MAGYAR NEMZETI BANK

MNB Bulletin

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The aim of the Magyar Nemzeti Bank with this publication is to inform professionals and the wider public in an easy-to-understand form about basic processes taking place in the Hungarian economy and the effect of these developments on economic players and households. This publication is recommended to members of the business community, university lecturers and students, analysts and, last but not least, to the staff of other central banks and international institutions.

Authors of the articles in this publication: Péter Gábriel, Áron Gereben, Zoltán M. Jakab, Norbert Kiss M., Klára Pintér, Ádám Reiff, András Rezessy, dr. Valéria Széplaki.

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Contents

Summary

DEAR READER,

The Magyar Nemzeti Bank attaches considerable importance to disseminating key results and conclusions of the central bank's research and analysis activities related to current Hungarian economic trends of general interest in a comprehensive form. This second issue of the MNB Bulletin contains six studies, which deal with the medium-term inflation target of monetary policy, the interpretation of market expectations regarding the level of the central bank base rate, the inflationary effect of changes in the VAT rate, the operation of interbank foreign exchange trading, the possible consequences of global imbalances for Hungary and the reform of corporate insolvency regulations.

The study by Péter Gábriel and Klára Pintér examines market analysts' expectations and the information content of the yield curve, and points out that different pictures are often drawn from the two sources in respect of expectations regarding developments in the central bank base rate. The analysis reveals that there may be two important factors underlying the difference. On the one hand, forward yields calculated from the yield curve contain the risk premium, and thus they exceed the expected value of the future base rate. On the other hand, analysts in the Reuters' survey report the most likely value of the future central bank policy rate as their forecasts, instead of the average value of all possible scenarios. If the information from the two sources is interpreted properly – taking into account the previous factors – both sources contain valuable information for monetary policy.

The study by Péter Gábriel and Ádám Reiff examines the effects of changes in VAT rates on the consumer price index. This analysis is particularly timely as the VAT rate of certain products was increased in September 2006. Analysing the effects of earlier VAT rate changes, the authors came to the conclusion that while the larger part of the VAT increase appeared in consumer prices within a few months, the VAT cut reduced consumer prices to a much smaller extent, thus adding to the profit of businesses – at least in the short run.

The study by Áron Gereben and Norbert Kiss M. provides insight into the operation of interbank forint/euro trading, and presents a detailed picture of the structure of foreign exchange trading and the liquidity of the foreign exchange market. The analysis reveals that the basic structural features of the Hungarian interbank foreign exchange market are similar to those of developed markets, and that trading activity and liquidity fluctuate both in intraday terms and between individual days. However, indicators suggest that this segment of the interbank forint market became more developed, more liquid and has grown deeper in the period under review.

Examining various scenarios, Zoltán M. Jakab analyses the possible consequences of a correction of global imbalances for Hungary. The study points out that the effects strongly depend on whether the correction originates from Asia or the USA, and whether the correction results in an increase in the risk premium of the dollar. The author presents how all of this affects emerging countries, including Hungary. The effects of the process in Hungary are also influenced by monetary policy: Hungarian monetary policy tracking the ECB's interest rate steps would entail higher fluctuations in inflation and lower fluctuations in GDP, whereas an independent policy would reduce inflation fluctuations against the background of a somewhat greater changes in GDP.

The study by András Rezessy postulates that the 3% medium-term inflation target determined in the summer of 2005 and valid from January 2007 will bring fundamental changes to the Hungarian inflation targeting system. Setting an inflation target is important for an economy because it functions as a basis of comparison for economic agents, who thus make their decisions for the future on the basis of the inflation target and expected inflation. The study points out that the new system carries numerous advantages for the Hungarian economy.

The paper by Dr Valéria Széplaki analyses the financial stability aspects of the ongoing reform of Hungarian insolvency regulation. Insolvency regulation is decisive for banks' safe operation and the enforceability of their claims against corporate clients. The timing of the subject is justified by the start of the reform of the Hungarian insolvency regulation in 2003, the results of which have been favourable so far from a financial stability aspect, although – as the study also points out – further strengthening of creditors' ability to enforce their interests is needed.

We hope that the studies presented in this publication raise interesting issues and topics which will appeal to our readers and stimulate further thinking on the subject. We welcome any suggestions or comments on this publication and the studies contained therein.

The Editorial Board

Péter Gábriel and Klára Pintér: Whom should we believe? Information content of the yield curve and analysts' expectations

Expectations of market participants play an important role in monetary policy making. The main reason for this is that expectations influence the behaviour of investors and prices in financial markets. In this article, we present two sources of information on the expectations of financial market participants regarding the central bank's policy rate. Both the yields of government securities and the survey of interest rate expectations conducted by Reuters contain information on what the market expects the future path of the policy rate to be, but sometimes these two sources of information convey substantially different messages. Our analysis helps to understand this phenomenon by shedding light on two key factors behind it. On the one hand, forward rates calculated from the yield curve contain a risk premium and exceed the expected value of the future central bank policy rate. On the other hand, analysts in the Reuters' survey report the most likely value of the future central bank policy rate as their forecasts, instead of the average value of all possible scenarios. Finally, we claim that if the information from the two sources is interpreted properly – taking into account the previous factors – both sources contain valuable information for monetary policy making.

INTRODUCTION

The MNB can influence only short-term interest rates directly by setting its policy rate. The maturity of the policy rate is two weeks, but the decisions of economic agents depend on longer-term interest rates. Financial market participants' expectations regarding future central bank rates constitute the link between short-term and long-term interest rates. The better the intentions of the central bank are reflected in these expectations, the greater the harmony between the decisions of firms and individual agents and economic fundamentals. Therefore, for monetary policy to be efficient, the central bank must be able to shape the expectations of market participants. However, the central bank must have some information about these expectations in order to be able to influence them effectively.

As market expectations can not be observed directly, their measurement is far from easy. There are two main approaches to extracting information on the expectations of market participants. A straightforward way of obtaining information about expectations is to ask market participants directly what they think the central bank policy rate will be in the future. Indeed, in practice there are several firms conducting and publishing such surveys. But interpreting the survey results is not straightforward at all, as it is not clear which behaviour and motivations are reflected in the answers. If the analysts surveyed want to give the best possible forecast, they report the expected value of the future central bank rate. However, there is nothing pushing them to do so, and therefore the forecasts can reflect a variety of motivations. For example, analysts might be interested in avoiding large mistakes, or they may try not to deviate much from the other respondents, or they just do not want to change their prognosis too often. In such cases, the survey does not reflect the best available forecast of the future central bank policy rate.

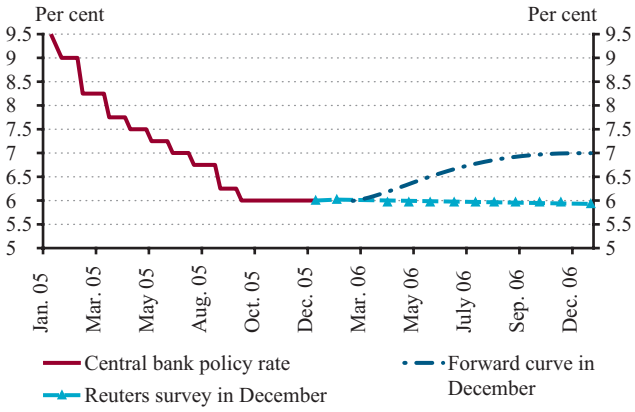
The other possible approach is to measure the expectations of market participants indirectly, using prices observed in financial markets. Various financial asset prices depend on investors' and traders' expectations regarding the future decisions of the central bank. The closer the link between the price of an asset and the central bank interest rates, the better the price reflects market participants' expectations regarding the future path of the central bank policy rate. Moreover, as investors bet their money on their expectations while trading, prices are likely to reflect the best forecast of market participants. The forward rates calculated from the prices of government securities are natural choices for measuring expectations, as the main determinant of government securities prices is the path the central bank rate is expected to follow until the maturity of the assets. However, government securities prices are not determined by the path of the central bank rate exclusively. Therefore, to interpret the expectations reflected in the yield curve, we need to impose assumptions on other factors influencing the yields of government securities.

In practice, central banks use both approaches, as each one has its advantages and disadvantages, and neither is able to completely depict the future path of the central bank policy rate which market participants expect. In this

article, we present a data source for both concepts: the yield curve estimated using government securities prices and the regular survey of market analysts conducted by Reuters. Both sources shed light on the policy rate path which the market participants expect to prevail over a given future period. At the same time, as Chart 1 illustrates, from time to time forward rates and analysts' expectations can differ substantially. Our analysis aims to offer a plausible explanation for this deviation. Furthermore, we argue that it is worthwhile to monitor both sources and to use them as measures of expectations, because despite the inaccuracies both contain valuable information regarding the future path of the central bank policy rate that is not contained in the other. We focus on how accurately we can forecast the future path of the central bank policy rate, therefore for each data source we analyse whether the measured expectations correspond to the expected value of the future central bank rate.

Chart 1

MNB's policy rate and interest rate expectations in December 2005



YIELD CURVE BASED ESTIMATE OF INTEREST RATE EXPECTATIONS

A widely used method to derive expectations regarding the policy rate relies on forward rates calculated from the prices of government securities.[1] The forward rate is equal to the sum of the expected future interest rate and a term premium. To understand this risk premium better, we can separate the duration of the forward contract into two parts:

- The first period starts upon agreeing on the conditions and ends when the security is purchased. When entering into a forward contract, the parties fix the yield, and therefore the investor runs the risk that the interest rates may change before the price of the security must be paid and at this future time he would be able to enter a spot deal under different conditions than the pre-specified.

- The second period starts when the security is purchased and ends upon its maturity. During this period, the risk taken by the investor is the same as the risk of a spot security purchase.

This distinction makes clear that the risk taken in a forward contract is higher than the risk of a spot transaction, due to the uncertainty in the initial period. The risk is mainly determined by the volatility of the spot interest rate during the length of that period, between the date of concluding the forward transaction and the actual purchase of the security. The difference between the two interest rates – the term premium – is the price of this additional risk; it compensates investors for the uncertainty about future interest rates in the first period.

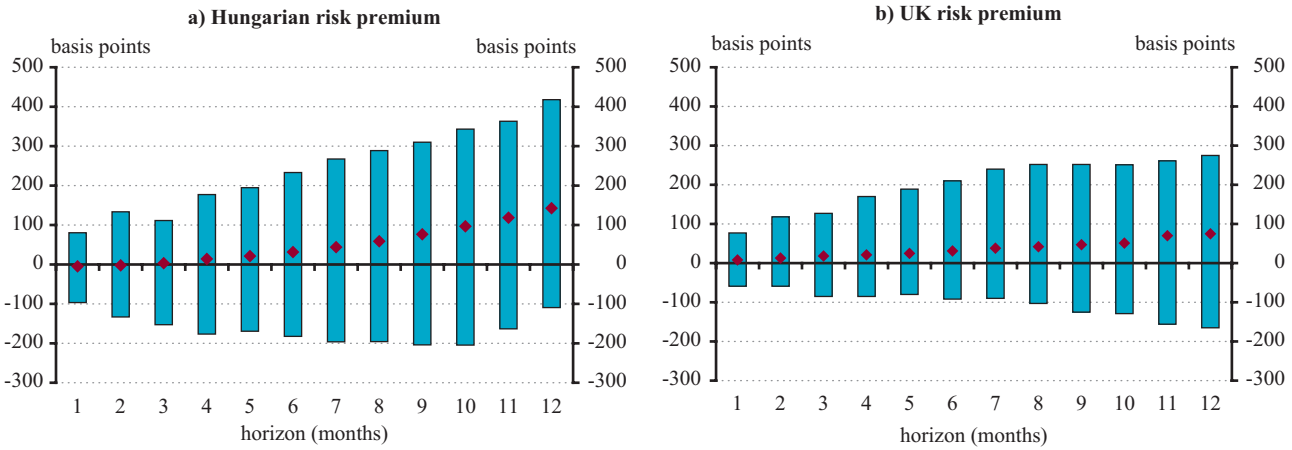
Using the yields in the government securities market we can estimate the risk premium, which enables us to infer the anticipated path of the central bank policy rate. From the yield curve we can directly derive the forward rate, i.e. the sum of the expected future central bank rate and the risk premium. Assuming that the risk premium is constant over time for a given horizon of the forward yield, based on a reasonably long time series of government securities yields both the risk premium and the expected central bank policy rate can be estimated. In this case, the risk premium equals the average difference between the forward rates of a given horizon and the subsequent central bank rate outturns over a sufficiently long period. Once we have obtained the average risk premium, we can calculate the expected central bank policy rate for different horizons at any particular point in time simply as the difference between the forward rate and the estimated risk premium for the corresponding horizon.

Chart 2 shows the risk premium for a range of horizons from 1 to 12 months over the period June 2001 to April 2006. For comparison, we also include the corresponding

[1] In the case of a forward transaction the parties agree in the present time on the conditions of a contract starting at a pre-specified time in the future. For example, a six month ahead three month forward transaction means an agreement concerning a yield, at which one of the parties is to purchase from the other a given security with three-month maturity in six months time. The yield agreed upon is called the forward yield. The time between the date of concluding the forward transaction and the purchase of the security (six months in the previous example) is referred to as the horizon of the forward yield.

Chart 2

Risk premium calculated from forward rates



risk premium for the United Kingdom.[2] Each bar shows the range of the differences between the forward and subsequent spot interest rate outturns, with black diamonds indicating the average risk premium.[3]

The chart shows that although the average risk premium was positive over the analysed time period, there were days when the forward rate was below the subsequent interest rate outturn. This indicates that during the horizon of the forward rate new pieces of information arrive and can lead to changes in the spot interest rates, so that the actual interest rate outcome exceeds the level that was previously expected. Moreover, the range of these differences increases with the horizon, probably reflecting the greater uncertainty as market participants project further out into the future. According to our estimates, the Hungarian risk premium is higher, and the range of the differences is wider than in case of the UK. As mentioned earlier, the reason behind this is probably be the higher volatility of Hungarian interest rates.

Chart 3

Volatility of short-term interest rates

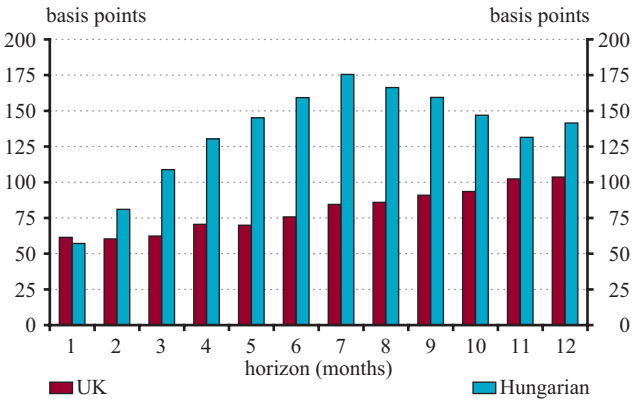


Chart 3 shows the standard deviation of the Hungarian and English short-term interest rate changes in our sample for various horizons between 1 and 12 months. The charts also show that there is a strong link between the estimated risk premium and the volatility of spot interest rates. The standard deviation of the interest rate changes – the measure of the risk taken – increases faster with the horizon in the case of Hungarian yields. Accordingly, at a longer horizon the range of the differences between the forward rate and subsequent spot interest rates widens more in the case of Hungary, and the average risk premium increases faster as well.

Estimating the risk premium involves several problems. First, the time series are relatively short, so the risk premium can only be estimated with considerable uncertainty.[4] Furthermore our model assumes that the risk premium is constant over time. External and internal economic developments and the risk appetite of investors were changing during the period examined, which makes the assumption of a constant risk premium an approximation at best.

[2] The UK risk premiums are estimated using the same method. For a more detailed analysis of market expectations and risk premium in case of the United Kingdom refer to Peacock (2004).

[3] The risk premium for each horizon was estimated as the average difference between the forward rates and the subsequent spot interest rate outturns corresponding to the particular horizon over the period June 2001 to April 2006. We excluded 2003 from the sample, because in this relatively short sample the large central bank rate changes in that year would lead to a significant bias in our estimates.

[4] Before the widening of the exchange rate band and abolishment of capital controls, yields were not determined by the market only, e.g. the MNB intervened more or less continuously on the exchange market. Hence, to estimate the risk premium we do not use yields before 15 June 2001.

In this section we have shown that forward yields calculated from the yield curve cannot be interpreted directly as the expected value of the future central bank policy rate. Forward yields reflect not only expectations, but a risk premium which grows in parallel with the horizon of the forward rate. Therefore, the expected path of the central bank policy rate is below the path drawn by the forward rates.

INFORMATION CONTENT OF THE REUTERS SURVEY

Reuters conducts a survey in the middle of every month, querying financial market economists and research institutions regarding their expectations of the central bank policy rate at various pre-specified future dates (the end of the next month, the end of the current year, end of the next year). If the analysts were to give the best available forecast, they would report the expected value of the central bank policy rate at the specified dates in the survey. However, the motivation of the analysts may differ, and the goal of a respondent may not be to give the most accurate forecast. In this case, it is not straightforward how to interpret the results of the survey, and measuring the analysts' expectations requires a deeper analysis.

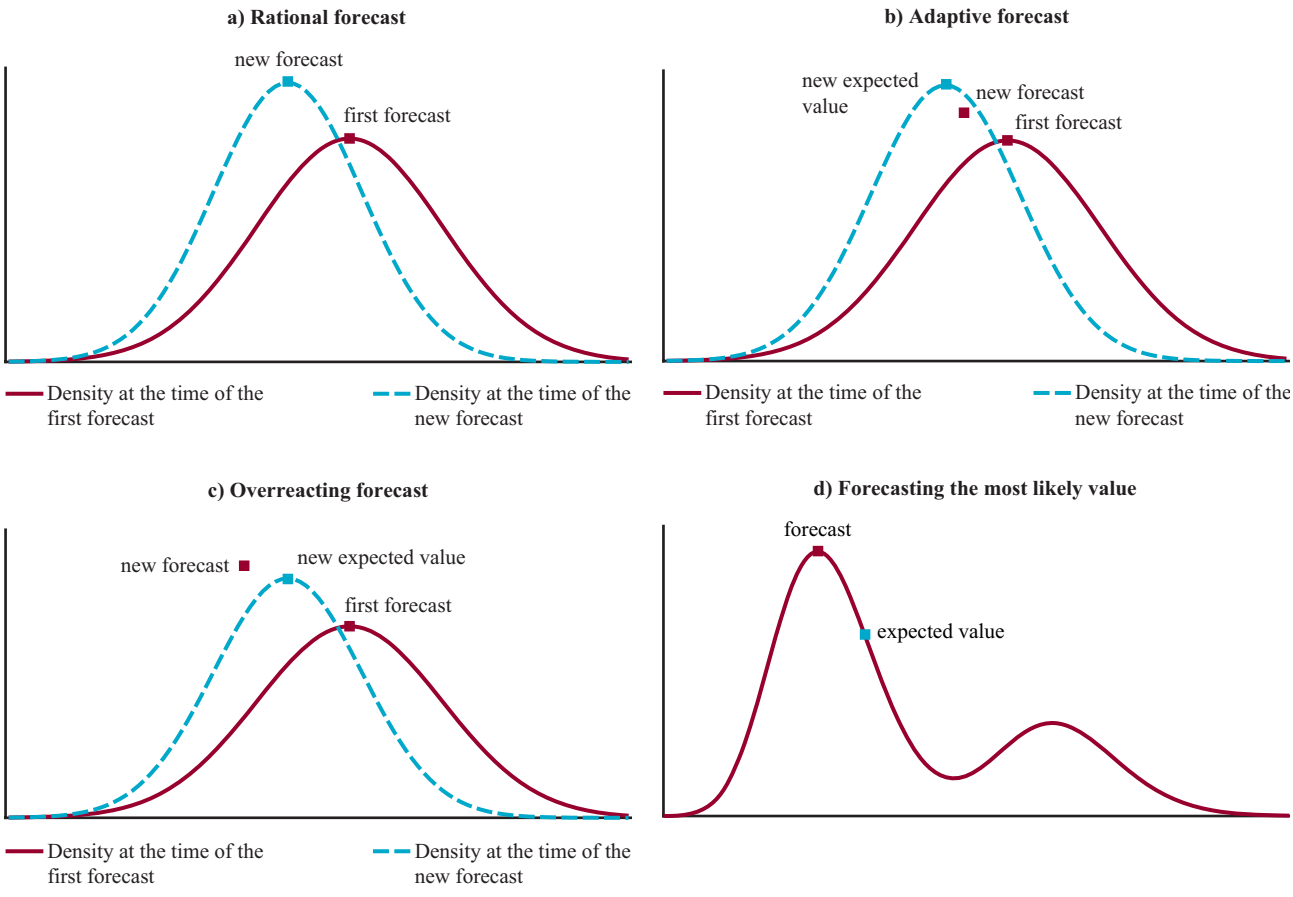
In the first part of this section we present some motives that analysts may have and then we show how these motives can be detected in the survey responses. Finally, we explain how to interpret the forecasts of the analysts if they report the most likely value of the future central bank policy rate instead of its expected value.

FORECASTING STRATEGIES OF ANALYSTS

In addition to reporting the expected value of the future central bank rate in the poll – rational forecasts – we will consider three other possible forecasting strategies: adaptive projections, over-reacting projections and forecasting the most likely value of the future central bank rate.[5]

Chart 4

Forecasting strategies



[5] Frankel and Froot (1985), Bakhshi et al. (2003) provide a more detailed description of these potential behaviours.

The first panel in Chart 4 illustrates the rational forecasts that will serve as a starting point. Forecasting the expected value of the future central bank policy rate will minimize the forecast error, so analysts striving to give the best available prediction will report a rational forecast. If new information arrives and the expected central bank rate changes, the new forecast reflects this change immediately. As new pieces of information arrive randomly and frequently, analysts tend to revise their prognosis quite often in line with changes in the expected future central bank rate.

However, analysts may assume that frequent changes in forecasts jeopardize their reputation, so they attempt to avoid sudden and significant revisions of their forecasts. Panel b) illustrates this type of behaviour, referred to as adaptive forecast. In this case, the projections incorporate new pieces of information gradually, the changes in the expected future interest rate are not fully transmitted into the forecasts. If the previous forecast equalled the expected value, the next forecast will be between the new expected value and the previous forecast. This behaviour results in smoother revisions of the forecasts relative to the rational expectations.

Over-reacting forecasts (Panel (c)) have the opposite effect. In this case market analysts assume that the perceived changes in the expected future path of the central bank rate will continue. Therefore, their revisions will follow the direction of the change in the expected value of the future central bank rate, but the magnitude of the change in forecast will be greater.

Panel d) depicts a case where the density of the future base rate is bimodal. Expectations can take this form, if significantly different scenarios can take place in the forecasting period (e.g. if the central bank decides to raise the interest rate, then the change will be quite large). In this case, however, it is unlikely that the future interest rate outcome will be close to the expected value. Therefore, if analysts report the expected value as their forecast, they will be wrong with a fairly high degree of certainty. To avoid this, analysts will build their forecast in two steps: first they will select the scenario that they favour, and then they will give the expected central bank policy rate corresponding to the chosen scenario as their forecast. Consequently, when analysts strive to maximize the number of relatively accurate forecasts and put less weight on the magnitude of forecasting errors, they will report the most likely value of the future central bank policy rate, instead of its expected value.

TESTING SURVEY EXPECTATIONS[6]

The analysts polled by Reuters are asked to give a forecast each month for the central bank policy rate at various pre-specified future dates. If the analysts intend to minimise their forecast error, i.e. their forecasts are rational, then the forecast of analyst *i* at period *t* for time *t+s* can be written as:

$$forecast^{i}_{t,t+s} = E_i\left(r_{t,t+s}\right) = E\left(r_{t,t+s}\right) + u^{i}_{t,t+s}$$

The analyst's forecast is the sum of the expected value of the future central bank rate and an error term. The latter accounts for the fact that analysts do not know the expected value of the future interest rate precisely.

The subsequent policy rate outturn can be expressed as the sum of its expected value and a random component, where the latter comprises the effect of the shocks which have occurred during the forecast period:

$$r_{t+s} = E\left(r_{t,t+s}\right) + \varepsilon_{t,t+s}$$

Based on the previous two equations, the latter can be transformed as follows:

$$r_{t+s} = forecast^{i}_{t,t+s} + v^{i}_{t,t+s}\ ,\ where$$
$$v^{i}_{t,t+s} = \varepsilon_{t,t+s} - u^{i}_{t,t+s}$$

This equation can be tested using the following regression:

$$r_{t+s} = \alpha^{i} + \beta\, forecast^{i}_{t,t+s} + v^{i}_{t,t+s} \qquad (1)$$

If the forecasts of analysts do not differ systematically from the expected value of the future central bank interest rate, the value of β will be 1. However, the estimated coefficients of equation (1) only show us whether the forecasts of the analysts are rational. If they are not, the equation does not provide any further guidance to decide which strategies or behaviours are reflected in the survey responses. Nevertheless, we can interpret the results of the survey properly only if we knew the type of forecasting behaviour behind them. Projections motivated by the previously presented behaviours except rational expectations have one aspect in common: the forecasts do not equal the expected value of the future interest rate. However, the prognoses reflecting different behaviours are revised differently when new information arrives. Accordingly, looking at the forecast revisions could help us to detect which behaviour applies to the analysts in our data set. To test this we use the following, extended regression:

[6] Bakhshi et al. (2003) provides a detailed description of the methodology we applied.

Table 1

Forecast accuracy of the Reuters survey[7]

	Forecast horizon			
	1-5 months	6-11 months	12-17 months	18-23 months
Variable	Estimated coefficient			
Forecast	0.442 (0.121)	0.657 (0.063)	0.250 (0.107)	0.611 (0.120)
Revision_1	0.627 (0.181)	-0.012 (0.128)	0.394 (0.313)	-0.117 (0.221)
Revision_2	0.367 (0.124)	0.122 (0.070)	0.627 (0.113)	0.188 (0.105)
Constant	0.026 (0.002)	0.029 (0.003)	0.018 (0.002)	0.009 (0.006)

Standard errors are shown in parenthesis below the estimated parameters.

$$r_{t+s} = \alpha^i + \beta forecast^i_{t,t+s} + \gamma\, revision^i_{t-1} + \delta\, revision^i_{t-2} + v^i_{t,t+s} \quad (2)$$

The new variables show the change in the analyst's forecast in period t-1 and t-2. If the forecasts are rational, they are only revised if new information emerges, and the changes in the forecasts will be independent from previous changes. In this case, the coefficient of both new variables will be equal to *0*. If γ or δ is positive, it means that analysts tend to make smaller steps in altering their forecasts. If they change their forecasts, they will do this gradually over several months. The reason for a negative coefficient is that analysts tend to overreact to perceived changes in yields, in other words, their forecasts change more than justified by the factors behind the changes in yields. The results are shown in Table 1 for various forecast horizons.

According to our results analysts typically did not overreact or modify their forecasts in smaller steps (the estimated coefficients for $revision_{t-1}$ and $revision_{t-2}$ are not different from 0).[8] The coefficient of the forecast, however, differs from 1, which indicates that the forecast does not equal the expected value of the future central bank rate, meaning that the assumption of rational expectations is violated.[9]

MODE VS. EXPECTED VALUE

In the previous section we demonstrated that the forecasts in the Reuters survey do not, on average, equal the expected future central bank policy rate. The regressions do not show signs of smooth forecast revisions, nor over-reacting projections.

One plausible explanation for the observed systematic deviation of analysts' prognoses from the actual interest rate outcomes can be that the forecasts are not rational, but rather are based on the scenario with the highest probability. This assumption may be motivated in the Hungarian environment by the fact that expectations often incorporated big changes in interest rate that were likely to occur only with small probability. For example, analysts might expect that in case of an exchange rate crisis the central bank will raise the interest rate significantly; yet the crisis is unlikely to happen, so the central bank's base rate will probably remain unchanged. Accordingly there are two main scenarios, one with a big policy rate increase and another with a constant policy rate. In this case, the expected value of the future policy rate – the weighted average of the central bank base rate corresponding to the individual scenarios- is an interest rate level highly unlikely to occur according to analysts' expectations. If the analysts' objective is to improve their chances to accurately predict the base rate, in terms of the number of precise projections, their prognosis will not be the expected value of policy rate, they will rather forecast the most likely outcome.

The available data does not allow us to test directly whether analysts report in the poll the most likely interest rate outcome. But with the help of simulations we can

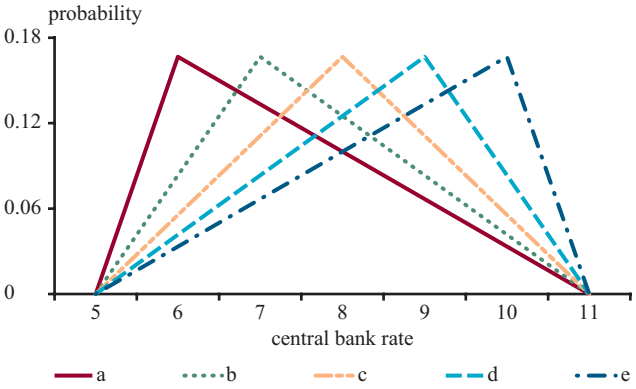
[7] In this section we used the Reuters surveys conducted between December 1995 and January 2006 in our regressions. We omitted the observations which were affected by the exceptional policy rate changes in 2003.

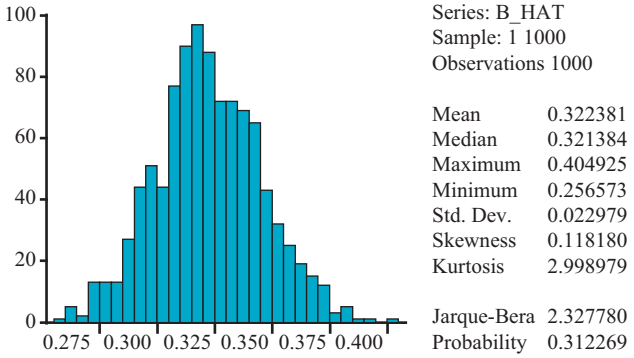
[8] The estimated values of the coefficients γ and δ are very uncertain, therefore the results should be interpreted carefully.

[9] In the estimated equation the explanatory variable and the error term are not independent, since both contain the error made by the analysts in their estimation of the expected value. Hence, our estimate for the β coefficient is smaller than its true value. We have used some other estimation methods to account for this bias, but the results obtained were similar. This means that the coefficient value below 1 is probably not due to the inadequate choice of methodology. For the sake of brevity, we do not report these results here.

Chart 5

Simulating mode-based forecasts





check what coefficients can be estimated in the regression under equation (1), if this is the common analyst behaviour.

The simulations are based on some simple assumptions.

- The economy can be in five states (a, b, c, d and e) with equal probability, for which the future distributions of the base rate are illustrated in the left panel of Chart 5.

- Analysts forecast the level of the base rate with the highest probability in the particular state, which in this case could be 6, 7, 8, 9 and 10.

In the simulation, the estimated value of the coefficient was less than one, on average 0.32 (Chart 5, right panel). This means that the estimated coefficients in our regression could be explained by the fact that analysts' forecasts show the most likely and not the expected value of the future central bank policy rate.[10]

If analysts report the most likely outcome, the forecast may be interpreted as a conditional prognosis. The forecast reflects the expected value of the future central bank base rate in a case when an unlikely extraordinary event (for example an unlikely yet substantial exchange rate depreciation) does not occur.

COMPARISON OF THE FORECASTING PERFORMANCE OF FORWARD RATES AND ANALYSTS' PROGNOSES

In the analysis so far we have argued that there are different factors that drive a wedge between the expected value of the future base rate and both forward rates and the forecasts of analysts. In this section we will discuss whether they contain any useful information concerning the future path of the central bank policy rate. Analysing the two sources together we can assess to what extent they convey the same information. We compare the forecasting performance of the analysts' survey expectations – represented by the average of the individual forecasts – and the forward rates using the following regression:

$$r_{t+s} = \alpha + \beta\, forecast_{t,t+s} + \gamma\, f_{t,t+s} + \delta\, r_t + v_{t,t+s} \qquad (3)$$

The coefficients in the equation indicate how strong the relationship is between each variable and the policy rate. Those variables, which contain information about the expected interest rate path, are correlated with the future central bank interest rate outcome, helping to explain its changes. The coefficients of these variables differ from zero.

The results in Table 2 show that neither the analysts' forecasts nor the forward yields carry all the available information. This follows from the fact that the coefficient of the current base rate differs from zero at all forecast horizons, in other words, the current central bank rate also contains information concerning the future interest rate path in addition to the variables characterising market expectations. At the same time, analysts' forecasts help explain the future base rate at all horizons. At forecast horizons below one year, the forward rates fail to carry any information in addition to the analysts' forecasts and the current level of the base rate, whereas at forecast horizons over one year the coefficients of all variables differ from zero. These results indicate that in analysing market expectations within one

[10] As we could test only indirectly whether analysts indicated the most likely value in their forecast, our argument stands only as far as another alternative – that can be tested indirectly as well – would result a lower coefficient than one in the analysed regression.

Table 2

Forecast accuracy of forward yields and survey expectations

	Forecast horizon			
	1-5 months	6-11 months	12-17 months	18-23 months
Current reference interest rate	-0.434 (0.120)	-0.853 (0.179)	0.433 (0.103)	-0.886 (0.230)
Forecast	1.487 (0.242)	2.245 (0.177)	1.703 (0.082)	2.200 (0.220)
Forward yield	-0.023 (0.120)	-0.139 (0.077)	-0.898 (0.160)	-1.454 (0.147)
Constant	-0.002 (0.000)	-0.016 (0.005)	-0.035 (0.002)	0.139 (0.025)

Standard errors are shown in parenthesis below the estimated parameters.

year the focus should be on the market analysts' forecasts, and at a longer horizon both sources should be considered.[11]

The results, however, do not necessarily mean that forward yields carry no information at all for horizons within one year. On the one hand, the forward yield is the sum of the expected future central bank policy rate and the risk premium, hence it shows the upper limit of interest rate expectations. On the other hand, the difference between the forward yield and the survey expectations can be interpreted as an estimate of the risk premium. The higher this difference, the greater the premium required by investors and the vulnerability of the financial markets.

CONCLUSIONS

In this paper we analysed market expectations concerning the future path of the MNB's policy rate using two sources of information, the yield curve and the Reuters survey of financial market analysts. We found that neither source shows the expected value of future central bank rate directly. The forward rates contain a risk premium which pushes the forward curve above the expected future interest rate path. The analysts' forecasts in the Reuters survey also differ from the expected future policy rate, which in part may be explained by the fact that the respondents report the most likely future interest rate outcome, rather than the expected value. According to our findings, the expected future interest rate path is between the two curves in Chart 1, and it may be closer to the analysts' expectations for forecast horizons of less than one year.

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[11] Nevertheless, for any timeframe over one year the problem remains that our observations are not unbiased since there is an overlap in the forecast periods, which makes the results within this timeframe less reliable.

Péter Gábriel and Ádám Reiff: The effect of the change in VAT rates on the consumer price index

In the autumn of 2006 the Magyar Nemzeti Bank launched a series of research projects on the pricing of products and services with non-regulated prices, which is expected to last for one and a half years. Store-level price quotes used for the Hungarian CSO's (Central Statistical Office) consumer price index calculation serve as a basis for the research. As a first step, we examined how earlier changes in VAT rates (the VAT increase in January 2004 and the VAT cut in January 2006) influenced the prices of products and services. Our analysis is of particular importance as the VAT rate of certain products increased again in September 2006. Our findings show that while a larger part of the VAT increase was transmitted into consumer prices within a few months, the VAT cut reduced consumer prices to a much smaller extent, thus adding to the profit of stores – at least in the short run.

INTRODUCTION

According to the Central Bank Act, 'the primary objective of the MNB shall be to achieve and maintain price stability'. In practice, the MNB attempts to meet this goal through inflation targeting, meaning that the Bank tries to bring future inflation rates in line with the pre-determined inflation target (which is currently 3%).

In the course of the practical implementation of the inflation targeting system, it is of crucial importance that the Bank appropriately forecast the magnitude of expected inflation, since the necessary steps are determined by the relationship between expected inflation and the inflation target. If expected inflation exceeds the inflation target, the Bank may tighten monetary conditions (e.g. raise the interest rate), whereas if expected inflation remains below the inflation target, monetary loosening becomes possible (e.g. interest rate cut).

In the course of the practical implementation of inflation targeting, it is of identical importance that the MNB appropriately evaluate inflation data which have already become known. For example, in the event of an unexpected increase in the inflation rate it may be important to identify the main reasons behind the increase. It is obvious that if the increase in inflation is attributable mainly to one-off, non-recurrent events the effect of which ceases as time goes by, the Bank does not need to react as strictly as if the increase in inflation had been caused exclusively by market events.

In this paper, the inflationary effect of changes in VAT rates is examined. This is particularly important because of two reasons. On the one hand, it is clear that any change in VAT rates substantially affects the consumer price index published by the CSO. On the other hand, it can be known in advance that VAT changes lead to a transitory increase in the inflation rate, and their impact dies out later.[1] Therefore, for the sake of a proper assessment of inflation processes it is of key importance to separate the effect of the VAT increase from the price increase which takes place due to market processes.[2]

Relative to other EU member states, VAT changes in Hungary have been frequent recently (Table 1). In this paper we investigate the increase of the middle tax rate in January 2004 and the cut of the upper tax rate in January 2006. Our main finding is that the effects of VAT increase and VAT cut are not symmetrical at all: while the 3 percentage point VAT hike in January 2004 increased the price level of the affected products by approximately 2.5% on average, the 5 percentage point VAT cut in January 2006 reduced the price level of the affected products by around a mere 1% on average.

Among others, the analysis will also investigate how long it takes for the change in VAT rates to be transmitted into prices.

[1] For example, the VAT increase in September 2006 only influences the inflation figures published between September 2006 and August 2007 (for instance, in September 2006 because the calculated inflation figure compares the September 2006 consumer prices of the affected products, when the VAT rate was 20%, to the September 2005 consumer prices, when the VAT rate was 15%), whereas from September 2007 on it does not have a direct impact on the price index.

[2] If the VAT rates change, the repricing of products and services is not automatic at all, as it will be confirmed by our findings. For example, in the event of a VAT increase, companies exposed to sharp market competition typically increase their prices to a lesser extent than non-competing companies.

Table 1

Changes in VAT rates in Hungary between 2004 and 2006

	Upper	Middle	Lower
Until 31 Dec. 2003	25%	12%	0%
From 1 Jan. 2004	25%	15%	5%
From 1 Jan. 2006	20%	15%	5%
From 1 Sep. 2006	20%		5%

According to our findings, the short-run (1-2 months) effect of a VAT hike exceeds the longer-term price level increase, since stores implement certain price rises planned for a later date simultaneously with the price hike caused by the rise in VAT. It is also to be noted that the VAT hike also increases the prices of products which are not directly affected by the hike.

In the case of certain products in some product categories (e.g. consumer durables), it can be observed that consumer prices decline even before a VAT cut becomes effective, although this is not a general phenomenon. In the event of a VAT hike, in turn, it cannot be detected at all that stores, in preparation for the VAT hike, increase their prices before the hike comes into effect.

DATA AND METHODOLOGY

Our analyses were carried out on the basis of store-level price quotes used for the consumer price index calculation of the CSO.

Every month the CSO publishes the inflation figure calculated for a given month on the basis of the change (relative to the previous month and previous year) in the consumer price of a so-called consumer basket. Those products and services are included in the consumer basket which are frequently bought by households, weighted in accordance with the income spent on them. The list of products and services in the consumer basket and their weighting are updated annually, according to changes in consumer habits.

The consumer basket is quite detailed. For example, in 2006 it contained 896 narrowly defined products and services (so-called 'representative items'). In this paper we analyze changes in the prices of 770 representative items; their total weight in the consumer basket is 76.99% in 2006. The missing products either have regulated prices (e.g. kindergarten and school catering, electric energy, pipeline gas, highway toll stickers) or the data collection methodology of the CSO does not allow for an examination of their pricing (e.g. new and used cars).

As a result, our data set contains the prices of 770 representative items recorded with a monthly frequency at various outlets between January 2002 and May 2006. For example, in the above mentioned period, for the representative item 'bony pork rib with tenderloin' we have a total of 6,887 observations from 158 different outlets.[3] Accordingly, in case of this representative item the data set includes (6887/158=) 43.6 quotes per outlet on average, but for 102 of the 158 shops we have data from each month of the period (i.e. from the whole 53-month observation period). It is true for all the representative items in the data set that the list of observed outlets is mainly unchanged, therefore, the store-level developments in prices of various representative items and the pricing behaviour of different stores can well be investigated from the existing price quotes.

Per representative item, on average, there are approximately 4,791 observations in the database, i.e. the total number of observations is close to 3.7 million (770 x 4791).

The effect of the change in VAT rates on inflation was quantified on the basis of a simple statistical model. The starting point of this model is that the change in the observed average price of representative items relative to the average price of the previous month is composed of the price rises and price reductions of individual outlets, so the effects of price reductions and price hikes can be separated:

Average price change = (Proportion of price-increasing outlets) x (Average magnitude of price hike) –
– (Proportion of price-reducing outlets) x
x (Average magnitude of price reduction).

[3] These 158 shops cover the whole territory of the country in a sense that all counties are represented (21 of the shops are in Budapest, 8 in Baranya County, etc.).

Therefore, if, for example, in a given month 20% of observed stores raised their prices by an average of 12%, and the price declined by an average of 8% in 5% of observed stores, the average price change was (0.2)x(12%) – (0.05)x(8%) = 2%.

We presume that the change in the VAT rates influences inflation through the four terms on the right-hand side of the above equation. In the case of a VAT increase, for example, it is likely that

- the proportion of price-increasing outlets will grow, and the proportion of price-reducing outlets will decline;
- the average price hike of price-increasing outlets and the average price reduction of price-reducing outlets will change.

In order to obtain a reliable estimate, we expressed the price effect of the VAT increase in such a way so that we can precisely estimate all terms. For example, the price effect of the VAT increase *through the increasing willingness of stores to raise prices* can be written as follows:

Price-increasing effect of VAT increase (due to increasing willingness to raise prices) =
= (Original proportion of price-increasing outlets) x (Increase in the size of average price increase) +
+ (Increase in the proportion of price-increasing outlets) x x (Original average price increase) +
+ (Increase in the proportion of price-increasing outlets) x x (Increase in the size of average price increase).[4]

In the case of a VAT increase the price effect through stores' *declining willingness to reduce prices* can be quantified similarly. Overall, the total price-increasing effect of a VAT increase can be calculated by estimating:

- the original proportion of price-reducing and price-increasing outlets (without VAT increase);
- the original size of the average price reduction and price increase (without the VAT increase);
- the increase in the proportion of price-increasing outlets due to the VAT increase, as well as the decline in the proportion of price-reducing outlets due to the VAT increase;
- the changes in the sizes of the average price increases and price reductions due to the VAT increase.

Based on our data set, each of these can be precisely estimated over a 1 to 3-month time horizon using statistical/ econometrical methods.[5] Given that the change in the VAT rate can have different effects on the pricing of various products (for example, due to differences in the strength of market competition), these quantities were separately estimated for all representative items in the database, then the effect of the VAT change on the price level was calculated on the level of the representative items. The total effect was determined as the weighted average of product-level effects according to the weights in the consumer basket.

INFLATIONARY EFFECT OF THE VAT RISE IN JANUARY 2004

As of 1 January 2004, the middle VAT rate of 12% increased to 15%, which affected 213 representative items of the 770 in our data set. Most of the affected representative items were foods, but the weight of services, and of electricity and other goods is also significant. The weight of the affected clothing and footwear is negligible, whereas no consumer durables were affected by the VAT increase in January 2004.

If in January 2004 all stores had completely passed on the increase in VAT to consumers, the price level would have grown by 115/112 – 1 = 2.68%. So we have to compare the observed inflationary effects of the different representative items with this 'theoretical' value.

In line with the previous section, the inflationary effect of the VAT increase was estimated separately for each group of representative items. The effect of the VAT increase on the January 2004 inflation figure is shown in Table 3, for each product group.

According to the results, the increase in the middle VAT rate in January 2004 had the greatest effect on food prices: at a 1-, 2- and 3-month horizon it increased the prices of

[4] Consider again a numerical example: let us suppose that in the absence of a VAT hike 20% of stores increase their prices by an average of 12%, and in the event of a VAT hike 50% of stores by an average of 10%. Then the price increase through the stores' increased willingness to raise prices is (0.5)x(10%) – (0.2)x(12%) = 2.6%. According to the decomposition, this is composed of the following: on the one hand, 20% of shops that raise their prices anyway increase by 2% less: (0.2)x(-2%) = -0.4% (first term). On the other hand, however, 30% of shops, which increase only because of the VAT hike, increase by 10% instead of 0: (0.3)x10% = 3% (the sum of the second and third terms). The total effect is indeed 2.6%.

[5] Due to the shortness of the observation period (approximately 4.5 years), the estimation of effects longer than 1-3 months becomes unreliable. The short-term effects presented can mainly used for the proper assessment of inflation figures received after the VAT change.

Table 2

Breakdown of representative items affected by the January 2004 increase in the middle VAT rate according to product groups

	Affected representative items	
Product categories	number	CPI-weight
Food, alcoholic beveerages, tobacco	154	18.52
Clothing and footwear	2	0.03
Consumer durable goods	0	0.00
Electricity, gas and other fuels and other goods	28	3.66
Services	29	3.27
Total	213	25.48

affected products by 2.72%, 3.31% and 2.95%, respectively. This contributed to an increase of the consumer price index by 0.50, 0.61 and 0.55 percentage point, respectively. Note the timing of the VAT effect on food prices: the effect of the VAT increase is the greatest at a 2-month horizon, then at a 3-month horizon it is somewhat smaller. A possible explanation is that due to the VAT increase even those stores decided to raise their prices which would not have changed if the VAT had not been increased. Without the VAT increase these stores would have considered only slight price increase as necessary, the costs of which would have exceeded the expected benefit of the price increase.[6] However, due to the VAT increase, the magnitude of the necessary price increase became large enough to take on the costs of the price rise. Therefore, the resulting actual price increase did not only contain the VAT-effect, but also a moderate intention to raise prices which would not have happened if the VAT had not been increased. Of course, most of these intentions to raise prices would have materialised somewhat later even without the VAT increase (when the necessary price of the stores would have been far enough from the actual price). Overall, due to the VAT increase, some stores brought forward their price hikes which would have been carried out later anyway. These *brought-forward price hikes* may explain the timing of the VAT effect on food prices.[7]

Table 3

Estimated inflationary effect of the January 2004 increase in the middle VAT rate on the products affected by the change ***(by product groups)***

		Price increase after VAT-increase			Effect to CPI		
Product categories	CPI-weight	1 month	2 months	3 months	1 month	2 months	3 months
Food, alcoholic beverages, tobacco	18.520	2.72	3.31	2.95	0.50	0.61	0.55
Clothing and footwear	0.033	0.40	0.58	–0.38	0.00	0.00	0.00
Consumer durable goods	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Electricity, gas and other fuels and other goods	3.659	1.55	1.70	1.16	0.06	0.06	0.04
Services	3.268	0.54	1.08	1.48	0.02	0.04	0.05
Total	25.480	2.27	2.79	2.50	0.58	0.71	0.64

[6] In addition to direct costs (e.g. printing new catalogues), price hikes may entail indirect costs as well. They include, among others, the costs of convincing buyers that the price increase was justified, and that it is still worthwhile for them to do their shopping at the given outlet. Due to these costs, stores tend to change their prices only infrequently, and the actually observed price may be different from the one that they would consider necessary without the costs of changing the prices. In the text, the difference between this necessary price and the actual price is called necessary price change.

[7] We call the attention that the *brought-forward price* hike discussed here is not the same as the *brought-forward VAT increase* discussed later. *Brought-forward price hike* means that when the VAT increase *enters into effect,* shops implement even those price hikes that were planned for a later date (together with the price hike due to the VAT increase). *Brought-forward VAT increase,* in turn, means that shops include the effect of the VAT increase in their prices *prior to entry into force.*

Table 4

Estimated inflationary effect of the January 2004 increase in the middle VAT rate on products not affected by the increase *(by product groups)*

		Price increase after VAT-increase			Effect to CPI		
Product categories	CPI-weight	1 month	2 months	3 months	1 month	2 months	3 months
Food, alcoholic beverages, tobacco	3.778	0.77	1.20	1.58	0.03	0.05	0.06
Clothing and footwear	5.272	0.13	1.00	0.52	0.01	0.05	0.03
Consumer durable goods	4.976	0.39	0.64	0.53	0.02	0.03	0.03
Electricity, gas and other fuels and other goods	10.925	0.34	0.25	0.53	0.04	0.03	0.06
Services	11.301	0.56	1.25	1.47	0.06	0.14	0.17
Total	36.251	0.48	0.84	1.01	0.16	0.30	0.34

In the case of the other product groups, a relatively strong effect of around 1.5% was observed in the 'electricity and other goods' category, while in case of 'services' and of 'clothing and footwear' the average effect is smaller (although in respect of services it is increasing over time). Overall, in line with the relative weights in the consumer basket, the effect of the VAT increase on the consumer price index almost entirely stems from the price level increase of food products: the total effect at a 1-, 2- and 3-month horizon is 0.58, 0.71 and 0.64 percentage point, respectively.

With respect to the January 2004 VAT increase we also examined whether this change influenced the price levels of products and services of which the VAT rate remained unchanged (non-affected products). The effects on the prices of these products[8] are shown in Table 4 for each product group.

According to the results, the largest impact (exceeding 1%) can be observed in case of those product groups (food, services), within which there is the greatest mixture of affected and non-affected representative items. A possible explanation for this is that within product groups, where individual products are presumably close substitutes of each other, the relative price level of individual products is independent from the relative VAT content over the long run. Overall, the observed effect on non-affected products (due to their higher weight in the consumer basket) increased the consumer price index by approximately 0.3 percentage point at a 2 to 3-month horizon. Accordingly, through the market products examined here, the VAT increase in January 2004 lifted the consumer price indices measured in early 2004 by approximately 1 percentage point, or more precisely by 0.74, 1.01 and 0.98 percentage points at a 1-, 2- and 3-month horizon, respectively.[9]

INFLATIONARY EFFECT OF THE VAT CUT IN JANUARY 2006

From 1 January 2006, the upper VAT rate was reduced from 25% to 20%. Among the affected products food and non-regulated energy have the largest weight, but the change affected numerous products and services from other product categories as well.

Similarly to the VAT increase, in the case of the cut it is also easy to calculate that a complete and immediate pass-through of the VAT cut to the prices of the affected products would have caused a 4% (120/125-1) decrease in their prices.

The estimated effects of the VAT cut are shown in Table 6. According to the results, stores reduced the prices of the affected goods only by one-fourth of the size of the VAT cut, which is much less than their reaction to the VAT increase. The prices of services, for example, did not decline at all after the VAT cut. The largest effect can be detected in durable goods, although even in this case the price reduction was less than 2%.

[8] We did not include alcohol and tobacco products in non-affected products. The underlying reason is that although the VAT rate of these products did not change in January 2004, the excise duty on such products was modified, thus in terms of tax change they cannot be considered 'non-affected'. We also omitted vehicle fuels from the range of non-affected products, as we could not separate the VAT effect from the effect of the sharp price movements in the world market in early 2004 (and in general as well). The total weight of the disregarded products (alcohol, tobacco, vehicle fuel) in the consumer basket is significant, at 13.495%.

[9] If we add the price hikes (which is often automatic and equal to the VAT increase) of regulated products to this, the total effect is, of course, even greater.

Table 5

Composition of representative items affected by the January 2006 cut in the upper VAT rate, by product category

	Affected representative items	
Product categories	number	CPI-weight
Food, alcoholic beverages, tobacco	63	12.53
Clothing and footwear	136	4.26
Consumer durable goods	72	4.91
Electricity, gas and other fuels and other goods	160	15.17
Services	47	8.74
Total	478	45.60

From a marketing point of view, if stores wish to increase their market shares it may be profitable for them to reduce prices before the VAT cut (brought-forward VAT cut). In fact, some chain stores, mainly ones that sell electronic appliances, did make use of this opportunity at the end of 2005. However, according to our estimates, this behaviour was not common, and thus it did not have a measurable impact on the price index.

Overall, the VAT cut – at least in the short run – mainly increased the profit of stores. However, when analysing the stores' pricing behaviour, one must take into account that over the longer term the prices of most products increase. Accordingly, if a shop did not reduce the price of a product, it did not have to increase its prices at a later stage. This kind of behaviour can be quite common in case of products with relatively high inflation, when the next price increase is expected to take place in the short run. An example of this phenomenon can be the difference between the effects of the VAT cut on services and on durable goods: in the services sector, where inflation had been higher for a longer time, the short-term effect of the VAT cut was much smaller than in the case of durable goods.[10]

CONCLUSIONS

Based on store-level price data, in this paper we examined the inflation effects of the January 2004 VAT increase and the January 2006 VAT cut. Although the affected products are quite different in these two cases, we can still draw some general conclusions.

The *common feature* of the January 2004 VAT increase and the January 2006 VAT cut is that the effect of changing the tax rates was not immediately and not automatically reflected in the prices set by the various stores: in both cases, stores do not change all the prices, and the size of the changes (if any) are not necessarily in line with the magnitude of the VAT change.

Table 6

Estimated inflationary effect of the January 2006 VAT rate cut on the affected products
(by product category)

		Price decrease after VAT-cut			Effect to CPI		
Product categories	CPI-weight	Brought-forward	1 month	2 months	Brought-forward	1 month	2 months
Food, alcoholic beverages, tobacco	12.528	0.19	-0.43	-0.61	0.02	-0.05	-0.08
Clothing and footwear	4.256	0.42	-1.86	-0.75	0.02	-0.08	-0.03
Consumer durable goods	4.912	0.29	-1.69	-1.67	0.01	-0.08	-0.08
Electricity, gas and other fuels and other goods	15.173	-0.15	-1.32	-1.63	-0.02	-0.20	-0.25
Services	8.736	0.41	0.22	-0.09	0.04	0.02	-0.01
Total	45.604	0.15	-0.87	-0.97	0.07	-0.40	-0.44

[10] Of course, this can be explained by several other factors. For example, in case of the durable goods, competition is probably much fiercer than in the services sector.

The most important *difference* between the VAT increase and VAT decrease is in the magnitude and timing of reactions. While most stores react to the VAT increase relatively quickly, in the case of a VAT cut prices decline by only one-fourth of what would be justified by the VAT cut. Moreover, in the case of a VAT increase we found that some stores bring forward price hikes planned for a later date, which influences the timing of the effect of the VAT increase: the VAT increase fuelled inflation to a higher extent at a 2-month horizon, while its effect was already smaller at a 3-month horizon. No similar dynamics were experienced in case of a VAT cut.

In some relatively competitive sectors (e.g. durable goods) we found that prices decline before the VAT cut becomes effective, whereas no such phenomenon could be detected in case of the VAT increase. One possible explanation of this may be that while bringing forward the VAT cut may lead to a competitive advantage, bringing the VAT increase forward, in turn, results in a competitive disadvantage. Nevertheless, it was not a general phenomenon that stores changed their prices before the VAT change became effective in either cases.

The VAT change may also affect the prices of non-affected products. This effect may be particularly strong if there are substitutes for the non-affected products that are affected by the change. For example, after the 2004 January VAT increase the price increase of non-affected products had a measurable impact (0.2-0.3 percentage points) on the overall consumer price index.

Áron Gereben and Norbert Kiss M.: A brief overview of the characteristics of interbank forint/euro trading

This study offers some insight into indirect interbank forint/euro trading through transaction-level data from the dominant electronic trading platform used on this market. We provide an in-depth view of the structure and liquidity of interbank foreign exchange trading by using simple, descriptive statistics. Where feasible, the results are placed into an international context. According to our findings, the key structural attributes of the Hungarian foreign exchange market are similar to those of the more advanced markets, despite the significantly lower level of trading volume and other indicators of market liquidity. Trading intensity and liquidity show large variations, both intra-day and between days. Our statistics suggest that the market has become more advanced, more liquid and has grown deeper during the period under review.

INTRODUCTION

This article focuses on one of the most important channels of interbank forint/euro trading by using data from the Reuters D3000 Spot Matching electronic trading system. The purpose is to derive descriptive information on liquidity and other characteristics of the interbank currency market using this novel data-set.

Our results reveal that the key structural attributes of the Hungarian interbank foreign exchange market are similar to those of the more advanced markets, despite the fact it is much smaller in terms of volume and liquidity. Trading intensity and liquidity show large variations, both at daily and intra-day frequencies. In 2004, when the currency market was relatively calm, market indicators show less variability, whereas data from 2003 is more volatile, due to the extraordinary market events of that particular year. Data for these two years also show that the market became more liquid and deeper over the period under study.

From the point of view of monetary policy, the exchange rate is a variable of particular significance. Understanding and monitoring the foreign exchange market thus carries special importance for the central bank. The novelty of this analysis relative to previous work on the subject lies in the database, which describes a previously "uncharted" segment of the Hungarian foreign exchange market, and that in many cases it provides a more detailed, 'higher resolution' picture on market developments than the data used in earlier studies.[1]

HOW DOES THE INTERBANK FOREIGN EXCHANGE MARKET WORK?

Price-making banks on the foreign exchange market[2] trade with each other through two main channels: directly (on a bilateral basis), or indirectly through mediators (brokers).

Bilateral trading traditionally used to take place over the phone, meaning that a trader looking to make a deal called another trader on the phone, asked for a quote and decided whether to accept or reject it. Since the end of the 1980s traders have increasingly switched over to the electronic trading system of Reuters designed for this particular purpose (Reuters D2000-1, followed by Reuters D3000 Direct), where phone conversations are replaced by an exchange of electronic messages.

The traditional channel of indirect trading takes place through voice brokers. Banks can monitor the quotes conveyed to the brokers through a public announcement system. Recently, electronic systems for indirect trading have rapidly gained popularity. During the last couple of years, electronic bilateral trading has also lost some ground, and today the majority of interbank transactions are conducted through electronic brokering systems.[3] Two main platforms are competing on the market: EBS (Electronic Broking Services) and Reuters D3000 Spot Matching (the successor of Reuters D2000-2). As far as forint/euro trading is concerned, Reuters enjoys wider popularity: the majority of

[1] This article is based on a study by Gereben and Kiss M. (2006), which provides a more detailed discussion of the issues presented here.

[2] Price makers are key participants of the foreign exchange market. They contribute to the market's liquidity by providing two-way (buying and selling) quotes, which are binding up to a certain amount to other market participants.

[3] According to the triennial survey of foreign exchange markets conducted by the Bank for International Settlements (BIS), 50 to 80 per cent of all interbank trading in the USA, UK and Japan was conducted on an electronic broker platform in 2001, up from 12 to 17 per cent in 1995, with the majority of the transactions being conducted directly over the phone or going through the Reuters 2000-1 messaging system (Source: Rime, 2003).

trading in the Hungarian currency is conducted through this channel.

THE REUTERS D3000 SPOT MATCHING SYSTEM

The Reuters D3000 Spot Matching trading system is an *electronic limit order book.* It is similar in many aspects to the electronic trading systems used by stock exchanges. A limit order book contains buy and sell orders for a given financial instruments – in our case for foreign exchange – in an order of priority. Under this system, foreign exchange dealers post Euro purchase and Euro sale offerings at limit prices, also known as *limit orders.* When specifying the order, dealers provide the volume they intend to buy or sell, and the price at which to buy or sell it. Limit Euro buy orders are also referred to as a *bid,* and sale orders are known as an *ask*. The order is kept in the system until a corresponding order is posted for a similar volume and price, or until revoked by the initiating dealer. Limit orders ensure the system's overall liquidity.

Dealers may also submit orders at market prices, i.e. *market orders,* for which the price is not specified. Market orders are paired immediately with the best available limit order for the given quantity. Euro buy market orders are also called as *take,* and Euro market sells are known as a *hit.* The system automatically pairs up the appropriate offers.

To follow the development of the market, dealers are able to constantly monitor the best (limit) buy and sell orders the book – the exchange rate quoted and the quantity offered at this rate – and the details of the last few transactions.

A transaction thus occurs when two limit orders – a *bid* and an *ask* – are matched up, or if a market order is paired by the system with the best limit order on the opposite side.

In the process of pairing offers, it may occur that a market order is made for a quantity that exceeds the best limit order, meaning that a single hit or a *take* can only be satisfied by striking several *ask* and *bid,* respectively. Naturally, the same scenario may apply where a limit order for a larger amount overlaps with other limit orders. As a consequence, the orders behind a final deal may feature numerous varieties.

Our database covers transactions from two full years, 2003 and 2004. It includes all limit and market orders that were processed through the system, and all the final deals that were actually transacted, with the related information concerning quantities and exchange rates. Using this data, we are able to obtain an overall picture of the developments on various aspects of the liquidity in this particular market segment. Given that the Reuters D3000 Spot Matching is the key platform of interbank trading, most of our findings can be considered representative of the market as a whole.[4]

MEASURING MARKET LIQUIDITY

The liquidity of financial markets, including currency markets, may be assessed along several different dimensions. The different aspects of liquidity call for different indicators.

The simplest approach is to use volume indicators, which describe the size of a market. Volume indicators include the *number of transactions,* the *number of orders posted,* the *total market turnover,* and the *average value of the transactions.* The greater the volume and the average size of the transactions, the more certain it is that dealers are able to quickly execute major transactions without any large shift in market prices.

Apart from volume indicators, however, many other aspects of liquidity can be measured. One of the most important indicators is the price difference between the best buy and sell orders, known as the bid-ask spread. The narrower the *bid-ask spread,* the lower the cost of trading.

The order book contains further information on liquidity. In addition to transaction costs, another important aspect is that sizable transactions should be conducted at a good price, and transactions should be made in the shortest time possible.

The amounts available at the best bid and ask prices – commonly referred to as the *depth* of a market – clearly display the volume of transactions the market is able to handle without prompting any shift in prices. The combined total volume of buy and sell orders in the order book – the *width* of the market – shows the size of the largest transaction that

[4] According to a survey conducted among currency market operators (ECB, 2005) approximately 60 to 70 per cent of all spot deals on the Hungarian interbank currency exchange market are conducted through Reuters D3000 Spot Matching system, which makes it the largest and fastest growing interbank trading platform.

can be conducted at a given time. The average slope of the demand and supply curves – defined by the prices and quantities offered on both sides – indicates *"price sensitivity",* by showing the average price shift for a given amount of volume traded, provided that the book were to be 'cleaned out' completely. The average *transaction time* of deals illustrates the dynamics of the market. [5]

LIQUIDITY INDICATORS ON THE HUNGARIAN FOREIGN EXCHANGE MARKET

In 2003, approximately two hundred thousand forint/euro orders were posted in the Reuters Spot Matching system. This figure approached two hundred fifty thousand by 2004, representing 836 orders per day on average over the entire period. In 2003, the daily number of orders varied between 250 to 1,000; in 2004 the typical daily number shifted up to 500 to 1,250.

As for the order types, limit orders are the most prevalent: dealers posted five to six times more limit orders than market orders in the system. In 2003, the relative share of market orders increased on turbulent trading days, when a high number of offers were posted. The increased use of market orders on these days can be attributed to changes in the behaviour of market participants, who are likely to use more aggressive trading strategies when the market is considered turbulent, and tend to sell or buy at any cost in certain situations in an effort to dump their excess positions onto the market. Such events call for the use of market orders in large amounts.

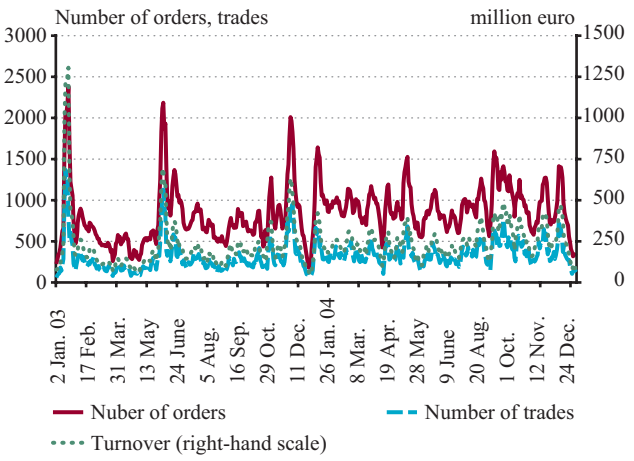
While market orders practically always result in an immediate deal, limit orders are only concluded with a transaction if an appropriate opposing order is posted. They may also be withdrawn as an alternative. Of the orders posted, in 2003 about forty-four thousand, in 2004 a total of over fifty-five thousand actually resulted in a deal, averaging at 193 transaction per day for the entire period. During both of these years, days with exceptionally high number of transaction (350 and up) were relatively frequent.

The historical trend of orders posted and transactions concluded mirror the most hectic periods of 2003, namely the speculative attack against the strong side of the exchange rate band in January, the shift of the exchange rate band in June, and the massive increase in the central bank's key policy interest rate in December. The relative tranquillity of the market in the subsequent year, 2004, is also reflected in the data (see Chart 1). At the same time, in both years there were significant day-to-day fluctuations in the number of orders and the number of transactions. In 2003, apart from the periods characterised by extreme market conditions, the number of orders and the number of transactions fluctuated within a relatively narrow margin, while in 2004 this margin became wider throughout the year, yet without any overly dissonant periods.

As illustrated in Chart 1, volume figures do not show much seasonality over the course of the year. There is no sign of any 'summer slump', as sometimes referred to in market analyses. On the other hand, in the second half of December a substantial decline appears in the volume indicators. We can also conclude that trading in 2004 was steadier and more balanced compared to 2003.

Chart 1

Daily number of orders posted and transactions concluded (5-day moving average)



In the Reuters Spot Matching system, the base unit of the transactions is 1 million euros, and the majority of deals consist of transactions worth of a few million (85 per cent of all transactions valued at 1 million euros, with another 10 per cent valued at 2 million euros). Due to the standard size of transactions, market turnover and number of transactions show practically the same dynamics. On a daily basis, average market turnover for the entire period amounted to 235 million euros.

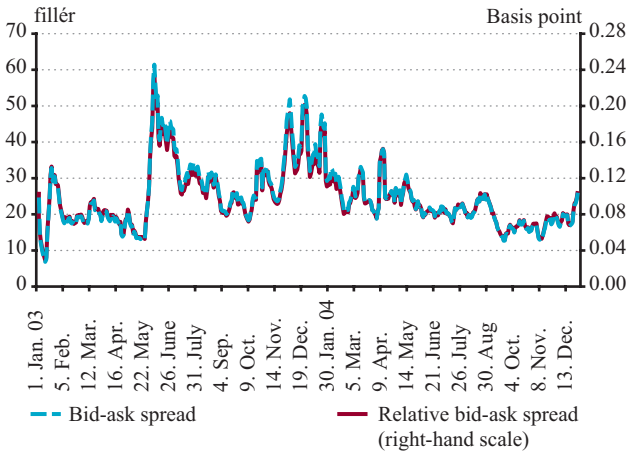
The average value of the bid-ask spread in 2003 was 0.3 forint, or 0.110 per cent of the average price; 11 basis points. In 2004 it was 0.26 forint, or 9.5 basis points. In tur-

[5] In this analysis we used the methods for liquidity assessment presented by Csávás and Erhart (2005). Their study contains a detailed description of the indicators used here, and explains how the different aspects of liquidity are inter-related.

bulent times, for instance when the exchange rate band was shifted, and during the days that followed the 300 basis point hike in the policy rate in December of 2003, the spread increased to exceptionally high values. From the middle of 2004, the bid-ask spread became relatively stable, floating between 0.15 to 0.25 forint – 6 to 10 basis points –, increasing only occasionally (Chart 2).[6]

Chart 2

The bid-ask spread (5-day moving average)



In general, statistics indicate an improvement of market liquidity from 2003 to 2004. The number of orders and transactions increased by about 25 per cent, and the bid-ask spread decreased, although the drop in the latter may be attributed to some extent to the less turbulent market conditions.

Comparing the characteristics of the forint/euro trading with the similar indicators of other foreign exchange markets shows that liquidity, in terms of size and spreads, is very similar in the CEE regions' other emerging markets. At the same time, substantial differences exist relative to the currency pairs of developed countries. The volume of trading on more developed markets can be as much as 100 times higher, and, as opposed to the relative spread of 10 basis points, typical of emerging currency markets, the spread for developed countries' currencies generally fluctuates between 1 to 5 basis points.

INTRA-DAY AND WEEKLY PATTERNS OF LIQUIDITY

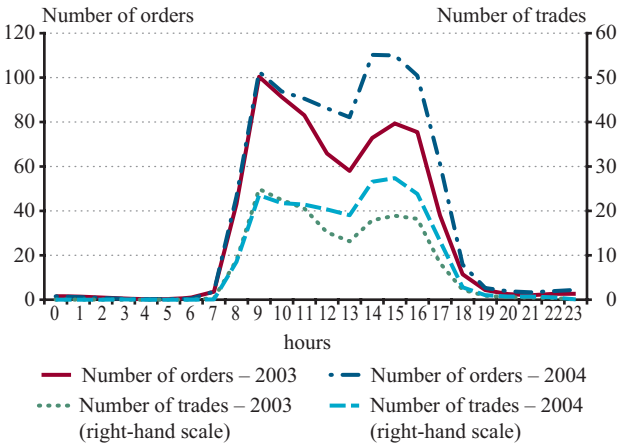
The intra-day course of the number of orders and transactions follows a recognisable pattern (see Chart 3). After minimal activity outside the official business hours, the number of orders and transactions quickly rises between 9 a.m. and 10 a.m., during the first hour when Hungarian banks' trading desks officially open for business. The number of orders and transactions gradually decreases during the next couple of hours, reaching a local minimum between 1 p.m. and 2 p.m. After that the market recovers, and by 3 p.m. and 4 p.m. the level of activity rises to the second daily maximum, only to fall back to a minimum level by the end of office hours.[7] The daily pattern of trading intensity corresponds to the results found in other countries, where the early afternoon setback is a common occurrence, generally attributed to the lunch break.

The intra-day analysis of the number of orders and transactions indicate that majority of the indirect interbank foreign exchange trading occurs within Hungarian banking hours. The reason for the activity after closing being somewhat higher than the activity before opening hours may be sought in the business hours of the US market.

The bid-ask spread appears to be steady during the course of the day: it is practically constant throughout local banking hours, rising only during the first and the last hour of trading. However, it rises significantly outside of business hours. A minimal increase can also be observed in the early afternoon, around 1 p.m., in the 2004 data. This is consistent with the drop in trading activity during the same period, as both indicators point towards somewhat lower liquidity during lunch hours.

Chart 3

Intra-day trends in the number of orders and transactions



There is less of an evident pattern in the weekly activity. Dealers post more or less the same number of orders and

[6] Csávás and Erhart (2005), relying on different data sources, reached similar conclusions in terms of size: according to their calculation the average spread in 2003 was 9.5 basis points, which dropped to 8.2 basis points in 2004, while developments in spread in terms of time show significant similarities.

[7] The afternoon maximum may be related to the beginning of business hours in the US market.

transact the same number of deals on every day of the week, and as a result turnover is also similar for each weekday. Apparently, Monday is the slowest and Thursday is the busiest day of the week in terms of the number of offers posted, similar to the number of transactions conducted, however, the differences are not significant. The number of offers posted and transactions conducted on Fridays remains little behind the other days. As far as the spread is concerned, a slight, insignificant increase can be observed on Mondays and Fridays.

THE STRUCTURE OF THE ORDER BOOK

'Snapshots' of the order book, showing the state of the market at a given moment, may also be helpful in the assessment of liquidity, and in the analysis of market structure. To illustrate, it may be worthwhile to look at the order book under normal market conditions, and also in times of market turbulence.

Chart 4 shows a snapshot of the book taken on 9 October 2003, at 1 p.m.; this can be considered as a typical state of the market. Large numbers of offers are accumulated on both the buy and the sell side, and they are distributed almost evenly over the price range. There is no sharp difference between the buy and the sell side of the book.

In contrast to the previous case, the snapshot for 15 January 2003 may serve as an example for a turbulent market. This was the first day of the speculative attack against the strong side of the exchange rate band, when large quantities of euro buy offers accumulated in the immediate vicinity of the strong side of the exchange rate margin, in a very narrow price spectrum. The proximity of the edge of the exchange rate band – and hence the limited scale of a potential shift in the exchange rate – presented an opportunity for the price makers to leave orders for substantial quantities in the system without taking any major risk. With a minimal spread, euro sale offers for smaller, yet significant quantities were positioned on the other side, but on a much broader price range.

The quantities offered at the best buying and selling prices (buy-side and sell-side depth) varied between 1.4 and 2 million euros on the average over the two years examined. In other words, in most cases limit orders with the best price were insufficient to cover market orders larger than 2 million euros. Orders any larger would have generated a shift in prices. Besides the order with the best price, an additional 5 to 10 orders were present on average on both side of the system.

Most of the time during normal trading hours, the total amount of the limit orders in the book were enough to cover

Chart 4

Depth and width of the order book (example, 9 October 2003, 1 p.m.)

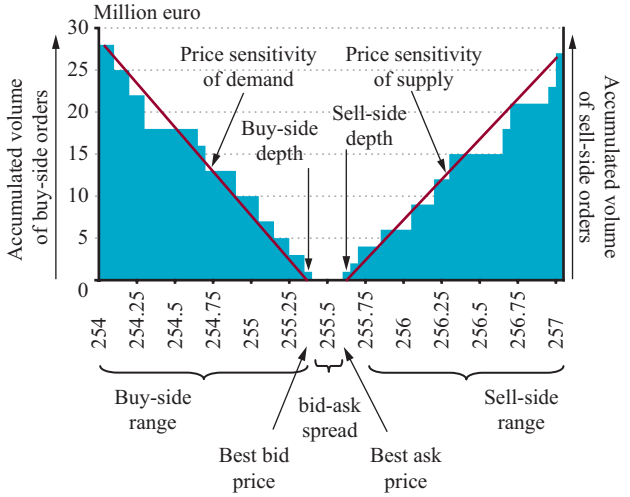
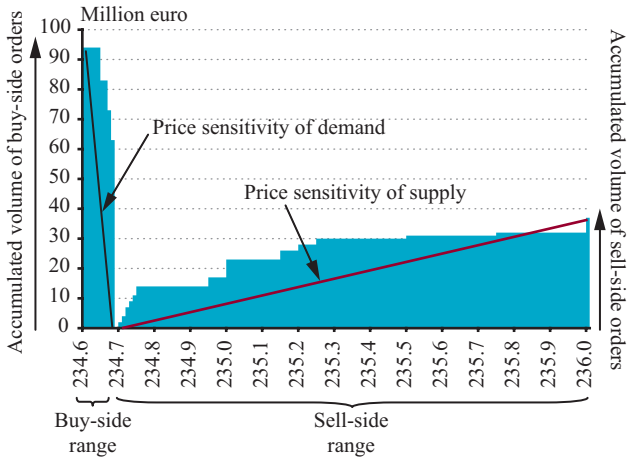


Chart 5

Depth and width of the order book during the speculative attack - example (15 January 2003, 1 p.m.)



market orders worth 9 to 16 million euros on the sell side, and 17 to 30 million euros on the buy side. Given the distributions of transaction and order sizes, it is very likely that besides the orders with the best prices, most of the time there are orders of sufficient quantity in the system to satisfy a large order, if it were necessary.

Interestingly, the average cumulative value of buy-side and sell-side orders is asymmetric: the amount of euro sell orders comes to about half of the amount of euro buy orders. This may be due in part to the fact that the strong edge of the exchange rate band restricts the appreciation of the forint, providing thus a limit to potential losses for the price makers, should they get stuck in an open position. Thus on the euro buy side, especially if the exchange rate is close to

the edge of the band, large orders can be posted in the system without taking any substantial risk. This is supported by our observation that buy orders become dominant once the exchange rate approaches the edge of the band.

Limit orders posted during normal Hungarian business hours – between 9 a.m. and 5 p.m. – spent an average of 11 and 13 minutes in the system. If we consider only those limit orders that resulted in a transaction, the average time spent in the system was only 5 minutes during local business hours. On the other hand, orders posted outside the local business hours took significantly more time to be concluded.

The price difference between the worst and the best orders, known as the price spectrum, is between 1 and 2 forints. This can be considered high given the daily average changes in the exchange rate for the period observed, which is under 1 forint in absolute terms. The price sensitivity of supply and demand varies between 0.09 and 0.22 forint/million euro. In other words, if we were to 'clean out' the book at a given time with a market order sufficient size, it would result in a marginal price change at these rates for each one million euro transacted.

Most indicators suggest the development of the trading platform over time, and point towards improved liquidity conditions from 2003 to 2004. The number and the cumulative quantity of the orders in the system have grown, while the price spectrum on which the orders were distributed became narrower, which in turn indicates a decrease in price sensitivity, and thus an increase in liquidity.

As seen from the examples, the structure of the order book may vary depending on the prevailing market conditions; moreover, it also may change from time to time without any particular market turbulence. Due to the variability of the order book, it is not always easy to grasp its information content through simple descriptive indicators. Consequently, when evaluating the results, it should be kept in mind that in addition to – and instead of – the absolute value of the indicators, it is often more informative to consider their relative changes and their development over time.

CONCLUSIONS

Liquidity indicators derived from high frequency trading data can be used to assess previously unseen dimensions of the interbank foreign exchange market. Furthermore, the particular market segment we analysed in this article plays an increasing role in the process of foreign exchange trading and exchange rate determination. Therefore, it is especially important from the central bank's point of view to study and continuously monitor its development and basic structure. In Hungary, the exchange rate channel plays a strong role in the monetary transmission mechanism. Exploring the behaviour of the key foreign exchange market participants could help decisions-makers in formulating exchange rate policy, and monetary policy in a broader sense.

Our main findings are the following. Liquidity indicators clearly reflect the turbulences of the foreign exchange market in 2003, and the relative tranquillity of 2004. An important conclusion from the central bank's point of view is that the market has become more liquid and deeper during these two years: the volume of transactions has increased, and the role of the Reuters D3000 Spot Matching has been increasing. The basic features of the indirect interbank forint/euro market, the structure of the order book and the intra-day patterns of trading show similar characteristics compared to the most developed foreign exchange markets. In terms of size and the bid-ask spreads, it is still well behind these markets, while it is similar to other emerging currencies within the region.

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Zoltán M. Jakab: Consequences of global imbalance corrections for Hungary

There are numerous signs of the emergence of global imbalances in world economy. This is reflected by the fact that of the developed countries the USA is producing a substantial, historically unprecedented magnitude of current account deficit vis-à-vis the current account surplus of a well-defined group of mainly emerging countries and of some developed countries. This is probably not an optimal situation, and in the course of solving this problem there is the question of what impacts the Hungarian economy may be exposed to and what steps Hungarian monetary policy can take. In examining the various scenarios of global adjustment, it is important to distinguish between an adjustment originating in Asia or in the USA. The former stimulates the Hungarian economy, while the latter temporarily hinders the Hungarian economy. A correction triggered by the markets has stronger output consequences for the Hungarian economy, than that of a restrictive fiscal policy in the USA. Hungarian monetary policy has an effect on whether output or inflation will become more volatile. Hungarian monetary policy tracking the ECB involves higher fluctuations in inflation and lower changes in GDP, whereas the situation is just the opposite in case of independent policies. If the exchange rate of the forint weakens due to a decline in global risk appetite, this would initially result in growing inflation, although over the longer term even lower GDP and inflation cannot be ruled out either.

INTRODUCTION

By global imbalances we mean that amongst the developed countries, the USA is producing a substantial and historically unprecedented magnitude of current account deficit vis-à-vis the current account surplus of a well-defined group of mainly emerging countries and of some developed countries. In addition to other effects, the globalisation of foreign trade and financial markets provides more opportunities for credit and capital flows between countries. The simplest argument would suggest that certain countries' having current account deficits is not a problem in its own right. On the contrary, it is an expressly useful phenomenon, since countries in a favourable position in the business cycle extend loans (produce current account surpluses) to countries which happen to be in a less favourable position. In addition, it is also not a problem, if countries which are growing at a rapid pace temporarily run current account deficits. It is worth it to become temporarily indebted and to pay back the debt later, when business conditions are more favourable, or later, when revenues are much higher, and to thus transform future welfare into the present.

However, contrary to the outlook based on this simplified theoretical framework, an opposite situation has developed. While emerging countries are exporting capital (have current account surpluses), the USA the richest region in the world is importing capital (has a current account deficit). At the same time, those developed countries where business conditions are not favourable at present (e.g. the euro area and Japan) record broadly balanced current accounts or slight current account surpluses. Therefore, the behaviour of most countries is far from what would be optimal in the long run.

One question which is frequently asked is how a correction of global imbalances can occur.[1] Numerous studies and analyses have already dealt with this subject, but they have mainly focused on large economic regions like the USA, the euro area, China and the Far East. The subject, or rather the global economic problem is not new, but the adjustment projected by economic theory has taken place only in a limited manner, which may even mean that a part of it is 'still to come'. If this is true, one important question is how it will affect Hungary. In a sense, I am trying to fill in a gap by investigating how adjustment scenarios influence Hungary and especially the monetary policy of the Magyar Nemzeti Bank.

Global imbalances started to evolve in the late 1990s: this process can be divided into two different phases. One common feature of these two phases is that a deterioration in the net savings position of American households is typical of both. However, in these two periods the USA pursued different fiscal policies. In the first phase, starting from 1997, the increase in productivity observable in the US economy and the related strong expansion of investment can broadly be held responsible for the opening of the investment-savings position, i.e. for the current account

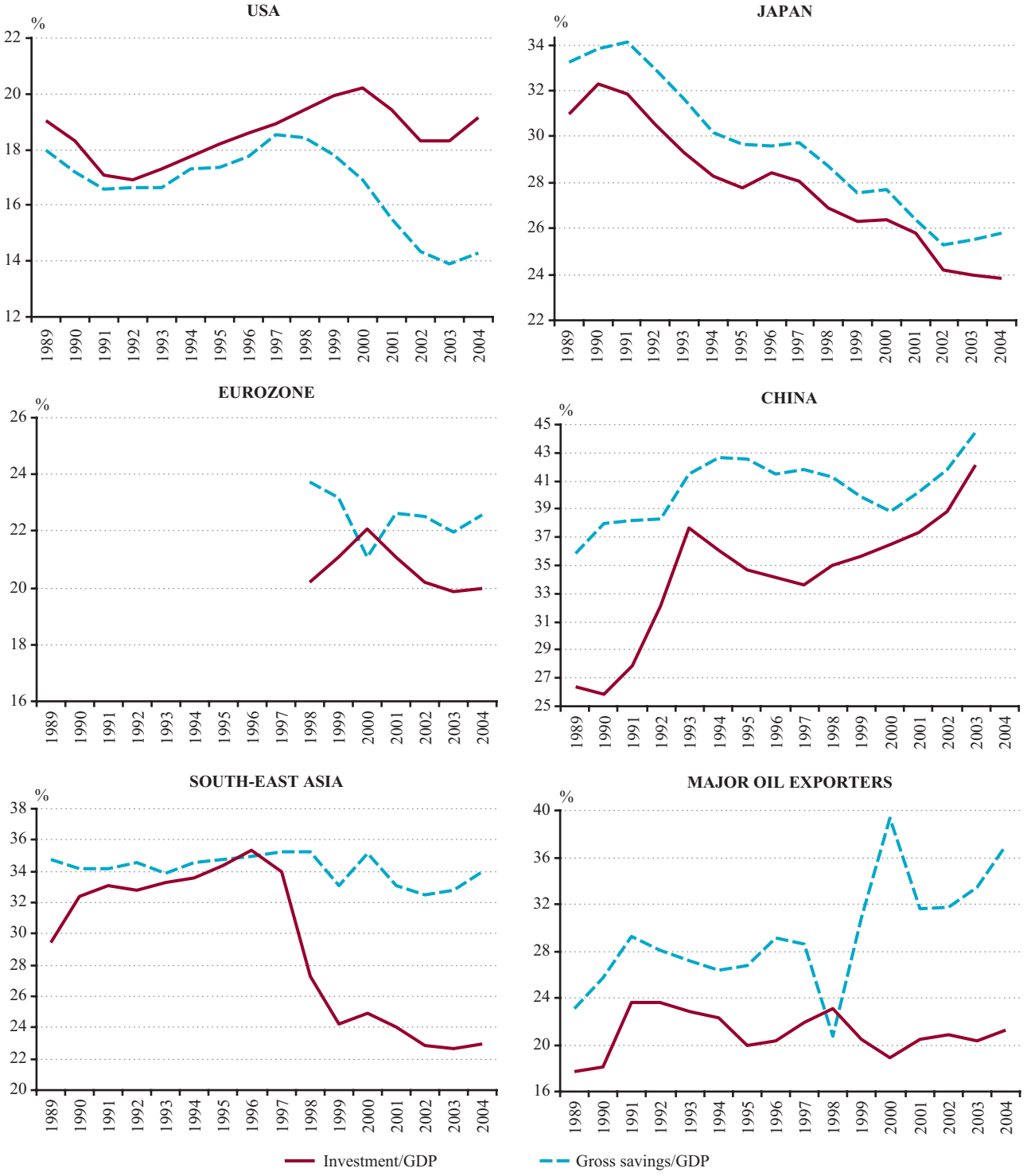
[1] The analysis is based on the MNB study titled *Correction of global imbalances: illustrative scenarios for Hungary* ('Globális egyensúlytalanságok: illusztratív szcenáriók Magyarországra') by Cecília Hornok, Zoltán M. Jakab and Máté Barnabás Tóth (2006). For details see this study.

deficit. In the phase since 2001 to date, investment activity in the USA has slowed down, whereas further deterioration of the balance of payments has been coupled with the joint deterioration of the savings of households and of the general government.

By 2005, the current account deficit of the USA had reached 6% of GDP, i.e. approximately 800 billion dollars. However, despite the series of current account deficits, the net external position of the USA deteriorated only slightly, as the USA is the largest capital exporter as well.

Chart 1

Savings and investment as a proportion of GDP in major regions



Source: IMF International Financial Statistics.

It was advantageous for the USA that its external debts are mainly dollar-based and of low yields (debt-type), whereas its foreign investments are with higher yields and in foreign exchange, and there have been significant revaluation profits on the latter.

In parallel with this, in a number of Asian and oil-producing[2] emerging countries the development of current account surpluses can be observed. It means that the balance between savings and investment has increased. In Asia, the improvement of the balance was the result of an investment ratio significantly falling compared to historical levels and of moderately declining savings ratios. China is an exception, where the investment ratio, which is exceptionally high by international standards as well, is coupled with an even higher whole-economy savings ratio. Oil-producing countries are trying to smooth in time the consumption of their additional income from high oil prices, whereas in Asian countries with a surplus, insufficient consumption demand, a shortage of attractive investment opportunities from a business aspect and socio-demographic factors[3] may provide an explanation.

According to numerous (although disputed) opinions, the fiscal policy of the United States, which became increasingly loose following the turn of the millennium, together with the growing indebtedness of households can be held responsible for the decline in the savings ratio. However, it is important to mention that historically there is no proven causal relationship between the US budget balance and developments in the US current account. The relatively low US interest rate level may also explain that the asset price movements, which involve significant wealth effects (upturn of the equity market prior to the turn of the millennium, and mainly an increase in real estate prices at present), can also be held responsible for the deterioration of US households' savings positions.

The exchange rate policy pursued by Japan, China and other South-East Asian countries may also play a role in the development and continuance of imbalances. By limiting[4] the appreciation of their currencies, these countries support their sectors producing tradable goods, which has resulted in an undervaluation of these currencies' real exchange rates against the US dollar, and these countries have accumulated significant foreign exchange reserves. The moderate domestic demand attributable to the lack of structural reforms in certain developed European countries and Japan may also have contributed to the deepening of global imbalances, although this impact can be considered relatively limited.

HOW CAN THE ADJUSTMENT PROCESS EVOLVE?

According to mainstream theoretical and empirical literature dealing with the subject (see Eichengreen, 2006), global imbalance cannot be sustained for a longer period of time. However, it is still uncertain when and with what timing a possible correction will take place, and what regions it will affect, to what extent. It is presumable that in the course of the adjustment the US savings-investment gap will close while US whole-economy savings will increase, simultaneously with a decline in Asian countries' – especially China's – savings position. The increase in whole-economy savings of the USA may start from an improvement in households' net savings position, which may be facilitated by an increase in real interest rates and a correction of the real estate market. In addition, a tightening of fiscal policy may also contribute, although its impact greatly depends on the extent of households' consumption smoothing. In the simulations, the cases of a US house-price correction with wealth effect, a fiscal balance improvement (tax increase in the USA), a permanent increase in consumption in China and an increase in the risk premium in the USA (weakening of the dollar) are examined. The significance of the latter has been pointed out many times; according to Obstfeld and Rogoff (2005) and Blanchard et al. (2005), there would have to be a significant depreciation of the real effective exchange rate of the US dollar in order for the current account of the USA to become balanced. However, Gourinchas and Rey (2005) as well as Lane and Milesi Ferretti (2004) point out that in the event of a major USD depreciation, revaluation effects influencing external asset and debt holdings may facilitate a smoother evolution of the process over time.

In order to examine the effects on Hungary of the possible corrections of global imbalances, we carried out several types of model simulations using the NiGEM world econo-

[2] Recently, within the capital flows financing the current account deficit of the USA the ratio of the savings of petroleum exporting countries has grown markedly, which is attributable to the oil price increases of recent years.
[3] Additional propensity to save appearing due to the ageing of the society and the deficiencies of the social security system.
[4] One may ask how it is possible to divert real exchange rates by monetary policy instruments for such a long time: the main reason is that in a significant group of countries, and particularly in China, the price system is not liberalised yet, and prices are kept artificially and centrally low.

my model and the MNB's Quarterly Projection Model (NEM).[5] In all the cases examined a lasting decline in the GDP-proportionate current account deficit of the USA takes place, the size of which is always 0.25 percentage point in the fourth year following the shock. The extent of the improvement of the balance is very moderate. In order to maintain the external balance of the USA a deficit reduction on the order of ten times this size may be needed. In the case of a realistic correction path, combinations of the examined scenarios may take place. Moreover, in the event that the correction takes place faster, so-called non-linear effects may also occur, which cannot be captured with the models applied. Our examinations do not aim at presenting a complete correction: we only demonstrate through what channels the small shifts of different origin in the direction of the US correction pass through and what directions of shifts they induce in Hungary.

Model simulations also take account of economic policy reactions. Two types of solutions were selected to handle the Hungarian monetary policy. The main scenario is that the MNB follows the ECB's interest rate policy. In addition, however, with regard to each simulation, the case of independent Hungarian monetary policy is also examined.[6]

In the first simulation I assume a permanent tightening of US fiscal policy corresponding to 0.5 per cent of GDP, achieved by the administration entirely by increasing income tax revenues. In the second case, relying on the latest studies examining the US real estate market prices, I postulate a 9 per cent real estate price decline in the USA.[7] In the simulations this magnitude of lasting nominal price decline in the real estate market is required for the desired (0.25 percentage point) decrease in the current account deficit. As a third possibility, I analyse the effects of a faster expansion of aggregate demand in Asia (approximately 1 percentage point faster expansion annually). Finally, I examine a scenario in which the risk premium for dollar assets increases in a way to permanently devalue the dollar at a level of around 10 per cent.

Two important lessons can be drawn from the model simulations. *First,* in respect of the short-term consequences of correction emanating from the USA on the output of the euro area, those enforced by the market are higher (modelled by the increase in the dollar risk premium or the fall in real estate prices) than if this correction was the consequence of an economic policy step (e.g. a tax increase in the USA). This is even more so, if we also take into

Table 1

The effects of the four-shock scenarios in the USA and the euro area

*(Percentage points and, in the case of the exchange rate, percentage deviations from the baseline scenario)**

	US fiscal tightening		Real estate price shock		Asian demand shock		US dollar shock	
	1st year	4th year	1st year	4th year	1st year	4th year	1st year	4th year
USA								
GDP	-0.19	-0.12	-0.60	0.09	0.03	0.08	0.03	-0.39
CPI	0.06	-0.02	0.04	-0.18	0.03	0.04	0.62	1.29
CA/GDP	0.02	***0.25***	0.09	***0.25***	0.05	***0.25***	-0.22	***0.25***
Eurozone								
GDP	-0.05	-0.01	-0.11	0.02	0.05	0.08	-0.21	0.04
CPI	-0.07	-0.06	-0.09	-0.08	0.03	0.03	-0.38	-0.28
CA/GDP	0.01	-0.10	0.04	-0.11	0.01	0.30	-0.02	-0.10
EUR/USD exchange rate	-1.69	-1.91	-2.11	-1.46	0.22	0.14	-9.55	-10.44

** All shock scenarios were set in a way to result in the USA in an 0.25 percentage point current account improvement compared to the main scenario at the end of the 4th year.*

[5] Using the models to analyse issues of this kind requires caution: typically such models are only able to capture regular correction mechanisms and have a limited ability to depict reactions of the financial institutional system. A third deficiency is that in these models the costs of intermediate production (e.g. the consequences of oil prices for cost inflation) are not detailed. Nevertheless, using the NiGEM model has advantages, as important global economic relationships are modelled. The NEM, on the other hand, model may be a suitable framework for describing the Hungarian economy.

[6] In case of China, a floating exchange rate system was assumed. Although it is indisputable that the Chinese and other Far-East exchange rate policies may play a role in maintaining global imbalances, in line with other studies (e.g. Faruqee at al, 2005), we found that the assumption regarding the Asian exchange rate policy (fixed or floating exchange rate) had only a slight effect on Hungary.

[7] See: Holland and Metz (2006).

account that a shock of market origin may easily pass through, spreading to other markets, and may adversely affect economic agents' expectations over the longer term as well.

Second, the disadvantageous costs of correction to be borne by developed economies can be significantly reduced by the decline in the net savings position of Asian countries.[8] Although one of the elements of an Asian adjustment may be the abandonment of pegged exchange rates and thus an appreciation of currencies, a really strong and lasting global economic effect could result from a gradual shift in the currently strongly export-oriented countries towards a path of growing domestic (mainly consumption) demand. From the perspective of the euro area, a correction stemming from Asia would also be advantageous because then the dissolution of global imbalances would take place between the current accounts of the USA and Asia.

CONSEQUENCES FOR HUNGARY

Hungary's foreign trade relations are mainly oriented towards European countries; ties with the USA are only indirect, i.e. mostly through other European countries. Therefore, effects on Hungary mainly depend on developments in the euro area. Although the consequences for Hungary are similar to those on the euro area, some important differences can be observed. On the one hand, the *short-term* effect on growth and inflation appears in a cushioned manner compared to that of the euro area. On the other hand, however, due to the significant openness of the Hungarian economy, consequences related to the external equilibrium are more considerable. Over the longer term, the effects are greatly influenced by the character of monetary policy. We examine the cases of two kinds of monetary policies: one that follows the ECB's interest rate policy, and one that operates according to an independent monetary policy rule.

If the exchange rate is only influenced by the interest rate differential, the case of Hungarian monetary policy following the ECB's interest rate steps means an unchanged forint/euro exchange rate as well. It is clear that both in terms of economic growth and external equilibrium the least advantageous is the correction enforced by international money markets, i.e. the risk premium shock of the dollar. The other three correction possibilities are coupled with more moderate GDP consequences, similar to those of the euro area. A possible speed-up of import demand of the Asian region may have a favourable impact on Hungarian GDP.

Table 2

Effects of the four shock scenarios in Hungary

(Percentage points and, in the case of the exchange rate, percentage deviations from the main scenario)

	US fiscal tightening		Real estate price shock		Asian demand shock		US dollar shock	
	1st year	4th year	1st year	4th year	1st year	4th year	1st year	4th year
Shadowing the ECB's policy (constant HUF/EUR exchange rate)								
GDP	-0.02	-0.04	-0.03	-0.04	0.01	0.07	-0.10	-0.15
CPI	-0.02	-0.08	-0.03	-0.13	0.01	0.09	-0.10	-0.36
CA/GDP	-0.04	-0.14	-0.06	-0.18	0.03	0.13	-0.20	-0.53
Short-term interest rate	-0.09	-0.17	-0.13	-0.22	0.07	0.20	-0.38	-0.66
Independent Taylor rule								
GDP	-0.02	-0.03	-0.09	-0.01	0.01	0.13	-0.02	0.08
CPI	-0.02	-0.03	-0.03	-0.12	-0.01	0.01	-0.10	-0.12
CA/GDP	-0.03	-0.13	-0.09	-0.17	0.01	0.23	-0.10	-0.51
Short-term interest rate	-0.03	-0.18	-0.06	-0.46	-0.07	0.08	-0.12	-0.95
HUF/EUR exchange rate	0.04	0.19	-0.10	-0.15	-0.88	-1.48	0.00	0.61

[8] In this case world oil prices would also increase. As noted earlier, oil prices are generally modelled through their impacts on aggregate demand in the NiGEM model. Cost-push inflationary effects through increased production costs are not modelled. Hence, the inflationary impact of an Asian demand shock may be underestimated.

There is a great difference, depending on whether the correction takes place via the exchange rate of the US dollar or via US real estate prices. In terms of inflationary effects, corrections belonging to the first type usually have more significant inflationary consequences (decline in inflation) over the longer term. The Asian demand shock adds to inflation, whereas the other three reduce inflation. Overall, Hungarian monetary policy following European interest rate steps – at least over the examined four-year horizon – is unable to perfectly stabilise Hungarian inflation.

However, assuming an independent Hungarian monetary policy, changes in the forint/euro exchange rate are also allowed. Over the longer term, inflationary effects are kept under better control by independent monetary policy as compared to a policy tracking that of the ECB. Except for the US real estate price scenario, this can reduce inflationary effects to between one half and one ninth. However, stabilisation of inflation is not perfect in this case either, and in terms of a longer-term average the GDP consequences in the case of independent monetary policy are not much different from a policy following the lead of the ECB. The difference is that in this case short-term fluctuations are higher.

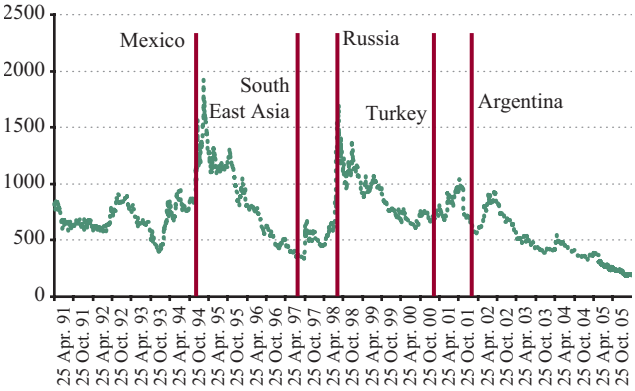
A disorderly correction amplifies the negative impacts affecting the Hungarian economy

The aforementioned simulations provide a basis with regard to the process of the correction of global imbalances and its effects on Hungary. However, they are not suitable for describing the interactions taking place in the event that crisis-like corrections, the likelihood of which is low and which involve significantly greater macroeconomic effects than those mentioned above, occur together with various shock effects.

Let us examine how an irregular, crisis-like correction might take place. The magnitude and direction of capital flows shown in the financial account can change much faster than this, which may even result in serious effects on the real-economy side. According to international experience (see Tóth, 2005), current account corrections taking place with a sudden stop or change of directions in capital flows were mainly typical of emerging markets. In the course of corrections like this, a sudden increase in the risk premium expected of dollar-denominated emerging market assets was observed, which typically had a negative effect on most emerging countries with external imbalances in the given period of time. This is well-illustrated by the developments in risk premiums around balance of payments correction episodes in major emerging markets. However, in developed countries, most balance of payments corrections took place in parallel with steady capital flows (see Freund, 2000).

Chart 2

Risk premium developments



** JP Morgan Emerging Market Bond Index, bond index calculated from the dollar-denominated sovereign bonds of 27 emerging countries.*

Experiences suggest that balance of payments corrections in emerging countries were often coupled with a significant weakening of the exchange rate, increases in yields and a decline in GDP. On the contrary, in developed countries they tended more to involve temporary yield increases, weakening of the real exchange rate and a minor growth sacrifice (see Croke et al., 2006).

What could Hungary expect, if a disorderly correction of global imbalances was coupled with a sudden and substantial increase in the risk premium on forint assets? Two effects have to be taken into account: on the one hand, there would be depreciation pressure on the forint, and on the other hand, corporations' user cost of capital would increase, whereas capital demand and investment would decline. Using model simulations, I present to what extent all this changes our picture of the effects on the Hungarian economy. Although a complete numerical comparison is not possible, I nevertheless attempt to demonstrate how uncertainty affecting emerging markets by itself influence the Hungarian economy. The complete effect would be tome kind of a result of the effect mechanisms presented now and in the previous chapter, although the ratio of the roles played in such a situation by emerging market anomalies and correction paths starting from developed countries cannot be foreseen.

Table 3

Effect of the risk premium shock scenario in Hungary

(Percentage points and, in the case of the exchange rate, percentage deviations from the main scenario)

	1st year	4th year
There are no extra capital cost increasing factors		
GDP	0.16	-0.08
CPI	0.15	-0.14
CA/GDP	0.65	0.80
Short-term interest rate	0.81	-0.03
HUF/EUR exchange rate	7.33	1.63
There are extra capital cost increasing factors		
GDP	-0.13	0.04
CPI	0.17	-0.34
CA/GDP	0.95	1.44
Short-term interest rate	0.95	-0.75
HUF/EUR exchange rate	8.70	3.00

It is also a question, whether in addition to an increase in the user cost other effects that may result in behaviours different from traditional capital demand explanations also commence. For example, one of them is that in the case of the corporate (and household) sector(s) the risk premium shock and the weakening nominal exchange rate would trigger balance sheet revaluation effects through the credit channel (especially for companies indebted in foreign exchange). These effects were modelled using a scenario characterised by a higher increase in user costs. Disregarding the balance sheet impact, the risk premium shock fundamentally results in a weakening of the forint, which via the improvement in net exports initially raises GDP growth, associated with a simultaneous improvement in the balance of payments. Initially, inflation increases due to the depreciating exchange rate, then it starts to decline slightly, due to effects related to a fall in investment. The results of the simulation based on the assumption of a higher increase in user cost show a reaction of opposite direction in growth and a stronger reaction of the same direction in the current account balance. However, in this case the medium-term decline in inflation is more significant, whereas the initial increase in inflation is broadly identical with that observed in case of the lower user cost of capital.

CONCLUSIONS

I have demonstrated that there are several ways that a global correction can occur, and it is of key importance for the Hungarian economy how it takes place. From the aspect of Hungary, there is a significant difference whether the effects coming from Asia or the US dominate in the course of the correction. The former stimulate, the latter temporarily hinder the Hungarian economy. It is also very important whether the initial adjustment is reflected in the dollar exchange rate, in the US real estate prices or rather in demand factors (tax increase). Money market effects of the correction also play an important part. The reaction of the Hungarian monetary policy may be of key importance, whether output or inflation becomes more volatile. In the event that the Hungarian monetary policy follows the ECB in a passive manner, it involves higher inflation fluctuations as compared to pursuing an independent monetary policy. As a longer-term average, the effect on output is practically identical in case of both monetary policy reactions.

However, the above considerations do not take account of possible developments in financial markets. Therefore, completion with an analysis of the effect of an irregular, crisis-like global correction on Hungary is also necessary. We found that due to the weakening of the exchange rate, inflation would initially increase, but later the decline in investment due to the increasing user cost would offset this, and in the medium term, as a result of the lower economic growth, an even lower inflation could evolve, while the direction of the effect on GDP growth is not clear. The latter depends on the magnitude of the importance of increase in user cost compared to the initial growth-stimulating effect of the temporarily weaker real exchange rate.

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András Rezessy: Considerations for setting the medium-term inflation target

The medium-term inflation target set in summer 2005 and taking effect in January 2007 brings fundamental changes in the Hungarian inflation targeting mechanism. Whereas formerly the government and the central bank used to set a new inflation target each year, a 3-percent medium-term target will enter into effect from the above date onwards. The transition to the new mechanism was not self-evident, as both the former and the new regimes have their specific drawbacks and benefits. This article discusses these issues, arguing that the advantages of the new regime are far more important than its drawbacks and exceed the benefits of the old regime. In the current state of the Hungarian economy, a 3-percent inflation target can be deemed optimal on the medium term. The reason why it is slightly higher than the inflation targets of the countries with advanced economies is the catching-up nature of the Hungarian economy. The Hungarian inflation target is reviewed every three years, since the optimal level of inflation may change, and will probably decrease in Hungary over time. Another important date, when the inflation target will again be reviewed, will be Hungary's prospective entry into the common European exchange rate mechanism (ERM-II). The article also explains that the inflation target has been defined as a point target, which, given the situation of Hungary, is more favourable than a target band, which is employed by many other countries.

INTRODUCTION

The monetary policy of the Magyar Nemzeti Bank (MNB) has been operated within the inflation targeting regime since the summer of 2001. Under this monetary policy regime, the central bank endeavours to achieve the inflation target defined and announced publicly together with the government, subordinating the interest rate and exchange rate policies to the fulfilment of this target.

Up to the end of 2006, the MNB and the government set the inflation target on an annual basis. By 2005, the rate of inflation had been reduced to a low level, which has enabled the government and the central bank to fix the inflation target for a longer period at a level consistent with price stability.

As of January 2007, this continuous 3 percent target enters into effect, which brings about substantial changes in the operating environment of monetary policy. The essential difference between the two regimes is that while the previous one allowed the central bank to take into account new considerations each year due to the changing situation when setting the new target, the continuous regime represents a longer-term (but not necessarily endless) commitment of monetary policy. The two regimes would therefore differ even if the numerical values of the targets coincided for a given period of time.

This article discusses the background of the transition to the continuous target and explains the most important features of the new regime and the major considerations related to these features. The transition to the new mechanism was not self-evident, as both the former and the new regimes have their specific drawbacks and benefits. This article discusses these issues, arguing that the advantages of the new regime are far more important than its drawbacks and exceed the benefits of the old regime. The second part of the article investigates some important issues such as the numerical value of the target, the validity of the target, the horizon of monetary policy (i.e. the period within which the target is to be achieved) and the definition of the target either as a band or a point.

BENEFITS AND DRAWBACKS OF VARIABLE AND CONTINUOUS TARGETS

In the theoretical literature, there are relatively few references regarding the benefits and the drawbacks of these two different inflation targeting strategies. The issue is normally discussed together with the choice of the horizon of the monetary policy. The basic idea behind the comparison of the two regimes is a trade-off between the credibility and the flexibility of the regime, i.e. you can only increase credibility at the expense of flexibility, and vice versa.

An advantage of the annual target is that it ensures flexibility regarding the handling of any major inflation shocks (in particular at a shorter monetary policy horizon), as the central bank can determine the speed of the stabilisation process following the shock by setting the targets for sub-

sequent years. Flexibility may also be useful for the fulfilment of the Maastricht inflation criterion,[1] if the rate of inflation must be reduced below the price stability level defined by the MNB for the reference period.

However, the flexibility of the annual targets involves greater uncertainty for the future. The higher uncertainty of inflation expectations hinders the consolidation of the credibility of monetary policy with regard to price stability. A further drawback is that as the targets refer to specific dates (which used to be December in Hungary), the horizon of monetary policy is changing constantly. It is unclear when monetary policy switches from a specific end-of-the-year target to the next one in its the interest rate policy, which reduces the transparency of the regime.

On the other hand, the continuous target has the benefit of increasing the predictability and transparency of monetary policy. Therefore, it can help to stabilise inflation expectations and consolidate the credibility of the central bank. A continuous target is better able to guide long-term inflation expectations than a variable target, and it also reduces long-term uncertainty. This may help reduce the stickiness of inflation (i.e. the phenomenon that inflation can move away from a given level only slowly and gradually), making it easier for inflation to return to a level of price stability quickly, at a low real economic cost and with low interest and exchange rate volatility.

It is worth noting that in the past fifteen years central banks which have achieved price stability have all switched to a continuous target.[2] Other inflation targeting central banks have all started to operate the regime using a continuous target consistent with price stability. The continuous target can thus be considered the international best practice. A fixed target introduced following the completion of disinflation also conforms to the law on the central bank in Hungary (achieving and *maintaining* price stability). Finally, a credible, continuous inflation target may be more effective in preventing deflation and a liquidity trap than a variable target (Svensson, 2000).

Theoretically, however, the lack of flexibility may cause problems in the case of a continuous target. According to Bernanke et al. (1999), for example, if a major supply-side shock occurs, maintaining a fixed target may be too expensive over the short and medium term. Although in many countries the target has remained the same for a long time after price stability has been achieved, it would be mistaken to believe that the target has become fixed and will never change, as such peaceful periods may not necessarily last forever. Therefore, the authors suggest that the inflation target be reviewed annually even if the long-term inflation target is consistent with price stability. It should be noted that this problem can be reduced considerably by choosing a longer horizon (e.g. 5 to 8 quarters), as the central bank is then able to tolerate the shocks over such periods, provided that they are of a transitory nature. Looking at the international practice, the United Kingdom is the only country where the target is reviewed on an annual basis[3].

As far as the circumstances of the application of the two regimes are concerned, employing a variable target is practical if the country is on a disinflation course or if a major shock has diverted the economy from price stability (Yates, 1995). As for the situation in Hungary, since inflation had been reduced to a level approaching price stability by 2005, disinflation no longer necessitated the annual target. It should be noted that in the international practice, inflation shocks are handled with methods other than variable targets, such as a longer-term (app. 5 to 8-quarter) horizon or not specifically defined horizon and escape clauses, which allow temporary deviations from the target in certain cases.

WHY IS 3 PER CENT THE NUMERICAL VALUE OF THE CONTINUOUS TARGET?

Since, on the basis of the best international practice and the Hungarian law on the central bank, which follows this practice, the objective of monetary policy is to achieve and subsequently maintain price stability, it is obvious that the definition of price stability of the government and the central bank is crucial in the definition of the numerical value of the continuous target. According to an MNB study, the optimum long-term rate of inflation is currently between 2.3 and 3.2 percent in Hungary (Kiss and Krekó, 2004). This value is higher than the price stability definition of the European Central Bank, the natural point of reference for Hungary, which defines the preferred medium-term rate of inflation for the euro area at a level "close to but below 2 per cent". The fact that the optimum level in Hungary is

[1] This is one of the 'Maastricht criteria' concerning the introduction of the euro, which requires that the 12-month average of the domestic inflation rate does not exceed the average of the inflation figures of the three EU member states with the lowest positive inflation rates by more than 1.5 percentage points.
[2] An exception is Slovakia, where the targets are derived from the convergence process and thus the Maastricht criteria.
[3] See the section on the validity of the target below.

Table 1

International practice in setting inflation targets

	Target value (per cent)	Term of validity	Horizon of monetary policy	Definition of the target
Czech Republic	3	Until the adoption of the euro	Medium term	Point target with a tolerance zone
Poland	2.5	Until entry to the ERM-II	Medium term	Point target with a tolerance zone
Slovakia	2	Annual targets	n.a.	Point target with a tolerance zone
Chile	2-4	n.a.	4 to 8 quarters	Target band
UK	2	Annual review	Medium term	Target point
Sweden	2	n.a.	4 to 8 quarters	Point target with a tolerance zone
Canada	1-3	Reviewed every five years	6 to 8 quarters	Target band
New Zealand	1-3	Until the expiry of the mandate of the governor; can be reviewed any time	Medium term	Target band
Australia	2-3	n.a.	The average of a business cycle	Target band
Israel	1-3	n.a.	4 quarters	Target band

higher than that is due to the catching-up nature of the Hungarian economy.[4] This factor will probably be relevant for a long time, although its importance may gradually decrease.

Taking into account that inflation targets are normally set at integer or half a percent levels, the estimated optimum range offered a choice between 2.5 and 3 percent. In setting the target, the government and the MNB took into consideration that the choice of 2.5 percent as the fixed target posed the risk of a potential loss of output over the longer run. In comparison with the international practice, the Hungarian inflation target is in line with the targets applied by similar emerging economies, though it is slightly higher than in countries with more advanced economies (see Table 1).

THE TERM OF VALIDITY OF THE CONTINUOUS TARGET

While the term of the validity of annually fixed targets was self-evident, the validity of a continuous target is a less clear-cut issue. It should be emphasised that in the international practice, many central banks avoid making the impression that they have taken an eternal commitment. As Table 1 shows, the target is in force for a pre-defined period in the practice of a number of central banks:

- In our region, until adoption of the euro, entry into the common exchange rate mechanism (ERM II) or expiry of the mandate of the decision-making body of the central bank.
- In Canada, until expiry of the 5-year agreement between the central bank and the government.
- In New Zealand, until expiry of the office of the President (Governor) of the central bank. The government or the central bank may initiate the amendment of the agreement on the target and a review of the definition of price stability, which has in fact occurred several times.
- In the UK, the definition of price stability is reviewed each year and the possibility of its adjustment is explicitly upheld. Since the introduction of the current regime in 1992, however, the target has only been modified once, due to a change in statistical methodology.

[4] The phenomenon is due primarily to the 'Balassa-Samuelson effect', which essentially says that in a country where the growth rate of the tradable sector productivity is permanently higher than that of its trade partners, a substantial difference in the rate of inflation will occur between the domestic non-tradable and the tradable sectors. If the inflation target is too low, the tradable sector may be forced to reduce prices permanently. On the basis of practical experience, however, businesses may be unwilling to reduce their prices, instead, they often respond by cutting back on production. Therefore, an unduly low inflation target may result in a loss of output. It should be noted, however, that the importance of this phenomenon may change over a longer period of time, e.g. as the catching-up process advances, the speed of economic convergence may slow down.

In Hungary, the inflation target was also set with a definite term of validity: the target is reviewed in three years' time. The necessity of a review of the target and the definition of price stability is due to the catching-up nature of the Hungarian economy and the fact that the resulting excess inflation may change (probably decreasing) over time. Another important date for Hungary is the country's prospective entry into the ERM II regime, when the inflation target is again to be reviewed.

WHAT IS THE HORIZON OF MONETARY POLICY WHEN MAKING ITS POLICY DECISIONS?

Since monetary policy is only able to influence inflation at with a certain lag, inflation-targeting central banks make their decisions on a forward-looking basis, taking into account the anticipated inflation in the future. The period within which monetary policy aims to return inflation to the target following a shock is called the horizon of monetary policy.

There is a difference in the horizon of monetary policy as far as strategies based on annual targets and continuous targets are concerned. Under the previous regime, the end of the term of the inflation target was fixed in time, i.e. a given level of inflation had to be reached by that date. Therefore, the length of the horizon of monetary policy was permanently shifting with time; the forward-looking nature of policy was ensured by the fact that targets were set for two years ahead. A continuous target, however, remains in effect continuously from a specific initial date. Therefore, the length of the horizon of monetary policy is constant in time, and the horizon keeps rolling forward in a moving window fashion.

In order to determine the length of the horizon for the continuous target, one needs to take into consideration the trade-off between the credibility/transparency of the target and the flexibility of the regime. While a very distant target is probably less able to guide inflation expectations, the achievement of an unduly early target may cause difficulties, involving a higher fluctuation in monetary conditions and output. A longer horizon allows greater flexibility in terms of responding to sudden shocks. A longer horizon, however, also leads to higher the uncertainty in the forecasts.

In addition, given the fact that the target is defined as an annual inflation indicator, the existence of base effects requires the horizon to be longer than 12 months, since the first-round effects of an inflation shock are only eliminated from the index after 12 months. It is therefore useful to opt for a medium-term horizon (5 to 8 quarters), which is long enough to enable the assessment whether a given shock is transitory or long-lasting and how the second-round effects emerge.

A study by Várpalotai (2005) employs various model calculations in order to examine the optimal horizon of monetary policy in Hungary. According to his findings, it is appropriate from the point of view of social welfare that the central bank makes its interest rate decisions on the basis of the evaluation of anticipated inflation trends 1.5-2 years ahead. Such a horizon leaves sufficient time for the central bank to return inflation to the targeted value in an optimal manner from a welfare point of view for most prospective shocks. However, the study emphasises that some shocks may be of such magnitude that inflation may deviates from the target for longer than 1.5-2 years if the central bank responds to such shocks in a welfare optimising manner.

Finally, practical considerations related to the methodology of forecasting must also be taken into account for determining the optimum horizon of monetary policy. The relevant information content of forecasts of a horizon shorter than four quarters is relatively low, as they are dominated by extreme values and base effects carried over from the previous year. On the other hand, the maximum horizon is around 8 quarters, as forecasts for periods longer than that are not sufficiently reliable due to uncertainty. Consequently, the values forecast for 4 to 8 quarters ahead should be taken into consideration by monetary policy.

In the international practice, central banks setting a continuous inflation target typically employ a medium-term horizon. It can be a definite one (e.g. 6 to 8 quarters), but a number of central banks operate without specifically defining the horizon. Instead, they state that their goal is to achieve the target in the 'medium run' (see Table 1).

Considering all the above factors, the horizon of the Hungarian monetary policy has been defined as 5 to 8 quarters. The Monetary Council thus makes its interest rate decisions looking forward to that period, i.e. always considering the expected inflation trend for the forthcoming 5 to 8 quarters.

This horizon enables the decision-makers to take into consideration that certain factors divert inflation from the 3-percent target only temporarily (such as the indirect tax measures of the government or the modification of certain officially regulated prices). While the effect of such factors alone does not affect longer-term inflation trends, it has the risk of adversely affecting inflation expectations. Should that happen, this would have a long-lasting effect on infla-

tion, which must be prevented by the central bank. However, as the offsetting of such temporary factors may result in substantial and undesirable fluctuations of the real economy, the MNB formulates its monetary policy in a way that while it does not counteract one-off inflation impacts, it tries to prevent the emergence of spillover effects with a view to ensuring the long-term stability of inflation.

TARGET POINT OR TARGET BAND

As shown in Table 1, central banks can choose between defining their inflation target as a specific numerical value (e.g. 3 per cent), called target point or as a range. If a target point is adopted, a 'tolerance band' is also used in most cases. This is typically ±1 percentage point wide and has its role at the ex-post assessment of the fulfilment of the target. Inflation within the tolerance band is considered as the achievement of the target. In the past, the target used to be defined as a point target in Hungary (3±1%), but with the switch to a continuous target the question arose whether it is more advantageous to define a target range.

It should be emphasised that a point target with a tolerance band is different from a target range, as the former has a central value that is better able to anchor inflation expectations, which is missing in the latter. Therefore, the two alternatives have different consequences for interest rate policy: in the case of a point target, the central bank tries to keep inflation close to it; the tolerance band only has a role in retrospect, at the assessment of the achievement of the target. In the case of a target range, however, the central bank is declared to be indifferent to the movements of inflation within the given range.

The trade-off between transparency and flexibility described above is also valid with regard to the two types of target definition: while the point target is more transparent and is likely to guide expectations more effectively, a target range theoretically offers a more flexible regime. But while a broad range does not anchor expectation, a range that is sufficiently narrow from this respect is not much easier to meet than a point target. Missing a target range, however, results in a greater loss of credibility than missing a point target, as a point target is almost impossible to attain. Consequently, it is better to target a point and regularly explain to the public the reasons behind any deviation from the target (see, for example, Mishkin, 2001 and Bernanke et al., 1999).

In this sense, there would be a marked difference between setting a target band of 2 to 4 percent or a 3-percent target with a tolerance zone of ±1 percentage point. Since the inflation targeting regime was in operation for a relatively short time in Hungary before the adoption of the continuous target, the credibility of the central bank regarding the maintenance of price stability had not been fully established. Therefore, the changeover to the continuous target may play an important role in establishing and consolidating credibility. The price stability and target definition declared by the central bank plays a significant guiding role in this respect. Defining the target as a 2 to 4-percent range may have the risk of being less able to guide long-term expectations, as a result of which inflation may be permanently stuck at the upper half of the target band, which would later make it difficult to fulfil the Maastricht criterion.

On the basis of the above factors, the continuous target has also been defined as a point target in Hungary. In order to take into account fluctuations due to unforeseen effects in the ex-post assessment of the fulfilment of the inflation target, a ±1 percentage-point tolerance zone has also been adopted. Therefore, a ±1 percentage-point deviation of the consumer price index from the 3-percent target is admissible in terms of price stability, i.e. it does not mean that the central bank has missed its inflation target.

CONCLUSIONS

During the first five years of the inflation targeting regime (between 2001 and 2006), the MNB and the government set the inflation target annually for a period of at least 24 months in advance. By 2005, the rate of inflation had been reduced to a low level, which allowed the government and the central bank to set the inflation target for a longer period at a level corresponding to price stability, starting from 2007.

The essential difference between the former annual and the new medium-term regimes is that while the previous regime allowed the central bank to take into account new considerations each year due to the changing situation for setting its inflation target, the continuous regime represents a longer-term (though not necessarily eternal) commitment of monetary policy. This explains the benefits and the drawbacks of the two regimes. While variable targets allow greater flexibility, this also involves greater uncertainty for the future, which makes it more difficult to establish the credibility of the commitment to price stability. The constraints resulting from the continuous target have the benefit of increasing the predictability of monetary policy and thus help establish credibility. The practical importance of the credibility effect is demonstrated by the fact that a continuous target is employed by inflation targeting central banks in those countries where the rate of inflation is around price stability.

Since, on the basis of the best international practice and the Hungarian law on the central bank, which follows this practice, the objective of the monetary policy is to achieve and subsequently maintain price stability, it is obvious that the definition of price stability by the government and the central bank is crucial for the definition of the numerical value of the open-ended target. Taking into account the results of research conducted in the MNB, the medium-term inflation target has been defined as 3 percent of the consumer price index in Hungary.

It should also be emphasised, however, that, similarly to the practice of many other central banks, the medium-term inflation target has been set for a definite period: the target is to be reviewed in three years' time. The necessity of the review of the target and the definition of price stability is due to the catching-up nature of the Hungarian economy and the fact that the resulting excess inflation may change (probably decreasing) over time. Another important date for Hungary is the country's prospective integration into the ERM II regime, when the inflation target will again be reviewed.

Since monetary policy is only able to influence the inflation trends with a certain lag, the MNB makes its decisions taking into account anticipated future inflation throughout the forthcoming period of 5 to 8 quarters. This horizon enables the assessment of whether specific shocks are transitory or long-lasting and how the second-round effects emerge. As offsetting temporary factors may result in substantial and undesirable fluctuations of the real economy, the MNB formulates its monetary policy in a way that it does not counteract one-off inflation effects, while it tries to prevent the emergence of spillover effects with a view to ensure the long-term stability of inflation.

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Dr. Valéria Széplaki: Reform of the Hungarian corporate insolvency regulation and its financial stability aspects

Corporate insolvency regulation is of decisive relevance for banks in terms of their secure operation and ability to recover outstanding claims from corporate clients. This topic has been the subject of many debates lately, as Hungarian corporate insolvency regulation has been undergoing reforms since 2003. One of the main objectives in this regard was to adopt new measures to improve the mediation of funds in the economy. This study introduces reviews leading to the reform, demonstrates the measures already adopted and those in the pipeline, and finally offers an assessment of the measures in general and from the perspective of financial stability. Reform measures adopted so far are favourable from the perspective of financial stability, since the international standards which have been introduced improve the secure operation of commercial banks when mediating funds. However, the reform has to be carried on, with special regard to the enhanced creditor protection temporary administrators and liquidators must be enabled to protect the interests of creditors in any situation and creditors should be afforded means to enforce it.

INTRODUCTION

It is the legal responsibility of the Magyar Nemzeti Bank to support financial stability. This activity includes monitoring the factors that have an impact on the operation of the financial system. In this context, domestic corporate insolvency regulation plays a definitive role since it affects the secure operation of the commercial banks and their ability to recover outstanding claims from corporate clients. These factors combined have the capacity to determine the ability of the banking system to carry out its basic responsibility, i.e. to mediate funds between savers and borrowers.

In Hungary, the change in the political system in 1989 brought along economic development and, consequently, changes in the insolvency regime. The first major overhaul of corporate insolvency regulation was commenced in 2003 in the wake of strong criticism articulated by different sources. The World Bank, the International Monetary Fund and the European Bank for Reconstruction and Development voiced their worries on the subject that creditors have little say in the business affairs of insolvent companies, and that it is difficult for them to exercise even the scant rights they have. Judges, liquidators and temporary administrators pointed out that they have no means to block attempts to rescue assets to the detriment of creditors. The Hungarian Financial Supervisory Authority and the Magyar Nemzeti Bank underlined that the current regulation is inadequate to guarantee that banks operate safely in accordance with international standards.

Regulatory changes so far indicate a shift toward better and improved regulation as they now contain facilities enabling creditors to recover their outstanding claims at a higher rate. Thanks to the application of international standards, commercial banks are now able to mediate funds under better safety conditions, i.e. they can operate more beneficially from the perspective of financial stability. Corporate insolvency regulation nevertheless remains imperfect. The entitlements of creditors have to be further improved so as to enable liquidators and temporary administrators to better represent the interests of creditors in the proceedings.

Credit risk, insolvency proceedings, securities

Risk is inherent in any business relationship where one party owes money to the other, namely that he or she will not honour the debt. This uncertainty factor is referred to as *credit risk*. Moreover, creditors may face the possibility of being able to have a claim repaid only in an *insolvency proceeding*, where they are prone to share the debtor's assets with other creditors. Among two types of insolvency proceedings in Hungary, *bankruptcy proceedings* are lodged by the company's management in an effort to persuade its creditors to accept that the current financial difficulties are only temporary, and that these difficulties may be resolved by rescheduling. *Liquidation proceedings* may be requested by the creditors as well, with the aim of liquidating the company's assets and terminating the company's corporate existence. Having more than one creditor involved is enough in itself to increase the possibility of receiving little money in the end. Moreover, the situation is worse if the regulatory environment is inad-

equate to guarantee that the debtor's assets are protected from any infringement and that the court proceedings will not consume what remains. Creditors may also be interested in the survival of their trading partners facing temporary financial strains.

For creditors, one way to reduce exposure to credit risk stemming from credit relations is to secure items from the debtor's estate, for example real estate or securities in advance. For the entitled creditor these 'fixed' property items serve as a financial source of debt repayment in case the debtor goes bankrupt. These securities will be able to reduce risks only if the creditor is not blocked in any way or form from satisfying his or her claim. Consequently, the prerequisite of using securities in the commercial world is that they must continue to serve as a security in insolvency proceedings. This means ideally that they should remain 'effective', meaning that they cannot be taken over and made part of the bankruptcy estate. Should they become part of the bankruptcy estate, the liquidator shall represent the interest of the creditor entitled to the security, i.e. the security has to be sold quickly and at the highest possible price, and the creditor has to be paid off in a timely manner.

WHY WAS THE REFORM OF CORPORATE INSOLVENCY REGULATION INDISPENSABLE?

Since the change of the old political regime in 1989, efforts have been made to bring the Hungarian insolvency regulation up to date with economic developments. However, the criticism that proceedings are far too costly still stands. Some of the reasons for expensive proceedings are that the proceedings are time consuming, the regulation lacks the facilities to allow financially troubled companies to reorganise properly and creditors are granted weak means to protect their interests. All of these issues were highlighted recently partly by Hungary's accession to the European Union, and also by expert surveys of international bodies conveying a dim picture on Hungarian corporate insolvency regulation. Finally, local experts have been viewing national regulations and practices with increasing alacrity and growing expectations in tune with international standards.

In the following, we elaborate on some of the issues involving Hungary's corporate insolvency regulation that have recently surfaced.

Costly proceedings

Proper corporate insolvency regulation enables companies facing temporary financial difficulties to reorganise at the lowest possible cost, and to terminate the activities and existence of non-viable ones. The quality of regulation can be measured by the time required for secured and non-secured creditors to recover their outstanding claims in full or in part.

In Hungary - before the reform - secured creditors were able to recover 50% of their claims, while the ratio of recovery of non-secured creditors was around 2%. In international comparison, this index was 83% for secured creditors in Great Britain, and 62% for non-secured creditors in France (Sussman, 2005).

The low recovery of non-secured creditors was due to the fact that in Hungary most proceedings, i.e. 90%, (Csőke, 2004) were commenced against companies with no assets. As for the remaining 10%, the assets were consumed by the high costs of court proceedings, or were lost due to poor management decisions or fraud. According to previous experience, the nominal value of creditors' claims decreased to 64% by the mere fact of entering the liquidation proceeding (Frank-Lóránth, 2006). In other words, even under the best case scenario, it is impossible to achieve a higher percentage of recovery on the account of the indirect costs involved, such as the claim registration fee, the liquidator's fee, and the wage and tax costs of the company's ongoing operation. Additional real losses are generated by the lengthy proceedings.

On the other hand, the lack of protection of security in proceedings presented a greater problem from the perspective of financial stability. Protection was available subject to an agreement between the creditor and the debtor only if concluded at least six months before the time of commencing the liquidation proceedings. Moreover, even if fulfilling this requirement, effective securities were included in the bankruptcy estate. The decision on the sale of security in terms of time and procedure used to lie with the liquidator. Due to the high costs of liquidation proceedings, secured creditors could reasonably expect only half the market value of the security. Therefore, when calculating the securities effects on reduction of credit losses the effective value was far below market value, which made bank loans more expensive in two different ways. On the one hand, directly as banks demanded more securities to cover credit risk, and on the other hand, indirectly since banks' incurred higher operating expenses due to higher regulatory capital requirements.

Lengthy proceedings

A driving factor for the costs of insolvency proceedings is the actual length of the proceedings. More particularly, if a decision is adopted in insolvency proceedings in a short time, financial troubles faced by the debtor will have a lesser impact on the flow of funds between the economic participants affected. In bankruptcy proceedings the debtor is either granted the moratorium or has no other choice but to terminate financially non-viable activities. In liquidation proceedings the company is quickly expelled from the economy, and secured and non-secured creditors hastily receive repayment of their claims, or they learn the extent of their losses in a short time. In the banking system securities are quickly liquidated, the proceeds can be accounted and then deducted from credit losses in a timely manner.

However, Hungarian corporate insolvency regulation did not facilitate the swift conclusion of proceedings. Acknowledging creditors' claims was a time-consuming process, similar to taking inventory of the debtor's assets. Moreover, creditors had to be notified one by one, meaning close to ten thousand delivered documents in the case of larger companies. As far as technical aspects are concerned, regulation provided seven months for bankruptcy proceedings. As for liquidation proceedings, it took at least four months from the time the creditor's request was filed to the day the proceedings were actually opened. From the perspectives of both creditors and debtors, these durations jeopardised everyday business. In spite of the fact that under the regulation liquidation proceedings had to be finished in two years - in line with international standards - they generally lasted close to 4 to 5 years according to the banks. The reason for this is that liquidation proceedings cannot be closed while there is a lawsuit pending in connection with any creditor's claims.

The proceedings failed to provide any assistance for companies under temporary financial strains

Along with the duration of the proceedings, it is just as important that if the financial problems of the company are only temporary, regulation enables creditors to help their debtors to re-establish themselves, or to carry on with profitable business lines. This type of *reorganisation* of debtors is less expensive than setting up a new company.

In the Hungarian regulatory environment, bankruptcy proceedings were meant to provide for this type of distinction between companies in temporary and permanent financial distress and for continued operation or transformation of viable companies. However, bankruptcy proceedings failed to live up to this expectation, which is well demonstrated by the fact that from almost 20,000 insolvency proceedings in 2005 the number of bankruptcy proceedings reached only 26 (Creditreform, 2006). Since bankruptcy proceedings can only be initiated by the company's management, creditors had no other choice but to file for liquidation proceedings as part of a concerted effort to compel any commercial partner, who is otherwise in good financial standing but refusing to pay nonetheless, to negotiate a settlement. These proceedings usually end with a composition agreement, for example 62% in 2003 (Frank-Lóránth, 2006), while in few cases companies under proceedings facing only temporary liquidity problems had to be terminated because liquidation proceedings made their further operations impossible.

Yet another problem is that the management of debtor companies did not use the time and means of bankruptcy proceedings to negotiate with the creditors about the debtor company's future and to persuade creditors to reschedule their debts, but rather focused on rescuing the company's assets to themselves or to certain privileged creditors. This was made possible by the failure of the regulation to suspend all payments in bankruptcy proceedings. In addition, the legal entitlements conferred upon temporary administrators were not enough to fight fraud effectively.

Inadequate creditor protection

International institutions frequently emphasise that advanced corporate insolvency regulation ensures enforcement of creditors' interests. One aspect of this is that in proceedings the interests of creditors are represented by an independent participant. Furthermore, it is necessary that temporary administrators and liquidators have statutory rights that enable them to protect the estate of companies, or to increase its value by the continued operation of the company, as well as by recovering assets. Moreover, the protection of creditors' interests also means that creditors should be given legal means to compel liquidators and temporary administrators to represent their interests and to keep them properly informed. The theoretical basis for this requirement is that if a company becomes insolvent it also means that its owners have lost their investment, hence becoming an unlikely source for creditors to receive repayment. Consequently, creditors should have the right to take control of the company's management; furthermore, creditors should be able to claim any credit loss from the owners and/or members of management if they are found guilty in wilfully or negligently driving the company into the state of insolvency.

The domestic regulatory environment, however, did not provide a sufficient basis for the financial liabilities of management and owners. Although regulation contained some feeble attempts to allow creditors to exercise control over their insolvent debtors, these did not work in reality. In bankruptcy proceedings and liquidation proceedings external participants (temporary administrator, liquidator), who were theoretically independent, were appointed to monitor the affairs of debtors. The entitlements of temporary administrators, however, were insufficient to prevent attempts to rescue the company's assets, while there were conflicting interests in the proceedings of liquidators, for they were primarily tied to the debtors. As for liquidators, they received a percentage of the proceeds from continued operation and from the sale of assets. It was not in their interest to provide unbiased information to the creditors or the court. Moreover, they had to divide their attention equally among secured creditors and non-secured creditors, and bankruptcy creditors whose claims were ranked even more favourably. Creditors had no legal means to impose any sanction upon or seek the replacement of a liquidator who did not represent their interests. Likewise, on account of the troublesome nature of the obligation to provide information as mentioned before, creditors had no means to monitor whether the liquidator had actually acted in their interests. Furthermore, contrary to international best practice, there were no special qualification requirements liquidators had to satisfy, plus there were no means to exclude liquidators with an inappropriate background, more so as they often conducted proceedings hiding under the corporate veil. Similarly, the settlement of claims of creditors - including secured creditors - hinged upon the liquidators. If a liquidator fails to represent the interests of secured creditors it will ultimately jeopardise confidence in securities.

CURRENT STATUS AND THE FUTURE OF THE REFORM

The reform of corporate insolvency laws was launched with the goal of finding solutions to the above-specified issues. Additionally, some other measures had to be adopted in connection with Hungary joining the European Union, and besides, from a professional standpoint, the best international practice served as an example when designing the amendments to the regulation.

'Effective' securities in insolvency proceedings – harmonization with Community legislation

The role of 'effective' securities in an economy is recognised by the European Union as well. According to Community legislation the assets under financial collateral agreements for covering credit risk in the financial system cannot be considered as part of the debtor's bankruptcy estate.

Fulfilling our obligation as a Member State to harmonise with Community laws, since June of 2004, certain assets used as financial collateral have been removed from the debtor's assets under bankruptcy protection. According to Directives 98/26/EC and 2002/47/EC, creditors are allowed direct access to cash and securities pledged as collateral in connection with capital market transactions, without the need for opening insolvency proceedings.

Current reform measures were also adopted in consideration of the need that domestic banks enter into financial collateral arrangements with their clients and operate in accordance with Community laws governing banking activities.

One measure adopted in the reform procedure was to recognise collateral arrangements as of July of 2006 even if concluded just one day before the time of commencing the liquidation proceedings. Additionally, as of January 2007 securities are known to cover creditors' claims close to 100% (as opposed to 50%). Although, liquidators are still allowed to deduct a small portion of their expenses from the proceeds, the new provisions place a limit on the amount to be deducted and they prescribe that creditors are to be paid off forthwith. After these amendments Hungarian banks can act on a level playing field in Europe.

Insolvency proceedings of Community companies – simplified rules for opening the proceedings

The relevant Community legislation (Regulation 1346/2000) enables creditors to file for liquidation proceedings against companies registered in other Member States in Hungary. As a prerequisite these companies are required to have a business establishment in Hungary or manage the company from Hungary.

Proceedings taking place in Hungary are better for the creditors as the costs are less, and as a consequence of the European legislation, there is no chance that these proceedings will not be recognised in another Member State. To achieve the greatest benefits it is essential for the Hungarian court to reach a decision rapidly, and for the proceedings to start as soon as possible.

In the same context, the measures on opening of liquidation proceedings have also been simplified. Following the

amendment, creditors are not required to wait out the 60-day late payment period to open liquidation proceedings, and it is no longer a prerequisite that the debtor acknowledges the claim. Since June 2006, if the creditor is able to prove having notified the debtor, and the debtor is unable to prove replying, the liquidation proceedings may be opened. Creditors' rights to open proceedings in an easier way is an internationally renowned practice. The new provisions provide facilities to reveal quickly as to whether a company exists only in name, or they do not have even the mere courtesy to correspond with their clients.

Strict regulations concerning qualifications and conflict of interest

Although some progress was made in the qualification of liquidators and temporary administrators, the major breakthrough is still three years away. Effective as of January 2010, liquidators are required to have proof of proper training. Furthermore, the amendment contains provisions to clearly separate the rules for conflict of interest for business associations and private individuals acting as liquidators. As of January 2007, the names of qualified companies and persons are listed in the register of liquidators along with the documents in proof of their compliance with requirements.

New rules of financial liability

The reform offers different ways to enforce financial liability if any unpaid claims of creditors remain at the end of the liquidation proceedings. According to the amendment entering into force in June 2006, the previous owners of a company may be held liable even if they sold the company that was losing money or existed only on paper before the time of the opening of liquidation proceedings. Majority owners are held accountable the same way if they had a history of making unfavourable business decisions from the standpoint of an affiliate. Furthermore, members of management are now subject to financial liability if they were or should have been able to foresee that they will not be able to settle their liabilities when due, yet they did not file for bankruptcy. This latter amendment, widely known as the concept of wrongful trading, is becoming widespread in international practice.

Measures expected beyond 2006

After 2006 the review of Hungarian corporate insolvency regulation continues, focusing on the remaining discrepancies.

An essential component remains to be addressed, notably that Hungarian regulation should provide for the continued operation of temporarily insolvent companies up to international standards. Another point is that in international commercial relations it is in the interest of Hungarian creditors to have insolvency proceedings opened a soon as possible. These two expectations emerge in tandem in one of the proposed reform concepts, according to which the insolvency proceedings would open upon submission of the creditor's request without undue delay. Opening the proceedings would not in itself mean that the company in question is insolvent; it would merely indicate that negotiations are required in light of the company's financial prospects, short or long term. The bill also calls for the creditors' meeting to convene promptly, to adopt a decision whether to keep the company afloat with the existing management or with a new one, or to wind it up.

In the near future new amendments are scheduled, simplifying the way for creditors to receive information concerning the management of their debtors and the steps taken by the liquidator. Notifying the creditors through the Internet will expedite all phases of the proceedings, and it also enables them to file their claims swiftly and to call the creditors' meeting in a faster and less expensive way.

In the near future some minor corrections are expected to be introduced as well, addressing, for example, technical issues in connection with simplified rules for opening the proceedings.

Assessment of reform measures, in particular from the perspective of financial stability

Comprehensive changes in corporate insolvency regulation were inspired by the heavy criticism. Some of the first measures of the reform procedure were aimed to offer solutions for certain urgent issues, others were introduced in compliance with the obligations stemming from Hungary joining the European Union, or to adopt international standards. The question is whether the measures adopted up to this point were enough to address existing discrepancies? To answer this question let us one more time go over the critical issues described earlier in this study.

Proceedings shall be less costly

From the perspective of financial stability it is of utmost importance that the high repayment ratio (close to 100%) guaranteed to secured creditors by law and the financial

liability of owners and management both carry the promise of higher recovery rate of claims. This will enable banks to operate in a safer environment in accordance with international standards. In terms of cost efficiency another positive development is the possibility of opening proceedings in Hungary against companies registered in any Member State. Costs may be further reduced if the proceedings are conducted faster, which is now possible since the simpler rules for opening proceedings have been adopted. Strict regulations concerning qualifications and conflict of interest may have a similar effect on costs.

However, several uncertainty factors remain. There is still no guarantee that liquidators will strive to obtain the highest possible price for assets pledged as securities, or to pay off the claims of creditors as fast as possible. It is yet unforeseeable what will be the cost of proving the financial liability of owners and members of management. All in all, the single most important objective from the perspective of financial stability is to afford more direct means for creditors to assert their influence over the proceedings, in other words, temporary administrators and liquidators must be enabled to protect the interests of creditors in any situation and creditors should be afforded means to enforce it.

Proceedings should be less time consuming

One factor to reduce costs is that measures on the opening of proceedings against Hungarian and Community companies have been simplified, which reduces the time required for the payment of claims. This is beneficial for non-secured creditors, including banks.

Nevertheless, the regulation contains nothing about the necessary technical aspects. There are still no provisions to reduce the length of court proceedings. Furthermore, the 15-day period allowed for decisions could be too long in proceedings against companies registered in other Member States, for it leaves the possibility open for proceedings to be initiated sooner in another Member State, in which case Hungarian creditors would be forced to file their claims in that court. Moreover, the simplified opening of proceedings is not enough in itself by any means, for additional incentives should be introduced to further simplify matters when the proceedings are in progress. In this context as well, the protection of creditors' interests must be intensified.

Regulation remains unchanged in terms of offering help to companies in temporary financial difficulties

So far the reform failed to introduce measures to improve the regulation of bankruptcy proceedings.

There are some improvements in the means afforded to creditors to protect their interests

The higher ratio of recovery guaranteed to secured creditors, the strict regulations concerning qualifications and conflict of interest and the financial liability of owners and members of management offer some improvement in the way of helping creditors to better protect their interests.

At the same time, despite the efforts to make securities more effective, non-financial assets pledged continue to comprise a part of the debtor company's bankruptcy assets and decision for the sale of collateralised property in terms of time and procedure lies with the liquidator. Consequently, additional guarantees should be introduced to compel liquidators to protect the interests of creditors in connection with securities, meaning to obtain the highest price possible and to pay off the claims of creditors as fast as possible. On the other hand, temporary administrators should be empowered to better protect or to recover the company's assets. These points again indicate that it is essential to further improve the entitlements of creditors.

Proposed reform measures: are they sufficient to address the problems that remain?

The measures and concepts in the pipeline promise to improve the legislation and are important factors for the reform procedure to be a success. They have the capacity to upgrade the quality of regulations, as they reduce the costs of the proceedings and thus enhance the ability of the banking system to mediate funds between savers and borrowers. At the same time, we should point out that – in this context as well – it is essential that the entitlements of creditors be further improved.

CONCLUSIONS

The measures taken so far in the process of reforming Hungarian corporate insolvency regulation are favourable

from the perspective of financial stability, i.e. the application of international standards improve the security factor in mediating funds from the viewpoint of commercial banks. In this context, it is of special importance that the ratio of recovery for secured creditors is expected to rise, due to the legal guarantees and the financial liability of owners and members of management. All in all, proceedings should be less costly under the new provisions simplifying the opening of proceedings and because proceedings may be filed against Community companies in Hungary as well. Strict regulations concerning qualifications and conflict of interest of liquidators and temporary administrators may have a similar effect on costs.

However, several uncertainty factors remain. There is still no guarantee that liquidators will strive to obtain the highest possible price for assets pledged as securities, or to pay off the claims of creditors as fast as possible. It is unforeseeable what will be the cost of proving the financial liability of owners and members of management. All in all, the single most important objective from the perspective of financial stability is to afford more direct means for creditors to assert their influence over the proceedings; in other words, temporary administrators and liquidators must be enabled to protect the interests of creditors in any situation and creditors should be afforded means to enforce it.

In due consideration of the remaining shortcomings and of the measures proposed to be introduced after 2006, we are of the opinion that the concepts presented so far point in a desirable direction.

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