Katalin Bodnár: Survey evidence on the exchange rate exposure of Hungarian SMEs

During the past year, a survey was conducted among Hungarian small and medium enterprises. The results of the survey suggest that a significant ratio of companies is directly exposed to fluctuations in the exchange rate, which may affect their profitability to a large degree. The majority of surveyed companies, however, are not prepared for the potential effects of such fluctuations and do not use foreign exchange risk management tools. Indebtedness in foreign exchange could serve as the hedging against exchange rate risks, but enterprises mainly use it to minimise monthly repayment; therefore, the foreign exchange debt increases their exchange rate risks.

INTRODUCTION

One of the main responsibilities of the Magyar Nemzeti Bank is ensuring financial stability, including the monitoring of the whole system of financial institutions. A basic function of the banking system is to mediate funds between savers and investors. Shocks affecting the banks may limit this intermediary role, hence causing real economic costs. If, for example, credit losses rise in reaction to a shock, banks may reduce their credit supply to certain economic agents. If such actors do not receive funds from other sources, they are unable to implement their planned investments which may adversely affect economic growth and employment.

Data collected from the banks is often insufficient to enable a detailed analysis of arising risks. Currently, one of the greatest risks faced by the domestic banking sector is the expansion of foreign exchange lending. However, a detailed analysis of this issue is not possible in relation to corporate lending on the basis of data available on bank loan stocks.

We therefore conducted a survey in the autumn of 2005. In the framework of the survey, we collected information on the data and behaviour of micro, small and medium enterprises (hereinafter SMEs)[1] in three areas: indebtedness, exchange rate exposure and the management of exchange rate risks. The questionnaire served the objective of collecting detailed information on the sources companies use to draw foreign exchange loans, other channels through which exchange rate changes may affect the surveyed companies and how prepared they are for these effects. In general terms, we investigated the impact of possible exchange rate changes on SMEs and thereby the repayment of their debts vis-à-vis domestic banks.

EXCHANGE RATE EXPOSURE, EXCHANGE RATE RISK, FOREIGN EXCHANGE DEBT

In an open economy, the exchange rate constitutes the most important price which directly or indirectly affects the financial position of numerous economic agents. We apply the concepts of exchange rate exposure and exchange rate risk to measure such effect. There is *exchange rate exposure (or FX exposure)* if changes in the exchange rate bear an impact on the profits and the net value of assets of economic agents. In contrast, the *exchange rate risk (or FX risk)* is the product of the probability of an exchange rate change and the exchange rate exposure.

Primarily those economic agents are exposed to the exchange rate changes which have foreign exchange revenues and expenditures, foreign exchange assets and liabilities. The weakening of the domestic currency produces a positive short-term impact on companies with positive net foreign exchange assets or foreign exchange revenue, while its strengthening has a negative effect. Such companies are exporting enterprises or those investing abroad. Contrary to the above, the strengthening of the domestic currency produces a favourable impact on companies with net foreign exchange liabilities or foreign exchange expenditures (importers, foreign exchange debtors). The effect of exchange rate shifts on competitiveness may modify these effects in the longer term.

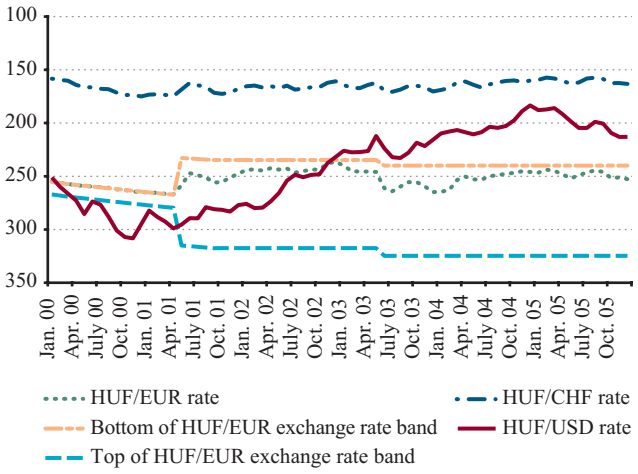
As far as exchange rate exposure of the domestic economy is concerned, both the degree of openness and the increasing foreign exchange indebtedness imply that

[1] Act XXXIV of 2004 defines small and medium enterprises (SMEs), as follows: "3. § (1) An enterprise is deemed to be an SME which a) employs a total of less than 250 employees, and b) has annual net sales revenue not exceeding the corresponding HUF amount of 50 million euro, or its balance sheet total does not exceed the corresponding HUF amount of 43 million euro. (2) Within the SME category, an enterprise is deemed to be a small enterprise which a) employs a total of less than 50 employees, and b) has annual net sales revenue or a balance sheet total not exceeding the corresponding HUF amount of 10 million euro. (3) Within the SME category, an enterprise is deemed to be a micro enterprise which a) employs a total of less than 10 employees, and b) has annual net sales revenue or a balance sheet total not exceeding the corresponding HUF amount of 2 million euro."

numerous economic agents may be directly exposed to foreign exchange developments. In the exchange rate system, the potential shift of the exchange rate is +/- 15 per cent in comparison to the central parity (see Chart 1), suggesting that the exchange rate risk is not negligible, either. This article does not analyse factors affecting the position and change of the exchange rate. Irrespective of the exchange rate system, *we analyse the effect of exchange rate shifts in any direction.* Naturally, we see a greater risk in devaluation, partly due to the rising rate of foreign exchange debt, and partly as a result of the current position of the forint in the exchange rate band. Most of the literature discussing the topic also examines the risks of devaluation, since many emerging economies have witnessed real economic losses due to devaluation.

Chart 1

The HUF/EUR, HUF/USD and HUF/CHF exchange rate, 2000-2005 (monthly average rates)



Source: MNB.

Once exchange rate risks arise, companies can elaborate various strategies to reduce these. One such method is *natural hedging,* that is, the matching of inflows and outflows, or assets and liabilities arising in the same currency. If, for example, an exporting company becomes indebted in a foreign currency, the value of both the foreign exchange debt and export sales revenues increases upon devaluation, thus the repayment of the foreign exchange debt does not pose a greater burden than in the past. In contrast, upon upward valuation, the easing of the foreign exchange debt burden may moderate the negative impact of falling sales revenue on profitability.

If natural hedging cannot be ensured, *artificial hedging instruments* are also available. Such instruments are offered to companies by commercial banks. It is possible, for example, to sell future foreign exchange revenue to domestic currency at a prefixed exchange rate, thereby reducing or eliminating FX risks. If a company faces exchange rate risk, but underestimates it or is unable to apply hedging instruments, a shift in the exchange rate could produce unexpected effects and pose a systemic risk.

The example referred to in relation to natural hedging suggests that indebtedness in foreign exchange may be motivated by hedging purposes; in this case, foreign exchange debt reduces the exchange rate risk. The assumption of FX debt may also be motivated by its lower cost in comparison to that of debt in domestic forints. Thus, indebtedness in FX may be rational, if the foreign exchange debt is cheaper than debt in domestic currency, and this advantage is maintained, or does not change so as to frustrate repayment if there are exchange rate changes (as an example of the latter case, if the repayment of an FX loan increases to an amount, albeit not reaching the cost of debt in domestic currency, whereby the debtor, nevertheless, is unable to finance the debt).

International experience suggests that economies with a large amount of unhedged FX debt are highly sensitive to the devaluation of the domestic currency. If, namely, devaluation produces a negative impact on a given economy, the banking system will also be adversely affected. Changes in the exchange rate affect the repayment of foreign exchange loans and may also impact loans provided in domestic currency. The latter effect may in part be produced through domestic interest rates (devaluation of the exchange rate often induces an increase of domestic interest rates) or the indirect effects of changes in the exchange rate (due to the worsening competitiveness of debtors indebted in domestic currency, or, for example, if the exchange rate shift adversely affects the customers of a manufacturing company, demand may slacken, leading to the weaker solvency of the company).

Thus, upon a shift in the exchange rate, the stock of overdue or irrecoverable loans may increase. Although commercial banks generally provide collaterised (e.g. property backed) loans, the value of the collateral may fall, negatively affecting the profitability of banks and limiting their credit supply. The loan demand of unprofitable companies may slump; on the whole, less loan will be placed, investments will slow down which, in an extreme case, may even induce further negative real economic effects. If, however, an exchange rate shift has a positive effect on most companies, it will also result in positive developments for the banking sector.

Thus it is necessary to examine the characteristics of economic agents which are indebted vis-à-vis domestic banks. The analysis of borrowers drawing funds from other sources is also important, for their creditworthiness and financial position may produce an indirect impact on the banking system.

IMPORTANCE AND CHARACTERISTICS OF THE DOMESTIC SME SECTOR

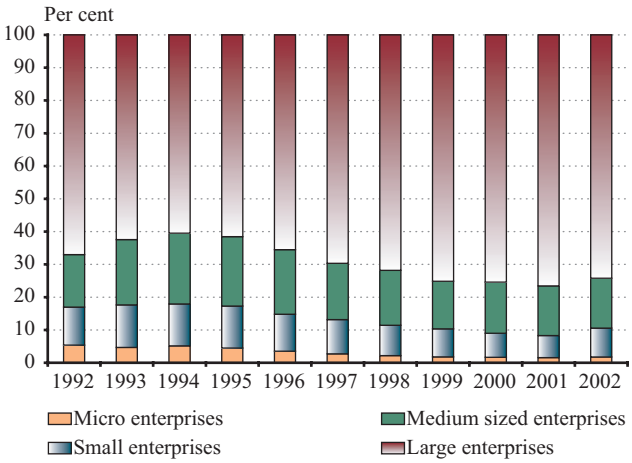
In recent years the significance of the SME sector has gradually increased, its prospects have improved, and particularly micro and small enterprises have gained in both economic weight and in relevance for the banking system. The profitability of these companies has improved, although it continues to lag behind the figures of large enterprises. The liquidity position of the sector, however, has not improved; moreover, it has worsened in certain branches in the recent period, primarily as a result of growing gridlock.

As an additional, general characteristic of the SME sector, its access to external funds is more limited than that of large enterprises. This is effectively reflected by the fact that large enterprises draw a major amount of funds from abroad, while SMEs generally rely on domestic banks. In addition, these enterprises are more sensitive to monthly repayments than large enterprises, which is why they prefer FX loans to domestic currency debt. For this same reason, however, they are more exposed to shifts in the exchange rate.

In recent years, as a result of a rise in loan demand and supply, the stock of resident bank loans to SMEs has increased significantly, currently exceeding that of large enterprises. An increasing proportion of loans, however, are granted in foreign exchange, while the share of SMEs in exports is quite low (see Chart 2). The above implies that although easier access to loans reflects a positive development, growing foreign exchange lending has led to a considerable exchange rate exposure of SMEs.

Chart 2

Share of micro, small and medium size enterprises and large enterprises in exports



Source: MNB, APEH (Tax Authority) data, not including enterprises employing less than 5 employees.

RESULTS OF THE SURVEY

Data used for the analysis was collected in the course of a survey conducted in the period between September and October 2005; the questions are related to 2004 data and developments. The questionnaire was filled in by resident, predominantly privately owned non-financial corporations, which had been in operation in the course of 2004 or for at least one financial year prior to the survey, had external funds and kept double-entry accounting. Data was recorded by pollsters in the form of personal interviews. The willingness to reply was quite low, roughly 20-25 per cent.

The final database contains answers of 580 SMEs. The data were reweighed in order that its distribution fit that of the macroeconomy on the basis of company size and sector. The questionnaire contained questions on the accounting exchange rate exposure, the opinion of companies on their own exchange rate exposure and the exchange rate risk hedging techniques used. We attempted both to collect missing, micro-level data and analyse the behaviour of companies.

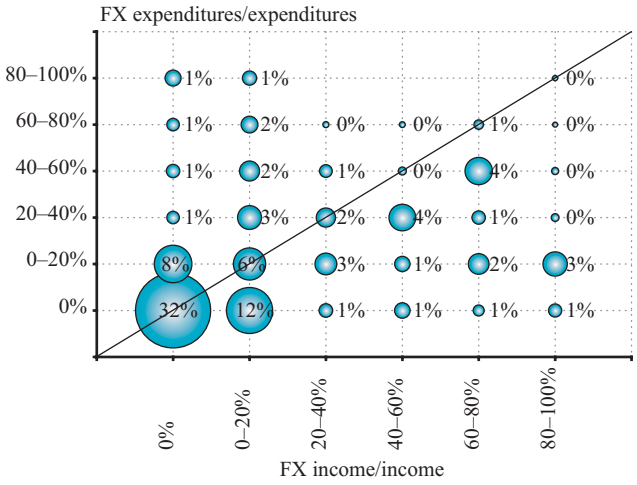
Exchange rate exposure and expected effects

On the basis of the questionnaire, a considerable ratio of SMEs (approximately 60 per cent according to the share of the balance sheet total) is directly exposed to changes of the exchange rate, and more enterprises would be negatively affected by the weakening of the exchange rate than by its strengthening. This holds true in relation to both net foreign exchange assets and net foreign exchange revenues (see Chart 3), although the net position of companies is more varied in relation to the latter.

The majority of companies interviewed are not prepared for changes in the exchange rate. On the basis of their answers, most SMEs with exchange rate exposure do not assess their exchange rate exposure or deal with its magnitude, and generally believe that they have no exchange rate exposure, or it is of a negligible rate. Accordingly, the vast majority (50-75%) of respondents maintain the view that changes in the exchange rate do not affect their finan-

Chart 3

Foreign exchange revenues and foreign exchange expenditures of companies



Note: the size of circles indicates the rate of the balance sheet total of companies belonging to the given category within the total sample.

cial position or competitiveness.[2] Among those who believe that shifts in the exchange rate bear an impact on them, there are more who judge a weakening rate to be negative, rather than a strengthening one.

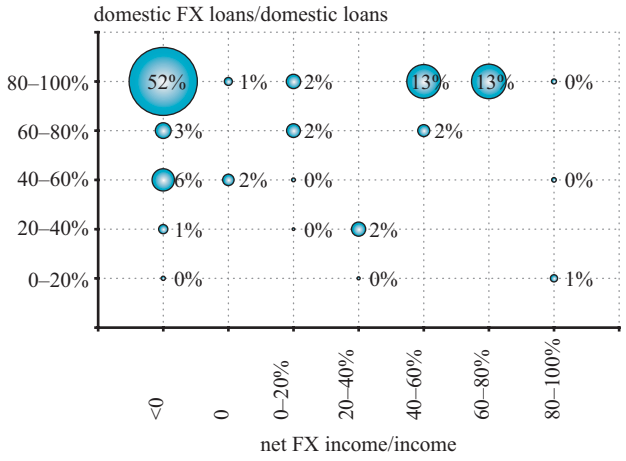
Foreign exchange debt is a determining factor of exchange rate exposure. Approximately a quarter (27 per cent) of the total debt of companies examined is denominated in foreign exchange. Foreign loans (corresponding to 13 per cent of total debt) are almost exclusively denominated in euro. The forint is dominant in relation to domestic debt, but the surveyed companies also draw loans from financial institutions denominated in euro and Swiss francs. A sharp difference is observed among companies with foreign exchange debts: exclusively foreign trade companies and companies in foreign ownership draw loans abroad, while this does not apply to many enterprises raising FX debt from domestic sources. Thus, foreign trade companies or foreign owned companies have easier access to funds from abroad. In addition, enterprises usually do not combine loans in various denominations (in different currencies), that is, most of their debts arise in the same foreign exchange.

As noted above, foreign exchange debt, as a means of natural hedging, may reduce exchange rate exposure, but if foreign exchange indebtedness is motivated by the reduction of costs (i.e. payment of lower interest rates upon borrowing, for example), the exchange rate exposure of the enterprise will grow. Our analysis implies that foreign exchange debt among the surveyed companies is rarely motivated by the hedging of foreign exchange revenues. Half of foreign exchange debt is held by companies with FX revenues, while the other half arises in relation to companies without positive net FX revenues. By limiting the examination to resident (mainly bank) foreign exchange debt, the rate of naturally unhedged debt is even higher, reaching two-thirds of the stock of debt (Chart 4). Thus, nothing would set off the negative impact of the exchange rate on foreign exchange debt in relation to the above rate of foreign exchange debt and foreign exchange debtor companies. We also observed that many companies have positive net foreign exchange revenues, suggesting that they would be better off with debts in foreign exchange than forints, yet they do not make use of this opportunity.

A large number of companies with foreign exchange debt disregard the potential effects of exchange rate shifts. This is supported by the fact that 70-80 per cent of companies with foreign exchange debts claim that an exchange rate shift would not affect their debt burdens. The rate is similar in relation to companies only with debts in domestic currency. Thus, the denomination of debt does not account for any variation in assessing the expected impact of exchange rate changes.

Chart 4

Rate of domestic foreign exchange debt within domestic debt and natural hedging



Note: the size of the circles indicates the rate of foreign exchange debt of companies belonging to the given category within total foreign exchange debt.

Analysis of exchange rate sensitivity

Under stringent assumptions and irrespective of the current exchange rate system, we attempted to numerically determine the effects of a possible exchange rate shock

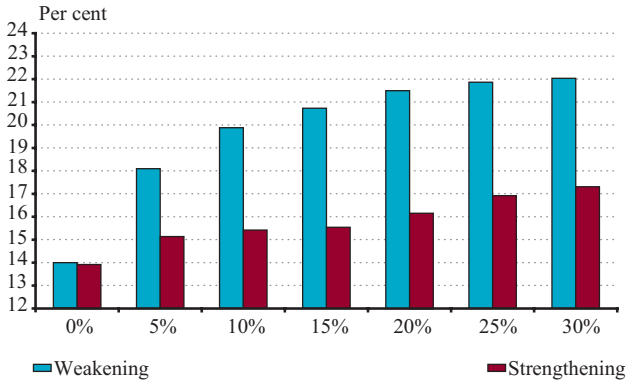
[2] We requested the companies to consider a change in the exchange rate which they consider to be significant, and examine the impact of a change of a similar rate in relation to strengthening and weakening.

with the data. Our analysis aimed at determining the ratio of companies participating in the survey which would incur losses as a result of exchange rate shifts of various degrees and direction, that is, cases in which the expenditures would exceed the revenues.

Since net foreign exchange revenue is a negative value for the whole sample, the possible weakening of the forint would affect negatively more companies than its strengthening. The expectations of companies and the calculations also support this premise. In the basic state, 14 per cent of the surveyed companies were unprofitable; this rate increased upon both the strengthening and the weakening of the rate, yet the weakening of the exchange rate led to losses in the case of more enterprises than a strengthening rate. It is noteworthy that the effect of the exchange rate change is non-linear – a relatively larger jump was observed upon a smaller (5, 10 per cent) shift in the exchange rate, than was the case upon additional changes in the exchange rate. In other words, a larger number of companies would become unprofitable upon a 5 per cent shift in the exchange rate than those which would produce losses upon a further 5 per cent shift in the rate.

Chart 5

Ratio of sample enterprises producing losses upon different changes of the exchange rate



We also analysed exchange rate sensitivity with the above method in relation to the sub-group of foreign exchange debtors. In this case, the variation between foreign exchange debtors with natural hedging and non-hedged debtors could be well distinguished. In relation to companies with no foreign exchange revenue, the negative impact of a weakened exchange rate was clearly established, while companies with natural hedging were favourably affected by the weakened rate.

It must be highlighted, however, that these calculations and the assertions derived from them are conditional. The companies' reactions, their bargaining position and the rescheduling of their debt is not taken into account, furthermore it is ignored that the foreign exchange revenues and expenditures, and the repayment of the foreign exchange debt is in some cases not fully repriced in reaction to the change in the exchange rate. In addition, we did not consider modifications in the hedging activity. Therefore, the calculations overestimate exchange rate sensitivity. We also ignored the impact of the changing exchange rate on competitiveness, as this can modify the above results in either direction, and the possible effect of shifts in the exchange rate on domestic yields, producing a negative effect on forint debtors. For the above reasons, actual exchange rate sensitivity may vary in either direction from the rates calculated for the sample.

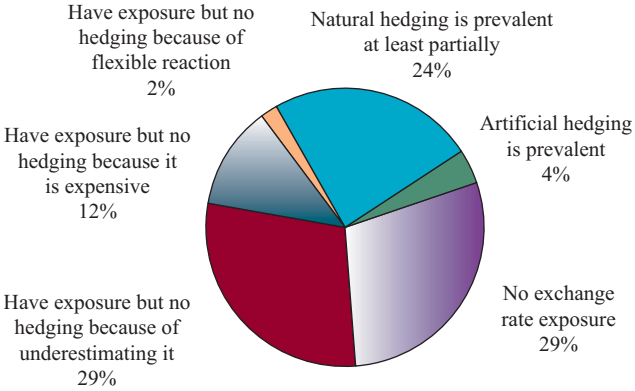
Management of exchange rate risk

The answers imply that most companies exposed to exchange rate changes do not apply either natural or artificial hedging instruments. Most of these companies believe they face no or only negligible exchange rate risks. Much fewer companies maintain the view that the hedging of the exchange rate risk is too costly compared to the expected profit, while others believe they could react to a shift in the exchange rate in a flexible manner.

When analysing natural hedging activity, it is important to distinguish conscious and unconscious hedging. Many companies, which have both revenues and expenditures in foreign exchange, replied to the questionnaire that they do not apply any hedging techniques. These answers may imply that the companies are unaware that

Chart 6

Characteristics of companies based on exchange rate exposure and hedging activity



Note: on the basis of share in the balance sheet total.

this can be a form of natural hedging. In many cases, the scheduling of inflows and outflows varies, and for liquidity reasons the companies are indeed unable to apply natural hedging instruments. On the above grounds, in such cases we considered the answers of the companies to hold true, that is, we classified the respondents among non-hedgers.

The SMEs apply artificial hedging even to a lesser extent than natural hedging instruments. On the basis of the share in the balance sheet total, 4 per cent of companies applied artificial hedging instruments. This result is in line with the results of surveys conducted in other countries. This can to a large extent be explained by the composition of the sample, for in relation to most SMEs the size of the company or the degree of exposure does not reach a level at which it is reasonable to invest in FX risk management methods or the establishment of organisation units dealing with these.

CONCLUSIONS

In the autumn of 2005, we conducted a questionnaire survey on the SME sector serving the detailed, micro-level analysis of the potential risks deriving from increasing FX lending of domestic banks and, in parallel, the risks of increased lending to SMEs. On the basis of survey data, we analysed the characteristics of the indebtedness, exchange rate exposure and exchange rate risk management of SMEs. When examining indebtedness, the dependence on domestic funds and bank sources may be established, and owner financing related to foreign owned companies also reached a high rate. We analysed two factors motivating indebtedness in foreign exchange: hedging of foreign exchange revenues and cost reduction through the use of interest rate differences. The results of the questionnaire suggest that foreign exchange debt rarely functions as a hedging instrument, and few companies are aware of the impact of the exchange rate on foreign exchange loans.

When analysing exchange rate exposure, we examined net foreign exchange assets and net foreign exchange revenues in numbers and their sensitivity to exchange rate shocks, as well as the expectations of companies. We observed that on the basis of all aspects of analysis, the weakening of the domestic exchange rate would produce a negative effect as a whole, while its strengthening would produce a positive effect. Comparing the answers, we concluded that a large number of respondents underestimate their exposure to the exchange rate, or disregard such risks, which can be explained by their limited sources available for these purposes. However, the stability of the exchange rate in the period preceding the survey is likely to have played a role in determining the results.

A significant number of companies examined have a direct foreign exchange exposure, but only few of these are aware of the risk or provide hedging for exchange rate exposure. Although natural hedging would be available in many cases, companies generally do not apply it consciously. Artificial hedging instruments are only applied in a few cases. The hedging of foreign exchange debt is also quite rare, particularly if we limit the analysis to foreign exchange debt granted by domestic banks. Most companies with foreign exchange debts from abroad are naturally hedged.

The credit risk of the banking system may be indirectly derived from the above results. The survey indicated that a shift in the exchange rate can produce an unexpected effect on domestic SMEs through two channels: directly through foreign exchange debt and indirectly through other foreign exchange items. The majority of companies underestimate their foreign exchange exposure and do not apply any conscious risk management techniques. This holds true particularly in relation to companies which are indebted in foreign exchange vis-à-vis resident banks. The analyses did confirm, however, that the possible weakening of the exchange rate would generally adversely affect the SME sector. In addition to the rising crediting loss of the banking system, this would likely result in a significant fall in aggregate credit demand and demand for foreign exchange loans.

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