Dániel Holló: Household indebtedness and financial stability: Reasons to be afraid?

The dynamic increase in household indebtedness seen in Hungary in recent years has raised a number of questions relating to the risks of this growth and the long-term sustainability of banking portfolio quality. The continuous monitoring of risks is a task of the MNB, which stems from its supervisory role over financial stability. In order to explore the extent and structure of household indebtedness, the central bank conducted a questionnaire-based survey among indebted households in January 2007. In this article, we present the structural distribution and riskiness of indebted households as well as the effect of various unfavourable macroeconomic developments on banks' portfolio quality and capital adequacy, based on the findings of the survey. Our findings suggest that the shock absorbing capacity of the banking sector is sufficient (i.e. the capital adequacy ratio of the banking system would not fall below the current regulatory minimum of 8 per cent) even if the most extreme stress scenarios were to occur.

INTRODUCTION

One of the main tasks of financial stability analysis is monitoring the shock absorbing capacity of the financial system. In this context, the question we wish to investigate is the manner in which low probability but nevertheless plausible extreme macroeconomic events would impact the banking system, and to what extent the capital position of the sector would be affected.[1]

Analysis of the shock absorbing capacity of the financial system is important both from the viewpoint of the financial sector and other economic agents as well. Financial institutions can gain insight into what type and how strong an adverse macroeconomic event would significantly influence their profitability and capital position. For other economic agents, the importance of this information is based on the fact that the stability of real economic developments depends strongly on the stability of the financial system. Namely, as a result of various real economic shocks, banks' losses may increase considerably, and banks may react by curtailing credit supply, which could deepen an ongoing recession even more, due to a further decline in consumption and investment expenditures. Accordingly, there is a strong relationship between financial and macroeconomic stability as a stable financial system cannot exist without the stability of macroeconomic developments and vice versa.

Developments in household credit risk are one of the key elements of financial stability. A deeper analysis of credit risks was particularly justified by the banking sector's ever increasing exposure to households, and the effect on households' solvency resulting from the fiscal package announced in the summer of 2006.

As a result of significant credit growth dynamics, between 1999 and 2006 the total debt outstanding in nominal terms rose more than tenfold, and a shift towards foreign currency loans can be observed in the composition of debt by denomination, which has made Hungarian households' balance sheet position more sensitive to exchange rate fluctuations as they do not have a natural hedge. In terms of product structure, a continuous increase in mortgage type products has been seen, which can provide considerable security for banks in case of default, thus reducing risks significantly.

Nonetheless, current economic developments call into question the sustainability of households' solvency. Despite the negative effects of the fiscal consolidation package announced in the summer of 2006, a dynamic increase of debt outstanding is still being observed. However, due to the decline in real income and the resulting deterioration in resistance to other shocks (e.g. exchange rate depreciation, increase in interest rates), the sustainability of solvency may be questionable, even in the medium term. Deteriorating solvency may lead to a large number of households defaulting, to which banks may react by curtailing credit supply (tightening credit standards), which may also result in a slump in retail lending market growth, and economic growth may continue to decelerate.

The remainder of the article is organized as follows. In the second chapter we briefly present those two methods – the

[1] There is no generally accepted definition of financial stability, but there is a wide consensus that bank crises pose the greatest threat to the stability of the financial system, as banking activities cover almost all areas of the financial system. In this article we focus on the stability of the banking system, while the stability of the banking system and the stability of the financial system are treated as synonymous terms, despite the imperfect congruence.

macro and micro approaches – which constitute the framework for the analysis of household credit risk. The third chapter analyzes risk concentration in various dimensions using the data from the questionnaire-based survey[2] conducted by the MNB amongst indebted households in January 2007. In chapter four, using the survey data we present the main findings of household stress tests and the ramifications for financial stability. Finally, chapter five presents the conclusions.

POSSIBLE METHODS OF ANALYSING HOUSEHOLD INDEBTEDNESS

Several indicators are used for the quantification of household indebtedness and the resulting risks. Some of these analyze the sustainable size of loans outstanding (the ratio of loans outstanding to annual disposable income), while other indicators evaluate the magnitude of credit risks on the basis of instalments paid by households (estimation of the repayment burden, i.e. the amount spent by households on loan repayment in a year as a proportion of annual disposable income). A comparison of total debt and financial assets gives a picture of households' financial position, i.e. it indicates to what extent savings cover the amounts borrowed. The reflection of risks in banking portfolio quality can be measured by the ratio of non-performing loans within total loans and developments in loan loss provisions.

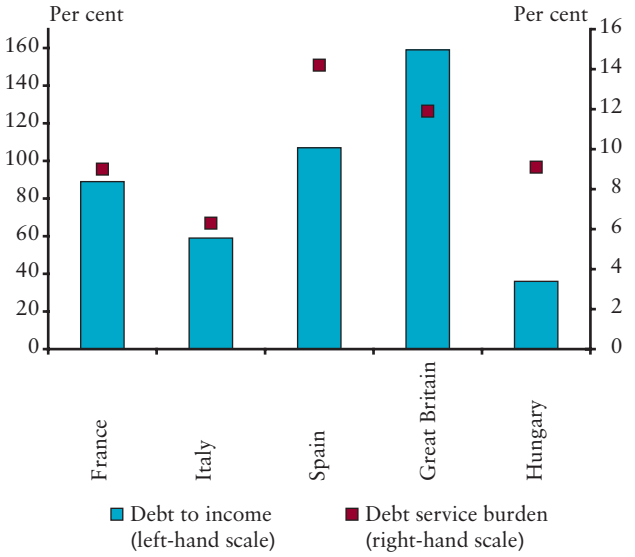
Based on the above indicators, depending on the aggregation level of the available data, the analysis of households' indebtedness and the resulting risks can be carried out within a macro or micro framework.

According to the macro approach, the developments in risks and the related banking system portfolio quality are analysed using macro variables and variables generated from the aggregate household sector data, which may affect households' income position and/or repayment burden at the sectoral level. By contrast, the micro approach concentrates on indebted households, uses individual data and takes account of the structure of indebtedness, thus allowing a more precise measurement of risks and developments in portfolio quality.

Despite the relatively rapid increase in the debt to disposable income ratio, the indebtedness of Hungarian households is still far below the level of developed economies, i.e. in parallel with the real convergence there is further room for the 'catching-up process'. However, due to the unfavourable term structure of loans (loans with shorter maturity), the value of the repayment burden is close to the Western European level; accordingly, in international comparison, despite their relatively low level of indebtedness, Hungarian households spend nearly the same proportion of their income on loan repayment (Chart 1). Total debt as a proportion of financial assets increased from 6 per cent in 1999 to 26 per cent by the end of 2006, also reflecting growing risks. The lower growth rate of financial savings compared to the increase in total debt represents a risk, because less financial reserves are accumulated which could mitigate the impacts of shocks in the event that macroeconomic developments become unfavourable.

Chart 1

Hungarian household indebtedness based on various indicators, in international comparison at end-2006



Sources: OECD, MNB.

If we calculate the aforementioned indicators on the basis of the questionnaire-based survey only for the indebted households (micro approach), a much more refined picture emerges. Among indebted households, the ratio of debt to annual disposable income is 94 per cent on average, borrowers spend on average 18 per cent of their income on repayment, while the amount of loans outstanding is 7.5 times higher than that of financial savings. As only 18 per cent of debtors have savings, it can be established that savers and borrowers are typically different, i.e. the household sector shows a significant heterogeneity.

[2] Commissioned by the MNB, a questionnaire-based survey examining the characteristics of indebted households was conducted in January 2007. 1046 household with some sort of credit were surveyed. The survey provided detailed information on the indebted households' financial and income positions as well as other personal characteristics. See detailed information on the questionnaire-based survey on pages 35-36 of the publication titled Report on Financial Stability, April 2007, http://english.mnb.hu/Engine.aspx?page=mnben_stabil&ContentID=9555.

Overall, although the indicators generated from aggregated, i.e. sectoral-level data, indicate the direction of the developments in risks quite well, they may be misleading in terms of the magnitude, as they considerably underestimate it due to disregarding the structure of indebtedness. In the financial sector, the potential loss resulting from credit risks depends on the extent to which total debt is concentrated at households with stretched financial and income positions. Considering all this, we decided to analyse micro level data more thoroughly, and in the following chapters, the magnitude of credit risks is quantified based on these data.

MAGNITUDE OF CREDIT RISKS IN TERMS OF VARIOUS DIMENSIONS

Indebted households' resistance to shocks is determined by the size of their income reserve, financial savings and real assets. In the calculations, we disregard the roles of both financial savings and real assets.[3]

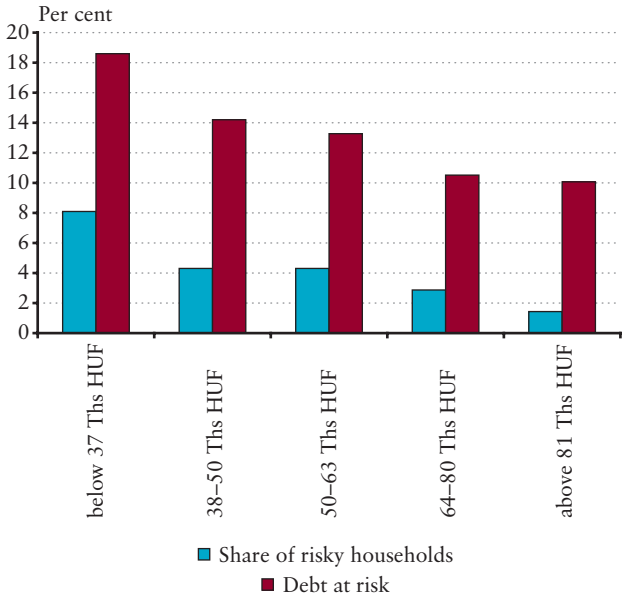
Household income reserve (or shock absorbing capacity) is the amount which remains from the monthly net disposable income after the deduction of consumption expenditure and loan repayments. If the indicator is negative, the given household is considered risky, as due to the extent of its stretchedness it would not be able to withstand the effects of various shocks for a longer time without loan repayment problems.[4] In this case, households are either eating up their financial savings, or have to reduce their consumption in order to be able to keep up repaying the loan. At present, approximately 2.2-4.2 per cent of indebted households can be considered risky, but 5.7-12.9 per cent of the total debt belongs to them.[5] These are the loans outstanding ('debt at risk') which may be the source of potential losses from the perspective of the financial sector, if we suppose that risky households become insolvent and in case of households with positive income reserves the probability of default is zero.

The distribution of risky households and risky debt can be examined in terms of various dimensions. We considered income as the basic dimension, and beyond that we also analysed developments in risks according to two other features: domicile (region) of the household and the age of the head of the household. However, it should be noted that the household's disposable income is not independent of the latter two factors, as on the one hand, the size of the income is determined by the region where the household is located, and on the other hand, in the initial period of one's career individual incomes are typically lower. Therefore, income is more or less a condensate of information stemming from the given household's sociodemographic features.

Classifying indebted households in income quintiles according to their per capita disposable income shows that, in parallel with the increase in income, the probability of default steadily decreases (Chart 2). The results suggest that in those indebted households where per capita income is less than HUF 37,000, the average odds of having payment difficulties is 8 per cent. In those households, in turn, where the per capita monthly disposable income exceeds HUF 81,000, the average default probability is 1.4 per cent.

Chart 2

Share of risky households and debt at risk according to quintiles calculated on the basis of per capita income



Source: Author's calculations.

As there are considerable differences in households' incomes across regions, households' resistance to shocks (the size of income reserve accumulated monthly, labour market prospects), and hence their ability to repay loans, is strongly influenced by the region where they live. In terms of the magnitude of risks, there are significant differences across

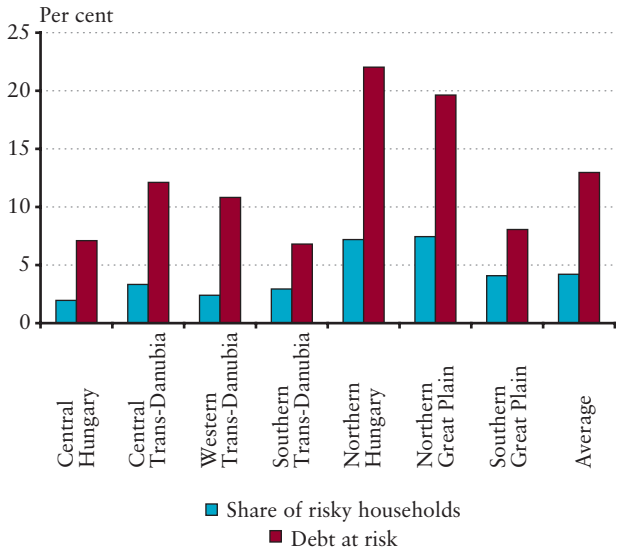
[3] These two seemingly strong assumptions probably do not distort the results considerably, partly because in the sample both the ratio of those who have financial savings (18 per cent) and the average financial savings volume are low, i.e. in the event of permanent unfavourable economic developments it can be assumed that financial reserves run out fast, while real assets are less liquid, i.e. their prompt use in case of payment problems is limited.

[4] The aforementioned risk definition is restrictive in the sense that, on the one hand, households with positive income reserves may also have payment problems, and on the other hand, the size of income reserve at which payment problems may come up may be different for each household.

[5] Because of income uncertainties (black incomes and mistakes made in reporting income information) we prepared the calculations with 10 per cent higher disposable income as well, which resulted in the two (presumably extreme) values of the ratio of risky households and risky loans outstanding.

Chart 3

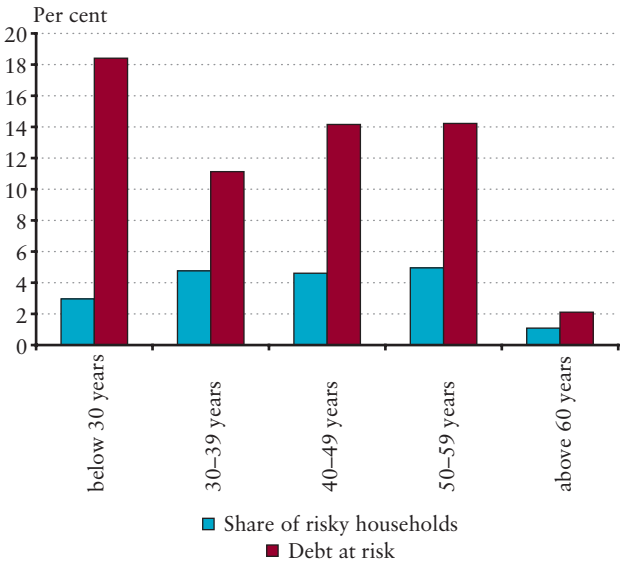
Share of risky households and debt at risk in individual regions



Source: author's calculations.

Chart 4

Share of risky households and debt at risk based on the age of the head of the household



Source: author's calculations.

areas of different levels of development. In the Northern Great Plain and Northern Hungarian regions, which can be considered less developed, the share of risky households and risky loans outstanding is higher, while the situation is much more favourable in Central Hungary which also includes Budapest and Western Trans-Danubia (Chart 3).[6]

Categorising the indebted on the basis of the age of the head of the household shows that in the case of households with a head between 30-60 years of age the average default probability is nearly the same, around 4.5 per cent, and the situation is more favourable only in case of the heads who are younger or older than that. Despite the low level of differences across average default probabilities according to age, the volatility of debt at risk within individual categories is considerable (Chart 4). It is important to emphasise that in the case of households with a head below the age of 30, in the given category more than 18 per cent of the loans outstanding can be considered as risky. The underlying reason may be that those young households who are not liquidity constrained, relying on the higher expected income in the latter stage of their life cycle, can increase their current consumption level by borrowing, and their investment (housing) is also mainly financed from credit. However, as their income in this part of their lives is relatively low, this temporarily results in a high repayment burden, which gradually becomes lower as they grow older and their income steadily becomes higher. Accordingly, despite the fact that within the group of households with heads of various ages average default probabilities do not show significant differences, in the case of repayment problems of young households, banks' losses may be higher compared to the other age groups as a consequence of the much higher average size of the loan per household.

IMPACT OF VARIOUS SHOCK SCENARIOS ON THE STABILITY OF THE BANKING SYSTEM[7]

The analysis of indebted households' shock absorbing capacity requires identification of those major risk factors which significantly influence solvency. We have identified two macroeconomic factors of this nature. One is a risk premium shock triggered by unfavourable external and internal macroeconomic developments, which may result in an increase in the forint yield and/or in depreciation of the exchange rate of the forint. This affects households' solvency through an increase in instalments. The other factor, the

[6] Central Hungary: Pest, Budapest; Central Trans-Danubia: Fejér, Komárom-Esztergom, Veszprém; Western Trans-Danubia: Győr-Moson-Sopron, Vas, Zala; Southern Trans-Danubia: Baranya, Somogy, Tolna; Northern Hungary: Borsod-Abaúj-Zemplén, Heves, Nógrád; Northern Great Plain: Hajdú-Bihar, Jász-Nagykun-Szolnok, Szabolcs-Szatmár-Bereg; Southern Great Plain: Bács-Kiskun, Békés, Csongrád.

[7] In this article, the developments in default probabilities and risked exposures with respect to various shocks are analysed using a simple method (income reserve calculation). Despite the simplicity of the method, its conclusions proved to be stable even in comparison with the results gained from more sophisticated models. For more details on the calculations and simulations as well as the other alternative approaches see: Dániel Holló and Mónika Papp (2007): Assessing Household Credit Risk: Evidence from a Household Survey (manuscript).

impact of which was examined, is a decline in employment affecting indebted households. For those concerned it affects the magnitude of credit risk through a decline in disposable income.

In the course of the stress tests, we determined the default probabilities belonging to the various shocks, then, assuming a given loss rate (LGD), we drew quantified conclusions with regard to the stability of the banking system. We examined the effects of individual risk scenarios on banks' capital adequacy ratio separately, and we also analysed this when the risk scenarios took place simultaneously. In the calculations, we quantified the effects developing through the credit risk channel. Our simulations are static, i.e. in case of the risk scenarios we assumed that neither the volume, nor the structure of households' consumption change, households' labour supply remained unchanged, and there was no banking adjustment, i.e. banks did not react to the increasing losses by curtailing credit supply and/or restructuring their portfolios. We also assumed that individual banks' customers are not different from a risk perspective, i.e. in terms of quality, all banks' household portfolios are identical to the representative household portfolio used in the course of the calculations.

Based on this latter assumption, as no information on household default probabilities from individual banks is available, when calculating the losses, we use the same default probability for each bank (the share of households with negative income reserves within the sample). The difference between banks is constituted by the composition of their portfolio and the product specific loss rates (LGD), which, however, adequately reflects the differences in quality across individual banking portfolios. This means that if the average default probability of two banks' respective household portfolios are identical, but one's portfolio is dominated by mortgage loans then the developments in losses of this bank may be more favourable compared to another bank, in whose portfolio mortgage loans represent a relatively lower share.

DEVELOPMENTS IN DEBT AT RISK ON THE BASIS OF TWO RISK SCENARIOS

The effect of the risk premium shock

Several scenarios were analyzed: 100, 300 and 500 basis point increases in forint yields as well as 10, 20 and 30 per cent depreciation of the forint exchange rate.[8] The increase in forint yields and the depreciation of the exchange rate of the forint lead to an increase in credit risk through an increase in loan instalments. However, the former and the latter directly influence only the magnitude of the burdens of forint and foreign currency loans, respectively.

With regard to households' loans outstanding by denomination, the ratio of forint and foreign currency denominated credit within the total retail portfolio was around 50 per cent each at end-2006, but now 80-90 per cent of new loans are denominated in foreign currency. As the ratio of forint loans repricing within a year is relatively low, an increase in yield affects only approximately half of the forint loans outstanding. Exchange rate depreciation, in turn, appears in the monthly instalments of foreign currency loans immediately and directly. Consequently, portfolio quality reacts to exchange rate depreciation in a more sensitive manner than to an increase in forint yields. Accordingly, as a result of the steady growth of the share of foreign currency loans, the exposure of the loan portfolio to exchange rate risk is increasing continuously. However, in connection with the effects of the exchange rate risk it is important to mention that it represents a real risk, if the exchange rate depreciation is significant and long-lasting. The underlying explanation is that households can more or less withstand the effects of a temporary significant exchange rate depreciation by reducing consumption expenditure, which may denote a restructuring of consumption (substitution effect, shift towards consuming cheaper products) or a reduction of the volume of consumption and the use of financial reserves, while maintaining an unchanged structure of consumption.

In preparing the calculations, we assumed the permanent presence of the shock, since this ensures that the risky loans outstanding calculated in the cases of the individual shocks surely become non-performing. Based on the data, it can be established that at least one year is needed in the sample for all households considered risky to become insolvent (to use up all their financial reserves).[9]

If there is no shock, approximately 2.2-4.2 per cent of households can be considered as threatened; they account for 5.7-12.9 per cent of the portfolio. In the most extreme scenario (500 basis points forint interest rate increase, 30 per cent exchange rate depreciation), the share of risky households nearly doubles, while debt at risk increase by

[8] During stress tests, the effect of shifts of 3-8 standard deviation in a given risk factor is often analysed (the tails of the distribution), as they can be considered adequately extreme developments. The values of the examined risk premium shocks are the tails of the historic distributions calculated from the data of the HUF/EUR exchange rate and the 3-month forint yields between January 2001 and May 2007 (in case of the exchange rate 3, 6 and 8 standard deviation, in case of the interest rate 1, 2, 3 standard deviation).

[9] Depending on the magnitude of shocks, households' average resistance is between 1 and 3 months, i.e. this is the average period of time in which they eat up their financial reserves, provided that there is no change in their behaviour (consumption habits, restructuring of expenditures, and increase in labour supply).

Table 1

Debt at risk in case of various risk premium shock scenarios

(one-year horizon)

Forint yield increase (basis point)	Based on original income				Based on income increased by 10 percent			
	Depreciation of forint exchange rate							
	baseline	10 percent	20 percent	30 percent	baseline	10 percent	20 percent	30 percent
Baseline	12.9	15.5	18.1	21.5	5.7	7.8	9.0	10.6
100 bp	13.2	15.5	18.1	21.5	5.7	7.8	9.0	10.6
300 bp	14.3	16.5	19.2	22.6	5.7	7.8	9.0	10.6
500 bp	14.9	17.2	19.8	23.2	6.6	8.8	10.0	11.6

Source: author's calculations.

approximately 6-10 percentage points compared to the shock-free case.

Impact of a decline in employment

If one of the family members in an indebted household becomes unemployed, the decline in the household's disposable income affects developments in solvency.

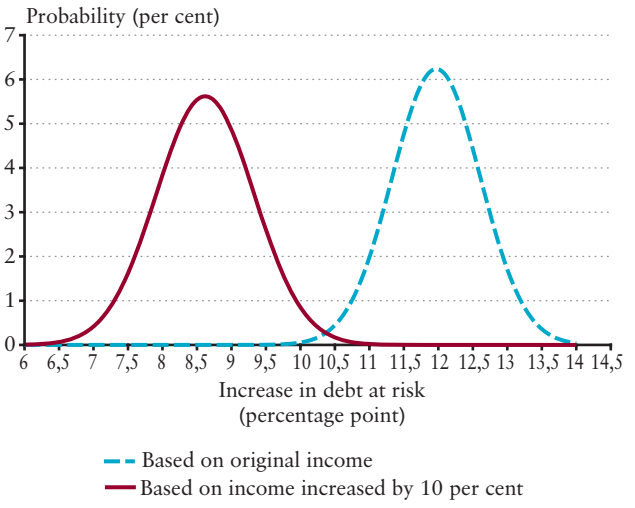
In the simulation, we calculated a 3 per cent[10] decline in employment, using several simplifying assumptions. On the one hand, in the case of each randomly selected household we assumed the job loss of 1 employee, and supposed that within the one-year period under review the person would not find a new job. In the simulations we did not take into account the personal factors behind becoming unemployed, i.e. that there may be differences between the probabilities of becoming unemployed depending on the various characters of individuals. On this basis, we determined the proportion of cases when the decline in income and substituting it with unemployment benefit leads to income reserves' becoming negative, and how much it adds to the risky loans outstanding.

We examined the effect of the decline in employment on the proportion of risked portfolio along two scenarios. First we assumed that the probability of becoming unemployed is identical in each sector, independently of macroeconomic developments, and thus we analysed the effect of the simultaneous occurrence of the most extreme risk premium shock (500 basis point interest rate increase and a 30 per cent depreciation of the exchange rate) and the 3 per cent decline in employment on the increase of the share of risky debts. Then, in the second case we assumed that lay-offs affect a given sector (services, agriculture, industry, trade); in this case we did not take into account the simultaneous occurrence of the risk premium shocks, interrelationships between sectors and pass-through effects. The relevance of this latter scenario is provided on the one hand by the fact that, the exposure of individual sectors to cyclical fluctuations of the economy may differ significantly, and as a result the developments of employment also show sectoral fluctuations and may be more dominant in certain sectors. On the other hand, there may be differences between sectors in terms of the composition of loan portfolio extended to those working in the given sector, which may also affect the developments in losses considerably.

According to the first scenario, as a result of the simultaneous occurrence of the decline in employment and the risk premium shock, the expected increase in debt at risk is

Chart 5

Increase in debt at risk in the event of a simultaneous occurrence of the most extreme risk premium shock and a 3 per cent decline in employment



Source: author's calculations.

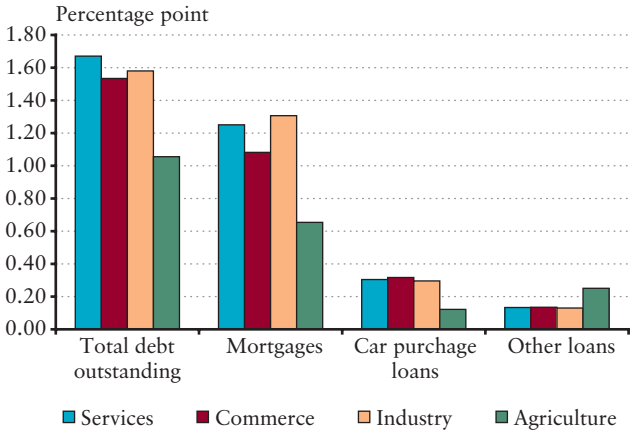
[10] Between 1998 and 2006 the average employment rate was 56 per cent, with a 1.12 per cent standard deviation. Accordingly, a 3 per cent decline in employment corresponds to shift of approximately 3 standard deviation.

between 8.6 and 12 percentage points, which denotes that the expected risky loans outstanding would range between 14.3 and 24.9 per cent (Chart 5).

Assuming that the decline in employment is sector-specific, compared to the case when there is no shock, the effect of a 3 per cent lay-off on debt at risk would probably be the greatest if the lay-offs affected the services sector. This is followed by the industry, then trade and finally by agriculture (Chart 6).

Chart 6

Expected increase in debt at risk in the event of a 3 per cent decline in employment



Source: author's calculations.

ASSESSING THE EFFECTS OF SHOCKS FROM A FINANCIAL STABILITY ASPECT

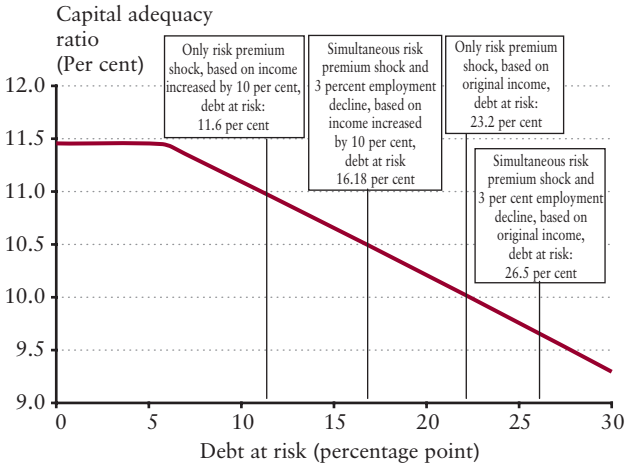
The effects of various shock scenarios can be assessed in light of how debt at risk and the share of risky households increase compared to a scenario with no shocks. Assuming that in the case of debt at risk calculated in line with the individual scenarios non-performance takes place in any case, with given loss rates (LGD), the magnitude of losses can be determined.[11]

Loss rate is that part of the value of non-performing loans which is not recovered during the collection process and enforcement of collateral. Assuming the non-performance of a HUF 10 million loan, the 10 per cent loss rate means that the lender suffers a HUF 1 million loss. Determining the loss rate is not simple because, on the one hand, no data for Hungary is available and, on the other hand, its value also varies by products. In case of mortgage loans, as a result of selling the collateral, the probability of recovery is much higher than in the case of uncollateralized loans. Accordingly, for each product we calculated using different loss rates (LGD), which can be considered conservative in international comparison. For mortgages, car purchase loans and other (uncollateralised) loans we assumed 10, 30 and 90 per cent loss rates (LGD), respectively. It is important to emphasise that when determining loss rates it is justified to take account of the differences between products, as applying a uniform loss rate may significantly distort (improve or deteriorate) the results in case of some 'specialised' banks.

Based on the stress test results we analyzed how losses affect banks' capital position. We used end-2006 data in the calculations, in which we also took into account the profit/loss of the previous year and the size of the already formed loss provisions. The profitability and the capital strength of the banks are influenced by the stress event only in those cases when the losses exceeded the size of the loss provisions. We examined the extent of capital adequacy not only at the banking sector level, but also with regard to individual banks. Where a bank belongs to a banking group – assuming group-level capital allocation – we evaluated group members' results together. We considered it risky, if a bank's

Chart 7

Developments in the capital adequacy ratio of the banking sector in the event of the most extreme stress scenarios



Source: author's calculations.

[11] The loss is the product of the default probability, the risked exposure and the loss rate (LGD). The proportion of the risky debt in the event of the most extreme risk premium shock, in case of the original and 10 per cent higher income is 23.2 and 11.6 per cent, respectively. If the most extreme risk premium shock and the 3 per cent decline in employment take place simultaneously, the risked debt in case of the original income and 10 per cent higher income is 26.5 and 16.18 per cent, respectively. These latter two values are the sums of the shock-free risked debt and the extreme values of the risked debt distributions (99th percentile values of the distributions in Chart 5). Accordingly, the unexpected losses: 26.5=12.9+13.6 and 16.18=5.7+10.48. In our calculations, we use the extreme values of the distribution. The underlying reason is that while banks covered expected loss by pricing and provisioning, unexpected losses have to be covered from the capital.

capital adequacy ratio declined below the current regulatory minimum of 8 per cent.

Our findings suggest that the capital position of both individual banks and the banking sector as a whole can be considered stable even if the most extreme scenarios take place. The main underlying reason is that banks' portfolios are dominated by mortgage loans, in respect of which, as a consequence of the internationally conservative loan to value ratio, losses can be reduced considerably by selling the collateral.

CONCLUSIONS

As a result of the steadily increasing household indebtedness, the analysis of the developments in households' exposure and the effect of potential shocks on the quality of the household loan portfolio is of special importance in the examination of the banking sector's resilience to shocks. When quantifying the extent of risks and the effects of banks' losses, one must strive to take into account the structure of indebtedness, for which detailed data on indebted households' financial and income positions are required.

According to the findings of the study, the magnitude of risks varies according to regions, the age of the head of the household and the household's disposable income. It can also be mentioned that risk concentration among the indebted is of an unfavourable direction, as a significant amount of loans is held by households with stretched financial and income positions (the ratio of risky loans to total loans exceeds the share of risky households within the sample). However, the risks are somewhat mitigated by the fact that banking portfolios are dominated by mortgage loans, which are able to provide considerable security for banks in the case of default.

Based on the shock scenarios, the default probability of the household portfolio would increase particularly significantly as a result of an extreme and permanent risk premium shock. However, the banking system shows resilience both on the individual and on the aggregate level, i.e. in any of the scenarios the capital adequacy ratio would not fall below the current regulatory minimum of 8 per cent.

Finally, it is important to note that the resultant of two effects must not be disregarded when evaluating the results. One of them stems from the static behavioural assumptions applied in the calculations (consumption expenditure, labour supply and banks' unchanged behaviour over the medium term); its dissolution may have a favourable effect on the magnitude of risks as a consequence of the agents' adjustment. The other one is that in the calculations we disregard the effects of shocks passing through to other segments of the economy and the effects of shocks on asset prices, which may generate additional losses through the deterioration of other banking portfolios and through the decline in the value of collaterals.

REFERENCES

HOLLÓ, DÁNIEL AND PAPP, MÓNIKA (2007): "Assessing Household Credit Risk: Evidence from a Household Survey", manuscript.

MAGYAR NEMZETI BANK (2007): Report on Financial Stability http://english.mnb.hu/Engine.aspx?page=mnben_stabil&ContentID=9555.