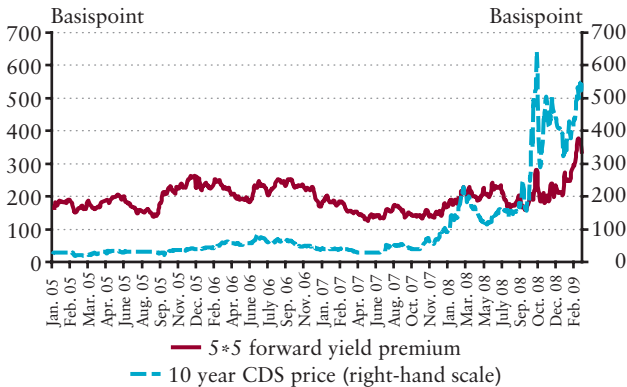


Source: Opten, HCSO, MNB.

4 Monetary and financial conditions

Chart 13

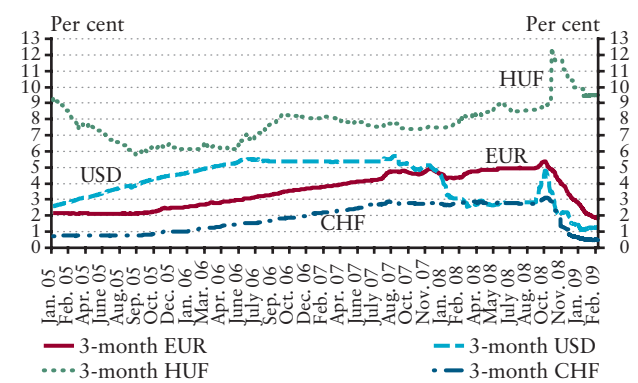
Long-term default risk and forward premium of Hungary



Source: Datastream, Reuters.

Chart 14

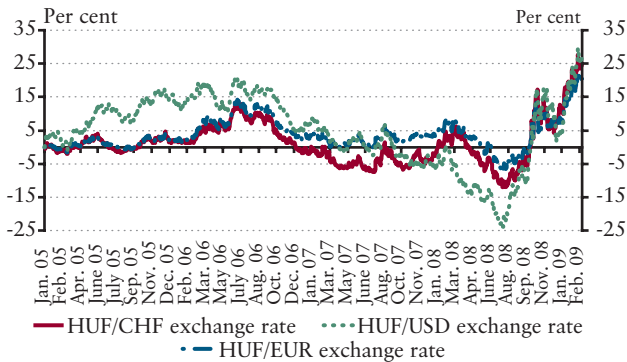
Three-month EUR, USD, CHF and HUF money market interest rates (LIBOR and BUBOR fixing)



Source: Reuters.

Chart 15

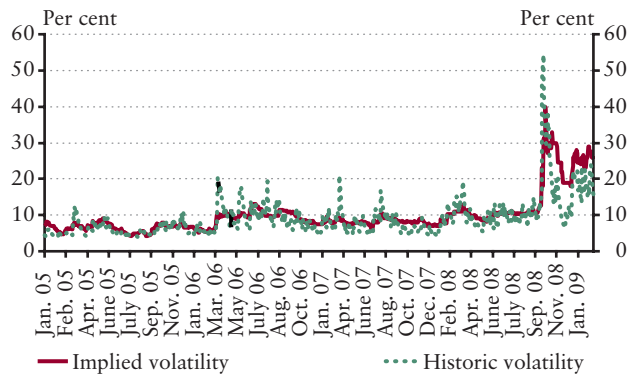
HUF/EUR, HUF/USD and HUF/CHF exchange rates compared to January 3, 2005



Source: Reuters.

Chart 16

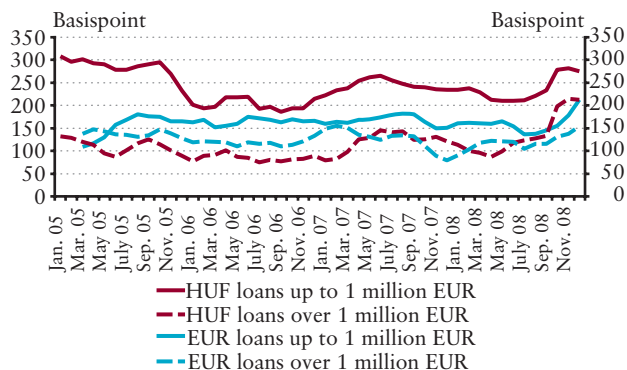
Volatility of the HUF/EUR exchange rate



Source: MNB, Reuters.

Chart 17

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

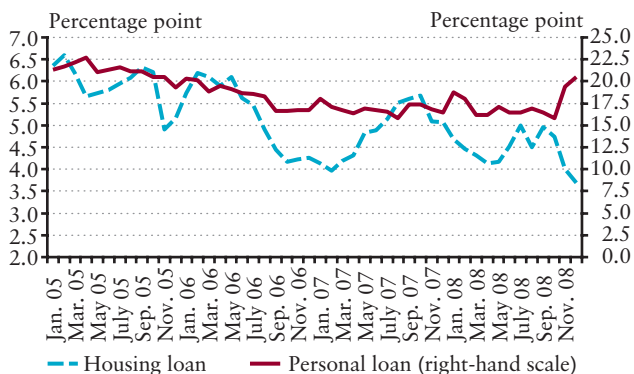


Source: MNB, Euribor.

Chart 18

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

(over 3-month BUBOR)

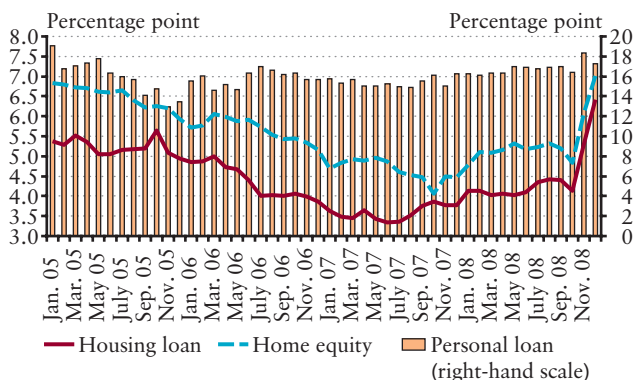


Source: MNB.

Chart 19

Interest rate premium of new CHF loans to households

(over 3-month CHF LIBOR)

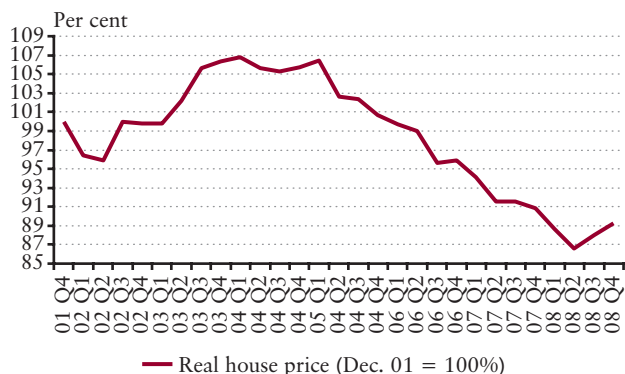


Source: MNB.

5 Prices of instruments

Chart 20

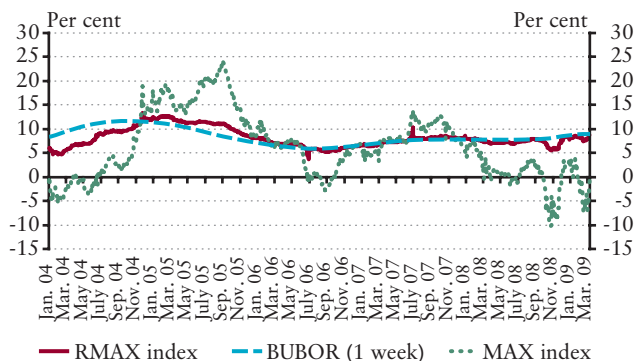
Real home prices



Source: Origo.

Chart 21

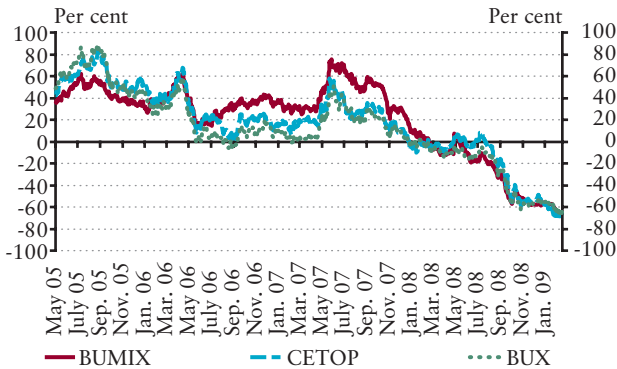
Annualised yields on government security indices and money markets



Source: ÁKK, portfolio.hu, MNB.

Chart 22

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

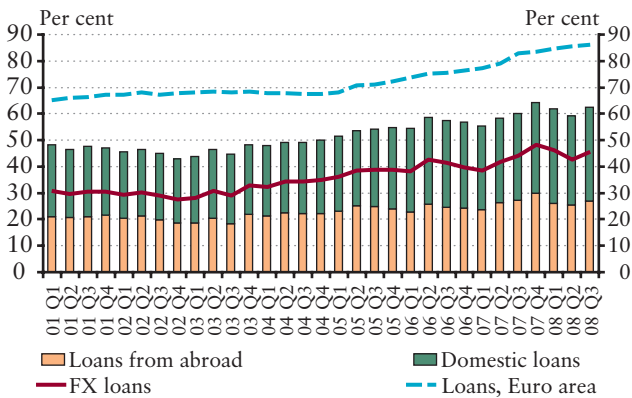


Source: BSE, portfolio.hu.

6 Risks of the financial intermediary system

Chart 23

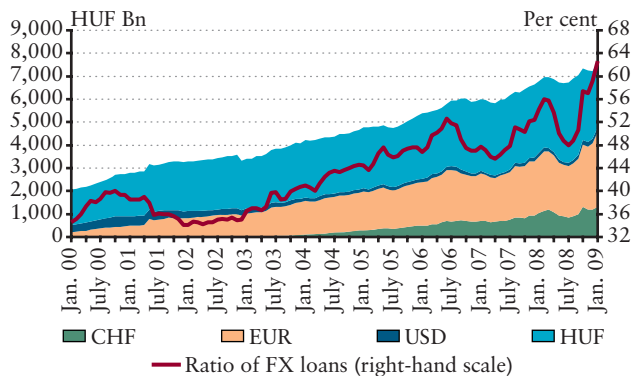
Indebtedness of non-financial enterprises as a percentage of GDP



Source: MNB, Eurostat.

Chart 24

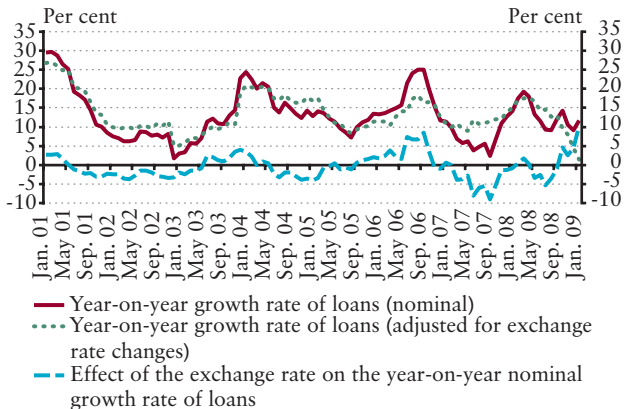
Denomination structure of domestic bank loans of non-financial enterprises



Source: MNB.

Chart 25

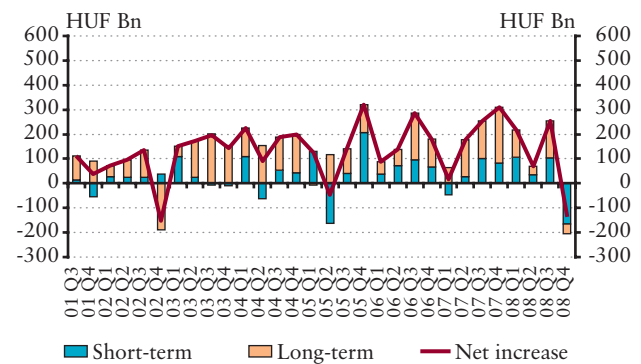
Annual growth rate of loans of non-financial corporations from domestic banks



Source: MNB.

Chart 26

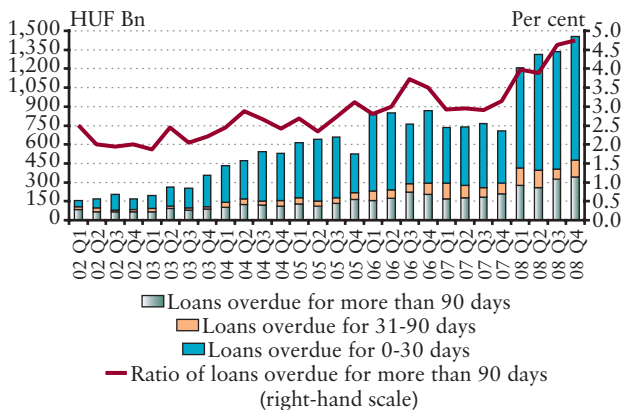
Net quarterly change of bank loan volumes of non-financial enterprises



Source: MNB.

Chart 27

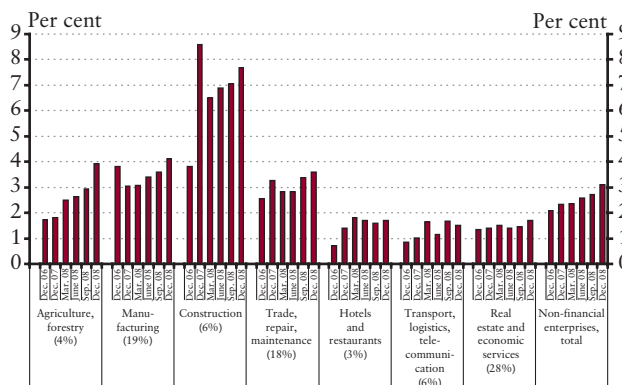
Overdue loans in the corporate portfolio of the banking sector



Source: MNB.

Chart 28

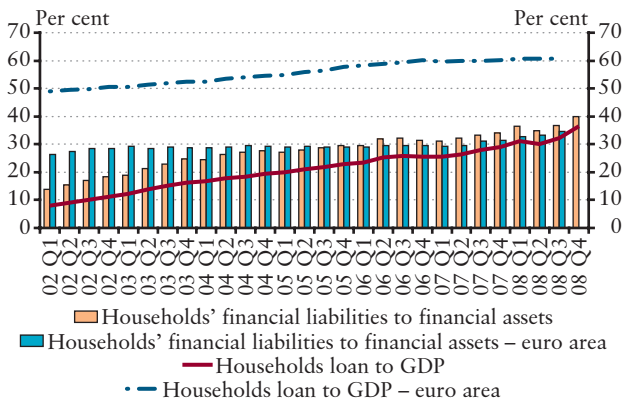
Provisioning on loans of non-financial corporations by industry



Source: MNB.

Chart 29

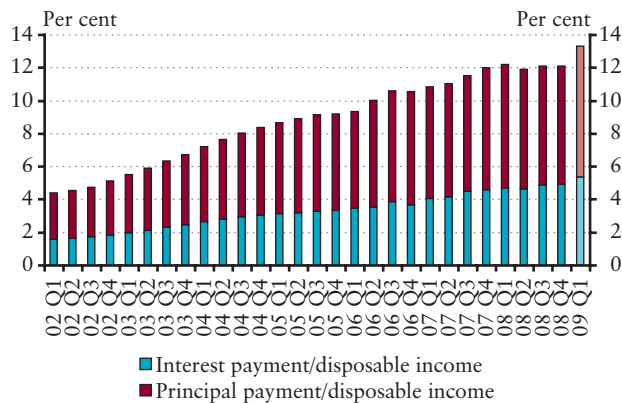
Indebtedness of households in international comparison



Source: MNB, ECB.

Chart 30

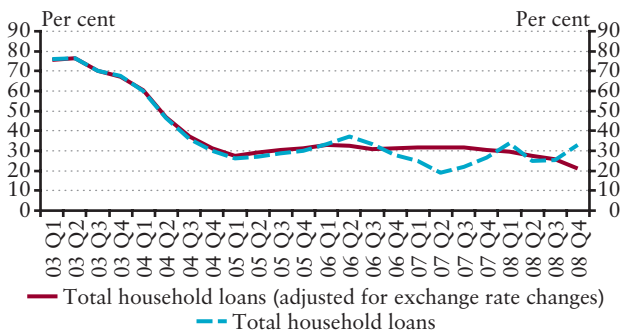
Debt service burden of the household sector



Source: MNB.

Chart 31

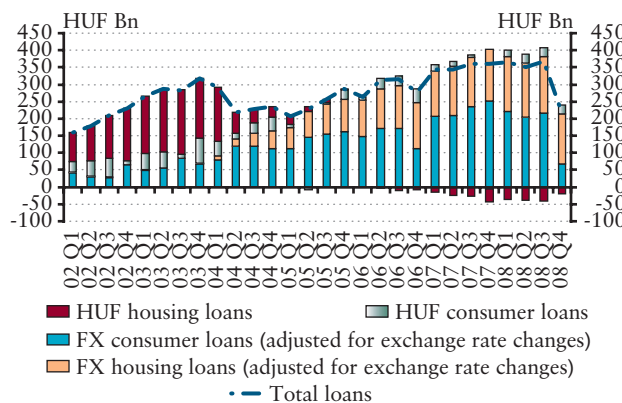
Annual growth rate of household loans



Source: MNB.

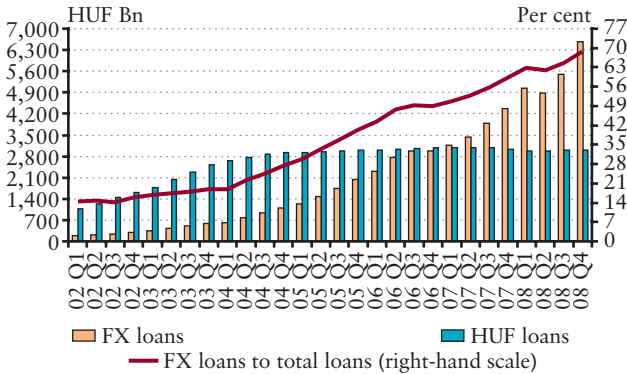
Chart 32

Net quarterly change of bank loan volumes of households by main products and currencies, seasonally adjusted



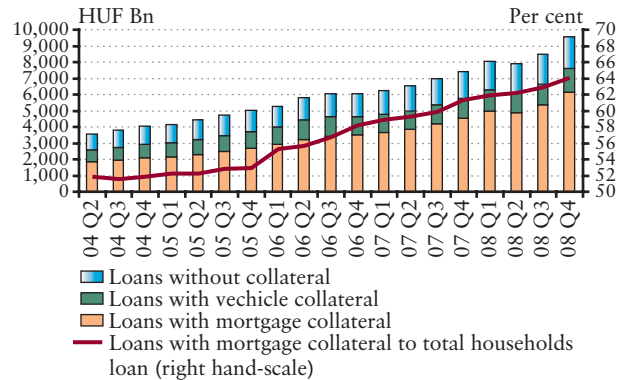
Source: MNB.

Chart 33
Household loans distribution by denomination



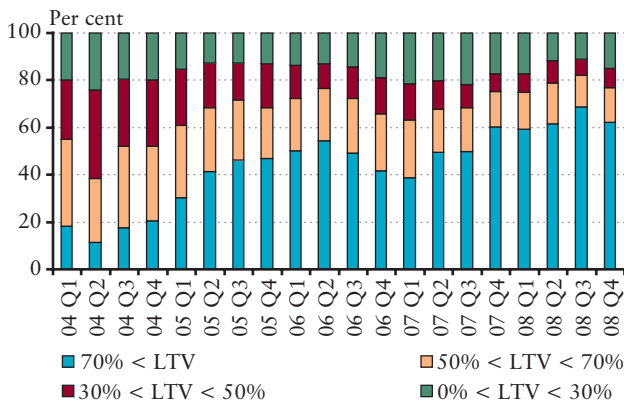
Source: MNB.

Chart 34
Household loans distribution by collateral



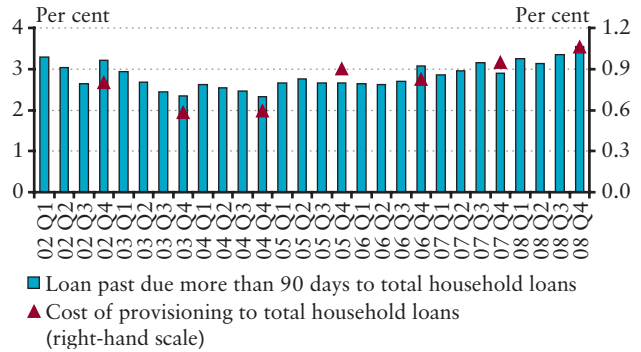
Source: MNB.

Chart 35
Distribution of new housing loans by LTV



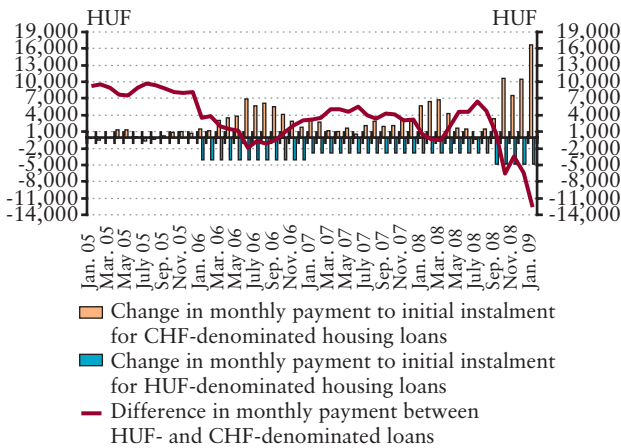
Source: MNB.

Chart 36
Quality of the household loan portfolio



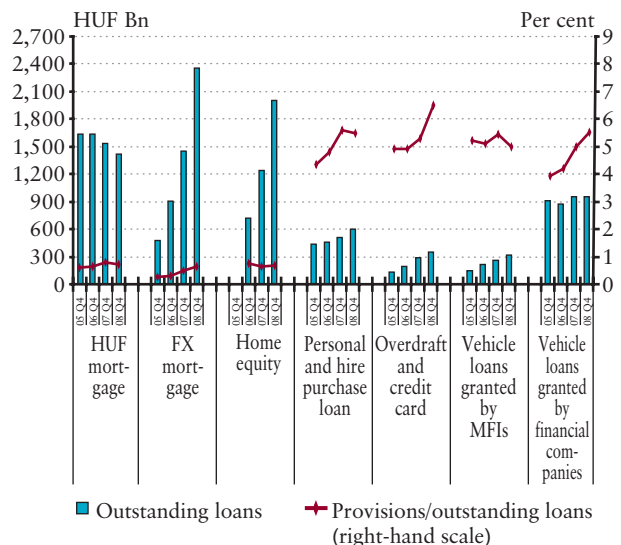
Source: MNB.

Chart 37
Comparison of instalment payments of CHF- and HUF-denominated housing loans



Source: MNB.

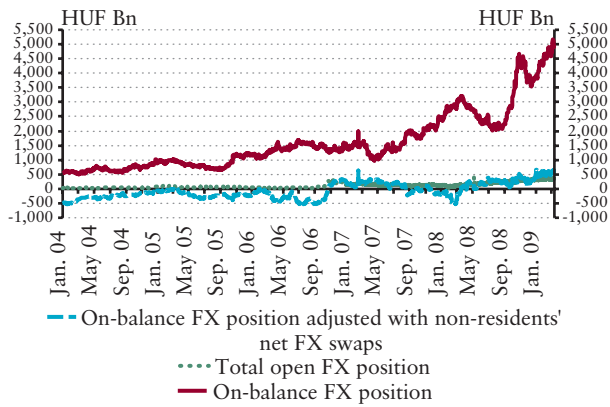
Chart 38
Provisioning on household loans



Source: MNB.

Chart 39

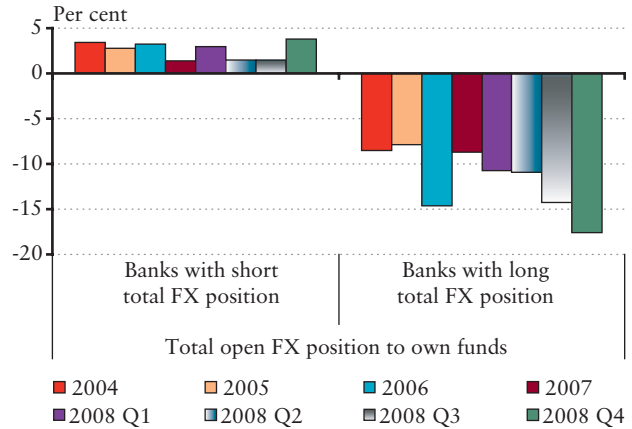
Open FX position of the domestic banking system



Source: MNB.

Chart 40

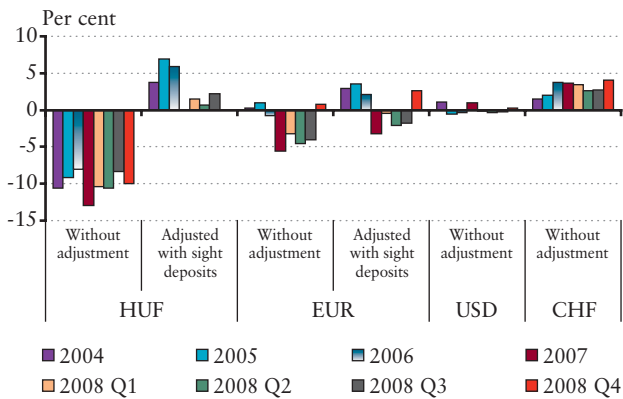
Banking sector's exchange rate exposure



Source: MNB.

Chart 41

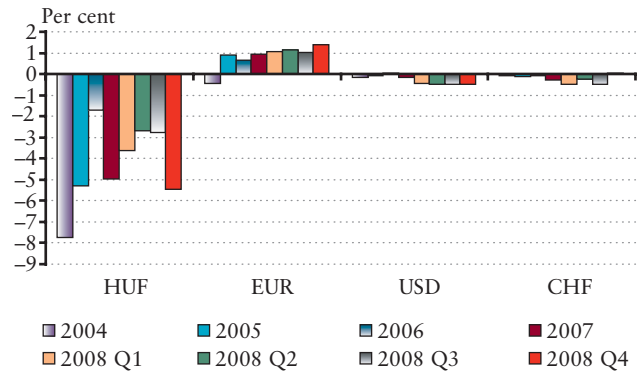
90-day re-pricing gap of the banking sector



Source: MNB.

Chart 42

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

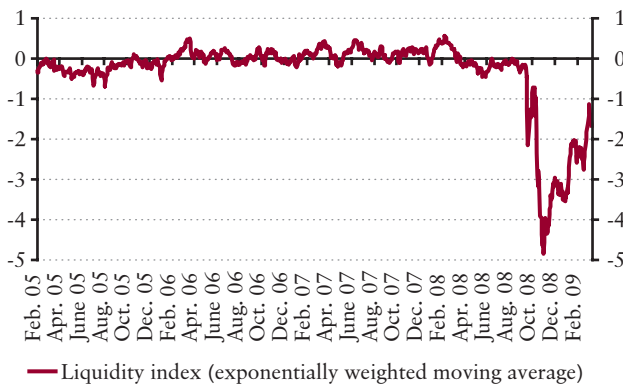


Source: MNB.

Chart 43

Liquidity index

(exponentially weighted moving average)

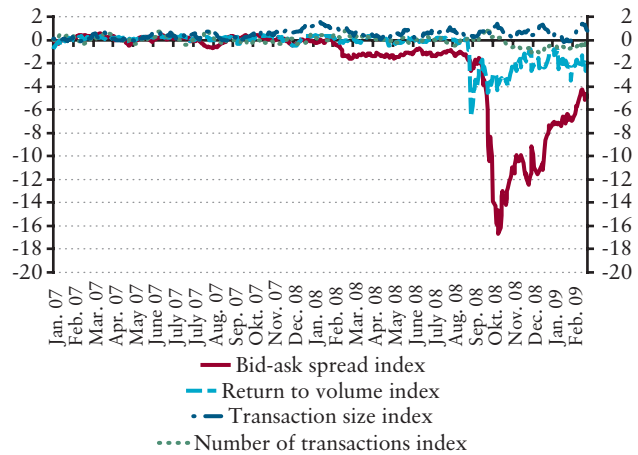


Source: MNB, Keler, Reuters, DrKW.

Chart 44

Liquidity sub-indices

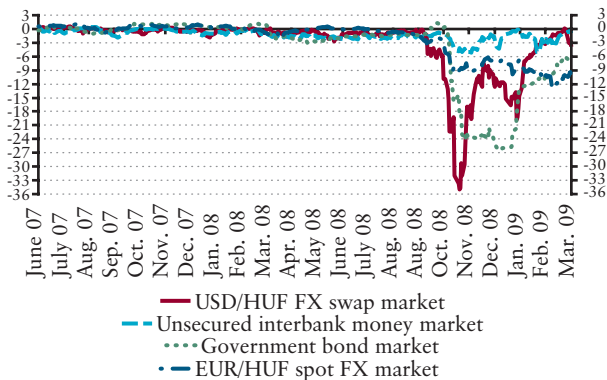
(exponentially weighted moving average)



Source: MNB, Keler, Reuters, DrKW.

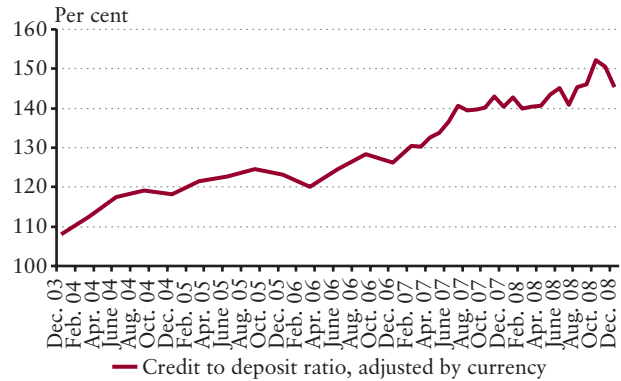
Chart 45
Bid-ask spread indices of the major domestic financial markets

(exponentially weighted moving average)



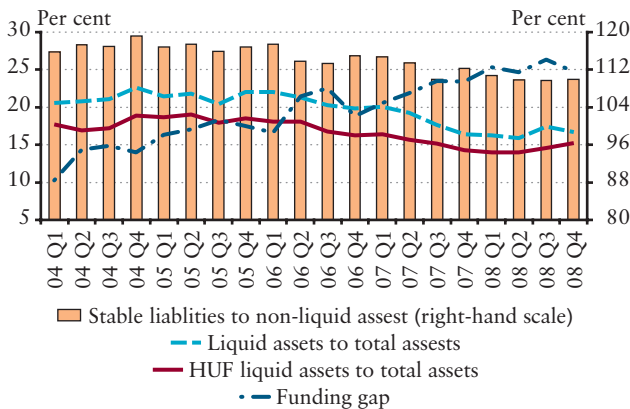
Source: MNB, Keler, Reuters, DrKW.

Chart 46
Credit to deposit ratio of the banking sector



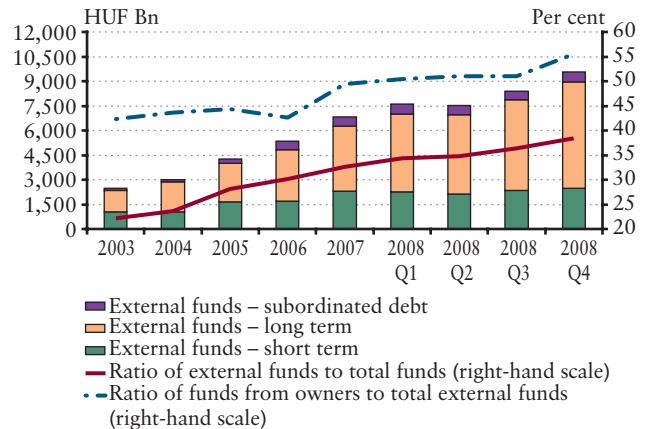
Source: MNB.

Chart 47
Liquidity ratios of the banking sector



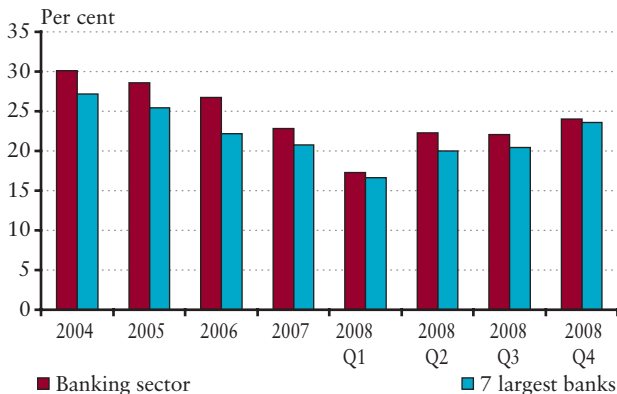
Source: MNB.

Chart 48
External funds of the banking sector



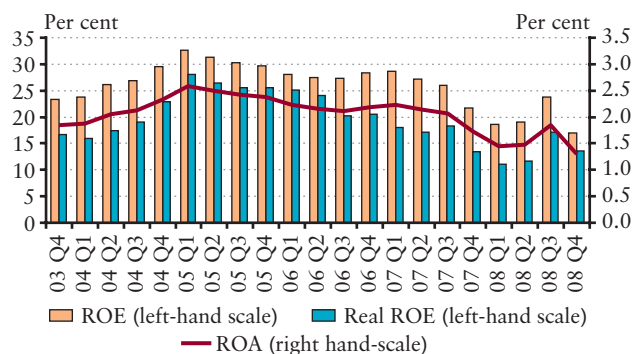
Source: MNB.

Chart 49
“One month” liquidity stress indicator of the banking sector



Source: MNB.

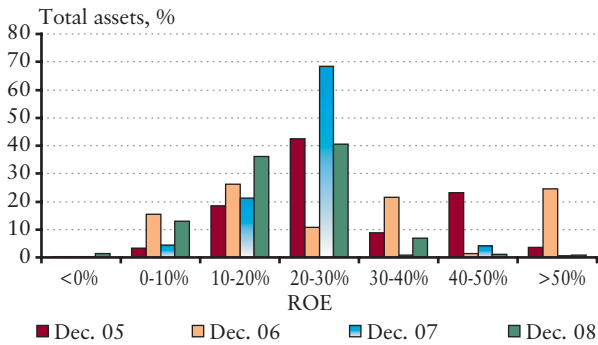
Chart 50
ROA, ROE and real ROE of the banking sector



Source: MNB.

Chart 51

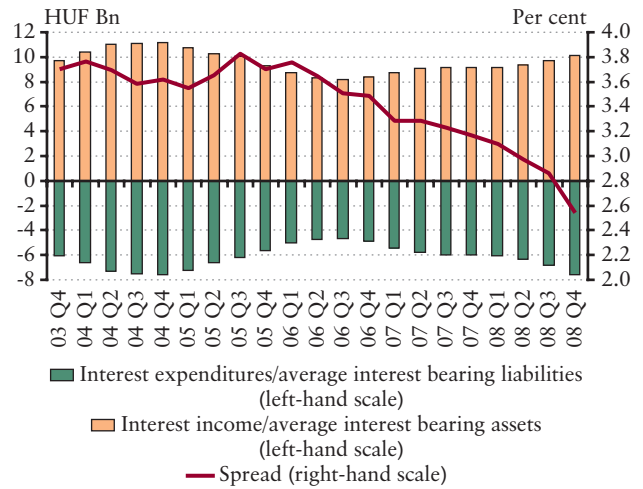
Dispersion of banks' total assets by ROE



Source: MNB.

Chart 52

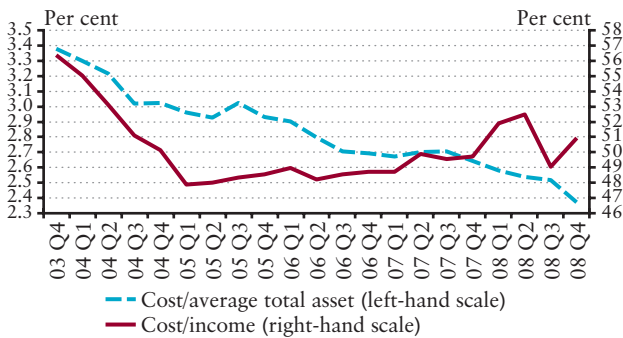
Banking sector spread and its components



Source: MNB.

Chart 53

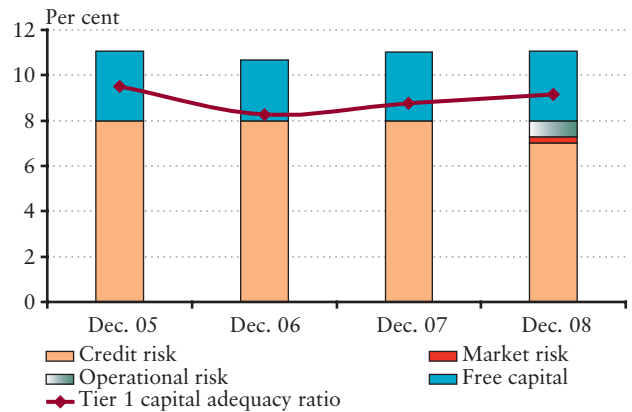
Operating efficiency indicators of the banking sector



Source: MNB.

Chart 54

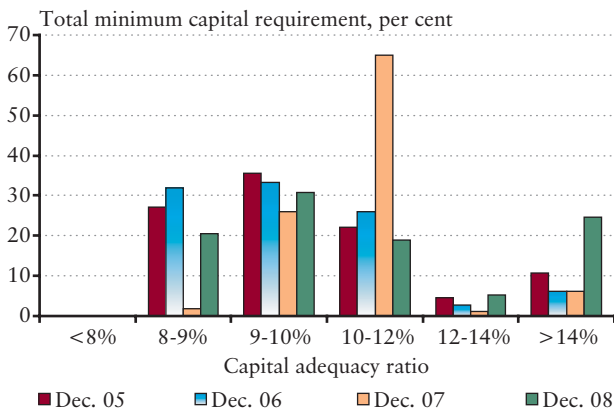
Banks' capital adequacy ratios (CAR and Tier 1 ratios)



Source: MNB.

Chart 55

Dispersion of banks' minimum capital requirement by capital adequacy ratio

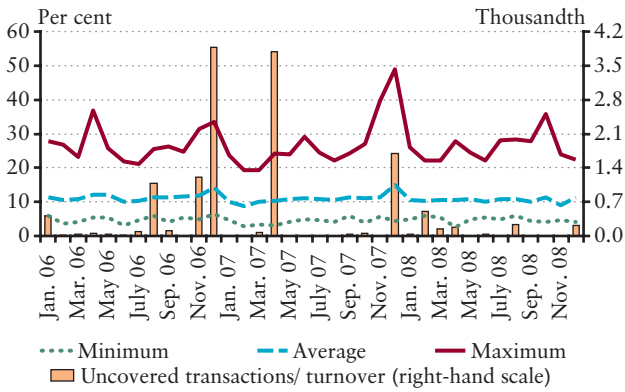


Source: MNB.

7. Risks of the payment systems

Chart 56

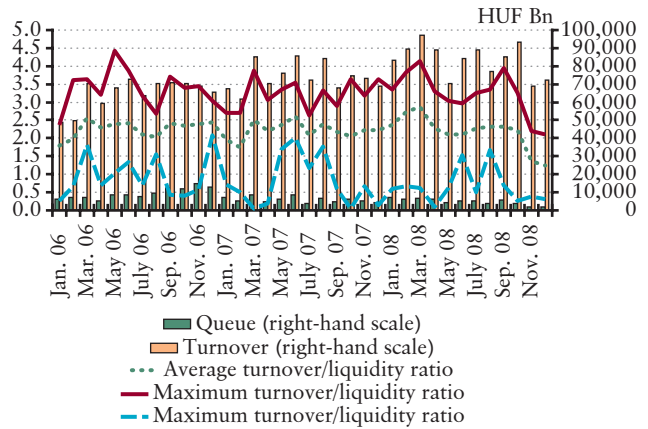
Liquidity needed for settling IBC-turnover as a percentage of available liquidity and uncovered transactions as a percentage of the turnover



Source: MNB.

Chart 57

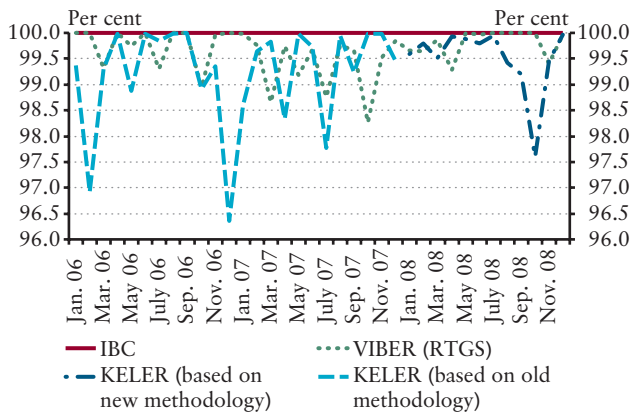
Monthly turnover/liquidity ratio (VIBER) and monthly turnover and queue statistics



Source: MNB.

Chart 58

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 5:

The sum of components of the financing does not equal to the financing requirement because of the high volume of the "Net errors and omissions" in the Balance of payments statistics.

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 10-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 20:

Based on offer home prices in Budapest.

Chart 25:

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

Chart 26:

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

Chart 39:

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 42:

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 43:

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

Chart 44:

Similarly to the liquidity index, increase in liquidity sub-indices suggests an improvement in the given dimension of liquidity.

Chart 45:

A rise in the indices represents narrowing bid-ask spread, thus an increase in the tightness and liquidity of the market.

Chart 49:

Stress scenario: we assume a bank-specific liquidity shock that may originate, for example, from a crisis of confidence.

Main assumptions:

- Banks are unable to renew their liabilities from sources other than deposits which are scheduled to expire within one month (primarily interbank liabilities).
- Customers withdraw the part of credit lines due within one month, or redeem the part of guarantees due within one month.
- Banks can obtain additional funds by using their liquid assets with only a “haircut” varying for each asset.
- Customers fail to repay their overdrafts.

The 1-month liquidity stress ratio shows the maximum possible customer deposit withdrawal within one month that could be covered by banks’ liquidity buffers, under the assumption that they can not obtain new funds from external sources (e.g. interbank market).

Chart 50:

ROE: pre-tax profit / average (equity – balance sheet profit).

ROA: pre-tax profit / average total assets.

Interim data are annualised.

Pre-tax profit: previous 12 months.

Average total assets: mean of previous 12 months.

Average (equity – balance sheet profit/ loss): 12 month moving average.

Deflator: previous year same month=100 CPI (per cent).

Chart 51:

Pre-tax profit.

Chart 52:

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 53:

Cost: previous 12 months

Income: previous 12 months

Average total asset: mean of previous 12 months

Chart 54:

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

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

Chart 57:

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

Chart 58:

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

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