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Determinants of the Pricing of Bank Loans: a Structural VAR Based Analysis

SUMMARY: In the last decade foreign currency indebtedness in Hungary has become a systemic financial problem, which also has a crippling impact on the real economy through its income and lending effects and has a significant constraining impact on economic policy. Besides the exchange rate the interest rate was also an important factor in determining the burden of households. Our research focuses on the causes and determinants of the pricing of Swiss franc denominated mortgage loans. In our consideration, basically four main price shocks affected the pricing of credit institutions: higher foreign currency rates and risk premia, deterioration of loan portfolio quality and the extra taxes imposed on banks. The question arises how these costs are related to the evolution of the interest rates and to what extent these cost shocks were passed on by banks to clients. Using a structural vector autoregressive model we found that the interest rates on housing loans were influenced by all of these cost shocks. Based on the findings of our empirical research, all four shocks had a profound impact on the interest rates on housing loans; in other words, bank sector cost shocks were indeed passed on to the interest rates applied by domestic banks.¹

KEYWORDS: mortgage loans, pricing, Swiss franc denominated loans

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Owing to the Hungarian economy's need for convergence, the external financing requirement of the country was extremely high from the mid-1990s until the outbreak of the global economic crisis in 2008, with a substantial inflow of foreign capital. Meanwhile, during the 2000s the structure of external funds changed considerably from foreign direct investments to debt-type financing (e.g. debt securities, loans) (Komáromi, 2008). External capital inflows increased the share of foreign currency financing both in the private sector and the public sector: today the respective share of foreign currency loans in the total corporate and household loan portfolio exceeds 50 per cent, while the ratio of foreign currency debt to the total debt of the general government

is above 40 per cent. The consequences of high foreign currency indebtedness became apparent only after the outbreak of the financial crisis. Households faced substantially higher costs owing to the strengthening of the Swiss franc and the increased monthly instalments resulting from the higher interest rates (MNB, 2010). Although in the pre-crisis period they benefited from better terms than forint debtors, they were not aware of the magnitude of the risk they undertook, and the consequences now jeopardise Hungary's financial stability. *Bánfi* (2012) outlines the reasons behind foreign currency lending gaining ground and discusses the possible solutions. In addition to the road leading to the accumulation of the foreign currency portfolio, *Erdős* (2010) focuses specifically on the role of the exchange rate. Besides the reasons and

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the consequences, the study of *Balás and Nagy* (2010) examines the possibility of converting foreign currency loans into forint. Due to the involvement of foreign parent banks, the issue has gained global relevance. The National Bank of Austria studied the determinants of foreign currency borrowings in 9 Central and East European countries (*Fidrmuc et al*, 2011) and subsequently attempted to explore the reasons for default (*Beckmann et al*, 2012). Similarly, *Rosenberg and Tirpák* (2009) focused on the determinants of foreign currency borrowing. The paper of *Brown and de Haas* (2012) provides an analysis of the relationship between bank ownership and foreign currency lending, also in relation to the CEE region. The issue is addressed from the perspective of the corporate segment in *Brown et al.* (2011).

Besides the depreciation of the forint, a less often analysed factor – hiking interest rates – also contributed to the increased interest burden on households. The significance of this factor is underscored by the level of the interest-to-GDP ratio, which is considered high even in international comparison (*Szigel and Fáykiss*, 2012). Data presented in the paper of *Darvas* (2011) indicate that in April 2011 even in Greece, a country practically in the throes of bankruptcy, mortgage loans denominated in the national currency were offered at an interest rate half as high as that prevailing in Hungary. The remarkable increase in household interest rates resulted from a lack of transparency in the pricing of loans. Interest rates were difficult to compare, which not only strengthened the dominant position of banks even further, but also determined the nature of credit market competition by undermining price competition. *Banai et al.* (2010) argued that an unhealthy rivalry emerged in the household lending market with the dominance of risk-based competition. The estimates presented by the MNB (2010) appear to suggest that after the onset of the crisis banks raised interest rates on

CHF-denominated mortgage loans to an extent that exceeded the increase in their own funding costs and cost of risk. Indeed, the average APR increased despite the fact that the reference interest rate of the Swiss franc dropped during the same period and, according to the calculations of the central bank, the increase could not have been prompted by a growth of any other cost component (CDS spreads, deposit margins, swap costs, credit losses) either. Meanwhile, as the MNB's Report on Stability also pointed out, there were no similar interest rate increases in other countries of the region. Also according to the estimate of the MNB (2011), in H1 2011 banks realised a 3 per cent interest margin on average on the outstanding amount of their CHF denominated mortgage loan portfolio above funding and risk costs, which is considered high in regional comparison.

This study is intended to identify the underlying causes of the increase in CHF-denominated mortgage loan interest rates. The cost shocks examined were changes in foreign currency (FX) interest rates and risk premia, in other words changes in banks' external cost of funds, as well as the quality of the loan portfolio and the fiscal burden on banks. We attempt to identify the extent to which the interest rate level of mortgage loans can be explained by these cost components. In the following chapter we examine the key role played by households, describe the data used in the empirical analysis and present the applied structural vector autoregressive (SVAR) model. Finally, we provide a summary of our findings and the conclusions.

THE PROBLEM OF HOUSEHOLDS' FOREIGN CURRENCY INDEBTEDNESS

In Hungary, foreign currency indebtedness is a systemic problem with a crippling effect on the real economy, the monetary policy and

the economic policy alike. Its significance is demonstrated by the sheer magnitude of the foreign currency denominated debt which, owing to the resultant steep increase in instalment payments, gives rise to additional important implications. Owing to the depreciating forint exchange rate and rising lending rates, foreign currency debtors had experienced a steady increase in their instalment payments since the onset of the financial crisis. In addition, the weakening exchange rate increased the outstanding debt portfolio. Accordingly, the share of foreign currency denominated loans in the total household loan portfolio rose to 70 per cent, the bulk of which had been disbursed in Swiss franc. Households responded to growing instalment payments and the accumulation of debt by balance sheet adjustment, resulting in continuous repayment and reduced borrowing. This, however, also implied a downturn in internal demand. Owing partly to the net loan repayer position existing since spring 2009 and partly to the early repayment scheme, the ratio of foreign currency loans has fallen markedly and is now below 60 per cent. As regards specific loan types, changes in housing loans were particularly pronounced: the share of CHF-denominated loans in the total portfolio has dropped to around 80 per cent compared to the previously observed 96 per cent. The corresponding ratio was even higher, 98 per cent in the case of home equity loans, now reduced to less than 80 per cent. The ratio of foreign currency denominated household debt to the total loan portfolio is remarkably high in regional comparison as well. It is less than 1 per cent in the Czech Republic and Slovakia, and even in Poland it is as low as 32 per cent. At the same time, the share of foreign currency household loans is also rather high in the Baltic states and Romania. That said,

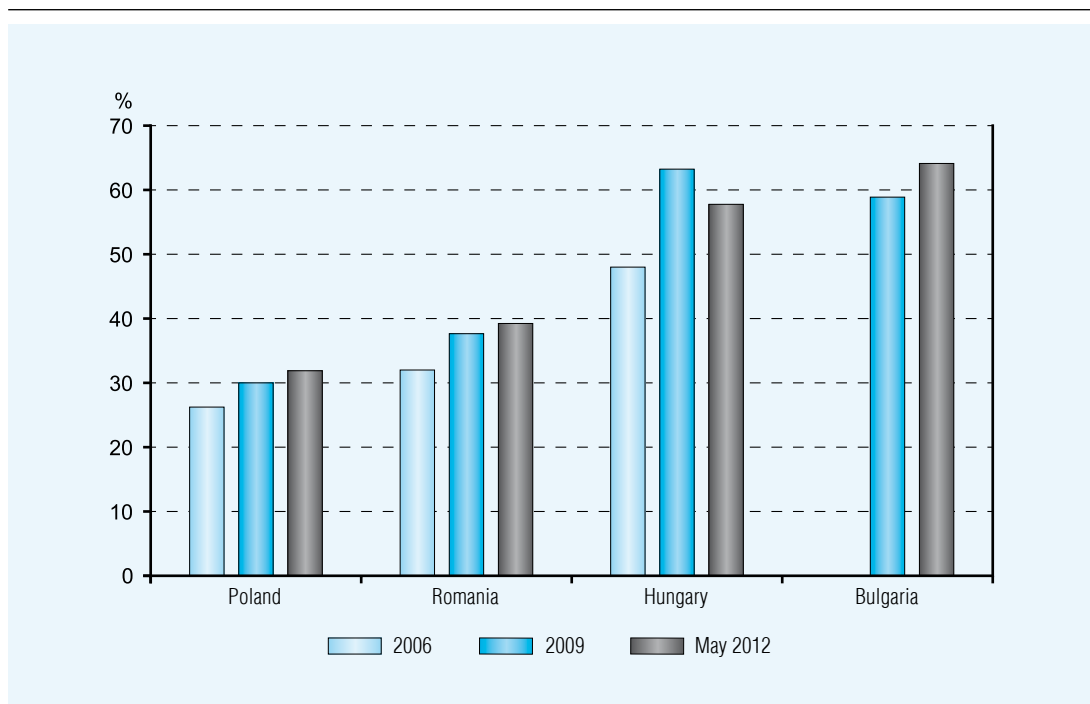
the fixed exchange rate regime applied in the Baltic states acts as a kind of exchange rate guarantee, which effectively eliminates the exchange rate risk. As regards Romania, asset side foreign currency substitution is much more prevalent there than in Hungary; therefore changes in the EUR exchange rate are perceived to a lesser extent by Romanian households.² (*See Chart 1*)

In December 2012, foreign currency debt amounted to the equivalent of HUF 4,000 billion, of which FX-based housing loans and home equity loans accounted for HUF 3,700 billion. The consequences of excessive foreign currency indebtedness can be directly perceived both by households and credit institutions and ultimately, due to the procyclical behaviour of the banking sector, they have serious implications for the real economy (Horváth et al. 2002). Households faced an unexpected surge in instalment payments, which led to delinquencies. The sharp rise in instalments was exacerbated by the fact that it occurred during the period of an economic downturn, when the income position of households deteriorated. Moreover, willingness to repay was weakened by the so-called 'moral hazard'. According to this premise, households' expectations about a possible intervention by the state to help them out also contributed to the increasing number of defaults. At the end of September, more than 18 per cent of the foreign currency denominated housing loan and home equity loan portfolio was composed of non-performing loans, with borrowers being in default for over 90 days. This inhibited lending activity in two ways. On the one hand, the deteriorating asset quality aggravates lending risks which, in turn, restrains banks' risk appetite and hence, loan supply. In addition, increased provisioning for bad debt and impairment reduces the capital of credit institutions, which is yet

Chart 1

SHARE OF FOREIGN CURRENCY DENOMINATED HOUSEHOLD LOANS IN TOTAL LOANS

(per cent)



*Except for Bulgaria (April 2012)

Source: IMF (2012)

another factor putting a downward pressure on lending activity. Subdued lending activity leads to a different set of problems as it slows down economic growth through restrained investment and consumption. It is worth keeping in mind, therefore, the factors increasing the burdens of households when making economic policy decisions. The evolution of the forint exchange rate deserves special attention, but the level of the interest rates on foreign currency loans is equally important. Indeed, in Hungary the APR on loans to households broadly increased despite declining reference interest rates, which typically determine their level. The question arises, what other factors contributed to the surge in interest rates, and whether there are any factors which can be used to influence the level of interest rates on

loans. Another important question to answer is how arbitrary the pricing practice of banks really is and hence, to what extent they need to be regulated by the authorities. Attempts have been made, albeit with little success, to improve the transparency of the pricing of loans. Banks were required to allow their clients to switch to a scheme fixed to the reference interest rate; however, for the most part, this presumably involved higher monthly instalment amounts. This is because interests on already disbursed loans were not modified significantly once the relevant regulation³ came into effect as few clients opted for contract modification. Therefore, as regards the future pricing of the loan portfolio, the role of the reference interest rate and other factors remains doubtful. In the case of newly disbursed loans, however,

the regulation restricting the pricing options of credit institutions remains in force.

UNDERLYING CAUSES OF THE INCREASE IN CHF-DENOMINATED MORTGAGE LOAN INTEREST RATES

Our analysis of the factors behind the increase in CHF-denominated mortgage loan interest rates was based on the premise that banks sustain four different types of price shocks during the pricing of foreign currency denominated loans, namely: changes in foreign currency interest rates and risk premia, i.e. the evolution of the banks' external cost of funds, quality of the loan portfolio and the fiscal burden on banks. We attempted to

explore the relationship between these price shocks and changes in the interest rates on mortgage loans. By applying a structural vector autoregressive model, we performed a separate analysis for the interest rate series of housing loans and home equity loans both for the outstanding portfolio and for new loans.

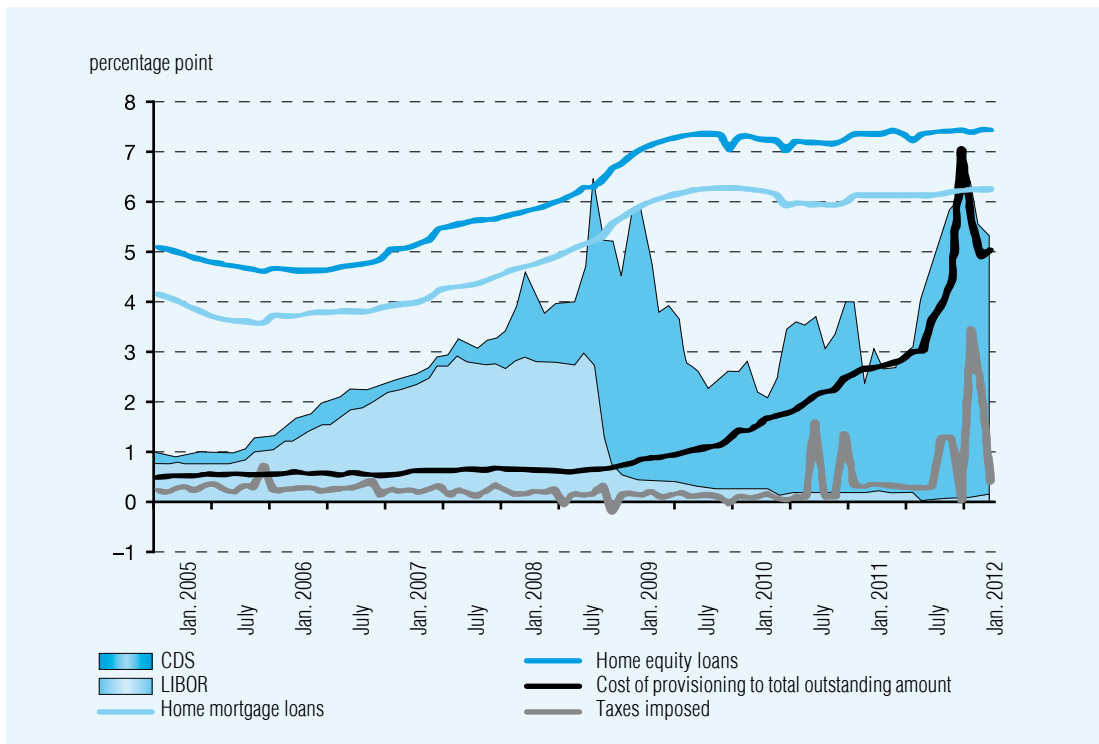
Database underlying the analysis

The dataset on which the model is based forms a monthly time series starting from January 2005, composed of 88 and 60⁴ observations respectively, depending on whether the interest rates analysed pertained to the outstanding portfolio or new loans. The time series of the interest rates on Swiss franc

Chart 2

2 COST SHOCKS AFFECTING THE CHF-DENOMINATED MORTGAGE LOAN PORTFOLIO

(percentage point)



Source: MNB, HFSA, SNB, own editing

denominated mortgage loans was downloaded from the website of the National Bank of Hungary (MNB), and contains the average annualised interest rates weighted with end-of-month outstanding amounts. Interest rates on housing loans (*lakas_jz*) remained below 5 per cent until April 2009, and subsequently hovered around 6 per cent. Interest rates on Swiss franc denominated home equity loans (*szabad_jz*) exceeded this level by more than 1 per cent during the review period. We attempted to capture the individual interest rate series by the four explanatory variables estimating the price shocks and introduced a dummy for the financial crisis, which assumes that the effects of the crisis emerged as from October 2008. (See *Chart 2*)

We captured banks' external cost of funds by the time series of interbank foreign currency benchmark interest rates and the CDS spreads expressing a country's sovereign risk. The basic price component (benchmark yield) of the total cost of funds fundamentally determines the cost base of banks' funds regardless of whether it is a floating interest rate loan or a fixed interest rate loan scheme linked to a reference interest rate. Based on end-of-month data, we estimated the basic price by applying the three-month unsecured CHF LIBOR interbank interest rates (*libor*). On the basis of personal interviews, *Páles* and *Homolya* (2011) established that for the most part banks apply 1, 3 and 6-month interbank reference yields to determine the basic price.

The other component of the total cost of funds is the premium reflecting the costs associated with different risks. The study of *Páles* and *Homolya* also points out that the premium reflects developments in country risk in the case of most domestic banks. Consequently, the risk-related increase in the cost of funds can be approximated by the 5-year CDS spread (*CDS*) expressing a

country's sovereign risk. We obtained monthly figures from the Reuters database by applying the average of daily data. CDS spreads surged in the autumn of 2008 as a result of the financial crisis. They subsequently declined gradually until the end of 2010, when they started to rise once again. For the sake of easier interpretation, we applied a common denominator for loan interest, LIBOR and CDS values in our calculations, based on the interest rates expressed in percentages.

Any changes in the quality of the loan portfolio have a significant impact on pricing, as banks are encouraged and indeed, required to perform loan loss provisioning, due to a higher prevalence of non-performing loans, the costs of which are priced in when they determine their interest rates. Changes in the loan portfolio quality of the banking sector are most commonly expressed by the ratio of non-performing loans to total outstanding loans, based on bank rating. The data series can be obtained from data released by the HFSA by comparing the non problem-free loan portfolio to the portfolio subject to classification. This covers any delinquent loans or any loans that are expected to generate losses during the entire maturity of the loan. As the basis of the rating category is expected loss, compared to the categories based on the delinquency period, this indicator is theoretically capable of capturing the effect of the change in portfolio quality on the banks' burden more precisely (*Balás*, 2009). Based on the available data it appears that changes in the quality of housing loans were generally more favourable than those affecting the total portfolio precisely because of the collateral backing the loans. From H2 2010, however, with the adoption of the moratoria, the quality of this loan type deteriorated compared to other loans. The most substantial deterioration of the loan portfolio quality took place at the end of 2009. Defaults appeared with a delay of

roughly a year, i.e. once the effects of the crisis materialised at the level of the real economy, reducing households' willingness to pay. Since the time series indicating the ratio of non-performing loans is only available at a quarterly frequency, in our calculations we took into account the loan loss provisioning on claims (*ertekv*) as it also expresses the losses on non-performing loans, while the two sets of time series strongly correlate with each other. Loan loss provisioning was considered in proportion to total outstanding loan amount. Monthly data were provided by the MNB.

Finally, we also included in our calculations the corporate tax payment obligation of banks (intra-year tax advance and year-ending tax payment obligations), as well as the extra tax – i.e. crisis tax – payable by financial institutions since 2010 (*elvon*). Direct losses stemming from early repayments were added to this, given that the crisis tax was reduced significantly at the end of 2011 on this account. Data of the State Treasury indicate that, while extra taxes had been imposed on banks before, their rates were below that of the crisis tax.⁵ Data were provided by the MNB and the HFSA. Similarly to loan loss provisioning, consolidated taxes were compared to the total outstanding loan portfolio.

Although empirical tests indicate that the first differentials of the time series considered do not include a unit root, the analysis itself and the nature of the data used warrant a cautious interpretation of the conclusions drawn from the results. Despite these reservations, we believe that our analysis provides extra information relative to the method of simple 'observation'.

Empirical results

During the empirical analysis we attempted to identify the underlying causes of the

increase in CHF-denominated mortgage loan interest rates. We examined the effects of the assumed four cost shocks on the interest rate series of housing loans and home equity loans separately, both for the outstanding portfolio and for new loans. In a previous study (*Schepp and Pitz, 2012*), we performed the empirical analysis on a quarterly time series. We found that there was a cointegration relationship between variables with positive and significant coefficients; in other words, the cost shocks of banks were presumably passed on to the interest rates applied by them.

At this time, our results are based on monthly data; thus the greater number of observations also improves the reliability of the results. In the first step of examining the relationships between the variables, we performed the Granger causality tests to determine whether the lagged values of the specific explanatory variable predict the value of loan interests in the review period significantly. In relation to housing loans we found that the interest rate on the loan portfolio is the Granger-cause of the taxes imposed and the loan loss provisioning expressing the quality of the portfolio. As regards newly disbursed loans, the CDS spread proved to be significant. In the case of home equity loans we could not detect a significant causal relationship.

In the next step, we estimated a structural VAR model in order to capture short-term shocks. We attempted to explain changes in specific lending rates by means of the lagged values of our own variables and those expressing the four shocks, as well as the dummy introduced for the financial crisis. The specific lending rate is indicated by y . *Libor*, *elvon*, *cds* and *ertekv* represent the endogenous variables estimating the four cost shocks, while the *valsag* dummy is the exogenous variable of the model. Accordingly, the z_t vector is the vector of the endogenous

variables, the B_p grid contains the parameters associated with the p th lag, while c indicates the intercept. In consideration of the relevant test guidelines, we considered four lags in the case of portfolio interest rates, and three lags for new disbursements, which is consistent with the repricing practice of banks, which is based on a 3–6 month frequency. In line with the results of unit root tests, we integrated in the models the first differentials of the variables. The VAR model thus received can be presented as follows:

$$B_0 z_t = k + B_1 z_{t-1} + B_2 z_{t-2} + \dots + B_p z_{t-p} + u_t$$

$$z_t = (d(\text{libor})_t, d(\text{elvon})_t, d(\text{cds})_t, d(\text{ertekv})_t, d(y)_t)^T$$

$$k = c + \text{valsag}_t$$

The model is structural in nature owing to the fact that, based on theoretical considerations, we introduced certain restrictions for the parameters. In relation to the immediate relationships between variables (represented by the B_0 grid) we assumed that the tax rates have an immediate impact on the CDS spread (b_{32}), the loan loss provisioning (b_{42}) and the given lending rate (b_{52}). Indeed, an increase in the fiscal burden of banks is received by investors with apprehension, which lowers the risk assessment of a country and hence increases its CDS spread. In addition, extra losses sustained by credit institutions may affect banks' risk aversion which could be reflected in increased provisioning for losses. Finally, the taxes imposed on banks could be passed on to clients and reflected in the pricing of loans. Likewise, the CDS spread has a direct impact on loan loss provisioning (b_{43}) and lending rates (b_{53}) through increased costs and risks. At the same time, we assume that LIBOR and loan loss provisioning only have an immediate effect on the interest rate on loans (b_{51} and b_{54}), with no effect on the explanatory variables. Accordingly, the B_0 grid representing the identification scheme can be described as follows:

$$B_0 = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & b_{32} & 1 & 0 & 0 \\ 0 & b_{42} & b_{43} & 1 & 0 \\ b_{51} & b_{52} & b_{53} & b_{54} & 1 \end{bmatrix}$$

Impulse response functions assist in illustrating the shocks, capturing the reaction of the specific interest rate to unit positive standard deviation shocks. Since we examined the differentials of individual variables, we proceed to present cumulated impulse response functions. The horizontal axis shows the months, while the vertical axis indicates the magnitude of the effect. As interpreting the latter is difficult due to the nature of the data and the analysis, henceforth we will only concentrate on the existence of the significant effect. The blue line shows expected values, while the red dotted lines indicate the upper and lower values associated with the 95-per cent confidence interval.

In line with our expectations, in case of the interest rates on outstanding housing loans, the *elvon*, *cds* and *ertekv* variables proved to be positive and significant. According to our findings, the effects of fiscal burdens are reflected in interest rates with a lag of two months. This means that banks typically pass on newly increased burdens during the next re-pricing process of the lending rates. The effect of changes in CDS spreads passes through to lending rates somewhat later, from the third month following the shock. Once again, the emergence of the effect corresponds to the re-pricing periods; however, the delayed occurrence of the effect may be partly attributed to the renewal practice of the banks as well, which could imply a delayed realisation of the higher spread. Finally, the deterioration of portfolio quality is reflected immediately, during the first month. Since we expressed the deterioration of loan portfolio quality by loan loss provisioning – which is

a consequence of an already non-performing portfolio —, its effect on interest rate could be immediate indeed. If monthly data pertaining to the ratio of non-performing loans had been available, a certain time lag may have been observed. The explanation of the effect of *libor*, i.e. the reference interest rate is somewhat more problematic. We have evidence for the fact that the interest rates on housing loans increased even at times when the Swiss franc denominated reference interest rate decreased; however, we have no proof for the opposite. (See *Chart 3*)

In the case of newly disbursed loans, the tax imposed does not include either the crisis tax or early repayments, as the time series of lending rates were only available up until the beginning of 2010. The opposite sign of the relationship between corporate tax and lending rate may be explained by the lower interest rate level associated with higher profitability. Indeed, with higher profitability and smaller losses, banks are presumed to pass on their burdens to interest rates to a lesser degree. In addition, as regards newly disbursed loans we found that the CDS spread has a positive effect from month 3 in case of both loan types. (See *Chart 4*)

No significant results were found in respect of the interest rates on outstanding home equity loans. This may be explained by the fact that, for the most part, housing loans are intended to finance the debtor's first home; thus, in this case, there is an extremely high willingness to repay. In contrast, home equity loans are not only intended to finance a home; they can also serve consumption purposes, and the collateral of the loan is not necessarily the debtor's residential property, but it could be any other real property. This may influence the debtor's attitude to loan payment, which is also reflected in the higher default ratio. Consequently, the debtors' price elasticity is higher, which means that the costs incurred

are less easy to pass on to interest rates. That notwithstanding, our results indicated that changes in the CDS spread are reflected in the interest rates on newly disbursed home equity loans as well, between month 5 and 12 following the shock. (See *Chart 5*)

On the basis of the test results, we established the following in respect of the review period:

- ▶ Increased tax burdens, higher CDS spreads and deteriorating willingness to repay all contributed to the increase in the interest rates on housing loans.

- ▶ As regards newly disbursed loans, CDS prices were a major contributor; moreover, the improved profitability of banks was accompanied by lower interest rates.

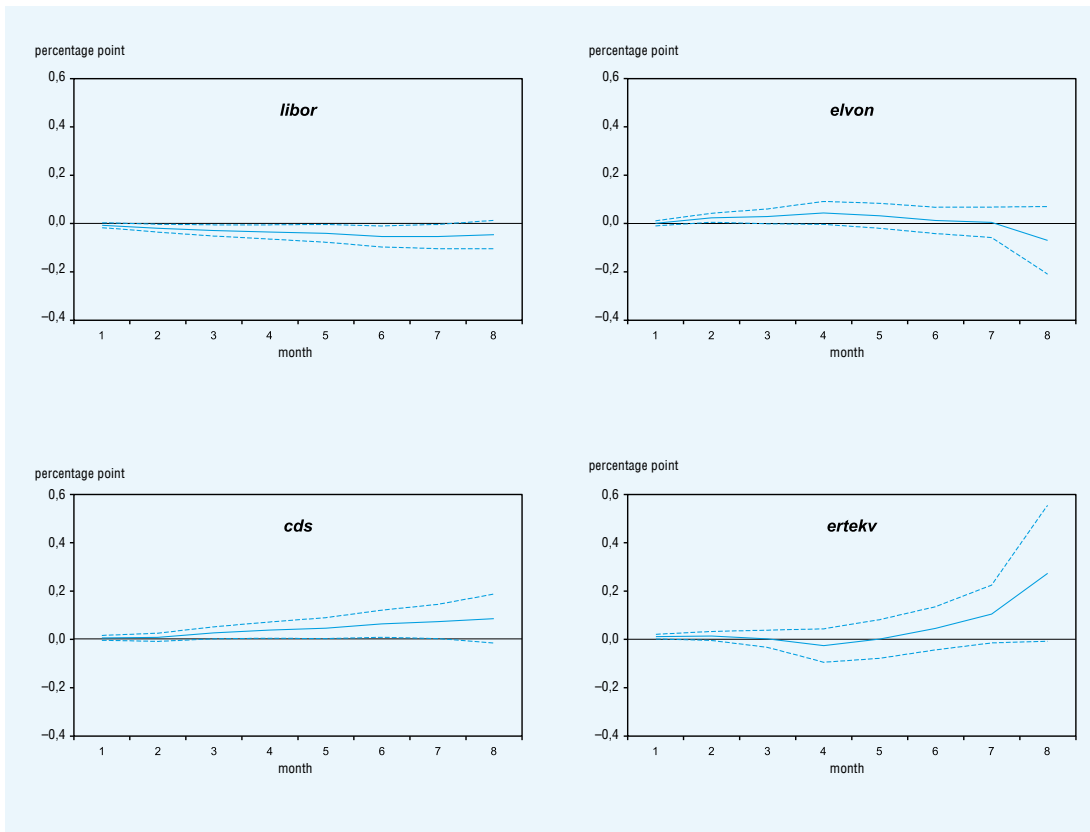
- ▶ In the case of home equity loans, the higher price elasticity of households may limit the pricing options of the banks.

SUMMARY AND CONCLUSIONS

Our paper examined the underlying causes of the increase in CHF-denominated mortgage loan interest rates. We assumed that changes in the banks' external cost of funds represent a fundamental pricing component, shaped primarily by foreign currency reference interest rates and risk premia. In addition, the quality of the loan portfolio and the fiscal burden imposed on banks are cost shocks that are, sooner or later, passed on by banks to clients with instalment payment obligations. With the assistance of econometric tools, we attempted to identify the extent to which the interest rate level of mortgage loans can be explained by these cost components. We performed the analysis both for housing loans and home equity loans, separately for the outstanding portfolio and newly disbursed loans. We captured the relationship between the variables by means of a structural VAR

Chart 3

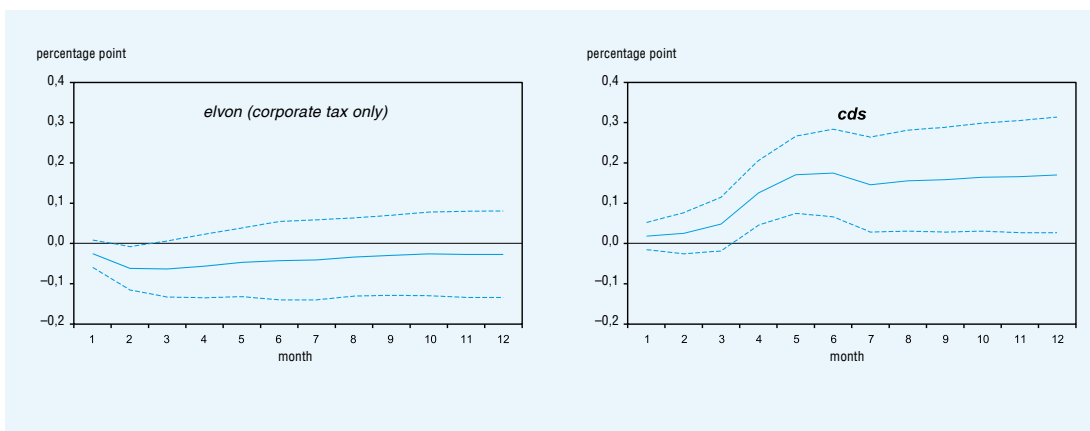
IMPULSE RESPONSE FUNCTIONS FOR THE INTEREST RATES ON OUTSTANDING HOUSING LOANS



Source own calculations

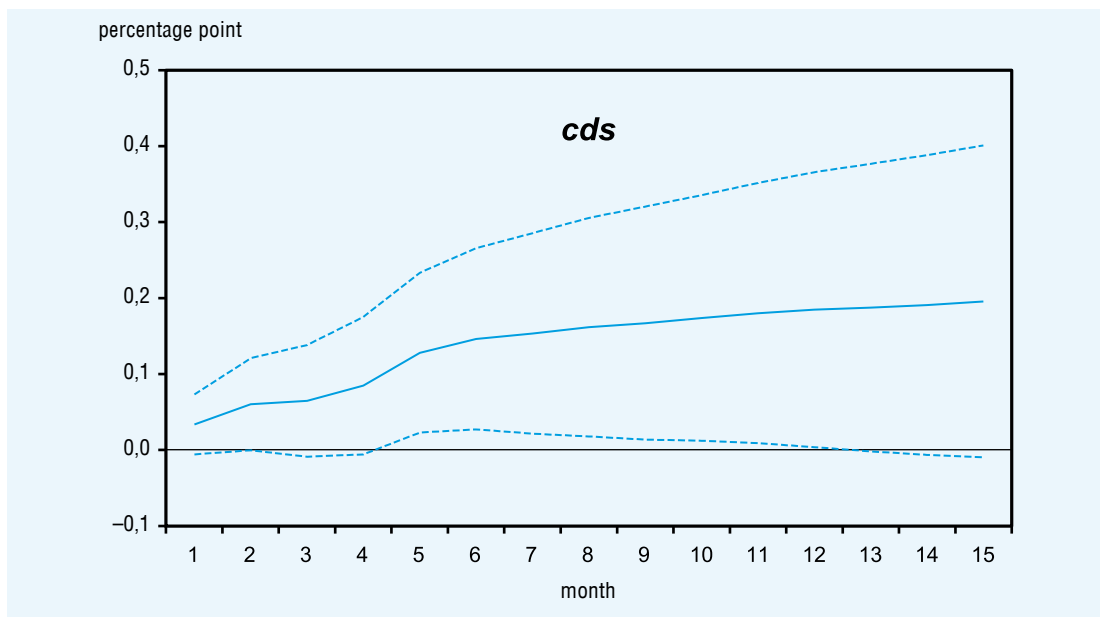
Chart 4

IMPULSE RESPONSE FUNCTIONS FOR THE INTEREST RATES ON NEWLY DISBURSED LOANS



Source own calculations

IMPULSE RESPONSE FUNCTIONS FOR THE INTEREST RATES ON NEWLY DISBURSED HOME EQUITY LOANS



Source own calculations

model. Based on the findings of our analysis we can conclude that all four shocks had a profound impact on the interest rates on outstanding housing loans; in other words, bank sector cost shocks were indeed passed on to the interest rates applied by domestic banks. We could also establish that, while the shocks were reflected in the interest rates on outstanding housing loans, we could not identify the effect of any of the cost shocks in the interest rates on home equity loans. A possible explanation to this is the higher price elasticity of the borrowers of home equity loans, which translates into a lower willingness to repay. This, in turn, restricts the pricing power of the banks, and assumes a kind of behaviour-based price discrimination in respect of the different loan types. As regards newly disbursed loans, we found that interest rates reflected only the effect of the CDS spreads, which also points to the weaker bargaining position of banks. In addition, the

results received for new loans are characteristic of the competition prevailing in the banking sector. The significant effect of the CDS spread lends support to the assumption of a risk-based competition. As the competition became increasingly fierce, banks offered increasingly risky loans in the years before the crisis, which were met with high demand owing to the credit expansion driven by the consumption stimulating economic policy. Therefore, the pricing practice of the banks reflects changes in the risk factors all the more precisely. As risk-based competition gained supremacy over price competition, banks were not motivated to tighten the wide interest rate spreads. In view of the lessons drawn from the crisis it is obvious that administrative regulations are needed to maintain financial stability. Increased regulatory control is warranted by the fact that the profit-oriented behaviour of financial institutions may have detrimental effects. A specificity of closely-

knit financial markets is the increased risk of contagion. Consequently, regulatory measures are justified even though they reduce the profitability of the banking sector while the fees of financial services may increase. Moreover, *Várhegyi* (2010) calls attention to the moral hazard and competition distorting effect of bank bailouts. The significance of the banks' role in lending lies in contracting demand and ultimately, the deceleration of economic growth. Amid increased cost of funds and poorer credit ratings, it is difficult to counteract the subdued lending activity and the tightening of credit conditions that are a part of the banks' balance sheet adjustment. Therefore, a predictable economic policy is needed in order to mitigate the losses of the banks and improve Hungary's risk rating

which, in turn, would lead to the lowering of interest rates on housing loans. Our survey could be extended to address structural fractures and additional cost factors. It should also be examined whether cost shocks could have different effects on individual banks as, for example, the calculation of the extra tax was based on banks' balance sheet results, which increased the polarisation of the banks significantly. Separate groups could be defined based on profitability. At the same time, we are convinced that the empirical analysis of these issues is a primary interest of all stakeholders (debtors, banks and the Hungarian government). Indeed, breaking out of the existing trap is only possible by way of fair burden sharing based on sound factual information.

NOTES

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² For more details about the foreign currency indebtedness of Central and East European households, see *Hudecz*, 2012

³ Act CXLVIII effective from 1 April 2012

⁴ Pursuant to legislation, as of 1 July 2010 mortgages cannot be registered on foreign currency loans which, in effect, rendered foreign currency denominated mortgage lending impossible.

⁵ Banks paid the extra tax imposed on credit institutions and financial enterprises in 2005–2006. The consolidated amount of their tax payment was around HUF 35 billion. As from 2007, this was replaced by the so-called credit institution contribution of approximately HUF 13 billion p.a. The extra tax (crisis tax) levied on financial organisations has been paid by the banking sector since Q2 2010 in an amount of HUF 120 billion p.a, payable in two instalments in 2010, and four – quarterly – instalments since 2011.

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