REPORT ON FINANCIAL STABILITY

DECEMBER 2003

Prepared by the Financial Stability Department and Economics Department of the Magyar Nemzeti Bank

Dr. Tamás Kálmán, Managing Director and István Hamecz, Managing Director

Published by the Magyar Nemzeti Bank
Publisher in charge: Krisztina Antalffy, Head of Communication Department

8–9 Szabadság tér, Budapest 1850

www.mnb.hu

ISSN 1419-2926

Contents

OVERVIEW

Worsening domestic risk perception

Of the major regions of the global economy, the outlook for growth in Japan and the US has been improving since the summer of 2003. Euro area economic growth, however, has been modest and may not reach its potential rate before the second half of 2004.

Despite the improving global outlook, the risks to domestic macroeconomic stability have mounted in the past six months: the current account deficit has soared, exchange rate and yield volatility have increased considerably and the risk premium on forint-denominated investments has risen.

Causes of high exchange rate and yield volatility:

(i) worsening market assessment of fundamentals

(ii) expectations of slower convergence

(iii) changed exchange rate expectations

Uncertainty about the future course of convergence is the main factor responsible for the higher volatility affecting Hungarian financial markets and the deteriorating risk perception. Market perception of economic fundamentals has worsened, with the country's external equilibrium position being the primary cause of concern for market participants. As a result of market expectations of rising inflation and a slower-than-planned reduction in the fiscal deficit, the market anticipates increasing difficulties in meeting the convergence criteria, required for the adoption of the euro in 2008. The devaluation of the central parity of the forint on 4 June considerably altered the market's expectations about the future path of the exchange rate and the central parity to be adopted within ERM II, which in turn has contributed to higher volatility. As a result of the general uncertainties surrounding the outlook for the domestic economy, the vulnerability and exposure of the forint to financial contagion have increased. Compared to earlier periods, investors have reacted more sensitively to regional developments, in particular to recent events in Poland.

Turnaround in the interest rate cycle may undermine the attraction of emerging markets

While uncertainties have increased in Hungary and the Central and Eastern European region, perception of the risks facing emerging markets was extremely positive in 2003 in comparison with earlier years. All this is explained by the historically low dollar and euro yields. Nevertheless, the turnaround in the interest rate cycle in developed countries, anticipated to occur in the second half of 2004, may alter the currently stimulating environment for investing in emerging countries.

For the moment, higher volatility does not carry risk to growth; however, it may affect inflation negatively

While persistent uncertainty surrounding the forint exchange rate may slow the further pick-up in Hungarian firms' investment activity which is already underway, this effect is seen as modest as the majority of firms producing for export markets enjoy a natural hedging position due to the high import content of their output. The more than 200 basis point increase in the one-year ex ante real interest rate over the past six months does not carry risks to stability, given the return of the real interest rate from the very low levels experienced in the aftermath of the speculative attack to the 3–4% range characterising past years.

Depreciation of the exchange rate relative to 2002 has contributed to disinflation coming to a halt. Early in the summer inflation expectations began to increase. In 2004, the increase in indirect taxes will likely add nearly 2% to the general price level. In order to prevent the inflation shock caused by the one-off rise in the general price level from leading to a lasting increase in inflation expectations, it is important that economic agents remain confident regarding the continuation of disinfla-

tion. Owing to this, the uncertainty surrounding future exchange rate developments carries risks to the longer-term path of inflation.

Precondition for an upturn is a recovery in European economic activity

In the Bank's forecast, the economy passes its cyclical trough in 2003, with growth then picking up slightly in 2004. The recovery of the economies of Europe from stagnation is a prerequisite for a continued upswing, which in turn may ensure favourable conditions for export-oriented growth. Consumption is expected to slow in 2004, contributing to a shift towards more balanced growth. In the Bank's view, the corporate sector only has room for modest wage increases, due to the widening gap between wage growth and performance in recent years and real exchange rate appreciation, while the increase in indirect taxes in 2004 will reduce the purchasing power of incomes.

The services sector may face high credit risks due to the change in the composition of growth

There has been significant capacity enlargement in the services sector producing for the domestic market, in addition to the rise in household demand in the past two years. The investment rate has been high, employment has increased continuously and the rate of wage growth has been higher than in other quarters of the private sector. In these areas, a slowdown in consumption and a potential decline in housing investment may lead to excess capacity and profitability problems.

Adjustment in the general government sector reduces the high current account deficit

As a result of the demand-driven growth characteristic of the Hungarian economy in the past two years, the current account deficit will likely rise significantly in 2003. The current high external borrowing requirement is due primarily to the change in households' saving behaviour. In the past decade, as a rule households have contributed to the financing of other sectors; in 2003, however, the subsidised loan facilities and the rapid increase in income over recent years resulted in household financial savings declining to almost zero as a proportion of GDP. Partly offsetting households' deteriorating position, the low propensity of the corporate sector to invest has considerably reduced foreign borrowing. However, the corporate sector's borrowing requirement is expected to grow simultaneously with the recovery in economic activity, while households' financial position is only expected to improve slowly. A reduction in the general government borrowing requirement may be the only way to improve the external equilibrium position. A more pronounced shift towards lower risks can only be achieved if household savings increase more strongly than forecast, or, if the increase in outstanding liabilities of the household sector tapers off.

The fiscal budget approved for 2004, EU regulations which also apply to Hungary from next year, and the Government's commitment to the adoption of the euro in 2008 are all indicative of lower borrowing by general government abroad. In the Bank's forecast, the current account deficit declines by a total of 1%–1.2% of GDP in 2005–2006. However, taking into account the effect of transfers from the European Union, the external borrowing requirement is likely to fall more strongly than the decline in the current account deficit.

Adjustment by households to the stagnation in real income may exacerbate risks to the current account

Despite a favourable projection in terms of stability, the risk of a higher-than-expected external deficit is considerable. One of the underlying reasons for uncertainty is that households' reaction to a rapid fall in real income and changes in the subsidised housing loan system is unpredictable. If households regard next year's changes as temporary and smooth their consumption to a considerable extent, then the current account deficit may be higher than projected, owing to the worsening net financing capacity of the sector. A rapid recovery in the European economy may lead to a further increase in the current account deficit as a proportion of GDP, as a vigorous rise in external demand would encourage companies to implement postponed investment and rapidly replenish their reduced stocks. This, in turn, would increase the borrowing requirement of both the sector and the national economy. Finally, another risk factor is that the general government deficit may develop less favourably than expected.

Fiscal consolidation and stabilisation of exchange rate expectations are preconditions for safe current account financing

Developments in the general government borrowing requirement are critical not only in terms of the amount of the current account deficit, but also in terms of its financing. Over recent years, government securities purchases by foreign investors have played a major role in financing the current account deficit. This has been the natural consequence of the fact that it is mainly the general government that has required financing, and this does not generate either direct investment import, typical of the corporate sector, or funding in the form of corporate borrowing. If the reduction in the general government deficit falls below what has been declared and priced in by the market, confidence in the convergence process could be shaken, which may entail a further rise in risk premia.

Recently, the average duration of government securities held by non-residents has shortened. This, however, has been caused by increased demand for medium-term (2- to 4-year) rather than short-term securities.

Another risk related to non-residents' government securities investments may arise if investors decide to change the risk profile of their current investments. In the past, a large majority of government securities investors opted not to hedge their exchange rate risk. Higher exchange rate volatility has, however, led to higher demand for hedging exchange rate risks, typically through a combination of spot and swap transactions. The impact of such hedging transactions on supply and demand in the foreign currency market is identical to that of government securities sales.

Changes to the methodology of compiling the balance of payments

Effective from 2004, the methodology of compiling the balance of payments will change. In accordance with the international practice, foreign-owned enterprises' retained earnings will be recorded according to a different method. Retained earnings will be accounted for as an outflow among transfers of current income, with an equivalent value also being recorded within inflows of direct investment capital; thus they will automatically finance the higher deficit. The deficit according to the new methodology will likely be 2% higher as a percentage of GDP than stated earlier. It is important to note that this higher amount will not constitute a change in the actual equilibrium position of the Hungarian economy.

In 2003 H1, financial intermediation deepened

Bank intermediation strengthened, as the balance sheet total of the Hungarian banking sector grew rapidly, well in excess of GDP growth. The balance sheet total grew by 12.7% in 2003 H1 relative to end-2002 and by 25.6% compared to the same period a year earlier. The rise in the balance sheet total was accompanied by strong lending to households. Increased corporate spending, often perceived as a sign of economic recovery, triggered enhanced demand for loans by non-financial corporations. In addition, households' credit demand also continued to grow, which was boosted further in Q2 by an upsurge in lending brought forward as a result of the stricter conditions imposed on the housing loan subsidy scheme in June 2003. Demand for loans by non-financial corporations also continued to grow.

For cyclical reasons, increasing indebtedness in the corporate sector does not add to risks

Reflecting the brighter economic outlook, corporate sector demand for credit rose yet again. In respect of the producing sectors, lending to manufacturing gathered pace. The increase in the number of lending transactions was mainly due to a rise in short-maturity foreign currency loans typically extended for funding purchases of current assets, and, to a lesser degree, a rise in long-maturity foreign currency loans primarily for fixed investment. The fact that the improving outlook for profitability may reduce credit risks is seen as a favourable development. Banks' project lending continued to rise, which mostly meant an increase in lending for real estate development. Although, in recognition of their increased risks, banks require a 30% to 50% pre-occupancy rate in the case of office building construction prior to financing real estate development projects, the Bank continues to believe that banks' risk-taking remains too high. Following a period of constant, vigorous increases, the proportion of SME loans in the entire corporate loan portfolio temporarily declined in the period under review. In the longer term, however, increasingly sharp competi-

tion in the banking sector and saturation of the corporate market are likely to lead to a further rise in SME loans.

The increased volatility of official interest rates makes it more difficult to analyse developments in the corporate lending spread over the past one year. Given the current level of risks, the approximately 1 percentage point spread is considered low, even by international standards.

Household indebtedness has grown significantly. Continuation of this trend may result in serious risks

Despite a slowdown in household income growth rate, demand for consumer credit and housing loans continued to grow considerably. The underlying reasons for such exceptionally strong growth in indebtedness include the extension of the housing loan subsidy scheme and demand for housing loans brought forward, anticipating the introduction of stricter conditions for housing loans. Even the changes in the conditions of the housing loan subsidy scheme in June 2003 proved insufficient to slow growth in housing loans to any significant degree. Consequently, further substantial increase in the level of indebtedness could bear serious risks. Changes in the conditions of the housing loan subsidy scheme are feeding through to a lower interest margin on house loans, which in turn will lead banks to tighten their lending requirements and standards somewhat. However, even the new conditions of lending are unlikely to dampen demand markedly. Risks stemming from a price bubble are not considered to be too high, as vigorous credit expansion has not be accompanied by unrealistic growth in real estate prices. In the Bank's view, the loan-to-value ratio in larger towns represents a safe escape value. However, in regions of the country where the real estate market is not very liquid, the possibility of selling real estate collateral at a fair market value is questionable. In addition to widespread demand for housing loans and a sharp increase in non-bank loans, demand for consumer credit and other loans has also been expanding briskly. The declining interest margin on home loans is likely to lead banks to increasingly focus on consumer credit and other loans. Given the increase in average interest rates on new consumer credit and other loans, it is safe to assume that banks may want to maintain or even increase the growth in lending by relaxing their lending requirements and standards.

Foreign currency loans extended to households by leasing companies transform exchange rate risks into credit risks

The overwhelming majority of household loans extended by financial corporations owned by a bank are foreign currency based. Exchange rate volatility leads to increased credit risks. Although such increase in credit risks would not pose a risk to the banking sector, it may prove to be a challenge at certain banks.

Quality of bank portfolios improved mainly as a result of the large number of new loans

Vigorous lending has led to portfolio improvement. The ratio of non-performing loans has also fallen in the corporate segment, putting an end to an earlier trend of deterioration. The ratio of non-performing household loans has also declined over the past year. However, this improvement is likely to be temporary. If growth in the credit portfolio slows, and as the vast portfolio of new loans enters into a more mature stage of its life cycle, the rate of non-performing loans will likely increase.

Banks remained exchange rate risk averse

Fluctuation in the forint exchange rate was unprecedented in 2003. Due to the fact that banks remained exchange rate risk averse, the increased volatility of the exchange rate was not a source of considerable loss affecting them directly. However, the considerable weakening of the forint has increased banks' indirect exposure to credit risk, owing to the FX exposure of certain groups of customers. Considering that the proportion of debtors' credit portfolio affected adversely by the weakening of the forint is small within the entire portfolio, the risks attached to such a portfolio are not significant at the level of the banking sector. On the other hand, the tendency of banks to rely heavily on forward transactions conducted with companies in hedging non-residents' open forward positions is a major risk factor. In the Bank's opinion, it is questionable whether there are enough companies involved in hedge transactions, to which banks can consistently pass on the effects of sharp fluctuations in non-residents' positions.

Interest rate volatility may add to the fluctuation in banks' interest income

Money market rates and long-term yields have exhibited considerably higher volatility in 2003. This increased interest rate volatility may contribute to fluctuations in banks' interest income, due to the significant gap between the general repricing periods of assets and liabilities. A potential massive rise in government securities yields, similar to that seen in June, may cause significant losses to banks which hold large portfolios; however, the relatively short duration of the banking sector's government securities holdings may mitigate the exposure to interest rate risks.

Banks have less and less buffer to manage potential liquidity crisis situations

As in earlier years, growth in deposits was much slower relative to the very rapid rise in lending. Accordingly, the banking sector's loans-to-deposits ratio increased significantly, rising to nearly 100% by end-June. The substantial increase in the loans-to-deposits ratio over the last 18 months can be attributed mainly to the enormous rise in housing loans and households' low propensity to make deposits. Contributing to this was the increase in the corporate sector borrowing requirement in 2003. In view of the rapid increase in the loans-to-deposits ratio, the liquidity risks facing the sector are judged as increasing. The high loans-to-deposits ratio, coupled with a decline in the ratio of liquid assets, indicates that banks have increasingly less buffer to manage potential liquidity crisis situations.

Capital adequacy continues to be acceptable

The banking sector's capital adequacy ratio has deteriorated somewhat over the past 18 months, caused mainly by the increase in banks' activity exceeding that in regulatory capital. On aggregate, the sector's capital strength is adequate. This moderate deterioration of capital adequacy is expected to continue in the future.

Banks' profitability improved strongly, however, differences in terms of profitability widened

Despite a further slowdown in economic growth, the sector's profitability improved considerably, even in relation to the previous year's outstanding performance – at HUF 104 billion, after tax profits were 46% higher than in the base period. The perceptible improvement in banks' profitability over the past 18 months has mainly been driven by the wave of government-subsidised housing loans, which has earned banks additional profits through the interest margin. In addition to the vast improvement in banks' profits, the increase in differences in profits earned individually in 2003, explained by the considerable advantage of the most profitable banks over the average, also deserves mention. Owing to the rapid expansion of housing loans, net interest income grew more strongly than in the previous year, which in turn played an important role in the sector's outstanding performance; and the robust increase in fee income continued. The operating costs of the sector rose more quickly than inflation. This rise, however, was considerably lower than the increase in revenues and was slightly weaker than the growth in the balance sheet total. On the whole, the sector's cost efficiency indicators improved.

1 Macroeconomic indicators

1.1 THE GLOBAL BUSINESS CYCLE AND RISK PERCEPTION

THE GLOBAL BUSINESS CYCLE

Of the major regions of the global economy, the outlook for growth in Japan and the US has been improving since the summer, as illustrated by the exceptionally strong growth rate seen in the US economy in Q3 (above 7%), which considerably exceeded expectations. To a great extent, the brighter prospects for growth in the US economy can be attributed to improving profitability indicators in the corporate sector. Cautious optimism may be justified as the corporate sector has managed to cut excess capacity and reduce the debts that it accumulated during the previous upswing in the business cycle. This optimistic outlook is overshadowed by the fact that corporate restructuring measures have kept unemployment at high levels, and the recovery in investment activity has been subdued.

In contrast to the improvement in business activity overseas, in 2003 Europe failed to recover rapidly from the 2001–2002 economic slowdown: euro area economic activity rose by just one-half of a percentage point in 2003 H1. Although expectations related to the business cycle have been revised down since the spring, the improvement in economic prospects in the autumn months gives some grounds for optimism. The moderate growth in Europe has mainly been sustained by increases in government deficits and stockbuilding, whereas the development of private consumption, investment and net exports has been detrimental to growth. Weak demand for exports from Europe, influenced by the recent appreciation of the euro, has been the major barrier to growth, in addition to weak consumer confidence.

Table 1-1

Global and regional growth rates

	2001	2002	2003*		2004*	
			April	Sep.	April	Sep.
Global economy	2.4	3.0	3.2	3.2	4.1	4.1
USA	0.3	2.4	2.2	2.6	3.6	3.9
Euro area	1.5	0.9	1.1	0.5	2.3	1.9
CEECs	3.0	3.0	3.4	3.4	4.3	4.1

Source: IMF (2003): World Economic Outlook, April, September.
** Forecast.*

The euro area economy may not return to its potential growth rate before the second half of 2004. This prolonged period of anaemic growth exposes economic agents to considerable financial strain, and thus carries risks in terms of financial stability as well.

INTERNATIONAL RISK PERCEPTION

As a result of weak economic performance in developed countries, yields fell to extremely low levels in the euro and dollar markets by the spring of 2003. In line with the improvement in the outlook for growth in the US, there was a correction in long-term yields in the summer, but dollar and euro yields continue to be low by historical standards.

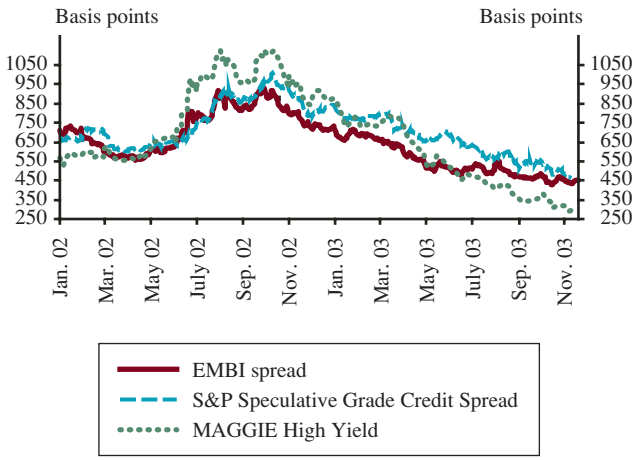
Investors' risk appetite for emerging-country assets continued to increase in 2003, with a decline in risk indicators. The credit rating of several emerging countries (for example, Brazil and Russia) has improved. Furthermore, the low yields in developed countries enhanced international investors' interest in the region.

The EMBI, a risk indicator calculated from the risk spreads on dollar-denominated bonds issued by emerging countries, has recently been at very low levels compared to earlier years. In international capital markets, there is a clear relationship between the level of yields seen in advanced economies and risk premia. Due to low dollar and euro yields, investors have been more interested in higher-yielding investments, for example, bonds and shares offering higher returns, which has exerted downward pressure on risk premia. In addition to the market of developing-country sovereign bonds, this trend has also been witnessed in the market of higher-risk corporate bonds, both in European and American markets.

A prolonged rise in dollar and euro yields could carry potential risks to stability over the longer term. A reversal in the interest rate cycle which is expected to begin in advanced economies in 2004 H2 (although this development remains uncertain at the time being), may alter the investment climate which is currently benign for emerging economies. Under such circumstances, investors will likely hold higher-risk assets only at a higher yield differential, making it more expensive

Chart 1-1

Global indicators of risk



Source: S&P, J.P.Morgan.

for emerging countries to raise finance in the capital markets.

REGIONAL RISK PERCEPTION

Despite the global improvement in the risk perception of emerging economies, however, the risk perception of Central and Eastern Europe has deteriorated. This increased regional uncertainty can mainly be ascribed to the fact that over the past few years government deficits in some EU Acceding Countries, which were generally already higher levels than the 3% threshold specified in the Maastricht convergence criterion, have continued to rise even higher. In investors' view, this has increased the uncertainties surrounding the date of meeting the convergence criteria and the commitment of governments to adopting the euro. All this, coupled with sluggish growth attributed in part to the unfavourable developments in the European business cycle, has added to the risks facing the region and the uncertainties related to exchange rates.

In the Czech Republic, the general government deficit is likely to be more than 7% of GDP in 2003, according to the government's forecast. Admittedly though, the Czech government has declared that it would not hasten the country's entry into the euro area. Consequently, the deficit forecast has not raised as much concern as in Poland and Hungary.

Poland, as Hungary, has publicly committed itself to rapid EMU entry. However, the convergence process remains fairly fragile, due to the risks represented by the government deficit. Market participants are also aware of these risks, and thus do not believe in a fast track to EMU membership. Serious doubts were raised in September in connection with the Polish government's budget plans, and the zloty depreciated massively, by more than 5%, against the euro by the end of the month. The Polish currency continued to weaken up to end-October and long-term yields rose sharply, as even the government's medium-term budget plan, published in October, was not sufficient to bolster confidence in a rapid adoption of the euro.

Greater regional risks have also been reflected in the credit ratings by international rating agencies. In June, Standard & Poor's downgraded the outlook for Poland's creditworthiness to negative. In November, it downgraded the country's zloty-denominated sovereign debt. The rating agency Fitch also changed the rating outlook for Hungary's forint and foreign currency-denominated debt to negative.

Russia has had an ambiguous effect on the risk perception of the Central and Eastern European region. While international rating agencies upgraded the country's debt in the summer, the tensions related to the oil company Yukos in October had an opposite effect.

1.2 Domestic financial markets

Since May 2003, the Hungarian financial markets have been characterised by greater volatility and uncertainty. This increased volatility was expressed primarily in forint depreciation and a massive rise in yields, mirroring the significant increase in the required risk premium on forint-denominated assets. These developments can mainly be attributed to country-specific factors, in particular uncertainties about the convergence process. Market evaluation of Hungary's macroeconomic fundamentals has deteriorated; in particular the country's external equilibrium position has raised market participants' concern. Fiscal policy and developments in inflation have raised serious doubts as to whether the country will be able to meet the convergence criteria required for the scheduled entry into the euro area in 2008. As a result of the general uncertainty surrounding domestic macroeconomic developments, investors have reacted more sensitively to regional events, particularly in Poland, as well as to macroeconomic data which do not contain relevant information for longer-term economic developments. Hence, on the whole the forint's vulnerability and its exposure to financial contagion have increased.

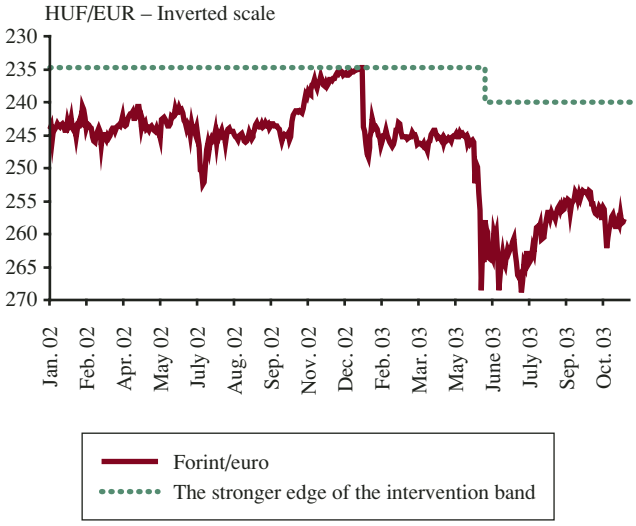
Although exchange rate expectations have in part been guided by communications by the Government and the MNB in relation to the expected date of entry into ERM II, the uncertainties surrounding future exchange rate movements continue to be considerable. Further loss of investors' confidence in the convergence process carries the greatest risk factor, which in turn may cause an additional increase in required yields on forint-denominated assets and may lead to forint depreciation and even higher volatility. The importance of foreign investors' assessment of the Hungarian economy has increased in past years, as the role of government securities purchases by non-residents in financing the current account deficit has become ever more important, given the decline in the inflow of direct investment capital.

The level of the current account deficit may cause a deterioration in the risk perception of forint-denominated assets, which in turn may raise the possibility of an exchange rate correction on the part of investors. If the reduction in the government deficit proves slower or inflation develops less favourably than expected, this may also lead to a worsening of risk assessment. Such negative developments may cause a postponement of the expected date of Hungary's entry into the euro area.

EXCHANGE RATE AND YIELD DEVELOPMENTS

Chart 1-2

HUF/EUR exchange rate



Source: MNB.

The past 18 months can be broken down into three different periods in terms of exchange rate and yields developments.

The period May–July was characterised by unusually high volatility in the exchange rate of the forint and its persistent weakness, which has not been experienced since the exchange rate band was widened in May 2001 *(see Chart 1-2)*. The forint exchange rate, which had been relatively stable in the months following the speculative attack in January, began to decline as an effect of a number of factors. Investment bank analysts had been concerned about the rising current account and government budget deficits ever since the beginning of the year. On 26 May, the MNB announced that it would end its operations conducted in the foreign exchange market in the months following the January

speculative attack.[1] The exchange rate weakened to EUR/HUF 255 by the end of the month, and then weakened further significantly in response to the Government and the Bank devaluing the central parity of the forint's intervention band slightly, by 2.26%, on 4 June. Market participants could not understand this move in terms of the Bank's previous monetary policy and objectives. The exchange rate weakened more than 5% in the following two days, and the indicators reflecting exchange rate uncertainty increased considerably *(see Chart 1-3)*.

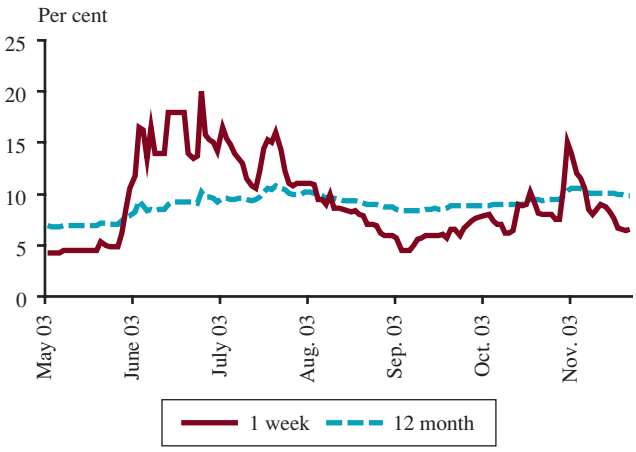
Simultaneously with this exchange rate depreciation, there was a massive rise in yields *(see Chart 1-4)*. As an attempt to offset the increase in required yields, in June the Bank raised its major policy rate in two steps by a total 300 basis points, in order to defend the currency, which resulted in a similar jump in short-term market yields. Long-term yields also rose considerably, although less strongly than short-term yields. Consequently, the yield curve, which was practically flat throughout H1, became strongly negatively sloping, as seen in earlier years.

The two months following the band shift were characterised by uncertainties surrounding the country's economic policy objectives, deterioration in the outlook and a loss of confidence in the convergence process. As a result, exchange rate and yield movements were volatile. Variations in long-term yields were closely aligned with those in the forint exchange rate in this period: in most cases, rises in yields were coupled with episodes of exchange rate weakening. All this indicates that changes in yields were predominantly shaped by changes in the exchange rate risk premium required by non-resident investors and/or changes in depreciation expectations. These two factors are difficult to distinguish between on the basis of the information available. The Reuters survey suggests that, simultaneously with the shift in the level of exchange rate expectations, they continued to follow an appreciating trend. This implies that the increase in uncertainty was the decisive factor in the rise in required yields, in addition to a rise in long-term euro yields, starting in mid-June.

The second phase which lasted from end-July until mid-October featured much more stable exchange rate movements, slow appreciation and a gradual decline in long-term yields relative to the volatile June–July period. From end-July, there was a perceptible reduction in market uncertainty, as indicated by the drop in implied volatility derived from options prices. Communications by the Bank which channelled expectations towards the 250 to 260 range must have played an important role in the reduction of the uncertainties related to the exchange rate.

Chart 1-3

Changes in implied volatilities relating to the forint exchange rate*



** Derived from option prices.*
Source: Reuters.

However, underlying the fragility of the appreciation process, the indicators of market uncertainty began rising again in September and, in October the forint began to weaken. The period since mid-October has been characterised by volatile exchange rate movements as well, with the forint losing some 2% of its value relative to end-September.

Presumably, a number of factors contributed to the interruption of the appreciation trend. First, concerns over the country's external equilibrium position and the fragility of current account deficit financing intensified following the release of the much worse-than-expected balance of payments data for August, which was also reflected in the analyses by a number of investment banks. Of the events related to the region, developments in the zloty's exchange rate must have contributed to the resumption of the increase in exchange rate uncertainty and to the weakening of the forint exchange rate.

Regional effects clearly played a dominant role in the transient exchange rate depreciation experienced after 30 October – the Hungarian and Polish government securities markets saw extraordinary rises in yields, which also affected the forint exchange rate. This yield rise mainly affected medium-term yields: three- and five-year benchmark yields soared by more than 100 basis points in one day, and yields at short end of the curve rose by 50–90 basis points. According to information available to the Bank, this rise in yields may have been driven by sales of government securities related to one-off, regional causes. Due to the market events in Russia and Poland, a few market participants were forced to

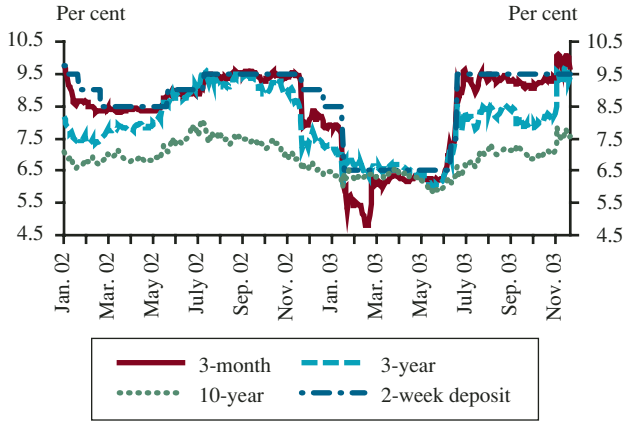
[1] Following the January 2003 speculative attack, the central bank triggered an outflow of speculative capital by purchasing forints on the FX market, thus contributing to market conditions returning to normal and improving exchange rate stability. For further details, see *Report on Financial Stability,* 2003/1.

rearrange their portfolios, which resulted in a massive increase in yields in a market characterised by low liquidity, causing others to close their positions. However, it cannot be ruled out that the longer-term increase in the risk premium on forint-denominated assets may have played a role in the rise in yields.

The Bank attempted to ease the disturbance of the market by conducting open market operations. The aim of the intervention was not to permanently influence the level of yields, but to prevent excessive rise in yields due to temporary drying up of liquidity. The intervention proved successful: yields have been falling as a trend since early November, although in mid-November they were still 50–100 basis points higher than at end-October. Taking account of the fact that a similar rise in yields overnight on such a scale has not been seen for years, a permanent liquidity risk premium component may have been built into yields by the market.

Chart 1-4

Benchmark yields on government securities and the MNB's major policy rate



Source: MNB, Debt Management Agency (DMA).

EXPECTATIONS RELATED TO EMU ENTRY

Since April the Reuters poll has indicated a clear postponement of the expected date of EMU entry. Uncertainties surrounding the course of economic policy in the wake of the band shift and next year's budget plans contributed to this development *(see Chart 1-5)*. Whereas in April more than half of the respondents indicated 2008 as the most probable date, in November most analysts considered 2009 as the most likely date of EMU entry. Hence, analysts do not believe that the convergence criteria can be met on the appropriate time, despite the Government and the Bank both having specified 2008 as the expected year of entry into EMU.

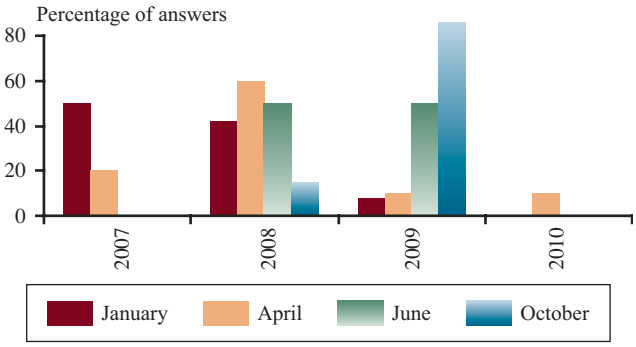
While analysts see little likelihood of 2008 as the year of adopting the euro, the orientation effect of communications by the Government and the Bank can be demonstrated in the expectations related to entry into ERM II. Most analysts expect Hungary to enter ERM II in 2004-2005, in line with the timetable specified by the Government. Expectations of the central parity of the forint have been fluctuating between HUF/EUR 250–260 since August. In August, the Monetary Council specified this range as supporting both price stability and competitiveness.

REAL INTEREST RATES

Chart 1-5

Distribution of most likely dates of EMU entry

(Reuters poll)

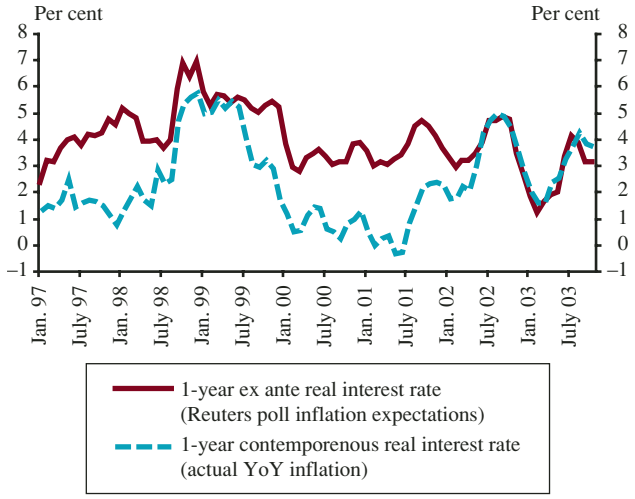


Source: Reuters.

In response to the nearly 300-basis-point rise in yields since May, real interest rates have increased, although much more modestly than nominal rates, given the upward shift in inflation expectations. The one-year ex ante real interest rate has risen by more than 200 basis points in the past six months *(see Chart 1-6)*. In the Bank's view, this does not carry a risk to stability, as the real interest rate has returned from the very low levels seen in the aftermath of the speculative attack to the 3%–4% range characteristic of recent years.

Chart 1-6

One-year real interest rates



Source: MNB, Reuters.

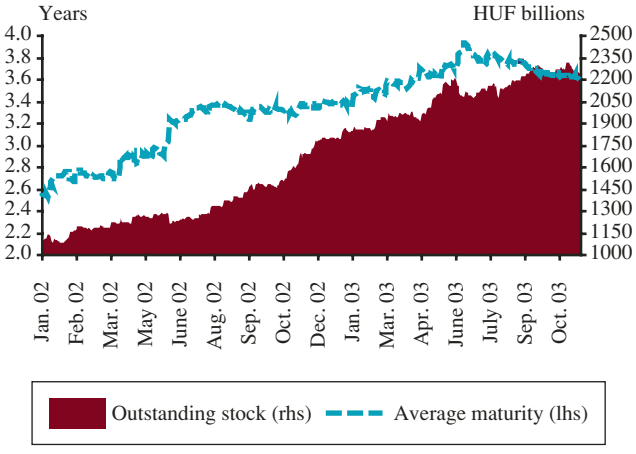
NON-RESIDENTS' GOVERNMENT SECURITIES PURCHASES

Purchases of government debt securities by non-residents have played a dominant role in current account deficit financing in the past 1–2 years. Foreign investors' demand for Hungarian government securities and developments in the factors shaping such demand are thus of utmost importance from the perspective of financial stability.

Since May 2003, non-resident holdings of government paper increased substantially, by some HUF 250 billion, although this represented a much slower growth rate compared to earlier years *(see Chart 1-7)*. Holdings were volatile in the period under review: there were several episodes of sell-offs. The first wave of sales may have been related to the confidence crisis following the band shift, when existing holdings declined by around HUF 100 billion, although only temporarily. Sales of government securities on 30–31 October resulted in a much smaller drop of HUF 40 billion in holdings, which, however, was accompanied by an enormous rise in yields.

Chart 1-7

Non-resident holdings and average maturity of government securities



Source: DMA.

Considering the government securities market developments of the past six months, the question can be raised as to what extent this form of portfolio investments is a stable source of deficit financing, and whether this implies speculative inflows which could entail massive withdrawals of capital in the event of a change in foreign investors' demand for government securities. Below is an analysis, carried out on the basis of foreign investors' behaviour and the maturity profile of non-resident holdings of government securities, of the risks a sudden change in foreign investors' demand for government securities may entail for stability.

Non-residents currently hold 38% of the total stock of government securities. This high proportion and the rapid increase in non-residents' holdings raise the question of whether there may be a critical level, in excess of which a decline in foreign demand can be presumed. International experience, on the other hand, seem to indicate that non-residents' share of forint bonds is not exceptionally high, and thus the current ratio should not represent a barrier to growth in its own right.

In past years, the increase in holdings of government securities has only been interrupted in cases when the economic policy credibility has been shaken, and expectations of the likely continuation of the convergence process have deteriorated considerably (for example, following the band shift in June 2003). Based on the experience of past years, changes in expectations related to monetary policy over the short term and in investors' risk appetite influence demand for government securities to a much smaller extent. In the Bank's view, therefore, the drying-up of foreign demand for forint-denominated government paper can be expected to be of longer duration if investors' confidence in the convergence declines considerably, which in turn may lead to a significant, lasting increase in the risk premium.

Due to the size limits, large amounts of government paper can only be sold in the market with a considerable impact on prices – hence, there is little likelihood of a sudden reduction in holdings in the event of a confidence shock. However, large transactions individually could lead to a significant change in yields, due to the relatively low liquidity, causing unjustified yield volatility.

These liquidity considerations may have played a role in the strong rise in yields at end-October, as outstanding holdings only fell by HUF 40 billion relative to the end of October. There are, however, uncertainties in respect of the extent to which foreign investors' gloomier expectations related to Hungary's economic conditions played a role in the sell-off. Consequently, whether a lasting decline in demand should be expected in the future remains to be seen.

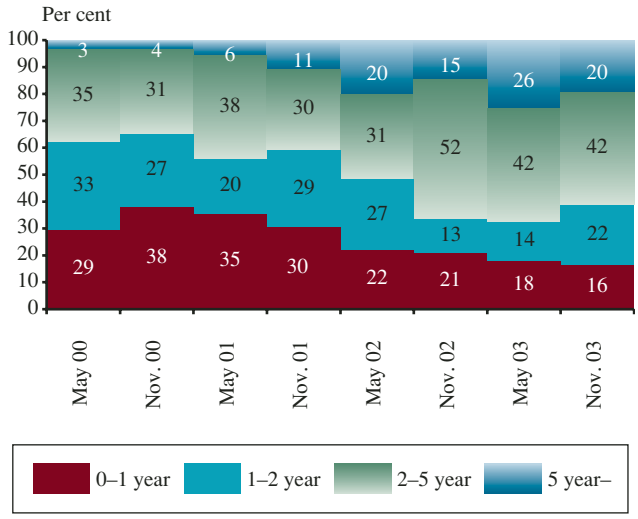
In past years, foreign investors usually carried out government bond purchases without hedging exchange rate risk, consequently taking an exchange rate position as well as an interest rate position. However, it should be taken into account that investors can reduce their exchange rate positions using swaps, without actually selling government securities.[2] This happened in June, at the time of the confidence crisis following the band shift, when there was an increase

[2] For details, see Csávás–Kóczán: "Development of the derivative HUF market and its impacts on financial stability" in: *Report on Financial Stability*, 2003/2.

in outstanding swap contracts, simultaneously with a decline in non-resident holdings of Hungarian government securities. The increase in outstanding swaps suggests that, due to the increased exchange rate uncertainty, some investors reduced their exposure to exchange rate risks by concluding swaps, instead of selling government paper. In respect of supply and demand in the foreign exchange market, this strategy is equivalent to selling government securities. Reducing exposure to exchange rate risks in this manner and financing government securities purchases using swaps, however, is an expensive method, as the net return on government paper is offset by the implied return of the swap, which in turn is paid by the buyer. Any loss or gain derives from the different durations on the assets and liabilities sides in the event of a shift in the yield curve, given that swaps are generally concluded for a short term. The decline in outstanding swaps in July–August, for example, can be ascribed to the fact that financing by swaps (i.e. borrowing in forints) became considerably more expensive as a consequence of the official interest rate increases.

Chart 1-8

Maturity profile of non-residents' government securities holdings

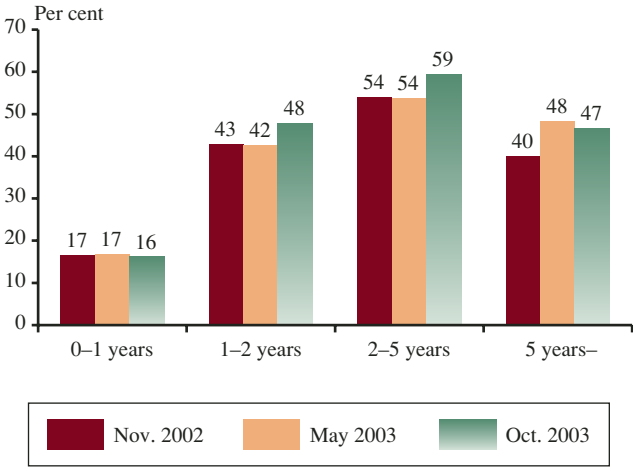


Source: DMA.

In respect of exposure to fluctuations in capital flows, the maturity profile of non-resident holdings of government securities contains important information. The usual target of speculation on short-term, high interest rate differentials or exchange rate changes is the market short-dated paper. However, only 16% of non-resident investors' government securities holdings are in short maturities and, moreover, such paper as a proportion of total holdings has clearly been on a downward trend in recent years *(see Chart 1-8)*. Whereas foreign investors hold 40–60% of outstanding long-term Hungarian government securities, their share of the market of short-dated paper is less than 20% *(see Chart 1-9)*. This ratio is even smaller in the case of discount treasury bills originally purchased as short-term investments. Here, non-resident holdings have never even reached 10%. From this it can be inferred that the vast majority of foreign investors participating in the Hungarian government securities market hold forint-denominated government paper for the longer term, maintaining their confidence in the convergence process, rather than for the purposes of short-term speculation.

Chart 1-9

Non-residents' share of the government securities market in the various maturity brackets



Source: DMA.

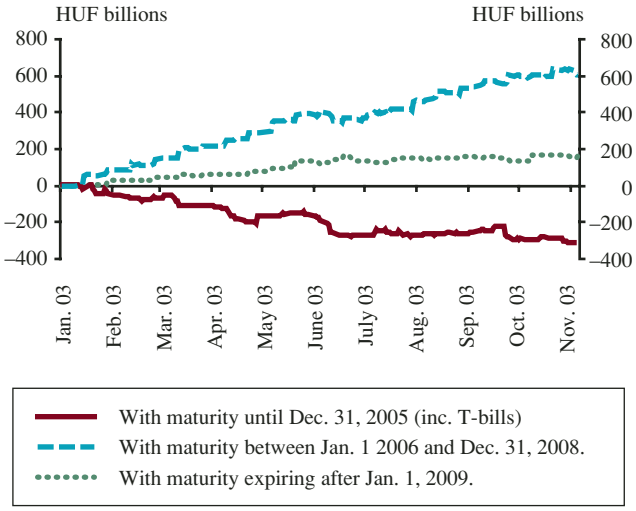
Nonetheless, the upward trend in the duration of non-resident holdings of government paper seen since 2001 broke off in June, with the indicator falling from 3.9 years at end-May to 3.6 years at end-October *(see Chart 1-10)*. Looking at cumulative changes in existing holdings of non-residents calculated from end-May, however, it was not the increase in demand for short-dated paper but rather for medium-term paper (2 to 4 years) that caused the duration to shorten, which is not an unfavourable development from a stability perspective.

EQUITIES MARKET

In the past six months, prices have remained on an upward trend which started in the spring of 2003, interrupted by small, transient declines. The major stock indices have risen by 15%–30% since May *(see Chart 1-11)*. This increase in market optimism is due mainly to the improvement in the outlook for global economic activity, and firms' rising profitability in particular, as well as to corporate restructuring contributing to more efficient operations. Supporting the demand for shares was the rise in long-term yields, which could also be related to improving economic prospects.

Chart 1-10

Changes in government securities holdings according to maturity between January–November

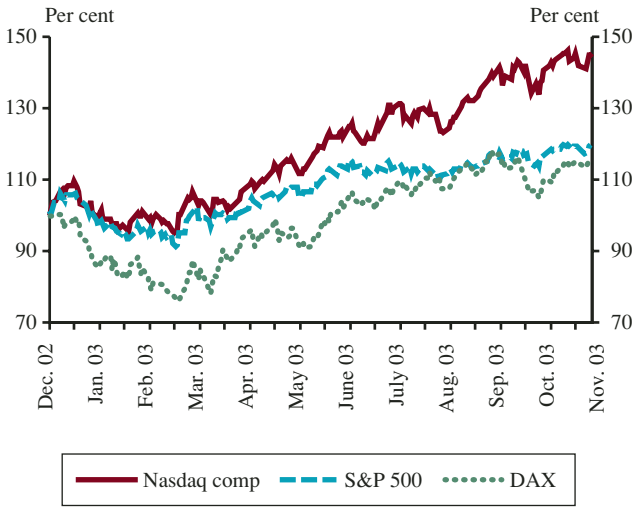


Source: DMA

Chart 1-11

Major stock exchange indices

(31 December 2002 = 100%)

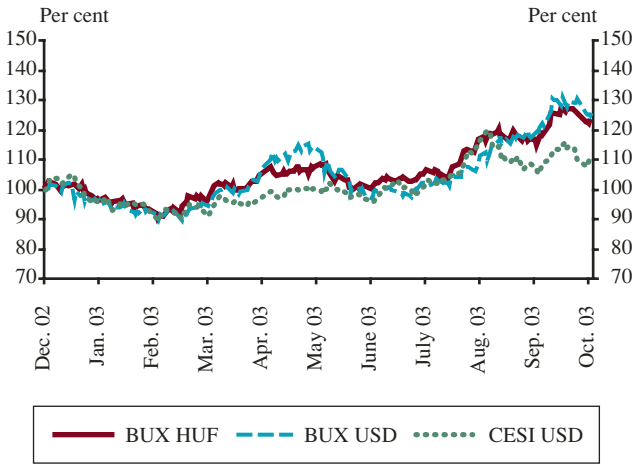


Source: Reuters.

The CESI stock index for the Central and Eastern European region broadly followed international trends *(see Chart 1-12)*. However, at end-October, following the scandal at the Russian oil firm Yukos, share prices in the region started to decline. The Yukos affair has no direct impact on the economies of Central and Eastern Europe. Various events in other emerging countries have had an increasingly less significant impact on the risk perception of the EU Acceding Countries in past years. Rather, the regional uncertainty characterising Central and Eastern Europe shows that, due to the general uncertainty surrounding the region, investors have become more sensitive to information which do not directly affect the Acceding Countries.

Chart 1-12

Central and Eastern European stock exchange indices *(31 December 2000 = 100%)*



Source: Reuters.

The BUX rose by 17% to the end of October. This was broadly in line with the rise in the major international indices. However, developments in the indicator show a different time pattern, due to country-specific factors. In June, the BUX weakened by more than 5%, in contrast to the international trend, reflecting the uncertainties related to economic policy and the convergence process which emerged in the aftermath of the band shift. Simultaneously uncertainty subsided, the Hungarian stock index resumed rising in July. Similarly to the CESI, the BUX also declined in the wake of the regional uncertainties, although by less.

Stock market activity increased considerably in H1, particularly in Q2. At HUF 8.5 billion, daily average turnover was high relative to previous years.

1.3 Growth and inflation

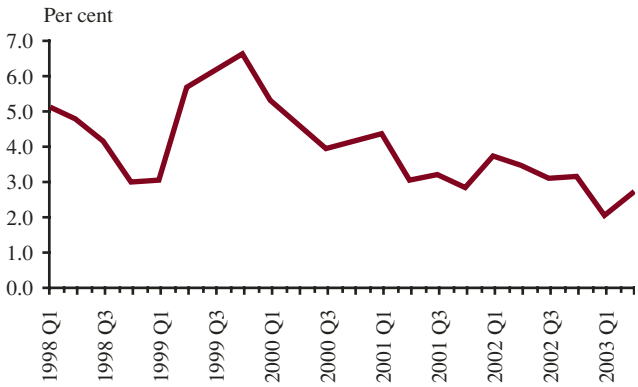
PROSPECTS FOR GROWTH

The rate of GDP growth has declined gradually in recent years in Hungary, with economic growth dropping to 2.5% in 2003 H1 *(see Chart 1-13)*. From a stability perspective, this longer period of decelerating economic growth entails risks, as the unfavourable development of business activity influences corporate sector profits, firms' prospects and, indirectly, the financial sector providing finance for firms.

Chart 1-13

GDP growth

(Annualised quarter-on-quarter growth rates)



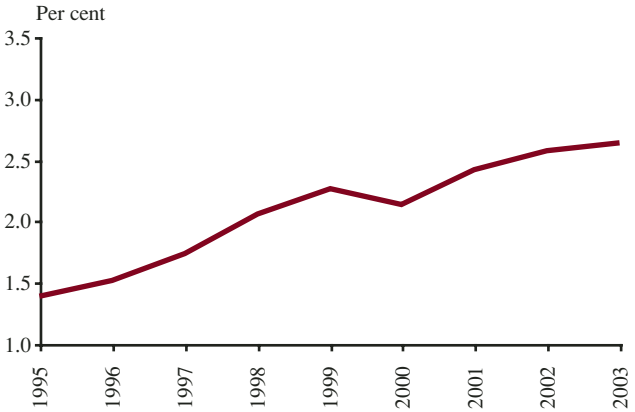
Source: CSO, MNB.

In terms of the main components of economic growth, the slowdown in exports was principal factor behind the fall in GDP growth, in line with languid European business activity. Whereas import growth has remained uninterrupted since 2001, due to strong domestic demand, export growth has fallen by more than 6 percentage points. Consequently, net exports, which has become strongly negative, detracted from economic growth in 2003 H1.

According to the latest data, the Hungarian economy passed its cyclical trough in 2003 H1, and a modest recovery is expected for the period ahead, in line with the recovery in economic activity in the euro area. As a small, open economy, Hungary conducts the majority of its foreign trade with members states of the euro area, thus events in Europe have a profound impact on economic cycles. Nevertheless, in past years the behaviour of economic agents and the very robust increase in domestic demand have diverted the path of the economy from that justified by the external economic environment.

Chart 1-14

Hungary's market share in the EU*



** Share in total external import of the EU.*
Source: MNB calculations based on Eurostat.

Hungarian export dynamics has closely followed the business cycle of the country's trading partners. Import volume of Hungary's trading partners had been decreasing since the end of 2000 and will likely only reach the 2000 level at the end of 2003. Despite the unfavourable business climate the Hungarian economy was able to continuously increase its market share in the EU, following a temporary decline in 2000 *(see Chart 1-14)*. Although this trend was broken in 2003 Q1, it was soon corrected: for the whole year of 2003 the market share of Hungarian companies will increase further in the EU.

The stimulation of domestic demand over the last two years, closely related to the parliamentary cycle, has mitigated the risks arising from the weakness of the European economy, as it has contributed to sustaining economic growth and diminished the fluctuations of the Hungarian economic cycle. However, such a composition of economic growth cannot be sustained over the

Table 1-2

Annual growth rate of GDP and its components

(Percentage changes on a year earlier)

	Actual			Forecast**		
	2001	2002	2003 H1	2003	2004	2005
Household consumption	5.3	9.4	7.9	7.2	1.7	2.5
Household final consumption expenditure	5.7	10.5	8.7	7.9	2.3	2.6
Social transfers in kind	3.8	4.9	4.4	4.0	–1.0	2.0
Public consumption	4.9	5.0	5.7	4.0	1.5	2.0
Gross fixed capital formation	3.5	7.2	0.5	3.6	3.9	4.5
'Final domestic sales'*	4.8	8.4	6.2	6.0	2.2	2.9
Domestic absorption	1.9	5.4	6.6	6.6	2.3	3.0
Exports	8.8	3.8	2.4	3.4	7.5	8.1
Imports	6.1	6.1	7.5	8.0	6.0	7.0
GDP	**3.8**	**3.5**	**2.5**	**2.9**	**3.2**	**3.6**

* *Final domestic sales = household consumption + public consumption + gross fixed capital formation.*

** *Forecasts based on the Inflation Report (November 2003).*

longer term. Consequently, Hungarian economic policy has shifted towards a gradual reduction of the government deficit. However, the necessary contraction of domestic demand will likely have different effects in the various sectors, and these effects may have implications for stability, primarily in the case households.

According to forecasts, this unsustainable pattern of growth will be followed by very significant adjustment in 2004, affecting households in particular, which will allow for more balanced growth to unfold in the following years. Household real income increased by more than 20% in 2002–2003 period, but it will remain practically flat in 2004. The changing behaviour of the household sector, caused by the stagnation in real incomes, exposes to a number of stability risks. The sector's expectations related to its income may deteriorate further, due to unfavourable labour market developments, which in turn may add to risks. First, despite the upswing in business activity, a significant increase in private sector demand for labour is not expected, due to the recent substantial rise in real wages. Second, the announced large-scale staff reduction in the government sector has caused a negative turn in income expectations.

The strong decline in consumption growth bears significant risks, the effect of which extends beyond the household sector. One factor that may add to risks at

Table 1-3

Household consumption, savings and fixed investment *(Annualised growth rates, in percent)*

		Household real net income	Real consumption expenditure	Real value of fixed capital formation
2002	Actual/Estimate	12.3	10.5	20 – 30
2003	Forecast*	7.9	7.8	0 – 10
2004		0.8	2.3	(–10) – 0
2005		3.1	2.6	(–5) – 5

* *Forecasts based on the Inflation Report (November 2003).*

the macroeconomic level is that the services sector has embarked on a large investment programme, in the belief that consumption expenditure would grow continuously. According to forecasts, consumption growth will only slightly exceed the modest increase in household income in the coming years. The expected slow growth in consumption in 2004 raises doubts in respect of capacity expansion in the services sector, particularly if such is based on previous years' rapid consumption growth. Any increase in household sector demand for consumer credit for the purposes of consumption smoothing may add to the risks facing the financial sector, as a result of which the quality of outstanding consumer credit, accounting for an increasing share of the banking systems' balance sheet, may deteriorate significantly. In addition to new consumer credit, the repayment of existing loans may cause difficulties, given the expected stagnation in income.

In the housing market, risks may appear through numerous channels, in connection with the extremely strong rise in housing loans in recent years. The rapid rise in housing loans could still carry risks in its own right, while additional risks may also emerge. The overwhelming majority of existing debtors incurred their loan liabilities at a time when real incomes were rising rapidly. Consequently, stagnating income may become a source of risk, due to the burden of repayment. This is further aggravated by the partial repeal of tax preferences linked with housing loans. In addition to these factors, the deterioration in income expectations may slow the appearance of new demand in the housing market.

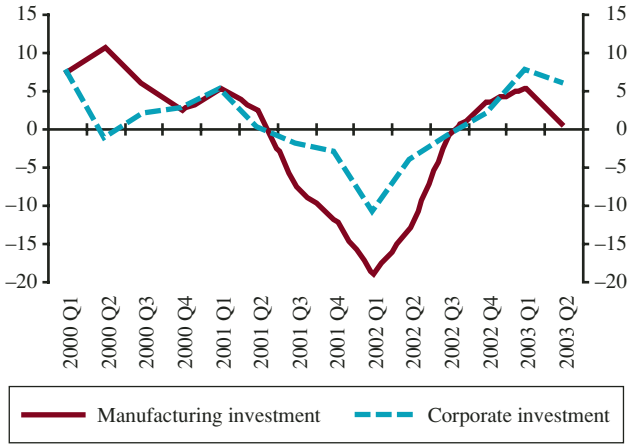
The banking sector is not directly affected by a potential default in the repayment of existing housing loans, as, very prudently by international comparison, mortgage loans account for only 60%–70% of the value of the property. Nonetheless, if a substantial number of debtors were unable to continue servicing their debts amid deteriorating income conditions, and the homes of those in default were to be sold en masse, this would entail significant social costs. The tightening of PIT preferences as a result of government measures further reduces the disposable income of households affected.

In the case of the average loan (HUF 6.5 million) and an income above HUF 4 million, the abolition of the tax incentive, on an accruals basis, equals the effect of an approximately 5-7% hike in interest rates. This tightening does not only affect new loans, but also adds to the burdens of those who borrowed in earlier years.

A change in demand in the housing market may lead to increased volatility of house prices, as supply is extremely inflexible over the short term, due to the time requirement of construction. If, as a consequence of stagnating income and the unfavourable outlook for the labour market, income expectations fall considerably and households markedly reduce their housing investment and thus demand for housing loans out of caution, then this may cause increased volatility of house prices, on the one hand. Falling demand may cause difficulties for investors, adding to the risks facing their financing institutions, on the other hand.

Chart 1-15

Corporate investment



Source: CSO.

In terms of the structure of corporate investment, one can see that the growth rate of corporate investment at the aggregate level has exceeded manufacturing investment. The gap in growth rates can be attributed to the strong investment activity of market service providers based on domestic demand.

In the corporate sector, the prospects for external economic activity are a source of uncertainty for manufacturing investment, in addition to the risks facing market service providers caused by the change in household consumption. The economic outlook for manufacturing firms producing mainly for export has improved recently, and capacity utilisation and the ratio of firms judging their capacity as low relative to future orders for production have both increased. Taking into account that these firms have based their investment programmes on a rapid upswing in economic performance in the euro area, a slow recovery in export markets may cause strains on the financing of firms.

Overall, in the Bank's forecast the economy passes its cyclical trough in 2003, with growth then gaining pace in 2004. The economy may also see a shift toward a healthier structure, due to the very strong slowdown in household consumption growth and the anticipated rise in corporate investment, which will allow for more balanced economic growth in the years ahead.

The anticipated changes in households' consumption and savings behaviour may be major sources of risks to macroeconomic stability. A slower-than-expected recovery in the euro area economy, which in turn may cause corporate sector profitability to improve more slowly, represents another possible source of risk.

INFLATION

Since the beginning of 2003, inflation has remained below 5% and core inflation has continued to decline *(see Chart 1-16)*. But despite this year's favourable results in brining inflation down, the general price level will pick up considerably in 2004 as a one-off impact of the increases in indirect taxes, which adds to uncertainties. Rising inflation carries the risk that inflation may

Table 1-4

Fixed investment *(Annual percentage changes)*

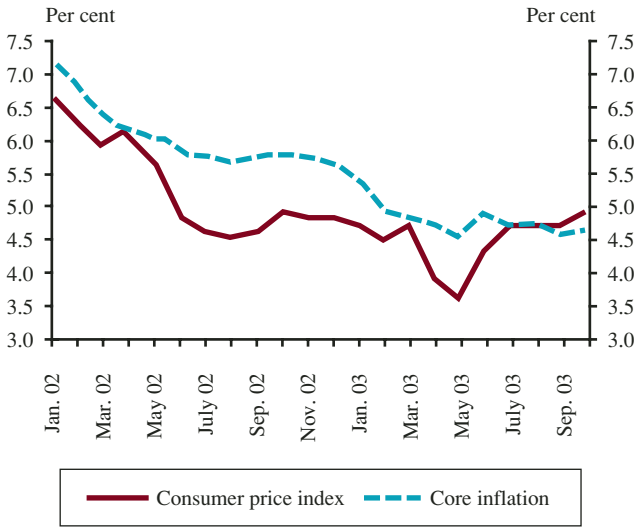
	Weights %	2001	2002	2003	2004	2005
		Estimates		Forecast**		
Corporate sector	57	1.0	(–2.1)	2 – 6	3 – 7	4 – 8
General government*	19	(–6.9)	29.5	2 – 5	0 – 8	0 – 6
Households	24	21.4	18	0 – 5	(–5) – 2	(–5) – 0
Whole-economy fixed investment	**100**	**3.2**	**7.2**	**2.0 – 4.0**	**2.0 – 6.0**	**2.5 – 6.5**

Investment data which may differ from those on gross fixed capital formation.
** Government spending on motorway construction is included in general government data.*
*** Forecasts based on the Inflation Report (November 2003).*

Chart 1-16

CPI and core inflation

(Percentage changes on a year earlier)

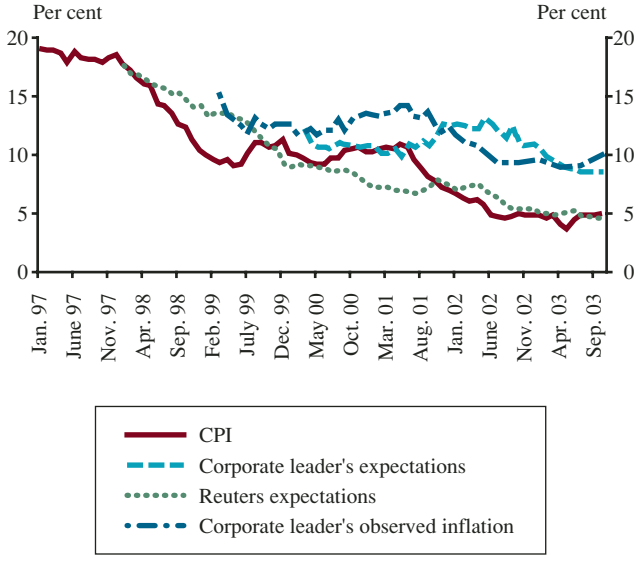


Source: CSO.

become more volatile and that the uncertainties surrounding inflation may increase. Evidence from surveys of corporate managers conducted by Reuters and TÁRKI shows that, although one-year ex ante inflation expectations (standard deviation of expectations) has increased, the uncertainty surrounding the expectations has not exceeded the standard level, despite the inflation shock anticipated for 2004. This suggests that the expected rise in inflation was derived from factors that could be calculated with relative ease.

Chart 1-17

Actual inflation and expected inflation rate for 12 months ahead



Source: CSO, Reuters, TÁRKI.

Despite market analysts' aptitude for anticipating inflation developments, in the last two years actual inflation has been lower than their forecasts looking 12 months ahead. The margin of error (1–2%), however, was so narrow that we cannot consider any surprise disinflation as having implications for stability *(see Chart 1-17)*.

In respect of inflation expectations, the fact that corporate managers' inflation expectations have persistently and significantly remained above actual inflation in the years since the widening of the intervention band carries risks to stability. Nevertheless, corporate managers' expectations have been consistent with their observation of inflation, as the difference between expected and observed inflation is less significant.

The reaction of corporate pricing behaviour to the increase in VAT may be an additional source of risk to inflation, as this changes the information content of prices in market economies. This issue is relevant for firms which produce goods that will be affected by the tax increase. Assuming that their costs rise in line with inflation, these firms practically face two opportunities. First, they may increase producer prices, in line with inflation. However, tax increases will add to the consumer prices, with an ultimate increase in real prices of goods, which translates into lower sales and profits. In this manner, firms risk pricing themselves out of the market. If, however, firms raise producer prices by less than the rate of inflation, then the real prices of goods will not increase excessively, despite the tax increases, and thus the tax increases will have less of an impact on their sales. In this case, firms' profits will also fall, as their costs will rise more rapidly than their prices. Cost adjustment may offer a solution to the problem, an important element of which could be curtailing wage costs.

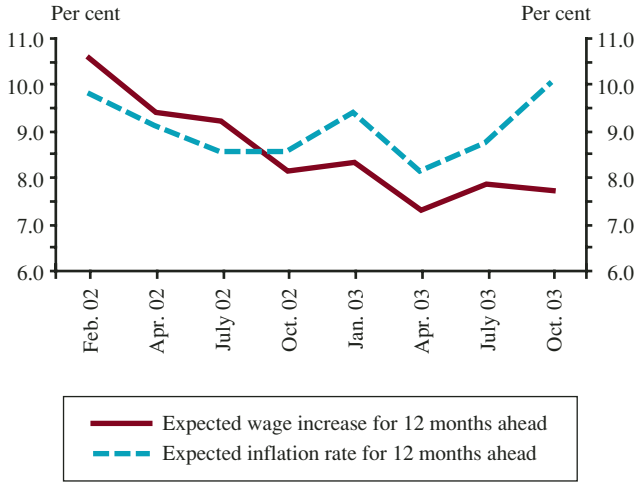
According to the survey conducted by TÁRKI, corporate managers' wage expectations for the next 12 months do not increase, unlike their inflation expectations, which is indicative of adjustment on the costs side *(see Chart 1-18)*.

In contrast with last year's practice, in October the National Interest Reconciliation Council made a proposal for gross national wage increase in 2004 rather than for an increase in real wages, which may help coordinate inflation expectations.

The inflation shock caused by the one-off jump in prices may lead to a lasting increase in inflation expectations, which carries a significant risk to longer-term inflation developments. According to the Reuters poll, analysts expect disinflation to continue in 2005 and hence do not expect inflation to get stuck *(see Chart 1-19)*. However, key labour market participants have not yet formulated their own inflation expectations for 2005. Consequently, the effect of next year's price increases on expectations continues to be uncertain.

Chart 1-18

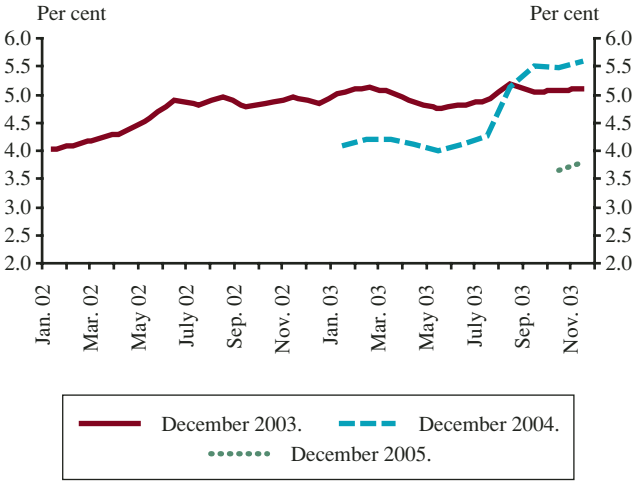
Corporate managers' inflation and wage expectations in the TÁRKI survey



Source: TÁRKI.

Chart 1-19

Inflation expectations based on the Reuters poll



Source: Reuters.

1.4 External Equilibrium

Box 1-1

Methodological changes in the balance of payments statistics

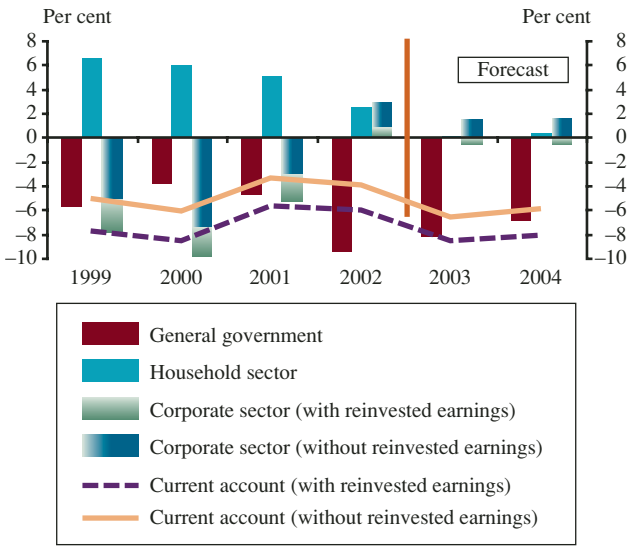
In 2003 and 2004, the methodology used for Hungarian balance of payments statistics is being changed significantly in two stages. From 2003, calculation of the trade in goods balance is based on customs data in order to align the system of national accounts with balance of payments statistics, in contrast to the earlier methodology based on the cash accounting approach, which relied on reporting by banks.

A further change will involve the recording of reinvested earnings from 2004. This affects three items and will lead to a deterioration of Hungary's international income balance in the balance of payments, while increasing the inflow of FDI and portfolio investment on the financing side. According to the Bank's calculations, the methodological change may increase the current account deficit by more than 2% of GDP. The Magyar Nemzeti Bank will release the data revised for the period between 1995–2003 for the first time in April 2004.[3]

In the course of 2002–2003, the saving/investment balance of the individual sectors of the national economy underwent major restructuring. As the currently applied method disregards reinvested earnings, the GDP-proportionate current account deficit (which was 3.9% in 2002) is expected to reach 6.4% in 2003 *(see Chart 1-20)*. If reinvested earnings are also considered, in our estimation the current account deficit (and the inflow of FDI and portfolio capital) grows by more than 2% of GDP. As a methodological change will be introduced next year, the external economic equilibrium, and the positions of the economic sectors are analysed here according to the new method, i.e. including reinvested earnings. In 2003, the current account deficit is likely to increase as a result of an expected 4% drop in the private sector's GDP-proportionate net financial savings. Thus, more foreign resources are required to finance the general government deficit.

Chart 1-20

Net lending of sectors and current account deficit as a proportion of GDP as per current and 2004 methodology



Source: MNB, MNB estimation.

Based on the Bank's projections, in coming years the current account deficit is expected to remain nominally unchanged but decrease slightly as a proportion of GDP. Nevertheless, the composition of the saving-investment position according economic sectors is expected to take a favourable turn, the net borrowing requirement of the general government to decrease and that of the corporate sector to increase.

Saving/investment balance of institutional sectors

Household lending capacity dropped to historic lows in 2003. In the first six months of the year this sector was a net borrower, and according to the balance

[3] For more details on methodology changes, see *Inflation Report* November 2003. For details on the deficiencies of the new methodology with respect to previous periods see Sisak-Fekete, Zsuzsa–Vadas, Gábor: A new approach to external balance (MNB Background Study, currently in publication).

sheets of commercial banks, this phenomenon continued in 2003 Q3. Due to the seasonal nature of savings, the central bank projects slightly positive net lending capacity.

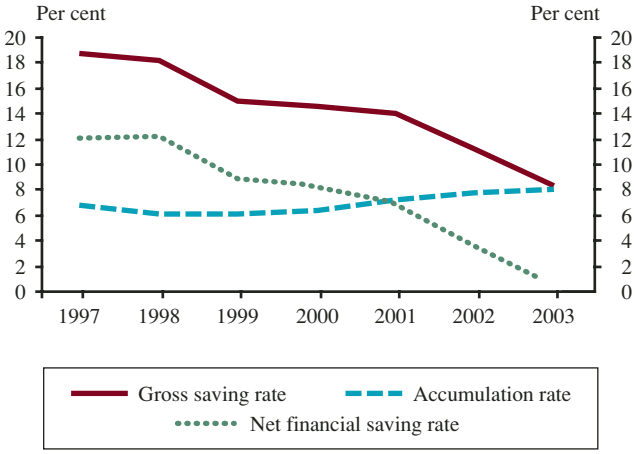
The 2003 drop in household lending capacity was due to structural as well as one-off factors. Households' financial assets rose by nearly 14% in 2003 Q1, but their debts increased much faster: the level of debt grew by approximately 70% due to a steep rise in consumer and housing loans. Growth in the debt portfolio is due in part to a development in the system of financial intermediation, because the evolution of household lending allows for the advancement and funding of consumption and capital formation expenditures originally planned to be spent at a later date. However, the introduction of state subsidies for housing loans gave sudden momentum to the structural development of financial intermediation. The upswing in household lending and the advancement of consumption and capital formation expenditures is likely to continue. As a result, households' financing capacity is expected to remain low over the medium term.

In 2003, one-off factors also led to an acceleration of the sector's long-term structural indebtedness. Although both households' real income and consumption increased by 7.8% and the gross savings rate[4] did not change on a year earlier, restructuring of savings resulted in a lower financial savings rate. The reason for this is that, by taking housing loans, households increased their housing investment at the expense of their financial savings, in order to avoid the consequences of the announced regulatory changes directed at reducing state subsidies.[5]

As a result of the 2004 public sector staff reductions, decelerating wage growth and a simultaneous rise in inflation, real growth of disposable household income will decrease considerably. As the sector is expected to continue smoothing its consumption, a drop is forecast in the gross savings rate *(see Chart 1-21)*. However, changes in the housing loan subsidy scheme are likely to dampen mortgage loans, and consequently, the expansion of household investment activity. Thus, the composition of gross savings is expected to change. Contrary to 2003, household capital formation expenditures will probably decrease, while financial savings will increase. If in adjustment to the current macroeconomic trends, households moderate their expectations regarding the future course of their available income and increase the amount of prudential savings, the rate of financial savings could increase. Based on the above factors, household financing capacity is expected to increase slightly in 2004.

Chart 1-21

Gross savings of households (and their impact on financial savings and fixed investment) as a proportion of disposable income



Source: MNB.

In 2002, the ***corporate sector*** was a net saver.[6] Thus, a sector that is characteristically a net borrower reduced the external borrowing requirement of the national economy. Owing to flagging economic growth and declining external demand, companies postponed investment projects and reduced stocks. As a result, their borrowing requirement dropped drastically. However, this should be a temporary phenomenon, as with an economic recovery investment demand will boom, and companies will have to replenish stocks again. The fact that due to an improvement in cyclical expectations, in 2003 corporate demand for fixed investments grew while their financing capacity fell is indicative of the aforementioned process. Based on the Bank's projections, in 2004 as well as over the medium term, the increase in net household savings will probably be unable to offset growth in the corporate sector's borrowing requirement. For this reason, only a declining borrowing requirement of the general government can counterbalance the resulting impact on the current account deficit.

In the Bank's estimation, the borrowing requirement of the ***general government*** may decrease by one percentage point next year. This is expected to offset the private sector's declining net financial savings, thus in 2004 the GDP-proportionate current account deficit is likely to decrease.

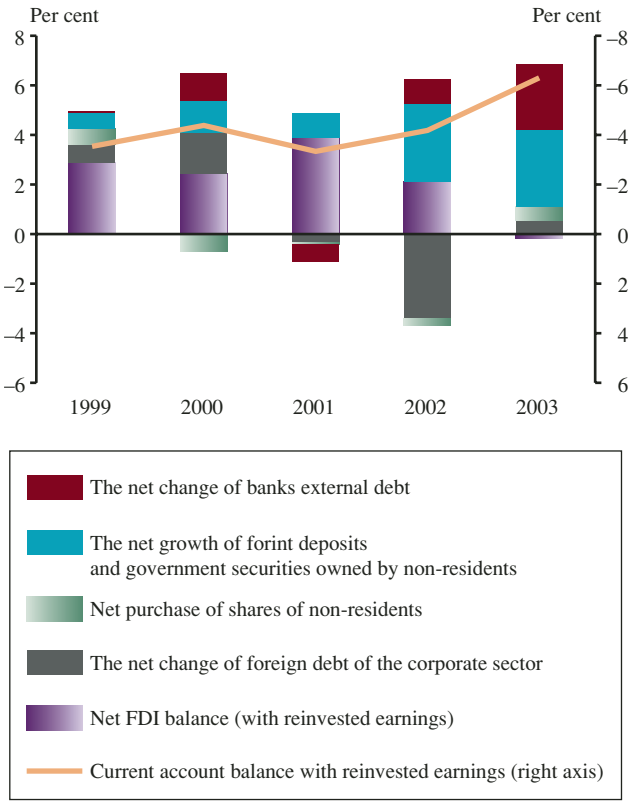
[4] Gross household savings are that part of the available income which has not been consumed, i.e. the amount used for accumulation and financial savings.
[5] As early as the first half of 2003, the government announced its intention to change the system of state subsidies. Nevertheless, the specific content of the changes remained uncertain for a longer period of time. The current regulation may affect the housing market adversely for several reasons: cuts in tax allowances increase effective interest rates charged on housing loans, and as VAT is to be imposed on construction lots, property prices will increase.
[6] Disregarding reinvested earnings, the sector is expected to remain a net lender in 2003 as well as 2004.

CURRENT ACCOUNT FINANCING

In addition to the deterioration in external equilibrium, the composition of capital flows financing the current account deficit also underwent a major change *(see Chart 1-22)*. Simultaneously with the declining investment activity, net FDI inflow dropped considerably, falling behind the data recorded in other Central and Eastern European countries. The short-fall in net FDI is funded primarily from debt-generating items, more specifically, the role of HUF-denominated government securities purchased by foreigners grew considerably. As a result of these trends, the GDP-proportionate gross external debt of the national economy is expected to rise by 5 percentage points to reach 22% of GDP by the end of 2003. For cyclical and structural reasons a further rise in this indicator is likely over the next few years.

Chart 1-22

Current account balance and structure of financing as a percentage of GDP



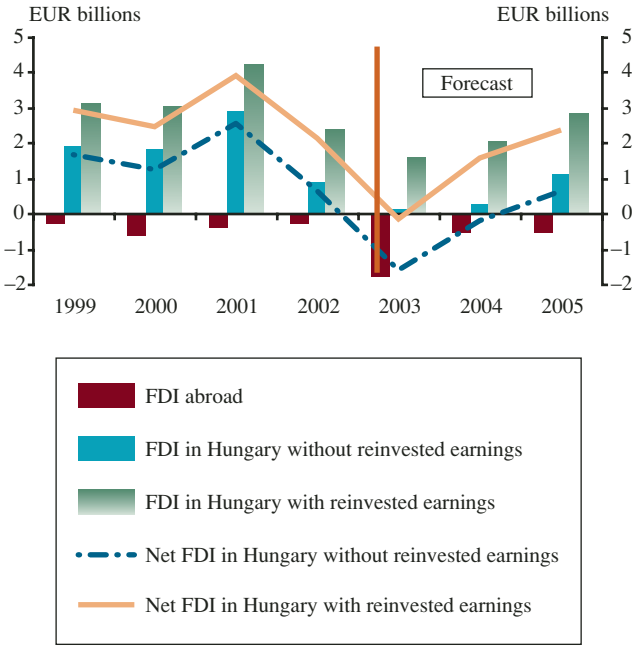
Source: MNB.

The decline in net FDI inflow is due, *inter alia*, to inter-sector restructuring of the savings-investment balance *(see Chart 1-23)*.

In contrast to previous years, the external borrowing requirement of the national economy is being generated by a consistently high borrowing requirement of the general government and not the corporate sector. To a considerable extent, the corporate sector finances its investment from FDI, which has ensured a significant amount of capital inflow in recent years. However, due to the slump in the growth of external demand and investment, over the last two years the borrowing requirement of the sector has fallen considerably, leading to a decline in the inflow of gross foreign direct investment as well. A further factor reducing net FDI inflow was the fact that the regional expansion of domestic companies generated an outflow of FDI. The general government finances its deficit primarily by issuing bonds and (on a provisional basis and to a minor extent) privatisation. Hence, the national economy's external borrowing requirement is being generated by a sector, which is unable to absorb FDI. Consequently, net FDI inflow has naturally decreased while the role of debt generating items has increased, in terms of external resources financing the current account deficit. The banking system obtains external resources required for rechannelling by taking long-term FX loans. However, the overwhelming majority of general government deficit is financed directly by non-residents: in 2002 and 2003, more than 50% of the issued net HUF-denominated bonds were purchased by non-residents.

Chart 1-23

Hungary's FDI balance



Source: MNB, MNB estimation.

Although the FDI balance is currently determined by the position of the general government and the cyclical situation, long-term structural trends are indicative of a declining significance of FDI in financing the current account deficit. Corporate capital structure depends equally on profit and expected volatility. The rising prof-

itability of small and medium-sized enterprises improves their creditworthiness, as simultaneous saturation of the corporate market forces the banking system to increasingly turn towards clients with higher risks, and as the market economy develops further, the indebtedness of SMEs may rise. Another factor increasing capital gearing may be the fact that in the event of a lower expected volatility of profits, in terms of optimum funding structure the significance of debts grows while the role of equity decreases.[7] This is because in addition to the specific features of individual companies and sectors, macroeconomic and regulatory risks also influence the expectable volatility of profits. In the case of converging countries the latter two factors taper off with development, thus the optimum corporate capital gearing[8] gradually increases. This is the reason that in developed countries the corporate sector generally involves external resources through debt generating items. Although the Hungarian corporate sector's indebtedness rose considerably in the second half of the 1990s, by international comparison it cannot be deemed as high. Therefore, a cyclical boom may result in a further rise. As a result of the this structural trend, Hungarian companies finance their FDI outflow-generating regional expansion by borrowing.

Various analyses often voice the concern that in the past two years the net FDI inflow into Hungary has fallen to a level considered extremely low even by regional standards. However, a simple regional comparison has many pitfalls. The analyses usually compare the FDI balances of the CEE counties, but ignore the fact that the methodology behind balance of payment statistics are different. In contrast to the other countries of the region, Hungary currently applies a methodology that disregards reinvested earnings in the balance of foreign direct investment, and this amounts to more than 2% of GDP.

Moreover, in regional comparisons it must be taken into consideration that in contrast to the other countries of the region, Hungary is already over the first two waves of FDI influx, namely privatisation and the relocation of foreign companies and subsidiaries. Consequently, in Hungary's case the FDI balance is determined primarily by cyclical expectations and the structural trend of indebtedness. Whereas in countries opening up at a later date, these trends are still suppressed by the inflow of capital for privatisation purposes. For this reason, it is more expedient to compare the individual countries of the region on the basis of the per capita FDI stock or the FDI balance excluding privatisation and reinvested earnings. Based on the above indicators, Hungary's situation is by no means unfavourable.

Box 1-2

Inflow of investment capital to Hungary in a regional comparison

Since the early 1990s, FDI has played in increasingly significant role in modernisation processes in CEECs. The conditions for a vast inflow of FDI were created the most rapidly in Hungary. This was facilitated by the privatisation strategies adopted by the successive governments in power after the regime change and by legal regulations, which were uniquely transparent in the region. As a result, by the mid-1990s in terms of its FDI attraction capacity, Hungary had become the most important participant in Central and Eastern Europe, on the basis of both absolute (currency unit-denominated) and relative (GDP- and population-proportionate) indicators.

The initial advantages that Hungary enjoyed disappeared in the late 1990s. The reason for this is that investor-friendly legislation was enacted in rapid succession in other countries in the region, and that in the privatisation process, the relevant governments offered a wealth of increasingly higher value to investors. Meanwhile, privatisation was drawing to a close in Hungary, with the stock of skilled labour depleted. As a result, Hungary ceded its leading position to other CEECs, first in terms of absolute figures and then in relative FDI indicators. In fact, FDI inflow into Hungary seemed to be slowing down. This was especially the case in the very first years of the 21st century, though a downturn in the global business cycle, which curtailed FDI inflow considerably, was also a major contributing factor.

This issue is all the more delicate as FDI inflow, as the most desirable financing component of the current account deficit (inasmuch as it does not add to the country's indebtedness), has carried considerable weight from the outset in Hungary. Since Hungarian firms, which have also gained financial strength over the past peri-

[7] The reason is that with more volatile income and the same debt, the probability of bankruptcy is higher and characteristically the owners' residual property left after winding up is charged with its costs. The ideal size of own equity is further increased by information asymmetry and higher bankruptcy costs (e.g. if the company has a great deal of assets that are difficult to sell, such intangible assets). Due to the above, small and medium-sized enterprises as well as rapidly growing large companies and the corporations active in high-risk sectors typically finance themselves from their own equity. This is the reason that in the 1990s, despite a highly developed financial system in the United States, the current account deficit was funded from foreign direct investment. As the IT sector runs high risks, grows fast and has a high rate of intangible assets, it had to form its own equity to meet its borrowing requirements.

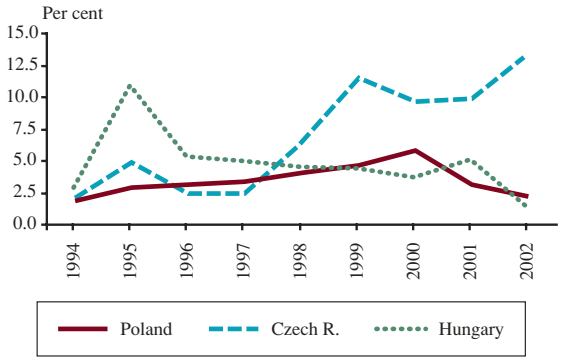
[8] See Világi, Balázs: The relationship between current account deficit and financial stability, in: *Report on Financial Stability*, 2002/2.

od, have also emerged as direct investors abroad, net FDI (the difference between internal and external FDI), which actually finances the current account deficit, has fallen sharply.

Owing to the developments that balance of payments statistics reveal, recent comparisons with other CEECs, in particular the Czech Republic and Poland, have often portrayed Hungary disadvantageously.

Chart 1-24

FDI inflow as a percentage of GDP based on balance of payments statistics



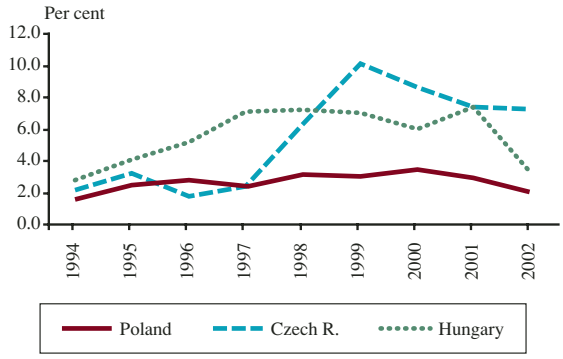
The chart shows that since 1995 Hungary has attracted a steadily declining amount of FDI as a proportion of GDP. By contrast, in Poland and especially in the Czech Republic FDI inflow has accelerated. This comparison is, however, inaccurate for reasons of content, as balance of payments statistics in Hungary do not include what is called reinvested earnings, which denotes the amount of the profit earned by the FDI in the country during any given year which is reinvested in the same country. This component has been included in the balance of payments statistics in both Czech Republic and Poland, and will also be in Hungary's statistics from 2004 (including data for the past). In the interest of the comparability of content, reinvested earnings have been estimated. Such estimates have been employed to correct FDI inflow into Hungary.

As indicated above, the countries in the region implemented privatisation at very different times; nevertheless, the amount of assets that can be sold is limited in every country. In other words, over the long run this constituent has no significance in the FDI inflow. For this reason, the Bank has attempted to estimate the share of privatisation-related FDI in these three countries. After revenues from privatisation had been calculated, these were deducted from the figures of the balance of payments statistics. In this manner, it is possible to compare the three countries in terms of long-term FDI trends, with the temporary effects stemming from the time differences in privatisation filtered out.

Compared to the balance of payments data, a significantly different picture is given of FDI inflow after this double adjustment.

Chart 1-25

Chart FDI inflow as a percentage of GDP with comparable content



As is clear from the chart, a considerable amount of the annual profit on FDI received in Hungary had been reinvested after 1995. This is to say, up to 2001 the FDI inflow remained permanently high, in excess of 6%, as a proportion of GDP and no unambiguous decline can be established. Similarly to Hungary, in the other two countries the FDI inflow as a percentage of GDP does not increase after 2000 if privatisation revenues are removed from the balance, although Czech FDI inflow may be deemed as outstanding in the region. At the same time, it cannot be denied that an extremely significant drop in Hungarian FDI inflow was seen in 2002, which continues in 2003 according to available data.

Having completed the adjustments that provide for the content-related comparability of the FDI inflow data of the countries of the region, it can be concluded that up to 2001 Hungary's FDI attraction was not impaired. An undoubtedly significant fall took place only in 2002. Although to a minor extent, such a drop can also be observed in the other two countries, and may reflect a global decline in FDI flows.

RISKS TO THE EXPECTED DEVELOPMENTS IN EXTERNAL EQUILIBRIUM

In countries where the per capita physical and human capital fall short of the corresponding figures of developed countries and the yields on such are consequently higher, a long-term current account deficit is a natural and beneficial phenomenon. If it is not excessively high, the external borrowing requirement of the corporate sector's productivity generating investment usually does not pose a risk to stability. However, Hungary's deficit adjusted for reinvested earnings is extremely high even in a regional comparison, although it does not exceed the corresponding figure recorded in 2000. Nevertheless, the sector composition of the national savings-investment balance is currently far less favourable than it was three years ago, and hence stability is more at a risk.

The current deficit of the current account and its structure will result in a rapid increase in external debt and cannot be maintained for a longer period of time. The above analysis reveals that in line with a cyclical recovery, from 2004 the corporate sector's borrowing requirement will continue to grow, and no change is expected in the household sector's position either. This means that the private sector's increasing borrowing requirement must be offset by an improvement of the general government position.

Though according to the Bank's projection the above requirements will be met over the medium term, and with the gradual decline of the GDP-proportionate current account deficit the sector structure of the external borrowing requirement will become more healthy, the risks of a higher-than-expected external deficit are significant. The most serious concern is the higher-than-expected general government deficit, as the inflexibility of the private sector position would result in a rise in the GDP-proportionate deficit of the current account balance.

Uncertainty is also high in respect of household net financial savings. Although the 2003 changes implemented in state subsidies to housing led to a drop in the sector's capital formation and a rise in its financing capacity, risks remain high. If consumption or mortgage lending (along with household investment into housing) grows in excess of the forecast rate, then the current account deficit may also be higher than projected. Little chance is seen, however, for households to become permanent net borrowers.

A rapid recovery of the European economy may also generate further increase the GDP-proportionate current account deficit. This is because a sharp rise in external demand would urge companies to implement postponed investment projects and make up for depleted stocks, which would, in turn, suddenly increase the borrowing requirement in each sector as well as in the national economy. This, in itself, would not entail a risk on stability, as foreign ownership is predominant in the Hungarian corporate sector, and investment projects finance the development of market resource allocation as well as productivity generating capacities. But as the current account deficit, closely monitored by investors in terms of vulnerability indicators, is one of the most essential factors, a deficit exceeding a certain level may increase the exchange rate regime's vulnerability and lead to a deterioration in the country's risk assessment irrespective of its reasons.

By international standards, the national economy's GDP-proportionate external debt cannot be considered conspicuously high, even if the cumulative FDI is included in the total external debt. Household and corporate indebtedness is insignificant and their exposure to FX risks is moderate. Barely one-fourth of the government deficit is denominated in foreign currency, with continuously lengthening terms, and this reduces the relevant risks of renewal. For this reason the risk of insolvency and the evolution of a debt crisis is moderate. The Hungarian bank sector's direct and indirect exposure to FX risks is also small. The loans extended to the private sector and the loan structure would prevent bank crises even in the case of a major weakening of exchange rates. An analysis of the risk factors reveals that an extensive and deepening FX crisis is moderately likely to evolve.

Macroeconomic indicators, also reflected in the current structure of capital flows, indicate that exchange rate vulnerability has grown and is manifested the increasing volatility of the prices of HUF instruments. More than 50% of the HUF-denominated government bonds financing the government deficit were purchased by non-residents trusting Hungary's entry in the EMU, and those bonds which are uncovered by swaps serve the purposes of financing the external borrowing requirement of the national economy and the foreign exchange market balance. If the general government deficit decreases more slowly than announced and than has been incorporated into prices by the markets, confidence in convergence may be undermined and purchase of HUF-denominated government securities may stop. Experiences in 2003 indicate that a loss of confidence may lead to a considerable weakening of the forint and drive up yields.

Depreciation forced by market powers or initiated by economic policy makers would render implementation of the most significant economic policy objectives impossible. In Hungary, exchange rate pass through is fast, so a weakening of the forint is expressed in prices very fast, thus nominal depreciation could improve competitiveness only temporarily, as the increasing inflation difference would soon use up the initial depreciation of real exchange rates. Although the inflation

generated by a weakening forint would improve the government balance, sticky inflation expectations and the declining credibility of the economic policy regime would significantly raise the costs of future disinflation. For these reasons, exchange-rate-based stabilisation would impede the timely performance of the inflation target and the country's entry to EMU in 2008.

Foreign exchange reserves

Chart 1-26

International reserves

Source: MNB.

Emerging and EU Acceding Countries may not rule out the possibility that the exchange rate of their national currencies may easily suffer from depreciation in the event of an epidemic crisis. This would be a case when the central bank would be forced to protect the exchange rate regime even at the expense of foreign currency reserves. If the foreign currency reserves are believed to be insufficient in a crisis situations by investors, this alone could easily undermine the credibility of the exchange rate regime. In such cases, the interest premium may increase even if it is fundamentally unfounded, and in extremely severe cases the national currency may be devalued.

The Monetary Council establishes the optimum level of international reserves several years in advance, with a view to the specific features of the exchange rate regime as well as the monetary policy objectives. When the exchange rate regime was modified in 2001, as a result of practically continuous, strong intervention at the edge of the band, reserves significantly exceeded the optimum level, and thus it became possible to reduce the stock of international reserves. As the government renewed most of its foreign exchange loans that matured in 2001 and 2002 in HUF, reserves decreased and the actual amount of reserves became consistent with the amount considered as optimum.

In order to assess the vulnerability of a given currency, investors examine numerous indicators. These usually include more reliable variables of crisis-forecast models such as volatility of reserves, or certain key economic indicators. Other indicators analyse whether the foreign exchange reserves would suffice to protect the exchange rate in the event of a particular financial shock by a simple crisis simulation. Such indicators include the reserves/monetary base, reserves/M3, the foreign active debts of the national economy expiring within a year or the reserves/monthly import indicator. Because of the significance of self-fulfilling expectations, when the Council elaborates the appropriate reserve policies, it always takes into consideration the changes in the aforementioned investor-preferred indicators in addition to the indicators adapted to the peculiarities of the Hungarian economy.

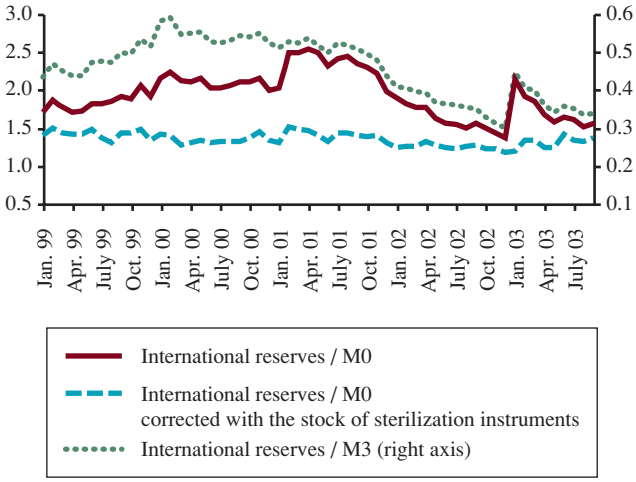
In the wake of the January speculative attack and the subsequent intervention of the central bank, the volatility of foreign exchange reserves increased considerably in 2003. At the beginning of the year the central bank purchased more than EUR 5 billion in the foreign exchange market in order to protect the exchange rate regime. This was followed by an intervention in the opposite direction, because foreign exchange demand by non-residents closing their positions would have led to an unjustified weakening of the forint.

The intervention altered the amount of optimal currency reserves, required to maintain the credibility of the exchange rate regime, and by a similar amount it changed the real level of the reserves. By selling forints in January the central bank increased foreigners' short-term and easily liquidated assets ("hot money"), therefore the amount of the required reserves increased equally. Later, when the central bank sold foreign currency, the amount of hot money circulating in the financial system also decreased by the closing of speculative positions of non-residents, resulting a parallel decrease in the optimal and the real amount of reserves.

The reserves/monetary base indicator specifies the coverage rate of the central bank money by the foreign exchange reserves. More tangible information can be obtained by expressing the indicator in terms of figures when the sterilised stock is filtered out of the monetary base *(see Chart 1-27)*. If, for example, the international reserves exceed the volume of the monetary base adjusted for the sterilised stock, theoretically the central bank has the option to introduce the institution of a "currency board" or convert to the singular use of a benchmark currency (dollarisation). Adjustment is necessary because if the central bank's main instrument is a deposit-type instrument, then during conversion the reserves must also cover the sterilised stock deposited at the central bank. If, however, the main instrument of monetary policy is loans extended to commercial

Chart 1-27

International reserves compared to various monetary aggregates



Source: MNB.

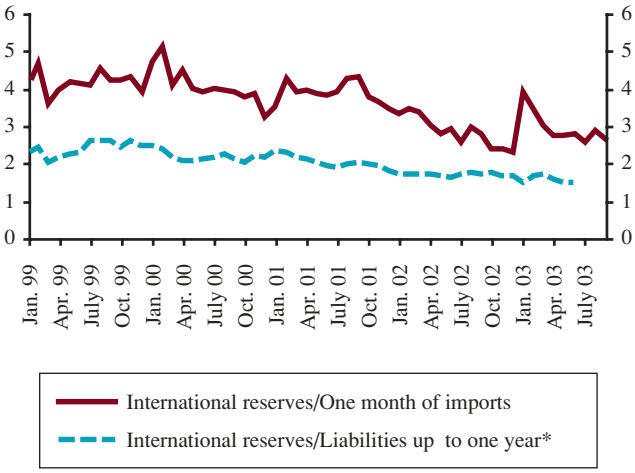
banks, then the rate of required reserves is lower than the monetary base by the amount of the credit received by commercial banks from the central bank.

The reserves/M2 or reserves/M3 indicators are also often used in different analyses to compare the levels of national reserves in particular countries. At the same time, this figure may vary greatly from country to country: its value is usually very low in more developed financial systems, whereas it is typically high in less developed countries, where the credibility of the exchange rate regime is weaker.

Since the Asian crisis, the indicator comparing the short term external debt of the national economy to the stock of foreign exchange reserves (Guidotti rule) has enjoyed increasing popularity. The indicator presumes a crisis situation where, due to an extensive liquidity shock, none of the economic participants are in a position to assume new borrowing, and gives us information on how long the FX reserves would be able to finance the repayments of external debt. Although in Hungary it is difficult to imagine that this scenario could ever come to pass because of the typically high foreign interest in the private sector, nonetheless, the central bank continues to monitor the changes in the indicator because of its inherent importance. The value of the quotient has been steadily declining over the last three years because of the conscious reduction of the reserve levels. Nevertheless, it is still in excess of the short term external debt of the national economy *(see Chart 1-28)*.

Chart 1-28

International reserves as a percentage of whole-economy short-term debt and one-month imports



** Based on balance of payments statistics and according to original maturity.*

Source: MNB.

One of the traditionally monitored indicators is the "import rule". This indicator provides information on how many times the monthly foreign exchange requirement to cover one month of a country's commodity and service imports goes into the FX reserves. Although with the development of credit and money markets, the figure has completely lost relevance in economics, it still appears in many investment bank analyses. In Hungary, the indicator has been steadily declining partly because of the reduction of superfluous reserves, and partly because of the increasing openness of the country and the dynamic growth of re-exported manufacturing imports.

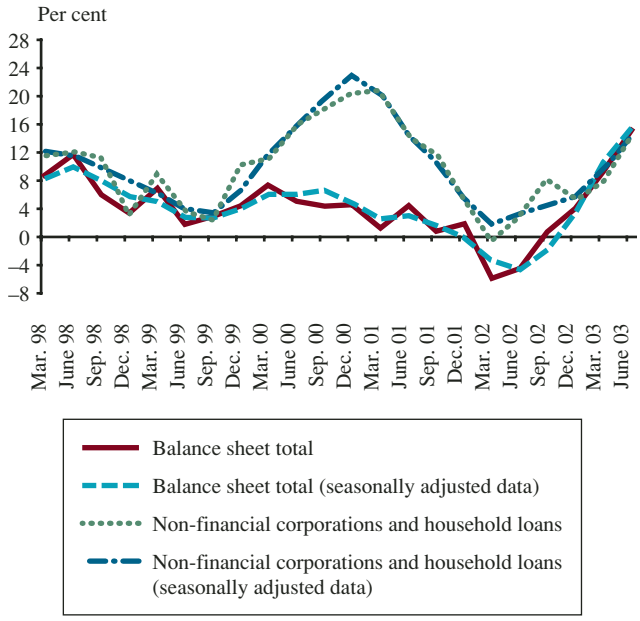
2 Stability of the banking system

INTRODUCTION

The first six months of 2003 in Hungary were characterised by deepening banking intermediation, as growth in the banking sector's balance sheet total and total lending accelerated and substantially exceeded the GDP growth rate. Over the first six months, the balance sheet total rose 12.7% (7.2% in real terms) compared to end-2002, and by 25.6% (15.1% in real terms) on the same period last year *(Chart 2-1)*.

Chart 2-1

Real growth* in balance sheet total and lending



** The GDP deflator was used for calculating real growth.*

In the first half of 2003, total domestic borrowing by households and non-financial corporations rose by 18% (12.2% in real terms), and by 24.7% over a year earlier (representing a 14.3% increase in real terms). This upsurge was borne largely by the growing demand for loans by households, which was boosted further in Q2 by an upsurge in lending brought forward as a result of the stricter conditions imposed on the housing loan subsidy scheme in June 2003. At the same time, increased corporate spending, often perceived as a sign of economic recovery, triggered stronger demand for loans by non-financial corporations, which mainly fed into the rise in foreign currency loans extended for real estate development projects, manufacturing and commercial activities. Some two-thirds of the growth in total lending to non-financial corporations stemmed from the transaction effect, with the remaining one-third stemming from revaluation following the weakening of the forint exchange rate.

Similarly, there was also a sharp increase in bank loans extended to non-banking financial firms. The first six months of 2003 saw a dramatic upswing of 35.9%, resulting in an annual growth rate of 70.3%. In addition, as a general tendency, banks continued to finance private individuals and non-financial corporations indirectly through leasing services and loans for motor vehicles offered primarily by financial enterprises within banking groups.

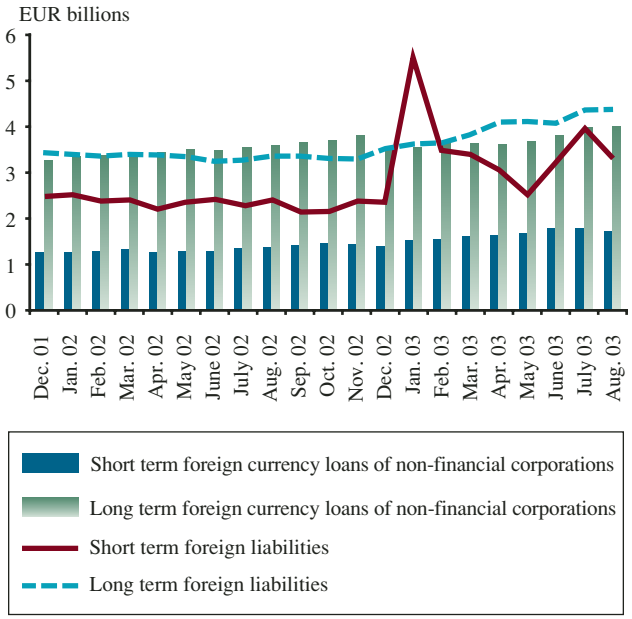
Vigorous growth in private sector lending was financed by foreign funds, the issue of bank securities, mostly mortgage bonds, and a rise in the deposits of institutional investors as well as own earnings. Within liabilities, a drop in households' propensity to save resulted in a lower ratio of household deposits; while at the same time, increased corporate spending weakened the role of non-financial corporate deposits.

It should be noted that the speculative attack in January briefly provided domestic banks with a substantial excess of short-term foreign funds. However, the vast majority of this excess liquidity was not allocated to finance growth in foreign currency loans (it was instead used in swap transactions), since, despite the sharp decline in short-term foreign funds, short-term and long-term loans for non-financial corporations continued on an upward trend in 2003 H1, after the Bank managed to ward off speculation regarding appreciation of the forint exchange rate. Banks' additional need for foreign financing is clearly indicated by the fact that in May 2003 short-term foreign funds began to rise again, accompanied with a steady rise in long-term foreign funds over the course of the first six months *(see Chart 2-2)*.

Although growth in risk-weighed balance sheet items (14.7%) was still higher than that of the balance sheet

Chart 2-2

Changes in foreign currency loans of non-financial corporations and foreign liabilities

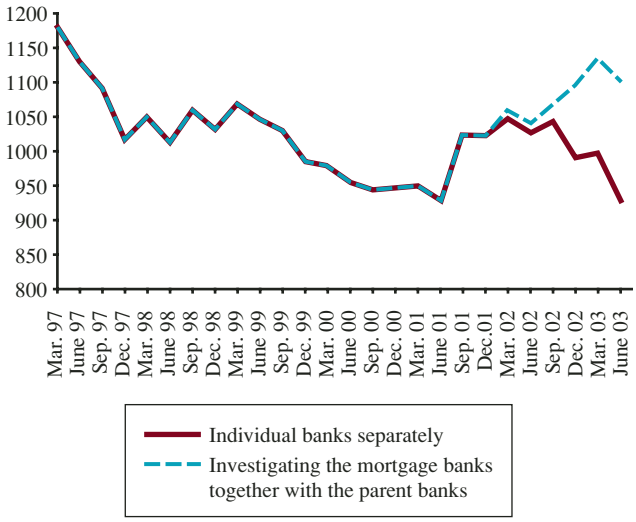


total (12.7%) in 2003 H1, the narrowing gap between these rates may be assessed as a favourable trend driven by the fact that, in contrast to previous years, higher growth in lending was financed by banks' more pronounced reliance on additional foreign liabilities, due to the diminishing possibilities for restructuring on the asset side.

Analysing the market share of the five leading banks and the Herfindhal-Hirschman Index (HHI), the Bank concludes that concentration in the banking system continued to decline in 2003 H1. Yet this picture may be slightly misleading: if one regards mortgage banks as part of the corresponding parent bank, it becomes clear that market concentration is in effect stagnating *(see Chart 2-3)*.

Chart 2-3

Balance sheet concentration in the banking system *[Herfindhal-Hirschman Index (HHI)]*



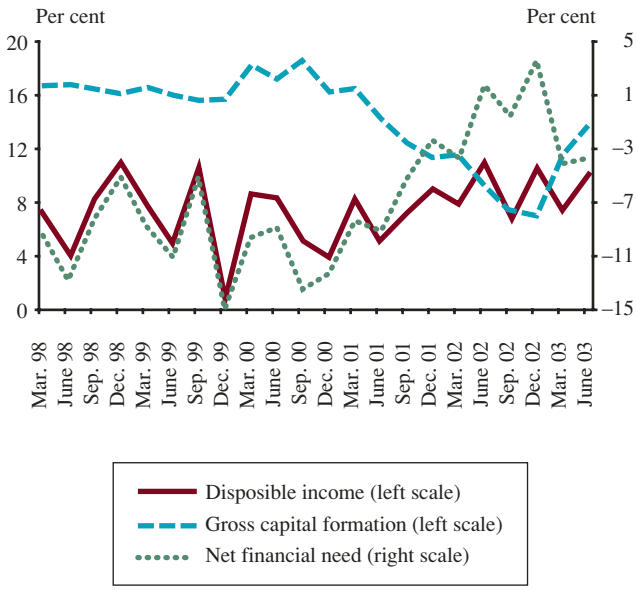
2.1 Risks associated with non-financial corporations

INCOME POSITION

Last year, non-financial corporations were net lenders. By contrast, in the first half of 2003, which was characterised by a brighter economic outlook, they once again became net borrowers. As growth in the sector's outstanding debts was stronger than that in financial assets, non-financial corporations' net financing need increased to 4% of GDP.

Chart 2-4

Financial position of non-financial corporations as a percentage of GDP



It is highly likely that foreign currency loans, which were responsible for the upsurge in outstanding debts, were used to finance inventory-building and fixed capital formation. Hence, there was a renewed rise in the sector's investment spending, which by the end of 2003 H1 increased to nearly 14% of GDP.

Based on the financial and capital formation positions of non-financial corporations, the Bank has concluded that the sector's income position in the period remained unchanged *(see Chart 2-4)*. Nevertheless, it is important to point out that data excluding the income transfer effect of the government's lending in December 2002 to state-owned corporations[9] show a moderate improvement in non-financial corporations' income position in the first half of this year.

Regardless of the government's tight fiscal policy, the gradual increase in external demand and higher competitiveness will have the overall effect of boosting domestic companies' output in 2003–2004. Growth in corporate sales, a less vigorous rise in unit labour costs and higher inflation may all contribute to improve non-financial corporations' income position. The depreciation of the forint, the higher value of foreign currency loans and higher interest rates may, on the other hand, reduce profits. Nevertheless, this will be hardly noticeable due to the high ratio of companies with natural cover in the form of export revenues and the increasing number of firms resorting to hedging instruments as well as the fact that the overwhelming majority of foreign currency loans have long-term maturity. Based on these observations, the Bank's view is that[10] the income position of the corporate sector is likely to take a gradual growth path over the next few years.

FINANCIAL ASSETS

In 2003 H1, the ratio of financial assets within total assets remained level at 45%. However, growing demand by non-financial corporations for financing altered the structure of financial assets in the sector. Having examined non-financial corporations' financial statements, the Bank has concluded that weak growth in deposits was accompanied by a major upswing in lending. Growth in the stock of loans was driven by the sharp upward trend in long-term lending. As a result, the ratio of liquid assets (cash, deposits, short-term securities and loans) within total assets declined slightly from 48% to 45%. However, due to the effects of the business cycle, this trend is not regarded as an unwelcome development.

[9] In December 2002 the central budget assumed a total of HUF 252 billion of debt accumulated by Hungarian Motorway Ltd. *(Magyar Autópálya Rt.)*, Hungarian State Railway *(MÁV)* and Budapest Transport Company *(BKV)*.
[10] For more details, consult the study in the Inflation Report published in November.

COMMERCIAL PROPERTY MARKET

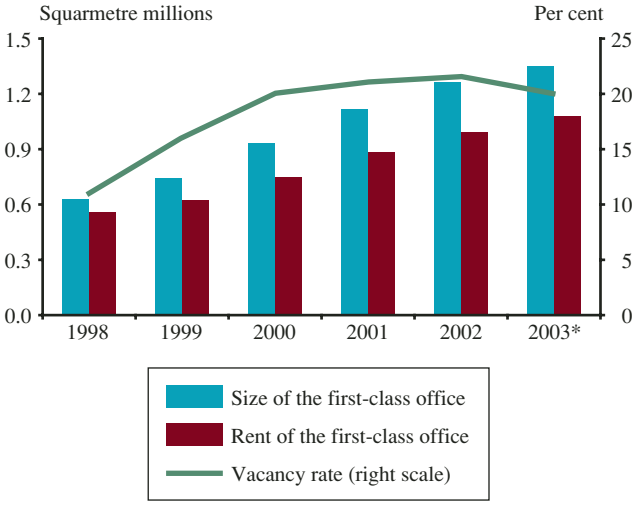
In respect of the commercial property market, 2003 H1 saw a general cyclical contraction. In the period under review growth continued to slow in terms of the size of the office and warehouse-logistics markets, as well as the number of retail outlets.

Over the first six months of this year the office rental market was characterised by an increasingly rapid adjustment of supply to demand. During this period the office market in Budapest expanded only to a minor degree, while the number of new leases stayed at last year's level. As a result, vacancy rates were down from 22% last year to 19.4%. However, despite lower vacancies, rental fees declined from EUR 14–16 last year to EUR 13–15, while purchase prices remained at the same level.[11]

Real estate agents estimate that by the end of the year the office market may reach 1.35 million square metres (sqm). Forecasts for 2003 H2 suggest that 70,000-80,000 sqm of new floor space will be built, and 60,000 sqm of floor space will be let, leaving vacancy rates at around 20% and stabilising rental fees at EUR 13–15 per square meter *(see Chart 2-5)*.

Chart 2-5

Developments in the Budapest office market



Source: DTZ Hungary, Budapest Real Estate Consultants' Consultation Forum.

According to market participants, Hungary's upcoming accession to the EU will not have a major impact on the domestic office rental market.[12] In contrast to previous opinions, most experts now believe that accession will not trigger another boom on the office property market. According to estimates, the current stock of office rentals will be sufficient to satisfy the continuous rise in demand expected over the coming years.

Over the longer run, however, four main developments can be expected.[13] From the investors' point of view, one negative trend is that returns on office buildings are expected to continue to drop following accession. With the decline in risks in the investment environment and the cyclical slowdown on the office space market, returns have now fallen to 8.5%, down from the typical levels of over 10% seen in the 1998–2000 period. Following accession, returns can be expected to converge to the EU average of 6–7%. On the other hand, one positive development is that domestic rental fees for office space are expected to increase, also gradually converging with the higher levels seen in other EU countries. Another positive trend which may occur is that large foreign real estate investment funds are expected to appear on the market, resulting in additional demand for high-value, marketable office buildings. Finally, it is also possible that the further development and strengthening of the domestic corporate sector will also generate additional demand for more, high-quality office rental space.

All things considered, the Bank feels that the financing of the office rental market bears significant risks for banks, despite the currently decline of over-supply on the market, as the prevailing vacancy rate (roughly 20%) is relatively high compared to past years, and rental fees and property collateral are relatively low.

Due to the cyclical downturn and the on-going process of market consolidation (reduction of regional oversupply and satisfaction of regional demand), the number of retail outlets fell by 0.3% over the first six months of the year. The rise in the number of outlets observed in the second quarter (mainly food-related, consumer durables, apparel and filling stations) was insufficient to counter the decline recorded in the first quarter. While the reduction in the number of certain kinds of outlets may indicate saturation, it remains difficult to assess the level of risks due to the structural changes taking place on the retail property market.

INDEBTEDNESS

The capital gearing of non-financial corporations has developed in line with the improvement in the economic outlook over the past six months. Due to increasing investment spending by the corporate sector, the debt-to-equity ratio rose from 80% to 85%. The strong rise in foreign currency loans from Hungary and abroad was the primary factor behind this increase in indebtedness.

[11] Source: Calm Office Market in Budapest. *Ingatlanbefektetés*, vol. 16, 7 August 2003.
[12] Source: Cyclical developments on the Real Estate Market. 2003 Q2, Economic Research Institute (GKI) and Wallis Ingatlan Rt.
[13] Source: 'The Property Market following Accession', *Ingatlanbefektetés,* Issue 11, 15 May 2003.

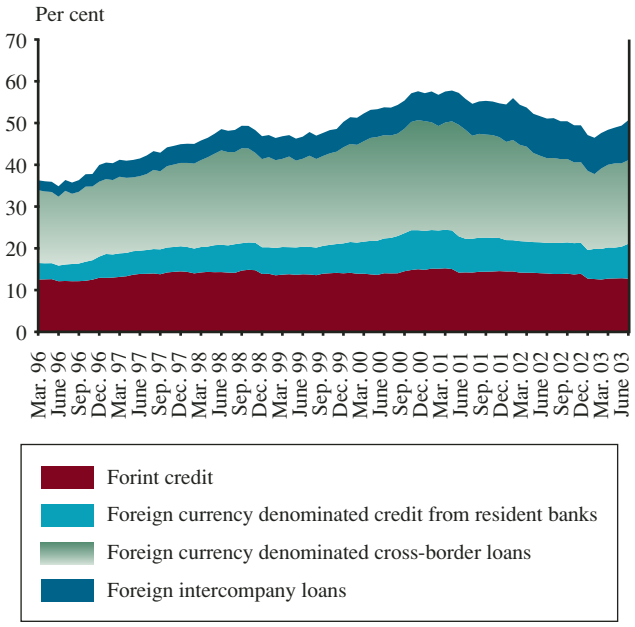
In forint terms, total outstanding loans from credit institutions and inter-company loans grew by 18.7% in 2003 H1, representing an 8.9% increase after adjustment for the exchange rate effect. Sub-average growth was observed in both short-term and long-term forint loans, while growth in long-term domestic and foreign loans and inter-company loans from abroad was average. The increase in short-term foreign currency loans from Hungary and abroad showed above-average growth. This trend can be explained by the fact that, in line with the improving economic outlook, companies which have natural cover in the form of export revenues (mainly multinational companies) are likely financing their purchases for inventory using short-term loans, and turning to long-term foreign currency loans to finance their growing investments.

Viewed from the perspective of the depth of bank intermediation, however, it is a disappointing development that large companies are continuing to meet their foreign currency financing needs through non-resident banks for the most part. In 2003 H1, for example, Hungarian companies borrowed more than two times as much from abroad as they did from domestic sources *(see Chart 2-6)*.

In terms of assessing bank risk, the increase in the capital leverage of Hungarian firms is not considered to represent a serious risk, as the rise in indebtedness is clearly linked to cyclical factors and the level of capital leverage is still substantially lower than the EU average.

Chart 2-6

Non-financial corporations' bank and inter-company loans as a percentage of GDP



2.2 Domestic corporate credit risk

In the first half of 2003, total lending by domestic banks to non-financial corporations grew moderately stronger than the balance sheet total, increasing by 13.8% compared to end-2002. This sharp increase in the growth rate was the result of an upswing in corporate demand for credit as well as the significant depreciation of the forint. Adjusting the changes in total lending for the exchange rate effect results in a 9.3% rise in the volume of lending to non-financial corporations. In line with the increasingly bright economic outlook, banks are once again focussing on extending foreign currency loans to large companies. There was a significant rise in project financing activity, and lending also rose to sectors which are cyclically sensitive.

The rise in both long-term loans (up 14.3%) and short-term loans (up 12.7%) was spectacular, due mainly to increased lending for operating assets and investment, as well as the revaluation caused by depreciation of the forint's exchange rate. Disregarding the impact of the exchange rate, the rates of growth for both short- and long-terms loans were still quite high, amounting to 9.7% and 8.9%, respectively.

In terms of the denominational composition of corporate loans there were major changes, both as a result of the transaction and the exchange rate effect. Corporate forint-denominated loans grew 5.4%, while foreign currency loans increased by 28.1%. Consequently, the share of foreign currency loans in total lending continued to rise. At the end of the first half of 2003, HUF-denominated corporate loans accounted for 60% of total corporate lending, with foreign currency loans covering the remaining 40%. Of the growth in foreign currency loans, 16% was the result of the transaction effect, 13.9% came from the exchange rate effect and –1.8% from the impact of cross exchange rates. As the growth rate of short-term loans was considerably higher than that of long-term loans (43.8% vs. 21.5%), the average maturity of foreign currency loans declined *(see Chart 2-7)*.

In the first half of 2003, demand for credit by large companies, which is extremely sensitive to the business cycle, began to pick up once again, in line with the upturn in economic prospects among Hungary's trading

Chart 2-7

Components of changes in lending to non-financial corporations

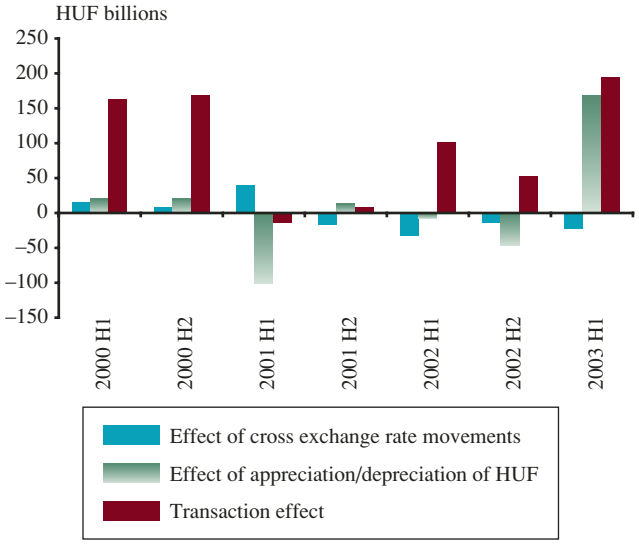
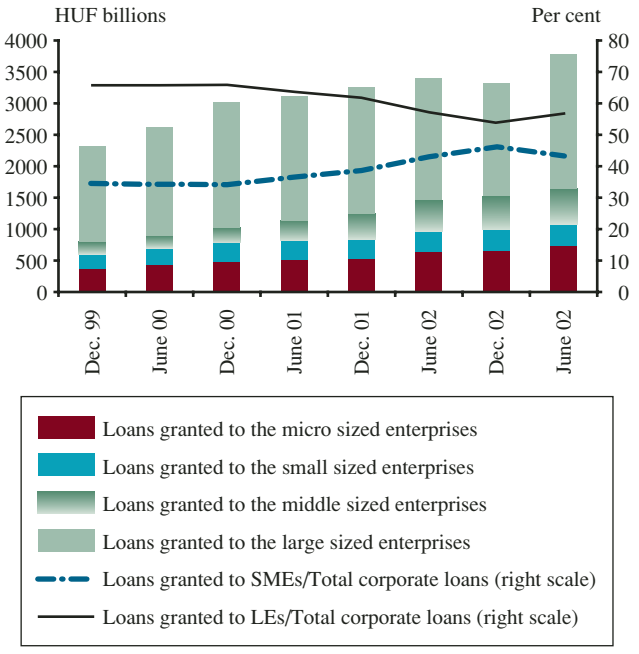


Chart 2-8

Distribution of non-financial corporate lending by company size

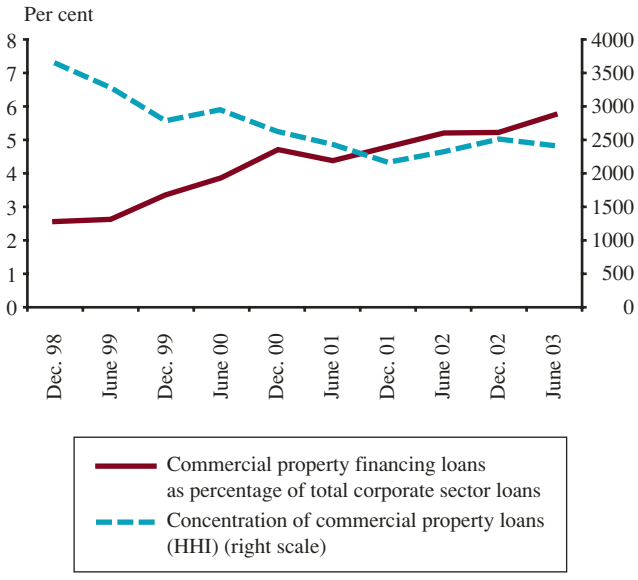


partners. Despite the fierce competition and low interest margins, large corporate lending is still one of banks' main areas of activity, as a strong banking relationship with large corporate customers can offer long-term increases in profitability (commissions, account management fees, etc.). Over the first six months of the year, total lending to large companies increased by 19%, while lending to SMEs grew by 7.6%. Lending to micro-enterprises was up 4.1% in this period, with lending to small enterprises and medium-sized enterprises up by 7.8% and 10.3%, respectively. Consequently, the share of large companies rose from 54% to 56.5% within total corporate lending, while the share of SMEs dropped from 46% to 43.5% *(see Chart 2-8)*.

Due to cyclical reasons, the share of SME loans in total corporate lending temporarily dropped in the first half of 2003, following a long period of consistent growth. Over the longer term, lending to SMEs should continue to gain ground as competition between banks increases and the market for large companies becomes ever more saturated.

Chart 2-9

Lending to finance office building and shopping mall construction as a share of total corporate lending and its concentration



Project financing by banks continued to grow during 2003 H1, backed mainly by an increase in lending for real estate-related projects, and to a less extent, by lending for projects in the fields of energy and telecommunications. Despite the downturn on the commercial real estate market, over the first six months lending for office building and shopping mall construction grew sharply, at a rate of 26.6%. Total lending of this nature, which is mainly denominated in foreign currency, increased by 14.8% adjusted for the exchange rate effect; thus its share in the total balance sheet and in total corporate lending now stands at 1.9% and 6%, respectively *(see Chart 2-9)*. While this level can still be viewed as low in absolute terms, one unfavourable development is that the share of loans extended since the end of the upswing on the office space market in 2000 and the beginning of the downturn on this market has nearly doubled within total corporate lending.

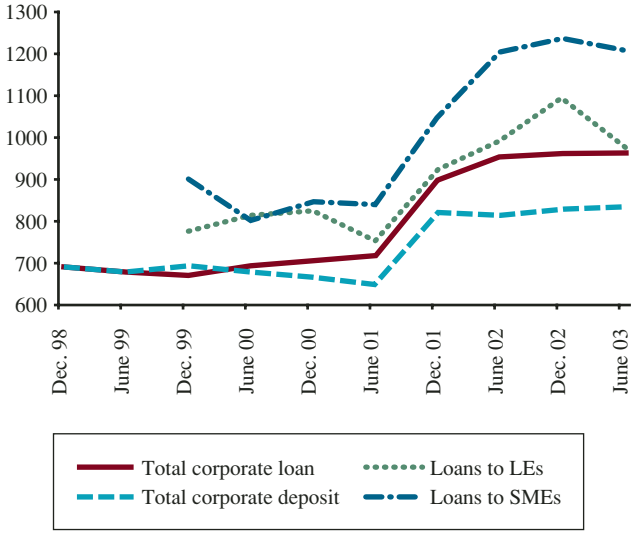
In terms of evaluating banks' risks, the picture is even gloomier due to the fact that in contrast to their previous opinion, real estate experts now no longer forecast that Hungary's accession to the EU next year will trigger another boom on the real estate market. They now believe that the impact of accession will be felt gradually over a longer period of time. In addition to this, another source of serious risk is that 80% of the loans extended for office building and shopping mall construction are concentrated at three large banks. At these banks, the ratio of these loans to the total corporate loan portfolio is more than twice as high as the average value for the banking sector in general. The risk of concentration is also well reflected in the HHI figure for commercial lending, which – although it has been on a downward trend since 1998 – is currently still above 2400, a very high figure indeed, compared to the figure of less than HHI 1000 for the overall corporate sector. While the banks financing these developments have recognised the increase in risks and expect their customers to ensure 30–50% pre-leasing for office building construction projects, the Bank still believes that the risks assumed by banks on this market are too great.

Analysis of the sectoral breakdown of non-financial corporate lending indicates that at the end of the first half of 2003 lending to the production sector accounted for 43% of total corporate lending, with services and other sectors accounting for 52% and 5%, respectively. Within the production sector, lending to manufacturing increased, whereas lending to agriculture and mining stagnated. In respect of manufacturing branches, the most dynamic growth in lending was registered in chemicals, mechanical engineering and light industry. The growth in transactions was borne mainly by a rise in short-term, foreign currency loans for operating assets, and to a lesser extent by a rise in long-term foreign currency loans for investment purposes.

Within the service sector, banks mainly financed real estate development and commercial activities. While it was primarily long-term foreign currency loans which increased in respect of real estate development, in the commercial sector short-term forint and foreign currency loans both saw growth. In one of the main service sectors, the construction industry, financing tapered off, whereas there was a moderate rise in lending to transport, logistics and telecommunications.

Chart 2-10

Concentration of non-financial corporations' loans and deposits *(HHI)*

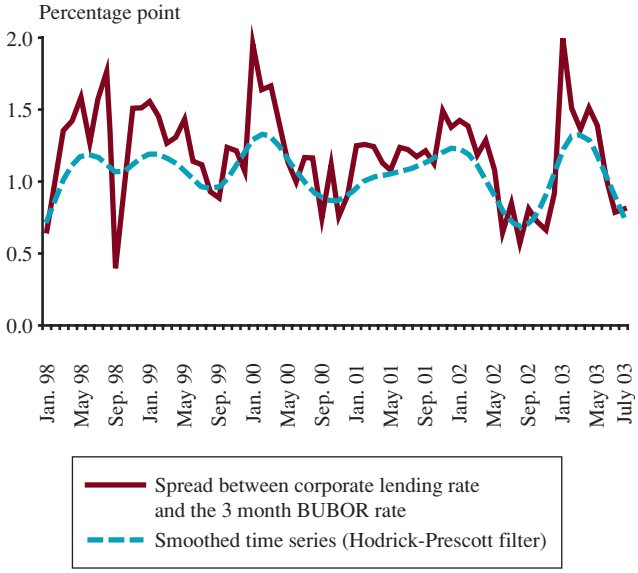


The structure of the corporate lending market continues to be characterised by a low level of concentration *(see Chart 2-10)*. In terms of the HHI level, the large corporate lending market can be considered a competitive market (at 960), whereas concentration on the SME lending market is at a medium level, reflected by HHI value of over 1000 (currently 1210). One interesting point to note is that the market for corporate deposits shows the lowest level of concentration, and that this market has the lowest HHI (830) in the corporate banking fields.

Analysis of the development of the interest rate margin on corporate loans over the recent years is rendered considerably more difficult by the volatility of the central bank interest rate. In 2002 H2, the interest margin dropped significantly, as a result of the increases in the central bank interest rate in May and July 2002. Following this, however, the interest rate margin remained low for a long period through to the end of 2002, at around 1 percentage point, despite the increase in credit risks and the reduction in interest rates in November and December. A correction only occurred in January 2003 when the central bank made repeated, deep to cuts in interest rates. Nevertheless, due to the gradual adjustment of loan rates, the interest margin subsequently began to decline and fell below 1 percentage point again in July and August, in response to the sharp rises in the central bank interest rate in June *(see Chart 2-11)*. From these developments, it appears that, despite the increased credit risk due to the cyclical slowdown, the adjustment of interest rates on corporate loans was quicker to respond to rises in the interest rate, than it was to respond to reductions in the interest rate. An explanation for this may be that banks may have viewed the increase in the reference interest rate (BUBOR) as a temporary rise, and that the sharp competition countered a rapid upward correction in lending rates.

Chart 2-11

Interest rate margin on forint loans to non-financial corporations



During 2003 H1, the average interest margin was 1.46 percentage point, which was almost twice as high as during 2002 H2, when it was 0.74 percentage point. If, however, one compares the figures for the end of the first half of 2003 and the end of 2002, it becomes clear that that the interest rate margin stagnated at around 1 percentage point. Indeed, in June and August of 2003, the interest rate margin fell to one-half of its level at the end of 2002 H1. Consequently, the Bank believes that over the course of the past year the interest rate margin has been driven mainly by asymmetric adjustment to the interest rate moves of the central bank and is less so the result of conscious risk awareness and management by banks.

Over the last five years, the corporate interest rate margin generally fluctuated in a range of 1–1.5 percentage point. With due consideration of the extent of risks and from an international perspective (the corresponding margin was between 2–2.5 percentage point in 2003 H1 in the euro area), this figure of 1 percentage point can be viewed as low. Nevertheless, it should also be noted that the period under review can be considered extreme in terms of volatility, and that, despite the keen competition and low interest rate margin, on the whole banks are able to achieve suitable profitability in the field of corporate banking through the prices charged on corporate liabilities (current account interest rate, interest on time deposits, etc.) and by increasing non-interest revenues (standby charges for lines of credit, account fees, etc.).

CONTINGENT LIABILITIES

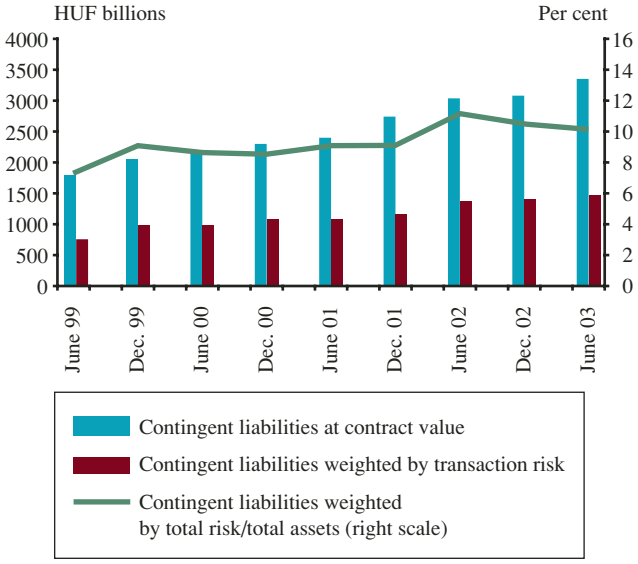
The contractual value of contingent liabilities increased by 8.8% during the first half of 2003, rising some 4 percentage points more slowly than growth in the balance sheet total. The risk rating of contingent liabilities improved, which the Bank views as a positive development in terms of system stability. The transaction risk adjusted value of contingent liabilities rose by 5.5%, while the customer and transaction risk adjusted value increased by 8.5%. As a result, the ratio of contingent liabilities adjusted for total risk to the balance sheet total declined to around 10% *(see Chart 2-12)*.

In contrast to the past and in light of the improved global economic prospects and the developments seen in the field of Hungary's economic policy, the Bank now feels that it is primarily the better economic outlook, the depreciation of the real exchange rate and the forecast growth in unit labour costs (expected to be lower than inflation) which will support further growth in demand for credit by non-financial corporations. The supply of credit may also increase due to the keen competition for the business of large companies and the increasingly strong competition in the field of SMEs.

The Bank still does not view the risks of non-financial companies as being excessive. There is only one area, namely the financing of real estate development projects, where the Bank believes that the level of risk is high. On the other hand, one benign trend is that the improving income outlook for the manufacturing sector may reduce the credit risks associated with this sector.

Chart 2-12

Contingent liabilities



2.3 Household sector

INCOME POSITION, CONSUMPTION, INVESTMENT, NET SAVINGS/BORROWINGS

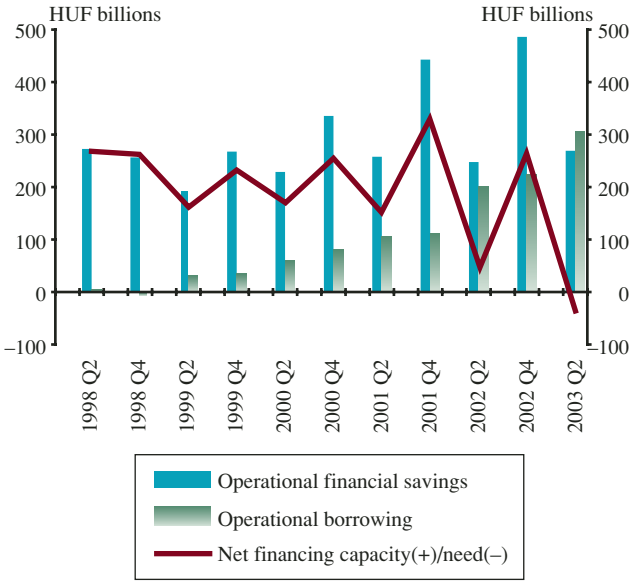
The annual rate of growth in household income can be expected to decline as the effects of the income-boosting measures implemented last year taper off. In contrast to the slower growth rate in households' real net income in 2003 and the expected stagnation forecast for 2004, household consumption expenditure and final consumption have continued to increase at a robust pace, resulting in further strong growth in consumer borrowing. Due to the strong base effect and the unfavourable weather,[14] household investment expenditure grew at a much slower rate than previously, whereas borrowing for home construction continued to grow significantly. The combination of declining growth rate in household income and the unbroken strong rise in consumption and housing related borrowing led to the household sector to be a net borrower in 2003 Q2, which is an extremely unusual and fundamentally unfavourable development *(see Chart 2-13)*. Due to the changes made to the housing loan subsidy scheme in June, the market was expecting a decline in demand for housing loans starting from August, which would have put an end to the deteriorating trend in households' net financing capacity (indeed, reversing the development of a financing requirement). Nevertheless, based on the latest data, September growth in total housing loans exceeded all previous records. Part of this can presumably be ascribed to demand being brought forward in expectation of other planned changes (such as the impact of introducing VAT on building lots). Furthermore, as households smooth their consumption no decline in consumer-related borrowing is expected.

INDEBTEDNESS

The majority of the unbroken, dynamic growth in household borrowing (27% in six months) continues to result from the strong rise in housing loans and, to a lesser degree, a substantial rise in non-bank lending, which amounted to 41% and 26%, respectively *(see Chart 2-14)*.

Chart 2-13

Net financing capacity/requirement of households



Lending to households as a percentage of GDP increased from 7.5% to 11.3% in the space of single year. Even so, this level can still be viewed as low by international standards. Nevertheless, due to the weak income earning capacity of Hungarian households, the level of indebtedness, measured as the ratio of financial obligations to financial assets (which rose from 12.6% to 18.7% in just one year), is not seen as low by international standards. The financial obligations of households now amount to roughly one-third of households' liquid financial assets,[15] and this ratio is expected to continue rising due to the further strong growth in financial obligations and the declining trend in the share of liquid assets as a result of increasing popularity of institutional investors *(see Chart 2-15)*. Furthermore, due to the weaker income earning capacity of households in Hungary and the high interest rates on consumer loans and other borrowing, the debt service burden on households is also not particularly low by international comparison.

[14] Due to the long, hard winter construction projects were started later than usual.
[15] Liquid assets are classified as cash, deposits, non-equity securities with the exception of compensation vouchers, listed shares and investment fund certificates.

Chart 2-14

Lending to households

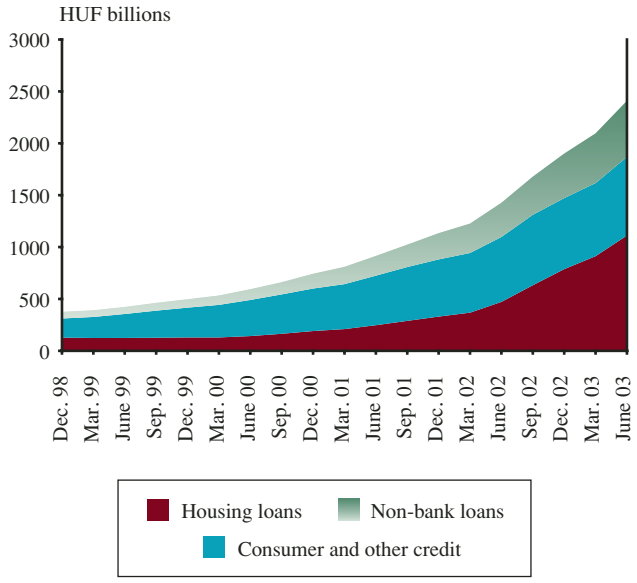
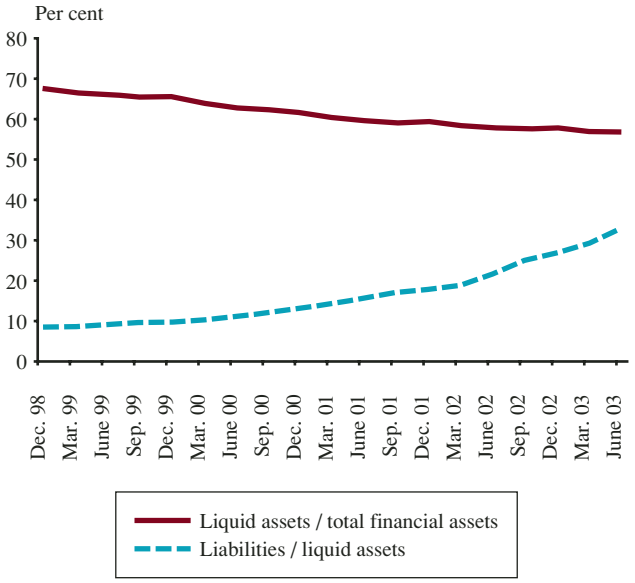


Chart 2-15

Households' financial obligations as a percentage of liquid assets



Based on the aforementioned, it can be seen that serious risks could arise if, over the longer term, the level of indebtedness continues to rise as quickly as it has in the recent past. Fundamentally speaking, the expansion of the housing loan subsidy scheme in March 2002 triggered this extremely sharp increase in the level of indebtedness. One additional aspect was however that demand was being brought forward due to the expectations of restrictions being placed on the subsidy system. It does not appear that the changes made to the subsidy system in June have slowed down the growth rate in housing-related lending considerably; consequently, further growth in the level of indebtedness can be expected. A further strong rise in indebtedness in conjunction with the expected stagnation of real income may lead to a considerable rise in the debt service burden on households. On the other hand, as the share of long-term, subsidised loans with low interest rates for borrowers is growing within overall lending, the debt service burden will likely grow more slowly than total lending.

One factor that increases credit risk is the fact that consumer lending has a track record of just a few brief years in Hungary. Consequently, for lack of experience, many banks presumably do not have at their disposal highly refined risk management practices, with which customers' repayment difficulties could be temporarily resolved. Moreover, companies and organisations specialising in providing credit-related counselling to households have not been established (in contrast to the USA, for example), and households' level of financial knowledge is low.

In total, 97% of households' bank loans are denominated in forints. Accordingly, there is essentially no rise in bank direct lending risk due to the exchange rate volatility. A substantial ratio of household financial obligations, however, are vis-à-vis non-bank entities (amounting to 22.3% in 2003 H1). Of this, roughly one-half[16] is accounted for by loans from financial enterprises which are in bank ownership. The vast majority of household loans extended by bank-owned financial enterprises is denominated in foreign currency (88%[17]), and thus any increase in repayments due to depreciation of the forint may result in higher credit risk. At the end of 2002, foreign currency lending to households by bank-owned financial enterprises amounted to roughly 10%[18] of households' total liabilities; consequently, any increase in credit risk from changes in the exchange rate would not have a drastic impact on the banking sector as a whole. Nevertheless, at the level of individual banks this is not necessarily the case, as the ratio of foreign currency lending in the consolidated household loan portfolio is extremely high at several banks. In respect of financial enterprises which are not bank-owned, such companies rely to a great degree on equity (18%), in addition to funds from credit institutions (66%), i.e. their capital leverage is relatively low. Accordingly, the credit risk assumed by the banks providing loans for financial enterprises that are not bank-owned is not considered to be particularly great.

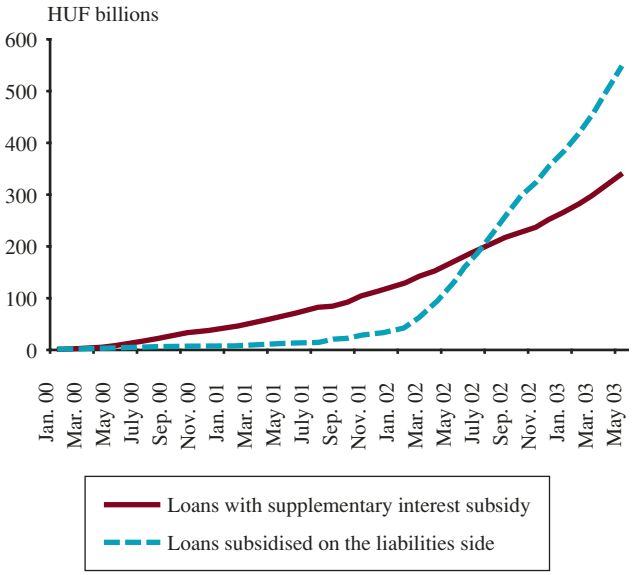
[16] Data as of end-2002.
[17] Data as of end-2002.
[18] Data as of end-2002.

HOUSING LOANS

Since July 2002 the stock of outstanding housing loans has increased by a monthly average of HUF 55 billion, as a result of the subsidies being extended to include the purchase of used homes *(see Chart 2-16)*. Compared to the figure of 5.8% for the previous year, by end-September 2003 the share of housing loans in bank assets had risen to 10.2%, and is thus growing closer to the average 15% ratio found in the euro area.

Chart 2-16

Cumulative values of newly granted subsidised housing loans



Source: Ministry of Economic Affairs and Transportation.

As a result of changes in the subsidy system made in June 2003, banks' margin on newly granted housing loans has declined. The possibility of increasing the interest rates paid by borrowers is quite restricted, due to the interest rate ceilings prescribed as a precondition for the subsidies, and banks will thus likely make their credit conditions and standards somewhat more strict. The changes in the subsidy system, however, have not led to a significant decline in demand. First, in respect of loans with supplementary interest subsidy for the purchase of new homes, the maximum loan amount was increased. Second, in respect of loans subsidised on the liability side, while the maximum loan amount was reduced by 50%, this amount is still three times higher than the average loan amount. Third, there are still exceptions to the restriction on obtaining subsidised loans for the second and third times, etc. (as a co-signer on subsidised loans for purchasing homes for grown-up children and grandchildren). The very low interest charged to borrowers continues to make these subsidised loans very attractive. Finally, demand may be brought forward in expectations of further changes and serious restrictions in the subsidy system, as well as the famed price-boosting impact of the introduction of VAT on building lots. Based on all of the aforementioned factors, it is still felt that subsidised loans are still available widely even after the changes; hence, subsidised loans continue to crowd-out housing loans granted at market rates. Opinions differ on the impact of the changes to the tax benefits related to housing loans.

Box 2-1

It is possible that the tightening of the conditions for tax benefits related to housing loans will increase the level of credit risk somewhat, but the degree of this increase is not considered to be too great. In the first year of repayment households must earn the entire amount that is to be repaid despite the tax benefit, as the tax refund is received afterwards. The repayment capacity of borrowers with better income earning capacity will either not be affected or only be affected to a negligible degree by the ceasing of the tax benefit, which results in a maximum additional burden of HUF 20,000 per month. On the other hand, borrowers with less pronounced earning capacity will likely take out smaller loans. It is also possible that the tax burden on their income is relatively low, and thus amount of lost income due to the reduction in the maximum amount of the tax benefit plays a minor or insignificant role in many cases. Taking the average amount of loans subsidised on the liability side and loans with supplementary interest rate subsidy with maturity of 20 years as a basis, the Bank's estimates indicate that at an annual level the 50% reduction in the maximum tax benefit will result in income loss amounting to roughly 1.2 and 2.1 months of repayment per year, with a delay of one year.

According to the Bank's experience, a number of factors with a bearing on borrowers creditworthiness, such as income, sociological and demographic aspects, are hardly taken into account in the evaluation of loan applications, which is why the ratio of the loan amount to the collateral property (Loan To Value, or LTV) is especially important. In respect of loans subsidised on the liabilities side, which account for the majority of aggregate housing loans, banks extend loans up to a maximum of 60% of the credit collateral value (which is 80-90% of the value stated by the property appraiser). In the Bank's opinion, the domestic average LTV values in Hungary represent a safe escape value in Budapest, the county seats and in larger cities in the country. In parts of the country, however, where there is no liquid real estate market, the question remains as to whether the collateral property can be sold at a suitable price. Considering the continuing strong demand and falling

margins, it is not likely that any significant decline in the LTV ratio will be seen in the near future.

The exceptionally strong growth in housing loans has not yet led to a sharp rise in property prices. One of the reasons for this is that the home construction market is keeping up with the increase in demand *(see Chart 2-17)*. Another reason may be the modest income earning power and debt servicing capacity of households. With due consideration of the moderate rise in prices and the fact that the majority of mortgage loans are for home purchase, the Bank does not feel that the possible risks from a price bubble are too serious, despite the extremely robust growth rate in lending. There are, however, differing opinions as to how much of an impact the introduction of VAT for building sites will have on home prices.

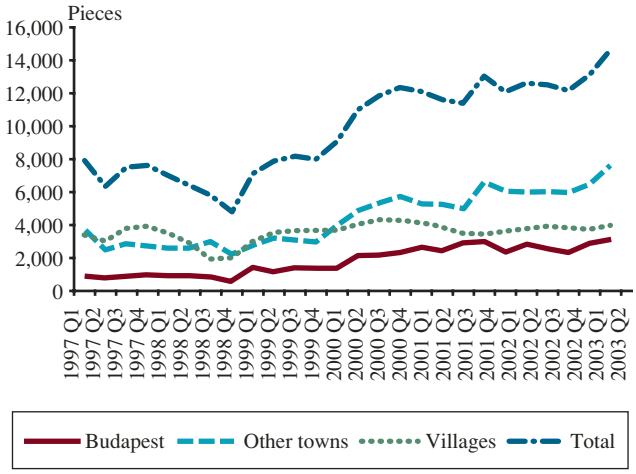
Box 2-2

In the view of the Bank, introduction of VAT on building sites will not lead to a significant rise in home prices over the short term. In terms of direct impact, only newly-built homes will be affected. As most building sites are owned by natural persons and natural persons do not fall under the scope of VAT, in most cases VAT on the building sites will not play a role in the construction of a family house. In respect of new condominiums with just a few units, introduction of VAT may significantly increase home prices in areas where site prices are relatively high. In these cases the price of the building lot itself accounts for a fairly high proportion of the total purchase price. On the other hand, in parts of the country where the price of the lot itself is relatively low compared to the price of construction, and in respect of condominiums with numerous units (regardless of where they are located in the country), introduction of VAT for lots will have a less pronounced effect on home prices, as in these cases the lot price accounts for a relatively smaller share of the total price of the unit. As for the indirect effects, the extent to which price increases will be passed on to used homes and lots owned by private individuals is questionable and will be felt with a delay.

The housing loan subsidy system is having a major impact on the acquisition of market share by the various types of institutions. Loans subsidised on the liability side are experiencing the greatest demand. Extension of such loans is associated with the issue of mortgage bonds, a privilege reserved for mortgage banks *(see Chart 2-18)*[19]. As long as the current logic underlying the subsidy system is followed, there is little chance of a significant increase in the issuance of long-term bonds by banks, in the interests of mitigating the liquidity risks stemming from the dynamic growth of housing loans. This is because, according to this logic, loans subsidised on the liability side are linked to mortgage bonds.

Chart 2-17

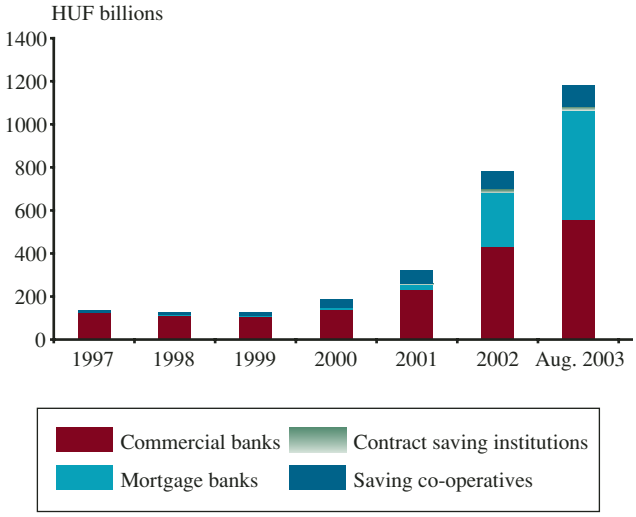
Number of building permits issued quarterly*



** Seasonally adjusted figures.*
Source: CSO.

Chart 2-18

Market share of the individual institution-types in housing finance



Despite the extraordinarily strong growth rate, market concentration on the housing loans market has stagnated at a high level, as indicated by the fact that the Herfindahl index remained above 3500 in the first half of 2003, with mortgage banks considered together with

[19] For details on the institutional structure, problems and risks of housing loans, see *Report on Financial Stability,* 2002/2.

parent banks. The shares of the 3 largest and the 5 largest participants in the housing loans market essentially remained unchanged at 75% and 83%, respectively, in 2003 H1.

CONSUMER CREDIT AND OTHER LOANS

In the first half of 2003, outstanding consumer credit and other bank loans increased by 9.1%, with the majority of growth seen in the second quarter. Despite the increase in interest rates on loans, considerable growth was seen on the market of consumer and other bank loans in the third quarter as well, along with strong demand for housing loans and concurrently strong growth in non-bank loans. If new home-owners purchase their new home furnishings in part also on credit, this could lead to a concentration of loans, an increase in the indebtedness of households which have taken out loans and thus consequently result in an increase in banks' credit risks. Nevertheless, for lack of a credit bureau with a positive list of debtors, this risk cannot be quantified.

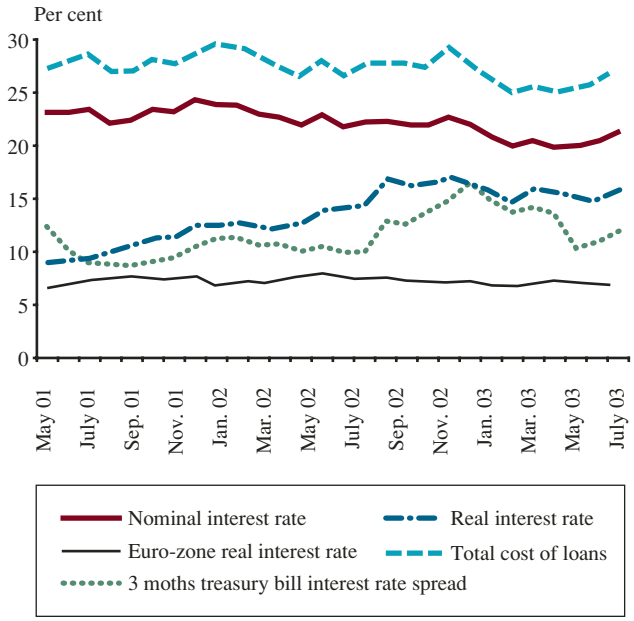
Presumably, lower-income households without significant savings tend to use small-amount loans (e.g. loans for consumer goods), since it would be rather unreasonable for households with savings to finance their purchases with loans, due to the large difference between the high level of current interest rates on loans and the relatively low yields on savings. Small-amount loans are generally unsecured, thus, the risk associated with such loans is higher. An increase in loan-loss ratios can be expected in light of the deterioration in household income expectations.

The further rise in the already high average interest rates on loans after the central bank's interest rate increase in June can be explained in part by the fact that concentration on certain segments of the consumer and other bank loans market is rather high, with three or four banks dominating the market for certain loan types *(see Chart 2-19)*.

The growth rate is expected to remain robust in the field of consumer and other bank loans. As a result of the changes to the subsidy system, the interest margin on newly granted housing loans has declined significantly, and thus banks are expected to turn again to the market of consumer and other loans. In light of the increase seen in average interest rates on newly granted consumer and other loans, it could be presumed that banks wish to maintain or even increase in the growth in lending by loosening the credit standards and conditions for granting loans.

Chart 2-19

Interest rates on banks' non-housing loans*



** Excluding overdraft credits and other loans; hence the data differ from those published in the previous issues of the Report. Through end-2002 it includes personal, consumer goods and automobile loans, from 2003 loans classified as consumer loans by the data provider are included in this category.*

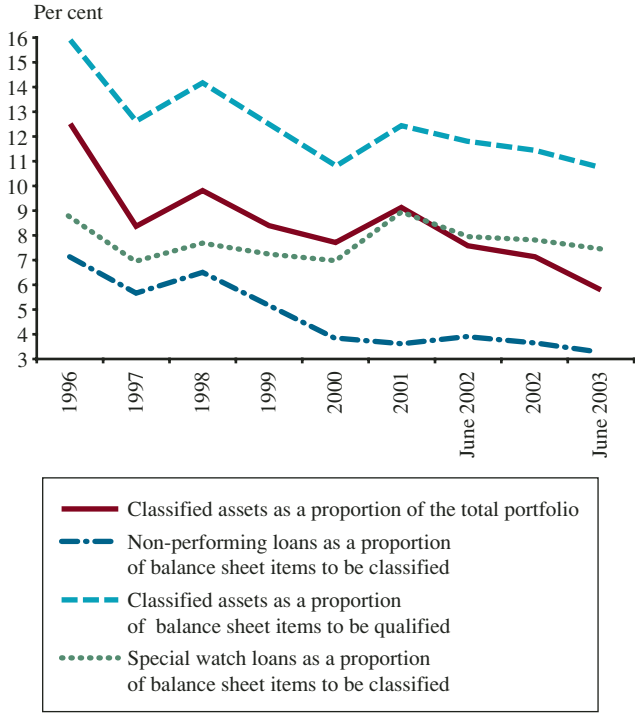
The combination of declining growth rate in household income and the continued strong rise in consumption and housing related borrowing led to the household sector being a net borrower at the end of the period under review, which is an extremely unusual and fundamentally unfavourable development. The sharp increase in the level of indebtedness was essentially caused by the expansion of the housing subsidy system, and by demand brought forward due to persistent expectations of restrictions in subsidies. It does not appear that the changes made to the subsidy system in June have slowed down considerably the growth rate in housing loans; consequently, further significant growth in the level of indebtedness can be expected, which the Bank views as bearing serious risk.

2.4 PORTFOLIO QUALITY

In the first half of 2003, the ratio of classified portfolio continued to improve, both in terms of the total portfolio and classified balance sheet items *(see Chart 2-20)*. The considerably more dynamic improvement in the indicator for the total portfolio was mainly caused by the boom in derivative transactions, which are rated as 100% problem-free.

Chart 2-20

Development of classified asset categories in the various portfolios



In respect of on-balance-sheet items, the ratio of non-performing loans declined to 3.3%. The main reason for this improvement was the strong increase in lending. Classified receivables increased by 17.7%, while non-performing claims only rose by 5%. Compared to these items, the small stock of written-off and sold claims does not result in any changes in the developments described above.

In line with the strong pick-up in lending, net provisioning for own claims *(Table 2-1)*, an item reducing profit, also rose strongly, to almost two times the level recorded for June 2002. The rate of stock of provision compared to the gross value of classified assets categories and the total outstanding lending declined over the last 12 months (from 17.3% to 15.0% and from 1.81% to 1.51%, respectively); the loan loss rate declined primarily in respect of household lending and investments, while the rate increase marginally in respect of corporate lending.

Table 2-1

Net provisioning *(Change in value adjustments)*

Cumulated, HUF million	Dec. 2001.	June 2002.	Dec. 2002.	June 2003.
Net provisioning	29,809	5,265	24,319	12,392
of which:				
Provisioning for own claims	18,042	6,443	24,945	12,243
Provisioning for purchased claims	–127	199	143	363
Provisioning for securities for investment purpose	2,288	701	650	0
Provisioning for participating interests	9,606	–2,078	–1,419	–214

QUALITY OF THE CORPORATE PORTFOLIO

Economic activity continued to slow in the last half-year, while the economic outlook improved. As a consequence of this improvement in prospects, fixed investment spending by non-financial companies increased, leading to a 13.8% jump in their borrowings. By contrast, the impact of the slower economic growth was reflected in a rather a moderate rise in non-performing loans (up 3.4%). The new loans had a beneficial impact on portfolio quality, leading to a reversal of the previous deterioration *(see Chart 2-21)*. If the economic situation continues to improve and there is further growth in lending, a renewed deterioration of portfolio quality is not expected.

Over the last year, stock of provisions as a percentage of gross value increased in all of the classified categories of corporate loans, which indicates prudent behaviour *(see Table 2-2)*.

CREDIT QUALITY OF HOUSEHOLD LENDING

The share of housing loans within the total portfolio of household lending increased further, due to the excep-

Chart 2-21

Changes in the ratio of non-performing corporate loans

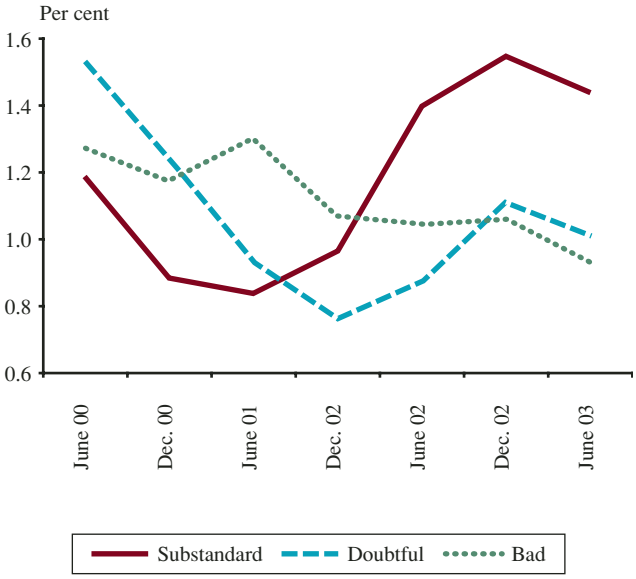


Chart 2-22

Growth rate of loans and changes in the ratios of special watch and non-performing loans

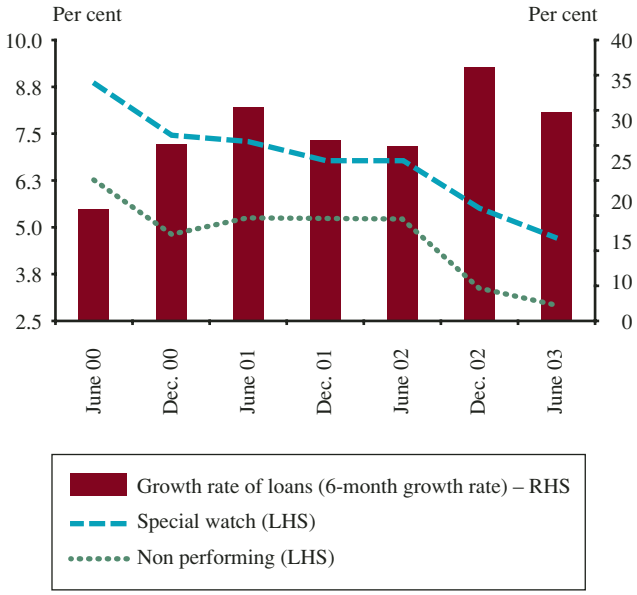


Table 2-2

Recorded losses in value in the various classified asset categories as a proportion of the gross value of balance sheet items

Recorded losses in value as a percentage of gross value – loans to non-financial firms	Special watch	Sub-standard	Doubtful	Bad
June 2001	2.4%	18.2%	50.3%	90.5%
December 2001	2.0%	23.6%	47.9%	88.9%
June 2002	2.0%	17.6%	44.9%	87.7%
December 2002	1.8%	19.3%	45.1%	88.9%
June 2003	2.0%	20.2%	46.4%	89.1%
Recorded losses in value as a percentage of gross value – loans to households				
June 2001	6.8%	20.7%	47.6%	96.3%
December 2001	2.0%	17.5%	43.6%	94.3%
June 2002	1.8%	16.2%	41.8%	90.9%
December 2002	1.6%	16.7%	41.9%	87.5%
June 2003	1.5%	14.5%	41.2%	82.2%

tionally strong growth seen in this market segment. This shift in ratios towards a credit segment with lower risks will result in an improvement of portfolio quality over the longer term. Moreover, the significant growth in the amount of total lending also leads to an improvement in portfolio quality. This short-term impact is enhanced by the fact that that non-performance problems occur much later with housing loans than with consumer loans.

Once again, it was primarily the rise in lending which was behind the decline in the share of recorded loss in value in total gross household lending, this indicator falling by almost one-half in the course of 12 months (from 3.3% to 1.7%). This development strengthened a trend that had already been observed: the share of recorded loss in value in all of the classified categories has been consistently declining *(see Table 2-2)*. This latter process can more than likely be ascribed to the slow increase in housing loans backed by mortgages (which exhibit lower loss rates) within overall classified household lending. Housing loans secured with mortgages have become the centre of attention, due the exceptionally strong growth seen in this type of loan. It is difficult to quantify the risk associated with this type of loan, as past experience is only relevant to a very low level of total outstanding lending and has thus lost a great deal of significance. Unfortunately, no data on the portfolio quality of housing loans is available. The available data relates to the ratio of recorded loss to gross value, which fell considerably over the last year, from 1.5% to 0.5%, while a less pronounced decline was observed in respect of non-housing loans, where the ratio dropped from 4.8% to 4.0%. In addition to the growth in total lending, the drop in the amount of total recorded losses also played a role in the decline seen in these ratios. In respect of housing loans, total recorded losses fell from HUF 6.1 billion to 5.1 billion, while for other household loans total recorded losses dropped from HUF 23.1 billion to HUF 21.2 billion. Assuming that there were no changes in writes off and work-out policy, on the one hand, this reflects that the income position of households has improved considerably in this period, and on the other hand, that banks probably did not provision for growing losses – mainly in housing loans segment – in the future.

The quality of the portfolio has improved as a result of the strong upswing in lending. In the corporate segment, if the economic situation continues to improve and there is further growth in lending, a renewed deterioration of portfolio quality is not expected. In respect of the household sector, in the event that growth in lending levels off in the future and the exceptionally large new stock of loans passes into a more mature stage of the credit cycle, the share of non-performing loans can be expected to rise, which will be accompanied by an increase in net recorded losses.

2.5 Derivatives activities and market risks of banks

BANKS' ACTIVITIES IN THE DERIVATIVES MARKET

The robust increase in Hungarian banks' activities in the derivatives market continued in 2003 H1. The outstanding total of the banking system's derivative contracts rose by 53% in the period under review, exceeding HUF 12,000 billion by end-June. Foreign exchange derivatives played a key role in this brisk increase.

After stagnating during the first five months of the year and soaring in June, Hungarian banks' open foreign exchange derivatives contracts rose by 67% in nominal terms, exceeding HUF 9,000 billion towards the end of the period. Swaps with non-residents and forwards mainly with firms continued to account for the bulk of the increase in foreign exchange derivatives *(see Chart 2-23)*. Swaps and forwards, respectively, accounted for 61% and 26% of the outstanding total at the end of H1. There was also a vigorous increase in the amount of option contracts, although only a few players have been active in the market. At the end of June, almost 90% of the total outstanding option contracts was concentrated at three banks.[20]

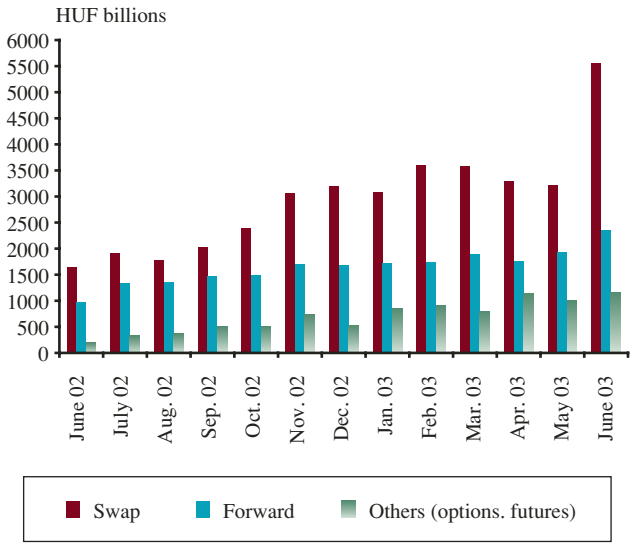
The outstanding total of interest rate derivatives rose at a much more modest rate – the stock of open contracts exceeded HUF 3,000 billion by the end of H1. Whereas in 2002 the stock of FRAs and interest rate swaps both increased robustly, the increase in 2003 H1 was accounted for by swap transactions. At end-June, the share of interest rate swaps and forwards within interest rate derivatives was 53% and 45%, respectively. It should be noted that the degree to which interest rate swaps are concentrated is extremely high in the banking sector, as one bank accounts for nearly 80% of the total.

EXCHANGE RATE EXPOSURE

Looking at the denominational structure of the sector's balance sheet, foreign exchange items stopped declining further in 2003 H1 *(see Chart 2-24)*. However, the slight increase in the ratios of foreign exchange assets and liabilities was ascribable mainly to the depreciation

Chart 2-23

Foreign exchange derivatives of the banking system *(Open contracts)*



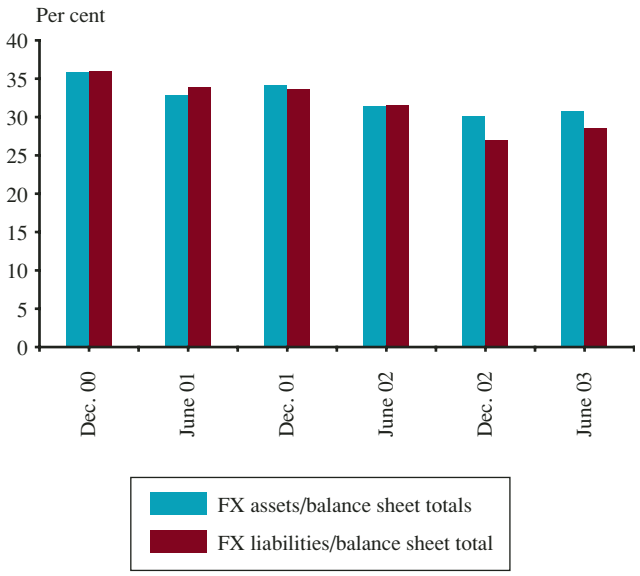
of the forint. Examining the various balance sheet items, foreign currency loans extended to firms and non-bank financial intermediaries as well as foreign currency liabilities from non-resident banks rose sharply even after eliminating the exchange rate effect. Except for corporate sector foreign currency deposits, items denominated in euro continued to increase as a proportion of loans and deposits broken down by major currencies. The depreciation of the dollar slightly contributed to this development. The denominational structure of corporate foreign currency loans experience the largest shift, as a result of which the percentage share of euro-denominated loans rose to 82%.

The speculative attack in January 2003 triggered a shift in the sector's on-balance sheet and forward position, the scale of which has not been experienced before, while the total open position remained unchanged at a low level *(see Chart 2-25)*. In the attack, non-residents built synthetic forint forward positions, intermediated by the banking system, mainly by buying forints in the spot market in combination with related swap transac-

[20] For a comparison, in the FX swap market, the three banks with the largest share of the total outstanding contracts accounted for 49% together.

Chart 2-24

Foreign exchange assets and liabilities as a proportion of the balance sheet total



tions.[21] The resulting long foreign exchange forward positions of banks were closed down as a consequence of interventions conducted by the MNB at the upper limit of the intervention band, leaving the sector's total open position broadly unchanged. The measures taken by the Bank to defend the band led to a weakening of the forint exchange rate. After the speculative attack was rebuffed, non-residents gradually wound down their forint positions up to end-May, and simultaneously the banking system's on-balance sheet and forward open position returned to the level characterising the period preceding the speculative attack.

The consolidation period, after the speculative attack was repulsed, ended with non-residents opening positions against the forint at end-May. At the Government's initiative, on 4 June the Bank and the Government agreed to shift the central parity of the currency downwards by 2.26%, leaving the ±15% intervention band unchanged. After the shift in the intervention band, non-residents increased their positions against the forint, which resulted in a further significant weakening in the exchange rate.[22] Besides the opening of speculative positions, hedging transactions by holders of government securities with open foreign exchange positions may have played a significant role in the massive (around HUF 500 billion) increase in non-residents' short forint forward positions. Banks' long open forward forint positions vis-à-vis non-residents were mainly covered by forward foreign currency sales of domestic non-banks (principally non-financial corporations). Consequently, the banking sector's total open position remained insignificant.

Banks' forward positions vis-à-vis both non-residents and domestic firms opened up to a large extent in the period surrounding the shift of the intervention band, which has not been experienced in the past. This raises the question as to what extent a sudden, large increase in non-residents' short forint forward position can be hedged by inverse forward transactions with domestic firms. There are no data available on the degree of concentration of banks' derivative transactions with domestic companies and also on the nature of these forwards (i.e. hedging or speculative purpose).[23] In the absence of such information it is difficult to make a judgement about the extent of potential counterparty risk stemming from forward transactions with corporations. It is seen as a further risk factor, that the number of companies which are active in the derivative markets is supposed to be relatively limited. Thus, there is no guarantee that a sudden, large shift in non-residents' short forint positions can always be offset by forward transactions with the domestic corporate sector.

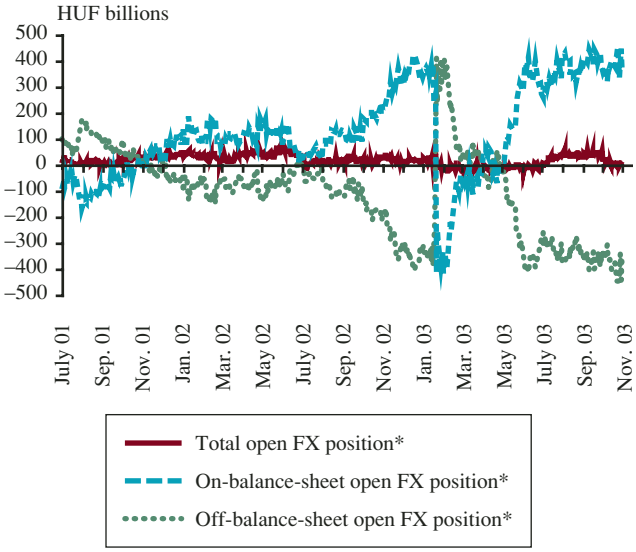
Due to the Bank raising interest rates twice by a total 300 basis points, non-residents' forward position against the forint stopped increasing by the end of June, followed by a strengthening of the forint up the end of September, accompanied by slight fluctuations. A large-value transaction caused a significant change in the open position of the banking system from July 2003 onwards, as a result of which the total open position varied in the range of HUF 40–60 billion. Apart from this one-off effect, the sector's total position has remained near-neutral.

Although banks' direct exposure to exchange rate risks continued to be low in 2003, the considerable exchange rate volatility and forint depreciation seen in most recently may expose banks to additional risks indirectly, through their customers' foreign exchange exposure. Foreign currency lending to the corporate sector and non-bank financial intermediaries, and bank-owned financial enterprises in particular, was robust in 2003 H1. In the case of non-financial corporations, the majority of firms with large outstanding foreign currency borrowings have long foreign currency positions (for example, exporters) or are able to protect themselves against the negative consequences of the forint depreciation, due to the nature of their activities (for example, firms selling imported goods). However, for a smaller part of firms with short foreign exchange positions, which are not "naturally" hedged and do not use derivatives, the negative influences of

[21] A forward forint position is the result of two transactions, a forint purchase in the spot market and a related swap transaction.
[22] As seen in the January speculative attack, non-residents opened their position using spot-swap pairs in the opposite direction.
[23] Anecdotal information from the banks suggests that the dominance of exporters, which use forwards for hedging purposes, is the most likely.

Chart 2-25

Banks' total foreign currency position



** Positive value: long FX position.*

the depreciation of the forint in January and June may have added to default risk.

Bank-owned financial enterprises, for example, leasing firms, do not undertake direct exchange rate risk, similarly to banks, as they finance their foreign currency-based leasing and lending transactions mainly from foreign currency loans provided by their parent bank, and thus pass the exchange rate risk on to debtors. Households, and small and medium-sized enterprises account for a dominant share of financial enterprises' customer base, which in turn do not hedge their exchange rate exposure with derivatives. Consequently, the strong increase in foreign currency loans to non-bank financial intermediaries may have added to credit risks at the group level.

In sum, exchange rate volatility has been quite high in 2003, a phenomenon not experienced in earlier periods. Banks, however, have continued to refrain from taking exchange rate risks. Consequently, the massive depreciation of the forint does not represent a significant source of loss for banks. Nevertheless, the observed strong expansion of foreign currency lending in certain sectors and the considerable forint depreciation has increased banks' exposure indirectly. Taking account of the fact that the ratio of outstanding loans of debtors negatively affected by the forint depreciation to the total portfolio is relatively low, the resulting increase in risks remains insignificant.

The tendency of banks to rely primarily on forward transactions with non-financial corporations in hedging positions opened by non-residents, can be considered as a more serious risk factor. It seems questionable, whether the scope of firms interested in derivatives with a hedging purpose is broad enough to repeatedly "pass on" the large fluctuations in non-residents' positions.

INTEREST RATE RISK EXPOSURE

The volatility of money market yields and bank interest rates increased in 2003. In order to reign in speculation on forint appreciation in January, the MNB lowered official interest rates by 200 basis points in two days,[24] and then, in June, raised rates by a total 300 basis points, in an attempt to prevent the forint from depreciating further. Bank interest rates followed movements in benchmark money market rates relatively swiftly and to a large extent *(see Chart 2-26)*. However, banks priced corporate loans and household deposits asymmetrically in response to the interest rate changes in different directions – banks reacted more flexibly to the interest rate reductions in both market segments than to the interest rate increases.[25] In the period under review, corporate lending and deposit rates adjusted more flexibly, as seen in earlier episodes, than household deposit rates. As a consequence, corporate lending and corporate deposit margins changed only very slightly (falling by 10–15 basis points), while household deposit margins rose by 50 basis points during the first nine months of the year.[26] It should be noted, however, that, presumably as a result of competition for household funds becoming increasingly more intense, household deposit rates became more flexible in adjusting to money market rates in 2003.

Analysing banks' repricing gaps, the sector's exposure to interest rate risks moderated in 2003 H1, as the gap narrowed in absolute and relative terms compared to end-2002[27] *(see Chart 2-27)*. The three-month cumulative forint repricing gap narrowed by more than HUF 100 billion. As a result, the ratio of the gap to the balance sheet total was –8.2% at end-June *(see Table 2-3)*. The increase in mortgage lending triggered significant changes in the repricing profile of the banking system's

[24] In the period from the central bank measures taken to check the speculative attack until the restoration of its policy instruments at end-February, the overnight interest rate became the Bank's main policy instrument, instead of the base rate, so effectively there was a decrease by 500 basis points. However, banks' repricing activity suggests that they considered only the 200 basis point reduction of the base rate as permanent.

[25] In part, this asymmetric reaction can be explained by different competitive conditions in the market of corporate loans and household deposits. Presumably, fierce competition in corporate lending prevented banks from incorporating the rise in money market rates in full. In the household market, banks incorporated less of the interest rate increase in household deposit rates, utilising their market power.

[26] The three-month BUBOR has been used as a reference rate to calculate the margin between short-term lending and deposit rates.

[27] It is important to note that much remains to be done in order to improve the reliability of data related to forint and foreign exchange repricing gaps. Consequently, the Bank has used a number of estimates in compiling the time series for repricing gaps, which, therefore warrants caution when drawing conclusions.

Chart 2-26

Three-month BUBOR and banks' interest rates

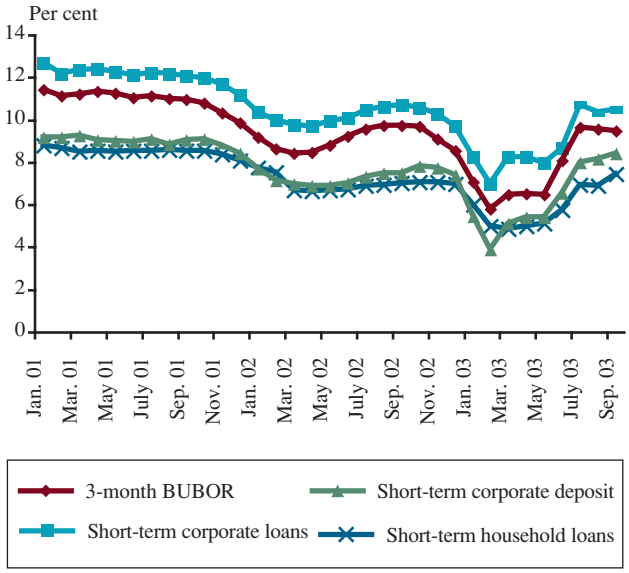


Table 2-3

Major indicators of banks' interest rate risk exposure

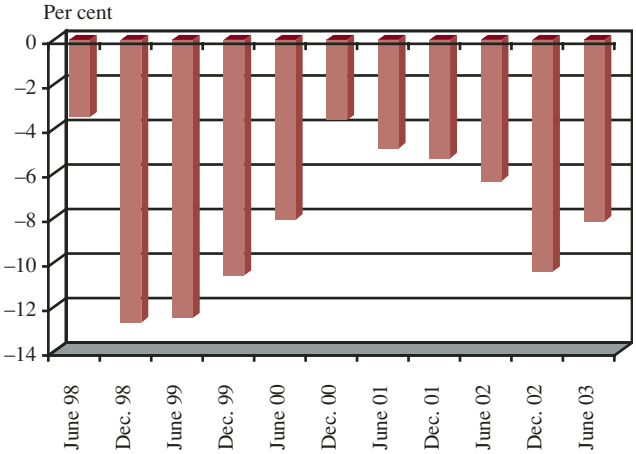
	2002	2003 H1
90-day cumulative HUF repricing gap (HUF billions)	-1060	-937
90-day cumulative EUR repricing gap (HUF billions)	-38	16
90-day cumulative USD repricing gap (HUF billions)	-112	-86
90-day cumulative HUF repricing gap/ balance sheet total	-10.4%	-8.2%
90-day cumulative EUR repricing gap/ balance sheet total	-0.4%	0.1%
90-day cumulative USD repricing gap/ balance sheet total	-1.1%	-0.8%

assets and liabilities. The ratio of assets with a repricing period of over one year has risen from 8% to 20% and that of liabilities with a repricing period of over one year from 3% to 11% in the past 18 months.[28] The degree to which the banking system's gap is concentrated among individual banks continued to be high and even increased further in 2003 H1.

It should be noted that the analysis of the repricing gap provides relatively little information about the actual size of interest rate risk exposure. For example, the size of the negative gap is overestimated by the fact that more than one-third of forint deposits are overnight and current account deposits, which, although they are classified into the shortest (i.e. 0–30 day) category, actually are repriced much less frequently and to a much lesser extent relative to market rates. In addition, there have been significant changes in banks' asset profiles (for example, the increase in the ratio of loans to total assets) and the shape of the yield curve. These factors, in turn, significantly reduce the applicability of the gap analysis.

Chart 2-27

90-day cumulative forint repricing gaps of the banking system



The strong volatility of yields in 2003 has had a significant influence on the value of banks' government securities holdings and the profit and loss realised on government securities. Over the first five months of the year, and in January–February in particular, banks realised massive gains on their existing holdings, due mainly to the decline in short-term yields. The yield curve shifted upwards considerably in June, as a result of which banks incurred a nearly HUF 3 billion loss on securities held for trading purposes. Compared with the rise in yields (200–300 basis points), this loss was modest, also explained by the relatively short duration of the sector's total government securities holdings. At end-June, banks held a total HUF 1,434 billion in government securities. This accounted for 12% of the balance sheet total. The duration of total bank government securities holdings can be estimated at 1.2 years which is below the duration of the total outstanding government paper stock. Exposure to interest rate risk is significantly reduced by the fact that treasury bills and variable-rate consolidation bonds together account for more than 40% of total bank government securities holdings (20% and 21%, respectively). Indicating the relatively modest exposure of government securities holdings to interest rate risk, the capital requirement of trading book position risk accounts for only 1.5% of the banking system's regulatory capital.

[28] It should be noted that these ratios contain duplications on both the assets and liabilities sides, due to the purchases by credit institutions of a part of mortgage bonds and the refinancing of a part of housing loans by mortgage institutions.

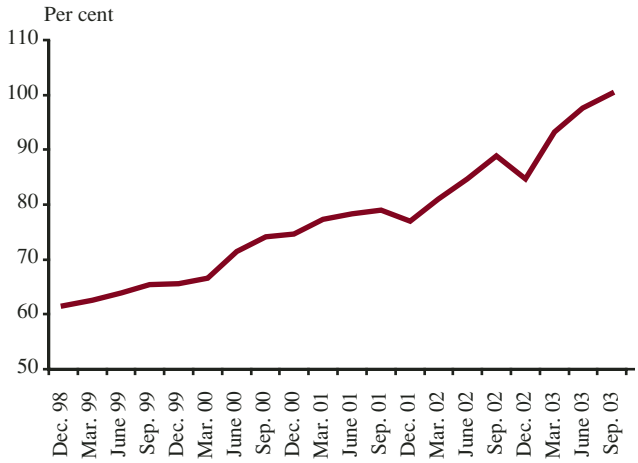
Taken together, the volatility of money market interest rates and long-term yields has increased considerably in 2003. Given the substantial difference between assets' and liabilities' average repricing period, increased interest rate volatility may strengthen the fluctuations in banks' net interest income. Sharp rises in bond yields, as experienced in June, could potentially cause serious losses for banks with larger portfolios. However, from the perspective of interest rate risk exposure, the relatively short duration of the banking system's government securities portfolio can be seen as a mitigating factor.

2.6 Banking sector liquidity

Continuing the previous years' trend, deposits grew at a considerably more modest rate than outstanding loans in 2003 H1. Whereas total outstanding loans grew by 33% in one year, deposits and securities (on the liabilities side) only continued to grow at a rate of 16%.[29] Accordingly, the loan-to-deposit ratio[30] continued to rise, to reach nearly 100% by the end of the period *(see Chart 2-28)*. This very strong increase in the loan-to-deposit ratio can be attributed to the extremely robust rise in housing loans and households' low propensity to make deposits. Contributing to this was the increase in the corporate sector's net financing requirement in 2003 H1. To a smaller extent, the increase in the loan-to-deposit ratio was also explained by the fact that the depreciation of the forint in June contributed more to outstanding loans than to deposits, due to the higher ratio of foreign exchange items.

Chart 2-28

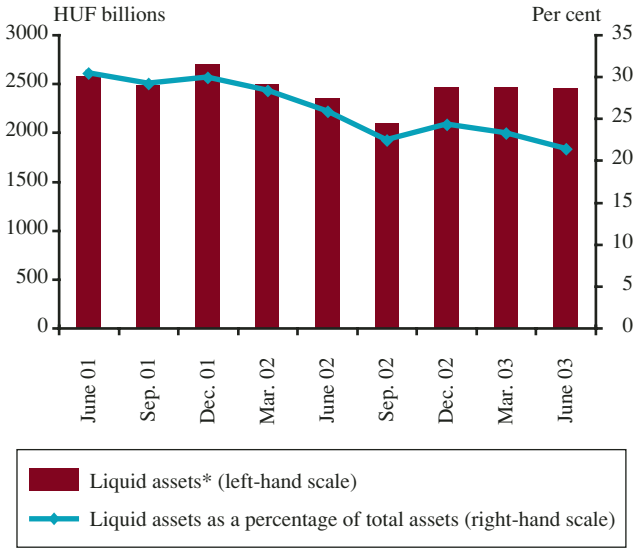
Loan-to-deposit ratio of the banking sector



The banking sector's liquid asset ratio continued to fall in 2003 H1, apart from the transient sharp rise related to the speculative attack in January *(see Chart 2-29)*. However, it was not the rundown of liquid assets that served as an additional source of funding the expansion of lending, unlike in 2002 Q1–Q3, as the value of liquid assets remained around the level at end-2002 throughout H1, apart from the jump in January. This was made possible mainly by the strong inflow of foreign funds. After eliminating the exchange rate effect, foreign exchange liabilities from abroad increased by around 30% in the period, short and long-term liabilities having nearly equal shares in this growth. As a result of the considerable rise in short-term liabilities with non-resident banks, domestic banks' money market exposure increased somewhat in 2003 H1 *(see Chart 2-30)*.

Chart 2-29

Liquid asset ratio



** Liquid assets: cash and settlement accounts, treasury bill and government bond holdings (excluding consolidation bonds), securities issued by the central bank, short-term deposits at the central bank and short-term claims on foreign banks.*

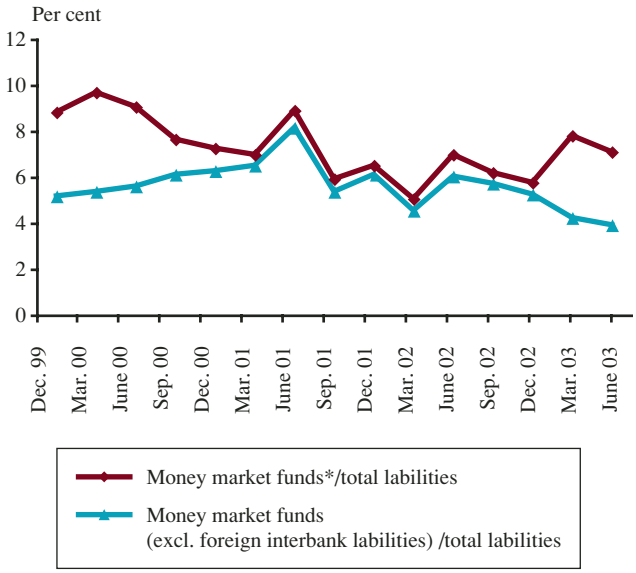
Both long-term assets and long-term liabilities increased considerably as a proportion of the total in the period under review, while maturity transformation in the banking sector increased only marginally, in contrast to the previous year *(see Chart 2-31)*. The shift towards long

[29] Here, deposits alone increased by 13%.

[30] Loans and deposits not only include corporate and household sector data, but all loans provided to credit institutions as well as deposits of non-banks and securities liabilities. Securities purchases by other domestic credit institutions have been eliminated from the data on securities liabilities.

Chart 2-30

Money market exposure

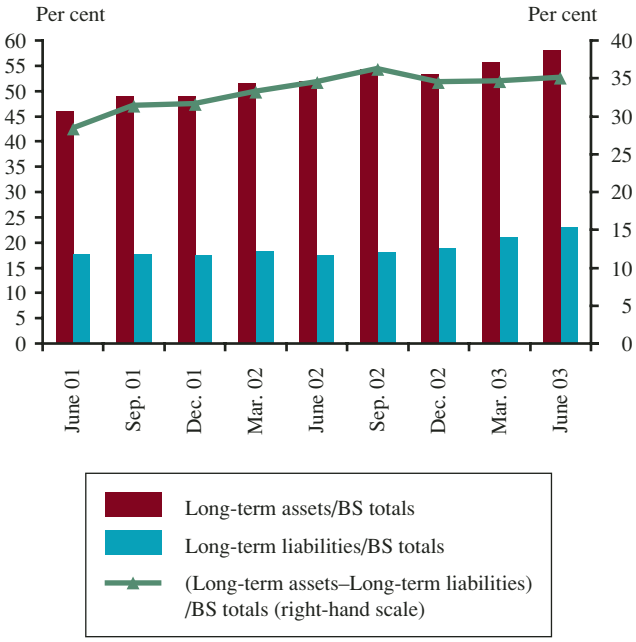


** Money market funds: short term domestic and foreign interbank liabilities + central bank repo.*

maturities within the asset profile in H1 was due to the strong rise in mortgage lending and in long-term loans to the corporate sector. The sharp jump in foreign bank liabilities was one of the dominant factors responsible for the increase in the ratio of long-term liabilities to the total, in addition to the rise in the issuance of mortgage bonds.

Chart 2-31

Long-term assets and liabilities of the banking sector as a proportion of the balance sheet total



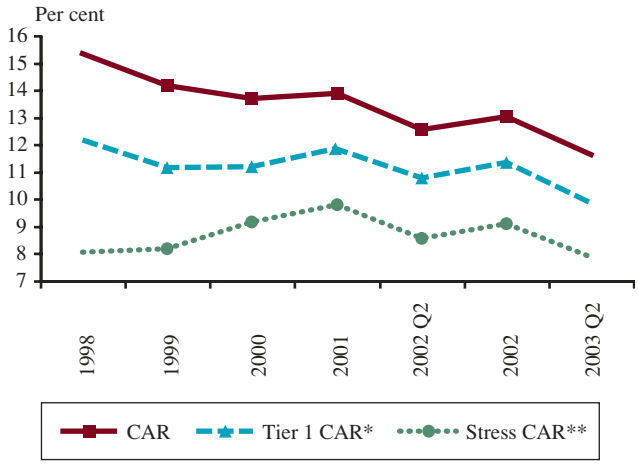
Overall, the liquidity risk of the banking system increased in H1, due mainly to the rapid increase in the loan-to-deposit ratio. The sector's high loan-to-deposit ratio, coupled with the decline in liquid assets as a proportion of the total, indicates that banks have an increasingly smaller buffer to manage potential liquidity crisis situations.

2.7 FINANCIAL POSITION AND CAPITAL ADEQUACY

As of 1 January 2003, several modifications were made in the method of calculating credit institutions' capital adequacy and regulatory capital. As they affect the indicators used in this *Report,* a summary of the modifications is presented in the box text. Similar to the immediately preceding period, capital adequacy ratios have dropped: CAR has fallen to 11.6% and stress CAR to 7.9%. Moreover, the regulatory change reduced the stress CAR by 0.3% percentage points. After adjustment for reinvested earnings,[31] indicators are but slightly lower than the corresponding year-end figures.[32] Consequently, the capital strength of the sector as a whole has slightly declined but remains satisfactory all in all. Disregarding expected reinvested earnings, all banks comply with the statutory 8% minimum for solvency ratio. However, if the capital requirement of the trading book is included, there are two banks unable to meet the 8% CAR *(see Chart 2-32).*

Chart 2-32

Capital adequacy ratio (CAR), stress CAR and Tier 1 CAR



* *Tier 1 capital/risk adjusted total assets.*

** *(tier 1 capital – net value of non-performing claims)/(risk adjusted total assets – net value of non-performing claims).*

The CAR figures registered by the five largest banks remain below the sector average. Although the difference has shrunk to less than 3 percentage points, this is a merely temporary phenomenon as it is due to the fact that one of the large banks has been preparing its equity side for the purchase of a subsidiary *(see Table 2-4).*

Table 2-4

Capital adequacy of the five largest banks and the sector

	June 2001	Dec. 2001	June 2002	Dec. 2002	June 2003
Share of the five largest banks of the banking sector's assets	54.8%	60.4%	59.6%	58.7%	59.6%
Average* CAR of the five largest banks	12.1%	11.9%	10.5%	11.7%	10.5%
Banking sector CAR*, excluding the five largest banks	14.8%	16.7%	15.5%	14.9%	13.3%
Average CAR* of the banking sector	13.5%	13.9%	12.5%	13.0%	11.6%

* *Weighted.*

The ten largest banks' resilience to stress has declined *(see Chart 2-33).* If the maximum loss is incurred, no more than three banks would have a Tier 1 capital-based stress CAR in excess of 8% (four of them, with adjustment for reinvested earnings). As a result of the regulatory change affecting the Tier 1 capital, one of these banks, which used to be far above the limit, has fallen below the limit.

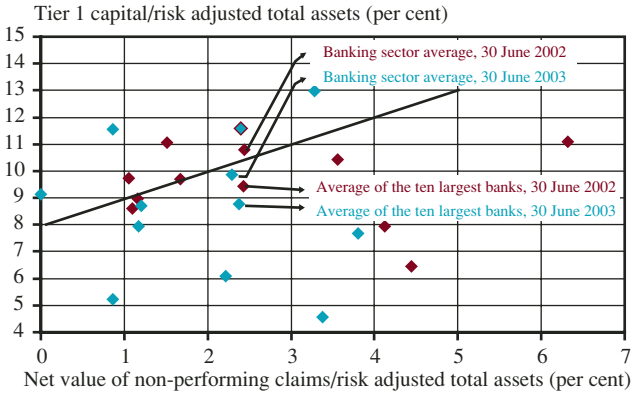
Over the past six months the risk-adjusted balance sheet total rose by 15%, hardly exceeding the growth pace of the balance sheet total (13%). At end-2002, the trend seen over the last several years that the risk-adjusted balance sheet total grew significantly faster than the balance sheet total came to a halt. The majority of banks cannot afford any longer to finance credit expansion via a restructuring the balance sheet. Banks must increasingly resort to external funding *(see Table 2-5).*

[31] Regulatory capital is increased by "banks' aggregate after-tax profit x (1 – dividend pay-out ratio)". Based on a cautious estimate, a 30% indicator was used for the dividend pay-out ratio. General risk provisions can be disregarded, as they increase the regulatory capital and reduce the after-tax profit and, consequently, the regulatory capital through retained earnings. Thus, due to reduced tax-payment obligations, their overall positive impact on the regulatory capital is insignificant.

[32] This would make CAR 12.6% and the stress CAR 8.9% as against 13% and 9.1%, respectively, at the end of last year.

Chart 2-33

Financial position of the ten largest banks, their average, and sector average and maximum losses incurred as a result of non-performing assets, 30 June 2002 and 2003



Weighted averages.

The sector's internal ability to accumulate capital remains strong, nearly equivalent with the expansion of activity. Primarily as a result of an extremely high rate of reinvested capital due to last year's low dividend payout ratio, regulatory capital before deductions rose by 19% over the past 12 months (and by 23% if adjusted for the reinvested earnings during the first six months of 2003), and by 5% in the past six months (or 12% with the same adjustment). Despite regulatory changes affecting the regulatory capital, the ratio of Tier 2 capital has seen little growth,[33] with its ratio remaining the same even if adjusted for reinvested earnings. As a result of investments and subordinated loan capital extended to financial institutions, insurance companies and investment companies, capital deductions continued to increase, rising by nearly 10% to HUF 73.5 billion.

Box 2-2

Changes implemented in the methodology of calculating credit institutions' capital adequacy and regulatory capital

The capital adequacy ratio (CAR) used so far has been replaced by the solvency ratio as a result of last year's amendment of Act CXII of 1996 on Credit Institutions and Financial Enterprises (hereinafter: Hpt.). This is more than just a change in name, as it also involves major changes to the content. The numerator of the new index contains the capital constituents that can be used for the fulfilment of the capital requirement for trading book, exchange rate and commodity risks. In respect of the CAR numerator, these items are deducted. Hence, the solvency ratio of institutions keeping trade books will always exceed their CAR. From now on, the measures specified in Hpt. in relation to CAR (i.e. maintenance of minimum capital) will be assigned to the solvency ratio. This means that the capital requirement for trading book, exchange rate and commodity risks is no longer subject to punitive sanctions. Thus, the minimum capital requirement has effectively decreased. In the Bank's opinion, from a prudential perspective CAR is a more appropriate indicator, as it includes capital requirements for more risks. For this reason, the Bank will continue to use CAR in its analyses.

Annex 5 of the Hpt. on the components and calculation of regulatory capital has also been changed as follows:

- Cumulative preferential shares (also paying dividends from previous years in the profitable

Table 2-5

Components of the risk-adjusted balance sheet total

Assets at risk-adjusted values (percentage)	Dec. 2000.	June 2001.	Dec. 2001.	June 2002.	Dec. 2002.	June 2003.	June 2003/ June 2002*
20 per cent weight		4.6	5.0	3.4	4.0	3.9	1.45
50 per cent weight		2.0	2.4	3.5	5.2	6.0	2.15
100 per cent weight		73.7	73.6	72.2	70.6	71.0	1.23
Sum of adjusted balance sheet items		80.3	80.9	79.1	79.8	81.0	1.28
Weighted value of contingent and other future liabilities		18.9	18.2	20.0	19.2	18.0	1.13
Weighted value of forward claims		0.8	0.8	0.9	1.0	1.0	1.46
Risk-adjusted balance sheet total (HUF billions) = 100%	4,698	5,031	5,363	5,955	6,508	7,468	1.25
Balance sheet total (HUF billions)	8,130	8,495	9,053	9,142	10,185	11,480	1.26

** The index numbers have been derived from the increases in the underlying data.*

[33] The ratio of supplementary capital within regulatory capital before all deductions rose by less than one percentage point on a year earlier, and reached 12.8%.

year are deducted from the Tier 1 capital and comprise part of the Tier 2 capital. This change bring the Hungarian category of core capital in alignment with the category "Tier 1" specified in Directive 2000/12/EC of the European Union. According to the audited data of 31 December 2002, this change decreases Tier 1 capital by 1.4% but increases Tier 2 capital by 11.1%. At the sector level, dividend preference shares are insignificant: only one bank uses them.

- Henceforth, that part of Tier 2 capital which cannot be used because of limits related to the ratios of Tier 2 capital to Tier 1 capital and the subordinated loan capital within Tier 2 capital can be considered in Tier 3 capital. Currently, the change affects practically only one bank, and its impact is negligible at a sector level.

- Henceforth the commodity risk of all activities – not only trading book, but also banking items – must be covered by regulatory capital. As of 30 June 2003, its amount was insignificant at the level of both individual banks and the sector as a whole (the latter being a mere HUF 23 million).

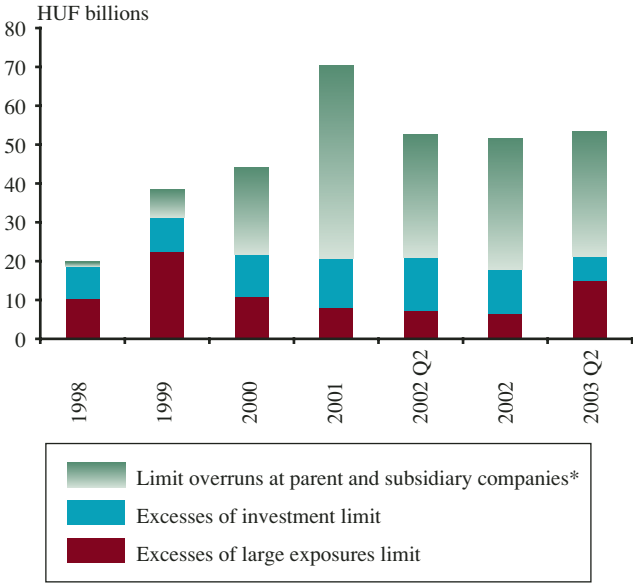
The concentration of excesses over limits has not changed: the majority remain related to three banks. The amount of deductions have, however, increased far slower than activities (by 3.7%), and a simultaneous shift has been seen in proportions: capital deductions resulting from limit excesses over large exposures related to affiliated companies and investment limits have declined, while other large exposure limit excesses have grown *(see Chart 2-34)*.

Within six months the amount of capital requirement related to country risk exposure increased by roughly 90% to HUF 16.2 billion, but the total amount as well as the strong fluctuation may be linked to a single bank. The total amount of limit excesses and country risk exposure to be covered by capital has grown from HUF 60 billion[34] last year to HUF 69.6 billion *(see Chart 2-35)*.

The capital requirement for trading book risks continues to grow at an exceptional pace: over the past six months it rose by a massive 67% (to HUF 25.3 billion). Its growth rate far exceeded the 13% increase in capital requirement for exchange rate risks (which rose to HUF 3.5 billion).

Chart 2-34

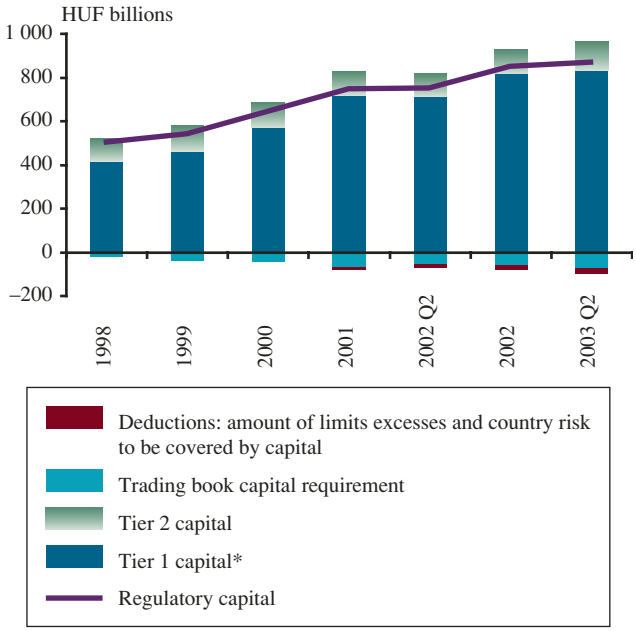
Excesses over limits pursuant to the Credit Institutions Act



* *According to the Hungarian regulations limit excesses should be covered by capital.*

Chart 2-35

Regulatory capital and its components



* *Lowered by the amount of deductions due to investments in other financial intermediaries.*

Over the past six months the sector CAR has deteriorated by a total of 1.4 percentage points. 1.7 percentage points of this change was due to the expansion of activities, with the increase in deductions affecting regulatory capital con-

[34] The current figure is nearly HUF 18 billion less than the value specified in the June 2003 *Stability Report* (HUF 77.9 billion). This is due to the fact that the audited data of one of the banks contained HUF 15 billion less limit excesses than indicated in the preliminary data.

tributing a mere 0.4 percentage points. The rise in regulatory capital, on the other hand, improved the CAR by 0.7 percentage points. If the above computation is adjusted for estimated reinvested earnings, then the increase in regulatory capital almost completely offsets the growth in factors reducing CAR. On aggregate, the sector's capital strength is adequate. In the future, a moderate deterioration of capital adequacy is expected to continue.

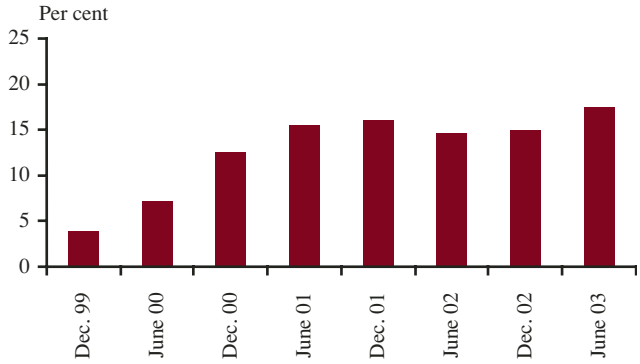
2.8 PROFITABILITY

Despite further slow-down in economic growth, banking sector profitability improved significantly in the first half of 2003, even in comparison to last year's extremely pleasing performance: the sector's HUF 104 billion after-tax profit was 46% up on the base period. The return on asset and return on equity indicators indicate spectacular improvement on a year earlier: ROA rose to 1.58% (from 1.33% in the first half of 2002), while ROE advanced to 17.4%, from 14.6% in 2002 H1[35] *(see Chart 2-36)*.

The rapid increase in subsidised housing loans played an outstanding role in the improvement of banking system profitability over the last one and a half years, as it provided banks with significant extra profit through high interest margins.[36] According to our estimates, profit realised on subsidised housing loans may have accounted for 10-13% of the banking sector's total net profit in 2003 H1.[37]

Chart 2-36

Banking sector ROE



In addition to the significant improvement in banking sector results, it is important to emphasise that profitability differences widened in 2003: the advantages of the most profitable banks increased significantly in comparison to the "average bank". This can be explained by the high concentration of mortgage lending. In terms of banks operating in both 2002 H1 and the first half of 2003, the number of loss-making banks rose from seven to nine.[38] Despite a moderate increase, the aggregate market share of loss-making banks remains low (8%). From the point of view of systemic stability it is a favourable development that only smaller institutions can be found among banks not making a profit.

In contrast to 2002, the growth in net interest income – in absolute terms – exceeded the change in net fee and commission income. Furthermore, the rapid rise in net fee and commission income also played an important role in the favourable development of banking sector profitability. Although the rise in operating costs gathered considerable speed in comparison to last year, it lagged far behind growth in revenues. In comparison to the first half of 2002, the negative effect of the net increase in value adjustments and provisions was somewhat more pronounced *(see Table 2-6)*.

To a major extent, the banking sector's outstanding profit in the first half of 2003 was due to an increase of net interest income far in excess of the previous year's corresponding figure. For the most part this is the result of the favourable volume effect fuelled by strengthening lending activity and the continuing rise in the proportion of housing loans which offer a high interest margin. The increasing role of household lending in profits is clearly indicated by the fact that interest income earned on housing and consumer loans amounted to nearly one-quarter of total interest income on lending in the first half of 2003, while in 1999 this ratio was less than 10%.

Despite the increasing significance of household lending, the spread between banks' average return on assets and the cost of funds fell by 25 basis points in the first half of 2003 compared to a year earlier *(see Chart 2-37)*. In the wake of measures adopted by the central bank to manage the speculative attack, at the beginning of the year there was a temporary upsurge in the share of banks' low interest instruments (central bank O/N deposit), which

[35] Data for ROA and ROE always refer to the last two half-years.
[36] Prior to the modification of the subsidy conditions in June 2003, banks could realise a 7-9% interest margin on state-subsidised housing loans.
[37] In this category, we refer to the housing loans granted under the subsidy scheme introduced in 2001. "Old" type subsidized housing loans (from OTP) have not been taken into account.
[38] In addition, one bank commencing operations in 2003 recorded a loss in H1.

Table 2-6

Banking sector profits

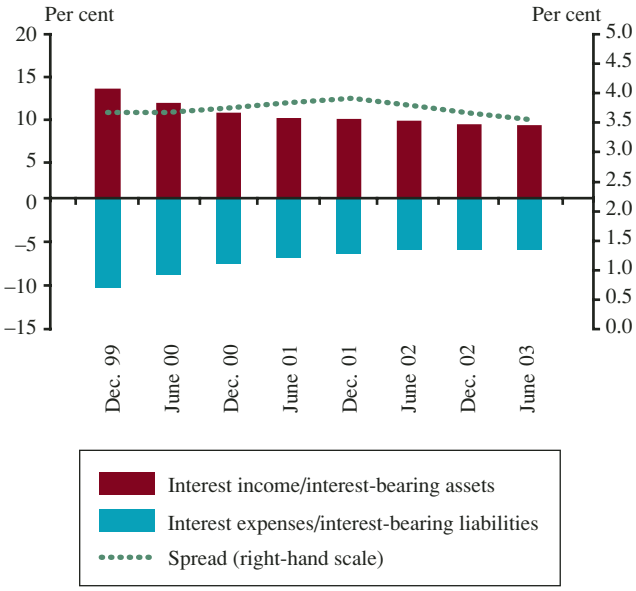
	2002 H1	2003 H1	Change	
			HUF billions	Index
Net interest income	179.9	209.6	29.7	116.5%
Dividend income	1.3	11.3	10.0	893.7%
Net fee and commission income	60.4	79.6	19.2	131.8%
Net profit on financial operations	20.6	28.1	7.5	136.4%
Other income/loss	–9.6	–13.3	–3.7	138.6%
Operating costs	164.2	181.2	17.0	110.4%
Change in value adjustments and provisions	–5.9	–13.5	–7.7	230.6%
Profit on ordinary activities	80.3	118.3	38.0	147.4%
Extraordinary profit	0.2	–1.0	–1.2	
Pre-tax profit	80.5	117.3	36.8	145.7%
After-tax profit	70.8	103.6	32.8	146.3%

tightened the spread. Moreover, as demand and current account deposits yield very low interest, only part of the early-2003 major decline in interest rates could be applied. In the second half of 2003, no further decrease is expected in the spread, as the inflexible pricing of demand and current account deposits (amounting to 37% of the total stock of forint deposits) following the June interest rate rises is expected to widen the deposit margin. Although the significant decline in the margin on newly disbursed housing loans will tend to tighten the spread in the second half of the year, in the case of the overwhelming majority of the loans, banks are still expected to realise the high interest margin applied before modification of the subsidy system.

Net fee and commission income realised by the banking sector exceeded the figure registered in the base period by 32%. As a result, the significance of fee and commission income has further enhanced in profit generation.[39] As fee and commission income is among the most stable sources of income, this change in the income structure is deemed as favourable. The positive image is somewhat overshadowed by the fact that if banks are considered individually, there are extremely significant differences as to the weight of net fee and commission income, and these differences increased further in 2003. Consequently, fee and commission income is highly concentrated within the banking sector: 65% of the aggregate fee and commission income earned by all banks was concentrated at three banks in the first half of 2003. By comparison, the three banks with the largest net interest income have an aggregate

Chart 2-37

Components of spread



share of 43% of the total and the three largest banks have roughly equivalent market shares in the sector's balance sheet total.

Non-interest income related to housing loans constitutes one of the most important sources of the rapid growth in net fee and commission income.[40] In the wake of a 25% increase in turnover with bank cards issued by domestic banks, revenues earned from the bank card business also contributed considerably to the rise in fee and commission income. In addition, the banks' fee income from guarantees doubled (reaching HUF 8.1 billion). A further factor pushing up fee and commission income was the considerable increase of commissions and fees charged for payment services in 2003 Q1.

Net profit on financial operations rose by 7.5% in the first six months of 2003 on a year earlier. As a result of a considerable increase in exchange rate volatility, both the gains realised on foreign exchange assets and liabilities as well as the valuation results, and the losses suffered on foreign exchange derivatives have increased greatly. Consequently, the net profit on foreign exchange transactions and exchange rate changes, accounting for the largest portion of profit on financial operations, exceeded the corresponding figure from the base period by roughly 3%. As a consequence of a significant intensification of interest rate volatility, more favourable aggregate gains were earned on securities bought for trading than in the base period. In the first

[39] The proportion of net commission and fee income rose from 22.9% in 2002 to 24.4% in 2003 within gross operating income.

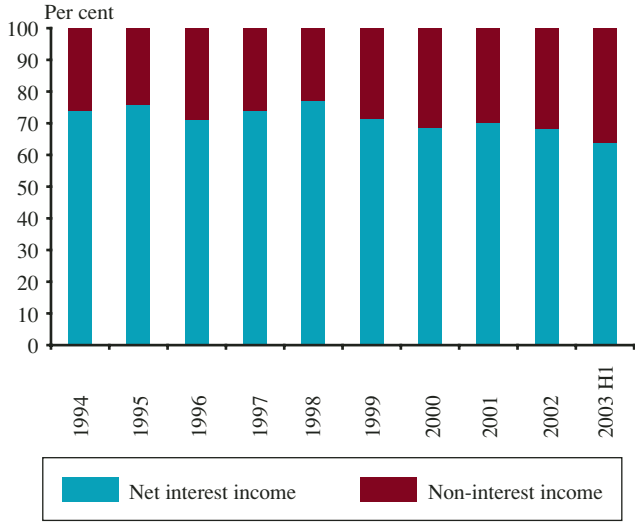
[40] Pursuant to the relevant accounting regulations, commission income qualifying as interest like, such as service charges, disbursement fees or availability fees should not be included in this category.

half of 2003 as a whole, banks realised nearly HUF 4 billion in profits, despite the fact that in June the sector booked a loss of approximately HUF 3 billion on securities purchased for trading purposes.[41]

In the first half of 2003, the proportion of non-interest income rose from 32% in the previous year to 36% of gross operating income *(see Chart 2-38)*. In addition to a robust rise in net fee and commission income, a sudden jump in dividend income – linked primarily to one large bank – had a major impact on this trend. Half of the spectacular rise in the proportion of non-interest income can be attributed to this latter one-off effect.

Chart 2-38

Net interest and non-interest income as a proportion of gross operating income



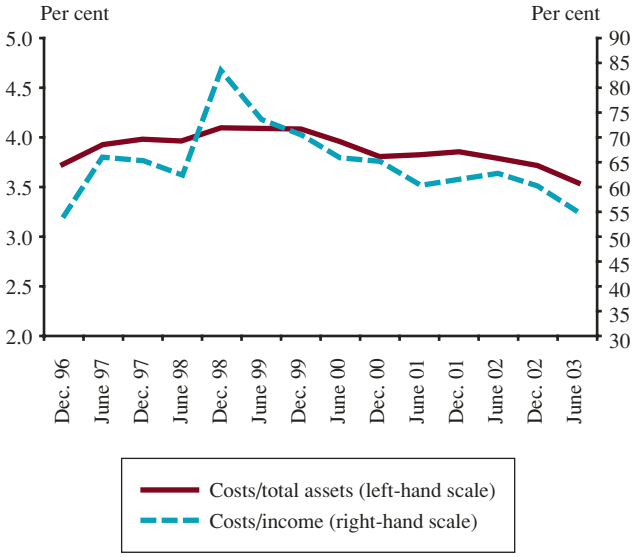
In 2003 H1, the net increase in value adjustments and specific provisions was nearly twice as high as in the base period. The major part of the rise in loan losses is related to corporate loans, which resulted in a moderate increase in the ratio of provisions/gross value of loans for the corporate loan portfolio on a year earlier. Net changes in provisions for equity interests had practically no impact on 2003 H1 results, as compared to the base period when this item improved the balance moderately.

In 2003 H1, operating costs rose far more quickly than inflation (10.4%) in the banking sector. As a result of 5.5% growth in average staff and a 3.6% increase in per capita expenditure, staff costs rose by 9.3%. Growth in the number of employees can be associated primarily with a boom in housing loans. The 26% growth in marketing costs can also mainly explained by the increased role of household lending, whereas IT costs fell by 10% after rising quite rapidly in 2002.

As banks' gross operating income has grown by 26%, despite a considerable increase in the real value of costs, the cost-to-income ratio improved markedly: it fell from 63% last year to 56%. Although more moderately, the cost-to-balance sheet total ratio also improved: it dropped from 3.8% to 3.6% in a year[42] *(see Chart 2-39)*. The improvement in cost efficiency ratios, and the cost-to-income ratio in particular, should be assessed with caution since a substantial part of the increase in total assets and income can be attributable to the boom in subsidised housing loans. Thus, the favourable change in efficiency ratios may provide a somewhat skewed picture of banks' cost efficiency.

Chart 2-39

Operating costs as a percentage of total assets and the cost/income ratio



[41] In 2002 H1, banks did not make profit on the price changes related to securities purchased for trading purposes.
[42] The data related to the costs-to-balance sheet total ratio always refer to the last two half-years.

3 Current topics related to stability

3.1 STRESS TEST RESULTS

In keeping with the Bank's practice of recent years, the impact of a few relevant extreme adverse events are estimated in order to contribute to the assessment of systemic risk in the banking sector. The losses incurred by the individual banks are aggregated and expressed as a percentage of the sector's core capital. Note that the adopted approach differs markedly from that followed in other parts of the *Stability Report*. One of the major differences is that here we focus on changes in asset value rather than changes in income. As in some cases losses in asset values are not immediately realised, and it is possible to avoid some of those losses, our results should be considered as very rough estimates.

The tests' results are affected by banks' capital strength, the exposure to certain risk factors and the shocks considered. In respect of capital strength, as of 31 December, 2002 the sector's core capital[43] was 16.3% up on a year earlier.[44]

MARKET RISK[45]

The range of shocks investigated did not change.[46] In calculating extreme events we heavily rely on the methodological recommendations of the BIS and a few large international banks' practices. It must be noted, that due to the recent strong foreign exchange and interest rate volatility, historic shocks approached the hypothetical events closer than ever. A 500-bp increase and a 300-bp decrease in domestic interest rates are analysed first. As for exchange rates, 40% appreciation and depreciation are considered. Losses due to foreign interest rates falling or rising by 200 basis points are also estimated.

The exposure is the largest to a potential increase in domestic interest rates. In addition to the level of this exposure, its increase seen in the past one and a half years is also extremely high. Nevertheless, a major part of this increase can be attributed to a single bank, which saw significant growth in its maturity transformation due to the boom in household mortgage lending.

Table 3-1

Market risk shocks

Market risk	Domestic interest rate	Foreign interest rate	Exchange rate (per cent)
Shock 1	+500 bp	+200 bp	40%
Shock 2	–300 bp	–200 bp	–40%

No definite shift is seen in exposure to exchange rate risk and to large moves of foreign interest rates in comparison to previous years. However, quarterly data indicate significant fluctuation.

The relative size of losses generated by rises in domestic interest rate grew continuously during the period under review, while the potential losses caused by exchange rate moves[47] rose in 2003. Losses due to an increase in domestic interest rate also became more concentrated: 50% of the total loss would be incurred by a single bank (68.7% at the end of 2003 Q2). This loss would, however, account for only 23% (or 37%, respectively) of the core capital of the bank affected. Although losses due to exchange rate changes are less concentrated, several banks would suffer losses in excess of 50%, in one case losses would even exceed 100%. A drop in domestic interest rates and changes in foreign interest rates would, however, have insignificant impact.

Based on the market stress tests there are two phenomena that should be emphasised. On the one hand, the

[43] The end-2002 core capital figures are used for the purposes of computation for each quarter's data. Naturally, upon availability the analysis will rely on appropriately adjusted quarterly core capital data.

[44] This analysis covers banks active at the end of December 2002. In contrast to the practice followed in stress tests in earlier years, but in line with the chapter on the banking sector in the *Stability Report*, Eximbank and MFB have been removed from the analysis. Results for earlier years have been modified accordingly.

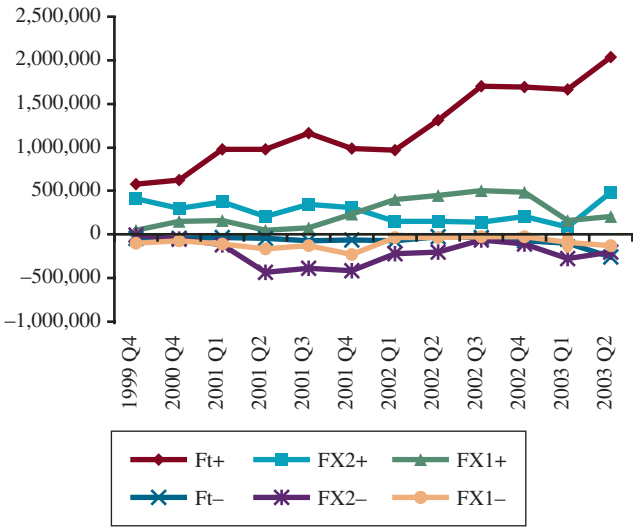
[45] Two of the changes related to data reporting deserve mentioning. The breakdown of repricing balance sheets has been modified (the three-months – one-year category has been replaced by the categories 3–9 month and 9 month – one-year). In addition, foreign exchange denominated items are now reported by currencies instead of the aggregated FX position (EUR- and USD-denominated items are analysed here). As a result, more accurate information is available. These changes do have an impact on the tests' result, but it is not likely to be significant.

[46] See *Report on Financial Stability*, 2002/2.

[47] In the case of FX risks, the EUR and USD losses on net assets are simply added up. This way an upper limit is generated and the result slightly exceeds the losses calculated by netting between currencies. However, the difference is insignificant.

Chart 3-1

Market risk exposure *(Duration-weighted sum of discounted net positions – positive and negative)*



growing maturity transformation of a single bank entails a significant interest rate risk. However, it must be taken into consideration that losses materialise only over the longer term (they are realised slowly or not at all), and thus theoretically there is sufficient time for adjustment. On the other hand, the effects of interest rate rises on liabilities cannot be felt because of the pricing practice of banks. That is, a considerable portion of short-term liabilities is less sensitive to interest rate changes. The losses incurred by the individual banks and the sector, as a whole, due to changes in the exchange rate would slightly exceed the corresponding figures in previous years, although both the exposure and the losses fluctuate widely.

CREDIT RISK

The trends in banks' portfolio that commenced earlier have continued: the share of non-performing loans (hereinafter "NPL")[48] and risk-free assets have decreased, along with the volatility of non-performing claims.

Although our method of defining credit shocks[49] has not changed, the positive changes in the portfolio implied less severe shocks. The four shocks considered are the following: 1) half of the risk-free investments are turned into loans; 2) the NPL of each portfolio increases by 2 standard deviations, estimated from the data for the last 7 years; 3) and from the data for the last 6 years; and 4) the amount of NPL doubles.

The results indicate an improvement in the banking sector's resilience to shocks. The consolidation of

Chart 3-2

Losses due to market risk shocks, as a percentage of tier1 capital

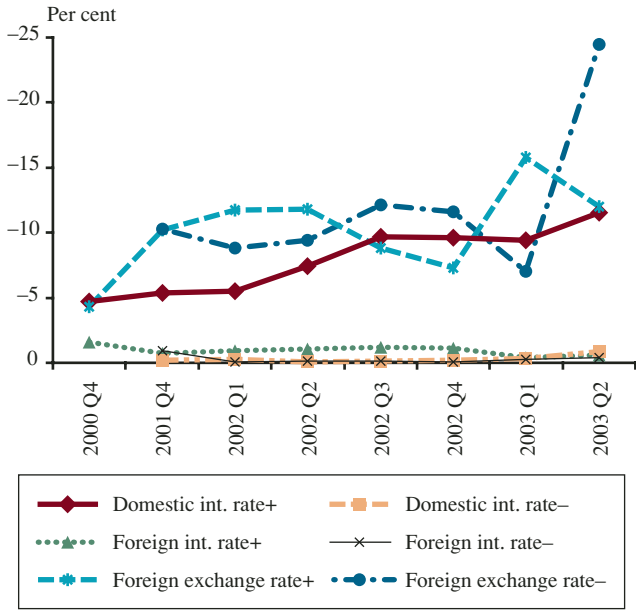


Table 3-2

Characteristics of the aggregate portfolio at the end of 2002

Year	NPL		Risk-free assets (per cent)	Volatility of NPL (HUF million and per cent)	
	Share	Change		Last 7 years	Last 6 years
1999	2.6%	106.7%	21.10%		
2000	1.7%	77.5%	18.20%	61,557 (31.4%)	48,531 (26.8%)
2001	1.5%	105.1%	15.20%	44,822 (24.7%)	45,372 (25.7%)
2002	1.1%	101.0%	13.10%	35,958 (22.8%)	38,709 (24.6%)

Table 3-3

Losses caused by credit shocks

(As percentage of Tier1 capital)

	Shock 1	Shock 2	Shock 3	Shock 4
2000	3.2%	31.1%	25.0%	17.3%
2001	2.0%	19.2%	16.3%	14.2%
2002	1.4%	13.9%	13.1%	12.1%

large banks which were previously loss-making has contributed significantly to the improving trend observed during recent years. Another issue of concern is that the boom in housing loans has positive effects on the results of the stress tests through two

[48] NPL defined as the sum of doubtful and bad claims.
[49] See *Report on Financial Stability,* 2002/2.

channels over the short run: improving profitability and the quality of portfolio. However, these effects are merely temporary.

Table 3-4

Share of banks with losses in excess of 100%

	Shock 2			Shock 3		
	2000	2001	2002	2000	2001	2002
Assets	22.85%	5.54%	3.92%	5.51%	5.54%	3.92%
Losses	80.22%	35.23%	37.22%	37.20%	41.07%	40.89%

The market share of banks with losses exceeding their core capital is low in terms of the total asset of the banking sector and has dropped further in comparison to the previous years. However, their share in the total amount of losses stagnated. The concentration of losses remained practically unchanged.

Table 3-5

Concentration of losses

	Shock 1		Shock 2	
	2001	2002	2001	2002
Largest	39.5%	35.0%	30.1%	37.2%
Largest 5	90.2%	83.7%	77.4%	71.1%
	Shock 3		Shock 4	
	2001	2002	2001	2002
Largest	37.1%	40.9%	24.2%	20.3%
Largest 5	73.2%	71.1%	69.8%	68.3%

3.2 CORPORATE SECTOR PROFITABILITY AND STABILITY

The following provides an analysis of the current situation in the non-financial corporate sector from the perspective of profitability, indebtedness and liquidity, all of which are factors key to financial stability. The analysis is based on balance sheet and profit and loss account data in corporate tax returns.[50]

SUMMARY

In terms of stability, no material change occurred in the non-financial corporate sector in 2002. As regards profitability, the entire sector performed worse than in 2001. However, compared to earlier years, the change was not substantial.

Changes in the economic environment in 2001 and 2002 affected the individual sub-sectors of the corporate sector differently. Business conditions in those sub-sectors facing competition from the non-resident sector failed to improve during those two years, which in turn affected the profitability of exporters adversely. A favourable development is that, relative to the steep decline experienced in 2001, profitability in these traditionally highly profitable sub-sectors deteriorated only slightly in 2002, despite the downturn in the business cycle and the appreciation of the forint exchange rate. Moreover, manufacturing profitability improved in 2002. Profitability in the services sector hardly changed in 2002. The underlying reason for the profitability level being still high is that consumption grew strongly in 2001–2002, with consumption expenditure on services rising more rapidly than aggregate consumption. Two major impacts are expected to affect future developments in aggregate profitability. An anticipated upturn in the global business cycle and hence in economic growth in Europe in 2003 and 2004 is expected to boost external demand for Hungarian tradables, and thus enhance the profitability of exporting companies. At the same time, a considerable slowdown in consumption growth is expected to occur, which may have an adverse impact on the services sector.

Similar to profitability, there were no changes to the capital structure of companies, which could have posed upside risks to the stability of the sector as a whole. However, one unfavourable development was that the situation in the corporate sub-sectors with the greatest risks to financial stability failed to improve in 2002. The weight of these sub-sectors has hardly changed and is still significant.

PROFITABILITY

In order to measure corporate profitability, the indicators used in last year's *Report* were employed. The first natural indicator is the ratio of loss-making companies to total companies. In 2002, 29% of all companies incurred operational losses. This does not represent a substantial change compared to 2001,[51] and another favourable development was that in 2002 the ratio of aggregate loss fell by 3 percentage points from 44% to 41%.

A detailed analysis of the indicators calculated from balance sheet and profit and loss account data in corporate tax returns provides for the possibility of a more thorough investigation. As a first step, ROA and profit margin were used to analyse non-financial corporations.

ROA (Return on Assets) = operational income/balance sheet total.[52]

Profit margin = operational income/net sales revenue.

[50] The results of the analysis cannot always be compared directly with those in the *Report on Financial Stability* published in November 2002, since, relative to the sample analysed last year, the number of the companies included in this analysis has changed. Similarly to last year's analysis, this year's analysis also excludes financial, budgetary and non-profit companies. What is new is that those companies where the number of employees was fewer than two or fewer than five for three successive years have been excluded. Thus, the number of observations has fallen by 66% to 429,000.

[51] The indicator was 28% in 2001.

[52] In the case of the ROA indicator, the year-end value of the stock variable was used in the denominator instead of the annual average. Indicators calculated from stock and flow data cannot be regarded as authoritative. The analysis focussed on annual changes. It should be noted that as balance sheet and profit and loss account data reflect a situation at a point of time and during a given period respectively, ROA-type indicators may be biased during both period of high and declining inflation. The reason for this is that flow data reflect average annual inflation, whereas stock data show year-end inflation. As this analysis is focussed on recent developments, it does not seek to filter out such effects.

Corporate profitability between 1993 and 2002 was examined on an aggregate level and in a sectoral breakdown.

AGGREGATE PROFITABILITY

In order to present an accurate picture of the changes in the profitability of the sector, operational profitability was divided into a component indicating input efficiency and another indicating output efficiency.

ROA = (operational income/sales revenue)*(sales revenue/balance sheet total)

Operational income as a proportion of sales revenue represents the operational profit margin, which can function as an indicator of corporate cost efficiency. It measures the extent to which corporate output is translated into profit, i.e. to what extent companies can adjust on the cost side to changes in the economic environment. The ratio of sales revenue to assets functions as an indicator of capacity utilisation, which denotes corporate adjustment in terms of output.

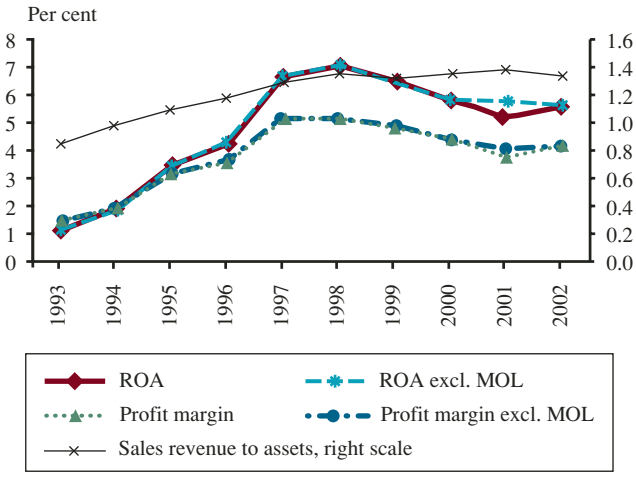
Chart 3-3[53] shows ROA and its two components. Nearly throughout the period under review, ROA was more sensitive to developments in the profit margin, i.e. input efficiency. This was also the case in 2001, when deteriorating cost efficiency resulted in deteriorating corporate profitability. By contrast, the aggregate corporate profit margin remained unchanged in 2002. The slight decline in operating profitability can be attributed to a moderate decrease in sales revenues.

The deterioration in profitability in 2002, however, was not significant, and did not exceed the slight decrease registered in 2001. Currently, the earning capacity of the corporate sector is still close to the high levels recorded in both 1997 and 1999. The strong profitability in the period between 1997 and 1999 was due to the global economic recovery and in particular to foreign direct investment, which was especially significant in the mid-1990s. The latter improved export profitability particularly rapidly. A separate section analyses the profitability of the export sector.

In addition to aggregate profitability, a factor which is of relevance to stability is whether or not the profitability of the least profitable companies deteriorated to a larger than average degree. In order for this to be assessed, the distribution of the individual corporate indicators must be examined *(see Chart 3-4)*. In order

Chart 3-3

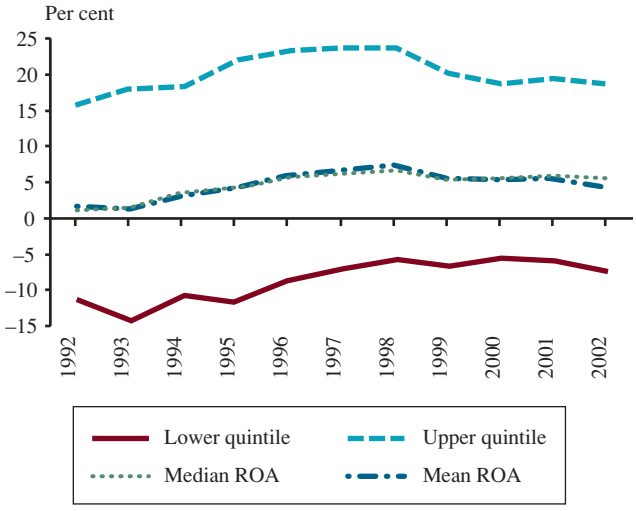
Corporate sector profitability indicators *(1993–2002)*



to analyse the distribution, for firms' ROA we selected the lower and upper quintiles, i.e. the limit of the lower and upper 20% of companies, and the median and the average. These indicators strongly suggest improving corporate profitability until 1998. Both mean values and quintiles increased prior to 1998, i.e. the distribution was not skewed. The narrowing of the distribution in 1999–2000, however, points to the fact that the deterioration of aggregate profitability was mainly attributable to the poorer performance of the most profitable companies.

Chart 3-4

Distribution of ROA *(1993–2002)*



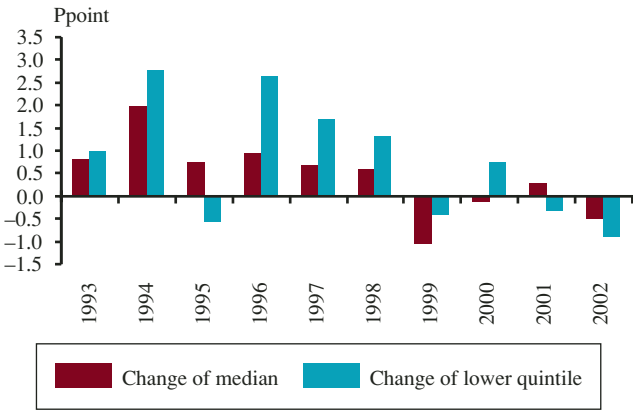
Developments in the position of least profitable companies relative to the mean is relevant for stability, since it indicates whether these firms are catching up or loosing

[53] In 2001, due to the losses suffered by its gas division, MOL's operating income was negative, which is an unusual development in the period as a whole. The chart also includes the profitability indicators excluding MOL, lest the one-off effect of this significant anomaly distort the picture of the sector as a whole. In the analysis we rely on these latter numbers.

ground. The difference between the bottom quintile and the median shows just what we are investigating, namely to what extent the position of the least profitable companies, relative to the average, has improved or deteriorated. In terms of stability, the most favourable scenario is when both the mean value of the distribution and the bottom quintile increase, with the latter growing more vigorously. This, i.e. improvement among the least profitable companies, was discernible before 2000 *(see Chart 3-5)*. The only exception is 1999, when the entire distribution shifted left. Even so, the relative position of the least profitable companies continued to improve, since the median value decreased more significantly than the bottom quintile.

Chart 3-5

Changes in mean and median ROA *(1993–2002)*



In 2001, this improvement came to a halt, and the least profitable companies drifted away from the median. In 2002, the difference between the median and the bottom quintile further increased, i.e. differentiation, which started a year earlier, continued. This, however, does not mean that the risks that the least profitable companies pose to stability are significantly higher, for the profitability of such companies is still close to their 2000 high.

SECTORAL PROFITABILITY

Detailed data show that in the period under review the two largest sub-sectors,[54] i.e. manufacturing and services, are key to the dynamics of the corporate sector as a whole *(see Chart 3-6)*. As manufacturing plays a decisive role, the issue of its profitability is dealt with separately.

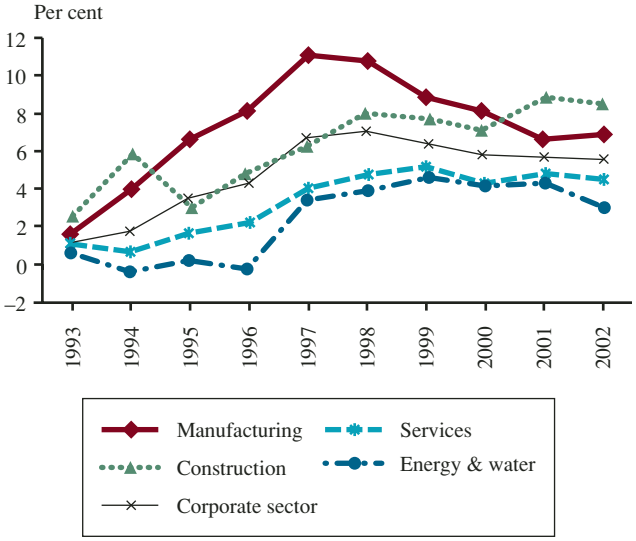
The profitability of the services sector improved steadily until 1999, but the declined slightly in 2000. However in both 2001 and 2002, it remained close to its 1999 high.

The high earning capacity of the services sector over the last two years can be attributed to the fact that the profitability of *Trade and repairs,*[55] the most important sector in terms of operational income, continued to improve. This is very likely to have been closely related to a vigorous increase in household income and consumption. After a period of massive deterioration in their profitability in 2002, companies in the other major services sub-sector, i.e. *Transport, storage and telecommunications,* were still unable to improve profitability in 2001. In fact, in 2002, their profitability declined. One reason for this might be that world market prices of crude oil spiked again in 2002, directly boosting transport costs.

Chart 3-6

Profitability (ROA) in individual sub-sectors

(1993–2002)



Profitability of the *Construction* sub-sector remained broadly flat in 2002, close to its high in 2001. The reasons for this are likely to include the Government's housing policy-related measures and infrastructure investment. Profitability in *Energy & water* declined. Nevertheless, it was still close to its peak values recorded in the second half of the 1990s.[56]

Manufacturing profitability, which deteriorated significantly in 2001, stopped declining in 2002. As this sub-sector contributes to the profit of the entire corporate sector considerably, we will discuss its developments in a separate section.

Real appreciation of the forint in 2001 and its strength in 2002 were two major macroeconomic phenomena

[54] In the period under review, within the corporate sector as a whole, manufacturing and the services sector contributed to the operational income by 50% and 33%, respectively. *Agriculture* and *mining*, excluded from the chart, accounted for a mere 5% of the entire non-financial corporate sector.

[55] *Trade and repairs* as well as *Transport, storage and telecommunications* account for nearly 50% and 20%, respectively, of the operational income of the entire services sector.

[56] In assessing the performance of this sub-sector, it should be noted that prices here are mostly regulated. Therefore, decisions by the government distort the the effects of market developments.

during these two years. Therefore, the profitability of both export-driven companies[57] and firms operating on the domestic market were examined, in order to decide whether differentiation in the corporate sector can be attributed to the varying degrees of corporate forint-exposure.

Profitability of exporters and non-exporters

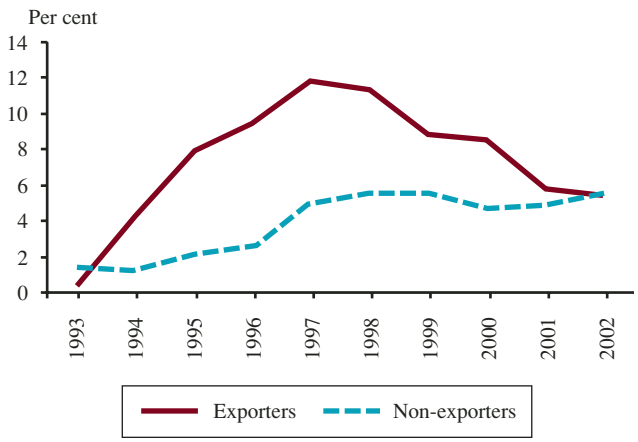
Chart 3-7 reveals that, throughout the period under review, exporters were more profitable than non-exporters. Export profitability improved rapidly in the first half of the 1990s and in 1997, its culmination coinciding with accelerating growth in EU member states and declining oil prices. In addition to an upturn in the global business cycle, foreign direct investment, which peaked during the period between 1997 and 1998, also boosted profitability.

The downward trend in profitability that followed is likely to have been closely related to the prolonged pass-through effects of the Russian crisis, as exports to Russia were still considerable at that time. The difference between exporters and the companies targeting domestic markets diminished markedly in 2001, when the forint appreciated strongly. Since the forint exchange rate appreciation in 2001 coincided with declining economic growth in EU member states and resultant sluggish demand for Hungarian tradables, the impact of these two factors on the profitability of exporters cannot be distinguished separately.

The fact that in 2002, despite a strong forint exchange rate, export profitability decreased to a lesser degree than when the forint appreciated, was a favourable development.

Chart 3-7

Profitability (ROA) of exporters and non-exporters *(1993–2002)*



An examination of the various types of costs and operational income, or rather changes in the various types of costs as a proportion of sales revenues and the operational profit margin *(see Table 3-6 and Table 3-7)* is instrumental in identifying the differences between the two groups of companies. The 2002 data reveal that companies targeting domestic markets continued to improve their profit margin. This improvement occurred despite the fact that labour costs rose even more dynamically than sales revenues. Wage increases alone resulted in a 1-percentage-point reduction in the operational profit margin, which was, however, offset by favourable developments in material-related expenses.

If it is postulated that a consistently strong forint exchange rate had a major adverse impact on export profitability, this should be reflected in an increase in the proportion of forint-denominated cost categories. Of these components, the most important are labour costs, material-related services and the value of subcontractors' performance. At the same time, however, due to the high import content of the materials used in manufacturing, the FX-denominated component (costs of material) of material-related expenses may also be significant. Hence, a strong exchange rate may even have a beneficial impact on profitability through this cost component.

Table 3-6 shows that one of the causes behind the slight deterioration in export profitability was a decline in sales revenues. The setback in sales reflects the impact on profitability of a longer-term downturn in the global business cycle. Developments in labour-related expenses were another cause. Although the aggregate wage bill remained unchanged in 2002, this does not mean that wage dynamics in 2001 and 2002 failed to have an impact on exporters. On the contrary, it was fast wage growth that forced exporters to cut staff as early as 2001. The number of layoffs continued to rise in 2002 *(see Chart 3-8)*. As a result, this cost component reduced the profit margin by one percentage point.

Material-related expenses, another major cost component, however, affected export profitability beneficially in 2002. Material-related expenses fell more rapidly than sales revenues, which added 2 percentage points to exporters' profit margin. This might reflect the positive effect the strong forint exchange rate had on material costs of exporters with a high import content. The conflicting effects of these two cost categories left exporters' operating profit margin, i.e. operating cost efficiency unchanged in 2002.

Profitability in manufacturing

In the next step of the analysis, we investigated how profitability developed in the individual sectors in man-

[57] Export-driven companies include ones where more than 20% of sales stems from exports.

Table 3-6

Changes in exporters and non-exporters' profits and cost categories

Changes (2002/2001)	Operational profit	Net sales	Material-related expenses
Exporters	0.90	0.90	0.88
Non-exporters	1.23	1.07	1.05
	Staff-related expenses	**Other expenses**	**Depreciation**
Exporters	0.99	1.06	1.10
Non-exporters	1.13	1.03	1.13

Table 3-7

Contribution of the individual cost categories to changes in the profit margin*

Changes (in percentage points)	Operational profit	Material-related expenses	Staff-related expenses	Other expenses	Depreciation
Exporters	0	2	–1	–1	–1
Non-exporers	1	2	–1	0	0

** Due to rounding, the sum of the changes in items as a proportion of sales revenues does not necessarily add up to changes in operational profit as a proportion of sales revenues.*

Chart 3-8

Changes in real wages* and average number of employees at export companies

** Calculated on the basis of PPI.*

ufacturing, and to what extent changes in profitability can be attributed to changes in different cost categories. To investigate this, manufacturing sales revenues and operational profits were compared. Sectoral data suggest that both sales and export revenues fell after the appreciation of the forint exchange rate in 2001 *(see Table 3-8)*. In turn, the sector was unable to achieve an increase in sales revenue last year. The same holds for export revenues.[58]

Table 3-8

Operational income and growth rates of sales and export revenues[59] excluding MOL *(percent)*

	Net sales revenue	Export sales revenue	Operational income
2000	24	27	23
2001	16	22	–15
2002	–5	–11	3

According to detailed data *(Table 3-9)*, the nominal value of sales revenue in manufacturing was 5% lower in 2002 than in 2001. This can be attributed mainly to the fact that sales revenues in *Machinery and equipment* (representing the greatest weight on the basis of operational income) fell significantly. As 2002 saw a downturn in the business cycle, this decline in sales revenues in *Machinery and equipment* came as no surprise, since motor vehicle manufacturing is considered to be one of the most cyclical industries in the world.

In contrast to the decrease in sales revenues indicating adverse developments from the output side, corporate income from operational income did not drop off in manufacturing. Operational income in manufacturing, with MOL excluded, increased, albeit only moderately in 2002 following a decrease in 2001. This moderate growth rate was the combined result of different performances at the sub-sectoral level.

In order for the causes of improving profitability in the face of falling sales revenues in 2002 to be identified, developments in the profit margin of the individual subsectors were examined and the contribution of the various cost categories to changes in the profit margin in 2002 was quantified *(see Table 3-10)*.

Reviewing the data on profit components compared with data on profitability clearly shows that staff-related expenses, one of the major components, adversely affected the profitability of almost every sub-sector.

[58] Consolidated data somewhat modify our view on the developments in manufacturing in 2001. Relative to what was stated in the *Report* in December 2002, the current report finds a minor change affecting the textile industry, where, based on final data, both sales revenues (3%) and export revenues (8%) grew less dynamically in 2001. (Last year's data reveal growth in excess of 10%.) Contrary to an anticipated slight increase, operational income actually fell by 3% (it increased by 7%.). Last year's assessment for the chemical industry has also been modified. It claimed that the operational income of the chemical industry fell markedly in 2001. Contrary to this, the profit calculations relating to the chemical industry, excluding MOL, reflected a reassuring growth rate of 9% in 2001. Accordingly, the overall profit in manufacturing only fell by 15%, rather than by 25%.

[59] The 2001 operating MOL profit, unusually low and negative, and also considered as abnormal, led to unusually low profits in the chemical industry in 2001. In 2002, profits both at MOL and in the chemical industry were back to 'normal'. As a result, the rate of growth in the chemical industry including MOL was quite dynamic (28%) in 2002.

Table 3-9

Sales revenues and operational income in manufacturing sub-sectors *(Change, 2002/2001)*

	Net sales revenue	Export sales revenue	Operational income	Weight in manufacturing profit (per cent, average 1992–2002)
Food industry	1.04	0.98	1.20	15
Textile industry	0.93	0.89	0.67	3
Manufacture of paper and paper products	0.99	0.89	1.00	5
Chemical industry	1.01	1.04	2.69	17
Manufacture of non-metallic mineral products	1.07	1.01	1.03	5
Metallurgy, manufacture of basic metals and fabricated metal products	1.01	0.99	0.73	13
Machinery and equipment	0.88	0.84	1.13	40
Other manufacturing	0.95	0.79	1.10	2
Manufacturing	**0.96**	**0.89**	**1.28**	
Chemical industry excluding MOL	1.03	1.06	0.96	
Manufacturing excluding MOL	**0.95**	**0.89**	**1.03**	

Wage growth was felt most acutely in the textile industry, which is hardly surprising, as, compared to other sub-sectors, wage costs represent the highest proportion (30%) in sales revenues there *(see Table 3-11)*. This adverse effect was amplified by the appreciation of the forint exchange rate and the protracted sluggishness of the global business cycle, since, based on its export revenues, the textile industry is one of the most export-driven sub-sectors *(see Chart 3-9)*.

Representing the greatest weight among the cost components, material-related expenses, or rather, their ratio to net sales revenues improved the profitability of every sub-sector but the textile industry. The largest impact was felt in machinery and equipment, which recorded the highest export revenues. Although both export and domestic sales revenues fell more than average in this sub-sector, its profits increased. This increase can unequivocally be attributed to a favourable, 4 percentage-point change in material-related expenses.

In both machinery and equipment and the food industry, the decrease in material-related expenses as a proportion of revenues can be attributed to favourable changes in material costs and the cost of goods sold. These two types of costs contain those input costs that can be favourably affected by a stronger forint exchange rate, i.e. import-related material costs. As both of these industries use imported raw material to a large extent, the beneficial effects of the appreciation of the forint exchange rate cannot be ruled out.

Of the remaining components, only the value of capitalised own performance as a proportion of sales revenues can have an economic interpretation. The reason for that is that it reflects changes in self-manufactured

Table 3-10

Contribution of the individual components of operating income to changes in the profit margin

*(Change 2002–2001, in percentage points)**

Change (2002–2001)	Material-related expenses	Staff-related expenses	Value of activated own performance	Other expenses	Depreciation	Other revenues	Profit margin
Food industry	3	–1	–1	–1	0	1	**1**
Textile industry	0	–1	–1	0	0	2	**–1**
Manufacture of paper and paper products	1	–1	0	0	0	0	**0**
Chemical industry	4	0	–1	2	0	0	**4**
Manufacture of non-metallic mineral products	1	0	–1	1	0	–1	**0**
Metallurgy, manufacture of basic metals and fabricated metal products	1	–1	–1	0	0	0	**–1**
Machinery and equipment	4	–1	0	–1	–1	1	**1**
Other manufacturing	1	–1	0	1	0	–1	**1**
Chemical industry excluding MOL	1	–1	0	1	0	–1	**–1**
Manufacturing excluding MOL	**3**	**–1**	**0**	**–1**	**0**	**1**	**0**

** Due to rounding, the sum of the changes in items as a proportion of sales revenues does not necessarily add up to changes in the profit margin, i.e. operational profit as a proportion of sales revenues.*

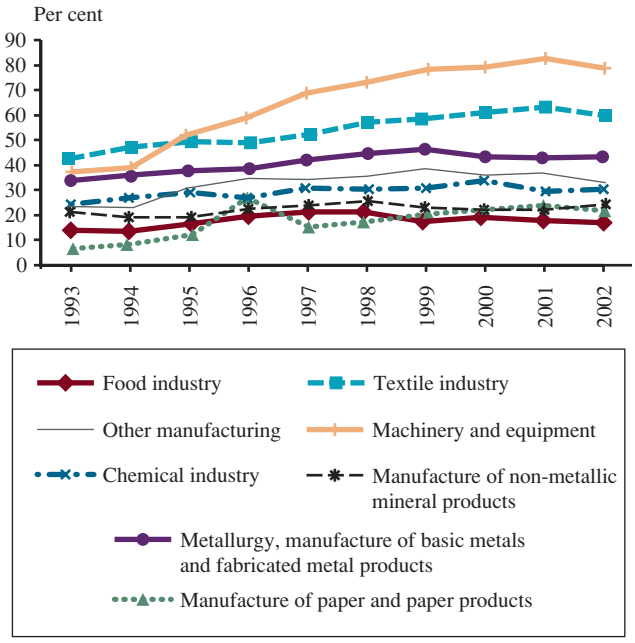
Table 3-11

Average ratio of material- and staff-related expenses to sales revenues[60] *(1992–2002) (Per cent)*

	Material-related expenses	Staff-related expenses
Food industry	79	11
Textile industry	60	30
Manufacture of paper and paper products	68	16
Chemical industry	67	10
Manufacture of non-metallic mineral products	62	19
Metallurgy, manufacture of basic metals and fabricated metal products	72	15
Machinery and equipment	74	14
Other manufacturing	70	20

Chart 3-9

Ratio of export sales revenues of manufacturing sub-sectors to net sales revenues *(1993–2002)*



stocks. Available data show that changes in the value of certain sub-sectors' capitalised own performance reduced the profits of those sub-sectors, suggesting that companies adjusted to the bleaker growth outlook. This adjustment took place through a reduction of self-manufactured stocks. However, this response was confined to sub-sectors with a smaller weight, and thus this category had a neutral impact on the profitability of manufacturing in 2002.

INDEBTEDNESS

Leverage, i.e. the debt-to-assets ratio, was used to analyse developments in the indebtedness of the non-financial corporate sector.

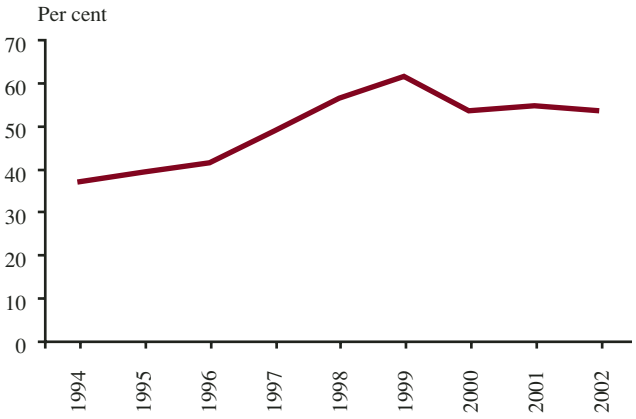
In principle, the most obvious source of an increase in leverage is enhanced corporate investment activity. Generally, companies rely on external sources of funds, mainly bank loans, to fund their investment. The reasons for this are that, on the one hand, funding through share issuance is costlier, and that, on the other hand, their own disposable funds usually fail to cover the necessary investment costs. The increase in leverage in the entire sector was most rapid between 1997 and 1999 *(see Chart 3-10)*. As this was a period of general economic recovery, such an increase in leverage was no surprise. The upturn in economic activity also affected the entire corporate sector beneficially: corporate investment grew the most vigorously in these years. Sectoral data corroborate this as well. *Chart 3-11* shows clearly that leverage increased in each sub-sector between 1997 and 1999.

Leverage in the corporate sector has stopped increasing over the last two years. In fact, in 2002 indebtedness even declined slightly. The lengthy downturn in the business cycle offers an explanation for this development: companies decided not to launch new investment projects and not to apply for further loans under such circumstances. As a result, the entire sector took a net saving position in 2002.

Chart 3-10

Leverage of non-financial corporations

(Debt-to-assets ratio, 1994–2002)



Detailed data reveal that indebtedness changed differently across sub-sectors in 2002. A slight decrease in aggregate leverage can mainly be attributed to manufacturing. This suggests that the majority of manufactur-

[60] The ratio of the other cost categories was 3 to 7% in the period under review.

Chart 3-11

Sub-sectoral leverage indicators *(1994–2002)*

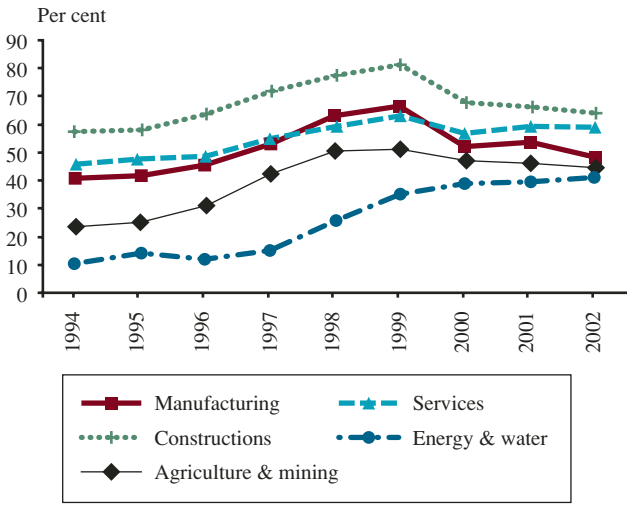
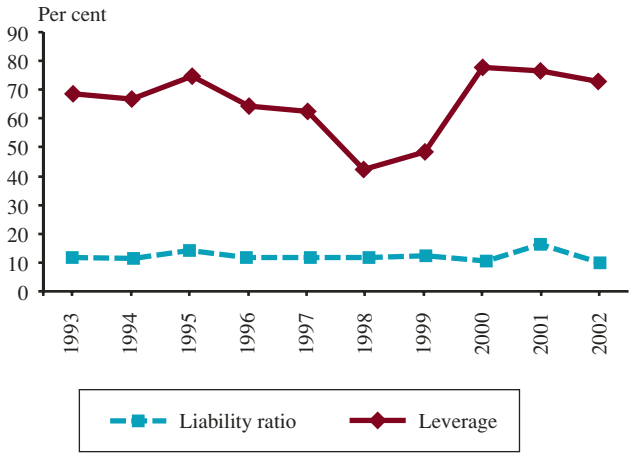


Chart 3-12

Leverage of the least profitable companies and the weight of their overall liabilities in the overall liabilities of the entire sector *(1993–2002)*



ing companies, in an effort to adjust to the slowdown in the economy, modified their financial structure to be able to continue paying off their debts even from their reduced income. At first sight, the slight decrease in the leverage of the construction industry may look strange. Although construction activity has been extremely buoyant over the past two years, its indebtedness did not grow. This, however, does not mean that the industry decided not to rely on external sources of funds. This has more to do with the fact that the growing earnings of these companies over the last two years have resulted in a simultaneous increase in their capital strength.

The indebtedness of the services sub-sectors increased somewhat in 2001 and 2002. The underlying reason for such increase was that consumption expenditure on services grew faster than aggregate consumption. Consumption was boosted by wage dynamics, as wage increase in both 2001 and 2002 reached proportions unprecedented since 1991. Despite upward trends in indebtedness, services providers' indebtedness is by no means high compared to average indebtedness over the whole period. However, consumption is expected to slow down considerably in 2003 and 2004, which may lead to lower earnings in the services sector. If services providers fail to adjust their financial structure to this downturn, a further increase in leverage may easily result in stability problems in the future.

In terms of stability, developments in the leverage of low profitability companies provides further food for thought. The average leverage of the least profitable companies (the bottom 20% based on ROA) is much higher than that of the entire corporate sector *(Chart 3-12)*.

Higher leverage does not, however, mean that these companies rely on external sources of funds more heavily. As described in the section on aggregate profitability, these companies generated losses throughout the period under review. Consequently, higher leverage is more likely to suggest that these companies, more often than not, finance their losses from external funds. This, however, by no means suggests that any company in Hungary can remain in business in the face of market competition for years without generating profit. The changing composition of the sample reveals that quite a few companies went out of business during the period under review. On average, 10 to 15% of the companies went out of business every year between 1992 and 2002. At the same time, however, in 1998, when corporate profitability was at its peak, even the least profitable companies increased their equity considerably. The bottom 20% of the companies account for approximately 10 to 15% of the overall sectoral liabilities, which suggests that small companies are dominant among the least profitable firms.

The flow equivalent of the debt-to-assets ratio is the interest coverage ratio.

Interest coverage ratio = ordinary operating profit[61]/interest paid and interest-related disbursements

The interest coverage ratio denotes the extent to which earnings generated through ordinary business activities can cover interest liabilities. In principle, profitability, corporate borrowing rates and changes in leverage exert a combined effect on changes in interest coverage.

[61] Ordinary operating profit = Profit before tax and interest payments.

Of these factors, profitability and borrowing rates were the most decisive for Hungarian companies. Interest coverage grew steadily between 1992 and 2002 *(see Chart 3-13)*. Prior to 1998, improved aggregate profitability affected interest coverage beneficially, which was further boosted by falling interest rates after 1995 *(see Chart 3-14)*. Since then, however, declining interest rates have been at the forefront, as the profitability of the entire corporate sector has been deteriorating since the late 1990s.

Chart 3-13

Aggregate interest coverage *(1993–2002)*

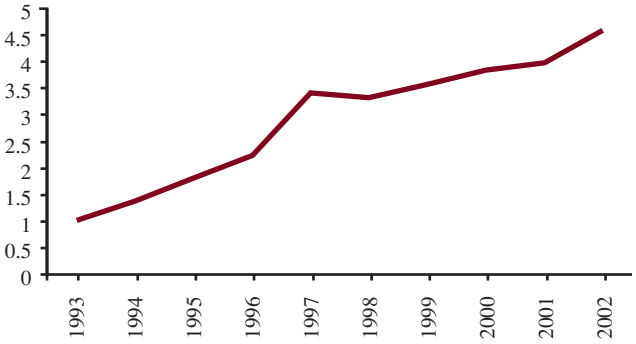
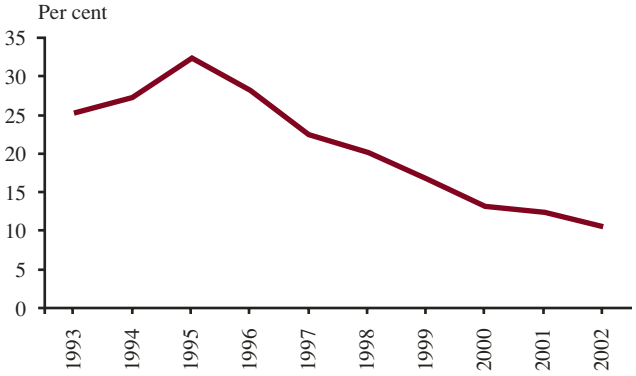


Chart 3-14

Weighted average corporate borrowing rates with maturity over one year *(1993–2002)*



Detailed data suggest that the dominance of both profitability and interest rates varies somewhat across subsectors *(see Chart 3-14 and Table 3-12)* and was different between 2001 and 2002. Interest coverage in the services sector, currently the engine of economic growth, was affected beneficially by both profitability and interest rates in both years. Likewise, interest coverage in the construction industry has been strengthening for years despite the fact that it is the most heavily indebted sub-sector. This is explained by the steady upward trend in the profitability of construction companies. The earning capacity of this sub-sector was at historical highs in 2001 and 2002. In 2002, companies in the energy and water sector suffered from falling profitability and a simultaneous increase in leverage, which led to a deterioration in interest coverage. By contrast, in 2001, the beneficial effect of falling interest rates in manufacturing was cancelled out by deteriorating profitability. Improved performance and repeated decreases in the aggregate manufacturing debt burden undoubtedly played a major role in further improvement of the aggregate situation in 2002.

Chart 3-15

Sub-sectoral interest coverage indicators

(1993–2002)

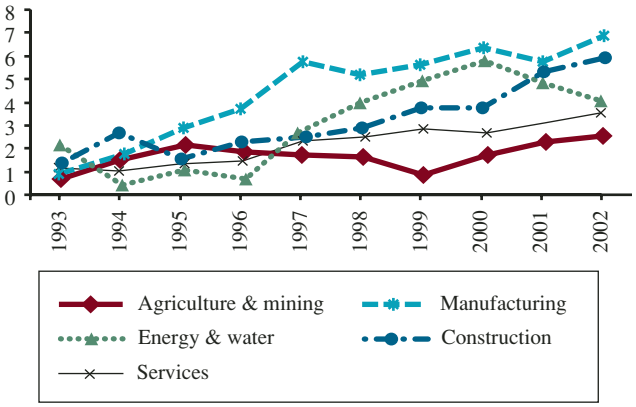


Table 3-12

Year-on-year changes in the components of interest coverage in the individual sub-sectors

(2001 and 2002, changes)

Change (year-on-year)	Agriculture & mining	Manufacturing	Energy	Construction	Services
Ordinary operational profit					
2001	1.29	0.92	0.79	1.65	1.23
2002	1.01	1.18	0.93	1.12	1.16
Interest-related disbursements					
2001	0.93	1.03	0.93	1.18	1.05
2002	0.95	0.98	1.10	0.99	1.00
Overall effect					
2001	1.39	0.90	0.84	1.40	1.17
2002	1.07	1.20	0.85	1.13	1.16

From the perspective of financial stability, leverage poses the greatest danger to companies whose cash flow from ordinary business activity fails to provide sufficient coverage for their interest expenses. The reason for this is that these companies would be able to meet their interest liabilities only if they further relied on external credit, which, in the long run, is unsustainable and leads to insolvency. Therefore, close attention should be paid to such companies whose interest coverage indicator is below one. Hereafter, we refer to these as unsafe companies.

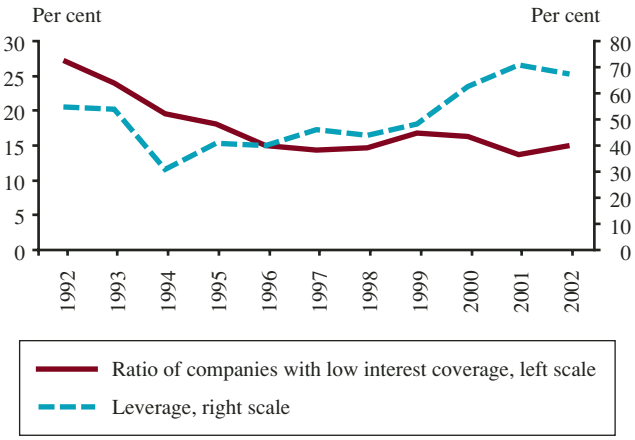
In respect of these companies, their leverage grew faster than aggregate leverage over the period under review. As a result, their indebtedness in 2001 and 2002 considerably exceeded the corporate average *(see Chart 3-16)* Such companies invariably generated losses.[62] Their weight within the entire sector remained around 15% in the second half of the 1990s.

On average, every year roughly 20% of unsafe companies are not present in the sample in the consecutive year. This, in turn, suggests that approximately 3% of the overall corporate sector ceases to be competitive due to interest payment-related financial difficulties. On average, 40% of the unsafe remain under threat for another year. This points to the lack of significant persistence in this group of companies, since 40% of the unsafe manage to overcome financial difficulties from one year to the next.

From a stability perspective, the fact that a remarkable number of these companies can take control of their temporary financial problems is a favourable development. However, the difficulties of adjustment are amply proved by the following: as within the unsafe group the proportion of the companies that face permanent difficulties remains permanently stable, around 40%, the proportion of those that have experienced no financial difficulties beforehand is also considerable every year. Putting all this together, this means that despite of stable proportions, the composition of the group of companies under threat varies considerably from year to year.

Chart 3-16

Weight and leverage of companies with the lowest interest coverage* *(1993–2002)*



** Where the interest coverage ratio is below one.*

LIQUIDITY

When a company is heavily indebted and the value of its assets falls rapidly, its liquid assets may prove insufficient to cover the current liabilities, even if the proportion of such assets is high. Yet, if the company manages to increase the proportion of its most liquid assets on its balance sheet, this reduces the risk of insolvency significantly.

In order for company liquidity to be analysed, liquidity and cash ratios were used. These ratios denote the extent to which liquid assets can cover short-term liabilities.

Liquidity ratio = (Receivables + Securities + Cash) / Short-term liabilities.[63]

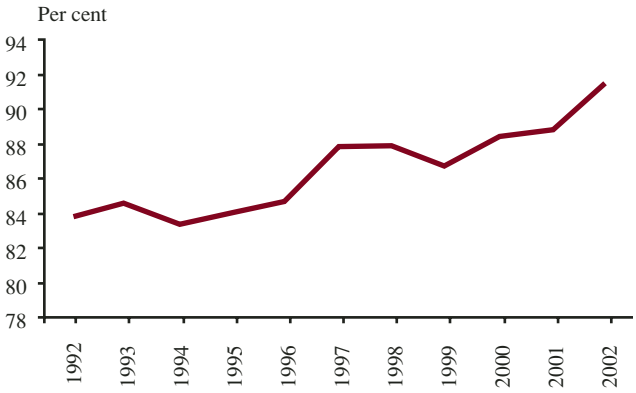
Money ratio = (Securities + Cash) / Short-term liabilities.

Aggregate liquidity ratio reveals that the liquidity position of the entire sector improved further in 2002, though the most liquid assets only covered an approximately 90% of short-term liabilities *(see Chart 3-17)*.

Chart 3-17

Liquidity ratio in the corporate sector

(1992–2002)



In contrast with what was outlined in connection with the aggregate situation, the fact that the liquidity position of the least liquid companies failed to improve in 2002 was an unfavourable development *(see Chart 3-18)*. Should such companies face bankruptcy, they would only be able to meet approximately one-third of their current liabilities, using their most liquid assets.

A similar conclusion arises when the numerator only consists of liquid assets and securities (cash ratio). The cash ratio reveals that the cash and securities stock of a typical Hungarian company together can cover 20 to

[62] As a result, their interest coverage indicator is negative.

[63] Short-term liabilities: short-term loans, short-term credit, liabilities arising from services and transport of goods, inter-company loans and other short-term liabilities.

Chart 3-18

The lower quintile in the distribution of the liquidity ratio *(1992–2002)*

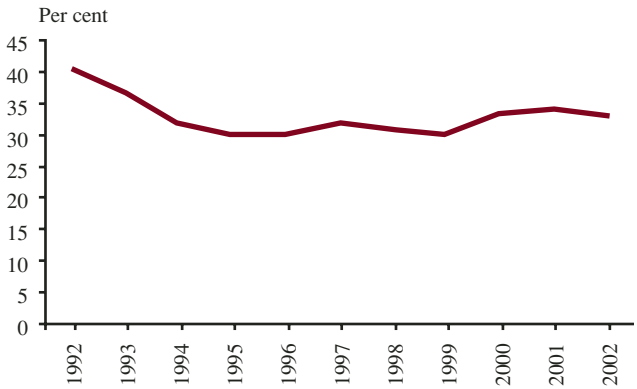
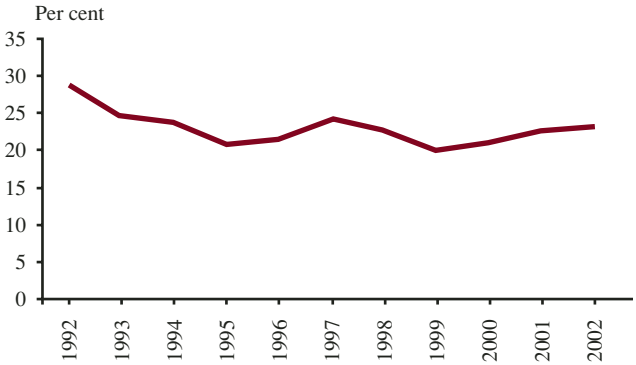


Chart 3-19

Median cash ratio *(1992–2002)*



25% of short-term liabilities, which is by no means low by international standards.[64]

[64] The cash ratio was around 20% in the United Kingdom in the second half of the 1990s. (Bank of England, Financial Stability Review, June 2000, page 88, Chart 6).

4 Articles

4.1 Csaba Csávás and Gergely Kóczán: Development of the Hungarian derivatives market and its effect on financial stability

INTRODUCTION

Forint band widening on 4 May 2001 and subsequent foreign exchange liberalisation have led to significant changes in the Hungarian foreign exchange market. The effect of these changes on exchange rate movements and on the behaviour of market participants has been particularly observable in the past one year: both the outstanding total of, and turnover in FX derivatives[65] for short-term speculation or risk management have increased robustly, as well as their influence on the forint market.

Up to June 2001, Hungarian regulations on forint/forex derivatives transactions conducted by resident and non-resident market participants were extremely tight.[66] With foreign exchange liberalisation in June 2001, however, these restrictions were lifted, meeting the requirements associated with the wide exchange rate band. As a consequence, the markets under review experienced an immediate upsurge. FX swap transactions accounted for the vast bulk of this marked rise. The size of the forint swap market grew continuously. Today, this is the most liquid segment of the forint/FX market, with average daily turnover several times higher than turnover in the spot market.

Band widening has also triggered an upswing in another market segment, which may be less significant in terms of trading volume, but is of key importance for monetary policy by virtue of its information content. Forint/foreign currency options provide market participants with the opportunity to bet on and trade in developments in exchange rate volatility (in addition to taking open exchange rate positions). Developments in this partial market carry information for monetary policy decision-makers which places options in the centre of attention, despite the lower liquidity.

One common feature of FX swaps and options is that their turnover increased significantly immediately before and after episodes of turbulence in the forint market in the past 18 months. Based on this observation and other market information, these two derivative products have become the major tools of speculation on the forint exchange rate and its expected volatility by foreign participants who dominate the domestic forint market.

The primary purpose of this article is to analyse (i) whether the use of derivatives carries risks to the domestic banking sector; and (ii) the extent to which the recording of derivative products off balance sheet influences banks' open forex positions and, through this, banking sector's stability. In addition, the article presents the important role of, and the underlying reasons for using, these two segments of the foreign exchange market in the transformation of the forint market structure.

First, we present FX swaps and options from a technical viewpoint, then analyse the structural changes in the forint market since the band widening and liberalisation, concentrating on the importance of derivatives transactions, and provide a description of their role played during turbulent periods in the forint market. Then we discuss how monetary policy can use information derivable from these markets and how interest rate policy influences prices in these markets. Finally, we deal with the implications for financial stability and point out open positions taken by banks and their impact on exchange rate volatility.

FX SWAPS AND OPTIONS

FX swaps

Swaps are an exchange of current and future cash flows. Currency swaps, in particular, are conversions between two counterparties of a cash flow denominated in two different currencies. The simplest form of these is an FX swap.

An FX swap is a conversion agreement consisting of two legs. It involves the exchange of principal denomi-

[65] Derivative: a transaction the value of which depends on changes in the price of the underlying product (in this context foreign exchange) of the derivative transaction.

[66] Except stocks and stock index derivatives, residents were not permitted to deal in derivatives with non-resident investors, which made it difficult to settle their deliverable forint derivative transactions with each other as well. Consequently, residents' off-balance sheet activities were confined to forward transactions with the domestic banking sector, while non-residents could use the non-deliverable forward market centred in London for their transactions with each other.

nated in two different currencies by two counterparties and an agreement to swap back principal at a pre-determined price and a future date (maturity). An FX swap therefore is equivalent to a spot forex transaction coupled with a forward forex agreement. This implies that the parties to the swap transaction simultaneously buy and sell the currencies in question, and so they do not open forex positions and, consequently, they do not expose themselves to a situation in which a potential shift in the exchange rate of the two currencies could cause profit or loss to them.

In the literature, FX swaps are categorised into the broader class of forwards; however, they are distinguished from outright forwards for two main reasons: (i) they involve cash flow in the present (on the settlement day of the spot leg); and (ii) counterparties do not open forex positions (the direction of the spot leg is opposite, and equal in amount to, the direction of the forward leg). In another approach, a swap is a forex repo, i.e. a loan received/granted against foreign currency as collateral, the market of which is generally highly liquid,[67] and therefore is a major financing tool available for bank treasury departments active in the forex market.[68]

Major money market strategies related to FX swaps

Acquiring financial assets financed by an FX swap

This is a foreign currency investment with an automatic hedge, whereby the buyer enters into a swap agreement, on the spot leg of which he receives the currency in question and invests the amount in a financial asset (e.g. government paper). The forward leg of the swap provides (automatic) hedge against the exchange rate risk of the investment and so an FX position is not opened. The net return (interest rate differential) on the acquired asset is offset by the implied rate of the swap, which is paid by the buyer and is equivalent to the interest rate differential. In this case, one reason for entering into the agreement may be opening an interest rate position. If the swap and the acquired asset do not have matching maturities, a profit or loss may result from the interest rate exposure caused by the different duration of the asset and liability sides in the event of a shift in the yield curve.

Taking a spot forex position financed by an FX swap (synthetic forward position)

By establishing a spot forex position financed by an FX swap, the market participant (usually a speculator) uses the more liquid spot market instead of the outright forward segment to open a position. However, given that the entity does not want to acquire an asset denominated in the currency in question (does not want to see a change in its balance sheet), it enters into a swap transaction financing the position, whose spot leg is opposite to the original spot transaction. Thus, the market entity's net position is limited to the forward leg of the swap, which therefore has the same direction as the underlying spot transaction (i.e. the desired direction in which the position is opened), while there is no cash flow on the spot leg and the balance sheet remains unchanged. Practically, this means entering into a synthetic forward position. Compared with an outright forward, this technique has the advantage that the swap market is much more liquid and more flexible in respect of maturities. Closing the position requires either entering into an identical transaction pair (spot + swap) but in the opposite direction, or simply conducting a spot deal opposite to the original position and letting the underlying swap expire.[69] The advantage of this technique lies not only in higher liquidity and protecting the balance sheet, but also in that the maturity of the synthetic position, i.e. the size of interest rate exposure undertaken using the forex position, can be 'tuned in' at discretion. The position can thus be rolled over or closed at will at the desired moment, due to the very high liquidity of the market.[70]

Currency options

A currency option is the right to purchase or sell a foreign currency in the future at an exchange rate (strike price or exercise price) pre-determined by the contracting parties. For this right, the holder of the option has to pay the option premium at the time of entering into the agreement. In the case of call options, the stronger the currency relative to the strike price the higher the profit; however, any loss is limited to the option premium already paid. In the case of put options, an opposite move in the exchange rate earns a profit, but any potential loss is also limited for the holder of the option.

In over-the-counter (OTC) markets, quotation of options is standardised. Their strike prices may be of any size; however, so-called ATM options are used the most frequently. They are different from other options in that their strike price is equal to the forward exchange rate with an identical date of expiry, and so on the expiry date the options will be at the money if the spot exchange rate equals the strike price.[71]

It often happens that, instead of the option premium, only implied volatilities are quoted for within-year

[67] For example, in Hungary it is much more liquid than the market of unsecured loans.
[68] For a stylised diagram of the effects of swaps on and off balance sheet, see the Appendix.
[69] In principle, it may happen that the transaction is closed by entering into an outright forward instead of a spot deal, but this occurs much less frequently.
[70] The most obvious method of using this tactic is the tom/next rollover, which creates an overnight synthetic forward position, whose interest rate exposure is minimal, only representing exchange rate exposure (foreign currency position). On the next day, by entering into another swap, the spot leg of the transaction will finance the forward leg of the first. By renewing a tom/next swap every day, the synthetic overnight forward can be rolled over to the desired maturity.
[71] Actually, these options are called at-the-money forward (ATMF) options, however, in the following the name ATM option is used for the sake of simplicity.

expiry dates, which express the expected annualised standard deviation of the exchange rate move. The only factor influencing the option premium which is unknown at the time of undertaking the transaction is future volatility of the exchange rate. Therefore, this is the variable which depends on market judgement and brings supply and demand into equilibrium in the options market.

One of the major assumptions used in pricing ATM options is that, upon expiry of the option, the expected price will be equal to the forward exchange rate. In other words, the expected value of the exchange rate move equals the interest rate differential. Implied volatility measures the distribution of returns (exchange rate changes) against the forward exchange rate, assuming a symmetrical distribution.

One characteristic feature of these products is that, relative to options with different strike prices, they have the largest convexity value.[72] This means that the value of such options is the most sensitive to changes in volatility. With the passage of time, ATM options tend to behave differently from other options – as the expiry date draws near, these options offer the greatest probability to exercise them. Owing to these characteristics, ATM options play a dominant role in options markets.

One way in which the effect of options markets on exchange rates is manifested is the dynamic hedging of options. Market-making banks both buy and sell currency options and, if the resulting open position is other than zero, they must hedge it. If, for example, a large number of participants take long forint positions in the market, the bank writing the option may hedge them by purchasing forints in the spot market. This influence may appear simultaneously with entering into the option contracts, but, as the value of options reacts less sensitively to a given exchange rate change than the price itself (the average delta is lower than 1), it generates lower trading volumes in the spot market relative to the total notional value of option contracts. The type of hedge provided against exchange rate risk, known as delta hedge, may have a considerable effect on the spot exchange rate, particularly as the expiry date approaches. The build-up of option positions in large amounts, provided that they have the same expiry dates and strike prices, may have the consequence that the strike prices of the options become technical (support or resistance) levels prior to expiry. If, for example, the forint strengthens close to the strike price of a call option on the expiry date and, moreover, crosses it, then the appreciation may accelerate as a consequence of hedging the position, similarly to the breach of an important resistance level by the exchange rate.

Major currency option strategies

Straddle, strangle: Using at-the-money (ATM) options, positions can be built which are suitable for speculating on future increases or reductions in exchange rate volatility. By establishing a straddle composed of a call option and a put option with the same strike prices, an entity locks in a profit from either the weakening or strengthening of the exchange rate; if, however, the exchange rate remains near the strike price, associated with low volatility, the options will expire without the holder exercising them.[73] Another advantage of such an option strategy is that an increase in volatility adds to the value of both options, and so it may even earn a profit for the holder before expiry. By contrast, investment banks usually offer to sell options of this type when many market participants expect exchange rate volatility to remain low and, consequently, this strategy may contribute to stabilising exchange rates.

Risk reversal (RR): a complex option strategy whereby a long call for a currency is combined with a buying obligation (short put). The expiry dates of the two options are the same, with their nominal values also being identical. Option premiums are also equal, so the strategy has zero cost, but the strike prices are different. Providing that the investor holds his position until expiry, he will profit if the euro exchange rate strengthens towards the higher strike price of the call option. Conversely, he will incur a loss if the euro weakens below the lower price of the put option – if it remains between the two strike prices, then his position will be neutral *(see Chart 4-1)*.

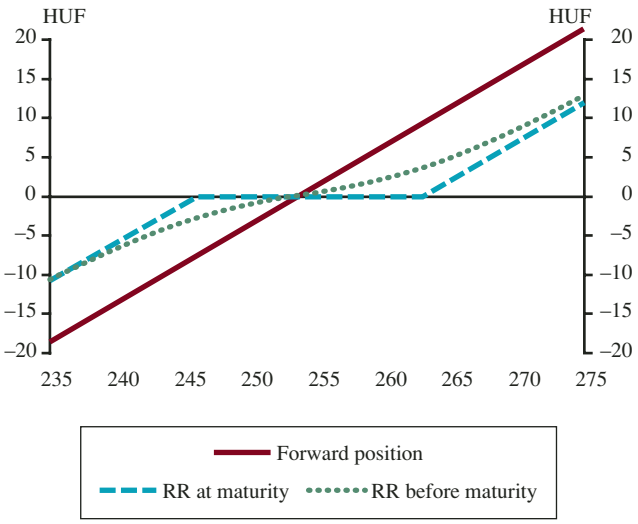
A risk reversal position mainly resembles a forward agreement. It is suitable for hedging against exchange rate risk and it only costs the difference between the call price and the put price included in the option premiums. At times of wide exchange rate oscillations, exposure to exchange rate risk is eliminated, with an unhedged position only remaining in the face of narrow exchange rate movements. Hence, the other name of the position – range forward.

One characteristic feature of the position is that different implied volatilities are used to calculate the premiums of the options underlying it. The difference between the implied volatilities of the two options, expressed in percentage points, is called the risk reversal spread, and prices are quoted for this spread. When the volatility of euro call options is higher ('euro call options are favoured'), this means that the market attaches greater likelihood to forint depreciation than to forint appreciation (relative to the forward exchange rate).

[72] The convexity value is the part of the option premium which is determined by implied volatility.
[73] In the case of a strangle, the strike prices are different; however, the earlier remarks are true for this position as well.

Chart 4-1

Profit and loss profiles of forward and risk reversal positions *(EUR/HUF)*



The risk reversal spread can also be interpreted as the premium on a call option vis-à-vis the put option – if the probability of euro appreciation is greater than that of euro depreciation, as investors expect it, then the call will be worth more for them than the put. This expectation of the market can be described by the asymmetric, skewed probability distribution of the exchange rate (change). For example, in the case of skewed probability distribution towards a stronger euro, the cumulative probability that the euro exchange rate will be higher than the forward rate is more than 50 per cent.

The asymmetric distribution of the exchange rate derives from the observation that, in the case of small currencies (e.g. the forint), large depreciation occurs more frequently than appreciation of the same extent. Consequently, even under normal market conditions an asymmetry towards a weaker forint is more characteristic of the distribution of the forint exchange rate, the forward-looking indicator of which is the risk reversal spread.

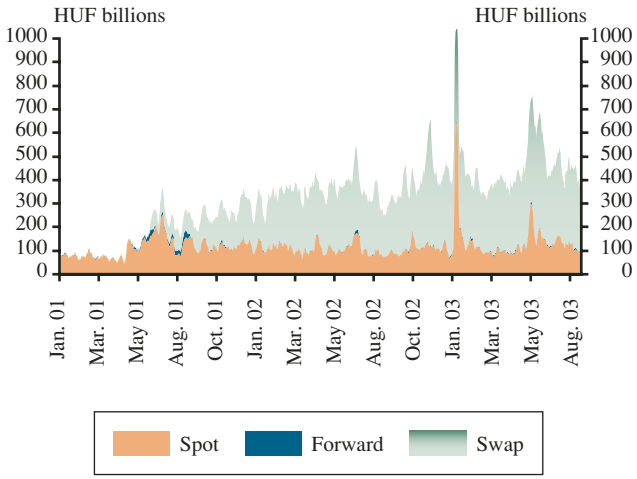
DEVELOPMENT OF THE DERIVATIVES MARKETS

The FX swap market

Since band widening, the structure of the forint market has come considerably closer to that of developed foreign exchange markets. This process has taken place in a similar fashion in the other important foreign exchange markets of the region (for example, in Poland), and has entailed a very fast and massive rise in turnover in FX swaps. As a result, the swap market has become the largest segment of the foreign exchange market in terms of volume, similarly to the situation in developed countries *(see Chart 4-2)*.[74]

Chart 4-2

Gross turnover in the forint/FX market by segment *(5-day moving average)*



The size of the FX swap market has expanded continuously since foreign exchange liberalisation (June 2001), and in 2002 it registered a higher trading volume than the spot market *(see Chart 4-2)*. Currently, the swap segment is 2.5–3 times the size of the spot segment, based on gross turnover data. Looking at the market in a breakdown by sector, Hungarian banks conduct 90 per cent of swap transactions with non-residents (and exclusively with banks). In addition, there is also some turnover in the domestic interbank market; however, turnover with domestic non-banks is insignificant *(see Chart 4-3)*.

According to market rumours, the forint swap market is mainly concentrated in Budapest. Consequently, in the vast majority of cases at least one of the counterparties is a Hungarian bank. This means that a relatively precise picture of total market activity can be derived from reports by commercial banks.[75] It is mainly Hungarian banks with a parent abroad, also dominating the other segments, that are the most active in the swap market. Unlike in the case of spot transactions, the US dollar is the major currency of the market, accounting for 90 per cent of transactions. The maturity profile of the market is dominated by maturities of less than one week, and by the tom/next maturity in particular.

Market participants' behaviour in the forint swap market

Foreign participants occupied the swap market immediately after liberalisation, as reflected by developments in

[74] The turnover and stock data referred to in this section have been derived from commercial banks' daily reports.
[75] No quantitative information is available on transactions of non-residents with each other and other domestic participants, as neither party reports the transaction to the Bank.

Chart 4-3

Gross FX swap turnover by sector

(5-day moving average)

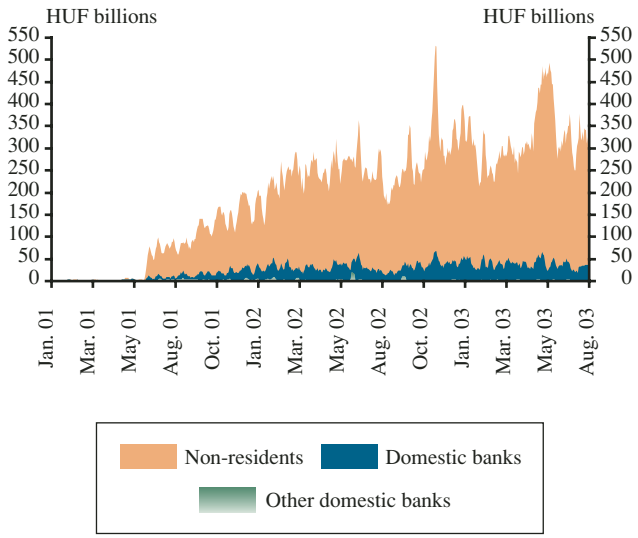
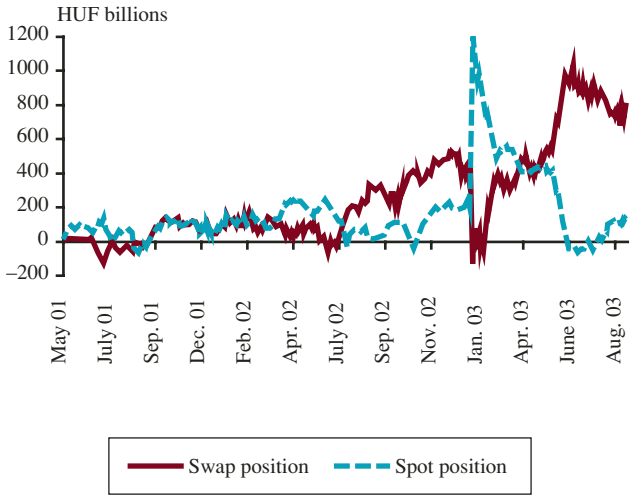


Chart 4-4

Non-residents' net FX swap and spot transactions vis-à-vis Hungarian banks

*(Cumulative values since band widening; 4 May 2001 4 = 0)**



** An increase in non-residents' net forint swaps means that foreign participants buy forints spot using a swap conducted with the banking sector and simultaneously sell them forward.*

gross turnover. In addition to this indicator, the behaviour of foreign participants dominating the swap market can also be characterised by their net outstanding forint/swap transactions[76] *(see Chart 4-4)*, which developed very unevenly in the period under review.

The behaviour of foreign participants can be best described by the erratic changes in the net total of swaps. Analysing the relevant times series, both major strategies are used in the forint market.

Spot + FX swap (synthetic forward strategy)

In the case of major episodes of turbulence in the forint market, accompanied by forint depreciation and an upsurge in spot market turnover, net outstanding swaps generally soar. There have been three major turbulent periods since band widening: (i) the forint depreciation of July 2002; (ii) the speculative attack on the upper limit of the intervention band in January 2003; and (iii) the exchange rate weakening linked to the devaluation of the forint band in June 2003.

During all three episodes, opening (and closing) substantial positions in favour of or against the forint (this being the cause of the exchange rate move) by foreign participants of the market was observable; however, their forint assets did not change by the same measure, despite the fact that 90 per cent of the positions were opened in the spot market. Explanation for this is that the spot sales and purchases observed actually did not stand alone, but constituted part of a spot + swap strategy.

The opposite developments in the spot and swap time series clearly indicate the active use of synthetic forward strategies *(see Chart 4-4)*. This was particularly visible in participants taking large positions, for example in the period between January–early July 2003.

In January, the amount of forints purchased by foreign speculators was so high that it was impossible to invest in the government securities market simultaneously. Actually, speculators' objective was not investing but opening long forint positions betting on the further strengthening of the exchange rate. Therefore, in order to avoid acquiring forint-denominated assets 'out of pressure' on the settlement day, they reduced their net outstanding swap positions to the extent which absorbed some half of all forint amounts purchased. Practically, foreigners established synthetic long forint forward positions. By doing so, foreign speculators mounted an attack on the upper limit of the band in half by establishing synthetic forward transactions. They placed the other half of forints purchased during the attack in short-term deposits with Hungarian banks.

At the time of the band shift in June, foreigners suddenly opened large-amount short forint positions, which also did not involve a similar change in their forint-

[76] The time series for net swaps plotted on the Chart has been produced using the daily turnover data (D01) reported by Hungarian commercial banks to the MNB and the Supervisory Authority by cumulating, relying on the fact that, prior to liberalisation, non-residents were not allowed to transact in currency swaps. The time series, therefore, is made up of estimates rather than accurate stock data.

denominated asset holdings (e.g. sales of government paper). Through spot deals, they sold large amounts of forints; however, they did not want (or were unable) to sell their forint-denominated government securities in the same amount, so they acquired the forints to settle the sales by establishing FX swaps. Thus, in this case they opened very short-term synthetic short forint forward positions (most of the underlying swaps were for the tom/next maturity) which they could roll over to the desired maturity.

Acquiring a financial asset financed by a forex swap

As was pointed out earlier, application of this strategy is useful if speculation concentrates on changing the shape of the yield curve (interest rate speculation), instead of anticipating a particular move in the exchange rate. A good example of this is the very lively purchases by non-residents of government paper in autumn 2002, which were accompanied by an upsurge in their net outstanding swaps. Presumably due to increased expectations of an official interest rate cut, their forint exposure did not open to the extent to which they built up their government securities holdings. The part of positions which could not be financed by spot purchases was financed by an increase in swaps, which in turn allowed for certain participants to take only interest rate positions, instead of undertaking exchange rate risks and to finance the purchase of a long-dated government paper by establishing and rolling over a short-term swap transaction.

The financed asset may not only be a government paper, but also a reverse FX swap with a different maturity. The objective of this is also speculating on a change in the slope of the yield curve. This strategy can be reflected in the opposite shifts in non-residents' short and long-term swaps, the best example of it was the period following the devaluation of the intervention band in June 2003. Financing short-term swaps with longer-term swap transactions suggested participants' mounting expectations of an official interest rate increase *(see Chart 4-5)*.

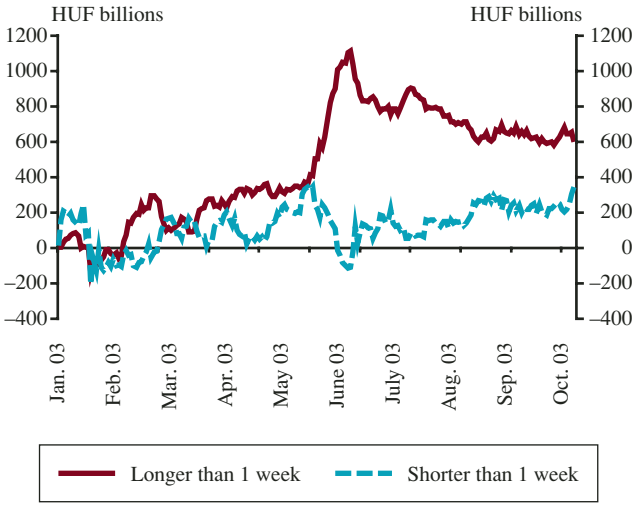
The forint options market

The domestic currency options market picked up somewhat later than the swap market, as a genuine increase in turnover only started in mid-2002. Higher exchange rate volatility in July 2002 was a factor contributing to this, in addition to liberalisation.

Turnover in options has been erratic in the past one year, with trading picking up particularly at times of significant exchange rate moves *(see Chart 4-6)*. In 2003, daily average turnover in the options market hovered around EUR 25 million (HUF 6 billion) in the forint/forex segment. At 70 per cent, banks conduct the larger part

Chart 4-5

Cumulative changes in non-residents' net swaps at the less than 1-week maturity and over 1 week *(Cumulative values from January 2003)**



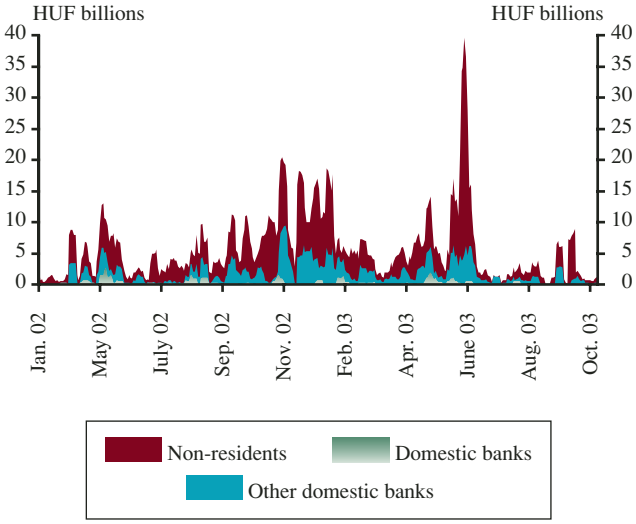
** The sum of the two time series does not add up to the change in net swaps in 2003, as it does not include swaps conducted prior to 1 January and maturing in 2003.*

of turnover with foreign participants. Turnover with residents accounts for one-quarter of the total.

Chart 4-6

Gross options turnover by sector

(5-day moving average)



It may be useful to analyse the role options play in the foreign exchange market in an international comparison. Options turnover in other Central and Eastern European currencies is higher than in the forint (daily EUR 50 million in the Czech crown market and EUR 100 million in the zloty market); however, the size of the spot segment in these markets is proportionately higher. Options turnover accounts for 5–10 per cent of turnover in the spot segments, which, although it is low,

is only marginally less than the proportions accounted for by advanced options markets – the ratio of options to spot transactions is 10–15 per cent in the euro/dollar pair. Hence, the structure of the domestic options market is increasingly similar to developed foreign exchange markets.

The market is fairly concentrated, with four banks conducting three-quarters of total turnover. As in the swap segment, banks with large foreign owners are active in options. The currency composition of turnover is similar to the spot segment: the vast majority of transactions are conducted in the forint/euro pair.

As regards the maturity profile of the options market, one-third of the contracts entered into expire within a month, although the ratio of those with maturities of more than three months is relatively high (45 per cent). This suggests that deals struck in the domestic options market are not exclusively speculative. One advantage in terms of financial stability is that maturities are not concentrated around one particular day, so the expiry of options as well as their exercise does not lead to major disruptions in the foreign exchange market.

Since foreign exchange liberalisation, foreign investors also have had the opportunity to enter into option agreements for forint, not only with domestic banks but with each other as well. Consequently, in contrast to the swap market, a foreign forint options market has evolved with a centre in London. Only limited information is available on turnover in the London market, however, the size of the market can be estimated on the basis of information by foreign traders. This suggests that foreign turnover in options is 2–3 times higher than turnover in the domestic market – average daily turnover in the London forint options market may amount to EUR 50–100 million, although it may be substantially higher at times of strong exchange rate movements.

Firm conclusions can only be drawn regarding one segment of the foreign market – options between domestic banks and non-residents. Domestic non-banks can even transact in options directly with foreign banks, avoiding the domestic banking system. However, as the domestic and foreign markets are not segmented, the direct effect of the pick-up in turnover in the foreign options market is also reflected in the data reported by Hungarian banks.

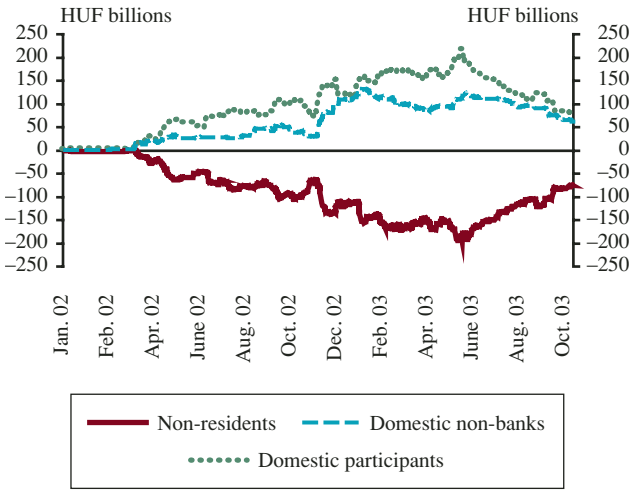
Market participants' behaviour in the options market

It is mainly characteristic of options transactions by domestic banks that they only intermediate deals and that they close their open positions vis-à-vis their foreign

Chart 4-7

Stock of foreign currency options by sector

*(Cumulated from May 2001)**



* *Net option positions, taking account of maturities. Positive values denote long forint positions. The time series have been produced by cumulating daily turnover data, on the assumption that, prior to liberalisation, non-residents did not conduct forint options. As the data also include those for include American options as well, the total of open contracts may be lower than the values on the Chart. Consequently, the time series should be considered as estimates.*

parent bank, by conducting options in the opposite direction (so-called option pairs). As a result of this, residents and non-residents' open positions arising from option contracts move in opposite directions *(see Chart 4-7)*. The overwhelming majority of domestic non-bank participants buy options which would earn a profit in the case of forint appreciation, so presumably it is exporting firms' hedging activity against exchange rate risk that lies in the background.[77] Most of these transactions are initiated by domestic participants whose demand is channelled through to non-residents by banks. An explanation for this may be that banks active in the larger foreign options markets are able to hedge their positions more effectively.

Another feature of the options market is banks' higher positions vis-à-vis non-residents than residents, suggesting that Hungarian banks' long open forint positions are faced with a lower portion of non-resident short positions in the forint (as expressed by the difference between the two charts).[78] Banks must hedge against the resulting exchange rate risk in the spot market, which they can do conveniently, given the much higher turnover in the spot market than in the options market.

From spring 2002, domestic non-bank participants continuously took long forint positions, in anticipation of forint appreciation. During the events of October–

[77] There may be domestic participants betting on forint appreciation in the background of transactions; however, the longer expiry of options suggests that hedging against exchange rate risk may rather be in the background.

[78] The motivating factor of non-residents' behaviour may be that, in certain periods, they do not only hedge their forint assets with swaps but with options as well.

November 2002, outstanding positions fluctuated, but to a considerably smaller extent than in the swap market. The trend continued after speculation against the intervention band ended, which may suggest hedging activities against exchange rate risk by residents. However, this trend turned around in the immediate aftermath of the band shift in June 2003, with neither non-residents nor residents taking significant positions amidst the more uncertain market conditions characterising the period June–October.

FINANCIAL DERIVATIVES AND MONETARY POLICY

By establishing FX swaps, participants in the foreign exchange market have the opportunity to detach their interest rate position from their foreign currency position using the strategies discussed above, i.e. they are able to create positions whose profit is only determined by exchange rate moves but not influenced by yield movements, and vice versa.

Currency options give participants the opportunity to 'bet on' changes in expected volatility without opening an exchange rate position and to build complex positions which are variably sensitive to shifts in the exchange rate, yields and volatility using combined options products.

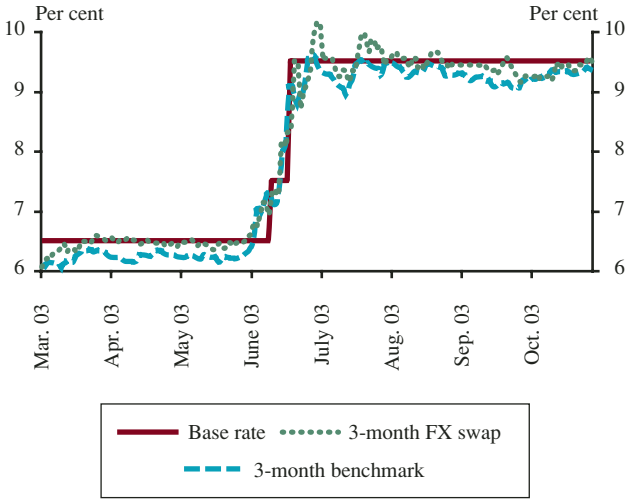
The role of derivatives in the transmission mechanism

Using financial derivatives, market participants may shape their actual foreign currency positions independently from their balance sheets, and thus the exchange rate may not only be determined by demand for balance sheet items, for example, bank deposits or government securities denominated in the given currency. However, this does not weaken the central bank's influence on the exchange rate. Derivative positions are built mainly for the short term, and thus the central bank has the ability to influence directly the costs of, or profits on, holding such positions by influencing short-term yields *(see Chart 4-8)*.

The return on a long position opened in the domestic currency is the carry, in addition to a potential move in the exchange rate in the favourable direction. If the carry is positive and high enough (in November 7.5 per cent), it makes a long foreign currency position opened by the derivative transaction attractive (the carry is included in the settlement price). A positive carry, however, has a cost for the participant opening a short position in the domestic currency. Moreover, the higher the carry the more expensive it is to take a foreign currency position against the domestic currency (for any type of derivative transaction). For example, an official rate

Chart 4-8

Two-week (major policy) rate of the MNB, and yields on three-month FX swaps and government securities



increase makes it considerably more difficult to take a short position in the domestic currency and easier to take a long position in the domestic currency, and so it tends to strengthen the exchange rate. This relationship is particularly true for foreign currency positions established by using any type of derivatives.[79]

Economic theory and research have emphasised as one of the positive effects of derivative positions that they contribute to the transmission of short-term interest rates through the exchange rate channel as well, i.e. they strengthen the relationship between interest rates and the exchange rate.[80]

If, however, market participants judge that the central bank's monetary policy has low credibility, then by building large derivative positions, they can more easily carry out an exchange rate correction against the central bank's policy which they consider as desirable. This may in turn lead to declining central bank influence.

Information content of derivatives markets

The market of financial derivatives not only improves transmission between the various market segments, but can also assist monetary policy in refining the picture of market participants' behaviour and expectations. The activities and yields evolving in the swap market may present a picture of the participants' expectations particularly in respect of short-term fluctuations in the exchange rate and the yield curve.

[79] Naturally, this reasoning is only valid on the *ceteris paribus* principle – the effect of the positive interest rate differential may be offset by a number of other, mainly endogenous, factors (e.g. well-defined exchange rate expectations, high anticipated volatility, etc.). In the case of currency options, this effect is more indirect; and the central bank mainly influences developments in option prices with credible exchange rate policy, thereby reducing exchange rate volatility.

[80] Vrolijk, Coenraad [1997].

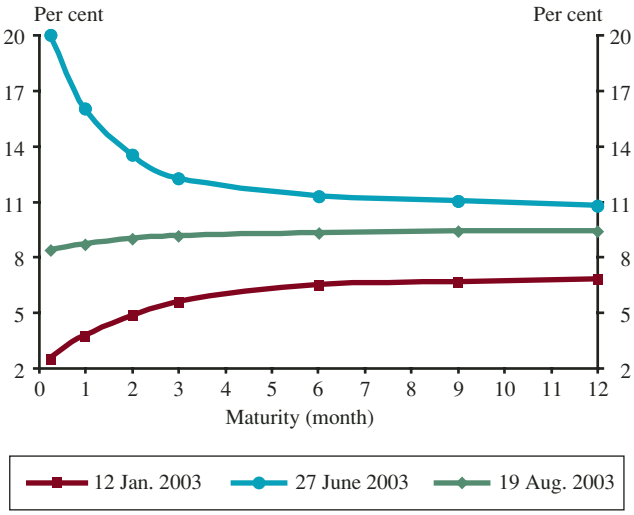
In addition, price developments in currency options may reveal the market's expectations, and thus the information content of option prices may be of particular importance, despite the relatively poor liquidity of the market. In the following, we give a short description of the opportunities for using currency options which the Bank currently monitors, in particular the various interpretations of implied volatilities deriving from ATM options.

Uncertainties in exchange rate movements

Volatility curves may be fitted to the implied volatilities relating to various maturities, which can be used to draw conclusions about the future expected standard deviation of the exchange rate *(see Chart 4-9)*.

Chart 4-9

Forint/euro volatility curve*



** Data for the period 12 January and 27 June denote the lowest and highest values for 2003.*

One tool used to illustrate volatility curves is the so-called option volatility cone which plots historical maximum and minimum implied volatilities at different maturity ranges. Using this method, conclusions can be drawn as to the relative amplitude of implied volatilities.

The highest implied volatilities were observed in June 2003, which reflected the high uncertainty in the wake of the band shift and official interest rate increases. A nearly horizontal volatility curve expresses the market's expectation of unchanged volatility in the period ahead. The lowest-level volatility curve in turn suggests very favourable, optimistic market sentiment.

Another method of revealing expectations related to exchange rate move uncertainties is to estimate: (i) the probability that the exchange rate will exceed a certain level; and (ii) the probability of the exchange rate will be in a certain band when the options expire. A wider fluctuation band pertains to higher implied volatilities. For example, during the period of stable exchange rate movements in spring 2003, implied volatilities of the forint indicated that a month later the exchange rate would be moving within a 1–2 percentage point band with a 50 per cent probability.

Credibility of the exchange rate regime

In an exchange rate system with a band, implied volatilities may supply information on the credibility of the exchange rate policy and the intervention band. If the exchange rate fluctuates near the limit of the band, this indicates that the market attaches greater likelihood to a band shift or a large depreciation of the currency. Consequently, implied volatility may also indicate the extent to which the market considers the intervention band as credible. In the exchange rate system of the European Union (Exchange Rate Mechanism, ERM I), increases in implied volatilities often reflected expectations of realignments in central parities. In the case of the Italian lira and the pound sterling, for example, changes in option prices anticipated the currency crises of 1992 several months before the crises actually occurred. Based on information available to the Bank, options markets failed to predict the speculative attack against the forint band of January 2003 – volatilities only increased simultaneously with FX intervention conducted at the band's limit. Moreover, implied volatilities were at their lowest level to date during the days immediately preceding the intervention (on 12 January).

Estimating the risk premium

The risk premium on forint assets required by non-residents is composed of a number of factors. Default risk is reflected well by the difference between the ratings of government securities and the yield spread on government bonds denominated in foreign currency. Liquidity risk is low, due to significant turnover in the government securities and foreign exchange markets. The most variable component of the risk premium is exchange rate risk, which can be captured by the standard deviation of the exchange rate. However, historical volatility is not the best indicator of exchange rate risk, due to its backward-looking nature.

By contrast, implied volatilities express expected future fluctuation in the exchange rate or, in other words, the market's expectations related to exchange rate risk. As only actual interest rate differentials are observable in the market, it is important that there be an indicator which reflects expectations. Analyses have shown that the relationship between quoted volatilities and the forint exchange rate is very close – with an unchanged interest premium, implied volatility (and the increase in exchange rate risk) generally leads to exchange rate depreciation *(see Chart 4-10)*.

Chart 4-10

EUR/HUF implied volatility, the interest rate differential and the exchange rate

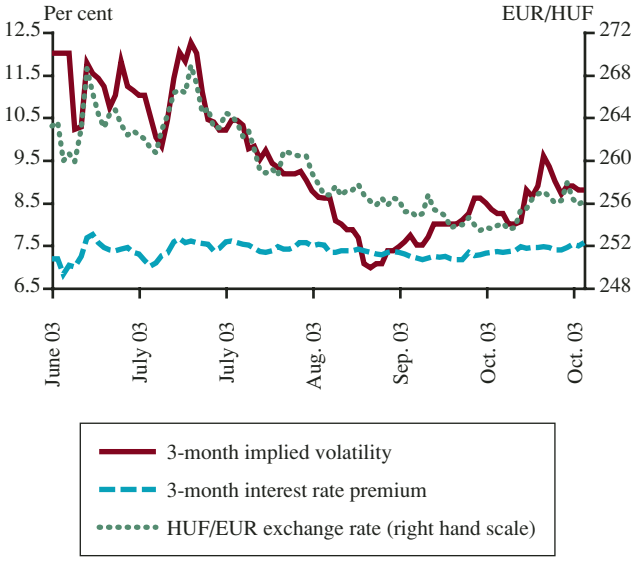
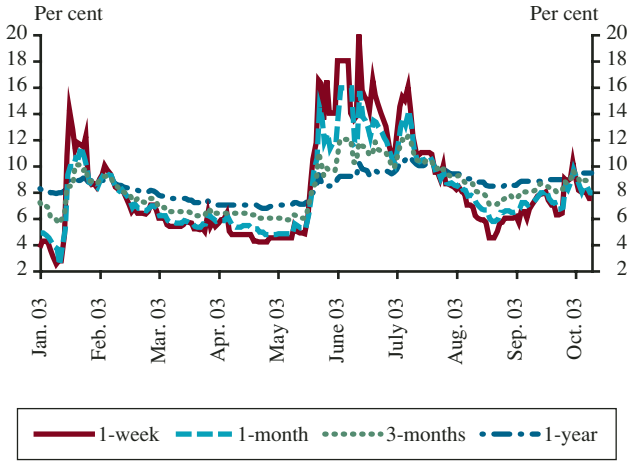


Chart 4-11

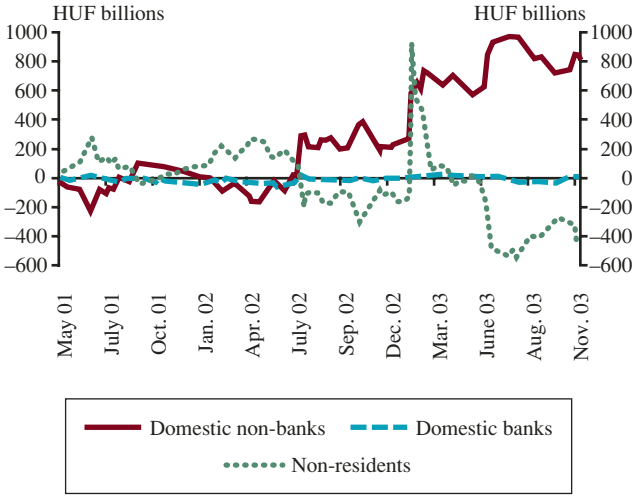
EUR/HUF implied volatilities for different maturities*



** Implied volatilities of ATM options are quotes from Reuters.*

Chart 4-12

Forint open positions of the domestic banking sector, domestic non-banks and non-residents since band widening*



** Turnover data cumulated from 4 May 2001; positive values denote long forint positions.*

DERIVATIVE TRANSACTIONS FROM FINANCIAL STABILITY PERSPECTIVE

One of the most important components of the stability of the financial intermediary system is the extent of exposure to exchange rate risk. The extent of exchange rate risk depends in part on the size of open positions in the various currencies and in part on the volatility of the forint vis-à-vis the various currencies. If the banking sector has significant open foreign currency positions either directly or indirectly, then strong oscillations in the exchange rate may cause large losses to banks *(see Chart 4-11)*.

During the episodes of market turbulence in 2003, both historic and implied volatilities of the forint exchange rate soared. Nonetheless, the forint market stabilised relatively quickly, with implied volatilities approaching their earlier levels within a couple of months *(see Chart 4-12)*. The average volatility of around 8 per cent is not outstandingly high in comparison with the more developed currency markets – volatility of the forint/euro exchange rate is generally lower than the annualised deviation of the zloty/euro or US dollar/euro pairs (more than 10 per cent), and is only slightly higher than that of the Czech crown (6–7 per cent).

The episodes of sudden exchange rate depreciation in the last 18 months, using derivative transactions, have been associated with large shifts in the position of the various sectors vis-à-vis banks. However, the domestic banking sectors' total (on and off-balance sheet) open position has always remained at a minimum level *(see Chart 4-12)*. This has been required by the strict regulations on banks' assumption of exchange rate risks. In the past, a regulation in force since 1992 set the upper limit of exchange rate risk that banks were allowed to take at 30 per cent their regulatory capital.[81] Although compliance with the regulation is controlled on a daily basis and sanctions could easily be imposed on parties which fail to comply, the regulation only restricted the interest rate risk taken by credit institutions directly: its effect did not extend to other financial intermediaries, such as investment firms owned by banks. This may have been the reason why, in the period preceding the

[81] Ministry of Finance Decree 41/1996 ceased to have effect on 1 November 2003.

Russian financial crisis, banks, while formally complying with the regulation on excessive position limits, held significant long open forint positions through their investment firms in order to realise the interest premium of the forint. During the forint deprecation in the aftermath of the Russian crisis, the investment firms participating in this speculation, and the parent banks indirectly, incurred heavy losses on those positions.

Later, the regulations on financial institutions' open foreign currency limits were widened. The Government Decree on the trading book, in effect since mid-2001,[82] introduced a new regulation which equally applied to banks and investment firms – to cover their exchange rate risk, these financial institutions must allocate 8 per cent capital for the part of their aggregate open foreign currency positions in excess of 2 per cent of the regulatory capital. It should be noted that the regulation on trading books applies to open positions both on and off the balance sheet (i.e. it refers to the total open position) and that it controls exposure arising from special derivative transactions in a modern way.

As the regulation on trading books also covers investment firms, there remains no opportunity for banks to circumvent the rules on open positions via their securities brokers. However, banks own other financial enterprises (for example, leasing companies) to which the trading book regulations do not apply and so, in principle, they could be used by banks to artificially reduce exposure to exchange rate risk recorded in their books. Credit institutions must ensure prudent operations including the risks taken by their enterprises belonging to the holding – they must comply with the regulations pertaining to risk taking and capital adequacy on a consolidated level as well.[83] Although actually the Hungarian Financial Supervisory Authority will monitor compliance with these rules on a continuous basis only after the introduction of consolidated supervision in 2004, the surveys conducted up to now[84] and the authority's data for end-June 2003 suggest that, typically, financial enterprises do not take open foreign currency positions either on or off balance sheet. For example, leasing companies, being bank-owned financial enterprises with the largest assets, have their foreign currency-based loans refinanced by their parent bank, and their forward forex activities are insignificant.

The Bank has little information on the degree of concentration of banks' forward transactions with the corporate sector and on the breakdown of firms' forwards into hedging and speculative positions. The depreciation of the forint exchange rate may cause losses for domestic participants establishing forwards with banks, temporarily for exporting firms and permanently for speculators. Although information mainly indicates the dominance of exporting firms, in cannot be excluded in either case that banks may face counterparty risks linked to exchange rate weakening.

Nevertheless, banks mitigate their counterparty risk by requiring maintenance margin from their counterparties, similar to the case of financial futures, against which they can settle accumulated losses. If, as a result of the losses, the maintenance margin falls below a certain level, then they call on the counterparty to replenish his margin account. Due to the competition between financial futures and over-the-counter derivatives, the size of the maintenance margin is influenced by the basic margin required for transactions entered into on the Budapest Stock Exchange and the Budapest Commodity Exchange, which is HUF 7,500 for one contract in the case of euro futures (the size of the contract is the forint equivalent of EUR 1,000), i.e. approximately 2–3 per cent of the nominal value of the contract. Occasionally, banks require margins amounting up to 10 per cent primarily from counterparties establishing speculative positions.

In the case of hedging transactions, with the passage of time the transitory loss is offset by the increased forint value of the exporting firm's sales revenue. It is characteristic of banks that, in the case of transactions conducted by a permanent client with good creditworthiness, they do not require a margin at all up to a certain limit, because the client's bank account provides cover for counterparty risk and the margin could be a source of liquidity risk for the client. (During the forint depreciation in June, many clients with hedging transactions faced liquidity problems, due to the replenishment of accounts.) However, in the case of a counterparty with a speculative position, banks usually require a maintenance margin, or change the transaction to a financial futures.

Based on the above, the regulation on open foreign currency positions adequately limits the financial system's taking direct and indirect exchange rate risk, and hence volatility of the forint exchange rate may not cause losses to banks to an extent which would endanger their stability. However, it may happen that, under extreme events, forward transactions entered into with domestic participants, particularly speculators, transform the original exchange rate risk into counterparty risk. But banks protect themselves against these risks by requiring margin accounts and regular settlement of losses incurred.

[82] Government Decree 244/2000.
[83] The Credit Institutions Act and the Capital Markets Act contain provisions in this respect (Act CXI of 1996., Act CXX of 2001, Tpt.).
[84] For example, Éva Fischer and Lívia Sánta [2003].

APPENDIX

Chart 4-13

Effect of an FX swap on and off the balance sheet

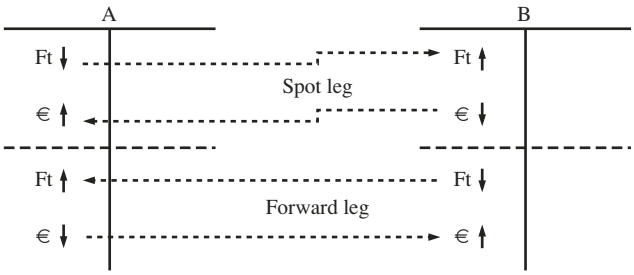
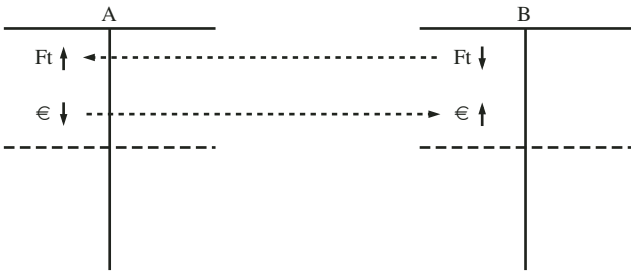


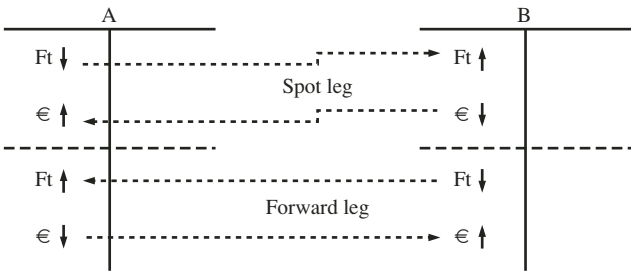
Chart 4-14

Spot + Swap strategy (synthetic forward)

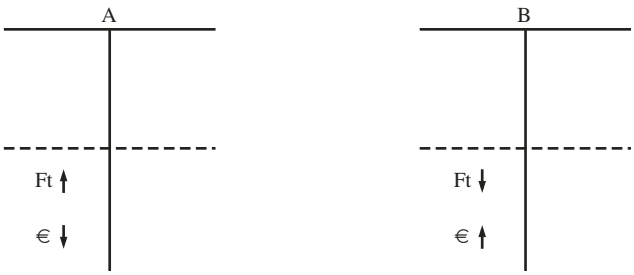
I.



II.



III.



I. Spot transaction
II. Opposite FX swap
III. Result of the two transactions

BIBLIOGRAPHY

Ministry of Finance Decree No. 41/1996 (XII. 28.) on The calculation of foreign currency open positions.

Government Decree No. 244/2000 (XII. 24.) on The rules of establishing capital requirements to cover positions recorded in the trading book, risk undertakings, exchange rate risk and large exposures and the detailed rules of keeping the trading book.

Act XCIII of 2001 on The lifting of foreign exchange controls and the modification of certain acts.

Adão, Bernardino–Cassola, Nuno–Barros, Luís Jorge [1998]: Informação sobre Expectativas de Convergência do Escudo Contida nas Volatilidades Implícitas das Opções Cambiais. Banco de Portugal, September 1998

Bank for International Settlements [2001]: Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity, 2001

Bank for International Settlements [2003]: The Global OTC Derivatives Market at end-December 2002. May 2003

Campa, José M.–Chang, Kevin [1994]: Realignment Risk in the ERM: Evidence from Pound-Mark Cross Rate Options. Working Paper, New York University 1994

Chan-Lau, Jorge A.–Morales, R. Armando [2003]: Testing the Informational Efficiency of OTC Options on Emerging Market Currencies. IMF Working Paper, January 2003

Cooper, Neil–Talbot, James [1999]: The Yen/Dollar Exchange Rate in 1998: Views from Option Markets. Bank of England Quarterly Bulletin, February 1999

Dunis, Christian–Lequeux, Pierre [2001]: The Information Content of Risk Reversals. Centre for International Banking, Economics and Finance, Working Paper April 2001

Eitrheim, Øyvind–Espen Frøyland–Øistein Røisland [1999]: Can the Price of Currency Options Provide an Indication of Market Perceptions of the Uncertainty Attached to the Krone Exchange Rate? Norges Bank, Economic Bulletin

Fischer, Éva–Sánta, Lívia [2003]: Risk management at banking groups in the Hungarian banking system. MNB Report on Financial Stability, June 2003

Gereben, Áron [2002]: Extracting market expectations from option prices: an application to over-the-counter New Zealand dollar options. Reserve Bank of New Zealand Discussion Paper Series, April 2002

László, Flóra–Móré, Csaba–Vígh, M. Szabolcs–Wolf, Zoltán [2002]: Effects of the band widening and foreign exchange liberalisation. MNB Report on Financial Stability, June 2002

Száz, János [1999]: Stock exchange options for buying and selling. Tanszék Kft, 1999, Budapest (only available in Hungarian)

Vrolijk, Coenraad [1997]: Derivatives Effect on Monetary Policy Transmission. IMF Working Paper 1997

4.2 György Szalay–Gyula Tóth: The finance of home purchase and construction, the risks involved and their management in the Hungarian banking system[85]

Lending to the household sector has taken priority over other banking activities in the last three years. The explosive growth in banks' housing loan portfolio can be ascribed primarily to a strong upswing in housing loans, triggered by the introduction of a system of subsidised interest rates on housing loans in early 2001. This explosive growth in the housing loan portfolio materialised only after the extension of the subsidised housing loan system to used homes in March 2002. Financing facilities based on the co-operation between commercial banks and mortgage banks thrust mortgage banks to the forefront of financing home purchases and construction. As a result, banks actively involved in lending sought co-operation with three mortgage banks. This study focuses on how this extremely strong growth in financing home purchases and construction is influencing market participants' exposure to lending, market and operational risks. In addition to identifying the risks, it also addresses the issue of the profitability of this business line. The data for this study have been provided, on a case by case basis, by the three Hungarian mortgage banks and nine commercial banks, each with major market share. These banks account for a combined share of nearly 87% of banks' total housing loan portfolio.

DEVELOPMENTS IN LENDING TO THE HOUSEHOLD SECTOR

In the first half of the 1990s, the dismantling of the earlier system of subsidised housing loans, high inflation and the bleak economic outlook led to a fall in household loans. High interest rates and a limited selection of bank products made housing loans unaffordable for households. Both home purchases and home construction were financed from households' own resources. The upswing in lending to the household sector can be attributed to the introduction of the subsidised housing loan system in early 2001, which has led to steady growth in the proportion (+9.9%) of lending to the household sector within the assets of credit institutions over the past three years.

Banks' activity in housing finance has fundamentally affected their respective market shares in lending to the household sector. Banks which have been active in the home lending market have been able to increase their respective market shares considerably. By contrast, credit institutions that play no active role in this business line seen a significant fall in their respective market shares.[86]

Almost all of the growth in the housing loan portfolio of the market participants that are most actively involved in the provision of housing loans can be attributed to subsidised loans. There has been no substantial shift in housing loans offered at market rates.

Factors contributing to growth in the housing loan portfolio

Real estate trends

The value of housing property assets depreciated gradually in Hungary between 1990 and 1997. This trend was followed by an explosion in market prices between 1998 and 2001, the underlying reasons for which were the following: unfavourable developments in the stock market and a gradual decrease in interest rates turned foreign and domestic investors' attention to the real estate market; a new generation of investors appeared, owing to the saturation of the real estate market in EU member states. As most households could not afford a home because of increasing real estate prices, a system of subsidised housing loans was needed that would encourage credit institutions to change their rather passive attitude to financing home purchases and construction, and make homes more affordable.

Government decree on subsidised housing loans

Under the subsidised loan system (Government Decree 12/2001), interest rates on housing loans are well

[85] For more information on the lending practices of banks and mortgage banks, please see the additional information on the MNB's website.

[86] The market share in the overall loan portfolio of the ten market participants that have been the most actively involved in lending to the household sector has been growing steadily. Their overall market share (87%) in late September 2003 was 15.1% higher than at end-2000, prior to the introduction of the system of subsidised housing loans. There was a jump in the market share of the banks under review in 2002, when the system of subsidised housing loans was also extended to the purchase of used homes. As the following sections of this study focus on the lending practices adopted by the banks most actively involved housing finance, the issue of the developments affecting co-operative banks and building societies is not addressed.

Table 4-1

Loan portfolio of the household sector between December 2000 and September 2003

In HUF billions	Dec. 2000.	Dec. 2001.	Dec. 2002.	Sep. 2003.	Changes in the portfolio between Dec. 2000 and Sep. 2003	
					In HUF billions	Index
Banking system	**462.0**	**700.5**	**1190.8**	**1788.3**	**1326.3**	**387.1%**
– housing loans	149.5	263.3	695.1	1217.7	1068.2	814.5%
– consumer, personal, hire purchase loans	284.3	403.5	446.7	504.6	220.3	177.5%
– other (overdraft, Lombard)	28.2	33.7	49.0	66.0	37.8	234.0%
Savings and loans co-operatives	**132.2**	**168.6**	**212.7**	**260.2**	**128.0**	**196.8%**
– housing loans	38.5	61.0	83.1	102.9	64.4	267.3%
– consumer, personal, hire purchase loans	86.7	101.7	123.0	149.5	62.8	172.4%
– other (overdraft, Lombard)	7.0	5.9	6.6	7.8	0.8	111.4%
Credit institutions	**594.2**	**869.1**	**1403.5**	**2048.5**	**1454.3**	**344.7%**
Share of credit institutions' total assets	7.3%	9.6%	13.8%	17.2%		

below market rates, and thus an increasing number of households can afford such loans. The interest rates and service charges[88] to be paid by customers have been fixed, with government subsidies compensating banks for related losses in the income. Amendments of the original Decree (prior to its modification in June 2003) broadened the availability and purposes of such loans. In addition, the value of actual subsidies (i.e. capital, interest rates and taxes) also increased. From a regulatory aspect, the greatest impetus was the extension of subsidies to the purchase of used homes in March 2002. Furthermore, an amendment in June 2001 to Act XXX of 1997 on Mortgage Banks and Mortgage Bonds created the operational framework for refinancing housing loans originated by commercial banks through mortgage banks and access to subsidised interest recorded on the liabilities side.

Business policy-related and other structural factors

Macro-economic and other structural factors:

- As the economy stabilised, households' willingness to assume indebtedness grew considerably.
- Real wages have increased significantly over the last three years owing to falling inflation and expectations of high raises in nominal wages.
- Most homes are privately owned and are still unencumbered with mortgages in Hungary, representing a large amount of eligible collateral.
- The cost of obtaining data needed for creditworthiness appraisal and other service charges have fallen markedly.
- Demand for housing loans has been brought forward in anticipation of restrictions on the subsidy system.[89]

Table 4-2

Performance and market share of major banks involved in housing finance[87]

	Dec. 2000		Dec. 2001		Dec. 2002		Sep. 2003		Change Dec. 2000–Sep. 2003	
Loan portfolio in HUF billions Market share per cent	Housing loan portfolio	Market share	Housing loan portfolio	Market share	Housing loan portfolio	Market share	Housing loan portfolio	Market share	In HUF billions	Ratio in percentage points
Banks under review total	**134.9**	**71.9**	**240.0**	**74.0**	**655.8**	**84.3**	**1154.0**	**87.0**	**1019.1**	**15.1**

[87] The loan portfolio of mortgage banks includes loans originated by the institutions themselves and syndicated loans. Refinancing loans based on the purchase of independent liens are presented in the relevant section on the originator of such loans, since they are recorded in the originator's balance sheet.
[88] No other fees (e.g. creditworthiness appraisal fees, appraisal fees, disbursement commission, etc) charged by banks have been fixed.
[89] See the June 2003 modification of the decree.

Business incentives for the banking sector:

- The market of lending to the corporate sector had become so saturated by 2000 that a growing number of banks looked to the household sector to intensify their involvement.
- Subsidies guarantee larger-than-average interest margins over a long period of time.
- As households' indebtedness is low by international standards, the household lending market offers significant growth potential.
- Credit risks can be kept at an appropriately low level, owing to the inclusion of eligible real estate collateral combined with other guarantees.

Main products available in the market of housing loans and their profitability

There are two types of loans secured with liens: **mortgage loans and mortgage-based loans**. Credit institutions issue mortgage bonds to finance mortgage loans, and use traditional liabilities for mortgage-based loans. Further criteria for the classification of housing loans include subsidies and the various economic purposes of housing loans, as stipulated in the decree on subsidies.

Subsidised mortgage loans to finance the purchase of new and used homes

The types and availability criteria of credit facilities for financing the purchase of new and used homes are primarily determined by the decree on subsidies and the amendements thereunto. Prior to the **June 2003 modification** of the decree, banks originated the majority of housing loans within the framework of the following two basic facilities:[90]

- **Loans subsidised on the liabilities side**: loans at a variable 6% interest rate, which can be changed every five years, service charges added; to be used for either the purchase or construction of new homes, or the purchase of used homes; available to residents; the credit limit is HUF 30 million. *(In this case, the interest on mortgage bonds, issued to finance this type of loans, is subsidised. As in Hungary only mortgage loan companies have the right to issue mortgage bonds, subsidies are channelled into the banking system through such companies.)*[91]
- **Loans subsidised on both the asset and liabilities sides (double subsidy loans):** loans at an interest rate of 4.5% fixed for five years, with fixed service charges added, to finance either the purchase or construction of new homes; the price of the home to be purchased or constructed should be under HUF 30 million; applicants are either married couples or single parents with custody of their children; the credit limit is HUF 10 million. *(In contrast to subsidy on the liabilities side, the amount of the subsidy on such loans recorded on the asset side, based on the actual amount of the relevant loan, is recorded in the books of the credit institution originating the loan.)*

The above facilities, if they were originated prior to the modification of the Decree, are to earn an approximately 7–9% interest margin[92] in five years from their origination and refinancing.[93] As commercial banks can only acquire subsidies related to mortgage bonds through mortgage banks, they may well earn lower margins. Part of the relevant subsidy, the proportion of which is determined either in a refinancing or syndicate agreement, is recorded in the books of the mortgage bank. Since the interest margins to be earned were well in excess of the banking sector average, profitability proved to be an excellent incentive for credit institutions.

Modification of the decree on subsidies has led to changes in the amount of and stricter eligibility criteria for loans.

- The credit limit for loans subsidised on the liabilities side fell from HUF 30 to 15 million. However, the maximum amount of subsidised loans to finance either the purchase or construction of new homes has risen from HUF 10 to 15 million. In contrast to the old system, under the new regulations, a household is only eligible for one type of subsidised loans at a time. Though there has been no substantial change in the extent of subsidies, the modification of the decree has resulted in fewer differences between **loans subsidised on the** liabilities **side**, which were invariably used earlier to finance the purchase of used homes, and loans with **double subsidy**. As a result, a large number of banks no longer offer double subsidy loans, originated earlier only to married couples or single parents with custody of

[90] As loans at variable rates, i.e. with an interest rate changed every five years, account for over 95% of the overall loan portfolio in the entire banking sector, this study focuses on the profitability of such products. Since the size of the portfolio of subsidised loans recorded on the asset side and their profitability are insignificant, this study does not discuss them.

[91] For a more detailed treatment of this facility, see later sections.

[92] Both interest-like fees and subsidies included, the interest margin to be earned on a facility denotes the interest rate differential. The way it is calculated is different from the one applied in the case of special loan facilities, which grant a grace period before repayment starts.

[93] In order for the costs incurred (e.g. registration fee at the Land Registry Office, loss of earnings, etc) to be compensated, banks were originated a one-off reimbursement of 2% by the government.

their children. Consequently, **subsidised loans recorded on the liabilities side have taken the lead**.

At the level of the entire banking system, the interest margin on loans originated and refinanced under the new terms and conditions has fallen to 3.4–5.4%, owing to the reduction in subsidies.[94] **We believe that the current interest margin, although it is 3–3.5 percentage points lower than previously, still offers a strong incentive for banks, as it is guaranteed for a long period of time in a market where average interest margins[95] are falling.**

General purpose, market-rate loans

General-purpose loans are market-rate loans collateralised with a lien. Subsidised loans, however, are to be used for either home purchase or home construction. The low interest rates on subsidised loans has resulted in a lower share of market-rate loans collateralised with a lien in the loan portfolio in the past two years. **In contrast to subsidised loans, interest on and the profitability of market-rate loans depend on client risks and the cost of liabilities.** Profit on market-rate loans may be earned from both interest rates and other fees.

Incurrence of liabilities to finance lending

Dynamic growth in assets has been accompanied with similarly vigorous growth in liabilities. By nature, mortgage lending, in keeping with international practice, relies on such techniques of incurrence of liabilities that are different from those of traditional lending. Statutory and regulatory stipulations have also been instrumental in the development of the necessary structures: subsidies on the liabilities side reduce the cost of liabilities incurred by credit institutions through interest subsidies linked with mortgage bonds. Under Hungarian law, mortgage bonds may only be issued by mortgage banks that comply with certain specific statutory stipulations.

In terms of the financing techniques adopted, the practice and procedure of mortgage lending varies from one country to another, and may be different even within one country. In EU Member States there are two ways of financing of mortgage loans through mortgage bonds:[96]

- *Direct financing (the one-tier model)*: banks originating mortgage loans group loans themselves and issue mortgage bonds to incur liabilities. This is widespread practice in Germany and Denmark.

- *Indirect financing (the two-tier model)*: banks originating mortgage loans sell their loans to a third company; the latter then puts them into a 'pool', and mortgage backed securities (MBS). This is widespread practice mainly in Anglo-Saxon countries.

Currently, there are three types of refinancing techniques in Hungary. One is the purchase of **independent lien**, a special form of indirect finance; the other is based on **syndicated agreements**; and the third is **loans originated by mortgage loan companies on their own**, the latter two correspond to the concept of the one-tier model.

Refinancing model based on the purchase of independent lien

The underlying idea of this refinancing facility is that mortgage banks that issue mortgage bonds refinance commercial banks originating mortgage loans under independent lien sales contracts. Banks repurchase independent lien at the pace loans are repaid. Mortgage bonds are collateralised through the refinancing of loans with independent lien. As mortgage loans continue to be recorded in the balance sheet of the originator credit institutions, both credit and prepayment risks are borne by the bank that originates the loan and, indirectly, by the mortgage bank involved.

Table 4-3

Product composition of the loan portfolio held by banks with a dominant market share, 30 September

(In HUF billions)

	Housing mortgage loans				Mortgage-based loans		
	Subsidised recorded as liabilities	Doubly-subsidised	Market-rate	**Total**	Asset side subsidised	Market-rate*	**Total**
Banks under review:	683.6	235.3	2.0	**920.9**	10.3	222.7	**233.0**

** Other subsidised loans have been included in market rate loans.*

[94] For a detailed description of the calculation, see the section on product profitability.
[95] In the banking sector the average interest margin was 3.9% at the end of 2003 H1. It is, however, also exposed to the proportion of interest-bearing instruments in the balance sheet of assets and liabilities. In the case of mortgage loans, by contrast, this proportion is nearly identical on both the asset and liabilities sides.
[96] For a detailed treatment of the issue, see Judit Vincze, 'The market position of and trends in the development of mortgage bonds', Hitelintézeti Szemle 2002/3.

Mortgage bonds investors only take low risks, since mortgage loans are repaid to the mortgage bank if the partner bank goes bankrupt.

Chart 4-15

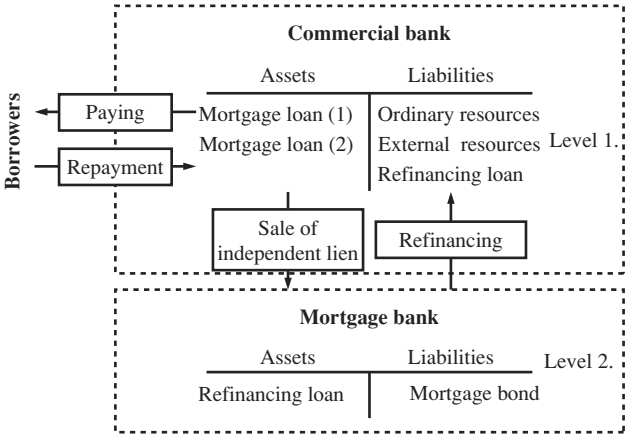
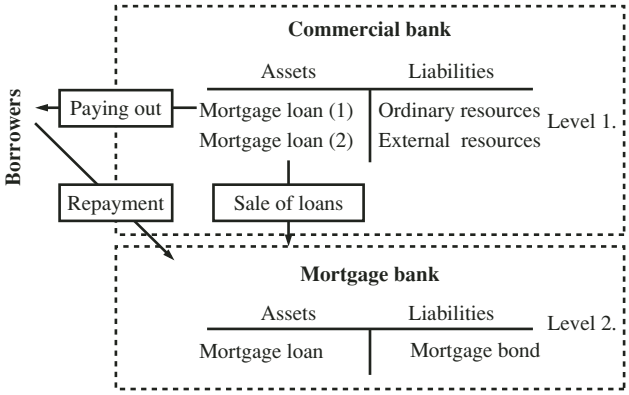


Chart 4-16



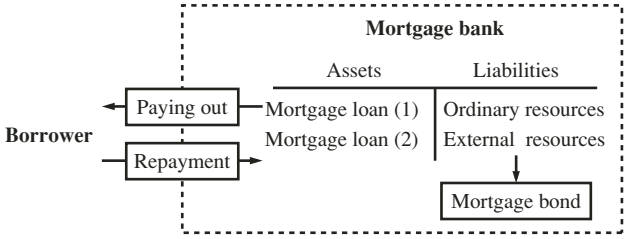
Financing model based on syndicated loan agreements

Under such agreements, commercial banks and lenders to mortgage banks form a syndicate and, as such, they distribute loans via their distribution network. When a loan is originated, a mortgage bank purchases it, so it is no longer recorded in the balance sheet of the relevant commercial bank. As a result, lending risks are taken by mortgage banks. Members of the syndicate earn income in proportion to the tasks and risks taken. Mortgage banks issue mortgage bonds collateralised with the mortgage loans purchased.

Financing of loans by mortgage banks

Mortgage banks finance the loans sold via their own network of distribution or agents by issuing mortgage bonds. Both loans and mortgage bonds are recorded on the balance sheet of mortgage banks.

Chart 4-17



Mortgage banks play a pivotal role in all three models and determine the structure of the housing loan market. Currently, there are three mortgage banks operating in the banking system in Hungary. No new market participants are expected to emerge even over the longer term. **Földhitel és Jelzálogbank (FHB),**[97] still in state ownership at the end of September 2003, has entered into a refinancing agreement with nine commercial banks, and into a syndicate agreement with sixty-two co-operative banks. In addition to these commercial banks and co-operative banks the FHB also originates housing loans through agents and via its own distribution network. **HVB Jelzálogbank**, 100%-owned by its parent bank, has entered into a refinancing agreement with four commercial banks. Furthermore, it also originates a limited selection of housing loans. **OTP Jelzálogbank,** which is also 100%-owned by its parent bank, only originates housing loans under a syndicate agreement with its parent bank.

In late September 2003, the value of the mortgage bonds issued by these three mortgage banks was HUF 752.8 billion, of which a package in the amount of HUF 420.2 billion[98] was sold through a public offering. The yield on mortgage bonds placed through the public offering was 60 to 150 basis points higher than the benchmark (government bond yield).

RISKS IMPLIED IN HOUSING LOANS

The chart below shows the practice adopted by banks and mortgage banks in originating housing loans and the factors that, by the very nature of the procedure for such lending, add to the risks involved. Except for pricing, there is no real difference between subsidised and market-rate loans.

The following sections describe how, based on the lending procedures outlined above, the extremely rapid growth in housing loans has affected market participants' exposure to **lending, market and operational risks**[99] and the profitability of products.

[97] The owner decided to privatise a 50%-1 ownership stake in the mortgage bank. Privatisation took place in November 2003.
[98] In effect, the mortgage bonds offered publicly by OTP Jelzálogbank in the amount of HUF 222.2 billion qualified as privately offered bonds because of the subscription preference that the parent bank enjoyed.
[99] Conclusions on the risk exposure of credit institutions are based on data as at end-2002, and on the results of questionnaire surveys.

Chart 4-18

Composition of the mortgage bond market by issuers as of 30 September 2003

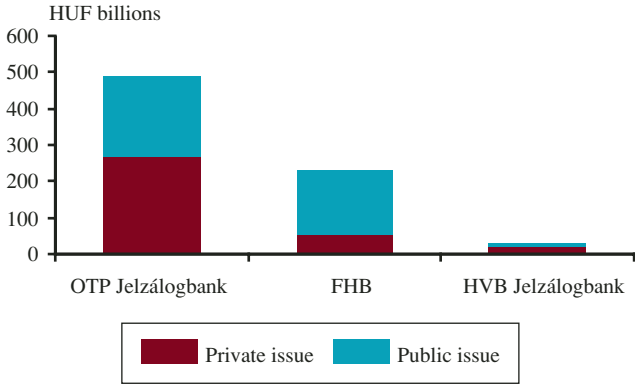
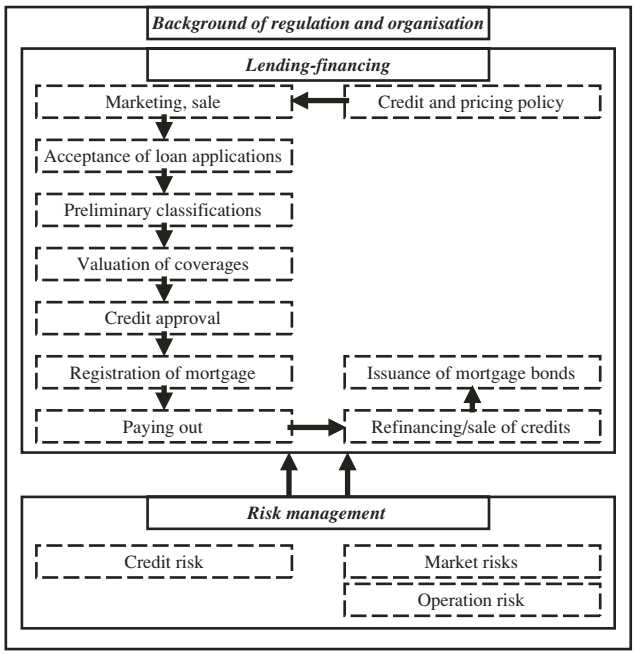


Chart 4-19

Flow chart of the provision of housing loans



Box 4-1

The following preliminary expectations regarding lending practice have been drafted:

Both **internal regulations and organisational structure** provide framework conditions for the origination of housing loans. In keeping with the expectations, both internal regulations and organisational structure should take into account the special characteristics of the provision of housing loans to the greatest possible extent, and should be centralised. The various considerations of risk management should enjoy priority at this level.

Lending policy should include the bank's short-term and medium-term strategic outlook and the expectations for the credit portfolio, the quality of the portfolio and its profitability. At the level of lending policy and product regulations, portfolio-level limits and exclusive and/or limiting conditions should be imposed and laid down respectively. The **pricing** of subsidised loans is dependent on statutory regulations to a large extent. In the case of loans at market rates, interest rates and fees should be proportionate with customer risks. In the longer run, the pricing of subsidised loans and that of market-rate loans should converge to an increasing degree.

Preliminary credit appraisal is anticipated to take some burden off middle office areas, which are already rather overloaded. **The appraisal of the real estate** to serve as collateral, **scoring** and examination of customers' financial capabilities should all form the basis for credit appraisal. Because of a considerable increase in demand and inexperience of households in paying back their loans, any reduction in the weight attached to scoring and income-related deliberations may add to risks. The involvement of risk management areas in credit appraisal is of vital importance.

Banks should obtain long-term liabilities as soon as a **lien is registered and loans are disbursed.** The reasons are that this reduces the repricing gap, and they can only record subsidies subsequent to the registration of lien and the disbursement of loans.[100] In order for mortgage banks to be refinanced and loans to be provided, the loans assumed and refinanced respectively should qualify as eligible collateral as soon as realistically possible. Once this has taken place, **the issue of mortgage bonds** can commence. The sales potential of mortgage bonds and yield spread depend heavily on the functioning of the domestic securities market.

As for overall risk management, **risk management** related to housing loans involves credit, market and operational risks, while taking into consideration the special characteristics of housing loans.

Although, as a result of a current upswing in housing loans, portfolio quality, which deter-

[100] Subsidies recorded on the liabilities side, reimbursement of finance-related costs.

mines **credit risks**, is far better than the bank average, regulations governing the appraisal of receivables and the recognition of impairment should be clearly defined. Monitoring requires a great deal of information, which helps assess future developments in portfolio quality.

The explosive growth in housing loans affects the **interest rate and liquidity risks** that banks and, in particular, mortgage banks face. As the majority of positions are assumed by mortgage banks, such companies are expected to adjust their interest rate and liquidity risk management so that it complies with the characteristics of housing loans. The technical aspects of refinancing or sale of loans may not lead to an unjustified rise in interest rate and liquidity risks.

In terms of the entire portfolio, the **operational risks** implied in housing loans (e.g. abuses related to collateral appraisal, the use of loans for purposes other than specified in the loan agreement, losses arising from IT system malfunctions, etc) are not expected to be significant.

Credit risks

The portfolio quality of housing loans depends on **borrowers' ability to pay** and expected **changes** in the value of the **collateral portfolio**. Borrowers' payment attitude depends primarily on their income position. Any negative change in the value of the real estate serving as collateral depends on developments in global and local real estate markets. In addition, changes in borrowers' ability to pay are also affected by amendments of the Government Decree on subsidised housing loans,[101] and adjustment of bank strategies to meet market demand (e.g. higher degree of collateralisation, calling for a moratorium on the payment of principal, etc).[102]

The rating of the housing loan portfolio is better than the quality of the entire bank portfolio, within which the quality of the portfolio comprising market-rate loan lags well behind that of subsidised loans. The credit institutions under review recognised **impairment in the amount of HUF 1.17 billion on subsidised loans** prior to end-2002, compared to **HUF 1.67 billion on market-rate loans**. Impairment of market-rate and subsidised loans as a proportion of the portfolio was 1.2% and 0.2%, respectively.

According to the Ministry of Finance Decree, banks shall, through CEO orders, stipulate procedures for the rating of their housing loans-related liabilities and risk provisioning. Liabilities are rated monthly and impairment is established quarterly. **Overdue payment forms the basis for credit rating**.

At end-2002, payment of 4.3% of subsidised loans on average was overdue, compared to 9% of market-rate loans. Most had been overdue for less than 30 days, suggesting lax repayment discipline rather than habitual failure to pay. The reasons why the rate of overdue payment is higher in the case of market-rate loans include lenient regulations governing sequestration and an ageing portfolio. In the case of subsidised loans, borrowers' discipline to repay their debts in a timely manner was rather remarkable (payment had been overdue for over 30 days in a mere 0.9% of all loans).

As nearly 70% of the housing loan portfolio was originated within a year, overdue payment and the quality of the portfolio may change considerably during the maturity of the loans. Duration varies between 5 to 25 years and is increasingly steadily. The loans originated so far are extremely young. Compared to a highly successful 2003, growth rate is expected to slow down in the years to come, with the average age of the portfolio growing higher.

The average amount of refinanced housing loans is HUF 4 to 5 million,[103] the monthly instalment of which,

Table 4-4

Distribution of the housing loan portfolio at banks under review by rating categories

	Problem-free		Qualified			Total	
31 December 2002	**gross HUF millions**	**ratio**	**net HUF millions**	**gross/recorded HUF millions**	**ratio**	**net HUF millions**	**gross/recorded HUF millions**
Subsidised loans	509,508	98.9%	4,246	5,418	1.1%	513,754	514,926
Market-rate loans	135,097	95.9%	4,152	5,826	4.1%	139,249	140,922
Total	**644,605**	**98.3%**	**8,398**	**11,243**	**1.7%**	**653,003**	**655,848**

[101] For instance, restrictions on favourable tax treatment regarding housing loans.
[102] For a detailed treatment of the income position of households and changes in the value of real estate, see the special topics in the MNB's *Report on Financial Stability* published in December 2002.
[103] As no reliable data on the average volume of loans was available, the value of HUF 4 to 5 million disclosed by mortgage banks was used as a reference value in this study.

Table 4-5

Distribution of the housing loan portfolio at banks under review on the basis of overdue payment

31 December 2002	Market-rate loans		Subsidised loans	
	HUF millions	Distribution (per cent)	HUF millions	Distribution (per cent)
No overdue payment	128,281	91.0	492,627	95.7
< 30 days	6,751	4.8	17,427	3.4
30–60 days	2,118	1.5	2,124	0.4
60–90 days	692	0.5	595	0.1
90–180 days	987	0.7	911	0.2
180–360 days	1,074	0.8	730	0.1
>360 days	1,019	0.7	512	0.1
Total	**140,922**	**100.0**	**514,926**	**100.0**

Table 4-6

Age and maturity composition of housing loans

Age of housing loans 31 December 2002	Distribution (%)	Maturity 31 December 2002	Distribution (%)
Less than 1 year	69.7	Less than 5 years	2.4
Between 1 and 2 years	15.7	5 to 10 years	25.8
Between 2 and 3 years	7.1	10 to 15 years	22.1
Between 3 and 4 years	0.6	15 to 20 years	31.6
4 years and over	6.9	Over 20 years	18.1
Total	**100.0**	**Total**	**100.0**

at an interest rate of 6% and with maturity of 15 years, is HUF 37,973. Based on average monthly net wages in the national economy in 2002 (NSO) and assuming a family model with two active earners, this represents 24.4% of the net wages of an average family. As, in all likelihood, it was higher income earners that applied for loans at the initial stage of lending, the average monthly instalment is likely to place less burden on them.

Credit risk exposure on the basis of the collateral included

Current practice suggests that **the maximum amount of housing loans** is **60 to 70% of the value of the collateral (LTV),**[104] which represents only 55 to 60% of the actual market value of the housing property in question.[105] Some banks may set higher LTV's in the case of loans not financed through mortgage bonds. **Even stricter limits (30 to 50%) may be established by banks in their product regulations.**

Table 4-7

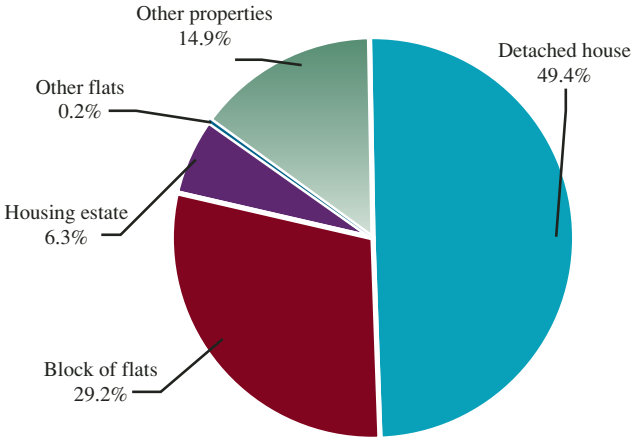
Average distribution of loans according to the LTV ratio *(In percentage)*[106]

31 December 2002	Market-rate loans	Subsidised loans
Below 20%	65.6	18.1
Between 20 and 30%	9.0	6.7
Between 30 and 40%	7.1	11.3
Between 40 and 50%	8.7	15.6
Between 50 and 60%	5.3	32.2
Between 60 and 70%	2.0	15.2
Over 70%	2.3	0.8
Total	**100.0**	**100.0**

Under bank regulations governing appraisal, only independently marketable unencumbered real estate located in the territory of Hungary qualifies as eligible collateral.

Chart 4-20

Distribution of collateral by real estate type



In terms of the **territorial distribution** of collateral, supply is better in Western Hungary. Because of the higher earning potential of the households in that region, there is stronger demand for new homes. In Eastern Hungary, by contrast, it is used homes that continue to be in demand, for the construction of new homes is far and few between. The majority of the transactions involving real estate, and as a result, related lending, are carried out in Budapest and a few larger towns in the provinces. In the settlements near towns, residential property is practically unmarketable

[104] Under the Act on Mortgage Banks, a maximum of 60% of the value of the relevant collateral shall qualify as eligible collateral for mortgage securities. A further 10% shall qualify as supplementary collateral. Under this arrangement, banks find a maximum 70% LTV ratio acceptable for loans financed through mortgage bonds.

[105] For expected development in real estate prices, see Gergely Kiss, 'The housing market and financial stability in the light of EU accession' (MNB's *Report on Financial Stability*, December 2002).

[106] The high proportion of market-rate loans with an LTV value below 20% reflects loans, originated a number of years ago, the majority of which have been repaid by now.

at most places, which can be attributed to a rise in the concentration of urban population.

Table 4-8

Average distribution of loans by geographical regions

31 December 2002	Distribution	
	In HUF billions	Per cent
Budapest + Pest County	342.4	52.2
Southern Great Plain	67.6	10.3
Mid-Transdanubia	63.0	9.6
Western Transdanubia	52.5	8.0
Eastern Hungary	49.2	7.5
Southern Transdanubia	42.6	6.5
Northern Hungary	38.7	5.9
Total	**655.8**	**100.0**

As, in the case of default on loans, the sale of residential property at smaller settlements in the provinces may run into difficulties, **lending policy should set up a limit system regulating the geographical exposure of the loan portfolio.**

Factors adding to the risks arising from lending and risk management practice

Shortcomings in lending policies

Both the content and level of detail of the lending policies adopted by the banks under review vary in quality. Five banks have an elaborate lending policy that tackles the issues of expected volume and profitability as well as risk tolerance in a detailed manner. Three banks set general expectations about target groups, directions of development and objectives. In effect, they seek to increase the size and maintain the current quality of their portfolio. They fail, however, to lay down requirements (e.g. client portfolio, products, IT-related development, etc.) needed for their doing so. It follows that major short- and medium-term objectives reflect qualitative (e.g. increasing market share) rather than risk considerations. The lending policy of the majority of the banks under review fails to specify quantified limits of housing loans. Only two banks set portfolio-level risk limits in a detailed manner. One bank specifies product-level limits.[107]

Shortcomings in internal regulations

Only few banks have adopted regulations governing the entire lending procedure. A further shortcoming is that banks do not have special regulations regarding the market risks (e.g. interest rate and liquidity risks) generated by the provision of housing loans.

Supervision by the same person of the lending and risk management areas on the level of top management

Responses to the survey suggest that all banks have independent organisational units responsible for the individual stages of the lending procedure. **Both lending and risk management are separate areas on divisional and management level. It is, however, worrying** that, at some banks, **the same deputy CEO and managing director is in charge of the two areas.**

Unused capacity of the credit bureau system

An efficient use of the CB system can help identify uncreditworthy clients upon the placement of their loan applications. Despite the obvious advantages to be enjoyed, **banks rely on CB databases to a varying degree**. Responses to the survey reveal that two banks do not rely on them at all in preparing their preliminary creditworthiness appraisal. Another bank does, but not as it should, because it only relies on them in its final decision-making. Only four banks use the CB system efficiently.

Biased collateral appraisal

As the result of collateral appraisal has a fundamental impact on loan approval and the amount of the loan, there have been to attempts to bias either the appraisal procedure or its results. In order for prudent lending policy to be implemented, **banks have a vested interest in drawing up a contract with appraisal companies, stipulating that the agreement with such companies shall be terminated in the event of negligence, suspicion of fraudulent appraisal and even unintentional malpractice**. Some mortgage banks even apply a system of professional rotation to appraisal companies, which means that the contract with the company whose performance is the worst in a given year is automatically terminated.

Shortcomings in the various scoring systems

As the scoring systems that most banks use are unsophisticated, the conditions for the risk-related classification of clients and the review of such classification can only be created over a longer period of time, owing to the short time series available. The scoring systems currently used do not carry out a deliberate check on 'behaviour-type' (the applicant's credit history). Two banks do not use the scoring system and do not examine the client's credit capacity in preparing their creditworthiness appraisal. Instead, they only check whether

[107] The internal regulations of the remaining banks set forth the criteria of exclusion pertaining to the individual segments and limits to be applied on a case basis.

the minimum requirements laid down in their respective product regulations are met. Although, due to their experience in the household sector and a clear-cut set of minimum criteria, the lending practice of two banks does not pose egregiously high risks, their rating system should be upgraded. A further shortcoming in the scoring system and the creditworthiness appraisal procedure is that they do not examine the income position properly in some cases. **Income position carries less weight in loan approvals than does either scoring or creditworthiness appraisal.**

Limited use of monitoring

During an upswing in lending, banks' priorities are sales and origination, with monitoring – mapping of any potential risk that may arise during maturity – taking a low profile. As the average maturity of housing loans exceeds 10 years, the fact that after their origination, most of the banks under review fail to carry out a regular check on debtors' income position increases the risks considerably. They primarily focus on monitoring clients' willingness to pay (overdue payment). In the case of refinanced loans and syndicated loans, mortgage banks' main priority is checking the eligibility of the collateral in question. This, however, does not increase their risks as they are only in refinancing position. **Due to the lack of sophisticated scoring and scorecards**, **debtors' income position and other factors are less thoroughly monitored than they should be,** which may pose risks especially to banks with clients whose income position is weaker.

Limited marketability of collateral

How long collateral can be sold depends on how cooperative the relevant debtor is, the prevailing conditions on the real estate market and the geographical location of the housing property in question. In the case of subsidised loans, a compulsory preparation of a notarial document of **loan and mortgage agreements allows for the possibility that enforcement can be carried out of court**. Thus, it only takes the public auction of the housing property in question 6 to 10 months to occur after banks initiate a repossession procedure. **A number of banks have no subsidised housing loans-related experience, as they have had no default loans that have reached the stage of the completion of the enforcement process.** Those banks that do have any experience reported favourable results. The reasons for this include stringent rules governing collateral appraisal, with resultant reliable values of collateral and related lending regulations. In the case of market-rate loans, where no compulsory preparation of a notarial document of the relevant loan agreement is stipulated, public auctions may take 2 to 3 years. In this case, moratoria interest adds to receivables significantly, and owing to the length of time, no full repayment is likely to be effected.

Market risks

Interest risk

As home financing essentially involves long-term loans (with maturities between 5–20 years), the alignment of asset and liability interest rate structure is of primary consequence from the point of view of interest risk. Considering that in home financing the leading product is the variable rate loan rolling over once every five years,[108] it is expedient to adjust interest rate structure of liabilities to this schedule. During the period reviewed, on a sector level there was no perceptible trend in the ratio of 90-day cumulative HUF gap to the balance sheet total, which suggests that housing loans did not have a significant effect on the interest risk exposure of the banking sector. The primary reason for this is that the banking sector has financed the subsidised loan portfolio practically completely by issuing long-term fixed interest rate mortgage bonds, while it relied on short-term FRN liabilities only on a temporary basis.

Although no sector level trend was traceable in exposure to interest risk, in this respect financed commercial banks and mortgage banks differ significantly.

Financed commercial banks

Mortgage banks generally quote refinancing interest rates for **refinanced** commercial banks once a month. This rate depends on the cost of funds and the government subsidy[109] (to be shared between the bank and the mortgage bank). Thus, the interest rate structure of loans and liabilities are nearly identical for housing loans extended by commercial banks and the funds used for financing them. Consequently, this activity has no significant impact on banks' overall interest rate risk exposure. The loans originated in the framework of **syndicated** agreements are transferred to the balance sheet of the mortgage bank, and therefore the originator is exposed to interest risk only in the period between originating and credit selling (usually 30 days), but its extent is insignificant.

Mortgage banks

The reason for that mortgage banks' HUF-gap exceeds the average and theoretically continuously increases is

[108] Although the relevant decree allows fixing interest rates for a period longer than 5 years, the banks have originated only very few such loans up till now. For the time being banks extend loans with longer rollover periods only in a very small number.
[109] See the chapter on the profitability of products.

that there is a difference between the duration of annuity-based loans and loans redeemed at the end of the term. Thus, due to intensifying activity, the 90-day HUF gap/balance sheet as well as the interest risk increase constantly. The adverse impact could be mitigated by the application of interest derivatives. Alignment of the asset and liability interest rate structure was already problematic when these credit institutions were started, when they only originated their own loans.[110] At that time, the gap between origination and issuance of mortgage bonds was longer and issues were more irregular. However, in recent years mortgage bond issues have followed the more regular and larger volume of loans more closely.

Interest risk generated by prepayment

The fact that the provisions of the Hungarian Civil Code do not allow commercial banks and mortgage banks to preclude prepayment for their customers has a significant influence on interest risk. Although banks can charge a prepayment fee to make up for their losses, their interest risk exposure may rise considerably if prepayment becomes widespread.

Prepayment can move the gap in a positive direction, as in this case the prepaid amount (asset) becomes a short-term loan (within 30 days). The gap increase resulting from the prepayment of housing loans raises the interest risk for **commercial banks** only if they fail to pass it on to the financing mortgage banks (i.e. they do not prepay as well).[111] Due to their relatively low share in the total assets, a prompt prepayment of 50% of all housing loans would result in only a 1–5 percentage point gap increase on average.

However, if **mortgage banks'** receivables (directly originated housing loans + refinancing loans) are prepaid in a large scale, the HUF gap would move significantly in the positive direction. In this case, a 50% prepayment as mentioned above may push the gap up by even 30-40 percentage points. But as mortgage banks must meet the collateral requirements at all times, prepaid amounts must be either re-originated or invested in government securities (and thus classify among additional collateral[112]), and the interest risk exposure is automatically reduced.

Risk factors of the lending and risk management practice

Fluctuation beside upward trend in mortgage banks' gap

In addition to an **increasing trend of interest risk,** subsequent to the issue of mortgage bonds, the HUF gap opens in positive direction, while upon acceptance of loan packages it closes. Thus, measuring and projecting interest risk may be confronted with considerable difficulties in the case of mortgage banks.

Fluctuation in commercial banks' gap

During the time between originating and refinancing/loan sales (usually 30 days), the banks' HUF gap may open, although low portfolio levels and continuously loan extension it does not have considerable impact on the total HUF gap of banks.

The priority of profitability over interest risk

In the past few months, several mortgage banks **issued short-term mortgage bonds** for speculative purposes in order to generate a potential increase in interest subsidies (capitalising on the difference between the former and the new subsidy decrees) and have **disregarded growth in the interest risk.**

Preferential mortgage bond subscription within groups

As up until now the parent bank had a subscription priority to the mortgage bonds issued by OTP Jelzálogbank, **part of the interest risk of housing loans was ultimately undertaken by the parent bank.**

Shortcomings in the management of prepayments

Market participants do not have sufficient experience in the increase of interest risk generated by prepayment. Mass prepayment may considerably boost interest risk primarily in the case of mortgage banks and due to the prevailing collateral requirements, it may even impede smooth business. Such an extreme case may, however, occur only in case loans are fully and promptly prepaid in the amount of HUF 150–200 billion, but this possibility can be ruled out for all intents and purposes.

Risk management deficiencies at mortgage banks

Risk management deficiencies are found first of all with mortgage banks. In their case, exposure to interest risk is still being measured and the instruments of risk management have not yet been fully created. For the time being the Asset-Liability Committee can intervene only on the asset side in the case of excessive interest risk, and more specifically in the volume and timing of issues. The application of interest derivatives is ad-hoc and rudimentary. The **quality of risk management performed by mortgage banks is not in line with the extent of risks.** The "traffic lights" rule of the German mortgage loan act may

[110] In addition, within 3 years no less than 80% of the issued mortgage bonds had to be covered by eligible collateral with a term exceeding 5 years.
[111] Pursuant to statutory authorisation (Mortgage Loan Act – "Jht."), mortgage banks may exclude the possibility of prepayment for refinanced commercial banks. However, the Hungarian Civil Code prevents them from excluding prepayment by retail customers.
[112] The rate of additional collateral (securities) within the total collateral covering mortgage bonds may not exceed 20%.

be taken as a guiding principle both for mortgage banks and for the regulatory bodies.[113]

Liquidity risk

In terms of housing loans and home financing, liquidity risks may stem from an alignment of the maturity structure of assets (housing loans and refinancing loans) and liabilities (mortgage bonds and refinancing loans).

Financed commercial banks

As housing loans are repaid on an annuity basis and the refinancing loans of mortgage banks are repaid by **refinanced commercial banks** simultaneously with customer repayment, theoretically no liquidity risk arises for commercial banks. Mortgage banks acting in the framework of an independent lien generally make refinancing loans available on a monthly basis, therefore commercial banks are required to rely on short-term money market resources merely for a temporary 30-day period. Due to the relatively small size and the continuity of the monthly loans, this may not generate increase in the liquidity risk. The commercial banks acting in the framework of **syndicate agreements** also rely on money market instruments on a temporary basis.

Mortgage banks

The inter-bank positions of mortgage banks are subject to the periodic movements of continuous lending and mortgage bond issues. Over the short term, continuous loan redemption generally results in excess liquidity. In the case of mortgage banks, liquidity risk increases if the cash-flow structure of assets and liabilities do not match: mortgage bonds are repaid in full upon maturity while refinancing loans are repaid continuously. The liquidity gap generated by the mismatch in the cash-flow structure and the time difference between loan purchases and mortgage bond issues results in fluctuating money market exposure and dependence, which are mitigated by open credit lines.

Risk factors in the lending and risk management practice

Liquidity risks of the re-issue of mortgage bonds

As the relevant decree on subsidies limits the average term to 15–20 years, and the average term of mortgage bonds is 5 years, mortgage bonds must be re-issued twice or three times under the current terms. **The liquidity gap generated between the final repayment of mortgage bonds and their re-issue makes mortgage banks temporarily and highly dependent on the money market.** The internal regulation of such situations is deficient. The issuing banks could reduce this liquidity risk by further increasing the maturity of mortgage bonds.

Preferential mortgage bond subscription within groups

As up until now the parent bank had a subscription priority to the mortgage bonds issued by OTP Jelzálogbank, similarly to the interest risk, **part of the liquidity risk was ultimately undertaken by the parent bank.**

Financing delay in the case of newly built homes

In case of newly built homes, the long-term funds become available to the commercial bank and the mortgage bank only subsequently to the registration of lien. Due to continuous lending and refinancing, this does not generate outstanding increase in the liquidity risk.

Risk management deficiencies

Similarly to interest risks, deficiencies in the management of liquidity risks are found primarily with mortgage banks, which mitigate fluctuations in liquidity only by open credit lines. **The liquidity risk generated by a mismatch between the cash-flow structures of assets and liabilities increases in line with the intensification of activity.** Mortgage banks' liquidity risk management systems (limit system, internal limits) are not always sufficiently prepared to handle this risk.

Exchange rate risk

Due to the weak absorption capacity of the domestic bond market, the mortgage bonds issued by mortgage banks may appear on the international capital markets as well.[114] FX-denominated bonds generates exchange rate risk in the housing loan market. So far, only FHB has issued euro-denominated bonds. The bonds were sold by an organisation established specifically for the purposes of securitisation (SPV), ensuring the required forint funds in this manner. The actual appearance of FX funds in the balance sheets of mortgage banks and eventually commercial banks would be perceivable only if the scope of the home loan subsidies decree extended to the interest rates of mortgage bonds issued in euro.

Operating risks

In connection with housing loans, operating risks may stem from inappropriate organisational background of the lending process, underdeveloped management

[113] Pursuant to the rule, German mortgage banks prepare interest risk reports on a daily basis, simulating the impacts of yield curve shifts by 1, 10 and 100 base points. In case this effect reaches certain specific rates of the equity capital (10, 20 and 30%, respectively), the Supervisory Board may order special measures to be taken and special inspections to be conducted.

[114] Vincze, Judit: "A jelzáloglevelek piaci helyzete és fejlődési irányai" [The market situation and development trends of mortgage bonds] (Hitelintézeti Szemle, 2002/3).

information systems supporting executive decisions (MIS), and a limited IT background in the credit evaluation process. Based on the responses given to our questionnaire, operational risk can be demonstrated in relation to the current state of **MIS systems.** With regard to further risk components it can be established that all banks measure and analyse exposure to the individual market risk segments in an organisational unit separated from their business organisation. Despite significant differences between the levels of MIS systems, only one bank mentioned the IT background as a bottleneck in the smooth transaction of the lending procedure.

Profitability in housing loans

The profitability of housing loans results from the difference between the interest rates charged without government subsidies and the cost of funds. The interest rates charged for customers are the sum of the following factors:

+ cost of funds
+ expected loss on credit risk
+ the annualised value of a single disbursement fee and other fees[115]
+ (value of the prepayment option – prepayment fee)
+ gross income of banks

---

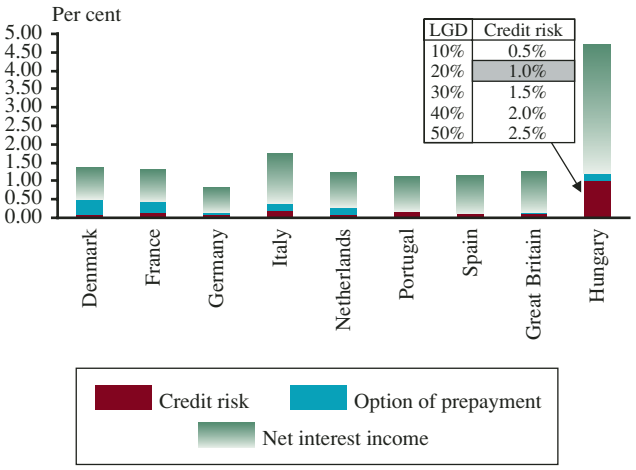
interest rates and fees charged to customers

Based on the experiences of the Member States of the European Union,[116] the expected loss on credit risk, the net prepayment fees and the profitability of banks generate an interest premium of approximately 1.0–1.5 percentage points. In Hungary calculating a 5% probability of default and 20% loss given default (LGD), a 1 percentage point credit risk premium would result; and in function of the fees charged, the net prepayment option would come to somewhere between 0–0.5 percentage points. **Thus, the gross income content of the subsidies extended by the government is 1.0–1.5 percentage points less than the gross interest margin achievable for the banking sector as a whole.**[117]

Due to the high rate of subsidised loans, the profitability of home financing is solely dependent on interest margin ensured by the government. Due to the maximum loan interest specified in the relevant statutory regulation, however, subsidised loan products are priced only on the basis of risks generated by prepayment and the one-off fees charged upon origination.

Chart 4-21

Composition of the gross interest margin of housing loans in April/May 2003[118]



Source: Mercer–Oliver–Wyman

Interest margin on subsidised housing loans

In general, it can be established that until the Decree was amended in June 2003, the margin achievable for the banking sector grew, but significantly less margins could be realised on loans extended and financed subsequently.

Up to June 2003, a 7–9% margin was realisable on the leading products[119] in the first 5 years following extension and refinancing.[120] The maximum margin was achieved in the case of the 8% interest/yield on mortgage bonds, while in the cases of any other interest rates profitability dropped. As commercial banks can obtain access to the subsidies conditional upon mortgage bonds only through mortgage banks, they have lower margins as they share liabilities-side subsidies with the financing mortgage banks.

In the case of loans extended and financed with the help of mortgage bonds **following the June 2003 amendment of the Decree on subsidies,** instead of the earlier 10% maximum, liabilities-side subsidies were modified to either 105% of the yield on government securities of the same term issued in the immediately preceding three months or the interest/yield of the mortgage bonds, whichever is lower. In the case of subsidised loans with a term of no less than 5 years, the aggregate value of loan interest and service charges on loans was maximised at 5% for new homes and 6% for used homes. Further loss of income results from the fact that the previous 2% one-off reimbursement fee on financing was reduced to 0.5%.

---

[115] Subsequent calculations disregard the annualised value of single feed charged because of the average loan term of 10–15 years.
[116] Mercer–Oliver–Wyman: Study on the financial integration of European mortgage markets (European Mortgage Federation, study, October 2003).
[117] In Hungary's case the approximately 4.7–4.8% banking sector interest margin ensured upon amendment of the decree on subsidies is indicated in the chart.
[118] In Hungary's case the period to follow the amendment of the decree on 16 June 2003.
[119] This margin calculation does not refer to the special products in which loan repayment commences only following a certain grace period.
[120] In order to recover their costs incurred in relation to the sales of loans or the independent lien to mortgage banks (registration at the Land Registry, profit missed etc.) banks received a single 2% reimbursement from the government.

Table 4-9

Banking sector interest margin on subsidised housing loans before the June 2003 amendment of the Decree on subsidies

Revenues	Expenditures
Loans subsidised on the liabilities side	
Customer interest rate: max. (6%) *Subsidies on the liabilities side:* min{(interest on mortgage bond + 2%);10%}	*(7–9%) Yield on mortgage bonds*
Loans subsidised on the assets-liabilities side	
Customer interest rate: max. (4,5%) *Subsidies on the asset side:* (benchmark yield* –3,5%) *Subsidies on the liabilities side:* min{(interest on mortgage bonds – 1%);7%}	*(7–9%) Yield on mortgage bonds*
Total banking sector margin: ca. 7–9%	

** Average yield of 5-year government securities shaped up at auctions in the immediately preceding six months.*

Table 4-10

Banking sector interest margin on subsidised housing loans after the June 2003 amendment of the decree on subsidies

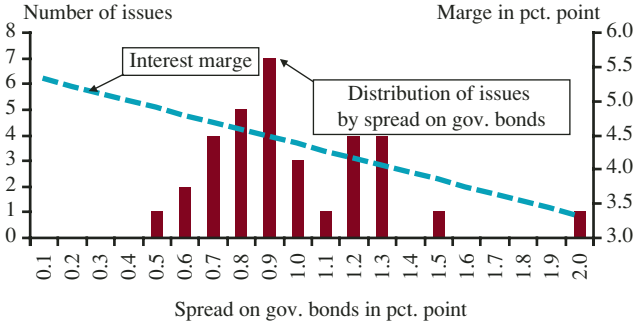
Revenues	Expenditures
Loans subsidised on the liabilities side for purchasing used homes	
Customer interest rate: (6%) Subsidies on the liabilities side: min{(benchmark yield*105%); mort. bond interest}–1%	(7–9%) Yield on mortgage bonds
Loans subsidised on the liabilities side for the purchase/construction of new homes	
Customer interest rate: (5%) Subsidies on the liabilities side: min{(benchmark yield*105%); mort. bond interest}	(7–9%) Yield on mortgage bonds
Total banking sector margin: ca. 3.4–5.4%	

** Benchmark yield – average of the yields on government bonds of a term identical with the mortgage bond in the immediately preceding three months.*

Pursuant to the new Decree on subsidies, mortgage banks and their partner commercial banks are no longer interested in the stabilisation of the interest/yield of mortgage bonds at around 8%, but rather in pushing down the yield premium as much as possible. Based on experiences gained in the issue of mortgage bonds so far the margin may be expected to come to around 4.5–4.8%. In contrast to the earlier Decree, however, the margin can also be guaranteed for periods exceeding 5 years provided that the customers choose the newly applicable 10-year fixed interest period and the mortgage bank issues mortgage bonds of similar terms.

Chart 4-22

Distribution of yield premiums[121] on publicly issued mortgage bonds by the end of 2003 H1 and the margin on loans subsidised on the liabilities side after amendment of the Decree, as a function of the yield premium



The 3.0–3.5 percentage point drop in the gross interest margin will have its impact fully felt in the banking sector with a delay (3–4 years), as it affects only those loans that are originated after the amendment of the Decree and earlier originated loans that are financed by re-issuing mortgage bonds during the whole loan term.

The income impact of prepayment

Prepayments may also affect the profitability of housing loans. Pursuant to the relevant statutory regulation, commercial banks are not allowed to preclude loan prepayment for their customers, but most of them charge significant fees. The prepayment fee changes in function of the date of prepayment: if it is made on the interest rate fixing day or any other day (1–4%), the income impacts of which is given in the following formula:

Income risk = single prepayment fee – PV (interest margin lost until the interest rate fixing day)

The revenues missed because of prepayment decrease with time approaching the interest rate fixing day. The possibility of prepayment may be understood as a put option provided for the customers. Western European experience indicates that the annual value of this option is between 0.38–0.65%.[122] If the 1–4% prepayment fees applied in the Hungarian banking sector are divided

[121] In this case the yield premium means the difference between mortgage bond yield and the average yield of a government security of equal term in the immediately preceding three months.
[122] Based on the calculations of Merrill Lynch Conditional Prepayment Rates (CPR) (in: Mercer–Oliver–Wyman).

into the average 5-year interest fixing periods, an annual income rate of 0.2–0.8% is the result. **Thus, the average 2% prepayment fee applied in the Hungarian banking system[123] is theoretically in harmony with the value of the prepayment option.**

Factors affecting the product profitability arising from the Decree on subsidies and the characteristic features of lending process

The income risk generated by the amendments of the Decree on subsidised housing loans

At the current interest rates and market yields, the profitability of subsidised loans is ensured exclusively by government subsidies and their maintenance. **Tightening of the Decree on subsidised housing loans (June 2003) reduces the profitability of products and thus also the entire bank system, along with its growth rate.[124]**

Deficiencies in pricing policies

Over the longer term, the significance of government subsidies will automatically drop simultaneously with the overall decline of interest rates. As a consequence, the difference between the interest rates and demand for market priced loans and subsidised loans may also decrease. However, loans bearing market interest rates are priced with a minimum of regard for the gradual decline of differences between market and subsidised loans.

Income risks arising from extreme yield fluctuations

Subsequent to the amendment of the Decree on subsidised housing loans, the difference between mortgage bond yields and yields on government securities underlying subsidies affects the product profitability. **Due to the 3-month averaging and delay of subsidies, sudden jumps in yield alter the product profitability in either way.** A steep rise in market interest rates pushed the yield premiums of mortgage bonds up. As subsidies are computed from the average market yields of the preceding 2–4 months, the cost of fund grows, while profitability decreases. If the trend turns, and yields suddenly drop, the opposite effect may be triggered. A slight yield fluctuation may offset these effects.

Delay in access to subsidies

Commercial banks can receive government subsidies with a delay if 5–6 weeks, in general. This is primarily due to a technical time requirement resulting from the settlement of accounts. In theory, delay is 8–10 weeks, which is reduced only by the Finance Ministry's advance payment. **The prime reason for delay lies in the rigorous procedural rules of issuing mortgage bonds and, partly, the monthly timing of mortgage bond issues, due to capital market expectations.** Banks can recover their losses suffered as a result of delay by charging prepayment fees, thus it does not always involve profit missed.

SUMMARY

With a view to the banking practice and risk exposure of home financing, the following assumptions can be made:

Credit risk is incurred primarily by the disbursing banks. At the end of 2002, the portfolio quality was significantly better than the quality of banks' overall loan portfolio. Problem loans account for a very small share of market-priced and subsidised loans. In respect of the coverage of housing loans, subsidised loans are sufficiently covered by the maximised LTV ratio on evidence of the known real estate market trends. In the coming two years, the proportion of late-paying customers is expected to increase. The rate of problem loans within subsidised loans is expected to remain below 5% in the long term.

Market risks are incurred primarily by mortgage banks and in some cases commercial banks. The reason is that the entry of long-term mortgage bonds into the balance sheets of commercial banks shifts banks' interest risk considerably. Interest risk management is under development at mortgage banks, but measurement and management has not yet been resolved. Extreme liquidity fluctuation is also insufficiently managed. The quality of managing market risks is therefore not in line with the extent of these risks.

The most important potential **operating risk** is related to the condition of MIS systems. Due to the high rate of subsidised loans, the **profitability** of the home lending business is dependent primarily on the interest margin ensured by the government. In our opinion, the 7–9% margin achieved earlier at a sector level, which declined to 4.5–4.8% subsequent to the amendment of the Decree, provides sufficient coverage for potential risks. As a result of the expected deterioration in loan portfolio quality, a gradual decline of the margins and a likely slowdown in lending growth in 2003, over the next 3–5 years the profitability of the business line is expected to gradually decrease.

[123] Due to maximised loan interest rates, the prepayment fee is a strong competition factor.

[124] For instance, assuming the current portfolio amounting to approximately HUF 1,000 billion, a single decrease in the interest margin by 3.5 percentage points would result in a nearly 10% drop in the banking sector's total net interest income. The June amendment of the decree is less drastic, as drop in the margin will take place gradually in the coming 3–4 years.

BIBLIOGRAPHY

Árvai–Dávid–Vincze: "Hitelinformációs rendszerek" [Loan information systems] (Hitelintézeti Szemle, October 2002).

Aspinwall, Richard C. & Eisenbeis, Robert A.: Handbook for banking strategy.

Bozsik, Sándor: "A lakáshitelezés és egyes makroökonómiai változók kapcsolata nemzetközi összehasonlításban" [Relations between housing loans and certain macroeconomic variables in an international comparison], Hitelintézeti Szemle 2002/3.

Goedecke, Wolfgang–Kerl, Volkher–Scholtz, Helmut: German Mortgage Banks, 1998.

Gombás–Marsi–Szalay: "A hitelkockázat kezelése a magyar bankrendszerben" [Credit risk management in the Hungarian banking sector] (MNB internal study, December 2002).

Hoyland, Chris: Data-driven decisions for consumer lending.

Kaufman, George G.: Asset price bubbles: Implications for monetary and regulatory policies.

Kiss, Gergely: The Housing Market and Financial Stability in the Light of EU Accession (MNB Report on Financial Stability, December 2002).

Mercer–Oliver–Wyman: Study on the Financial Integration of European Mortgage Markets (European Mortgage Federation, October 2003).

Nagy Vas, Erzsébet: The Risks and Institutional Structure of Housing Finance (MNB Report on Financial Stability, December 2002).

Sirmans, C. F.–Benjamin, John D.: Pricing fixed rate mortgages: Some empirical evidence.

Thomas, Lyn C.–Edelman, David B.–Crook, Jonathan N.: Credit scoring and its applications, 2002.

Valkovszky, Sándor: "The Situation of Hungarian Housing Market, MNB Working Papers 3/2000.

Varga, Péter: "Hitelkockázat és kezelése II." [Credit risk and its management], Bankszemle 2000/9.

Vincze, Judit: "A jelzáloglevelek piaci helyzete és fejlődési irányai" [The market situation and development trends of mortgage bonds] (Hitelintézeti Szemle, 2002/3).

Miscellaneous press materials published in economic dailies and weeklies.

4.3 Dr. Judit Gelegonya: The role of foreign-owned banks in Hungary[125]

CONDITIONS FOR THE MARKET ENTRY OF FOREIGN-OWNED BANKS

There were thirty commercial banks, three mortgage banks, three building societies and two specialised banks with state responsibilities in the Hungarian banking system in late 2002.[126] Of the banks included in this study, twenty-six were foreign-owned (hereinafter: foreign) and seven domestic banks. Of the domestic banks, three were 100%-owned subsidiaries of foreign-owned Hungarian banks. Thus, their foreign owners already had larger influence in 2002 than data on direct ownership suggested. Two of the remaining four were sold to strategic investors in the autumn of 2003. As to the third, its privatisation via the stock market of over 50% of its shares is currently being prepared. Transformation of the fourth into a mortgage bank failed. Finally, in February 2003, it was transformed into a financial enterprise. Owing to the situation outlined above, the importance of comparing the performance of foreign-owned banks with that of domestically-owned banks has been taking an increasingly low profile in analyses of the Hungarian banking system. 2002 was a turning point. It was then that foreign owners acquired majority interest in the subscribed capital of the largest Hungarian bank.[127]

Foreign capital entered the Hungarian banking system in four stages. *The first stage* goes back to the period of the single-tier banking system, prior to the political regime change, when three banks were established as joint-venture banks with the involvement of the Magyar Nemzeti Bank. *The second stage* was marked by the establishment of the two-tier banking system in 1987 and the entry into effect of Act XXIV of 1988 on Enterprises of Foreigners in Hungary. This was the time of the liberalisation of banking and policies bolstering the entry of foreign capital by granting favourable treatment. It was then that most of the foreign banks, still in business, or their legal predecessors entered the Hungarian market either through greenfield investment, or, in certain cases, partial privatisation or, in the case of smaller banks, full privatisation, via acquisition of majority ownership. At the time, i.e. during the first years of transition, neither demand for the acquisition of major banks, nor supply of such banks on sale presented itself. This period, which ended in 1994, also saw both the crisis and the consolidation of the Hungarian banking system. Consolidation was crucial to the creation of both demand and supply. Debt consolidation, which, in fact, had three stages and the costs of capitalisation were a major consideration when new privatisation strategies were being devised. While a large amount of government stake in the wake of consolidation constituted the supply needed for the privatisation of banks, portfolio cleaning and capitalisation aroused strategic investors' interest. *The third stage* was marked by the launch of the state privatisation programme in 1994 following bank consolidation. During this period, until 1997, most of the major Hungarian banks were privatised relatively rapidly. Except for OTP, which was privatised through stock exchange listing, all were sold to strategic investors. It was then that the government stake in the joint-venture banks that had been among the first to be

Table 4-11

Number of commercial banks in Hungary

Designation	1996	1997	1998	1999	2000	2001	2002
Domestic bank[128]	11	6	8	7	5	5	7
Domestic bank with foreign participation[129]	2	4	3	1	1	1	0
Foreign bank[130]	27	30	27	29	30	29	26

[125] This study is based on a country study prepared as part of a background study for CEC5 Governors' Meeting held in September 2003. A revised version of the background study is available on the MNB's website: Katalin Mérő and Mariann Endrész Valentinyi, 'The Role of Foreign Banks in Five Central and Eastern European Countries', MNB 2003.

[126] This study relies on data on commercial banks and mortgage banks. The latter five institutions, including building societies and two specialised banks that have state responsibilities, have not been included in this study owing to the special characteristics of their business operation.

[127] This turning point is highly likely to have occurred before 2002. The privatisation of the bank took place through stock exchange listing. As most of its shares and the depository receipts thereof are traded abroad, the follow-up of the scattered ownership structure of the bank from the shareholders' register has only become more reliable since the dematerialization of the bank's shares.

[128] 5% participation in subscribed capital or below.

[129] Participation over 5%, but below 50%.

[130] Participation over 50%.

established was sold. *The fourth stage* started in 1998, and, in effect, continues to the present. However, it can no longer be described as a single, uniform process. In this stage, foreign banks were entering the market and leaving it as well. Although the sale of the two state-owned banks and one mortgage bank as the last act of privatisation may not necessarily lead to direct foreign control, it will result in substantial foreign control through indirect ownership.[131] Aside from specialised banks with state responsibilities, there will be only one domestically-owned bank among domestic credit institutions in late 2003. Even so, privatisation through the stock exchange may result in a considerable rise in the number of foreign owners.

Regulatory environment

Immediately after the two-tier banking system was established, with the market opened and liberalised, foreign capital was encouraged to enter the Hungarian banking market with, among other things, favourable tax treatment. Both foreign and joint-venture banks founded prior to 1990 were unconditionally eligible for substantial, long-term tax relief.[132] As a result, positive discrimination gave foreign and joint venture banks a competitive advantage over state-owned banks, which were already facing difficulties. Initially, tax relief was a major consideration in market entry.[133] In some cases, the fact that multinational companies, especially those from the same countries as banks, and entering the market roughly simultaneously, could become the customers of these banks was another factor that encouraged the foundation of banks. Market entry, however, was not completely without restrictions: prior to 30 June 1996, pursuant to the Act on Financial Institutions, in order for a financial institution with a foreign stake amounting to 10% of the subscribed capital to be founded, or in order for foreign participation to be acquired, preliminary government authorisation, approved by the president of the MNB, had to be obtained.

First, the Act of 1991 on Financial Institutions, and then the Act of 1996 on Financial Institutions, and even more importantly the 1998 amendment of the latter, were significant steps towards creating a regulatory environment that was in line with EU Directives. Nevertheless, there were a few rules and regulations, either new ones or existing ones, which limited the scope of services that foreign-owned institutions were allowed to provide.[134] With Act XCIII of 2001 entering into effect on 1 January 2002, foreign exchange restrictions were lifted. However, the required amount of dotation capital needed for opening a branch, the amount of which is equal to the required minimum amount of the initial capital of credit institutions, and the requirements for management composition are still effective.[135] The remaining restrictions will be removed in 2004, when Hungary joins the EU.

Consolidation of the banking system and privatisation

In the first half of the transition period, the transformation crisis led to technical insolvency in the Hungarian banking system as well. It became obvious as early as 1992 that the banking system in its own right was unable to improve the situation, and that the state consolidation of the banking sector could no longer be delayed. The true proportions of problems only became clear in late 1993 and early 1994. Consensus on the measures to be taken so that such problems could be solved also took a long time to emerge.[136] Eventually, two types of consolidation materialised in several stages. First, centralised *credit consolidation* and *portfolio cleaning* took place in 1992 and 1993, the result of which, a substantial improvement of banks' portfolio, proved transient. Gradual capitalisation put an end to the chronic undercapitalisation of banks. As a result of such *capitalisation* affecting eight banks, through primary capital increases, *direct* state ownership in the majority of Hungarian-owned banks grew to 75 to 95%, and amounted to nearly 70% in the entire banking system in late 1993. Of the four fully capitalised large banks, one was privatised with state assistance in late 1995. As to the other three banks, the negative amount of their 1994 accumulated profit reserves was dissolved by lowering the amount of their subscribed capital to a realistic level in 1995. With this, the process of state consolidation was completed. The reduction of capital left the ownership ratio unchanged. Consolidation created supply for bank privatisation through a large mass of government stake. Portfolio cleaning and recapitalisation were preconditions for arousing strategic investors' interest and generate demand.

In order to stabilise and strengthen the banking system, the government approved the privatisation programme

[131] Of the two banks sold in the autumn of 2003, one passed into direct, and the other into indirect 100% foreign ownership.
[132] See Várhegyi (1995), Várhegyi (2002) and Majnoni et al. (2003).
[133] Foreign banks entering the market after the Act on Financial Institutions took effect on 1 December 1991 could no longer enjoy such advantages. Pursuant to the Act on Financial Institutions, both favourable tax treatment and tax exemptions that the various authorities had granted to partly or wholly foreign-owned financial institutions were repealed on 31 December 1995.
[134] For a more detailed treatment of the issue, see Király et al. (2000).
[135] The board of directors shall include at least two board members, who are of Hungarian nationality, qualify as FX residents under FX regulations and have been permanent residents of Hungary for at least 2 years.
[136] For a detailed description and contemporary criticism of the process of bank consolidation, see Balassa Ákos (1996); for a short summary and assessment in English, see György Szapáry (2001) and Éva Várhegyi (2002).

of state-owned banks. Under this programme, seven banks, including the largest one, were privatised over a span of three years.[137] Six banks were sold to strategic investors, mostly through the sale of minority share packages. The government continued to have minority ownership in each bank. The EBRD also acquired minority interest in three banks through privatisation. In the years following the acquisitions, the strategic owners of the banks concerned bought out government stakes and, on a number of occasions, the share packages of their partners in privatisation. OTP, the largest Hungarian bank with a dominant market share, was not sold to strategic investors. Rather, it was privatised through the stock exchange. In that manner, the government managed to achieve a double target: the bank remained, at least in the very first years, in the hands of Hungarian owners, and the development of the Hungarian capital market received a great impetus.

Ownership structure of foreign and domestic banks

In the fourth stage of market entry (from 1998 to 2001), along with the banks already in foreign majority ownership, OTP was the only other bank left and it was characterised by foreign participation over 5% with a steady increase. Strategic investors gradually bought out the shares that domestic shareholders still had in banks. At end-2002, the foreign stake in 22 banks amounted to or exceeded 99%. In 2001, state ownership in foreign-owned banks was terminated. In 2002, the foreign ownership in the subscribed capital of domestic banks disappeared due to the largest bank changed its group affiliation. Through their combined 87% participation in the subscribed capital of Hungarian banks, foreign-owned companies controlled over 90% of the balance sheet total of the Hungarian banking system in 2002.

In 2002, based on their subscribed capital, the majority of foreign owners (78%) were from nine EU countries and 12% from the USA. In terms of overall foreign ownership, the largest European owners include Austria (24%), the Netherlands (14%), Germany (13%), Belgium (12%) and Luxembourg (9%). The nationality of a few owners of two listed companies, holding 4% of the shares, is unknown. Owners of various nationalities hold the remaining shares.

A banking system nearly completely under foreign control poses considerable risks to the host country if the group of owners is highly concentrated both by company and by country. The ownership structure of the Hungarian banking system is currently adequately diversified. In fact, it is better diversified than in other countries in the region. Even the largest amount of the shares held by one shareholder is below 5% of the total amount of capital, and that of the shares held by one

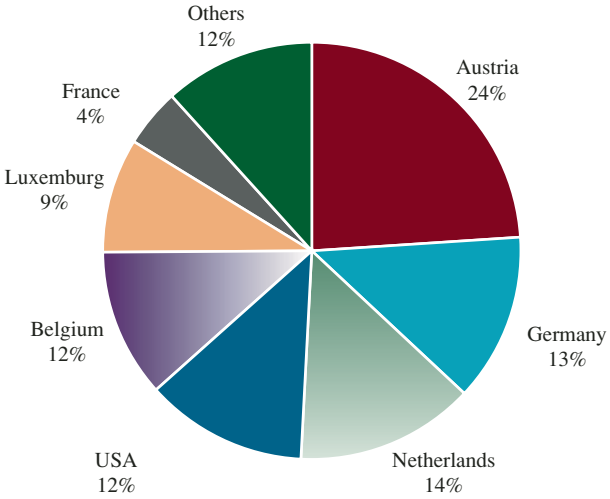
Table 4-12

Ownership structure of foreign and domestic banks on the basis of subscribed capital in percentage

Ownership structure of domestically-owned banks					
Designation	**1998**	**1999**	**2000**	**2001**	**2002**
– state	30.6	34.6	40.5	35.8	49.7
– other domestic	52.6	46.3	38.2	40.3	49.5
– foreign	14.2	16.2	18.4	21.2	0.0
– shareholders of preferred shares	1.5	1.7	1.9	0.2	0.0
– own shares bought back	1.1	1.2	1.1	2.5	0.7
Ownership structure of foreign-owned banks					
Designation	**1998**	**1999**	**2000**	**2001**	**2002**
– state	5.9	4.9	1.7	0.0	0.0
– other domestic	3.3	4.6	4.4	3.2	4.1
– foreign	87.5	87.7	90.9	92.3	90.7
– shareholders of preferred shares	2.2	2.5	3.0	4.5	4.7
– own shares bought back	1.0	0.3	0.0	0.0	0.5

Chart 4-23

Distribution of foreign ownership by countries in subscribed capital at end-2002



shareholder per country is below 20%. The respective portfolios of the majority of strategic investors in Hungary are adequately diversified by country and region alike, although investments by some are concentrated in the Central and Eastern European region.

While no opportunity has arisen in CEECs so far for the response of foreign banks to a crisis situation to be observed, strategic investors' rapid exit from the market is unlikely, since such exit would be prolonged process

[137] The top bank of building societies, which passed into majority state ownership through consolidation, was sold to foreign investors in 1997.

and result in losses of extraordinary proportions. Responses from strategic investors so far have been favourable in Hungary. All capital crunches faced by their subsidiaries have been tackled through either direct capital injection or the provision of subordinated loan capital.

The largest Hungarian bank is in the majority ownership of foreign portfolio investors.[138] This is inherently characteristic of foreign presence in a country in a region where the capital market lags considerably behind that of developed countries. Such characteristic also carries particular risks. The sale by portfolio investors of listed shares, despite their losses on stock exchange prices, is far easier to make, and is less time-consuming. As in other countries in the regions, the volatility of stock exchange prices is high, plummeting prices in the capital market may generate a huge wave of sales by foreign owners. This is exactly what happened in the autumn of 1998. Today, however, it is highly questionable whether there would be a sufficient number of investors, be they domestic or foreign, with a sufficient amount of capital, to buy up this bank's shares, without the state having to intervene, if there were a similarly significant drop in stock exchange prices with the resulting massive sales by non-residents. Despite growth and expanding foreign participation, the bank's stock exchange capitalisation is relatively low, so it may well be a potential target of buyouts. Although potential buyers include primarily financial investors, a hostile buyout cannot be ruled out either. The latter, however, would take a considerable length of time because of the bank's rather dispersed ownership structure.

Today the risks indicated above do not seem to be considerable, and will be further reduced by Hungary's accession to the EU in 2004.

MARKET ENTRY STRATEGIES

The underlying reasons for entry by foreign banks into the Hungarian banking market varied from one phase to the next, and were often different even during the various the phases.[139] In each phase, there was at least one example of a bank following its customers to Hungary, or preparing the ground for entry by new customers from the home country. The ultimate incentive, however, was the opportunity of reaping additional profits as a consequence of the relative underdevelopment of the financial intermediary system in the less developed markets and the growth potential offered by the deepening of intermediation, which, compared with other transition or emerging regions, offered itself for those interested under acceptable conditions in terms of regulations and infrastructure.

In line with their strategies, the majority of foreign banks investing in Hungary followed strategic objectives and simultaneously acquired equity interests in the banking markets of other countries in the Central and Eastern European region. Banks entering in the first and second phases with greenfield investment started to build their networks on their own, and increased their market shares through corporate mergers, bank take-overs and acquisitions of lines of business. The banks participating in privatisation acquired substantial shares of the market by purchasing markets. These banks continue to be among the largest.

A wide variety of factors were among the underlying reasons for the majority of other small foreign-owned banks commencing business in Hungary. Some banks were able to take root, while others failed and have since withdrawn from the market. Based on the experience of past years, in the first three phases all banks attempted to provide universal services to the market, apart from a few exceptions, with more or less success. But in the fourth phase only banks targeting narrow segments or niches of the market succeeded.

The majority of Hungarian subsidiaries have met the owners' requirements, and the strategic investors have undertaken substantial capital increases and technological development. From the onset, these banks offered the full range of traditional bank services to their customers and, and they have taken the opportunity to make advances in the area of universal banking which encompass investment services as well. However, some have been successful by narrowing the range of services they offer. The majority of banks performing modestly in the areas of efficiency and profitability have continued to operate as traditional banking institutions, without making a shift either towards universal banking or niche market strategy.

EFFECTS OF FOREIGN BANKS' MARKET ENTRY

Competition

New market entrants, including an increasing number of foreign banks, shattered the previous monopolistic or oligopolistic structures. As a result, by the end of the 1990s the banking market had indeed become less concentrated. From a level of 1,460 in 1993[140] the Hirschman-Herfindahl Index (HHI) fell considerably: in 1996 it was in the lower range of the moderately con-

[138] The majority of the shares of the largest Hungarian mortgage bank are to be sold to portfolio investors via the stock exchange. As far as the other, still public, company is concerned, its strategic owner wishes to exit from the public market through buying up the company's shares.
[139] For more details, see Éva Várhegyi (2001), and Majnoni et al. (2003).
[140] Source: Várhegyi (2001).

centrated band, while in 1999 and 2000 it reached the range considered competitive. Due to a series of mergers between large banks, in 2001 concentration intensified just to drop near the competitive band once again in 2002. A similar trend is seen in the market shares of the five largest and the ten largest banks. In 2001, the five largest banks had a lower share in Hungary (61.2%) than in Belgium (78%), Denmark (68%), Finland (80%), Greece (66%), the Netherlands (82%) or Sweden (88%) in the same period based on data for all credit institutions.[141]

Structural changes clearly reflect the increasing presence of foreign ownership. While under the prevailing circumstances, only small and medium-sized foreign banks were allowed to have majority ownership in the first two stages, following privatisation and in the wake of the mergers over the past few years, the number of non-resident owners has steadily increased among the largest banks. As in 2002 ownership title to the largest Hungarian bank was changed, each of the five and nine of the ten largest banks passed into foreign hands. The nine largest banks consist of five privatised banks, all the three banks established as joint ventures prior to the exchange of regimes and purchased later by strategic owners, and a bank originally established as a greenfield investment and later on merged several times.

Market

Naturally, in the first two stages of market entry, foreign banks gained a foothold in corporate lending. Their retail banking activity remained scant, with the clientele coming primarily from among the employees of foreign companies who had moved to Hungary.

In terms of market segments, by 2002 the corporate market had become competitive in terms of both lending and deposit collection. Currently, there is no more growth potential in lending to large companies, and steady growth in SME lending is still further ahead. The largest change can be seen in the retail market, where OTP used to have a monopoly with 98.4% of retail loans and 93.2% of retail deposits in the beginning of the 1990s,[142] whereas in 2002 it accounted for corresponding shares of 27.8%[143] and 46.0%.

Following privatisation, the four privatised large banks engaged in intense competition for the relatively cheap retail deposits.[144] They rapidly increased their shares at the expense of OTP, and later on also Postabank. Lately, a few banks that were considered as small or medium-sized in the mid-1990s have successfully joined this aggressive market penetration. They obviously wish to increase their market shares, which are relatively low considered on the basis of their balance sheet totals, in the retail market at an above-average pace and instead of allocating the acquired funds in other markets, they have a high loan-to-deposit ratio within the same market segment. Although every foreign bank expanded rapidly in the retail market in terms of both lending and deposit collection, penetration into the two partial markets is asymmetric: a higher concentration is seen in the deposit market. The reason for this is that in 2002 only two of the six domestic-owned banks collected deposits, three of the remaining banks are mortgage banks, while one of them is specialised in motor vehicle loans and has an insignificant amount of retail deposits.

Despite drastic changes, OTP has managed to retain its leading position in the Hungarian banking sector; Furthermore, for several years professional circles rated it as the best Hungarian bank and it has proven attractive on Hungarian and foreign stock exchanges alike. Uniquely in the Central and Eastern European region, under the control of completely Hungarian leadership,

Table 4-13

Market concentration indicators on banks' total assets

	1996	1997	1998	1999	2000	2001	2002
Share of the five largest banks (in %)	59.1	54.9	56.2	56.1	55.8	61.2	59.3
Of which: share of foreign banks (in %)	13.7	22.1	24.0	31.0	31.8	37.4	59.3
number of foreign banks	2	3	3	4	4	4	5
Share of the ten largest banks (in %)	76.5	73.4	75.9	76.0	76.3	81.0	79.2
Of which: share of foreign banks (in %)	31.0	40.6	43.8	46.3	48.2	53.0	75.2
number of foreign banks	7	8	8	8	8	8	9
HHI – market	1,156	1,020	1,039	999	965	1,048	1,016
HHI – foreign banks	185	277	315	348	371	463	1,008
Total number of banks	40	40	38	37	36	35	33
Total number of foreign banks	27	30	27	29	30	29	26

[141] The Swedish data refer to the year 2000. Source: ECB (2003).
[142] Source: Bonin–Abel (2000).
[143] This picture is somewhat misleading as the second place is occupied by one of the bank's subsidiaries, the mortgage bank leading the home purchase financing market. Their joint market share was 42.9% in 2002.
[144] For more details see Bonin, J.–Abel, I. (2000).

Table 4-14

Corporate and retail market concentration

	Corporate		Retail	
	Deposit	Loan	Deposit	Loan
Share of the five largest banks (in %)	56.4	62.6	76.5	62.3
Of which: share of banks in foreign majority ownership (in %)	56.4	62.6	69.9	62.3
number of banks in foreign majority ownership (in %)	5	5	4	5
Share of the ten largest banks (in %)	81.5	85.2	93.3	81.4
Of which: share of banks in foreign majority ownership (in %)	81.5	82.5	86.6	62.8
number of banks in foreign majority ownership (in %)	10	9	9	9
HHI – market	832	962	2,471	1,244

high profitability has enabled the bank to expand across the borders and purchase foreign banks, despite its restricted capital formation capacity resulting from the relatively high dividend payment obligation. Whether or not the bank's ambitious attempts at undertaking a major role in the region will yield similar results as in Hungary cannot yet be predicted at the moment.

The relevant literature gives several reasons for OTP's success. In their analysis of the retail market, Bonin and Abel[145] highlight competition as a factor threatening OTP in the largest measure on the part of foreign banks. In their opinion, loss of market suffered as a result of foreign banks' penetration prompted the bank to modernise its products and services. Based on studies by Bikker et al., and Molyneux, Várhegyi[146] stresses contestability as a threat which is further augmented by a low threshold to entry, deregulation, scarce market segmentation by the regulatory regime and the technical development.

In addition to the above-mentioned factors, the privatisation technique itself, namely privatisation through the stock exchange, also contributed to success. OTP's history after the mid-1990s clearly proves that with the help of the regulatory force of the market, daily stock exchange measures of strength, and the disciplinary power of frequently applicable and strict disclosure requirements, in a transition economy a bank in long-term domestic majority ownership can nevertheless successfully compete with tough rivals having advantages right at the start, as they benefit from the powerful control of strategic owners and the direct import of high-tech solutions and know-how.

FOREIGN BANKS' PERFORMANCES

Portfolio

Portfolios in foreign banks have always been of significantly higher quality than those held by domestic banks. In the first two stages of market entry, such a difference was just natural, as foreign greenfield banks were not burdened by inherited bad loans, had a high-rated clientele (initially they recruited new customers from among their compatriots in Hungary, and later on cherry-picked

Table 4-15

Quality of bank portfolios

		1998		1999		2000		2001		2002	
		Foreign banks	Domestic banks	Foreign banks	Domestic banks	Foreign banks	Domestic banks	Foreign banks	Domestic banks	Foreign banks	Domestic banks
Total portfolio	Share of classified assets	8.4	13.5	6.9	14.6	6.8	11.8	8.9	10.6	6.8	13.7
	Share of non-performing assets	2.4	9.6	2.4	7.7	1.6	6.5	1.8	4.8	1.8	6.1
Loans	Share of classified loans	17.0	22.8	13.0	17.6	11.8	11.9	15.1	10.3	13.6	14.5
	Share of non-performing loans	4.5	15.3	3.8	6.5	2.4	6.1	2.4	4.4	3.2	5.8

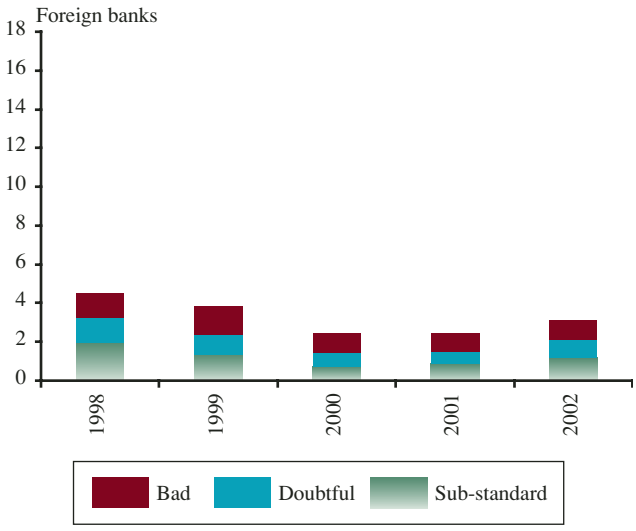
[145] Bonin, J.–Abel, I. (2000).
[146] Várhegyi, Éva (2001).

the best Hungarian companies) and due to the parent banks, in terms of risk management routines, they are far ahead of Hungarian banks. Presumably, in their internal rules their parent banks set up the same requirements as applied in their home countries, and so the shortages of contemporary Hungarian regulation and supervision notwithstanding, they did not become embroiled in irresponsible lending practices.

In the fourth stage following privatisation, the quality of portfolios held by foreign banks grew better than those held by domestic banks each year, in each classification category and portfolio segment, despite the fact that in the period reviewed all of the successor banks of the former one-tier banks system had already gone into foreign ownership. Until 2000, portfolio quality improved in both groups. The deterioration observed in the last year in the domestic group was primarily due to structural reasons: the largest bank, which had a remarkably good portfolio among domestic banks, changed groups. In the group of foreign banks its performance is relatively low (above all in respect of non-lending balance sheet items). By virtue of its size, the bank offset improvement in other banks, and thus in 2002 the group indicator did not fall. The deterioration in domestic banks' portfolios was caused on the one hand by the departure of a bank with a good portfolio, and on the other, further impairment of the remaining banks' portfolios, which affected nearly every segment.

Chart 4-24

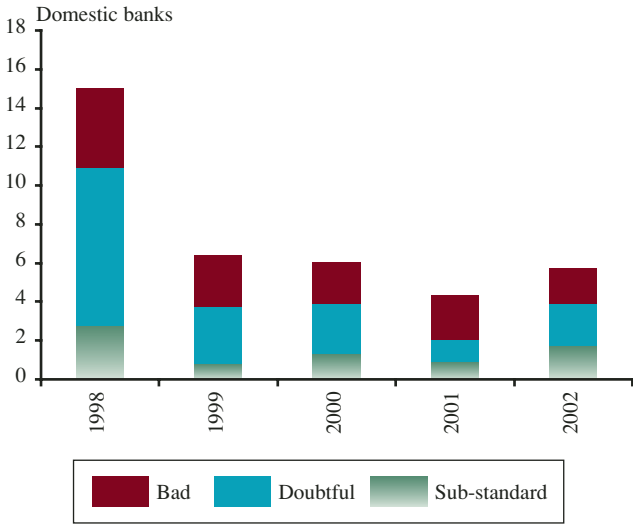
Share of non-performing loans in the loan portfolio



Within the group of non-performing portfolios (substandard, doubtful and bad), the average rate of bad assets does not differ significantly between the two groups. However, in the case of domestic banks, doubtful assets as a proportion of the overall portfolio is on average nearly twice as high as the corresponding figure in foreign banks. The difference is even greater in the quality of loan portfolios. Disregarding the outlying 1998 data, in domestic banks the average rate of bad loans within non-performing loans was nearly double the amount held by foreign banks between 1999 and 2002, while the proportion of doubtful loans amounted to more than two and a half times as much as those held by foreign banks.

Chart 4-25

Share of non-performing loans in the loan portfolio



As of 2001 H2, deteriorating economic conditions have led to slower business activity in the Member States of the European Union as well. According to an ECB analysis[147] of nearly every credit institution within the EU, the above fact, coupled with a loss of confidence in the reliability of corporate data in the wake of Enron's scandal and other cases, lead to a revaluation of portfolio quality. This, in turn, resulted in a moderate portfolio deterioration and an increase in lower-quality elements and reserves as early as late 2001. In Hungary, however, no trace of this trend was discernible in foreign banks' rating and provisioning practice even in 2002. There are three fundamental reasons for this. First, economic growth was stronger in Hungary than in the EU. Second, in the election year as well as in the preceding one, additional subsidies and income was made available to smaller companies and households, and this reduced default risk in the groups concerned. Third, less risky housing mortgage loans, classified as problem-free upon disbursement, boomed, improving the portfolio.

Profitability

Banks' performance indicators give an extremely varied picture for the five years under review.

[147] ECB (2003).

Table 4-16

Profitability indicators for foreign and domestic banks

		1998	1999	2000	2001	2002
Foreign banks	Interest rate spread	3.9	3.2	3.2	3.4	3.9
	Net interest margin	4.4	3.6	3.6	3.8	4.1
	Total margin*	6.0	5.4	5.5	6.0	6.2
	Total costs** over total assets	3.9	4.0	3.7	3.7	3.6
Domestic banks	Interest rate spread	5.1	4.8	4.9	5.3	4.9
	Net interest margin	5.0	5.0	4.8	5.1	5.0
	Total margin*	3.2	6.5	6.5	6.7	5.8
	Total costs** over total assets	4.3	4.1	4.0	4.1	4.8

* *Net profit on financial and investment services excluding provisions (value adjustments) and other income from operations/total assets (chronological average).*

** *Operating costs/total assets (chronological average).*

With the exception of 1998, the spread and margin – the fundamental indicators of income structure – tended to be significantly higher in domestic banks than in foreign ones.

From 1999, the spread increased year by year in both groups (in the case of domestic banks up to 2001), as due to the relatively underdeveloped financial intermediary system, both groups can cut interest rates sooner and to a larger degree in the deposit business than through loan repricing. Growth may be explained by the application of risk premiums stemming from portfolio deterioration. In the case of foreign banks, the data relevant to the deterioration of the loan portfolio confirmed this as of 2000, however, in the case of domestic banks the data do not.

Throughout the period under review, domestic banks registered a higher interest margin. Up to 2001, this was due primarily to the outstanding achievement of OTP, and to a minor extent, in terms of volume, the high indicators of new mortgage banks. Difference between the two groups were more muted after OTP transferred into the other group. Foreign banks' interest margin is consistently higher, whereas the spread was lower than the average of EU credit institutions as of 1999. With a view to the total margin, the difference is smaller. This means that the ratio of interest and interest revenues to profit earned on commission is higher in domestic banks' results than at foreign banks.

Banks' cost efficiency has not improved in the required measure. There is no significant difference between foreign and domestic banks in terms of the costs to total assets ratio, which considerably exceeded the average of EU credit institutions, up from 1.5% in 1998 to 1.7% in 2001.

Over the past few years rates of return on assets and equity have gradually improved in the majority of banks, despite the fact that no improvement is reflected in the overall development of the ROA and ROE indicators. In 1998, domestic banks, while in 1999 foreign banks saw particularly low profits, attributable to losses made by large banks as a result of certain one-off reasons. Starting from 1999, OTP's results dominated the domestic group's performance. When OTP was reclassified as a bank in foreign ownership in 2002, the domestic group's profitability drastically fell, even though no major or extraordinary losses was incurred in the group.

Table 4-17

Profitability of foreign and domestic banks

	Description	1998	1999	2000	2001	2002
Foreign banks	ROA*	0.7	0.0	0.9	1.4	1.5
	ROE*	7.7	–0.2	10.8	16.9	18.1
Domestic banks	ROA*	–5.9	1.1	1.4	1.5	0.2
	ROE*	–96.2	17.8	18.9	20.2	1.7

* *Chronological average calculated from profit after tax.*

In 2002, there were altogether six loss-making banks: four of them were the smallest foreign banks and two domestic ones. Dispersion dimensions were extremely wide. ROA moved between –4.5% and 5.8%, while ROE was between –13.2% and 61.2% in foreign banks. Extreme values were recorded by relatively new small banks. Dispersion was less extensive in the case of domestic banks: ROA was between –0.5% and 3.1%, and ROE between –4.6% and 26.1%.

In a regional comparison, Hungary has a longer and more varied experience in the analysis of the role of foreign-owned banks in transition economies, as the restructuring and privatisation of the banking sector started earlier than in the other countries. The time that has elapsed from the beginning to the present can be considered sufficient for the purposes of empirical analyses, the relevant data are available in good quality, and as the most essential measures of the bank reform had been taken before the period under survey, the complicating factor of simultaneous bank reforms can be regarded as having a minimal impact. The results of an empirical survey based on the analysis of data from individual banks active in Hungary[148] between 1995-2000 provided econometric support of the statistical observation that Hungary's banks in foreign ownership

[148] Majnoni, G., Shankar R., and Várhegyi, Éva (2003): "The Dynamics of Foreign Bank Ownership: Evidence from Hungary", World Bank Policy Research Working Paper 3114, August 2003 *The World Bank*. The sample contained data for 26 commercial banks active between 1995–2000. The authors disregarded the 1998 data for Postabank in the analysis of profitability.

are significantly more profitable than domestically-owned banks.[149]

The analysis supplemented the results of earlier studies on the subject in three fields: (1) it took explicit account of the time elapsed since market entry, during which the ownership change has (or may have) made its effects felt in the performance of banks; (2) it examined the interrelationship between acquisition, the manner of market entry (greenfield investment vs. corporate take-over) and efficiency/profitability; and (3) it examined the effects of managerial methods and confidence in foreign management.

In the field of cost efficiency, the only significant result was the fact that foreign-owned banks employing local management were more efficient in cost saving. In the case of greenfield investments, the regression analysis justified the empirical conclusion that both operating and staff costs were lower than in the case of banks taken over by foreign owners. In the latter case inherited factors, an ineffective branch network, underdeveloped IT and low skilled labour force pushed up cost intensiveness.

An analysis of profitability revealed that irrespective of the management style applied, foreign banks are far more profitable than domestic ones, and this offsets the fact that in terms of cost level and sometimes even cost structure, they are very similar to local banks. This suggests that higher revenues realised by foreign banks are attributable rather to a wider variety of services than the distribution of traditional products, as local managers have a comparative advantage in the latter. Regarding profitability, the banks that were established by way of greenfield investments unambiguously exceed not only domestic banks but also banks acquired by foreigners in the framework of take-over. Results related to lending spread justify the assumptions for the reasons of foreign banks' higher profitability. Narrowing spread is consistent with the overall decrease in fees accompanying foreign banks' entry, and highlights the fact that higher profitability is attributable to a wide variety of services and a higher quality loan portfolio rather than to higher margins.

The volume of lending, tested last, was the single field where greenfield banks did not differ substantially from other foreign banks. The results are insufficient to justify the wide-spread opinion that foreign banks broaden access to credit markets. In any case they are sufficient to confirm than in a country like Hungary, where the presence of foreigners is comprehensive and affects banks of all sizes, foreign-owned banks do not decrease lending activity.

Capitalisation

Starting from 1998, regulatory capital grew continuously in both groups; the capital adequacy ratio fluctuated in line with risk-taking behaviour, but it remained appropriate at all times. Disregarding the impacts of OTP's reclassification, it is clear that the lending boom in 2002 was reflected in a decrease of CAR in both groups, which resulted from the fact that the risk-adjusted total assets increased much faster than regulatory capital. A major expansion of domestic banks is due to the home loan activity of the new mortgage bank entering the market, as in the very first year of its operation it forged ahead to the second place in household lending.

In respect of stability it should be noted that all the banks met the minimum regulatory requirement of 8% capital adequacy ratio. Five foreign and two domestic banks failed to meet at least the 10% ratio considered as safe. Similarly to profitability, the CAR figures show wide dispersion. Foreign banks' CARs varied between 8.1% and 98.4%, the highest extreme was recorder for a relatively new small bank and the low value barely exceeding the minimum requirement was reported by a large bank undergoing strong expansion. Domestic banks had CARs between 9.2% and 39.6%, if the bank withdrawing from the market in 2003 is disregarded.

Table 4-18

Banks' capital adequacy *(Capital adequacy ratio)*

	1998	1999	2000	2001	2002
Foreign banks	15.8%	13.8%	13.0%	13.7%	13.0%
Domestic banks	13.7%	15.2%	16.1%	13.9%	12.1%

In 2002, Hungary had a reasonably stable and sound banking system. This was to a large extent due to the role of foreigners who appeared in the region as strategic investors and provided for their input in terms of expertise and know-how.

[149] Based on the results of studies published on the subject, no consistent picture can be formed of foreign banks' performance in Hungary and, in a wider context, in transition economies and other emerging countries, as the frequently contradictory conclusions are drawn from analyses based on different models applied for different periods and samples. For further details see Mérő–Endrész Valentinyi (2003).

REFERENCES

Balassa, Ákos (1996): "Restructuring and Recent Situation of the Hungarian banking Sector". MNB Occasional Papers 10.

Bikker, J. A. and Groeneveld, J. M. (1998): "Competition and Concentration in the EU Banking Industry". De Nederlandsche Bank, Research Series Supervision (8) In: *Kredit und Kapital*, Heft 1/2000.

Bonin, J.–Abel, I. (2000): "Retail Banking in Hungary: A Foreign Affair?" (Prepared as a background paper for the World Bank, World Development Report 2002: Institutions for Markets).

"EU Banking Sector Stability". ECB, February 2003.

Király, Júlia–Májer, Bea–Mátyás, László–Öcsi, Béla–Sugár, András–Várhegyi, Éva (2000): "Experience with Internationalization of Financial Sector Providers–Case Study: Hungary", in: Claessens, S. and M. Jansen (eds) (2000) *The Internationalization of Financial Services*, The World Bank and World Trade Organisations. *Kluwer Law International* 407–435.

Majnoni, G., Shankar, R. and Várhegyi, É. (2003): "The Dynamics of Foreign Bank Ownership: Evidence from Hungary". World Bank Policy Research Working Paper 3114, August 2003 *The World Bank.*

Mérő, Katalin and Endrész Valentinyi, Mariann (2003): "The Role of Foreign Banks in Five Central and Eastern European Countries". MNB 2003.

Molyneux, P. (1999): "Increasing concentration and competition in European banking: The end of anti-trust?" EIB Papers, Vol. 4 No. 1 1999.

Szapáry, György (2001): "Banking Sector Reform in Hungary: Lessons Learned, Current Trends and Prospects". MNB Working Papers 2001/5.

Éva, Várhegyi (1995): "Bankok versenyben" (Banks in competition). Pénzügykutató Rt. Budapest.

Várhegyi, Éva (2001): "Foreign ownership in Hungarian Banking Sector", Közgazdasági Szemle, Vol. XLVIII. No. 7–8 2002 (in Hungarian).

Várhegyi, Éva (2002), "Hungary's banking sector: Achievements and challenges" EIB Papers, Vol. 7 No. 1 2002.

Index of charts and tables

Charts

1 MACROECONOMIC INDICATORS

2 STABILITY OF THE BANKING SYSTEM

3 CURRENT TOPICS RELATED TO STABILITY

4 ARTICLES

Tables

1 MACROECONOMIC INDICATORS

2 STABILITY OF THE BANKING SYSTEM

3 CURRENT TOPICS RELATED TO STABILITY

4 ARTICLES

Report on Financial Stability
December 2003

DTP-works: Iconos Advertising
H-1022 Budapest, Bogár u. 29.
Printing: Print-X