MAGYAR NEMZETI BANK

MNB BACKGROUND STUDIES

2003/3

Edited by Gyula Barabás

COPING WITH THE SPECULATIVE ATTACK AGAINST THE FORINT'S BAND

Budapest, May 2003

Online ISSN 1588 9084

Contributors: Csaba Balogh, Tamás Czeti, Szilárd Erhart, Zsolt Érsek, András Kármán, Gergely Kóczán and Róbert Rékási

Editor: Gyula Barabás

E-mail: barabasgy@mnb.hu

The MNB Background Studies comprise of economic papers related to decision making at the Magyar Nemzeti Bank. The aim of series is to increase the transparency of monetary policy. Thus, besides technical issues of forecasting we also publish selected background material of the decision making process. These studies are released only in electronic format. These analyses reflect the views of the authors and do not necessarily correspond with the official views of the Magyar Nemzeti Bank.

Magyar Nemzeti Bank

H-1850 Budapest

Szabadság tér 8-9.

http://www.mnb.hu

Abstract

Summary

Background

In 2002, of the factors affecting inflation, fiscal and wage policy considerably departed from the path anticipated early that year. The demand generated by general government increased by more than 4% of GDP, which was significantly higher not only than the figures forecasted on the basis of the budget in early 2002, but also what was projected in the government's Mid-term Economic Programme in August 2002. At the same time, wage increase in the corporate sector was slow in adjusting to decreasing inflation and wage dynamics well exceeded productivity growth.

The MNB had to maintain stringent monetary conditions lest the inflation path should depart materially from what had been projected and the process of disinflation that commenced in May 2001 should reverse, given the strong upside risk to inflation generated by fiscal and wage policy. The MNB intended to maintain a relatively strong exchange rate of HUF/EUR 240-245 until October 2002, and in order to avoid exchange rate depreciation, it also raised the interest rate by 50 basis points twice.

However, the Bank did not wish to *fully* offset the upside risk that fiscal expansion and wage dynamics posed to inflation. In the interest of the credibility of its inflation targets, the Bank thought it was important that the government of the day supported such targets. Therefore, in July 2002, it modified its inflation target for 2003, and set an inflation target for December 2004 that was fully in line with the government's Mid-term Economic Programme.

In the autumn of 2002 it became obvious that fiscal expansion and the rate of wage growth would be significantly higher than what was forecast in August. Thus, an exchange rate of HUF/EUR 240-245 seemed to be inadequate to meet even the modified inflation target. Given the above situation, the MNB did not intend to use its interest rate policy to prevent the appreciation of the forint that took off after the Irish referendum. Both the modified 2003 inflation target and the one set for 2004 required an exchange rate very close to the edge of the forint's intervention band; thus the MNB only made two minor interest rate cuts.

Concurrently with the appreciation of the exchange rate, pressure on the Bank to considerably reduce its key policy rate was building up. Many called for the abandoning of the inflation targets or at least its repeat modification. Under the circumstances a massive interest rate cut would have undermined the credibility of the inflation targets and jeopardised the process of disinflation through generating higher inflationary expectations. In stark contrast, the Bank's interest rate policy unequivocally evidenced the Bank's commitment to the process of disinflation, which was especially crucial in December and January, a period of utmost importance in terms of changes in prices and wages.

The appreciation of the forint's exchange rate after 19 October was attributable to the demand of long-maturity government securities by foreign nationals. No considerable amount of speculative capital flowed in until 15 January. After the Bank's interest rate cut in December, the size of foreign nationals' government securities portfolio stopped increasing, with the forint's exchange rate stabilising near the strong edge of the band. Though certain market players expected an exchange rate stronger than the edge of the band already in the final months of 2003 owing to Hungary's approaching entry into the ERM II, market processes did not suggest any short-term speculation on the appreciation of the forint.

The attack

In early January 2003,the MNB was ready, if it were to intervene, to lower its key policy rate to a level where it was able to ensure that the exchange rate would remain near the strong edge of the band without substantial intervention. On 15 and 16 January, however, the Bank had to face the challenge of extremely heavy speculation on the appreciation of the forint. Within the span of two days the MNB had to purchase a considerable amount of euros totalling EUR 5.3 billion owing to massive forint purchases by foreign speculators.

The fact that the forint's exchange rate was near the edge of the band spurred some market participants to make an attempt at forcing a shift in the band. The speculative attack was not directed towards profiting on the interest rate differential; rather towards forcing a shift of the exchange rate band. Neither the MNB, nor anybody else anticipated this speculation. Nor could it have been, for that matter, as it was irrational as well as unjustified in many respects. The attack proved that speculators had not been fully cognisant with the Act on the MNB. Most believed that, independently of the Government, the Bank had sole discretion to decide on shifts in the band. The very volume of the capital that flowed in itself made it dubious whether all speculators would ever have been able to recognise gains on the forints that they had bought.

Through the interest rate cuts and changes to its instruments, the MNB did not take long to repel the speculative attack successfully. Following the Bank's action, the speculative capital started to make its exit in the afternoon of 16 January.

Consolidation

As soon as the speculative capital started to make its exit, the MNB set about consolidating the money market and FX market situation that had evolved in the wake of the attack. The banks funnelled the excess liquidity that had flowed out as a result of the intervention into O/N deposits placed with the MNB. Falling yields did not lead to inflationary pressure because of the shortness of the provisional period. The Bank managed to localise the effects of the speculative attack on the interbank market: fluctuation in short-term yields fed into long-maturity government securities, bank deposits and loans only to a negligible extent. The MNB's presence on the FX market from the very first moment provided for the possibility of the rapid and controlled exit of the speculative capital, so that a substantial weakening of the forint's exchange rate would not endanger either the process of disinflation or the stability of the financial system.

The MNB first resorted to open intervention, then to FX auctions and finally conducted silent intervention in order to ensure the amount of euros needed for the exit of the speculative capital. Prior to 24 February, foreign speculators had closed over two thirds of their positions, which enabled the Bank to restore its set of monetary policy instruments to their pre-speculation status quo. The sale of euros purchased during the speculative attack went on at a slower pace even after the set of instruments had been restored. Due, mainly, to the Bank's silent intra-band intervention, the exit of the speculative capital was over by May 2003. Over seventy percent of the speculative capital that had poured into Hungary on 15 and 16 January exited through the MNB's euro sales. To a lesser extent, forint purchases by residents also provided for the possibility that foreign speculators could close their positions.

The bottom line of the speculation on the appreciation of the forint. Lessons to be learnt

The investors who participated in the unjustified speculation in January 2003 had to post massive losses. As the MNB had succeeded in selling nearly EUR 3.8 billion at a rate much lower than the upper edge of the band, it realised exchange rate gains totalling HUF 43 billion. The Bank will pay these gains into the central budget during three years, starting in 2006. On the whole, the market processes after the speculation against the forint's band facilitated the banking sector to increase its earnings and contributed to an over 50-percent increase in the sector's after-tax profit in 2003 Q1 relative to the corresponding period in 2002. Banks also posted profit from declining yields and, through the commissions charged, from increased turnover on the FX market.

Fending off the speculative attack successfully enhanced the credibility of the exchange rate regime. The MNB's extensive FX purchases and rapid interest rate cuts attested to its commitment to maintaining the exchange rate regime. Meanwhile, the exchange rate losses incurred by the speculators made it clear that the Bank was able to contain speculation against the strong edge of the forint's band successfully.

Though the speculation on the appreciation of the forint did cause uncertainty, neither the speculation itself, nor yield and exchange rate changes in its wake put the Hungarian financial intermediary system in danger. The very provisions of the financial regulatory system pertaining to financial prudence and the banks' by-laws kept risk exposure on a low level, which prevented both the revenues and liquidity of the banking system from receiving a blow. Commercial banks did not participate in the speculation on the appreciation of the forint, they only played an intermediary role.

After the speculative attack the Bank had to face a new situation. The exchange rate band represents more severe limitations on monetary policy than previously thought. In order to avert future speculation on the appreciation of the forint, the MNB will have to keep the exchange rate of the forint not only within the band, but also at an adequate distance from the strong edge of the band. Compared to the period immediately prior to the speculation, this means obligate monetary loosening.

In the final months of 2002, a period of utmost importance in terms of price rises and wage negotiations, the forint's exchange rate was very near the strong edge of the exchange rate band, which influenced the disinflationary effects of earlier exchange rate appreciation beneficially: inflation and wage data from recent months suggest that at year-end 2002 and in early 2003, the disinflationary effects of a strong exchange rate, exerted indirectly, and through expectations, heightened. Disinflation accelerated in the group of goods (e.g. tradables, market services and processed food) that are most influenced by monetary policy and the exchange rate. Declining oil prices and the fact that global economic growth is expected to remain subdued also in 2003 further facilitates the process of disinflation.

Speculation on the appreciation of the forint in January forced the MNB into accommodating for a weaker-than-earlier exchange rate. However, the possibility of meeting the inflation target for 2004 has increased since the end of the speculative attack owing to earlier monetary tightening and exogenous factors. Thus, the 3.5 +/- 1 % inflation target is likely to be met even at an exchange rate of HUF/EUR 245.

Background

Fiscal and wage policies representing an upside risk to inflation

The Bank continuously monitors all the major macro-economic factors that most affect inflation. Some are domestic (e.g. fiscal and wage policies), others are exogenous (e.g. oil prices, the expectations of foreign investors and inflation in the Eurozone). In order that actual inflation can tally with projected inflation, and economic actors, employers and employees can be spared any nasty surprise arising from extra costs, the Bank has to respond to changes in the factors affecting inflation. It is the Bank's responses to a changing environment that guarantee that actual inflation tallies with projected inflation.

2002 had several serious challenges in store for monetary policy, for all major economic variables turned out to be considerably different from what the Bank projected early that year. In early 2002, the MNB was of the opinion that the projected inflation target, 4.5 +/- 1 % for December 2002 and 3.5 +/- 1% for December 2003, could be met with an exchange rate of HUF/EUR 250-255.[1]

During 2002 both fiscal and wage policies came to represent greater upside risk to inflation than expected early that year. The demand generated by the general government increased by more than 4% of GDP, which was significantly higher not only than the figures forecasted on the basis of the budget in early 2002, but also what was projected in the government's Mid-term Economic Programme in August 2002.

Wage dynamics was also more forceful than expected. Compared to a 9-percent increase in wages projected in early 2002, actual increase was over 13%. Wage raise in the private sector was by far more substantial than what could have been reasonably justified by productivity growth: real wages increased by 7-8%, whereas productivity only grew by a mere 2 %.[2]

Public spending and wage dynamics generated an unprecedented annual 9-percent increase in household consumption, pushing up prices during the year.

Stringent monetary policy

A strong exchange rate. An interest rate policy preventing the weakening of the forint's exchange rate

The MNB had to react to the major shifts in fiscal and wage policies lest the process of disinflation that began in May 2001 should come to a halt or reverse. Therefore, it intended to keep the forint's exchange rate relatively high, in the HUF/EUR 240-245 band. Due to the concerns voiced over the general government deficit and the current

---

[1] As the forint's exchange rate, a factor that is more important than interest rates in the process of disinflation, appreciated to a lower level than that in first months of the year, it was possible to lower the key interest rate several times.

[2] The Monetary Council in its statements admonished, first in February 2002, that unless wage dynamics was able to adjust itself to declining inflation, corporate profitability would seriously deteriorate.

account of the balance of payments as well as exogenous effects, the forint's exchange rate weakened twice. However, the MNB increased its key interest rate by 50 basis points on both 22 May and 8 July lest the forint's exchange rate should drop below HUF/EUR 245 for any length of time.

Modification of the inflation path

However, the Bank did not wish to *fully* offset the upside risk that fiscal expansion and wage dynamics posed to inflation. The MNB was of the opinion that, in the interest of credibility, it was important that the government of the day should also be committed to the inflation targets. Furthermore, interim costs incurred by declining inflation might also be lower in the case of concerted fiscal and monetary policies. Therefore, in July 2002, it modified its inflation target for 2003, and set a 3,5 +/- 1 % inflation target for December 2004, which was fully in line with the government's Mid-term Economic Programme.[3] This target was the same as the former target for December 2003 thus, the Bank's agreement with the new government in office put disinflation on a slower track.

After the Irish referendum

The Irish referendum on 19 October 2002 had brought about considerable change in the forint's exchange rate. It reassured market participants, among them, foreign investors, who had had worries about the date of Hungary's EU accession. Following the Irish referendum, country risk as perceived by foreign convergence investors decreased significantly and further declined after the final date for Hungary's EU accession had been announced. Compared to the risks assumed, yields looked lucrative to foreign investors. In stark contrast with an earlier situation where the MNB had to resort to increasing its key interest rate in order to prevent the weakening of the forint's exchange rate, after 19 October, capital started to pour into Hungary, leading to the strengthening of the forint's exchange rate. The bulk of the capital influx materialised through the purchase of long-maturity government securities by foreign investors: the size of the government securities portfolio held by foreign nationals grew from HUF 1,462 billion to HUF 1,793 billion in two months, which translated into an approximately 1.4-EUR influx. The average maturity of the government securities purchased by foreign investors was 4.3 years, which unequivocally substantiates the fact that no short-term speculative capital flowed in during the period in question.

Concurrently with FX pouring into the government securities market, the forint's pre-Irish referendum rate of exchange of HUF/EUR 245 appreciated to HUF/EUR 237 within a month.

General government deficit and wage dynamics turned out to be higher than projected in August 2002, thus a HUF/EUR 240-245 rate of exchange set earlier was insufficient to meet even the modified inflation target. An agreement concluded with Conciliation Council in November 2002 also suggested wage dynamics stronger in 2003 than forecast in the inflation projection. Therefore, the Bank did not wish to employ its key

---

[3] Prior to the modification, the inflation target for 2003 was 3.5 +/- 1 %. After the modification the MNB sought to meet an inflation target below 4.5%. The latter meant raising the target by 1 percentage point, for there was no monetary tightening until projection for December 2003 exceeded 4.5%.

policy rate to prevent the intra-band appreciation of the forint's exchange rate as such appreciation further facilitated the Bank to meet its inflation target. The Bank's 50-basis-point interest rate cut in each of November and mid-December, which reflected a decline in the risk premium on forint investments, primarily sought to slow down appreciation rather than weaken the exchange rate.

As the forint's exchange rate appreciated so the pressure on the Bank to lower its key policy rate was building up. Many called for the abandoning of the inflation target or at least its repeat modification. Under the circumstances a massive interest rate cut would have undermined the credibility of the inflation targets and jeopardised the process of disinflation through generating higher inflationary expectations. In stark contrast, the Bank's interest rate policy unequivocally evidenced the Bank's commitment to the process of disinflation, which was especially crucial in December and January, a period of utmost importance in terms of changes in prices and wages.

Events immediately prior to the speculative attack of January 2003

After the Irish referendum, major investment banks only anticipated a slow appreciation of the forint, forecasting an exchange rate staying within the intervention band until year-end 2003. In early December, however, some investment banks modified their respective exchange rate projections for year-end 2003 to HUF/EUR 221-225, i.e. an exchange rate outside the band. As a result, market participants' expectations of the medium-term sustainability of the exchange rate band subsided. Analysts believed that the Bank's commitment to the process of disinflation and the (modified) inflation targets to be met would necessitate further appreciation, on the one hand, and that central parity might well be adjusted prior to Hungary's entry into the ERM II regime, on the other, which would, in their opinion, translate to a higher exchange rate.

Despite the weakening of the credibility of the exchange rate band, most investment banks thought that any shift in the band was unlikely in the short run. Instead, they believed that the MNB would defend the band with deep interest rate cuts or even FX market intervention if need be. The Bank's interest rate cut in November reinforced analysts' expectations that the Bank was going to defend the exchange rate band by lowering its key interest rate.

Although derivative (mainly options) positions speculating against the forint's band did appear from mid-November, unlike government securities purchases, they did not exert pressure on appreciation. Market information revealed that they mostly meant a 6-12-month horizon, which gave no hint whatsoever on a possible short-term speculation about the appreciation of the forint.

After the Irish referendum, both the Bank and the Government jointly expressed their commitment to maintaining the exchange rate band several times. Statements from the President of the Bank, the Minister of Finance and the Prime Minister all contributed to a slower exchange rate appreciation.

After the MNB's 50-basis-point interest rate cut on 16 December, capital influx slowed down. The size of the government securities portfolio held by foreign investors stood around HUF 1,800 billion before 15 January, and no longer grew. The forint's exchange rate stabilised in the immediate vicinity of the upper edge (HUF/EUR 234.69) of the exchange rate band. In early January, there were no signs whatsoever suggesting an early shift in the band. On the contrary, the price of derivatives hinted at an even later date.

The MNB decided not to lower its key interest rate any further as in order that its modified inflation target for 2003 and the one set for 2004 could be met, an exchange rate fluctuating near the strong edge of the band was needed. Although the MNB did sense that the credibility of the exchange rate band could be questioned at a 1-2-year horizon owing to expectations of Hungary's ERM II entry, market processes gave no indication whatsoever of any speculation about appreciation in the short run. What could be anticipated was that, if convergence investments in the government securities market kept on at the same pace, intervention at the edges of the band might be necessary, but it would not incur substantial costs. Therefore, the MNB decided to make a deeper interest rate cut only when it had to intervene at the edges of the band. This strategy was meant to send market actors the message that the Bank would prefer an exchange rate close to the edges of the band, but it intended to avoid any intervention. However, on 15 and 16 January 2003, it had to intervene on a scale that could not have been anticipated.

The speculation against the forint's band

Causes

The speculation about the appreciation of the forint is likely to have been triggered by a combination of several factors.

1. Market actors projected a 5-percent inflation for year-end 2003, which was higher than the modified inflation target. In their estimation this meant that the inflation target for 2003 could be met only if the forint's exchange rate exceeded the upper edge and abandoned the trading band. As inflation policy had been credible, a shift in the band was anticipated in the interest of meeting the inflation targets.
2. If Hungary were to introduce the euro in 2007, it would have to join the ERM II regime after its EU accession in May 2004. Though the Exchange Rate Mechanism II would mean a +/-15% exchange rate band, similar to the going band, market players estimated that central parity would not be allowed to be very different from going market rates when Hungary joined the ERM II regime, which in turn meant a shift in the band. Many market participants anticipated a 2007 introduction of the euro, which, they thought, meant a shift in the band in two years at the latest; that again could have given rise to further appreciation.
3. A number of investment banks counted on a consistent and predictable trend in exchange rate appreciation in the region of Central and Eastern Europe in the period running up to the introduction of the euro. According to their analysis, which was based on the theory of purchasing power parity, the forint's purchasing power would have to reach the level at which the currencies of peripheral countries (i.e. Portugal, Spain and Greece) stood upon the introduction of the euro. Given the situation, a considerable real and nominal appreciation of the forint could be anticipated in the years to come.
4. The exchange rate itself, which was near the edge of the band, is also likely to have spurred market actors to force a shift in the band. They erroneously overestimated the role of the interest rate channel and believed that the MNB would be unable to

cut interest rates because of the inflation targets it had to meet. Without cutting the interest rate, however, a substantial intervention (difference between forint and euro interest rates stood at 5.75 percentage points prior to the outset of the speculation) would incur costs on a scale that the Bank would be unwilling to bear.

Owing to the above considerations, some market participants could easily believe that a shift in the band was only a matter of short time. The fact that investors and investment funds that had never had any investment in Hungary before purchased forint on 15 and 16 January also corroborates this.

However, important information, broadly available to the market, escaped the speculators' attention, a fact based upon which, it can be stated that *the speculation against the forint's band was unjustified and irrational*.

1. Pursuant to the Central Bank Act, the MNB and the government of the day shall jointly decide on any shift in the band. Moreover, the Government voiced its opinion on several occasions that it deemed the appreciation of the forint excessive. He who was cognisant with what is set forth in the Central Bank Act, and was aware that the Government's stance on the forint's exchange rate was different from that of the Bank, could hardly have thought realistically that a shift in the band providing for the possibility of the forint's further appreciation would occur.
2. Numerous analysts and market actors relied on the textbook model of major economies, in which raising interest rates means monetary tightening, whereas interest rate cuts were the tool for monetary loosening. This leads to the conclusion that fiscal policy and wage dynamics representing an upside risk to inflation could not allow for interest rate cuts. However, Hungary is a small open economy, where interest rates influence consumption and investment decisions to a much less extent than the exchange rate. Thus, the rate of exchange plays a more significant role in disinflation than interest rates do. This also means that the MNB can lower its key interest rate without actually generating inflation provided that the forint's exchange rate does not depreciate. As a result, despite an exchange rate very close to the edge of the band, the MNB had more latitude in cutting interest rates without jeopardising its targets than some market participants could have thought.
3. The amount of the capital that had poured in was immense relative to the size of the Hungarian FX market. Therefore, even if the band had been shifted and the forint had appreciated, profit realising forint sales by speculators would have weakened the exchange rate to such an extent that most of them would have been unable to close their speculative positions in Hungary profitably.
4. Market participants also underestimated the MNB's intervention capacity. Thanks to debt payment strategies adopted in 2002, international reserves had dropped from over EUR 13 billion prior to the broadening of the band to below EUR 10 billion by year-end 2002. Furthermore, owing to the magnitude of foreign debt service, it is relatively easy to reduce reserves. As a result, reserves increased by heavy intervention near the edge of the exchange rate band did not cause any problem to the MNB. Central bank reserves were not high by international standards even after the speculative attack.

The speculative attack of 15-16 January 2003

On 15 January the exchange rate of the forint reached the edge of its trading band. The MNB, under its commitment to the band, had to sell a total of HUF 213 billion (against EUR 908 million) at HUF/EUR 234.69 to 14 of its resident partner commercial banks, which bought forints from the MNB upon their foreign counterparties' order. The FX transactions by Hungarian banks revealed that buy orders for large amounts of forint on the day in question had been placed by 8 major foreign banks, many of which have subsidiaries in Hungary. The speculative attack was mounted by these foreign banks or rather the clients they represent. Following the intervention on the first day of the attack, at an extraordinary meeting in the afternoon, the Monetary Council of the Magyar Nemzeti Bank decided to lower its key interest rate by 100 basis points effective from 16 January.

Although the market had been expecting an interest rate cut, its timing took investors by surprise. Not only because the decision was made at an extraordinary meeting a mere two days after the Monetary Council had decided, contrary to expectations, to leave the key exchange rate unchanged, but also because that same morning, when asked by the representatives of the press, the President of the MNB, then on a visit in Vienna, flatly ruled out any interest rate cut, citing the upside risk that fiscal deficit and wage dynamics represented to inflation. As there had been no intervention before the President's statement, it was in line with the strategy that any interest rate cut was only made after intervention at the upper edges of the band.

Market participants are likely to have interpreted the MNB's move as the sign of an imminent shift in the band, rather than the Bank's commitment to defend the band in every way possible. Some even voiced their opinion that a shift in the band was as imminent as the following morning, which is evidenced by the fact that after the MNB's trading hours (15.00 hrs), with a turnover completely unusual at this time of the day, the market rate of the forint abandoned the band, and in the evening transactions were concluded at a rate exceeding HUF 233.

The next day, on 16 January, immediately after the FX market opened, foreign banks purchased a huge amount of forint from their Hungarian counterparties. The Hungarian banks bought the amount necessary for the transactions from the MNB again. The forint purchase was especially intense during the first half hour after the opening of the market, which suggested that market actors had been expecting a rate above the strong edge of the band in the very short run. Such expectations seem to have been fuelled by a press conference scheduled on Thursday morning as many speculators had been anticipating either the appreciation of the central parity or the abandonment of the exchange rate regime. At the press conference, the MNB President flatly refuted news reports on both shift in and abandonment of the band and said that in order to defend the exchange rate regime, the Bank was willing to further slash interest rates. This somewhat eased pressure on intervention, it was unable to put an end to it, though.

On the second day of the speculative attack the MNB had to intervene at the upper edge of the band in an amount of HUF 1,020 billion (EUR 4.371 billion). Aggregate data suggest that Hungarian market actors did have any forint demand on this day either. They simply intermediated their foreign partner banks' forint purchases to the

MNB.[4] Although the scope of such partner banks had widened markedly relative to the 15th, major actors were the same, i.e. the ones that were already active on the 15th, mostly the London subsidiaries of large international investment banks. Intervention at the strong edge of the band during the two days totalled EUR 5.3 billion, which is equal to 7% of GDP in 2003.

Rapid central bank response

On 16 January, the Monetary Council took several steps to defend the exchange rate band. It lowered the key interest rate by another 100 basis points, put restrictions on the quantity of two-week deposits and widened the O/N interest rate corridor from +/-1 % to +/-3 %. The rapid central bank responses, the interest rate cuts and the immediate announcement of restrictions on the quantity (HUF 100 billion) of two-week deposits sent a clear message to the speculators that gains on forint purchases were far from being guaranteed, for they would only be able to place the bulk of their forint liquidity in deposits at an interest rate lower than the 3.5% rate on O/N deposits. In addition, the amounts of forints bought by the commercial banks intermediating the speculators' forint purchases during the intervention at the upper edge of the band, would only be at the speculators' disposal in two or three days owing to the settlement procedure.[5] As a result, banks were not for a moment able to place the majority of the amounts of forints purchased during the speculative attack at an interest rate prior to the interest rate cuts. They had to place, from the very moment of conversion, in low interest rate O/N deposits. As non-residents did not specified any interest rate on their placements on the day of FX sales (they had no intention to keep the money that they would convert in Hungary), thus banks were able to pass the 4% decrease in the interest rates on O/N deposits onto their non-resident counterparties right from the beginning.

The market erroneously interpreted the changes in the Bank's instruments as suspended sterilisation. In reality, relying on the availability of the O/N deposit facility, the MNB was able to absorb all excess liquidity in the banking system, with O/N deposits replacing two-week ones. This resulted in a 5-percentage point decrease in actual yield at the short end (the most sensitive end in terms of speculation money) of the yield curve in two days. Such measures combined with the communication strategy of the Bank committed to maintaining the exchange regime reached their goals. Some speculators started to sell forints (i.e. close their positions), and further depreciation of the forint urged others to follow suit. By the end of the day speculation had come to a halt, with the forint's exchange rate 5% weaker.

Cutting the key policy rate on its own would not have resulted in the numerous advantages that the measures take on 16 January did. As the engine of the speculation had been expectations of the abandonment of the exchange rate regime, the adequate extent of interest rate cuts was impossible to calculate. It was obvious that, for a transitory period, deep interest rate cuts would be necessary to put an end to speculation and force the bulk of the hot capital of over EUR 5 billion that had poured

---

[4] This does not, however, rule out the possibility that Hungarian speculators opened long forint positions at the time. A look at the individual transactions reveals that speculation was also staged through a few Hungarian brokerage firms; however, its effect was negligible compared to non-resident speculation, on the one hand. On the other hand, it was offset by the forint purchases by other resident actors.

[5] In effect, owing to the fact that 20 January was a holiday in the USA, the value date of the transactions on the 15th was Friday, 17 January, and that of the ones on the 16th was Tuesday, 21 January.

into the country within the span of 2 days to exit the market. Therefor, the MNB decided to separate the permanent part of the interest rate cuts from the temporary one: it would lower its key interest rate by 1%, however, the yield that the speculative capital would be able to post will decline by over 3% relative to such rate.

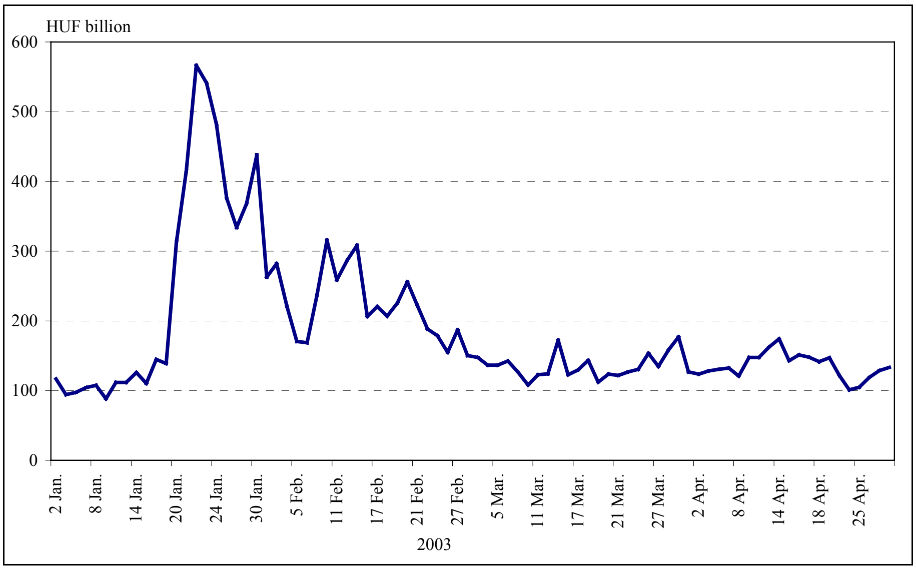
The 6.5% key interest rate continued to reflect the Bank's preference for the desirable interest rate level after the speculative attack, and was clearly different from the one on the O/N deposit facility effective in the short run. As a result, no extreme fluctuation of longer maturity yields or interest on deposits and loans materialised, since these yields and interest rates were not influenced by the 3.5% O/N interest rate. The modification of the instruments facilitated communication concerning defence against speculation and kept distortion caused by defence in interest transmission to a minimum.

The measures taken made it simpler for the MNB to revert, after the consolidation, to a higher actual level of interest rates needed in normal circumstances for as soon as the restrictions on quantity had been removed, short-term yields bounced back automatically to the level of the key interest rate without any change in the base rate.

The arsenal of the speculative attack

The speculative attack of January 2003 against the forint's band was different from earlier speculation aimed at forcing a shift in the band in the former narrow band exchange rate regime as the volume of the sums transacted and the flow rate of the capital involved in the former were many times over. As such amounts were impossible to invest in the Hungarian government securities market, speculators had to place the forint they had purchased on the FX market in either short-maturity forint deposits or swaps.

Chart 1: Hungarian forint (HUF) deposits of non-residents with Hungarian commercial banks



The size of forint deposits held by non-residents grew by approximately HUF 430 billion (Chart Chart 1: Hungarian forint (HUF) deposits of non-residents) on the settlement days related to the two days of the speculative attack. This was less than half of the amount that they had purchased in spot transactions during those two days.

As limits placed by foreign banks on their counterparties do not allow for unsecured borrowing (placement of deposits), speculation materialised mainly through short-maturity swaps. The maturity of half of the swap deals concluded on 16 January was less than 2 weeks. In addition, owing to the special characteristics of the market, investors can easily close their originally long-maturity positions before maturity. In the transactions in January non-resident speculators or major international banks intermediating the transactions in question for them bought forints from Hungarian counterparties in swap transactions, which were, as a rule, complemented with short-maturity swap deals. Thus, the combined effect of such multi-transactions was that speculators placed synthetic forint deposits, hoping that they would be able to close their positions profitably at a higher forint exchange rate after the anticipated shift in the band.

Resident banks did not intend to bear any exchange rate risk. (There are statutory regulations governing the bearing of such risk anyway.) Accordingly, they sold euro to the MNB in order to hedge their forward positions vis-à-vis foreign banks, which in turn means that Hungarian commercial banks, in effect, intermediated speculators' demand for the forint to the MNB. Thus, the Bank's intervention at the upper edge of the band, i.e. its euro purchases, was not vis-à-vis speculators, but commercial banks.

Consolidation

The Bank's strategy, aimed at consolidating the money and foreign exchange markets, was driven by two basic objectives – meeting the inflation targets and maintaining financial stability. The two objectives were not in conflict, as they required identical actions – stabilising exchange rate expectations and helping the speculative capital to leave as quickly as possible.

Because of its primary objectives, the MNB could not allow a massive and rapid weakening of the forint exchange rate to force speculators to withdraw their funds. The reason for this was that a dramatic weakening of the exchange rate, causing massive losses to speculators, would have jeopardise meeting the inflation target and maintaining financial system stability. For this reason, the Bank encouraged the outflow of speculative capital by making it clear that speculators could not anticipate exchange rate strengthening in the future; however, the MNB offered an opportunity for them to withdraw at an exchange rate causing modest losses to them.

The MNB adopted an action plan consisting of the following three distinct phases in order to consolidate the financial market:

1. encouraging the rapid outflow of speculative capital with massive sales of euros;
2. restoring the Bank's monetary policy instruments;
3. after-treatment: encouraging the outflow of speculative funds remaining in the market by conducting silent intervention.

The Bank did not conduct intervention in the foreign exchange market in the period between the widening of the intervention band in May 2001 and January 2003. Under the inflation targeting regime, the Bank controls the exchange rate primarily by raising or lowering official interest rates, since international experience shows that in normal market circumstances the exchange rate can be more effectively influenced by interest rate policy than by intervention. However, following the intervention near the upper edge of the intervention band, the amounts of very short-term pro-forint position remained in the market were so tremendous that they would only have been closed if the forint had weakened significantly. As a consequence of speculative positions remaining permanently in the market, in the absence of central bank intervention volatility of the exchange rate would have increased significantly, forcing frequent and large changes to interest rates by the Bank. For these reasons the MNB decided to temporarily use intra-band intervention till the end of speculative capital outflow.

The MNB's main concern was to stabilise the interest rate level. To this end, using various forms of intervention, depending on market conditions, it was willing to offer an opportunity for speculators to withdraw which allowed the continuous and controlled outflow of hot moneys, without risking the substantial increase in long-term yields and exchange rate volatility.

As the persistence of low interest rates would have influenced financial stability negatively and would have triggered inflationary pressure as well, the MNB attempted to restore its policy instruments and raising the extremely low level of interest rates as quickly as possible. Consistent with this intention, the Bank, by selling large amounts of euros, contributed to more than two-thirds of foreign speculative capital leaving the market by end-February. With the restoration of the Bank's policy instruments, the first phase of consolidation ended on 24 February. Silent intervention marked the third phase. Despite the Iraq war, this phase lasted until 23 May, associated with fairly stable exchange rate and market yields. Then, the MNB stopped its intra-band sales of euros, as the overwhelming majority of capital, flowing in during the speculation about appreciation, had already been withdrawn. The remaining speculative positions did not endanger exchange rate and yield stability, even in the absence of the Bank from the market.

Intra-band sales of euros

Objective of intra-band intervention

Intra-band euro sales had similar importance to that of changes to the Bank's policy instruments. The Bank recognised right from the beginning that the EUR 5.3 billion purchased at the upper edge of the intervention band during the speculation on currency appreciation was enormous compared with the size of the Hungarian foreign exchange market. In the absence of central bank intervention, the outflow of speculative capital would have caused the exchange rate to weaken to an extent that it could have led to the outflow of non-speculative capital as well.

With the sales of euros, the MNB had two objectives as follows:

- First, for inflation and stability considerations, it wanted to prevent an excessive depreciation of the exchange rate.
- Second, it wanted to give an opportunity for speculators to withdraw. In the absence of central bank measures speculators would face to the situation that if they sold forint it would cause weaker exchange rate. This would lead to slower withdraw and smaller amount of sales.

The MNB's main concern was to stabilise the exchange rate and the interest rate level. To this end, using its virtually constant presence in the form of intervention, it offered an opportunity for speculators to withdraw which allowed the continuous and controlled outflow of hot moneys, without risking the substantial increase in long-term yields and exchange rate volatility.

Method of selling euros

Interventions in the foreign exchange market conducted after the speculative attack were fundamentally different from usual central bank interventions. As the undesired, excessive weakening of the exchange rate failed to materialise, the Bank's interventions, unlike those by other central banks, were not aimed at directly influencing the exchange rate. Basically, the Bank sold euros for the purposes of handling a quantity problem – enormous amounts of speculative short-term forint assets were in the market relative to the size of the market, which posed a substantial downward risk on the exchange rate. Due to the above considerations, the MNB attempted during the entire management of appreciation speculation to not give concrete price signals to market participants with the interventions.

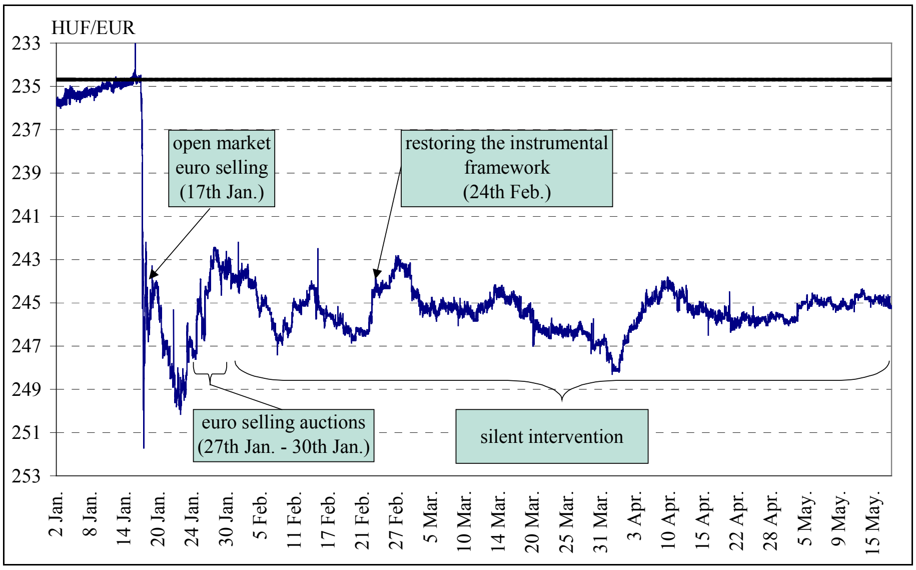
The first intervention took place on Friday, 17 January. On this occasion, the Bank conducted open market intervention at the market rate, in order to stabilise the market. Following its entry into the market, the exchange rate stabilised around the supposed intervention rate, i.e. HUF/EUR 245.

Even if open intervention managed to stabilise the market and reduce exchange rate volatility considerably, contrary to MNB’s intentions, it reinforced market participants’ beliefs that the exchange rate would appreciate considerably in a short time, which slowed down the outflow of the speculative capital involved. Therefore, so as to increase speculative uncertainty, the MNB decide to withdraw temporarily from the open FX market and switch to a silent way of central bank intervention. In line with the Bank’s expectations, this resulted in slow exchange rate depreciation: once again the forint’s exchange rate had depreciated to nearly HUF/EUR 250 by 22 January.

As the outflow of the speculative capital took longer than expected, the MNB decided on adopting a contingency intervention technique never employed before. From 27 January, the MNB called for euro sales bids for 4 consecutive days. Bidders could submit 5 different euro purchase bids for the auction until 12.00 hours. The MNB notified each bidder at 14.00 hours.

Although auctions managed to generate a large volume of euro sales on the whole, they only partially achieved their original aim, i.e. dismantling speculative positions at a realistic rate of exchange. Announcing the auctions led to a steady appreciation of the forint’s exchange rate, as the market did not interpret this move as an offer to speculators to exit the market. Rather, it interpreted the auctions as a sign of the MNB’s preference for a stronger rate of exchange. The forint strengthened from HUF/EUR 247 on Monday morning to HUF/EUR 242.5 on Wednesday, and then it weakened again after the last auction, standing at HUF/EUR 244-245. Certain components of the contingency intervention technique, including the fact that the Bank, so as to avoid sending any undesirable exchange rate messages, decided not to publish the aggregate result of the individual auctions, even provoked criticism from the market participants affected. At an extraordinary meeting the representatives of the Bank informed the expert panel of the Hungarian Forex Society of the objectives of the auctions as well as the considerations adopted in working out the solutions that had been agreed on.

Chart 2: The forint/euro exchange rate and euro sales by the MNB



Open intervention and auctions taught the MNB the lesson that the market had interpreted the Bank's announced FX sales as a sign of the Bank's intention to appreciate the exchange rate, which did not step up the outflow of the speculative capital. Therefore, after the FX auctions the MNB gave up the open sales of the euro, however, it continued silent intervention, which meant that the Bank, as one of the actors on the OTC market, sold euro at the going market rate to its FX market business partners under the effective limit system. One of the major considerations in the intervention was to ensure balanced market prices and satisfactory market liquidity.

Using the above intervention channels, by 24 February the MNB had sold approximately half of the amounts of euros that it had bought while intervening at the upper edge of the band, which allowed for the possibility of the Bank's restoring its instruments, with the speculative positions wound up in various different ways (See below).

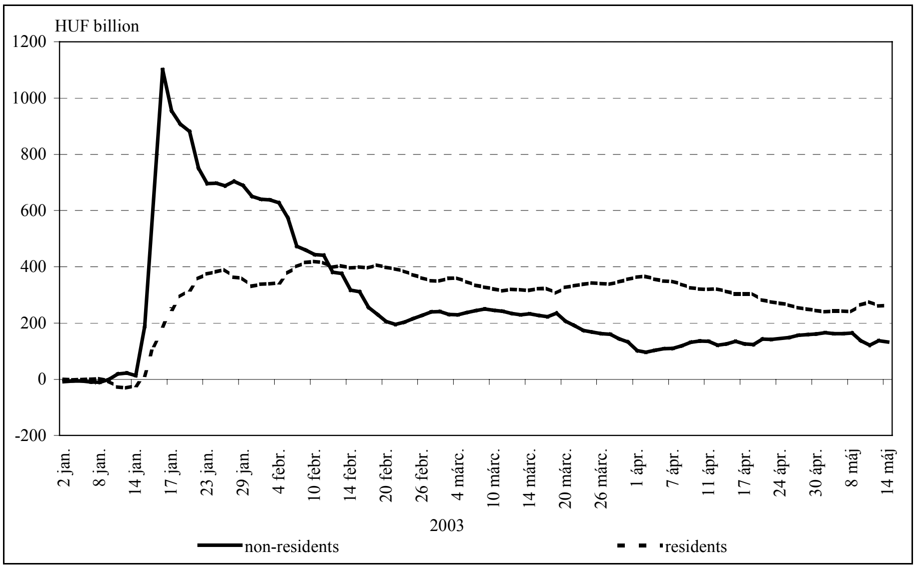
Exit of the speculative capital

The foreign participants involved in the intervention already began to close their respective forint positions in the afternoon, 16 January. Simultaneously, Hungarian banks and resident non-bank actors opened positions of over HUF 80 billion in the forint. Non-residents went on closing their respective positions (i.e. selling forint) on the following day and the day after. The outflow of the foreign speculative capital was an ongoing process until 24 February 2003, when the Bank restored its instrumental framework. As the bulk of the speculative capital had already flowed out, the rate of its outflow slowed down significantly after the Bank had reinstated its instrumental framework.

The size of non-residents' closing their respective positions exceeded the volume of the Bank's intra-band euro sales. The reason for that was that resident actors too made the most of the exchange rate weakened by the continuous exit of non-residents in order to open (mainly forward) positions in the forint.

In ten days resident actors opened positions of HUF 400 billion in the forint during the exchange rate depreciation following the attack against the forint's band (Chart 3). The information available to the Bank does not give any direct indication as to how much of this amount went into hedging and how much was spent on speculative purchases.

Chart 3: Long forint positions taken by residents and non-residents (cumulated from 1 January 2003)



The 16 January level differs from the size of all speculative positions taken by non-residents (Table 1) as the closing of the speculative positions commenced in the afternoon.

Information from banks suggests that the number of hedge transactions concluded by exporters and companies which, for other fundamental reasons, held short forint positions, was substantial in the initial phase of the exchange rate depreciation. Hedgers sold FX from their later export revenues at an exchange rate that already had been set. The outcome was that the majority of such actors were unlikely to close their positions before actual revenues were produced.

The MNB has managed to sell more than 70 percent (i.e. EUR 3.8 billion) of the EUR 5.3 billion bought in mid-January until 23 May. There is a one-billion resident and approximately 200-million non-resident position (at a rate of HUF/EUR 245.9) against the remaining 1.2 billion euro position. The remaining portion is the MNB's 241-million-euro exchange rate gains, of which it has realised approximately EUR 174 million through its intra-band intervention.

Table 1: Long forint positions taken by residents, non-residents and the MNB (intervention) during and since the speculative attack

	billion forints			million euros			
	Resident	Non-resident	Intervention	Resident	Non-resident	Exchange rate effect	Intervention
During the speculative attack	19	1220	1239	81	5198		5279
Since the end of the speculative attack	227	-1164	-937	924	-4735		-3811
Total positions taken (evaluated at average buy-back rate)	246	56	302	1001	226	241	1469

Despite the fact that the value of the euro sales by the MNB is below that of the Bank's intervention at the strong edge of the band, it is safe to assume that the whole amount of the speculative capital had exited the market before 23 May. The forint's exchange rate is approximately 10 forints weaker than it was at the time of the speculative attack against the forint's band. Given this rate of exchange, FX market actors, i.e. exporters dealing in hedge transactions and non-resident government securities investors, are more willing to take up larger derivative positions in the forint. Some of the speculative capital, i.e. approximately EUR 1.2 billion, left the country through the transactions of market players, who purchased forint from the speculators in order to hedge their exchange rage exposure, rather than through those of the MNB. This means that more than 70 percent of the speculative capital exited through the MNB's euro sales, whereas one-third of the speculative positions was transformed into hedges.

A new scenario for monetary policy

The MNB had to react to the speculative attack against the forint's band by doing more than merely issuing the speculation about the forint's appreciation. The main lesson that the MNB has learnt from the speculative attack is that, with such an attack mounted, an exchange rate approaching again the upper edge of the band poses a risk. Thus, after the attack the Bank has to face a new situation. The exchange band represents narrower limits for monetary policy than expected earlier. In order to prevent another instance of speculation, the MNB will have to keep the forint's exchange rate not only within the band, but also at an appropriate length from the upper edge. This revelation also means that there is a limit to exchange rate appreciation and the restriction of monetary conditions.

Inflation projection in February suggested inflation that is higher than the modified target (less than 4.5%) for December 2003 mainly owing to factors (e.g. oil prices and regulated prices) exogenous to monetary policy. Projection is, however, for an approximately 4% in 2004 within the target band. As monetary policy exerts its influence on inflation by a longer-than-12-month transmission and there are limitations on tightening, the Monetary Council has decided to focus on the inflation target for 2004. Given the limitations imposed by the exchange rate band, the Monetary Council has provided a flexible interpretation even of the projection for 2004: it has already given a clear indication of its not wishing to tighten monetary policy despite the fact inflation is expected to stand at a level higher than the 3.5-percent central parity of the inflation target band.

The MNB used to project inflation, relying on the month-on-month average of the forint's exchange rate. In February 2003, the Bank abandoned this methodology, preparing its projection based on a HUF/EUR 245 exchange rate, while the January average stood at around HUF/EUR 240. By projecting an exchange rate closely approximating the going market rate, the Bank intended to send the message of its being bent on avoiding any appreciation.

Investors deemed a weaker forint after the speculative attack as temporary, believing that the exchange rate would re-appreciate to the level prior to the attack. They thought that in order for the inflation target to be met, a stronger exchange rate would be needed, so they were in anticipation of the Bank's projections for future exchange rate paths. The HUF/EUR 245 exchange rate specified in the *Report on inflation* and refocusing on the inflation target for 2004 that can be met with an exchange rate that is weaker than the one needed for the 2003 target were unambiguous message to speculators that the Bank was willing to maintain a weaker-than-earlier exchange rate even permanently. This spurred speculators to withdraw their capital and stabilised both the rate of exchange and exchange rate expectations.

Restoration of the instrumental framework

On 24 February 2003, the Monetary Council passed a decision on restoring the monetary instruments to their state prior to the speculative attack. Accordingly, the interest rate corridor surrounding the central bank base rate was narrowed to ±1%, simultaneously with removing the quantity restriction from the two-week deposit facility. This reinstatement of the instrumental framework was enabled by winding up most of the speculative foreign currency open positions.

Even though the rise in effective yields could have been implemented by gradual measures, in most probability, such an approach could not have been applied to the exchange rate. This is because the degree of exchange rate strengthening depends not only on how the prevailing interest rate is changed – the signal intended by a particular central bank measure is also important. Should the Bank have changed any of the parameters of the provisional measure, the market would have interpreted it as a message that the base rate would be shortly restored to its status as effective rate. Thus, the impact on the exchange rate would not have differed significantly from that of one-step reinstatement.

The one-step reinstatement conveyed a clear message to investors, namely that the provisional period of defence against the speculative attack had ended, consolidation was complete and the inflation target had returned into the focus of monetary policy. The restoration of instruments was supported by two factors which restricted the expected strengthening in the exchange rate and removed the threat of any major appreciation. First, in its statement on 10 February, the Monetary Council made it plain that it was satisfied with the HUF/EUR 245 exchange rate and that the current level of exchange rates was appropriate for meeting the inflation target in 2004. This signal made a strong impact on market participants' exchange rate expectations. Second, there were still sizeable long forint positions relative to the size of the Hungarian market, which dampened the rate of appreciation.

As evidence of the success of restoring the instruments, long yields and the forint exchange rate appeared to be stable. Following the announcement of the measure, yields in the government securities markets increased in inverse proportion to the term to maturity of instruments. While overnight interbank rates rose by 2 percentage points similar to the overnight central bank deposit rate, yields on three-month and one-year government securities increased by only 87 and 18 basis points respectively, and the yields on three and five-year bonds, most sought after by non-residents, remained virtually unchanged.

Market operations following the reinstatement of monetary instruments

The market operations following the reinstatement of monetary instruments were primarily aimed at preventing the outflow of the remaining speculative capital from causing any excessive fluctuations in yields or the exchange rate. Therefore the euro sales also continued after the reinstatement of the instruments, but at a slower pace. While not aimed at influencing the forint exchange rate, the small amounts of currency sales enabled the winding up of speculative positions.

The MNB continued the silent intervention until 23 May, bringing the amount of euros sold at the market exchange rate to EUR 3.8 billion. Of the EUR 5.3 billion inflow of hot capital arising through the Bank's intervention at the band edge, a further amount of approximately EUR 1.2 billion was cooled off by means of market participants' hedging transactions. This enabled the MNB to declare that virtually all the capital associated with the speculation on appreciation had left the country. Therefore the MNB announced that from 26 May it would stop intervening within the band and return to its former strategy of using interest rate policy to control the exchange rate.

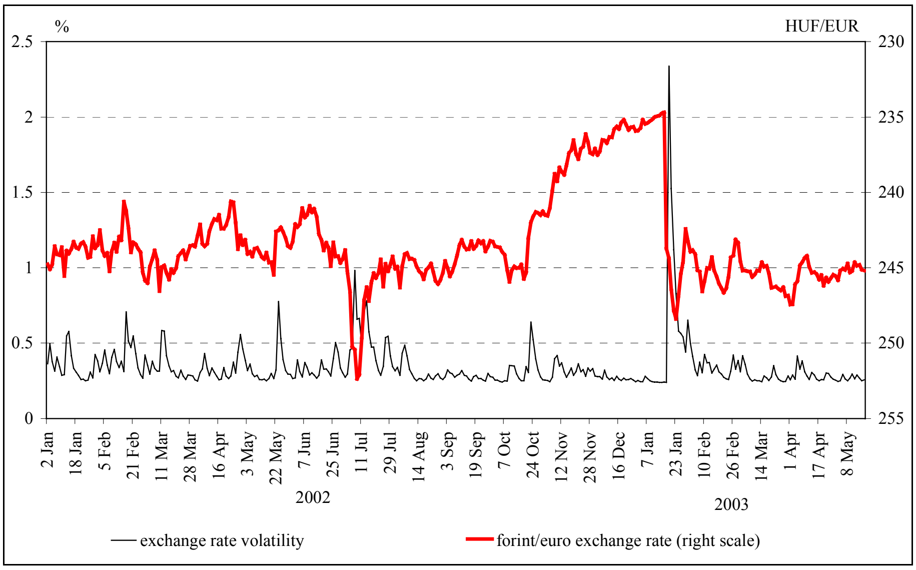
Market developments

Changes in the exchange rate

The measures taken by the MNB to fend off the speculative attack successfully cooled down expectations of a shift in the band, causing the exchange rate to depreciate rapidly at a rate in the range of 4 to 6 per cent. In the aftermath of the termination of the speculative attack, the market seemed to be in an uncertain situation for a short time, which was reflected in increased exchange rate volatility (see Chart 4). However, in early February the volatility of the exchange rate went back to the average rate seen in 2002, while the exchange rate of the forint stabilised around the HUF 245/euro level, specified by the MNB.

According to the Reuters survey of market analysts, average exchange rate expectations at end-2003 declined from HUF 235.4 per euro in December 2002 to HUF 238.7 per euro in January 2003 and HUF 241 per euro in April 2003. The analyst expectations also indicate that in the wake of fending off the speculative attack the credibility of the forint's intervention band increased considerably.

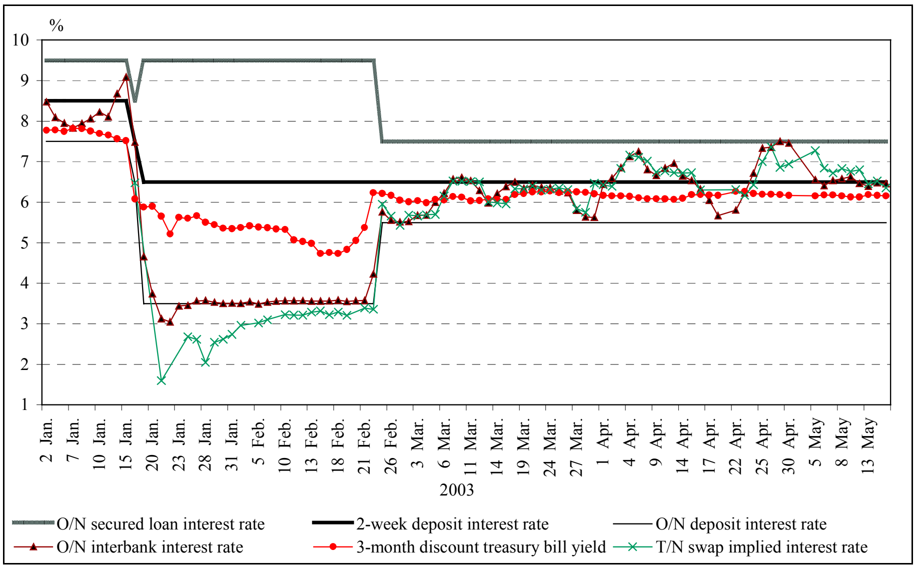
Chart 4: Forint/euro exchange rate and its daily volatility



Changes in rates

Following speculation on appreciation, overnight interbank interest rates got stuck at the bottom of the interest rate corridor, staying there fast until the reinstatement of monetary policy instruments (see Chart 5). This had to do partly with the large inflow of excess funds, and partly with the fact that due to the quantity restriction imposed on two-week deposits, the rate on overnight deposits had become the effective rate. The overnight yield on foreign currency swaps, an instrument primarily used by foreign investors, remained below the rate on central bank deposits, owing to the transaction costs incurred by banks.

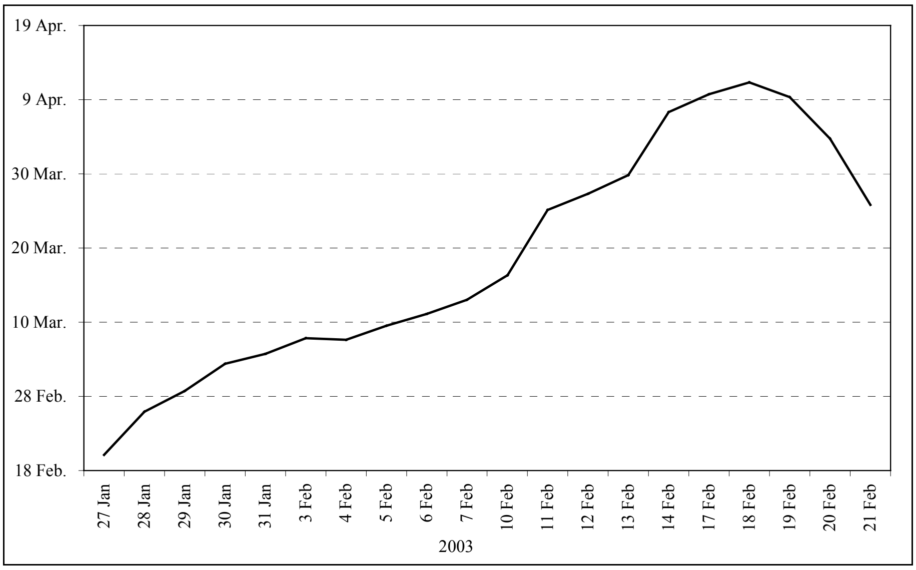
Chart 5: Key policy interest rates of the MNB versus money market rates



Developments in short-term yields in the government securities market were governed by market expectations of the likely date of restoring the original instruments. In late January, investors expected the instruments to be restored within a month. The publication of the *Quarterly Report on Inflation* on 10 February and the attached statement by the Monetary Council led investors to believe that the Bank intended to maintain the low level of interest rates over a longer-than-expected horizon (see Chart 6). This led to a drop in yields on short-term government securities, with a decline of approximately 60 basis points in the yield on three-month benchmark discount treasury bills (see Chart 5).

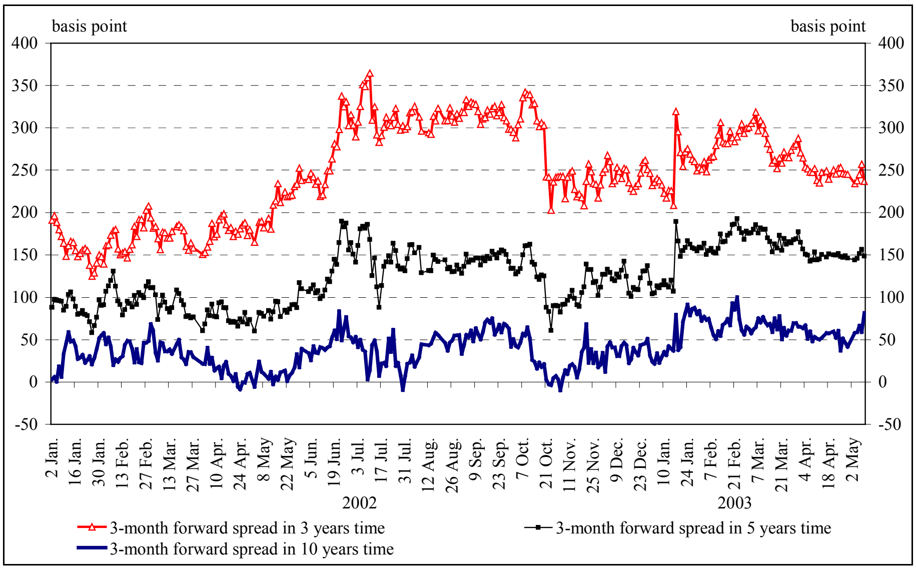
In the wake of the speculation on appreciation, forward spreads started to rise relative to the euro area (see Chart 7). The wider spread points to an increase in inflation expectations and the risk premium required by investors, in addition to an expectation of the postponement of the date of entry into Economic and Monetary Union (EMU). However, the expectation of a later date for adopting the euro can be attributed to higher inflation expectations only in small part, as it is more the result of the difficulties associated with meeting the Maastricht criterion for the budget deficit.

Chart 6: Market expectations of the likely date of restoring the original set of instruments



Reuters survey of market analysts shows that the credibility of the inflation targets has declined only temporarily. In particular, the consensus rate of inflation expected at end-2003 rose from 4.88% in December to 5.12% in February, to fall below 5% (4.93%) in April, thanks to favourable developments in inflation. After a temporary rise in inflation expectations for December 2004, a date of top priority for the MNB, the 4.11% forecast of the April survey is only marginally higher than the 4.05% in January. The average of analysts' expectations has been invariably within the ±1 per cent tolerance range surrounding the inflation target of 3.5% set for 2004.

Chart 7: Forward spreads of Hungarian government securities relative to the euro area



Following the MNB's interest rate cut in January, commercial banks also reduced their rates significantly. As corporate loans are in large part linked to BUBOR, they tend to react rapidly to changes in the level of money market rates. By contrast, in their rates on deposits and fixed interest loans, banks followed the MNB's altogether 100 basis point cut only partially in November and December. The interest rate changes made by commercial banks following the central bank's January cut contained not only the overall 200 basis point central bank reduction at the time of the speculative attack, but also the previous two 50 basis point cuts. At the same time, as banks expected the original set of instruments to be reinstated within a short time, they mostly ignored the reduction in overnight rates in excess of that in the base rate when pricing their deposit and loan facilities. In this way, the provisional changes made in the three-month instruments did not cause considerable additional volatility in yields. The average rate of the rise following the sizeable interest rate reduction on instruments with this maturity was on average no higher than 20 to 30 basis points (see Table 2).

Table 2: Developments in three-month corporate and household deposit rates in the period between November 2002 and March 2003 (basis points)[6]

	Mean	Mean weighted by the reserve ratio	Maximum	Minimum
Fall in corporate deposit rates	239	249	390	74
Adjustment	26	21	130	0
Fall in household deposit rates	275	251	385	195
Adjustment	28	33	80	0
Total cut in MNB key policy rate	300			

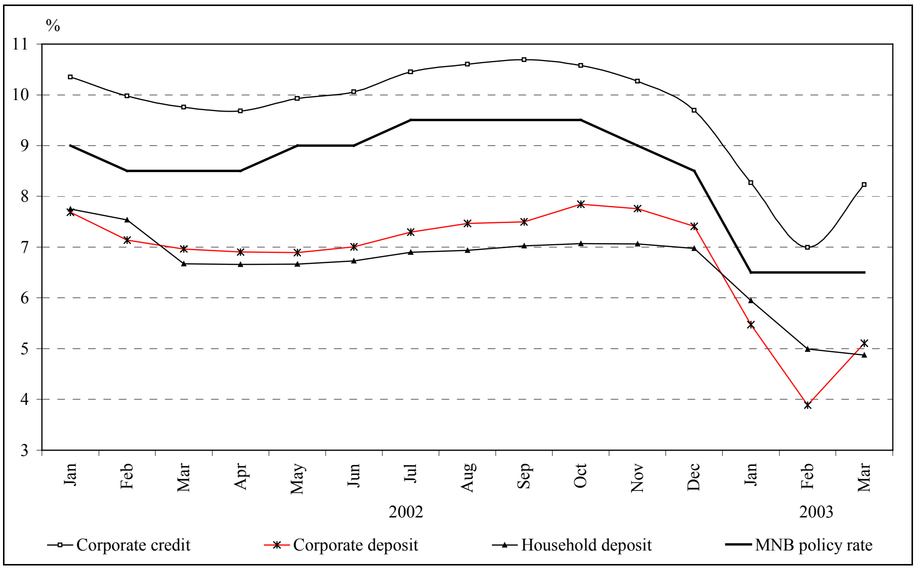
Rates on consumer credit and mortgage loans fell by 150 to 200 basis points. Based on the interest rate conditions published by large banks, household and corporate deposit

[6] The average of the 10 banks with largest reserve requirements, according to publicly available terms and conditions.

rates, in respect of the most prominent three-month maturity, declined at an approximately 50 basis points lower rate than did the MNB's rates as a whole.

By contrast, at the shortest maturities, corporate deposit rates fell at a rate exceeding that of the central bank move by 50 to 100 basis points. This was partly because the level of interest rates on variable interest corporate loans was also reduced at a 50 – 75 basis point higher rate than the central bank's 300 basis point cut (in line with the three-month BUBOR). Furthermore, short maturities are more closely linked to money market rates, which typically respond quickly to central bank moves. As short-term lending has a great weight in corporate lending, statistics reveal that corporate deposit and lending rates overreacted to the reduction in the central bank base rate in respect of less-than-one-year terms to maturity. As a result, these markets experienced a sizeable, 120 basis point, correction in March (see Chart 8).

Chart 8: Average monthly rates of interest on credit institutions' short-term facilities



Developments in liquidity

The speculative attack designed to cause a shift in the exchange rate band forced the MNB to purchase large amounts of foreign currency at a rate near the upper edge of the band. The purchase of foreign currency and corresponding sale of forints led to a liquidity surplus of the banking sector, amounting to over HUF 1,200 billion, the equivalent of the intervention amount. Having more excess forint supply than needed to meet the reserve requirement even prior to the speculative attack, banks deposited the intervention outflow of forints with the MNB.

The central bank's intervention purchase caused an increase in international reserves on the assets side of the balance sheet. Simultaneously, a number of balance sheet items changed substantially on the liabilities side, too, partly in connection with the alteration of monetary policy instruments. As the MNB imposed a restriction on the accepted quantity of two-week deposits, in the absence of other alternatives the excess supply of funds created by the intervention had to go into overnight deposits. This raised the level of overnight deposits to over HUF 1,200 billion in the first few days after the speculative attack. This meant that in the provisional period, the sterilisation function of the two-week deposits was taken over by the overnight deposits. The implication is that there was no increase in the monetary base, calculated, using former statistical methods, as the sum of cash balances and banks' current accounts.[7]

Table 3: Balance sheet of the MNB (HUF billions)

Assets		31/Dec/ 2002	31/Jan/ 2003	28/Feb/ 2003	31/Mar/ 2003	Liabilities		31/Dec/ 2002	31/Jan/ 2003	28/Feb/ 2003	31/Mar/ 2003
A./I.	**Claims on foreign residents (i.+ii.)**	**2652**	**3744**	**3463**	**3364**	L./I.	Monetary base (i.+ii.)	1646	1656	1498	1577
	i. International reserves	***2332***	***3461***	***3171***	***3100***		*i. Banknotes in circulation*	1280	1266	1275	1288
	ii. Other claims	*320*	*284*	*292*	*263*		*ii. Current accounts of banks*	366	390	223	290
A./II.	Claims on banks	23	21	20	20	**L./II.**	**2-week deposits**	**136**	**200**	**538**	**642**
A./III.	Claims on central government	1216	1232	1112	1094	**L./III.**	**O/N deposits**	**419**	**1066**	**326**	**76**
A./IV.	Other assets	132	119	113	114	**L./IV.**	**Liabilities to central government**	**198**	**500**	**720**	**536**
							Treasury accounts	***51***	***383***	***484***	***358***
						L./V.	Liabilities to foreign residents	1385	1414	1331	1372
						L./VI.	Net other items	240	280	295	389
	TOTAL	***4024***	***5116***	***4708***	***4591***		***TOTAL***	***4024***	***5116***	***4708***	***4591***

Bold type denotes balance sheet items on which the intervention in the foreign exchange market, or the change in monetary policy instruments, had a direct or indirect impact. The figures for the monetary base in the table are derived as the sum of currency in circulation and credit institutions' current account balances, but exclude overnight deposits.

The quantity restriction on two-week deposits was interpreted by many as the MNB's failure to sterilise the money supply created by the intervention, a potential source of inflationary pressure. In reality, the forint outflow created as a result of the Bank intervening at the upper end of the exchange rate band was virtually fully soaked up by the overnight deposits. Hence, the liquidity surplus caused no direct inflationary pressure. At the same time, interbank rates dropped to the level of the overnight deposit rate of 3.5%, lower than inflation. Had this low level of interest rates persisted, it could have triggered rapid credit expansion and a sharp rise in the rate of money growth. As, however, the reinstatement of the original set of instruments on 24 February terminated the period of low short-term rates and commerical banks also adjusted their deposit and lending rates to the key policy rate of 6.5%, the temporary change in monetary policy instruments exerted no inflationary pressure via either the money supply or the rates of interest.

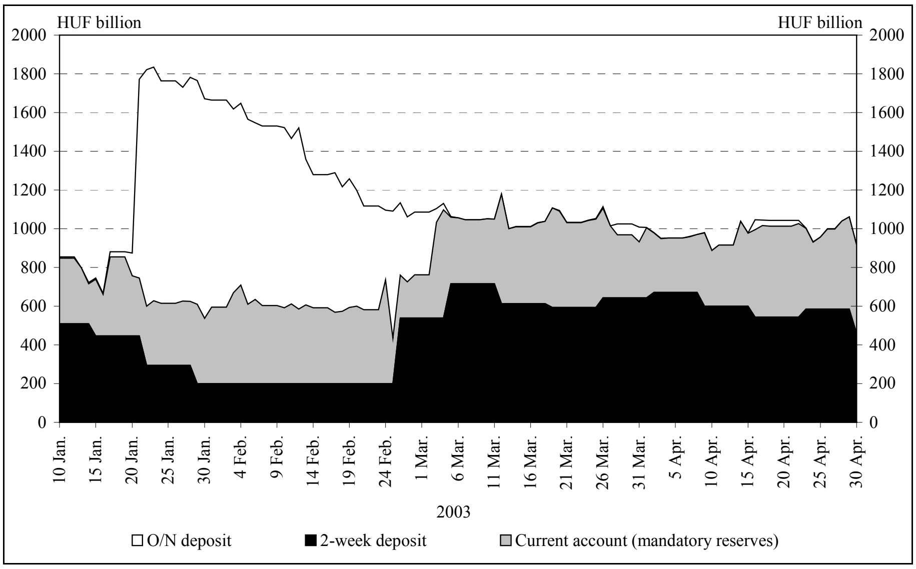
The appearance of a sizeable liquidity surplus had led to major reallocation in commercial banks' positions in the interbank market. Prior to the speculative attack, some banks, primarily those with a strong lending profile, had suffered from a shortage of liquidity, while those specialised in taking deposits had had a liquidity surplus. This

[7] In line with statistical harmonisation with the ECB, as of January 2003, the monetary base also comprises overnight deposits maintained at the MNB, in addition to the notes and coin and current accounts. The changeover to the new statistical method accounts for the upsurge in the annual growth rate of the monetary base seen in January and February 2003. Following the restoration of the monetary policy instruments and the waning off of the substantial inflows into overnight deposits, the growth rate returned to previous levels in March 2003.

had divided banks into deposit takers and lenders in terms of interbank positions. However, the speculative attack had supplied with excess liquidity primarily those domestic banks which had previously faced a shortage. This had sharply altered the previous strong concentration of excess liquidity.

After the upsurge in liquidity in the aftermath of the speculative attack, excess liquidity started to decline gradually, due to two factors. First, as short-term money market rates fell sharply, also having a considerable impact on the short section of the yield curve, treasury bill auctions started to experience substantial excess demand, which prompted the ÁKK (Government Debt Management Agency) to raise the amount of treasury bills offered, which in turn brought down the excess liqudity by HUF 80 billion. Second, the central bank's intervention by purchasing forints also reduced the excess supply of liquidity gradually and far in excess of the former measure. As a combined result of the two effects, the supply of excess liquidity was reduced to its half by over HUF 600 billion before early March. Simultaneously, the level of overnight deposits maintained by the MNB also dropped to approximately HUF 600 billion prior to the announcement of the restoration of the original instruments.

Chart 9: Distribution of liquidity surplus among central bank instruments



When setting the quantity to be invited for the two-week deposit tenders, the MNB only took into account the effects on liquidity of non-intervention factors within the banking sector, namely the projected level of currency in circulation and the government's account maintained at the MNB. Even though the liquidity conditions would have justified a moderate change in the quantity of two-week deposits tendered, due primarily to an increase in the Treasury Account (KESZ), the MNB did not change the HUF 100 billion cap applied during the provisional period. There was a communication argument that such a change would have affected market participants' expectations of central bank measures in an undesirable manner. The tendered amounts were allocated by the MNB in the face of manifold excess demand, due to the significant yield advantage of the two-week deposits relative to the overnight deposits.

In line with the terms and conditions of business transactions observed by the MNB, the initial procedure applied in the event of overbidding only permitted allocation by dealing cards[8], which basically meant that each bank was allowed to deposit equal amounts in the two-week facility at a rate of 6.5%. Therefore as early as it could do it (any change in business terms and conditions must be announced two weeks before it is implemented), the MNB replaced the card dealing method with an allocation rule based on previous year's reserve requirement. This method openly gave preference to domestic deposit taking banks, pushing up their share in the two-week deposits. This move by the MNB made an even more definite distinction between the levels of interest rates available to the speculative capital and the domestic banking sector. As a result of the allocation adjusted to the reserve requirement, the level of interest rates available for domestic deposit taking banks approached the key policy rate of 6.5%. Furthermore, an even greater share of the excess supply of liquidity created by the Bank intervening at the edge of the forint band was forced to flow into the overnight deposits offering a rate of 3.5%. Even though this allocation method was also subject to criticism (as certain types of domestic funds are exempt from the reserve requirement), this system of weights was capable, within limitations, of effectively barring non-resident speculators from high-interest-bearing two-week deposits. Moreover, it prevented the five-week quantity restriction imposed on deposits from unreasonably dampening banks' rates on deposit taking from households and companies.

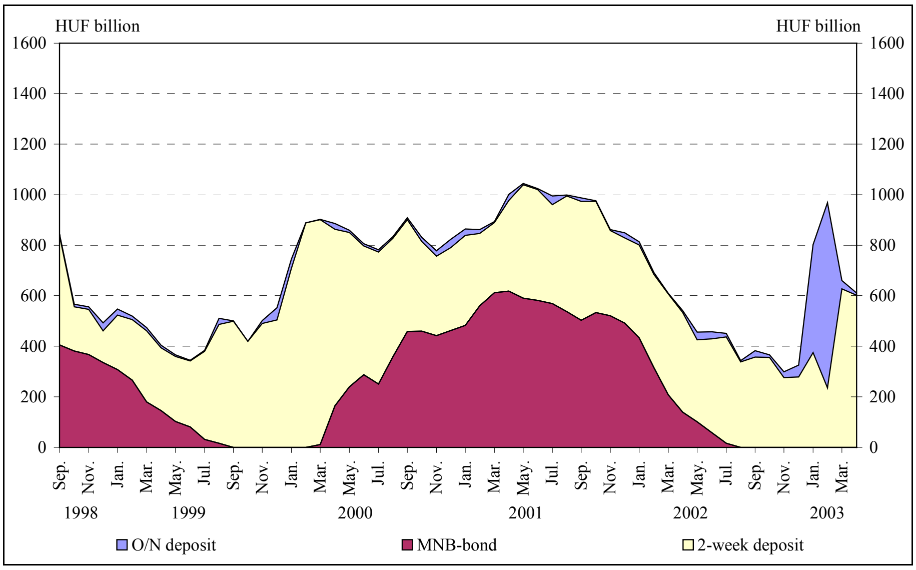
Due to the restriction on deposit quantity and the upsurge in the volume of overnight deposits, the level of overnight interest rates was stuck at the lower edge of the interest rate corridor (3.5%), even sinking below the central bank overnight rate temporarily. The fact that the overnight interest rate was outside the interest rate corridor can be accounted for by certain banks also having limits vis-à-vis the central bank. In particular, under their internal regulations they cannot place deposits with the MNB in excess of a certain value. These banks deposited the remaining funds in the interbank market at a lower interest rate, due to the low demand for liquidity. After the reinstatement of the set of instruments and the lifting of quantity restrictions on two-week deposits, banks were enabled to re-channel their liquidity from overnight deposits into the two-week facility. After early March 2003 and simultaneously with the drop in the volume of overnight deposits, the overnight interest rate level broke away from the edge of the interest rate corridor returning to its centre (6.5%), similarly to the period prior to the speculative attack.

The foreign currency purchase in defence of the exchange rate band and the subsequent intra-band intervention as well as the rise in the Treasury Account led to a total of HUF 600 billion excess supply of forints relative to the period before the speculative attack. Following the reinstatement of the original instruments (on 24 February), this amount appeared in the two-week deposits. In addition, the excess liquidity sterilised by the two-week deposits continued to decline due to the MNB selling euros, bringing down the average monthly level to approximately HUF 500 billion. Historically, this is not an exceptionally large volume of sterilisation instruments, given that under the crawling peg regime, the volume of sterilisation instruments occasionally amounted to HUF 800-1000 billion, a much higher volume, while the forint/euro interest rate

[8] Should the amount offered be overbidden, the amount to be sold would be allocated between bids with identical rates so that all competing bids receive the same amount of securities in each allocation round until the quantity to be sold is exhausted.

differential was far above the current rate. This implies that the past monetary policy instruments had successfully managed a much higher volume of sterilisation instruments. In brief, this after-effect of the speculation episode gives no cause for concern with respect to the operation of monetary policy instruments.

Chart 10: Average monthly volumes of sterilisation instruments, September 1998 - April 2002



Lessons to be drawn from the speculative episode

Winners and losers

The losers of the speculation on appreciation are clearly the foreign speculators who initiated the intervention on 15 and 16 January. Their loss was somewhere between 8 and 14 forints per euro, depending on how they could wind up their forint positions after 16 January. Based on the Bank's calculations, they realised most of their total loss of approximately HUF 60 billion (EUR 240 million) by 23 May.

The MNB sold EUR 3.8 billion of the amounts purchased at a rate of HUF/EUR 234.69, at the strong end of the exchange rate band. The MNB earned an exchange rate gain of HUF 43 billion on these transactions. The exchange rate gain arising on the intra-band repurchase of forints will be stated in the MNB's profit and loss account for 2003, as well as under retained earnings. Under the MNB Act in effect[9], the MNB shall contribute to the Budget as dividend the mean of the profits earned in the second, third and fourth years preceding the reviewed year. This means that the exchange rate gain earned in 2003 will be contributed to the Budget in three instalments over the period between 2006 and 2008.

As foreign currency assets in the MNB's balance sheet exceed its foreing currency liabilities, the weakening of the forint exchange rate will also lead to a non-realised

[9] Section 65, Act LVIII of 2001.

exchange rate gain. Unlike the realised exchange rate gain, the non-realised exchange rate gain is not stated in income, and is therefore not paid in to the Budget. This is because, in contrast to the realised exchange rate gain which remains unaffected by changes in the exchange rate of the forint, the non-realised exchange rate gain is subject to the forint's current exchange rate, and thus, for prudential considerations, cannot be included among the constituents of income. At the same time, the exchange rate gain earned by the MNB on the weakening of the forint is accompanied by an exchange rate loss arising on the government's foreign currency debt.

As a combined result of the intervention at the edge of the exchange rate band and subsequent euro sales, the stock of sterilisation instruments within the balance sheet of the MNB increased. As the interest payment on sterilisation instruments exceeds the yield on foreign currency reserves, an increase would reduce the MNB's profit. At the same time, the speculation on the appreciation of the forint caused the level of key policy rates to decrease sharply, by 2%. This narrowed the difference between the rate on sterilisation instruments and that on foreign currency reserves. All in all, the effect of the increase in sterilisation insruments was offset by the effect of the drop in interest rates. Thus, the speculation on appreciation had not pushed up the costs of sterilisation or caused the MNB's interest income to deteriorate.

Foreign speculators bought the euros needed to close their forint positions partly from Hungarian exporters who, in this way, realised their export revenues in advance via related forward transactions. Whether these companies will earn a profit on these hedging transactions will depend on the exchange rate of the forint at the time when the forward deals mature. One thing is certain: the exporters can rely on the knowledge of the accurate size of the future forint value of their receipts and are thus not exposed to fluctuations in the exchange rate.

In 2003 Q1, after-tax profits of the banking sector increased by over 50% relative to the corresponding period a year earlier. Furthermore, return on assets rose by over 10%. The increases were primarily due to the 14% rise in interest income, in addition to an upsurge in income from commissions and the profit from financial transactions. Within the latter category, the income earned on securities transactions rose the most buoyantly, but the profit on foreign currency transactions also increased at over 5%. Banks' revenues from their activity as dealers, was improved by the pick-up in foreign exchange market turnover, spot deals and foreign currency swaps in particular. In sum, banks made substantial excess profits, due primarily to the beneficial impact of the drop in yields.

The stability of the financial sector

Despite the apparent uncertainty in the aftermath of the speculation on appreciation, the speculation itself or the subsequent changes in yields and the exchange rate posed no threat to the stability of the Hungarian financial intermediary sector. The prudential rules of the financial regulatory framework (such as capital requirements assigned by the trading book to individual risks, for instance) and banks' internal regulations kept risk exposure at a low level even in the beginning, which prevented the income and liquidity position of the sector from being shaken even in the temporarily more volatile financial environment. While the daily turnover of VIBER (RTGS) was on certain days more than four times that of the previous average, the payment system suffered no interruptions either.[10]

The Bank's change on 16 January in monetary policy instruments successfully separated permanent and temporary effects, in line with the Bank's intentions. The level of interest rates effective with respect to the speculative capital sank below 3.5%, while the 6.5% rate on two-week deposits remained the effective rate for long-term government securities and commercial bank rates. This means that interest rate volatility was successfully localised, that is, it did not spread from the interbank market to the market of longer-term government securities, commercial deposits and loans.

The intervention's impact on the money supply was first sterilised by means of the overnight deposits and, following the restoration of the original set of instruments, the two-week deposits. Thus, there was no increase in the money supply that would have exerted inflationary pressures or posed a risk to the stability of the financial system.

Implications for monetary policy

It is possible to defend the strong edge of the exchange rate band

The speculation on appreciation proved to be unsuccessful. It failed partly because in contrast to the experience of a number of emerging countries and previous ERM crises, this time the speculation was intended to force out revaluation of the domestic currency (forint) rather than its devaluation. Therefore, it seems to be more appropriate to speak about an attack '*in favour of*' the forint rather than *against* it. Even though volume data and foreign exchange market products clearly show that the liberalisation of foreign exchange rules potentially boosted speculators' power, this recent experience reveals that it is much more difficult to 'defeat' the central bank at the strong edge of the exchange rate band than at the weak edge. This is partly because here the intervention causes foreign currency reserves to increase, which has no natural upper limit. Second, fending off this kind of speculation needs a reduction in interest rates, which is, in the short term, significantly less worrying for the financial sector than a major rise in interest rates which follows speculation aimed at pressuring monetary authorities to devalue.

The fact that the speculation on the appreciation of the forint was unjustified and irrational in many respects made easier the defence against it. First, the equilibrium exchange rate of the forint is within the prevailing exchange rate band, which implies that, in contrast to some market participants' expectations in January, the forint is not likely to follow an upward trend over the coming period. Second, many speculators were not aware that under the MNB Act a shift in the exchange rate band would also require approval from the Government. This and the realisation of the monetary authorities' commitment to maintaining the exchange rate band were among the factors behind the reversal of the capital flows within a short time.

The successful defense against the speculative attack boosted the credibility of the exchange rate regime. The largescale foreign currency purchase and temporary, but drastic, central bank interest rate cut testified to the MNB's determination to maintain

[10] Operating hours were extended only on one single day at the request of some credit institutions (on 21 January VIBER accepted instructions until 17:30 instead of 16:30.)

the exchange rate system. Furthermore, the exchange rate loss incurred by the speculators made it clear that the Bank was capable of successful control of such attacks against the forint's exchange rate.

Monetary easing, continuing disinflation

The main monetary policy implications of the, in many respects, irrational and unjustified speculation is that the exchange rate band poses a more powerful barrier for the Bank than previously thought. In particular, the possibility of speculative attacks makes it especially risky to keep the exchange rate at the strong edge of the band. Therefore the MNB had to accept that the forint's exchange rate would be weaker than it was over the two or three months prior to the speculative attack. Thus, accommodating a weaker exchange rate, the MNB was forced to ease monetary policy. Seeking sufficient distance from the strong end of the exchange rate band, the Bank set a rate of HUF/EUR 245 as the desirable level. In further evidence of its accommodation of the more depreciated exchange rate, the Bank has announced a shift in the Bank's focus from the end-2003 inflation target to that at end-2004, as the former was largely beyond the control of monetary policy.

During late 2002, a period of special importance from the point of view of wage negotiations and price increases, the exchange rate of the forint was close to the strong edge of the exchange rate band, further reinforcing the disinflationary effect of the ongoing appreciation. Data on inflation and wages for the past few months show that the disinflationary impact of the strong exchange rate gained momentum at end-2002 and early 2003. Core inflation, that excludes the effect of volatile items (such as food and oil), fell by 0.9 percentage points between November 2002 and April 2003. Furthermore, disinflation accelerated with regard to goods and services (such as tradables, market services and processed food) under control of monetary policy and the exchange rate.[11] Wage growths in the manufacturing sector declined significantly in 2002 Q4 and 2003 Q1.

Because of the speculative episode in January, the MNB had to accommodate an exchange rate level that was weaker than previously. However, due to the monetary tightening earlier and a number of external factors, the period since the speculation has seen a rise in the probability of meeting the inflation target of 3.5% ±1% set for 2004, even under an exchange rate of roughly HUF/EUR 245.

[11] The past few months have seen a decline in tradables prices, taking account of seasonal effects, in evidence of strong disinflationary pressure exerted by the exchange rate.