MAGYAR NEMZETI BANK

# QUARTERLY REPORT ON INFLATION

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*The new Act on the Magyar Nemzeti Bank, enacted by Parliament and effective as of 13 July 2001, defines the primary objective of the Bank as the achievement and maintenance of price stability. Using an inflation targeting system, the Bank seeks to attain price stability by implementing a gradual, but firm disinflation programme over the course of several years.*

*In order to provide the public with a clear insight into the operation of central bank policies and enhance transparency, the Bank publishes the 'Quarterly Report on Inflation', covering recent and prospective developments in inflation and evaluating the macroeconomic developments determining inflation. This publication summarises the projections and deliberations that underlie the decisions of the Monetary Council.*

*The Monetary Council, the supreme decision making body of the Magyar Nemzeti Bank, carries out a comprehensive review of the expected development of inflation once every three months, in order to establish the monetary conditions that are consistent with achieving the inflation target. The first section of the publication is the Statement of the Monetary Council, containing its current assessment of economic perspectives and the grounds for its decisions. This is followed by an analysis prepared by the Economics Department on the outlook for inflation and the main underlying macroeconomic developments. The expected path and uncertainty of the exogenous factors used in the projection reflect the opinion of the Monetary Council.*

# Contents

# Statement by the Monetary Council

*Disinflation is expected to come to a halt in 2003.*

In the judgement of the Monetary Council, developments since the publication of the previous Report may lead to higher-than-expected inflation in 2003. The Bank currently forecasts inflation in 2003 to be above the target band set earlier and to be in the upper range of the band in 2004. Given the current macroeconomic outlook, prices are expected to increase at an annual rate of around 5% in December.

*The factors affecting inflation are slower growth and higher wage increases, lower-than-expected fiscal correction and rising oil prices.*

Unfavourable developments in global economic activity and the related slower annual growth in GDP, expected to be around 3.5%, constitute downward pressure on inflation. By contrast, wage growth, faster than the improvement in productivity, exerts inflationary pressure. Due to the composition of fiscal deficit reduction, the contractionary impact on demand will contribute to disinflation less strongly than expected. In addition, crude oil prices have increased considerably.

*Disinflation is expected to resume in 2004.*

In the Bank's projection, inflation may fall to a level around 4% by end-2004. Furthermore, disinflation may gain renewed momentum as fiscal policy is to implement further significant measures next year to contract demand, consistent with the path designated by the Government's medium-term economic policy programme (PEP). The Bank also expects that, forced by the higher wage growth and slower economic activity in 2003, firms will set wages in 2004 in a more disciplined manner. The global economic outlook appears to be less favourable than forecast earlier. Accordingly, GDP growth is expected to remain at roughly 3.5% in 2004. In the Monetary Council's assessment, the balance of risks to inflation in 2004 is on the downside, as international oil prices are likely to return to earlier levels.

The Bank's instruments available to foster disinflation are limited. Therefore, holding wage increases under control and fiscal rigour will have a greater role to play in reducing inflation.

*The repercussions of the failed speculative attack launched to enforce a revaluation of the central parity are influencing monetary conditions.*

Significant amounts of speculative capital flowed into Hungary on 15–16 January, with the purpose of enforcing a revaluation of the currency's central parity. However, Magyar Nemzeti Bank successfully countered the speculative attack. As the after-effects of the incident, the Bank anticipates lasting abundance of market liquidity, which, in turn, points to a weaker forint exchange rate.

Fiscal policy has restricted abilities to adjust over the short-term, and monetary policy has no power to speed up disinflation, due to the constraints implied by the exchange rate band. Therefore, the Monetary Council perceives a need to interpret the inflation target set for 2004 in the context of monetary policy's limited latitude. Accordingly, the Monetary Council accommodates an around 4% rate of inflation at end-2004. Thus, there is no need to change the current monetary conditions.

*Due to constraints implied by the exchange rate band, the Council accommodates an inflation rate of around 4% in December 2004. Achieving this requires no tightening of monetary conditions.*

Budapest, 10th of February 2003

*Magyar Nemzeti Bank*
*Monetary Council*

# *Summary table of projections*

Percentage changes on a year earlier unless otherwise indicated

| | 2001 | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|
| | Actual data | Estimates | | Forecasts | | | |
| | | Nov. | **New** | Nov. | **New** | Nov. | **New** |
| *CPI* | | | | | | | |
| December | 6.8 | 5.3 | **4.8** | 4.6 | **5.2** | 4.2 | **4.0** |
| Annual average | 9.2 | 5.4 | **5.3** | 5.2 | **5.2** | 4.3 | **4.6** |
| *Economic growth* | | | | | | | |
| External demand | 0.8 | –1.9 | (–1.0)–**(–0.9)**–(–0.8) | 4.7 | 2.4–**3.9**–5.0 | 6.2 | 3.0–**4.8**–6.5 |
| Manufacturing value added | 1.6 | –0.5 | (–0.3)–**0.2**–0.7 | 4.7 | 2.0–**3.5**–4.5 | 7.0 | 2.5–**4.2**–6.0 |
| Household consumption[1] | 5.6 | 9.4 | 8.9–**9.1**–9.2 | 7.3 | 5.4–**6.6**–7.4 | 3.9 | 3.2–**4.1**–5.0 |
| Gross fixed capital formation | 3.5 | 6.5 | 5.5–**6.5**–7.0 | 4.3 | 1.5–**3.4**–5.0 | 4.2 | 1.0–**3.1**–5.0 |
| *Domestic absorption* | 2.0 | 5.6 | 5.0–**5.2**–5.4 | 4.9 | 4.0–**4.3**–4.6 | 3.7 | 2.8–**3.3**–3.8 |
| Exports | 9.1 | 4.8 | 5.2–**5.7**–6.0 | 5.7 | 4.0–**6.2**–8.0 | 9.7 | 4.5–**7.8**–11.1 |
| Imports | 6.3 | 8.4 | 8–**8.5**–9 | 7.1 | 5.0–**7.3**–9.5 | 8.7 | 4.0–**7.2**–10.4 |
| *GDP* | 3.7 | 3.2 | 3.2–**3.3**–3.4 | 3.9 | 3.2–**3.5**–3.8 | 4.2 | 3.2–**3.6**–4.0 |
| *Current account deficit* [2] | | | | | | | |
| As a percentage of GDP | 2.2 | 5.2 | 5.5–**5.6**–5.7 | 5.5 | 5.2–**5.7**–6.1 | 5.2 | 4.7–**5.2**–5.7 |
| EUR billions | 1.2 | 3.5 | 3.7–**3.8**–3.9 | 4.0 | 3.9–**4.2**–4.5 | 4.1 | 3.7–**4.1**–4.5 |
| *General government* | | | | | | | |
| Demand impact [3] | 1.8 | 3.4 | 4.2–**4.3**–4.6 | –1.2 | (–0.2)–**(–0.9)**–(–1.3) | –1.4 | (–2.2)–**(–2.4)**–(–2.6)[4] |
| *Labour market (private sector)*[5] | | | | | | | |
| Wage inflation | 14.6 | 13.4 | 12.6–**12.9**–13.2 | 6.0[4] | 6.8–**7.8**–8.8 | 6.0[4] | 4.2–**5.4**–6.6 |
| Employment | 1.1 | –0.2 | (–0.4)–**(–0.3)**–(–0.2) | 0.3 | (–0.7)–**(–0.1)**–0.5 | 1.2 | (–0.7)–**0.1**–0.9 |
| *Real exchange rate, manufacturing*[6] | | | | | | | |
| Annual average | 8.6 | 11.7 | 10.9–**11.3**–11.7 | (–0.2) | 0.4–**(–0.1)**–(–0.6) | (–2.2) | (–0.4)–**(–1.1)**–(–1.8) |
| Q4 | 14.5 | 8.5 | 8.0–**8.7**–9.4 | (–3.8) | (–4.0)–**(–4.5)**–(–5.0) | (–0.7) | (0.9)– **0.2**–(–0.5) |

[1] Household consumption expenditure
[2] According to balance of payments methodology applied in 2002
[3] As a percentage of GDP
[4] Assumption
[5] Average for manufacturing and services
[6] On ULC basis, positive values denote an appreciation.

# 1 Inflation

## *1. 1 Previous inflation projection versus the actual rate*

In December 2002, CPI inflation stood at 4.8%. Thus, the Monetary Council's target set in mid-2001 for the end of last year was achieved at approximately its central value.

Monetary policy made a major contribution to achieving this target and bringing down the CPI by 6 percentage points in the course of eighteen months. In addition to calculations by Bank staff (see Section 5.2), this is also proved by the fall in the core inflation index published by the Central Statistical Office. Since mid-2001, core inflation, calculated by excluding prices exogenous to monetary policy and occasionally exhibiting high volatility (such as the price of household energy, unprocessed food, fuels, as well as administered prices), fell by 5 percentage points, roughly the same rate as the CPI.

### 1. 1. 1 Assessment of data for 2002 Q4

A detailed look at the data for the end of last year reveals that core inflation, which is instrumental in assessing inflation developments, amounted to 5.5% in 2002 Q4. Note, that according to data released after the *Report's* cutoff date, CPI and core inflation stood at 4.7 and 5.3 percent in January 2003. According to the Bank's preliminary assessment, the new information is in line with developments described below.

In the final quarter there was a renewed decline in the price of tradable goods, following an interruption in tradables disinflation in 2002 Q3. By contrast, the price of consumer durables began to rise for the first time since the exchange rate band of the forint was widened. However, this does not necessarily indicate an interruption in the process of exchange-rate-based disinflation. First, following increases in September and October, the final two months of the year saw another decline in prices, as reflected in the seasonally adjusted data. Second, the impact of the exchange rate on goods prices is not immediate, but unfolds gradually over the course of several months of pass-through. Thus, the nominal appreciation of the exchange rate, which began in May 2001 and picked up pace significantly over the last quarter, may continue to push prices downwards over the next few quarters.

In respect of non-durable goods prices, exchange-rate-based disinflation continued, along with a slight fall in the rate of inflation imported from the euro area, despite some acceleration in household consumer expenditure.

Certain key factors affecting the development of prices for market services, such as the nominal exchange rate and incomes,

**Chart 1.1 CPI and core inflation**
Percentage changes on a year earlier

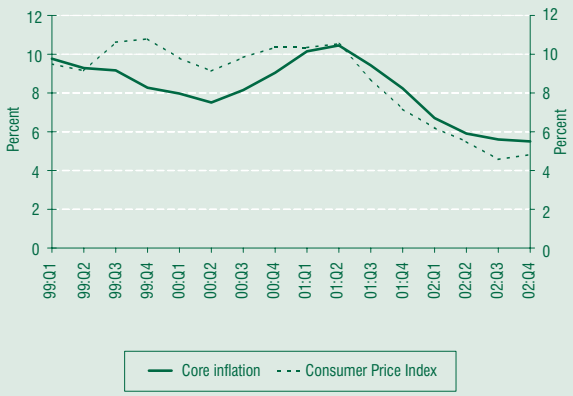



**Chart 1.2 Inflation of tradable goods prices**
Annualised quarterly growth rates

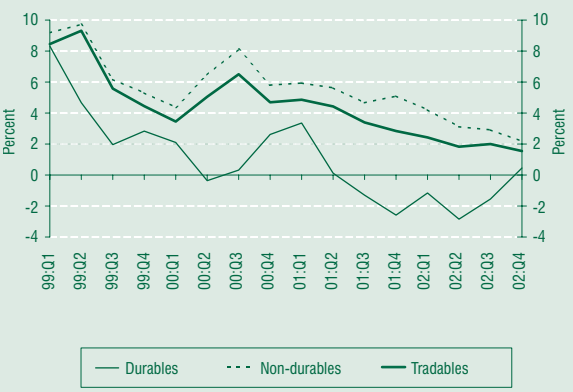


**Chart 1.3 Inflation of market services prices**
Annualised quarterly growth rates

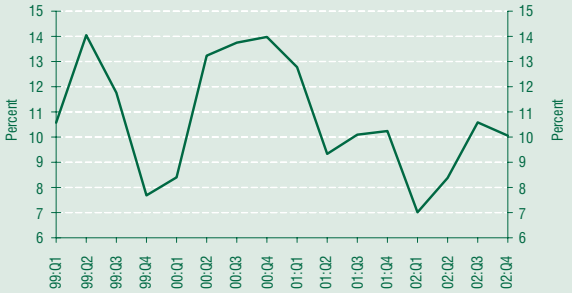



**Chart 1.4 Food prices**

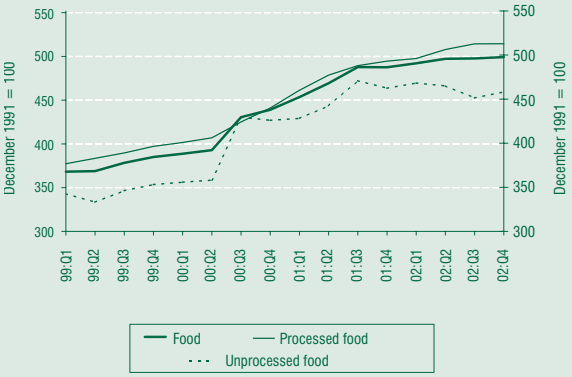
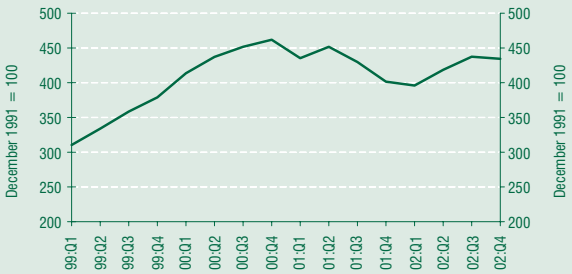



**Chart 1.5 Motor fuel prices**




demand and wage costs, inflation expectations and inflation inertia, are controlled indirectly by monetary policy. In the fourth quarter, inflation in this category did not accelerate further, despite the fact that the nowcasts for household net incomes and consumer spending indicate faster growth in 2002 Q3 and Q4.

The differential between the inflation rates of tradables and market service prices did not continue to widen, in spite of the ongoing process of exchange-rate-based disinflation. This may be due to a drop in the relative price of tradables, and that of durables in particular, in relation to the price of services, channelling demand towards tradables and reducing growth in demand for services.

Factors exogenous to monetary policy also have a major impact on food prices, in addition to the forint's nominal exchange rate, demand factors and wage costs. The price level for this category edged up slightly, due primarily to higher unprocessed food prices. However, the increase seen during the final three months of 2002 did not feed through into processed food prices. This is partly due to a lag of several months until a change in unprocessed food prices feeds through to processed foods, which may cause the effect of the third-quarter price falls to be significant. Furthermore, the fourth-quarter upsurge in agricultural producer prices and unprocessed food prices may be interpreted as a correction of the sharp fall in prices in the summer. Consequently, the feed-through effect may also be milder. Nevertheless, it is possible that the strong forint also exerted downward pressure on inflation in processed food prices.

In addition to the forint/euro exchange rate, motor fuel prices were also greatly influenced by exogenous factors, such as the world price for oil and the euro/dollar exchange rate. On the whole, these factors and the July increase in the excise duty caused the level of motor fuel prices to increase in 2002. Due to the appreciation of the forint exchange rate, however, in the final quarter of 2002 motor fuel prices were at the level seen in mid-2001.

Tobacco and alcohol prices are mainly influenced by regulatory changes in the tax regime. The impact of the August increase in the excise duty on tobacco was still being felt during the final quarter, since it usually takes several months until stocks are run down.

There was no fundamental change in regulated goods prices in Q4, but the prices of some regulated telecommunication services rose slightly.

### 1. 1. 2 Previous projection versus actual inflation

In 2002 Q4, CPI inflation was 0.3 percentage points lower than projected in November. The Bank's projection for core inflation, containing items relevant to monetary policy, exceeded the rate of actual increases by 0.2 percentage points.

As noted in the November *Report*, adopting a cautious approach, the Bank uses the highest available oil price projection for the full forecast horizon. As oil prices dropped steadily from October, it therefore came as no surprise that the rule-based forecast overstated inflation even over the short term, at December 2002. In fact, when the Bank issued the November *Report* oil prices had already been falling, causing a short term downward risk to the CPI forecast which was noted in the text of Chapter 1.2 accordingly.

Prices of tradables, market services, unprocessed food, market-priced energy, and alcohol and tobacco, rose broadly as projected in November. In contrast, processed food prices increased at a slower-than-projected pace, along with prices for motors fuels and regulated goods. In the following, an analysis of whether the difference is due to the assumptions used or other factors is presented.

The error in the projection for motor fuel prices can be attributed to the difference between the November assumptions and the actual data for exogenous factors, such as the strengthening of the forint against the euro and the dollar, as well as to the decline in oil prices.

Processed food prices rose at a more moderate rate than projected, thanks to the milder-than-expected feed-through of the autumn increases in unprocessed food prices. Another contributory factor may have been the appreciation of the forint, since a stronger forint tends to exert downward pressure on the price of imported goods, while also holding domestic producer prices in check.

The October and November increases in regulated telephone and postal services prices led to surprise inflation relative to the Bank's projection. However, this was more than offset by the moderating effect on the price index of the overall regulated product group, as the increase in central and district heating prices expected by the Bank for the fourth quarter was not implemented.

**Table 1.1 Central inflation projection and actual data in 2002 Q4**

| | Weight | Actual data | November projection | Difference | Effect of difference on CPI |
|---|---|---|---|---|---|
| | % | Percentage changes on a year earlier | | Percentage point | |
| Food | 19.0 | 2.4 | 3.0 | –0.6 | –0.12 |
| Unprocessed | 6.2 | –1.0 | –0.9 | 0.00 | 0.00 |
| Processed | 12.8 | 4.0 | 4.9 | –0.9 | –0.12 |
| Tradables | 27 | 2.0 | 2.0 | 0.0 | –0.01 |
| Market services | 19.4 | 9.0 | 8.9 | 0.1 | 0.01 |
| Market-priced energy | 1.5 | 4.0 | 4.0 | 0.1 | 0.00 |
| Motor fuels | 5.2 | 8.2 | 11.4 | -3.2 | –0.17 |
| Alcohol and tobacco | 9.1 | 11.0 | 11.1 | 0.0 | 0.00 |
| Regulated prices | 18.9 | 3.0 | 3.3 | -0.3 | –0.05 |
| **CPI** | **100.0** | **4.8** | **5.1** | **-0.3** | **–0.29** |
| Core inflation | 68.2 | 5.5 | 5.7 | -0.2 | –0.15 |

**Table 1.2 Assumptions of the November projection and actual data for 2002 Q4**

| | Assumptions of the November projection | Actual data |
|---|---|---|
| Forint/euro exchange rate (HUF) | 243.6 | 239.3 |
| Dollar/euro exchange rate (cent) | 98.2 | 100.1 |
| Brent oil price (dollar/barrel) | 27.6 | 26.8 |
| Imported inflation of tradables prices (%)* | 1.1 | 1.2 |
| Household consumption expenditure (%)** | 11.5 | 10.2 |
| Gross private sector wages growth (%)** | 12.9 | 12.7 |

* Tradables price inflation in the euro area, average of annualised month-on-month growth rates (NewCronos code: igoodsxe).
** Annual average growth rates.

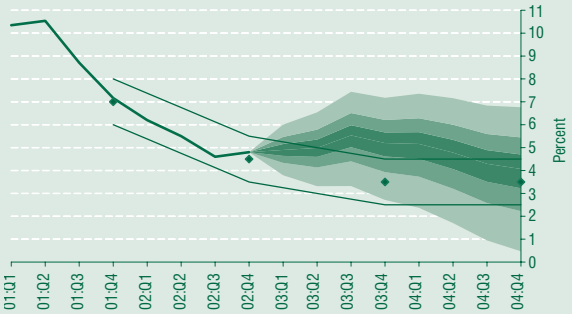
## *1. 2 CPI forecast*

The MNB's current projection for CPI inflation is 5.2% at end-2003, and 4.0% at end-2004. Accordingly, the central inflation projection is 0.6 percentage points higher at end-2003, and 0.2 percentage points lower at end-2004 than the corresponding values published in the November *Report*.

In contrast with November, the current forecast for key labour market developments, underlying the inflation projection, is based on the Bank's own forecast rather than an assumed, conditional path. This has raised the current projection for private sector wage growth in 2003 relative to the previous projection. By contrast, the current forecast for wage growth in 2004 is lower than in November, due partly to the effect of the strong real appreciation of 2001-2002 and the fact that economic growth is now forecast to be much slower in 2004.

The Bank has also changed its assumptions for some of the exogenous factors, such as the forint/euro exchange rate, the world oil price, the dollar/euro exchange rate as well as regulatory changes, relative to November. At the request of the Monetary Council, the current forecast for the exchange rate is set at HUF/EUR 245. This is slightly weaker than the assumption used in the November *Report*. While the oil price assumption derived from average prices in January has been significantly raised, this is largely offset by the weakening in the USD/EUR exchange rate, which is calculated in a similar way. On the whole, the oil price assumption expressed in euros has risen marginally. As regards regulatory changes, decisions made public for this year have been incorporated into the relevant

**Chart 1.6 Fan chart of the inflation projection***




* The fan chart shows the probability distribution of the outcomes around the central projection. The entire coloured area covers 90% of all probabilities. Outside the central projection (centred around the mode), the bands represent 15% probability each. The central band contains the central projection (as the mode) with a 30% probability. The uncertainty intervals have been estimated relying on the Bank's historical forecasting errors and the uncertainties perceived by the Monetary Council regarding the current forecast. The year-end points represent the fixed inflation targets (7%, 4.5%, 3.5% and 3.5% for December 2001–2004), while the straight lines mark the ±1% tolerance intervals. Based on an agreement between the Hungarian Government and the MNB, the December 2003 inflation target has been reinterpreted as an inflation rate of 4.5% or below.

assumptions. Accordingly, in 2004 regulated prices are assumed to increase at roughly the same rate as the average of market services prices.

The main reason that the current inflation projection for end-2003 is higher than published in November is that, in contrast to the time of the previous *Report*, the current projection is no longer based on a conditional wage path. As a result, the 2003 wage forecast is now higher than it was previously. Additional factors behind this year's higher projected inflation are the higher oil price assumption in euro terms and the effect of the weaker exchange rate of the forint.

At the same time, the inflation forecast for end-2004 has been slightly revised down from the November rate. This is due to the fact that wage inflation and economic growth are forecast to be slower than previously, and fiscal demand is expected to contract more sharply. In addition, the forecast based on the regulatory assumption for end-2004 has been revised down from that in November, due to technical factors.

In the central projection, the CPI exceeds the upper limit of the inflation target range by 0.7 percentage points at the end of this year, and remains within the target range at end-2004. At the same time, there is a slight downside risk to the central inflation projection in both years. Thus, even though the central projection is higher than in November, it is accompanied by downside risks to inflation.

**Table 1.3 Central projection for the CPI***

| | Weight (%)** | 2003 | | | | | 2004 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Projection | | | | | | | | | |
| | | Q1 | Q2 | Q3 | Q4 | Dec. | Q1 | Q2 | Q3 | Q4 | Dec. |
| Food | *10.9* | 1.9 | 2.2 | 4.5 | 4.9 | **5.4** | 5.8 | 5.4 | 5.0 | 4.7 | **4.7** |
| Unprocessed | *6.2* | -1.7 | 0.6 | 7.1 | 5.7 | **6.6** | 6.4 | 5.6 | 4.9 | 4.7 | **4.7** |
| Processed | *12.8* | 3.6 | 2.8 | 3.0 | 4.3 | **4.7** | 5.3 | 5.3 | 5.0 | 4.7 | **4.7** |
| Tradables | *27.0* | 1.9 | 1.9 | 1.8 | 1.7 | **1.8** | 1.4 | 1.2 | 1.0 | 0.9 | **0.9** |
| Market services | *19.4* | 9.0 | 8.7 | 7.9 | 7.0 | **6.8** | 6.7 | 6.3 | 5.9 | 5.6 | **5.5** |
| Market-priced energy | *1.5* | 5.3 | 7.0 | 8.0 | 8.0 | **7.4** | 6.6 | 4.5 | 3.2 | 2.6 | **2.4** |
| Vehicle fuels | *5.2* | 12.3 | 9.1 | 5.2 | 5.2 | **6.0** | 4.7 | 3.5 | 3.3 | 3.4 | **3.3** |
| Alcohol and tobacco | *9.1* | 9.7 | 9.8 | 9.6 | 7.6 | **7.0** | 7.2 | 7.4 | 7.3 | 6.9 | **6.8** |
| Regulated prices | *18.9* | 3.6 | 4.9 | 7.6 | 7.4 | **7.3** | 7.5 | 6.9 | 5.5 | 5.3 | **5.3** |
| **CPI** | ***100*** | **4.9** | **5.0** | **5.5** | **5.2** | **5.2** | **5.2** | **4.8** | **4.3** | **4.1** | **4.0** |
| Core inflation estimate | *68.2* | 5.3 | 5.1 | 4.8 | 4.5 | **4.5** | 4.4 | 4.3 | 4.0 | 3.7 | **3.7** |
| Inflation differential*** | | 7.2 | 6.9 | 6.1 | 5.3 | **5.1** | 5.3 | 5.1 | 4.9 | 4.7 | **4.6** |
| **Annual average** | | | | **5.2** | | | | | **4.6** | | |

* CPI inflation data for January 2003 (4.7%) published after finalising our *Report,* was fundamentally in line with our forecast.
** The weights refer to the year 2002. The weights applied for 2003 are not available at this forecasting phase.
*** Market services and tradables price inflation differential.

**Table 1.4 Assumptions underlying the central projection**

| | November 2002 projection | | Current projection | | Difference | |
|---|---|---|---|---|---|---|
| | 2003 | 2004 | 2003 | 2004 | 2003 | 2004 |
| Forint/euro exchange rate* | 243.6 | | 245.0 | | +0.6% | |
| Dollar/euro exchange rate (cent)** | 98.2 | | 106.2 | | +8.2% | |
| Brent oil price (dollar/barrel)** | 27.6 | | 31.2 | | +13% | |
| Imported inflation (average of annualised monthly growth rates)*** | 1.1 | | 1.1 | | 0.0 | |
| Gross private sector wages growth (annual average, %) | 6.0 | 6.0 | 7.8 | 5.4 | +1.8 | –0.6 |
| Household consumption expenditure (annual average, %) | 7.3 | 3.9 | 6.6 | 4.1 | –0.7 | +0.2 |

* The assumption of the Monetary Council.
** The assumption is derived as the average of the values for January.
*** Euroarea-11 industrial goods inflation, Eurostat NewCronos code: igoodsxe.

### 1. 2. 1 Impact of the forint's exchange rate on inflation

In the current forecast, the assumption for the forint/euro exchange rate was made on the basis of the Monetary Council's assumptions. This resulted in an exchange rate of HUF 245 to the euro, slightly weaker than in the November projection, causing the inflation projection to increase.

Over the short term, the weaker forint may initially exert upward pressure on the price of vehicle fuels, and the domestic prices of certain imported tradables and food products, via higher import prices. The current exchange rate assumption is, however, still considerably stronger than the rates preceding exchange rate band widening, which in the medium run points towards a continuing disinflation process.

The current projection has also taken account of other longer-term disinflationary effects of the strong forint, expected to unfold via two main channels. First, as firms adjust nominal wages to declining corporate revenues, the stronger exchange rate exerts downward pressure on CPI inflation through its negative effect on aggregate demand. Second, in the absence of sufficient wage adjustment, pricing mark-ups fall initiating a decline in firms' output and labour demand. This again, through rising unemployment, leads to an aggregate demand-side disinflationary pressure.

In accordance with the developments noted above, the projection for tradables prices shows a slight increase in 2003 Q1, followed by a steady downward trend until early 2004. By contrast, from 2004 on, tradables price inflation remains flat at a low level, but no deflation is expected for tradables as a whole. However, durable industrial goods prices, which are the most sensitive to exchange rate strengthening, are projected to continue to deflate, consistent with developments over the past one and a half years.

Disinflationary pressures from the strong exchange rate have a major bearing on projected inflation in market services prices, resulting in a downward trend over the entire forecast horizon. Steady disinflation in this category is also reinforced by the continuous moderation of the wage inflation path. In addition, the projection, which is slightly lower than in November, is supported by the findings of the Bank's latest survey on the goods composition of household consumption expenditure. The survey suggests that, over the past two years, expansion in household demand has been increasingly focused on consumer durables, while the relative weight of demand for services, and hence the inflationary pressure of stronger demand on services prices, has declined (see Section 2.1 on household consumption).

Developments in the inflation differential are determined by two trends. On the one hand, exchange-rate-based disinflation causes the differential to widen, as the exchange rate exerts stronger disinflationary pressure on tradables prices. Accordingly, the inflation differential widened last year. On the other hand, as tradables prices fall at a faster pace than services prices, domestic demand is attracted more towards tradable goods, which may stimulate a narrowing of the inflation differential. Hence, the current projection is for a downward trend in the inflation differential over the entire forecast horizon.

**Chart 1.7 Projection for tradables inflation**
Annualised quarter-on-quarter growth rates

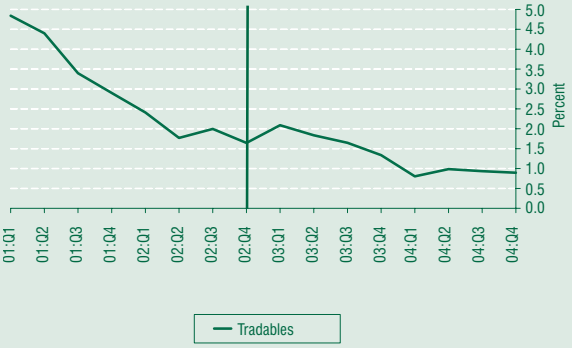



**Chart 1.8 Projection for market services price inflation**
Annualised quarter-on-quarter growth rates

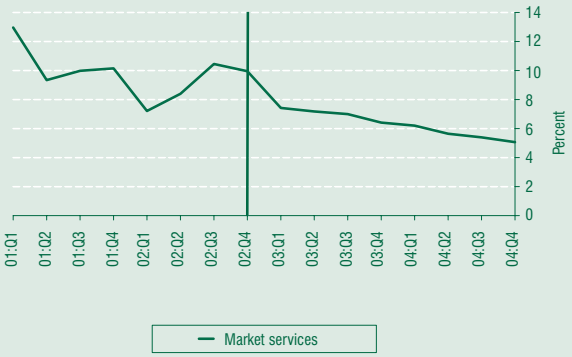



**Chart 1.9 Projection for the inflation differential between market services and tradables**
Difference between annual indices

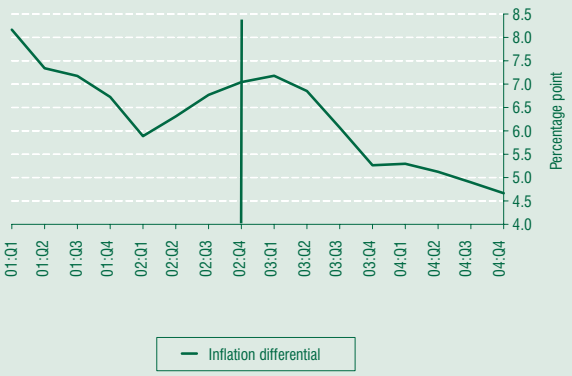
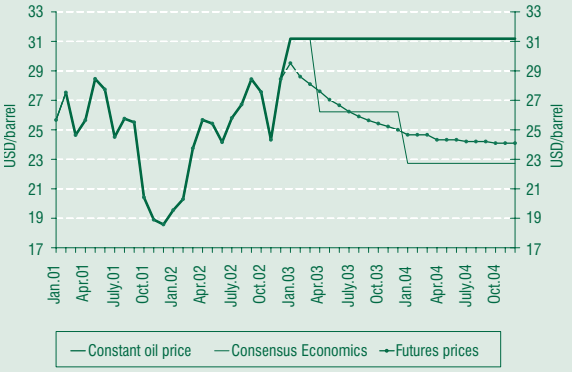


**Chart 1.10 Alternative assumptions for the Brent oil price**




## 1. 2. 2 Effects of high oil prices and the weak exchange rate of the US dollar

As per the rule mentioned earlier, the Bank's assumptions for world oil prices and the dollar/euro exchange rate are fixed as the averages for the final full month prior to the *Report*, in this case, January 2003. The outcome is a very high oil price and a relatively weak dollar exchange rate assumption.

Over the short term, the high price of oil on the global market boosts CPI inflation via the price of motor fuels, while over the longer term, it also feeds through into the price of energy-intensive products (in particular, market services and certain processed food products) by pushing up costs. By contrast, the weaker dollar exerts disinflationary pressures via the same channels. In sum, the combined effect of these two factors (changes of oil price in euros) is upward pressure on inflation.

The oil price assumption is usually based on a number of information sources, providing alternative profiles in addition to the assumption derived using the constant oil price rule. The current alternative paths for oil prices consist of one derived from the oil futures prices at the London-based IPE market and one obtained from the latest Consensus Economics forecast (survey on 20 January 2003).[1] Both alternative paths for oil are lower than the constant path underlying the central projection, and project declining oil prices through to the end of the forecast horizon. The downward inflationary effects of a declining oil price path are accounted for among the uncertainties surrounding the central inflation projection.

## 1. 2. 3 Impact of fiscal policy on inflation

The impact of fiscal policy on inflation appears indirectly in the fiscal stance of the general government and directly in developments in administered prices and indirect taxation. Reliable information on these effects is mainly available for 2003, whereas for lack of official information, the Bank can only make a number of relatively simple and transparent assumptions for developments in 2004.

The fiscal stance is expected to be inflationary in 2003, due primarily to the effect of public sector wage increases implemented in the second half of 2002 and rising household transfer payments. Fiscal expansion affecting household incomes exerts significant inflationary pressure by boosting domestic household demand, a key contributing factor in inflation developments in 2003. According to the Bank's calculations, this inflationary effect is estimated to be around 1.3 percentage points for 2003 (see Section 5.1).

Inflation in regulated prices in 2003 is calculated using the price increases prescribed by the Budget and related Acts. With regard to indirect taxes, the planned increase in the excise duty on tobacco in 2003 Q2 would cause the price of tobacco products to rise by 10.6%, which is fully incorporated into the current projection. All in all, the 2003 projection for regulated

[1] Both alternative paths are initially calculated for WTI oil prices. In preparing the forecasts, however, the Bank transforms WTI prices to Brent prices, taking into account that WTI prices are systematically higher than Brent prices by an average of 1.8 USD/barrel.

prices as annual averages is 0.4 percentage points higher than predicted in November.[2]

The Bank has made a simple assumption for 2004, namely that annual price increases within this product group will be roughly equal to the rate of inflation of market services prices.[3] Note that in the absence of specific information, changes in indirect taxes on tobacco products and vehicle fuels in 2004 are expected to move in line with average CPI inflation.

### 1. 2. 4 Uncertainty surrounding the central projection

The probability distribution of the central projection has been estimated relying on the Bank's historical forecasting errors and the uncertainties perceived by the Monetary Council. The extent of the uncertainty regarding the current projection corresponds to the standard deviation of the former forecasting errors, while the shape of the probability distribution reflects a small downside risk to inflation relative to the central projection. The slight downward asymmetry around the central projection stems from developments in world oil prices in 2003, as well as oil prices and prospective excise duty rises in 2004.

The uncertainty about prospective oil prices constitutes a downside risk to inflation both at end-2003 and 2004. This is because the oil price assumption underlying the projection is fixed at the recent very high level over the entire forecast horizon. Although it cannot be ruled out that oil prices continue to rise over the short term, the medium-to-long-term scenario calls for oil prices to decrease.

This is reflected in the Bank's alternative assumptions, which show oil prices gradually declining over the forecast horizon. Assuming that actual oil prices followed an alternative path similar to either the one derived from futures prices or the Consensus Economics oil price, the inflation projections for end-2003 and end-2004 may be lower than the current projection by 0.3–0.4 and 0.2–0.3 percentage points, respectively.

With regard to 2004, the prospective rise in the excise duties on tobacco and vehicle fuels also constitutes a downside risk to inflation. The central projection is calculated using the neutral assumption that excise duties will increase at the same rate as inflation, which, consistent with the Monetary Council's assessment of risk, is associated with a downside risk.

Relative to the central projection, the risk to private sector wage inflation is of the customary extent. In the Monetary Council's view, the balance of risks is neutral in both years. As the risk to wage inflation, an instrumental factor in the assess-

**Table 1.5 Bounds of the bands in the fan chart**
(changes on a year earlier)

| | 90% lower | 60% lower | 30% lower | Central path (mode) | 30% upper | 60% upper | 90% upper |
|---|---|---|---|---|---|---|---|
| 2003 Q1 | 3.8 | 4.3 | 4.6 | **4.9** | 5.2 | 5.5 | 6.0 |
| 2003 Q2 | 3.3 | 4.1 | 4.6 | **5.0** | 5.4 | 5.8 | 6.5 |
| 2003 Q3 | 3.3 | 4.4 | 5.0 | **5.5** | 6.0 | 6.5 | 7.4 |
| 2003 Q4 | 2.7 | 3.9 | 4.6 | **5.2** | 5.7 | 6.2 | 7.2 |
| 2004 Q1 | 2.4 | 3.7 | 4.5 | **5.2** | 5.7 | 6.3 | 7.4 |
| 2004 Q2 | 1.7 | 3.2 | 4.1 | **4.8** | 5.3 | 6.0 | 7.2 |
| 2004 Q3 | 0.9 | 2.6 | 3.5 | **4.3** | 4.9 | 5.6 | 6.8 |
| 2004 Q4 | 0.5 | 2.2 | 3.2 | **4.1** | 4.7 | 5.4 | 6.8 |

[2] The fact that the projection for 2003 is higher than in November can be largely ascribed to upward revisions to the forecasts for local and long-distance transport fees, district heating and electricity prices, as a result of newly acquired official information.

[3] The projected increase in regulated prices in the first half of 2004 is higher than the Bank's previous forecast in November. This is due to the prolonged effect of the planned increase in the price of piped gas in May 2003, which, in the previous forecast round, was expected to occur in January. For the second half of 2004, however, the Bank expects relatively low annual price increases so that the rule previously laid down, i.e. that the annual average increase in regulated prices should be relatively in line with the rate of inflation in market services, will likely apply.

ment of risk, has a symmetrical distribution, the fan chart has only a minor downward asymmetry for both years.

The table below illustrates revisions to the inflation projection in the event of shocks to the key explanatory variables.

**Table 1.6 Changes in the central projection under different scenarios**

| Factors | Scenarios* | Deviation from central projection** (percentage points) | |
|---|---|---|---|
| | | December 2003 | December 2004 |
| Private sector wage growth | One percentage point higher gross wage growth on average in both years | 0.26 | 0.31 |
| Changes in regulated prices | One percentage point higher rate of increase in both years | 0.22 | 0.22 |
| Forint/euro exchange rate | One per cent weaker exchange rate over the full forecast horizon | 0.14 | 0.07 |
| Brent oil price | 10 per cent higher price throughout the full forecast horizon | 0.22 | 0.02 |
| Imported inflation | Half a per cent higher price level over the full forecast horizon | 0.11 | 0.03 |

* For each scenario, shocks are assumed to occur from 2003 Q1.
** Difference of year-on-year indices.

# 2 Economic activity

## *2. 1 Demand*

The Bank has revised up slightly its forecast of economic growth in 2002, while revising down its forecasts for the current year and the next year, compared to the figures published in the November *Report*. This can be attributed to three major factors. First, the forecast for external demand is now somewhat more pessimistic, owing to the assumption of higher oil prices. Second, the Bank expects lower corporate earnings to depress corporate activity more strongly, mainly on account of the real appreciation of the forint. Finally, the effects of the 2002 fiscal expansion will continue to be felt in 2003; however, according to the Bank's assumptions, 2004 will see substantial fiscal restriction. Taking account of all these factors, the Bank has revised down its forecast of GDP growth in 2003 to 3.5% and to 3.6% for 2004.

The Bank now estimates that the decline in external demand in 2002 was less severe than previously assumed. Although it seems the worst is past, activity is only expected to recover modestly. The Bank's forecasts for external demand are more pessimistic for this year and the next, due to higher oil prices and the uncertain world economic outlook.

In 2002, the fiscal expansionary effect on demand turned out to be higher than previously anticipated – the Bank calculates it to have been 4.3% as a proportion of GDP. This issue will be discussed in more detail in the section on general government. The fiscal contractionary effect in 2003 has been revised down slightly relative to the previous forecast, while for 2004, it is assumed that fiscal policy will fall in line with the Government's medium-term economic programme (PEP). Hence, the Bank expects the contractionary impact to be 2.4% in 2004, due to this year's lower-than-expected contraction of demand. This is somewhat higher relative to the forecast in the November issue of the *Report*. It is thought that the contractionary impact on demand will be reflected primarily in the Government's fixed investment programme.

Household demand is currently forecast to continue growing vigorously in 2003, although at a slower rate than last year. The Bank's forecast for household consumption expenditure in 2003 has been revised down relative to the November *Report*, explained by the decline in the demand for labour in 2003 and a pick-up in 2004. One reason for this is that wage developments will likely feed through to consumption expenditure with some delay, and that the higher expected increase in wages will continue to be reflected in household demand in 2004.

**Table 2.1 Sectoral breakdown of the fixed capital formation***
Annual percentage changes

| | Weights** | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| | %* | Estimate | | Projection | |
| Corporate sector | 63 | 1.0 | (–4)–(–2) | (–1)–3 | 3–8 |
| General government | 16 | –6.9 | 18–23 | 3-9 | (–5)–5 |
| Households | 21 | 21.4 | 20–25 | 3-9 | (–4)–6 |
| Gross fixed capital formation | 100 | 3.2 | 5.5–7.0 | 1.5–5.0 | 1.0–5.0 |

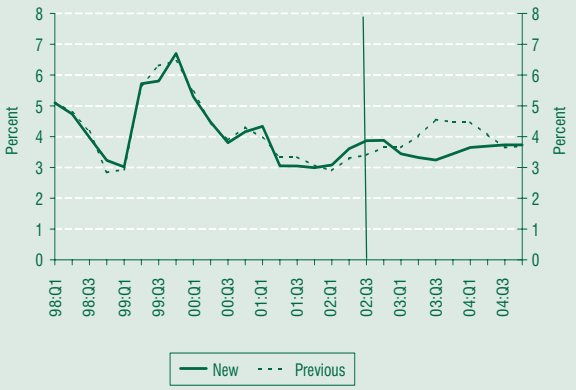
* Investments data, which might differ from those of Gross fixed capital formation. see Manual to Hungarian economic statistics
** for 2002, MNB calculation.

**Table 2.2 Growth in GDP and its components**
Percentage changes on a year earlier

| | Actual | Estimate | Projection | |
|---|---|---|---|---|
| | 2001 | 2002 | 2003 | 2004 |
| Household consumption | 5.0 | 8.0 | 5.9 | 3.6 |
| Household final cons. expenditure | 5.6 | 9.1 | 6.6 | 4.1 |
| Social transfers in kind | 2.5 | 3.5 | 2.8 | 1.3 |
| Public consumption | 4.4 | 3.0 | 2.0 | 1.5 |
| Gross fixed capital formation | 3.5 | 6.5 | 3.4 | 3.1 |
| 'Final domestic sales'* | 4.6 | 7.1 | 4.9 | 3.3 |
| Inventory investment and other non-specified use | (–41) | (–50) | (–30) | (+5) |
| Domestic absorption | 2.0 | 5.2 | 4.3 | 3.3 |
| Exports | 9.1 | 5.7 | 6.2 | 7.8 |
| Imports | 6.3 | 8.5 | 7.3 | 7.2 |
| GDP | 3.7 | 3.3 | 3.5 | 3.6 |

* Final domestic sales =household consumption + public consumption + gross fixed capital formation

**Chart 2.1 Quarterly GDP growth**
Annualised percentage changes on previous quarter




Growth in fixed capital formation is expected to lose momentum gradually, as a result of opposing developments. On the one hand, corporate investment is projected to accelerate, in line with the recovery in external demand. On the other hand, households' investment, typically in residential property, will remain flat at a high level. In addition, in accordance with the fiscal path assumed for 2004, government investment activity is expected to decline markedly.

Lower-than-expected external demand and appreciation of the real exchange rate will likely affect goods exports in both 2003 and 2004. The reason for the Bank's current higher forecast for whole-economy exports in 2003 compared to the November *Report* is that developments in travel and exports of other services are influenced by different underlying trends in contrast to those in goods exports. In the Bank's assumption, the negative effects of the real appreciation on tourism were mainly concentrated in 2002.

In presenting the major components of GDP growth, it should be stressed that in the current forecast the change in inventories (the statistical error therein) is treated as a balancing item between the production and uses sides, and cannot be linked to business activity cycles. Industrial and commercial inventories will be analysed from the perspectives of the business cycle in the section on inventory investment.

The Bank forecasts Hungary's GDP to have grown at a year-on-year rate of 3.7% in the fourth quarter of 2002. The forecast for economic growth is now lower over the longer horizon than it was in November, as a combined effect of less favourable external business conditions relative to the previous assumption, the real appreciation experienced in 2001–2002 and the fiscal tightening assumed to take place in 2004.

### 2. 1. 1 External demand

The slow recovery in the global economy, and particularly in the European economy, continued in 2002 Q3. The Bank's analysis suggests that the European business cycle has bottomed out already, and uncertainties only remain in respect of the extent of recovery.

GDP growth was uninterrupted in Hungary's major trading partners in the first three quarters of 2002, although its rate was fairly subdued. This was mainly due to growth in exports rather than stronger domestic demand – hence, import demand, which is crucial for Hungarian goods and services, remained weak. Nevertheless, third-quarter imports in Germany, accounting for a major share of Hungarian exports, surged unexpectedly, and thus effective external demand rose significantly. [4]

The prospective risks in 2003, and the development of business confidence indices as well as other leading indicators, such as the order books and production expectations, however, suggest that over the medium term the increase in external demand in 2002 Q3 will prove a one-off event and that external demand will fall to, or a little below, the path previously fore-

[4] Import demand of Hungary's 11 major trading partner is considered as the effective external demand for Hungarian goods exports where the weights accounted for by the individual countries is provided by their importance in Hungarian exports.

cast, supported by economic rationale which tends to predominate over the longer term. This translates to a decline in terms of average growth rates for 2003 and 2004, which is also reinforced by the projections of large international institutions.

Due to the assumption of a persistently higher price of oil, stemming from the geopolitical situation, and rising risk premia in the event of a war against Iraq, the Bank expects the expansion of external demand to be 3.9% in 2003 relative to the earlier forecast of 4.7%. Projections indicate that imports by Hungary's major trading partners will likely begin to pick up pace in 2003 H2.

The Bank maintains its view that this dynamics will continue in 2004; even so there will be a considerable decline in terms of annual average growth – in contrast with the earlier forecast of 6.2%, the Bank now expects growth to be 4.8%.

In addition to the risks inherent in the central path, the effects of a potential war against Iraq on oil prices and risk premia over the yields on various investments may exert downward pressure on external demand. However, even under this scenario, at the most, import growth registered by Hungary's major trading partners would be by 1.5 percentage points and 0.5 percentage points lower than the central path in 2003 and 2004, respectively.

## 2. 1. 2 Fiscal stance

In 2002, the expansionary impact of general government on demand amounted to approximately 4.3% of GDP, with a contractionary impact of around 0.9% expected in 2003.[5] Accordingly, for these two years the *corrected SNA*-based deficit will likely turn out to be higher than anticipated. Providing that the fiscal target in the PEP for 2004 is met, the Bank assumes a steeper decline of 2.2%–2.6% in demand in 2004.

As mentioned above, the Bank's previous forecasts for the deficit for both 2002 and 2003 proved lower than it is currently estimated. This systematic forecasting error stems from the nature of the rules-based forecasting method. In those area of public finances, which are fully controlled by the central government, the Bank only takes into account the items already decided in the Budget Act or other laws, and does not expect any amendments to the legislation during the legislative process. Where there is no full government control over fiscal developments, the Bank provides cautious estimates of the extent of overruns. In contrast with this, spending by the local governments and budgetary units turned out to be much higher than expected in 2002. Generally, in the case of tax revenues, where the Bank always employs its own macroeconomic forecasts, the previous estimates for 2002 were met.

Based on preliminary central government data and estimates of local government deficit and expenditures financed, the expansionary impact may have been 4.3% in 2002, in contrast with 3.4% estimated in the November *Report*.

- The Bank has taken account of the change in the outstanding debt of the Hungarian Railways (MÁV) and some public

[5] Fiscal demand impact is the change in the so-called corrected SNA primary balance of the general government estimated by the MNB (see *Manual of Hungarian economic data* at the MNB homepage).

**Chart 2.2 Business climate indicator of the euro area (EABCI) and business confidence index of the German Ifo Institute**

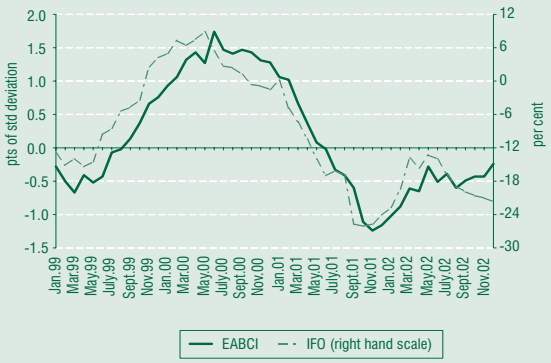



**Chart 2.3 Current and previous projections for external demand**

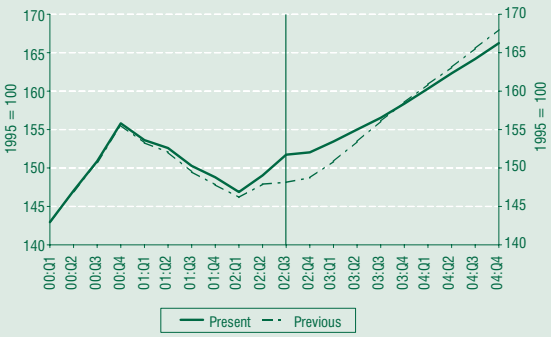



**Table 2.3 Various forecasts of effective external demand for Hungarian goods and services**

| | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|
| | Current | Previous | Current | Previous | Current | Previous |
| MNB | -0.9 | –1.9 | 3.9 | 4.7 | 4.8 | 6.2 |
| European Commission* | –1.1 | | 5.9 | | 7.1 | |
| OECD* | –1.4 | | 5.5 | | 7.6 | |
| IMF* | –0.4 | | 5.7 | | n/a | |

*Forecasts have not been updated since the November Report.

**Table 2.4 Difference between the current forecast and those of the November *Report***
As a percentage of GDP

| | (1) | (2) | *(2–1)* |
|---|---|---|---|
| | Change in the level of *corrected SNA* deficit | | Change in the fiscal impact in demand |
| | 2002 preliminary | 2003 forecast | |
| Consolidation with the debt of some public companies | 0.4 | 0.4 | 0.0 |
| Open-ended expenditures, local governments and budgetary units spending | 0.8 | 0.3 | –0.5 |
| Delays in the implementation of some off-budget | –0.3 | 0.1 | 0.4 |
| Effects of certain new information for 2003 | – | 0.4 | 0.4 |
| **Total** | **0.9** | **1.2** | **0.3** |

transport companies, thus explaining 0.4% of the difference.[6] This consolidation was necessary anyway, as, in contrast with the earlier steady rise in debt which would have only increased the level of *corrected SNA*-based deficit, indebtedness began to rise strongly in 2002, with a resulting upward effect on the demand impact. The demand impact can only be captured in continuous accounting, instead of recording at the time of debt assumption which is only reflected in the official data every two or three years retrospectively. This methodological change has altered both the past data and the current forecast.

- Additional expenditure due to fiscal developments resulted in a 0.8% expansion of demand.[7] On balance, the effect on revenues of macroeconomic developments through the tax bases met the Bank's expectation. However, calculated on a gross basis, i.e. excluding refunds, it fell short of the planning base of 2003 tax revenue, and it is likely to reduce this year's revenues on its own.
- Based on partial information, some off-budget expenditures turned out to be less than expected and was carried forward to 2003. This resulted in savings amounting to 0.2%–0.3% of GDP.

In contrast with the contractionary impact of 1.2% of GDP assumed in the November *Report*, the Bank now expects the contractionary impact to be lower, at 0.9% in 2003. Last year's off-budget expenditure which materialised more slowly reduces the extent of this year's contractionary impact by roughly 0.4%, as its larger part lowers the *corrected SNA* deficit of the base period and increases that of the reference period simultaneously. Based on new information, the Bank has revised up the forecast of other demand factors, which will likely reduce the expected degree of contraction by another 0.4%. In addition, the expenditure estimates fixed in nominal terms increased as a proportion of lower GDP than previously forecast. However, the November forecast contained the shortfall in tax revenue, a factor which was also reflected in the base. Overruns in open-ended expenditure may continue this year; however, excess expenditures by the local governments and budgetary units in 2002 are unlikely to reoccur on a similar order of magnitude this year. This may contract demand by 0.5% in 2003 in its own right.

There are risks around the central projection in both directions. Resulting from the nature of rule-based forecasting, in the case of expenditure overruns due to fiscal developments, account has been taken of the minimum amounts which can be assumed based on past experience and that of certain items only. However, fiscal developments may well result in open-ended expenditure exceeding the cautious estimate, higher use

[6] This adjustment was not anticipated earlier, as only partial information was available, with the Bank assuming that the increase in loans would be more or less even. This latter assumption was not met in 2002.

[7] Of excess expenditure, overruns in open-ended expenditure items (price and housing subsidies, sick leave benefits, etc.) amounted to 0.1% of GDP. Around a half of the some 0.5% excess expenditure on budgetary units stemmed from the use of appropriations carried over; the contents of the rest of expenditure cannot be ascertained. Consequently, it even may be linked with advance payments which could not have a demand impact in 2002. Local authorities achieved a 0.2% savings on expenses, which may mean that local government expenditure was also lower to a similar degree, but it may have resulted in a comparable increase in local government expenditure.

of appropriations carried over and local authorities running into debt, in contrast with a balanced position.

The other principle, according to which only the determinations are taken into account, carries the potential of a higher contraction of demand, as fiscal tightening may well be implemented in the course of the year (for example, the freezing of budgetary estimates or appropriations carried over). Quantifying the effects of the modified tax laws is also uncertain in the case of tax revenues. The measures may turn out to result in a 0.1% higher revenue as a proportion of GDP than the Bank's calculation.

But the same rule may mean a lower contraction in the case of off-budget corrections, as the Bank only takes into account the items already determined and considered certain to materialise.

Overall, due to the uncertainties discussed above, the Bank assumes the contractionary impact on demand to be between 0.2%–1.4% of GDP in 2003.

The Bank continues to assume that the deficit target set for 2004 on the basis of the PEP path will be met. Accordingly, provided that this year's contraction amounts to 0.9%, the contractionary impact is assumed to amount to 2.2%–2.6% in 2004, depending on whether there will be a debt assumption in 2004.[8] Within the assumed fiscal adjustment affecting the entire deficit, the Bank cannot make a detailed forecast of the likely contractionary measures, but as a part of reducing demand, it is likely that there will be significant reduction in fixed investment.

Revising up slightly its forecast, the Bank expects the public sector gross wage bill to have increased by 31.8% in 2002, primarily on account of higher employment. In 2003, the increase in the yearly average wage bill is expected to be 17.6%, mainly as a result of the full-year effect of the previous year's wage increases. In 2004, real wages are expected to increase by around a half of the increase in GDP in the larger part of the general government sector, which, including the full-year effect on 2004 of this year's measures, is likely to ensure an increase commensurate with that of GDP.

Based on preliminary data, transfers to households in cash are thought to have increased by 20% in nominal terms in 2002, somewhat more strongly than the previous forecast. One-off transfers to old-age pensioners, higher family allowances and scholarships, additional one-month family allowance, the massive increase in sick-leave benefits as well as the transfer component of the purchases of shareholdings in agricultural cooperatives dominated transfers to households in 2002. In addition to their full-year effect, the Bank has mainly taken into account the implementation of measures affecting pensioners in 2003. Relative to last year's high base, this year transfers to households may increase less strongly, rising by 7.8%.

The Bank estimates broadly-defined public sector fixed investment volume to have increased by 18%–23% in 2002. Owing in part to fiscal developments (for example, the use of ap-

**Table 2.5 Expansionary impact of general government on demand**
As a percentage of GDP

| | 2001 Actual | 2002 Preliminary | 2003 Projection | 2004 Assumption |
|---|---|---|---|---|
| **Direct impact** *(Change in corrected SNA primary balance adjusted for the effect of pension reform)* | 1.8 | 4.3 | –0.9 | –2.2–2.6 |

The (+) sign denotes a fiscal expansion of demand, and the (–) sign denotes a contraction.

[8] The reason behind the wide range is that, overall, it has become uncertain whether the forecast of demand impact can be derived according to the method assumed earlier, taking the change in the ESA-based deficit as a basis. With the methodological change introduced which is necessary in economic terms, i.e. taking account of some companies running up debt, the calculation of the demand impact will have an increasing discrepancy over the short term with the ESA accounts which record a capital transfer later, at the time of the debt assumption.

**Table 2.6 Household net income, consumption and investment**
Annual change, %

| | Household real net income* | Consumption expenditure | Investments volume |
|---|---|---|---|
| 2002 | 12.6 | 9.1 | 20–30 |
| 2003 | 6.0 | 6.6 | 5–10 |
| 2004 | 2.4 | 4.1 | 0–5 |

* Real net income has been approximated with the sum of net wage bill and social transfers in cash.

**Chart 2.4 Household real net income and consumption expenditure**
Annualised quarter-on-quarter growth


propriations carried over) and in part to the accrual basis of accounting, the CSO's statistics will only reflect the curtailment of estimated investment programmes in 2003 to a limited degree. Consequently, fixed investment volume may increase by up to approximately 9% in 2003. In contrast, fixed investment volume is likely to fall by a several percentage points in 2004.

### 2. 1. 3 Household consumption, savings and fixed investment

Three important factors played a role in the Bank's formulation of its forecast of consumption expenditure. First, real wages grew significantly as an effect of the slow adjustment of corporate nominal wage growth to disinflation and public sector wage hikes. Second, households received large government transfers towards year-end in 2002, which contributed significantly to growth in household disposable income. The effect of this additional income will likely influence 2003 developments. Third, account has been taken of the likelihood of the unemployment rate rising due to the more modest economic growth, which, in turn, adds to households' uncertainty, thus reducing their propensity to consume.

Parallel with these effects, the Bank estimates the accumulation rate to have risen last year, and the financial savings rate approximately to have halved. The financial savings rate is expected to rise slightly and the accumulation rate to fall marginally both in 2003 and 2004.

Household consumption expenditure is estimated to have increased by 9.1% in 2002. Actual consumption data for Q3 has also been taken into account in estimating 2002 consumption expenditure, due to which the estimate for last year is now lower than that published in the previous *Report*.

However, the rate at which additional income from fiscal sources was spent in 2002 Q4, i.e. how quickly households adjusted their consumption to the increased income level,[9] carries a significant uncertainty. Consequently, depending on the degree to which consumption was actually smoothed, the income shock at end-2002 has been a factor influencing the forecast for 2003 as well.

The forecast for 2003 consumption expenditure has been revised down relative to the November *Report*, with a 6.6% volume increase expected in 2003. The fiscal income shock at end-2002, the continued relatively high growth in corporate sector wages and the likely increase in unemployment in 2003 and early 2004 due to more modest economic growth are factors influencing the increase in consumption expenditure in 2003. As was previously noted, the full-year effect of the extra income at end-2002 will likely be felt in early 2003. In addition, high corporate sector real wages will also likely result in a dynamic increase in consumption expenditure.

Compared with these two factors, the threat of rising unemployment due to more modest economic growth is seen to work in the opposite direction. A higher unemployment rate results in

[9] At the time of writing this *Report*, retail turnover data are available up to only November so statistical methods are used to estimate the whole fourth quarter. Based on estimated data, quarterly growth in retail turnover increased in the fourth quarter which is in line with the increasing quarterly growth of consumption caused by the income shock at the end of 2002.

slower growth in consumption expenditure, due to the precautionary savings motivation. In other words, if households' uncertainty about their future incomes rises, then they curtail their spending relative to their incomes. In addition, consumption expenditure growth was lower in 2002 than the Bank expected. The spillover effect of this is likely to be reflected in 2003 as well.

Consumption expenditure volume is expected to rise by 4.1% in 2004 for two reasons. First, the forecast for 2004 reflects the expectation that income growth in 2003 will likely be higher relative to the path of wage growth outlined in the November *Report*, which will be reflected gradually in consumption. Second, the increase in household income will likely continue to moderate in 2004. This is in opposition with the expectation that the rise in the unemployment rate, the factor responsible for the current uncertainties, will likely stop. Consequently, although to a smaller extent, the growth rate of consumption will decline in line with the decline in income.

An important issue from the perspective of analysing the relationship between consumption expenditure and inflation is the categories of consumption on which household demand will focus. Both the different income elasticities and the substitution effect as the result of relative price changes tend to influence the structure of consumption. Currently, the Bank has no information which could help it to separate these two effects. Therefore, this issue will be analysed in a more simple way, looking at the changes in the weight of a given category within total consumption expenditure. If the relative prices of products change, then households will likely choose to consume products which have become relatively cheaper, thereby increasing the ratio of the given product within consumption. However, this relationship acts in the other direction as well. If the proportion of a product to total consumption increases, higher demand pressure will emerge in this market segment than the average increase in consumption, and vice versa. Shifts in the demand for durable goods and services reflect households' income position and expectations the best. The percentage share of durable goods rose within household consumption expenditure in 2002, in contrast with that of services, which fell. On balance, the increase in demand for services rose at a slower rate than that in average consumption expenditure, while demand for durable goods rose at an above-average rate.

In a catching-up economy, however, the share of services is widely expected to increase as a trend. Consequently, the demand for durable goods is more strongly interlinked with the cyclical income position. The percentage share of durable goods has been rising continuously in recent years. This is seen as the consequence of households' favourable income position and income expectations. But the share of services has been falling since end-2000 and early 2001, that is, the increase in demand for services has been slower than the average increase in consumption expenditure. Based on the above, the conclusion can be drawn that purchasing consumer durables, which became cheaper on average last year, was a more favourable choice for households, thereby reducing demand for services.

Although the data on financial savings in 2002 are available, the actual value of the savings rate still cannot be calculated accurately, due to lack of information on total household income. However, based on the available information it can be assumed that the savings rate increased in 2002 Q4, as an ef-

**Chart 2.5 Services and tradables spending as a proportion of household consumption expenditure***


*Quarterly data. MNB estimate adjusted on the basis of retail trade turnover in order for the 1995 average of services and the ratio in the CSO's National Accounts to be equal.

**Table 2.7 Savings rates**[10]

| | 2001* | 2002* | 2003 | 2004 |
|---|---|---|---|---|
| Gross savings rate | 12.5 | 9.5–10.5 | 9–11 | 9–11 |
| Financial savings rate | 7.0 | 3–3.5 | 3–4 | 3–4.5 |
| Operational saving rates | 4.0 | 1–1.5 | 1.2–2 | 1.5–2.5 |
| Investment ratio | 6.1 | 7–7.5 | 6.5–7.0 | 6.0–6.5 |

* Household disposable income is available to 2000 only, thus it is approximated by wages and salaries and social transfer in cash.

fect of the additional income, although it may have been between 3%–3.5% in the year as a whole. This is less than half of the savings rate in 2001. The operational savings rate fell by a comparable measure, to around 1%–1.5%.

The Bank's forecast of household investment has changed little relative to the November *Report*. The most direct information about developments in accumulation expenditures can be derived from the number of completions and the number of housing permits, which is used to forecast the number of completions. No new data on housing market developments were released at the time the *Report* was being prepared; consequently, the most recent information on the housing market is based on developments in incomes and housing loans. In light of building permits issued in 2002 Q1–Q3 and the unchanged forecast of incomes for 2002, the Bank has not revised its forecast of accumulation expenditure volume in 2003. Higher growth in incomes in 2003 relative to the normative wage path outlined in November may be a factor increasing the number of building permits and, consequently, the volume of accumulation in 2004; however, this will little influence the Bank's earlier forecast.

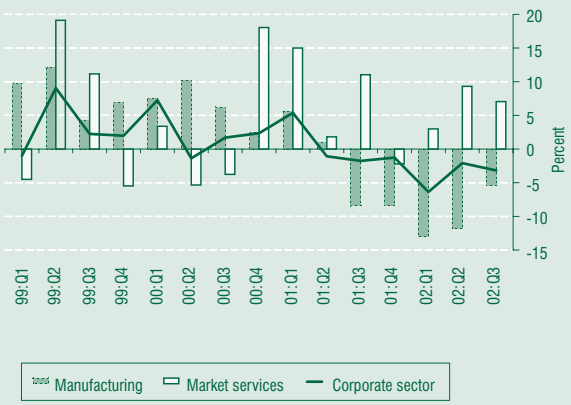
## 2. 1. 4 Corporate investment

The combination of future sales prospects and expectations of corporate profitability shapes the level of corporate fixed investment. Based on the slower-than-anticipated recovery in external business activity, the strong appreciation of the real exchange rate and the decline in corporate profitability, corporate fixed investment activity is likely to increase at a lower rate than previously forecast. According to the Bank's current forecast, corporate fixed investment rises by 1.5% in 2003 and by 5.6% in 2004.

The drop in corporate investments in 2001–2002 was not unique. That this was also observed in some other small, open European economies strongly suggests that the downturn in world demand was a key factor behind this development (see Section 5.4).

The level of corporate fixed investment continued to fall in 2002 Q3, a decline, which began in mid-2001 and was uninterrupted for the sixth consecutive quarter. Within corporate fixed investment, the drop in manufacturing fixed investment activity, which is more sensitive to external cyclical conditions, has been dominant, while investment activity in the services market has continued to rise in recent quarters as a result of the expansion of domestic demand. Manufacturing investment has declined significantly, by some 15% over the past 18 months, a process in which the appreciation of the real exchange has also played a role, in addition to the subdued level of external demand. However, the extent of this downturn proved much more modest in Q3 than in earlier periods, suggesting perhaps that the slow recovery of external business activity was already being felt in the sector.

**Chart 2.6 Corporate fixed investment in a breakdown by sector**
Annualised quarter-on-quarter contributions to growth*




** The time series for both corporate investment and its components are MNB estimates (see* Manual to Hungarian economic statistics*). Market services = trade + hotels and restaurants + transportation, post and telecommunications + financial services + property services. The Chart does not plot the other components of corporate sector fixed investment (the agriculture, mining, energy and construction sectors).*

[10] The *gross savings rate* consists of financial savings plus households' investment spending minus the ratio of capital transfers to adjusted total income. The *financial savings rate* is defined as the ratio of financial savings to adjusted total income. The *operational savings rate* eliminates compensation for inflation from the financial savings rate. The *investment ratio* is the ratio of household investment spending, mostly on dwellings and garage construction, to adjusted total income. *Adjusted total disposable income* includes transfers in kind and savings in pension funds, in addition to total income.

The information available on developments in corporate sector investment in 2002 Q4 is not conclusive. KOPINT's fourth quarter business survey has found that companies have a slightly better perception of the *current situation,* which is consistent with a slow recovery of external demand and strengthening domestic manufacturing activity. By contrast, the capacity utilisation index has been falling steadily ever since 2002 Q2, implying the absence of a sufficiently strong impulse from the demand side to encourage firms to increase future capacities. In addition, imports of capital goods have fallen substantially, signalling a decline in corporate fixed capital formation, simultaneously with robust government and household investment activity. These factors lead the Bank's staff to believe that the level of corporate investment continued to decline in the final quarter of 2002, although at a slower pace than previously. All in all, manufacturing investment is estimated to have declined by 9% and corporate investment by 3% in 2002.

On the other hand, the KOPINT business survey has revealed a drastic deterioration in Hungarian firms' *expectations,* which is likely to exert downward pressure on investment activity during the first six months of 2003. In addition to the uncertainty about the strength of an external recovery, the factors to blame for the unfavourable perception of sales and production prospects probably include domestic developments, such as the continuing appreciation of the real exchange rate and loss of confidence by suppliers adversely affected by the withdrawal of some multinational firms. Expectations about the outlook for capacity utilisation also turned around late last year, as an increasing number of firms began to view their capacities as excessive relative to orders. Although business survey data can vary widely at the time of turning points, the latest information indicates that the risk of investment weakness continuing in 2003 Q1 has increased significantly.

The long-term future development of corporate sector fixed investments is shaped by a combination of three factors – the pick-up in external demand, changes in domestic demand and real appreciation. According to the Bank's calculations, the real appreciation that occurred up to end-2002 has retarded the growth rate of manufacturing investment in 2002 and 2003. In contrast with this, the slow recovery of external demand has been a factor contributing to the upturn in manufacturing investment. Accordingly, manufacturing investment is expected to be stagnant in 2003, only to pick up significantly in 2004.

The Bank anticipates that the increase in service sector fixed investment activity will remain flat as a result of demand slowing on the domestic markets and rising on the external ones; consequently, total corporate sector fixed investment is expected to increase by 1.5% in 2003 and by 5.6% in 2004.

## 2. 1. 5 Inventory investment

The Bank's inventory indicators, calculated on the basis of whole-economy inventory data released by the CSO, paint a controversial picture of the current state of business activity.

Examining the inventories-to-output ratios in both manufacturing and the total economy, one may conclude that, based on the change in the ratio in Q3–Q4, that the Hungarian economy has entered the upward phase of the cycle. The reason for this is that, analysing their historical developments, inventory ratios

**Chart 2.7 Current and expected capacity utilisation in manufacturing**
KOPINT survey

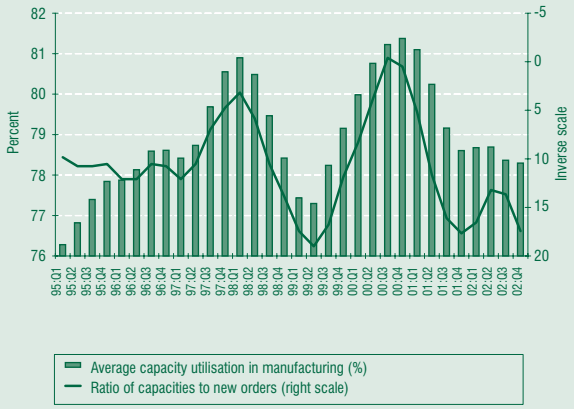



**Chart 2.8 Forecasts of corporate fixed investment and external demand**
Annualised quarter-on-quarter growth rate

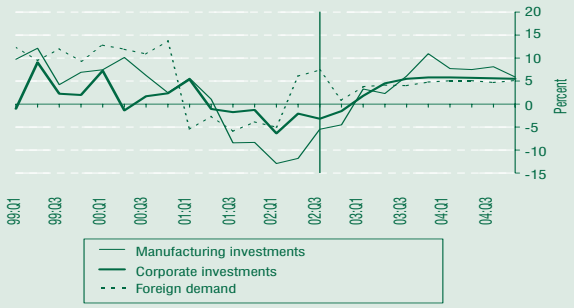


**Chart 2.9 Inventories-to-output ratios in manufacturing and the whole economy**

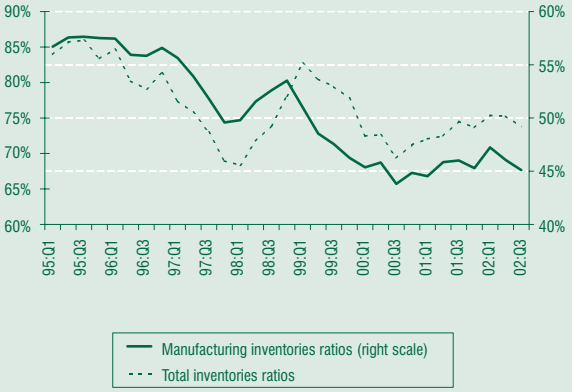
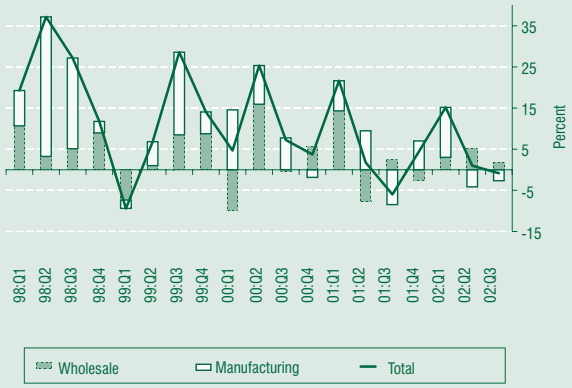



**Chart 2.10 Inventory changes in manufacturing and trade**

Annualised quarter-on-quarter contributions to growth




tend to increase during downturns in business activity – they rose drastically during the Russian crisis, and then more slowly and less robustly recently, as a consequence the less unexpected shock of the latest cyclical slowdown. By contrast, upward phases of business cycles have been characterised by a decline in inventories-to-output ratios, which has been the result of output rising more strongly than inventories. Data for the past two quarters show that the slow upward trend of inventory ratios has broken, and that they have started falling, which, taking into account previous movements in the time series, could be a sign of an upswing in domestic business activity.

The decline in the inventory ratio in recent months, however, has resulted from a fall in the level of stocks rather than a rise in output exceeding that in stocks. Examining changes in the level domestic inventories, the unevenness of the current recovery is clearly demonstrable, which has been reflected in the Western European export markets as well. In early 2002, the recession in Western Europe appeared to have reached its bottom and it seemed that the recovery would start very swiftly, even by historical standards. External demand picked up, as a result of which foreign trade came to life. This also affected the Hungarian economy – output picked up and stock-building started.

However, the perceptible improvement in the global economy failed to trigger an increase in domestic demand (consumption and investment) in the member states of the EU, which, in turn, caused a downturn in business and household sentiment. Domestically, economic agents also grew uncertain about the quick recovery, and settled in for a slow recovery of business activity. As a result, the adjustment of domestic inventories to the slower growth outlook and de-stocking began. One good illustration of the degree of this uncertainty is that manufacturing stocks have been falling for the second consecutive quarter, a development unprecedented in earlier years. The decline in inventory ratios caused by inventory levels, therefore, is much more a sign of uneasiness than of a recovery.

### 2. 1. 6 External trade

Over the short term, developments in external trade were consistent with the expectations in the November *Report*; however, recent changes in external demand and domestic absorption have slightly altered the previous forecast.[11]

Little additional news has emerged in respect of exports in 2002 – following the high growth rate in H1, exports of goods slowed, adjusting to the sluggish external recovery and real appreciation. The latter has had a much faster influence on the slowdown in growth in services exports. This has been reflected particularly in travel revenue.

The real appreciation of 2001–2002 will likely have its full effect on goods exports in 2003, with a less dynamic increase in external demand being a contributory factor on account of the assumed higher price of oil. On balance, therefore, the increase in goods exports is slightly slower in the current forecast compared with the previous *Report*. However, annual growth in services exports will likely be stronger in 2003 on a

[11] December foreign trade data will only be released on 24 February, after publication of the February *Report*.

weaker 2002 base, despite the Bank continuing to anticipate depressed travel revenues due to the strong forint exchange rate. In addition, the Bank expects the exchange rate appreciation to have the most robust influence on exports that year, trimming its growth rate by up to 2 percentage points relative to the assumption of the nominal exchange rate remaining unchanged following band widening in May 2001.

The delayed effects of real appreciation are unlikely to be reflected in services exports in 2004, in contrast with goods exports. Growth in external demand is expected to pick up, although the Bank expects its rate to be slower relative to earlier expectations. Consequently, the current forecast reflects a rate of export growth which is around 2 percentage points lower.

No new events influenced developments in imports in 2002; consequently, the Bank has left its estimate for 2002 in the previous *Report* unchanged. The effect of real appreciation on imports was pronounced in 2002 – it contributed to growth in imports through both the lower forint equivalent of import prices and the replacement of domestically produced goods which became relatively more expensive.

In 2003, the direct contribution of the real exchange rate to import growth will likely wane, as goods exports will rise at a more subdued pace due to the delayed effect of real appreciation in 2001–2002 (consequently, its implications for imports will be lower as well). In addition, the Bank expects the growth rate of domestic absorption to be more modest, with a drop in household consumption, in particular.

However, in contrast to the earlier forecast, enterprises' slower stockbuilding and fixed investment activity also needs be taken into account. The virtually unchanged real exchange rate will not likely fuel a further increase in imports from 2004; and the lower expected rate of growth of domestic absorption relative to 2003 is also likely to lower the rate of import growth. However, external business activity and Hungarian exports, both are expected to have gathered some momentum by that time, and this will likely ensure comparable growth rates for imports of goods and services in 2004 with those in 2003.

**Chart 2.11 Exports and imports of goods and services**


## 2. 1. 7 External balance

The Bank has revised its estimate of the current account deficit for 2002 upwards to EUR 3.8 billion (5.6% of GDP), relative to the previous *Report*. This stronger deterioration in the external balance has been due to the increase in the general government borrowing requirement.

The current account deficit is projected to amount to EUR 4.2 billion in 2003 (5.7% of GDP). Consequently, the Bank does not expect the external financing requirement to rise further as a proportion of GDP.[12] In contrast to the assumption in the previous *Report*, the general government borrowing requirement turns out much more modestly in the current forecast, with a smaller change in the private sector's position. Net household savings are expected to decline further as a proportion of GDP, given the higher expected increase in household consumption and accumulation than that in disposable income. The shift in

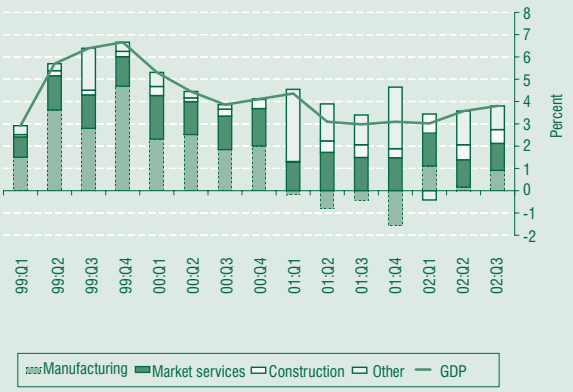
[12] In this *Report*, the 2002 methodology for projecting the 2003-2004 current account deficits is used.

**Table 2.8 Current account deficit and financing capacity of sectors**
As a percentage of GDP

| | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|
| | actual data | | estimate | projection |
| I. General government* | (-5.0) | (-9.2) | (-7.7) | (-5.2) |
| II. Private sector (1+2) | 3.5 | 3.9 | 2.4 | 0.4 |
| 1. Households | 5.2 | 2.5 | 2.2 | 1.9 |
| 2. Corporate sector** | (-1.7) | 1.4 | 0.2 | (-1.5) |
| Financing requirement (I.+II.)*** | (-1.5) | (-5.3) | (-5.3) | (-4.8) |
| *Current account balance* | *(-2.2)* | *(-5.6)* | *(-5.7)* | *(-5.2)* |
| *– in EUR billions* | *(-1.2)* | *(-3.8)* | *(-4.2)* | *(-4.1)* |

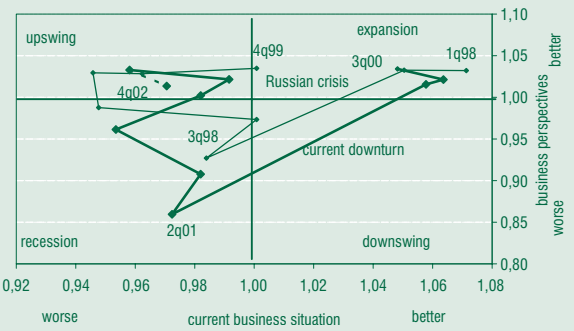
BOP projection is based on the methodology used in 2002.
* Specially constructed indicator to describe the net saving position of general government, which is different from the general government balance.
** Financial and non-financial corporations combined. Government spending on motorway construction is included in data on the general government sector.
*** On a cash-flow basis. The external financing requirement also includes both the current and capital account balances.

**Chart 2.12 Composition of the production side of GDP***
Annualised quarter-on-quarter contributions to growth




* Other sectors such as mining, energy and public sector are not shown.

**Chart 2.13 Cyclical position of Hungarian manufacturing**
Based on firms' assessment of their own position




Source: KOPINT corporate business sentiment survey. The axis of the chart indicates the deviation of answers from long-term trend considering the KOPINT business survey questions about current and future outlook of own business position.

corporate sector financing requirement cannot be explained by cyclical movements, as the sector's financing requirement fell in 2002, due to the consolidation of state-owned enterprises.

The external financing requirement is expected to decline somewhat as a proportion of GDP in 2004. In the Bank's assumption, the general government borrowing requirement will decline in accordance with the medium-term fiscal policy objectives of the PEP; however, the private sector financing capacity is expected to fall more modestly than the former. The corporate sector will likely take a net borrowing position, as its accumulation will pick up considerably as a result of the more favourable outlook for external demand.

## *3. 4 Output*

Output of domestic enterprises in 2003 will likely fall short of the level assumed in the November *Report*. This will be the combined result of a slightly slower-than-expected recovery of external demand, the full-year effect of the deterioration in competitiveness in the previous year and the cost shock caused by the permanently high price of oil. In the Bank's estimation, manufacturing value added will increase by 3.5% in 2003 and by 4.2% in 2004. Developments in market services will likely be shaped by a combination of a gradual slowdown in domestic demand and a pick-up in manufacturing activity. As a result, the Bank forecasts growth of around 4%, both in 2003 and 2004.

One major feature of developments in 2002 Q3 on the production side was that the decline in manufacturing value added, which started at end-2000, clearly came to an end, in accordance with the Bank's expectation. Consequently, manufacturing also contributed positively to the upturn in output, in addition to robustly rising market services and construction. The Bank's forecast for the start of the recovery was uncertain at the time of the November *Report*; however, based on the strong growth observed in Q3, manufacturing seems likely to have passed through the trough of its decline in early 2002.

The preceding month's data on gross manufacturing output indicate a slow but steady improvement in industrial activity. The robust growth in 2002 Q1, in which individual factors also played a role, in addition to the pick-up on external business conditions, was followed by stagnation in Q2. This was consistent with economic developments in Western Europe, where expectations of a fast recovery were replaced by general uneasiness and preparations for a slow recovery in mid-2002 (for developments in Western European sentiment indicators, see the section on external demand). Since September, however, there has been slow, but steady growth in domestic manufacturing, along with the expansion of external demand. This steady growth is expected to have continued in the last month of the previous year and accordingly, gross output is now estimated to have grown by around 3.5% and value added by around 0.5% in 2002.[13]

Despite the recent balanced growth in industry, domestic enterprises currently do not appear to be confident that the economy has indeed entered the upward phase of the business

[13] Recently published data on industrial production in December has not altered the Bank's view of weak, but balanced growth.

cycle. According to a survey conducted by KOPINT, firms' expectations of their own position and the prospects for output both deteriorated in 2002 Q3.[14] The path of the current cyclical slowdown is being compared with that of the Russian crisis, which was also an external demand shock on the chart plotting the current assessment and changes in future expectations. The chart provides clear evidence that corporate sentiment moved similarly at the time of the Russian crisis up to 2002 Q3. From mid-2001, future expectations, one of the components of the rapidly deteriorating sentiment from end-2000, started to improve, followed by a catch-up in current assessment as well. However, the actual data for 2002 Q3 and Q4 resulted in a break in this positive trend, showing a decline in future expectations in parallel with an improvement in current assessment. The fact that this combination of current and future expectations is a feature of cyclical downswing clearly demonstrates the magnitude of current uncertainty. This negative turn appears to underline the Bank's assumption that recovery from the current cyclical slowdown will be a slower and more volatile process compared to the recovery from the shock caused by the Russian crisis.

In forecasting the long-term growth rate of manufacturing, the Bank has taken into account the negative impact on competitiveness of the real appreciation up to end-2002, in addition to developments in external demand. According to the Bank's calculations, this effect will retard growth in manufacturing output strongly in 2003 and somewhat more modestly in 2004. In addition, the Bank expects external demand to pick up more slowly in 2003–2004 than foreseen in the November *Report*. Consequently, growth in manufacturing output will likely fall short of the earlier forecast. Manufacturing value added is currently expected to grow by 3.5% in 2003 and by 4.2% in 2004.

Output of market services in 2002 Q3 turned out to be a little lower than the Bank had forecast. The sectoral breakdown of output clearly shows that the contributions to growth of trade, and hotels and restaurants, two sectors directly influenced by household consumption, have been falling gradually, in contrast with financial services which have been picking up more and more momentum.

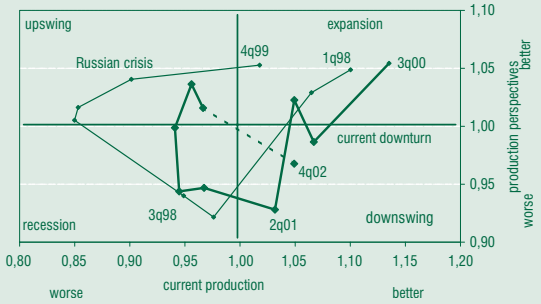
The Bank expects future developments in market services to continue to be dominated by the opposing effects resulting from the decline in domestic demand and a strengthening of manufacturing activity. Based on this, market services are currently forecast to grow by 3.9% in 2003 and by around 4% in 2004.

Robust growth in domestic construction activity continued in 2002 Q3; however, there have recently been increasing signs suggesting that this upturn in construction may be running out of steam. The sector's stock of new orders has been falling gradually since May, with the level of gross output declining since September. The Bank expects the current upturn in construction activity to continue to weaken in the future, consistent with the slowdown in public sector investments and the slower increase in home construction. Accordingly, construction output is expected to have grown by 15% in 2002. Growth in the sector's output is expected to be around 11% and 4% in 2003 and 2004, respectively.

[14] Earlier examinations showed that expectations of firms about their position and future developments in output are good predictors of manufacturing activity. For more details, see MNB Background Study No. 3/2002.

**Chart 2.14 Cyclical position of Hungarian manufacturing**

Based on firms' assessment of current and future production




Source: as above. The axis of the chart indicates the deviation of answers from long-term trend considering the KOPINT business survey questions about current and future outlook of production.

**Chart 2.15 Gross manufacturing output and value added**

Annualised quarter-on-quarter growth rates


**Chart 2.16 Forecasts of manufacturing value added and external demand**

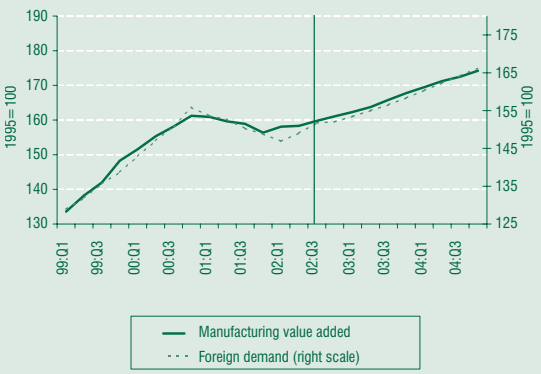
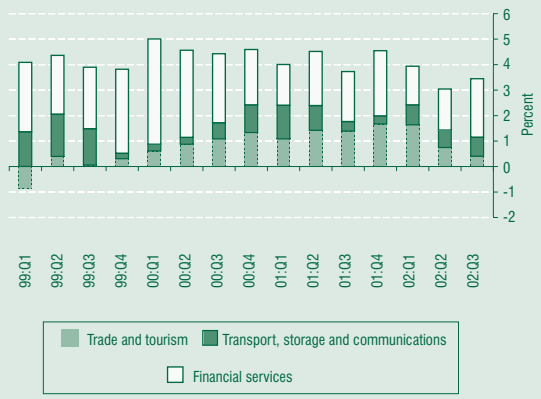



**Chart 2.17 Growth in market services in a breakdown by sector**

Annualised quarter-on-quarter contributions to growth



# 3 Labour market and competitiveness

In 2002, private sector wage inflation only fell slowly despite the progress in disinflation. Nevertheless, the fact that the latest (November) data on wage inflation shows a remarkable slowdown may indicate that more rapid adjustment to the lower inflation environment has finally commenced. Taking this into account, the rate of wage inflation in the private sector was estimated at approximately 12.9% in 2002.[15]

According to the Bank's expectations, in 2003 companies will be forced to adopt more prudent wage policies against the background of labour cost increases far in excess of productivity growth over the past two years and the ongoing disinflation process, as well as shrinking export profits and weaker business activity. This could be reinforced as the long-term contractionary effect on economic activity of the real appreciation of the forint manifests itself. If the rise in unemployment first seen late last year proves to be a lasting trend, as assumed by the Bank, it may also hold wage growth in check.

The wage agreement reached by the National Interest Reconciliation Council last November is not likely to induce a change in the practice of corporate level wage agreements of

**Table 3.1 Labour market data**
Year-on-year change, per cent

| | MNB estimate | Forecast | | | | | |
|---|---|---|---|---|---|---|---|
| | | *November Report* | | | *Current Report* | | |
| | 2001 | 2002 | 2003 | 2004 | 2002 | 2003 | 2004 |
| *Manufacturing* | | | | | | | |
| Employment* | -0.6 | -1.8 | -0.6 | 1.3 | -2.0 | -1.3 | -0.2 |
| Wage inflation* | 14.4 | 12.3 | 5.7*** | 5.1*** | 11.9 | 6.9 | 4.9 |
| ULC** | 10.2 | 9.2 | 0.1 | -1.4 | 7.9 | 1.1 | 0.3 |
| *Market services* | | | | | | | |
| Employment* | 2.9 | 1.4 | 1.2 | 1.2 | 1.4 | 1.0 | 0.3 |
| Wage inflation* | 14.8 | 14.4 | 6.3*** | 6.8*** | 13.6 | 8.7 | 5.8 |
| ULC** | 11.8 | 9.8 | 2.5 | 3.2 | 9.3 | 4.6 | 1.9 |
| *Private sector* | | | | | | | |
| Employment* | 1.1 | -0.2 | 0.3 | 1.2 | -0.3 | -0.1 | 0.1 |
| Wage inflation* | 14.6 | 13.4 | 6.0*** | 6.0*** | 12.9 | 7.8 | 5.4 |
| ULC** | 10.8 | 9.3 | 1.3 | 1.1 | 8.4 | 2.9 | 1.2 |

** MNB estimates, see* Manual to Hungarian economic statistics
** ULC denotes nominal increases in labour costs per unit of value added.
*** Assumptions.

[15] In this analysis, 'labour market' solely denotes that of the private sector; while the wage and employment-related developments within the public sector are discussed in the section on fiscal policy.

such magnitude as was assumed in the previous *Report*. There is no evidence of such a development in the latest, January results of a business survey conducted by the Social Research Centre TÁRKI. Hence, the current projection, based on consideration of the impact of demand and supply and expectations, is for a 7.8% rate of wage inflation in 2003, higher than published earlier.

Private sector wage inflation in 2004, however, is projected at 5.4%, a slightly more moderate rate than in November. This is due to the long-term effects of real appreciation of the forint as well as to the rise in unemployment.

The projection is for a minor depreciation of the unit labour cost-based real exchange rate in 2003, and a flat level in 2004. The Bank's calculations suggest that competitiveness in terms of prices continues to deteriorate, but that appreciation will moderate as the inflation differential narrows.

## *3. 1 Labour usage*

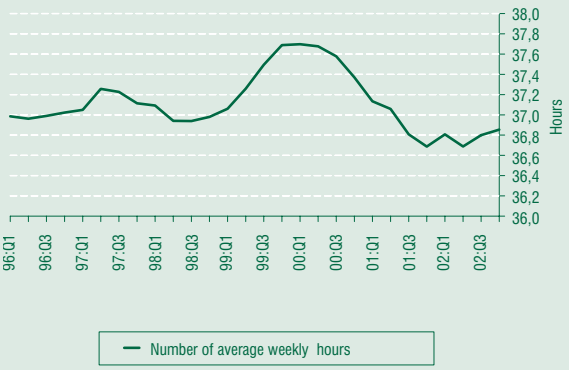
The previous *Report* suggested that the drop in the average number of hours worked by manual workers in manufacturing, that is the decline in labour usage intensity, came to a halt in the summer of 2002. Subsequent data have also reinforced this assumption; indeed, increases seen for the second consecutive quarter give rise to the supposition that there has been a turnaround in the trend, consistent with developments in external demand and manufacturing production.[16]
Opposing trends emerged in manufacturing in the course of the year: average hours worked in the machinery industry increased from early 2002, in contrast to manufacture of textiles and clothing and manufacture of food products, which experienced a steady decline, with the other industries remaining flat.

As labour demand decreased more slowly in manufacturing in the final months of the year, there was only a slight fall in numbers employed and total hours worked.[17] The rise in employment in the market services sector was uninterrupted, due to lively domestic economic activity, with an increase in total hours worked.

For 2002, employment is expected to have been broadly consistent with the previous projections in the area of both manufacturing and market services, with a roughly 2% reduction in the numbers employed in manufacturing and an increase of 1.4% in market services.

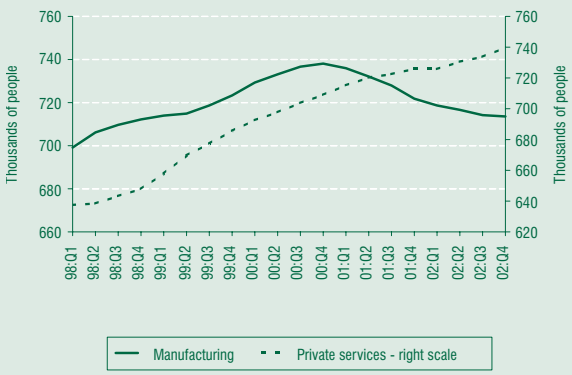
By contrast, in 2003 the decline in manufacturing employment will exceed the previously assumed rate. The downward pressure on employment arising from the deterioration of competitiveness, partly due to labour cost increases far in excess of productivity growth over the past two years, appears to be somewhat stronger than assumed previously. This is supported by anecdotal evidence from end-2002, as well as the Bank's latest calculations. In 2003, the numbers employed in market services is expected to increase at a weaker pace than in the

**Chart 3.1 Average weekly hours worked by manual workers in manufacturing***




* Data recalculated using statistical methods, for businesses employing more than 5 people (source of original data: CSO). Actual data are available up to November; December data are estimated based on statistical methods.

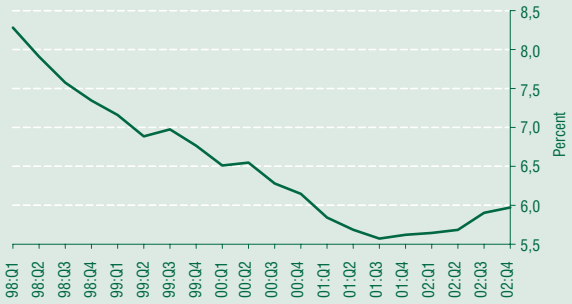
**Chart 3.2 Changes in the number of full-time employees***




* Source of original data: CSO. Actual data are available up to November; December data are estimated based on statistical methods.

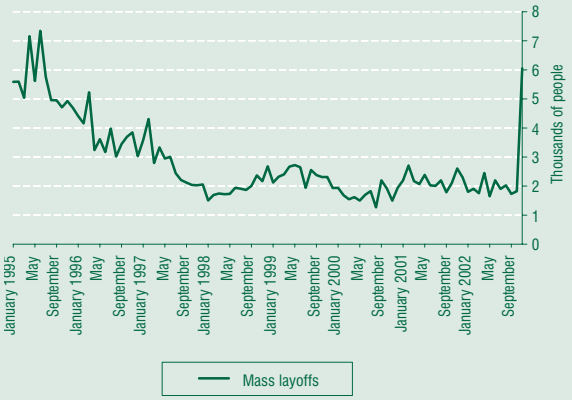
[16] Based on Central Statistical Office data up to November. The December figure has been estimated using statistical methods.
[17] Based on institutional labour statistics.

**Chart 3.3 Rate of unemployment***



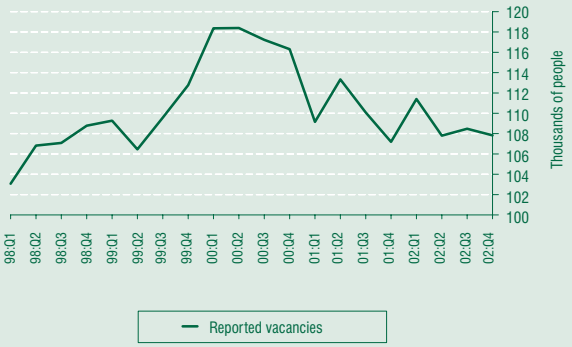

* Based on the CSO Labour Force Survey and derived from seasonally adjusted data.

**Chart 3.4 Number of collective redundancies***




* Data reported for the given month and the number of people affected (source of original data: Employment Office).

**Chart 3.5 Number of registered vacancies***




* Data reported for the given quarter and the number of people affected (source of original data: Employment Office). Actual data are available up to November; December data are estimated based on statistical methods.

previous year, as a consequence of the moderate increase in consumption demand.

The central bank assumes that private sector employment in 2004 will remain flat, as economic growth stagnates.

## *3. 2 Labour market reserves and tightness*

At end-2002, the economy witnessed an upsurge in labour market reserves. The proportion of unemployed people edged up during second half of 2002.[18] This may mark a turning point, following the flat levels and downward trend seen previously. Registered unemployment also rose slightly in the final months of last year.

In November 2002, the number of collective redundancies increased significantly. According to the Bank's assumptions, this is partly due to the delayed impact of weaker business activity in the world economy, especially in respect of larger, foreign-owned enterprises. However, the deterioration in competitiveness due to labour costs increasing far in excess of productivity growth and the appreciation of the real exchange rate could also have contributed to the increasing number of planned collective redundancies.[19] The number of vacancies fell slightly in the fourth quarter.[20]

This all points to a slackening in labour market tightness. Even though at the aggregate level of the private sector no tight capacities are assumed, certain regions and skills have been affected by bottlenecks. Latest information suggests that this tightness is also easing. The expected increase in labour market reserves will likely also hold wage inflation in check.

## *3. 3 Wage inflation*

In 2002, wage inflation moderated somewhat within the private sector as a result of opposing developments. Manufacturing wage inflation continued to edge down throughout the year, while wage inflation in the sector of market services remained flat.[21] However, the latest (November) data suggests faster adjustment to the lower inflation environment, especially in manufacturing.[22]

The Bank estimates that wage inflation in 2002 both in manufacturing and private services was slightly down on the previous forecast (11.9% and 13.6%, respectively). The resulting average rate of wage inflation in the private sector is estimated at 12.9% for 2002.

[18] Based on the CSO Labour Force Survey.
[19] It should be noted that assuming usually low values, this indicator is very sensitive to individual one-off incidents.
[20] Employment Office data up to November; December data are estimated based on statistical methods.
[21] Based on institutional labour statistics.
[22] It is expedient to come to the conclusion only with knowledge of December data because timing of bonus disbursements influences the growth rate of wages significantly in last two months.

The wage recommendation of the National Interest Reconciliation Council for 2003 is not likely to alter the practice of corporate level wage agreements to an extent that would be consistent with the maintenance of the assumption used in the previous *Report*. The agreement proposes a 4.5% rise in private sector real wages. A recommendation in real terms reflects uncertainty about and great deviations in disinflation expectations, which is also confirmed by other information, such as the business survey by TÁRKI. In 2003, as a consequence of the changes in the personal income tax and social contributions systems, the growth rate of net wages exceeds that of gross wages at the aggregate level, but dispersion is significant by income levels. However, net wages is a category that employers find difficult to interpret, as it depends, to a great extent, on individual employee circumstances (such as the number of dependants, housing subsidies, investments, etc.).

Opinions expressed since the agreement was reached indicate that firms hold rather different views on the issue. Consequently, the basis for the current projection has been switched from the previous assumption to an assessment of the effects of demand and supply forces and consideration of expectations and historical evidence.

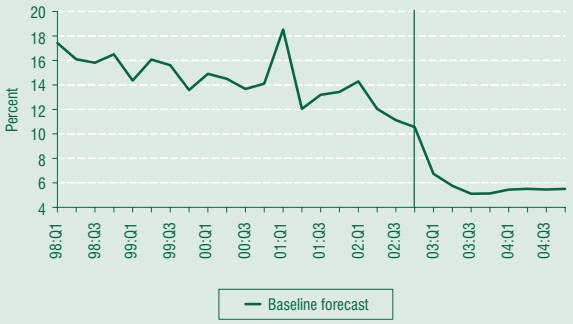
In 2003, the Bank expects firms to adjust nominal wages more rapidly to the environment of lower inflation. Wage inflation is forecast to be approximately 7.8% for the year as a whole, owing to a sharp fall in actual quarter-on-quarter wage increases. Considerably higher labour costs in the past two years have caused corporate profitability to decline, which is expected to induce enterprises to be more prudent in their wage decisions in 2003. Against a background of sluggish economic activity, subdued productivity improvement and worsening profits earned from exports, as well as an over 5% rate of disinflation, private sector nominal wage growth lessened by merely 1.5 to 2 percentage points over the past two years. Thus, real wages have increased far in excess of productivity growth in the past two years.

The projection also takes account of the fact that the disinflation achieved has not been accompanied by a corresponding reduction in firms and households' inflation expectations. The latest survey conducted by TÁRKI in January 2003 indicates that companies continue to perceive inflation to be 4 percentage points higher than the actual rate.[23] In addition, while according to the results of the survey, inflation and wage growth expectations followed a steady downward trend in 2002, this seems to have come to a halt in January 2003. Hence, the latest survey results fail to reflect any decline in wage increase intentions since the November *Report*.

On the other hand, wage increases may be held in check by the lower level of labour market tightness and the potential elimination of labour market bottlenecks previously experienced in certain regions and skills. Furthermore, adjustment by the labour market to the appreciated nominal exchange rate as well as some delayed effects of the world economic

[23] While in a period of disinflation, economic agents' perceptions and expectations of inflation normally exceed the actual rate, the present difference appears to be excessively large.

**Chart 3.6 Wage inflation forecast**
Annualised quarter-on-quarter growth rates*




* Source of original data: CSO. Actual data available up to November; December data are estimated based on statistical methods.

slowdown in 2001–2002 may cause further rises in unemployment, depending on labour market elasticities.

In 2004, private sector wages are forecast to increase at around 5.4%, a somewhat slower pace than previously projected. The reasons behind lowering the forecast are the delayed negative effects of the strong real appreciation of 2001–2002 on corporate profitability as well as the lower GDP growth forecast for 2004.[24]

The Bank estimates that average labour costs increased 1.5 percentage points slower than wage inflation in 2002, due to a reduction in employers' social security contributions payable on the gross wage bill.[25] In 2003, itemised health care contributions, part of labour costs in addition to gross wages, are assumed to be lowered.[26] This will cause average labour costs to grow roughly 0.6 percentage points slower than wage inflation. In the Bank's projection, no reduction in taxes and contributions is assumed for 2004.

## *3. 4 Productivity and unit labour costs*

Due to a slow but steady upturn in external demand, 2002 Q3 witnessed a pick-up in domestic industrial activity.[27] Manufacturing output increased relative to the previous quarter, leading to better productivity as a result of a reduction in numbers employed. The level of productivity has been increasing ever since late 2001, which, due to the procyclical nature of productivity, indicates that manufacturing has come out of the trough of recession. As the performance of the service sector is governed by the dual forces of domestic and external demand, productivity within this sector improved at a relatively balanced pace. Productivity in 2002 as a whole is estimated to have grown by 2.2% in manufacturing and 2.6% in the service sector.

In 2003, manufacturing activity is expected to increase, leading to a 5% upturn in productivity. By contrast, productivity will increase less strongly (at around 4%) in 2004, when the decline in the numbers employed is likely to end. Productivity in the market services sector is likely to grow at a more even pace of 3.5%, due to opposing developments in the components of demand affecting the sector, with a pick-up in external demand and a slowdown in the growth of consumer demand.

**Chart 3.7 Productivity and average nominal labour costs in manufacturing**
Annualised quarter-on-quarter growth rates


**Chart 3.8 Productivity and average nominal labour costs in market services**
Annualised quarter-on-quarter growth rates

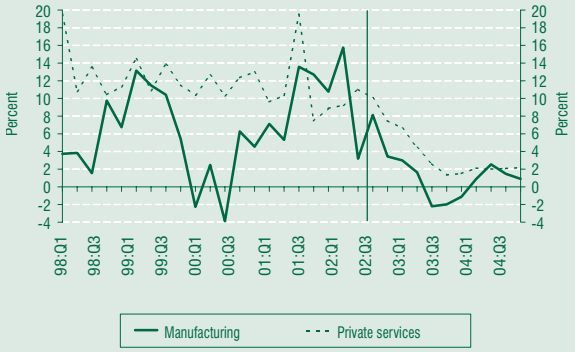

[24] Although the changes to the personal income tax system in 2004 that have already been adopted by Parliament will lower the personal income tax burden, changes to the social insurance contribution, which weigh on wages at closely the same level, are unknown at present. Therefore, the forecast takes no account of the differences between growth rate of gross and net wages.
[25] In addition to gross wages, labour costs comprise other costs incurred by employers in connection with the employment of staff, including contributions and taxes payable on wages, as well as other benefits aside from earnings (such as benefits in kind, social benefits, dining allowances, reimbursement of commuting expenses, support to further training programmes, etc.).
[26] As of 1 January 2003, the amount of itemised health care contribution payable by employees was reduced from HUF 4,500 to HUF 3,450.
[27] As actual data on value added is available only up to 2002 Q3, the latest actual data on productivity and unit labour costs also refer to this period.

Even though average nominal labour costs increased at a slower pace during the third quarter in both manufacturing and market services, their rate of growth still exceeded that of productivity. Hence the sharp rise in unit labour costs in these two sectors. Despite the recent steady slowdown in the growth of unit labour costs, these costs have continued to increase at a rate that caused firms' competitiveness to worsen. In 2002, unit labour costs were up 7.9% in manufacturing and 9.3% in market services.

The downturn in profitability seen over the past two years is expected to make firms carry out significant further adjustments. According to the Bank's expectations, the level of unit labour costs in manufacturing will decline slightly in the latter half of 2003. This process will be facilitated by a pick-up in external activity and ensuing stronger productivity.

By contrast, stronger external business activity in 2004 may exert renewed upward pressure on unit labour costs. The projection for unit labour costs in manufacturing is 1.1% in 2003 and 0.3% in 2004, compared with 4.6% and 1.9% in the service sector in 2003 and 2004, respectively.

**Chart 3.9 Nominal unit labour costs**
Annualised quarter-on-quarter growth rates




## *3. 5 Competitiveness*

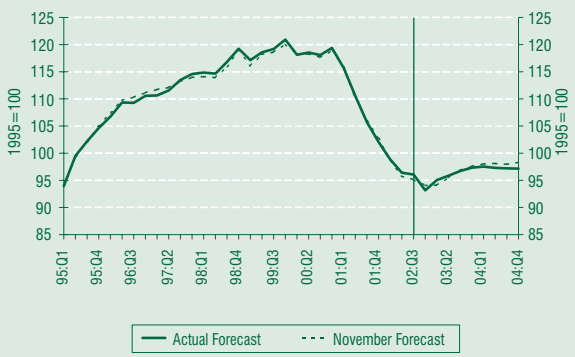
In order to measure the competitiveness of manufacturing in Hungary, the Bank uses the ULC-based real exchange rate, which is jointly determined by the nominal exchange rate as well as relative changes in both domestic and foreign labour costs. In addition to that, the price-based real exchange rate, which measures the correction of differences between domestic and foreign inflation with the nominal exchange rate, is also employed to track changes in the competitiveness of the entire national economy.

The deterioration of manufacturing competitiveness in Hungary that began in 2000 slowed considerably in 2002 Q3. In part, this can be ascribed to the fact that the growth rate of domestic unit labour costs declined, and hence changed in accordance with that of foreign competitors. Furthermore, nominal appreciation stalled in the third quarter. As a result, the price-based competitiveness of Hungarian economy deteriorated only slightly relative to its earlier level.

Although there are currently no actual data available for ULC in 2002 Q4, it seems likely that nominal appreciation exceeding 3% in this period impaired both ULC and price-based manufacturing competitiveness significantly.

The Bank's ULC-based real projection is quite similar to what was projected in the November *Report* as a result of the combined effect of several factors. Although the nominal exchange rate is assumed be slightly weaker than in the November *Report*, domestic ULC is expected to increase more significantly in 2003 than previously assumed. This effect is only partly offset by foreign ULC, which may well be higher than projected. As a result, relative ULC will reach the level projected in November in 2003 and exceed it in 2004. All things considered, the Bank expects the real exchange rate to be the same in 2003 and a bit more appreciated in 2004, respectively, compared with the November projections.

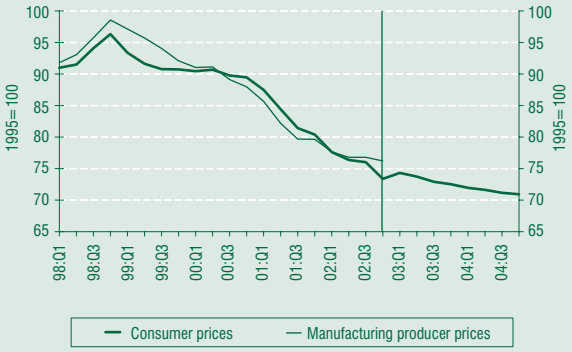
**Chart 3.10 Unit labour cost based real effective exchange rate in manufacturing***




* An increase denotes a real depreciation.

**Chart 3.11 Price based real effective exchange rate indicators***

* An increase denotes a real depreciation.




The Bank maintains its projection that in 2003 relative ULC will decline primarily as a result of domestic corporate adjustment, which in turn will result in low real depreciation amounting to approximately 4.5%. By contrast, relative ULC will stop decreasing in 2004. As a result, the real exchange rate is very likely to remain the same.

Changes in the price-based real exchange rate in 2002 were also determined by year-end real appreciation. The Bank projects more moderate appreciation for the second half of 2003 and for 2004 as a result of lower domestic inflation.

# 4 Monetary developments

## *4. 1 International economic environment and risk perception*

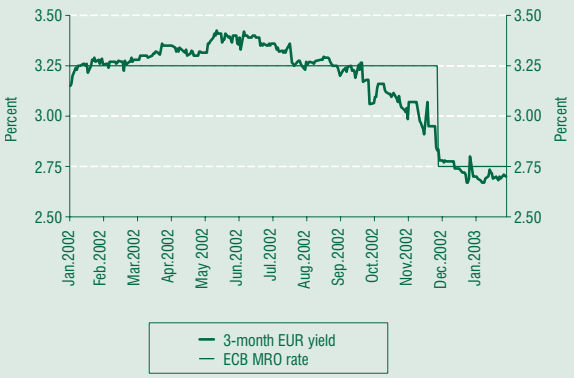
On 5 December 2002, the ECB reduced its key interest rate by half a percentage point to 2.75%. This interest rate cut, which had been widely expected by the markets, had already been incorporated into market yields. As regards the ECB's prospective interest rate moves, opinions appear to be more diverse. The market as a whole has priced in a small – roughly 5 to 20 basis point – reduction for 2003, which is smaller than the smallest percentage change the ECB applies in its interest rate moves. The lingering global economic slowdown and increased political tensions may fuel expectations of an interest rate reduction, especially if the forecasts for lower inflation are justified. A drop in inflation to a level consistent with price stability (below 2%) within the euro area is primarily jeopardised by prospective developments in oil prices, in addition to insufficient restraint in wage growth. The strengthening of the euro against the dollar is expected to reduce inflationary pressure only slowly.

Even though global indicators of risk continue to be very high relative to the average of the past few years, they have dropped significantly in the past three months. This reflects international investors' increased appetite for risk and reduced uncertainty of expectations, compared with the situation in November.

There has been exceptionally strong improvement in the risk perception of EU accession countries. The Irish referendum in October 2002, which would have postponed the date of entry if the Irish had rejected the Treaty of Nice, had a favourable outcome. The resolution passed at the 12–13 December Copenhagen summit on inviting the ten accession countries to the European Union removed virtually all obstacles to joining the Union in 2004, putting an end to the uncertainty about the date of accession.

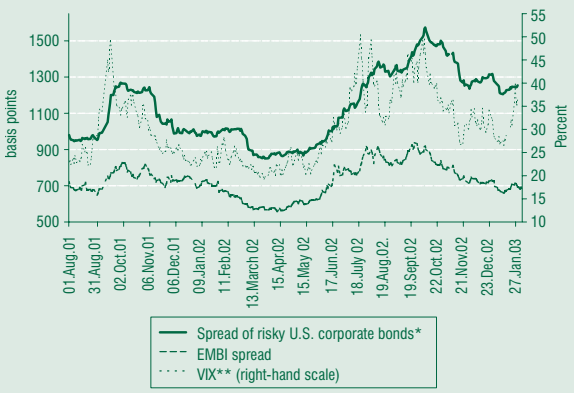
Thus, despite a worsening in Hungary's macroeconomic balance, sovereign debt risk has not increased in recent months. This is reflected in the narrowing spread on Hungarian government bonds denominated in euro. In response to the favourable outlook for accession, on 12 November 2002 Moody's announced an upgrade of the foreign exchange debt of eight accession countries. By contrast, Standard and Poor's announced their intention to downgrade government bonds denominated in domestic currency for Hungary, Poland and the Czech Republic. However, this decision on forint-denominated sovereign bonds, expected to have a potentially opposite effect on spreads and taken in response to increases in Hungary's forint deficit and debt, has not had any repercussions yet.

**Chart 4.1 ECB's main refinancing rate and short-term market rates**




*Source:* MNB.

**Chart 4.2 Global indicators of risk**




* S&P U.S. Industrial Speculative Grade Credit Index.
** Implied volatility derived from options for the S&P100 index.

**Chart 4.3 Spread on Hungary's euro-denominated sovereign bonds**


*Source:* MNB.

**Chart 4.4 One-year real interest rates**

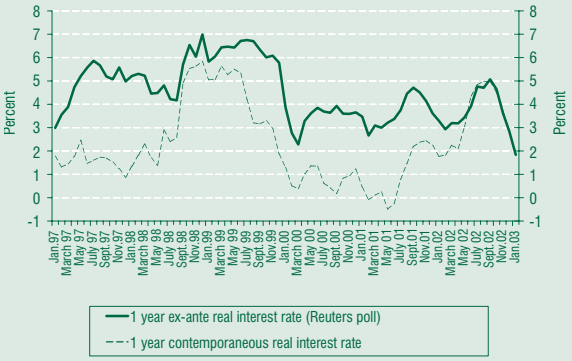



**Chart 4.5 Exchange rate of the forint**

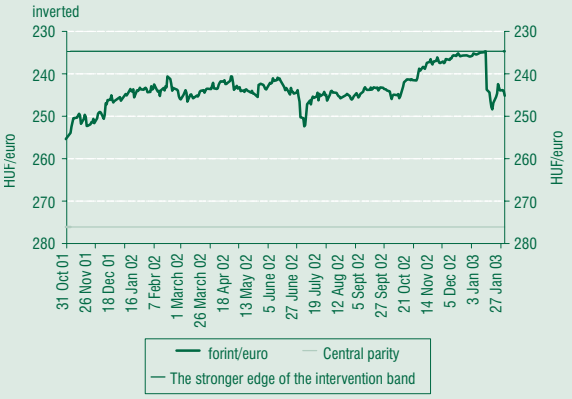



**Chart 4.6 Key central bank interest rates and short-term market rates**

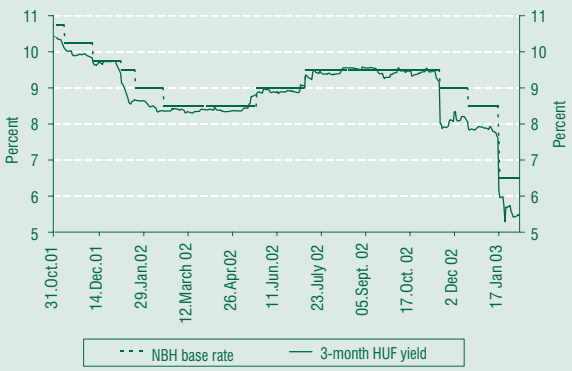
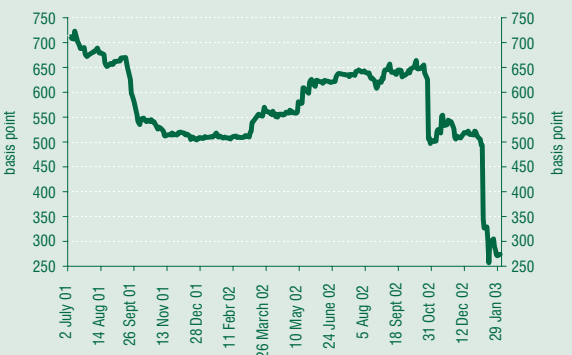



**Chart 4.7 Three-month interest rate differential vis-à-vis the euro area**




## *4. 2 Interest rate and exchange rate developments*

Between August and November 2002, the exchange rate of the forint remained stable within a relatively narrow range. However, early November witnessed the onset of marked appreciation, and by January the exchange rate had come within reach of the upper limit of the band. This appreciation process was essentially governed by three factors. First, as noted above, the period under review saw a clear reduction in risk indicators. Second, the Irish referendum in October removed a major hurdle to Hungary's EU membership. This strengthened expectations about the country's rapid accession to the ERM-II exchange rate system and the single European currency, narrowing the risk premium on forint investments, which in turn caused the volume of convergence investments to increase. Third, some news made public during the review period implied increased risk to meeting the inflation targets set in agreement with the Government, which explains why the MNB did not completely pass on the fall in the risk premium to its key rates.

The wage agreement reached in the National Interest Reconciliation Council constituted a significant risk to the inflation target for 2003 and 2004. Furthermore, it became obvious that the 2003 Budget approved in December would not sufficiently contract demand. Thus, the MNB felt that meeting the targets would require a stronger exchange rate than that prevailing in October. On the other hand, the proximity of the strong edge of the intervention band required the Bank to cut interest rates. Due to the appreciation of the forint, the Monetary Council lowered the policy rates by 50 basis points on 18 November and another 50 basis points on 16 December. Since the nominal exchange rate appreciation was strong, overall monetary conditions were tightened.

These reductions led some market participants to realise that the central bank was strongly committed to defending the stronger edge of the band if needs be, even at the cost of major interest rate changes. This realisation was incorporated into interest expectations, as indicated by the fall in November in yields on one-to-three-year government bonds. The one-year reference yield fell from nearly 10% to below 7%, bringing the one-year ex-ante real interest rate to below 2% currently (calculated as a consensus of analysts surveyed by Reuters).

At the same time, the fact that the MNB allowed the exchange rate to approach the strong edge of the band was interpreted by another group of market participants to mean that the Bank may need to shift the band in the near future in order to meet the inflation targets. This opinion was held even though changing the central parity was a joint responsibility of the Government and the central bank, and they had given no hint of such intention.

These mistaken views were the precursor to the speculative attack on January 16. Following initial exchange market intervention, the Bank responded to the attack by making a drastic cut of 200 basis points in the rate on the two-week deposit facility, the Bank's main policy instrument, lowering it to 6.5% in the span of two days, in defence of the exchange rate band. The effective interest rate was lowered even more sharply, by

500 basis points, as quantity limits were introduced on the two-week deposits and the overnight interest rate corridor was widened from ±1% to ±3%.

This drastic rate cut enabled the Bank to stop the speculative attack. As a result, the exchange rate temporarily weakened, eventually stabilising around HUF/EUR 245.

## *The speculative attack of January 2003 and its background*

An attack was mounted on 15 January 2003 against the strong edge of the forint's official intervention band. Speculators believed that, with the forint appreciating, they would be able to force a shift in the band and close positions at a favourable rate. The MNB purchased a considerable amount of euros at the strong edge on 15 and 16 January in order to prevent the further appreciation of the market rate.

In order to mitigate the band shift expectations that fuelled the speculative attack, the Monetary Council expressed its commitment to defending the intervention band by making major interest rate cuts. On the first day of the attack, on 15 January 2003, the interest rate on the 2-week deposit, the Bank's main policy instrument, was lowered by 100 basis points. As the Bank had to sell a large amount of forints at the edge of the band on the following day as well, the Monetary Council decided to make another 100-basis-point cut. Accordingly, the interest rate on the 2-week deposit dropped to 6.5%. Simultaneously, it imposed quantity limits on its main policy instrument and widened the overnight interest rate corridor from ±1% to ±3%. As a result of such measures, it is the overnight deposit rate (i.e. 3.5%) that has become the *de facto* key policy rate for the market.

* * *

The antecedents of the speculative onslaught date back to October and November 2002, when the forint was under pressure to appreciate for two reasons. One was that, owing to improving EU accession perspectives, the risk perception of forint investments had improved. As a result, demand for Hungarian government securities among foreign investors increased in November.

The other was growing inflation risks. The factors which monetary policy is unable to influence directly, but which affect inflation significantly were rather unfavourable in the second half of 2002. In particular, the high fiscal deficit and wage dynamics continuously in excess of productivity growth posed serious risks. It follows from the logic of the inflation targeting system that under such circumstances market participants not so much increase their inflation expectations, as they anticipate tightening monetary conditions.

One of the characteristics of the Hungarian economy is that the exchange rate of the forint is the very instrument by means of which monetary policy can influence price movements efficiently. The direct impact of short interest rates is slight and confined to shaping the exchange rate. Accordingly, in line with the logic of inflation targeting, the market expected the mitigation of the unfavourable effects of external factors through a higher rate of exchange. In reality, this meant that the level of HUF/EUR 240–250 still deemed as consistent with the inflation targets in mid-2002 became too weak under the new circumstances.

Exchange rate expectations and the exchange rate had shifted close to the strong edge of the band. It became plausible to think that, as monetary policy's room for manoeuvre was considerably restricted, it would be in the interest of monetary policy to revalue the central parity. Though the MNB emphasised that it was willing to subordinate its interest rate policy to the protection of the edge of the band, the Reuters survey of professional forecasters reveals that while the consensus exchange rate expectations remained within the band, a minority of analysts definitely anticipated an early change in the exchange rate system as well as forint appreciation exceeding the strong edge of the band.

The fact that it was probably not clear for all market participants who exactly had the authorisation to change the exchange rate system, and the intervention band in particular, may have played a key role in the attack. The investors who participated in the attack failed to consider the fact that, pursuant to the relevant provisions of the Act on the Magyar Nemzeti Bank, the government in power and the MNB jointly decide on any change related to the exchange rate system. Investors exclusively focused on the contradiction that they had sensed between inflation targeting and the existence of the exchange rate band despite the fact that in November, when the forint appreciated, both the Government and the MNB stood up firmly for the current exchange rate band.

An indication of the amount of the expected foreign exchange gains was the willingness of speculators to undertake the substantial risk posed by the insufficiently deep foreign exchange market. When trying to realise profits, their demand for euro would have probably caused the exchange rate to weaken to such an extent that would have even turned some of the gains into losses.

**Chart 4.8 Changes in the forint exchange rate versus analysts' exchange rate expectations**

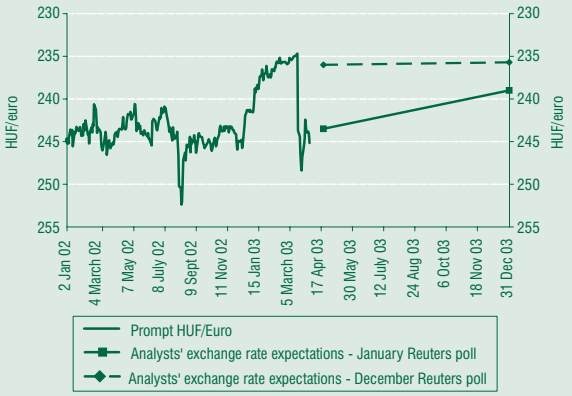



**Chart 4.9 Central bank two-week deposit rate versus interest rate expectations based on the yield curve and the Reuters survey**

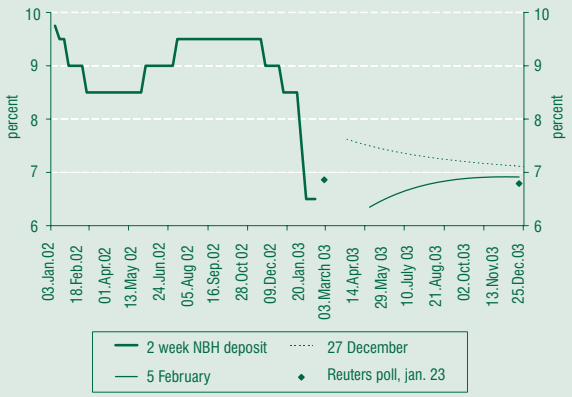
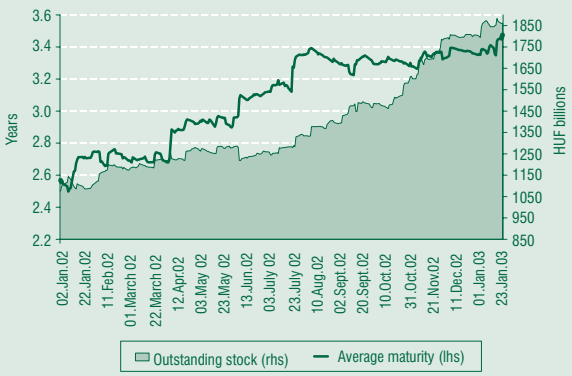



**Chart 4.10 Non-residents' holdings of government securities and their average term to maturity**




*Source*: MNB.

### 4. 2. 1 Interest rate and exchange rate expectations

The latest Reuters survey gives an insight into analysts' exchange rate and interest rate expectations. On the deadline for the survey responses – Wednesday, 23 January – the rate on the two-week deposit was already reduced to 6.5% and the exchange rate was HUF 247–249 per euro. The analysts interviewed did not expect the exchange rate to return quickly to the edge of the band. The consensus forecast was HUF 243.5 at end-February and HUF 239 per euro in December 2003.

The majority of analysts expect the interest rate on the two-week deposits to be 7% as early as end-February. However, expectations derived from the yield curve predict interest rates to be slightly lower in late February. At the same time, both the Reuters survey and the yield curve indicate that the market expects the base rate to be approximately 6.8% at end-2003. Analysts do not expect a considerable reduction in interest rates sooner than 2004. Their prediction for 2004 is that rates will be down to 5.75% by the year-end. This reduction is equal to the expected change in inflation for the corresponding period.

## *4. 3 Capital flows*

The previous quarter saw strong capital inflows from abroad. Increased certainty about EU accession and its date provided long-term Hungarian government securities with an additional allure for international portfolio investors, expecting further interest rate convergence. Accordingly, non-residents' holdings of government securities continued to rise at a fast pace over the past quarter, while their average maturity remained broadly unchanged. Trading by non-residents lost some of its momentum during the holiday season in December, consistent with the overall slowdown in capital market activity, only to surge again in early January.

The upsurge in demand early in the year is a well-known phenomenon in the domestic market, as it is typical at the start of the year that international investors make efforts to realise their investment strategy adopted for the new year. This involves complementing their portfolios to match the strategic target portfolio determined for the new year. This implies net bond purchases. This year, the pick-up in government securities trading emerged in mid-January, accounting for 4.4% of non-residents' total holdings. Nevertheless, the average remaining term to maturity of 3.5 years indicates that the great majority of those investing in government securities wish to benefit from the interest rate convergence expected in the wake of the euro-area accession and typically hold medium-term investments.

Examining the components of *forint demand and supply*, demand for forint (capital inflows) was higher than supply (capital outflows), despite the substantial current account deficit. This was attributable mainly to large purchases of Hungarian government securities, amounting to HUF 241 billion net in Q3 and to HUF 199 billion in October–November. This counterbalanced the effects of slower inflows of direct investment capital and other, smaller financing items.

The increase in commercial banks' on-balance sheet open foreign currency position has been continuous and rapid since the end of the summer. Banks attempted to offset the increase

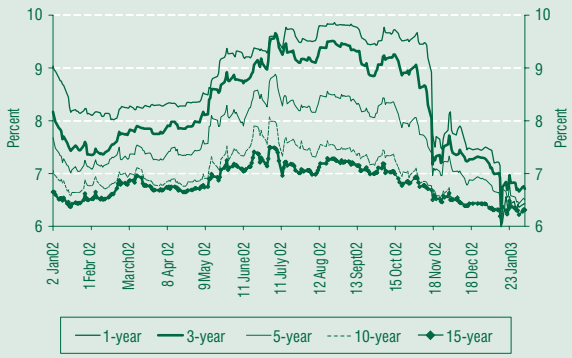
**Table 4.1 Components of foreign exchange market demand and supply***
HUF billions

| | 2001 | | | | 2002 | | | |
|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Oct–Nov. |
| I. Current and capital accounts adjusted for foreign exchange balance of consolidated general government (1+2–3) | –52 | –124 | 79 | –97 | –133 | –252 | –158 | –148 |
| 1. Current account | –63 | –195 | 71 | –131 | –137 | –301 | –165 | –165 |
| 2. Capital account | 15 | 39 | 23 | 16 | 13 | 15 | 6 | 8 |
| 3. Foreign exchange balance of consolidated general government | 3 | –32 | 14 | –19 | 9 | –34 | –1 | –9 |
| II. FDI inflow (excluding privatisation revenue) | 126 | 179 | 108 | 155 | 42 | 113 | 36 | 15 |
| III. Forint demand arising form conversion of domestic foreign currency deposits | –28 | –15 | –6 | –111 | 58 | –62 | 26 | –48 |
| 1. Business sector | –20 | –21 | 2 | –64 | 25 | –70 | 13 | –53 |
| 2. Households | –8 | 6 | –8 | –47 | 34 | 8 | 13 | 5 |
| IV. Net portfolio investments (1+2+3) | 90 | 212 | –134 | 85 | 214 | –5 | 117 | 234 |
| 1. Government securities | 90 | 196 | –79 | 136 | 144 | 32 | 241 | 199 |
| 2. Equity securities | 6 | –10 | 8 | –15 | 12 | –30 | –25 | –27 |
| 3. Forint deposits | –6 | 26 | –62 | –36 | 58 | –7 | –98 | 62 |
| V. Corporate foreign currency borrowing (1+2) | –84 | –128 | –44 | –62 | –202 | –44 | –65 | 41 |
| 1. In Hungary | –10 | 5 | 19 | –12 | 45 | 55 | 69 | 49 |
| 2. Abroad | –74 | –134 | –63 | –50 | –247 | –99 | –135 | –8 |
| VI. Forint demand of other credit institutions | 12 | 37 | 50 | 99 | 23 | 119 | 100 | 43 |
| VII. Other | 47 | 18 | 20 | 132 | 5 | 60 | 12 | 84 |
| **VIII. Net forint demand outside the banking sector (VIII = II + … + VII)** | **112** | **178** | **73** | **201** | **7** | **–70** | **68** | **221** |
| IX. Purchases of foreign currency by central bank** | 178 | 165 | 47 | 40 | 0 | 0 | 0 | 0 |
| **Change in banks' on-balance sheet long foreign currency position (I–IX)** | **–65** | **13** | **26** | **161** | **7** | **–70** | **68** | **221** |

* Positive values denote forint demand and negative values denote forint supply.
** From 2001 Q2, central bank purchases of foreign currency denote central bank purchases of foreign currency in equal daily amounts, instead of intervention.

in their on-balance sheet open positions by using instruments offering a hedge against exchange rate risk. Consequently, their total open position remained low at around HUF 20–30 billion. In this way the banking sector accommodated to the capital inflows until the forint exchange rate reached the upper edge of the intervention band. The exchange rate having reached the upper edge, however, banks sold and converted into forints their holdings of foreign currency in large quantities, as a result of which their on-balance sheet positions turned short. But, with the adjustment of forward positions, their total open position changed only little, moving around the neutral level or slightly below it (foreign currency short position), following the speculative attack.

**Chart 4.11 Benchmark yields in the government securities market**

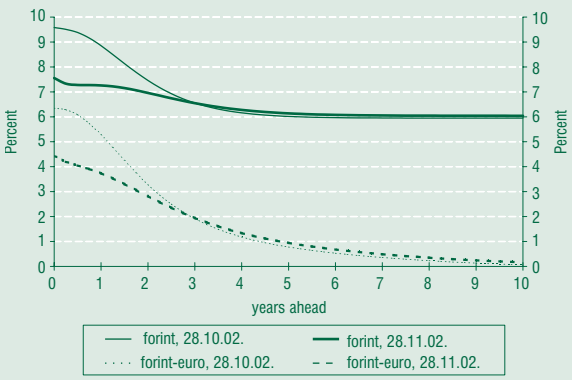



## *4. 4 Long-term yields and inflation expectations*

In the period between November 2002 and end-January 2003, government securities yields fell, mainly at the short end. The 12-month discount treasury bill yield plunged from 9.4% to 6.4%, whereas the 10- and 15-year reference yields fell more modestly, by 50–60 basis points. This fall in yields virtually occurred at two distinct moments – the first large drop took place in mid-November and the second in mid-January. The two episodes affected yields and their maturity profile differently.

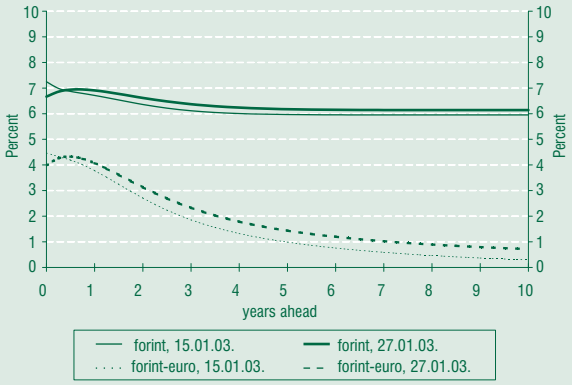
The fall in yields in November can be explained by expectations related to Hungary's approaching accession to the EU and its participation in the ERM-II. In the Bank's judgement, the increasing international demand for risky investments ex-

**Chart 4.12 Change in one-year implied forward rates* and forint-euro forward differentials in November**




*Zero-coupon yield curve fitting a la Svensson

**Chart 4.13 Change in one-year implied forward rates* and forint-euro forward differentials in January**




*Zero-coupon yield curve fitting a la Svensson

**Chart 4.14 Reuters' survey of analysts' inflation expectations**

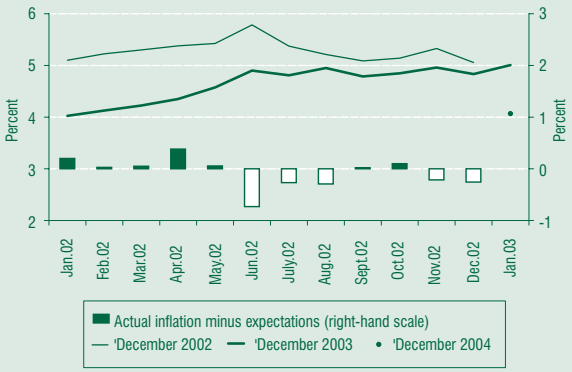
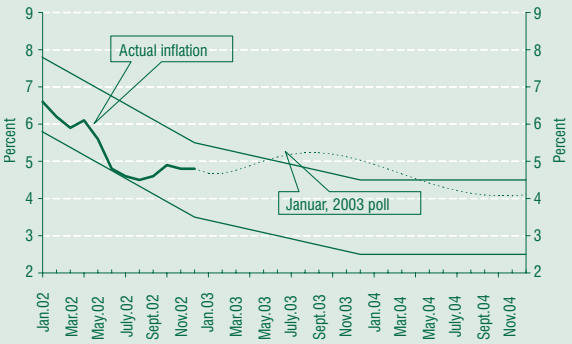



**Chart 4.15 Reuters' survey of inflation expectations in January**




*The path of forecasted inflation was obtained by fitting the smoothest curve consistent with Reuters consensus (end year, average, next month)

erted a much smaller influence on government securities prices; and inflation expectations changed little.

The exchange rate risk perceived by foreign investors diminishes in the ERM-II considered as the entrance hall to Economic and Monetary Union. Moreover, the imminence of accession even implies a more predictable exchange rate than the previous period. All this results in a fall in the required risk premium on forint-denominated investments at the corresponding maturities.

Implied forward rates, calculated from government securities yields, more or less reflect the market's expectations of future interest rates. Consequently, they are suitable for deriving a picture of developments in future required risk premia. The shift in the forward curve occurred at the 0- to 3-year segment in October–end-November, consistent with the above discussion. The extent of this change amounted to 100–200 basis points at some sections of the curve. In addition to the fall in risk premium, the market presumably priced in currency appreciation, maintaining a slight, although positive, likelihood of a shift in the official intervention band. The exchange rate expectations expressed in *Reuters'* December poll appear to reinforce this view.

The differentials between implied forint forward rates and euro forward rates were virtually static or rose slightly beyond 3 years. This suggests that the improvement in international risk perceptions (see Section 4.1) played a marginal role in movements in yields. Past years' experience show that increasing global appetite for risks usually increases demand for forint-denominated government securities virtually independently of their maturity, so it mostly exerts its influence across the full length of the yield curve. Although the implied forward rates of forint yields practically do not contain a premium over euro yields beyond 9–10 years, the improvement in global investor sentiment could have reduced the current 1% premium on the 4 to 5-year horizon.

After the speculative attack in mid-January 2003 (see Box), there was a slight increase in implied forward rates beyond one year. However, the 20–40 basis point rise in one-year forward rates is not seen as particularly high. Accordingly, one cannot infer from information extracted from the yield curve that inflation expectations have altered significantly in the past one month. This is reinforced by the survey of professional forecasters. According to the Reuters poll conducted after the commencement of the speculative attack, inflation expected at end-2003 only exceeded expectations for earlier months within the margin of error (by 5.0%, in contrast with the average 4.8%–4.9% characterising the period since June 2002). This is consistent with the appreciation of forint expected by analysts. Average expectations for December 2004, asked for the first time, is 4.1%, which is inside the still tolerable ±1 per cent range surrounding the inflation target.

Another reason for presuming that inflation expectations have not risen significantly in recent months is the relative stability of the forward yield curve, both in terms of its level and slope beyond 4 years. A potential deterioration in inflation expectations would postpone the expected date of joining EMU, and would also increase longer-term forward rates, as right now early EMU-entry is priced into the yield curve. Even after the exchange rate weakening which followed the attack, the overwhelming majority of analysts participating in the Reuters survey still expected Hungary to join EMU in 2007–2008, reinforcing the Bank's interpretation of the yield curve.

# 5 Special topics

## *5. 1 Macroeconomic effects of the 2001–2004 fiscal policy – model simulations*

A detailed analysis of the prospective macroeconomic effects of fiscal policy in 2001 and 2002 was published in the November 2001 *Report*. That analysis hinged on the rule-based projection that the impact of the future decisions in fiscal policy was not projected. Hence, it was exclusively the conditions disclosed which formed the basis for the projections.

It follows, therefore, that the budgetary paths projected for 2001 and 2002 in November 2001 differed significantly from the preliminary and actual figures also reflecting the impact of later decisions. Retaining and fine-tuning the analytical framework described in the analysis in November and taking into account the processes occurring in 2001 and 2002 as well as those projected for 2003 on the basis of the Budget approved for 2003, this analysis seeks to provide an overall view of the effects of the structural shifts in the successive Budgets between 2001 and 2003.

However, the macroeconomic effects that also spill over to 2004 can only be assessed in a satisfactory manner, if the analysis of fiscal policy also applies to 2004. Similar to the Bank's previous analysis, this study also compares the Budgets in each of the years 2001–2004 with a *baseline fiscal path* which, compared to the Budget for 2000, assumed to be sustainable in terms of both the level of deficit and long-term structure, also includes predetermined components and the impacts of effect mechanisms. Accordingly, the results can be interpreted in the context of such a scenario.

Furthermore, the fact that model behaviour has changed somewhat, owing to the continuous upgrading of the modelling tools at the Bank's disposal, also reinforced the intention to rerun the simulations.[28]

[28] Based on the foregoing, the previous analysis was updated in the following fashion. As a first step, simulations were carried out with the current version of the NIGEM model using the budgetary path projected in November 2001. As the second step, further simulations based on actual fiscal figures for 2001 and 2002 and projected ones for 2003-2004 were run so that the macroeconomic effects of the budgetary developments of the recent years could be identified. This made it possible to express the additional effects of fiscal decisions relative to earlier projections in terms of figures as well. As a result, it is not the figures published in the November 2001 *Report* with which the results yielded by the current simulations on the Budgets of 2001-2004 were compared, but the current setting of the model computed on the basis of the assumptions disclosed in the *Report* of November 2001.

**Table 5.1 Structure of changes in the primary general government balance**
As a percentage of GDP

| | baseline scenario | Nov. 2001 fiscal scenario | | New fiscal scenario | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2001–2003 | 2001 | 2002 | 2001 | 2002 | 2003 | 2001-2003 | 2004 |
| Wages and transfers | –0.1* | 0.2 | 0.8 | 0.6 | 1.8 | 0.6 | 2.9 | –0.1 |
| Capital expenditure | 0.0 | 1.3 | –0.1 | 0.3 | 2.0 | –1.3 | 1.0 | –1.0 |
| Spending on goods and services. Other. | 0.0 | 0.6 | –0.4 | 1.0 | 0.7 | –0.1 | 1.5 | –0.8 |
| Total expenditure | –0.1 | 2.2 | 0.3 | 1.9 | 4.5 | –0.9 | 5.3 | –1.9 |
| Personal income tax | 0.1** | 0.3 | –0.1 | 0.4 | 0.4 | –0.7** | 0.1 | 0.0 |
| Corporate tax (net) | 0.0 | 0.0 | 0.0 | –0.1 | –0.5 | 0.6 | 0.0 | 0.1 |
| Other taxes | –0.3*** | –0.8 | –0.1 | –0.6 | 0.2 | 0.1 | –0.3 | 0.2 |
| Total revenue | –0.2 | –0.5 | –0.2 | –0.3 | 0.1 | 0.0 | –0.2 | 0.3 |
| Balance (excluding the effects of the debt repayment by Russia and of the pension reform) | **–0.1** | **–2.7** | **–0.5** | **–2.1** | **–4.3** | **0.9** | **–5.5** | **2.2** |
| Impact of the repayment of debts owed by Russia | 0.0 | –0.2 | 0.0 | –0.2 | 0.0 | 0.0 | –0.2 | 0.0 |
| Changes in primary balance, total**** | **–0.1** | **–2.5** | **–0.5** | **–1.8** | **–4.3** | **0.9** | **–5.3** | **2.2** |

* Automatically saved on pensions on the basis of the Swiss indexing formula.
** Continued pension reform entails losses in revenue, which, however, do not affect demand and hence are back-corrected in shifts.
*** Losses in duties automatically posted owing to gradually decreasing customs tariffs.
**** In the interest of comparability it was calculated excluding the effect of the methodological change warranted by corporate consolidation. As a result, it is different from what is stated in Sub-section 2.1.2.

*Shifts in the budgetary path*

When evaluating the impacts of fiscal policy on the economy, it is important that not only the size but also the composition of fiscal demand effect should be taken into account. A given size of fiscal tightening or expansion, with different compositions, may produce markedly different effects on both inflation and growth. The actual path of the Budget has changed fundamentally since the simulation in November 2001. The changes can be observed in the table above.

In the case of *the baseline path*, the fact that both preliminary and actual data had become available for 2001 and 2002 on the determinants and automatic mechanisms (e.g. Swiss indexing and cuts in customs tariffs) of fiscal policy represented a shift compared to the earlier simulation. Continued pension reform was new information in respect of 2003. The resultant losses in revenue also had to be corrected for, since the reform is unlikely to influence demand.

If *preliminary figures* on 2001 and 2002 are compared with the composition projected in 2001, it can be concluded that the outturns of the two years were less characteristic than expected. An increase in capital expenditure was projected for 2001, whereas 2002 was more likely to experience an increase in wages and household transfers. Although, owing to fiscal developments, capital expenditure failed to pick up speed at the expected rate in 2001, it increased in 2002 at a rate much higher than projected. By contrast, a portion of the increase in wages and household transfers projected for 2002 was brought forward to 2001. Another difference was that overall demand impulse was much larger in 2002 than was projected in November 2001. Its composition led to an even higher rise in wages and transfers and to increasing rather than decreasing spending on goods and services.

If structural analysis is expanded to include 2003, it can be stated that the individual items of revenue (as a percentage of GDP) are likely to correspond to what could be hypothesised in the baseline path, allowing for the effects of fiscal determinations. Thus, discounting the effects of these determinations, each item of revenue is likely to correspond to its year 2000

counterpart, meaning that revenue is likely to return to the initial level (as a percentage of GDP) in 2003. On the expenditure side, in contrast, each item will exceed its 2000 base period counterpart considerably, as a percentage of GDP.

As far as the fiscal demand effect of 2004 was concerned, the analysis hypothesises that, in order to reach the fiscal position targeted in the PEP, the 2.2-per cent fiscal tightening projected for 2004 would materialise in a structure in which the expenditure and revenue structure of the baseline path, i.e. the 2000 Budget which is deemed as neutral, would be restored, wherever possible.[29]

*Shifts due to the upgrading of the model*

Model simulations were performed with the Hungarian block of the NIGEM model.[30] Compared with the calculations published in the November 2001 *Report*, two main changes have been made to the NIGEM model on the basis of information available since then. One was that the sensitivity of imports to short-term fluctuations in the business cycle was increased somewhat. As a result, a given demand shock will, *ceteris paribus*, take less time to manifest itself in the model. At the same time, the long-term effects will remain the same. The other pertains to a longer-term relationship. Calculations were made on the assumption that government fixed investment did not affect long-term economic growth potential.[31]

*Macroeconomic effects of the 2001–2003 fiscal policy*

Data reveal that the fiscal expansion between 2001 and 2003 increased GDP growth by 0.5% in 2001 compared with the 0.9% estimated on the basis of earlier data. A moderate rate of fiscal expansion in 2001, relative to what had been expected, accounted for this difference. This also entailed a smaller-than-expected current account deficit and a slightly lower rate of inflation.

However, owing to the expansiveness of the 2002 fiscal policy, the model projected a considerably more forceful impact on GDP growth (1.4% compared with an earlier estimate of 0.1%) and a larger effect on inflation and the current ac-

[29] We deviated from this rule in the case of wages and transfers, where, in line with the assumptions presented in Section 2 of this *Report*, more modest tightening was taken as a basis. The other deviation relates to government consumption, where a strict application of the rule would have implied extremely strong tightening. Also, despite the tax allowances introduced in 2003, net income taxes may increase relative to their level in 2000, as corporate subsidies have reverted to their 2000 level. The increase in other revenues may be attributed to the effects of EU transfers.

[30] For a detailed description of the Hungarian block, see 'Hungary in the NIGEM model' by Zoltán M. Jakab and Mihály András Kovács, MNB Working Papers, 3/2002

[31] As pointed out in the *Report* in November 2001, tackling government fixed investment in macroeconomic models is rather problematic. International research is divided on the long-term efficiency of such investment. To summarise, although government fixed investment does contribute to increased potential economic output to a certain extent, its efficiency is considerably lower than that of private fixed investment. Accordingly, its long-term effect is rather dubious. As NIGEM has not been developed to address this issue, it is unable to do so in an appropriately detailed manner. There are two cases that the model can handle. By default, like private fixed investment, government projects also increase potential economic output. However, with this effect cancelled out, the model can be set in such a manner that government capital expenditure should not alter economic growth potential. The Bank opted for the latter solution in the analysis, since in the Bank's view, the bulk of the items classified as government fixed investment, are corporate capital transfers, whose efficiency is all the more dubious as they cover historical or prospective debts rather than fixed investment activities in the classical sense. All things considered, however, this projection did not mean significant restrictions during the few years' run of the model.

**Table 5.2 Major macroeconomic effects of the 2001–2004 Budgets**
Impacts expressed as percentage points difference of annual growth rates compared to the baseline. In parentheses are the results calculated on the basis of the fiscal assumptions published in the November 2001 *Report*

| | Household consumption expenditure | Government consumption expenditure | Fixed investment | Exports | Imports |
|---|---|---|---|---|---|
| 2001 | 0.2 *(0.1)* | 5.3 *(6.5)* | 1.0 *(3.4)* | 0.0 *(0.0)* | 0.8 *(1.6)* |
| 2002 | 1.4 (0.7) | 3.1 *(0.2)* | 6.0 *(3.4)* | –0.1 *(0.1)* | 2.4 *(0.2)* |
| 2003 | 3.1 *(1.1)* | –1.2 *(0.0)* | 2.1 *(0.2)* | –0.4 *(0.2)* | 0.5 *(0.5)* |
| 2004 | 2.7 *(–0.9)* | –7.2 *(0.0)* | –5.1 *(0.2)* | –0.7 *(–0.3)* | 0.0 *(–0.6)* |
| | **GDP** | **Inflation[1]** | **Current account[2]** | **Primary general government balance[2]** | **Change in primary general government balance[3]** |
| 2001 | 0.5 *(0.9)* | 0.1 *(0.2)* | –0.7 *(–1.3)* | –1.8 *(–2.5)* | –1.8 *(–2.5)* |
| 2002 | 1.4 *(0.1)* | 0.7 *(0.5)* | –2.0 *(–1.2)* | –6.1 *(–3.0)* | –4.3 *(–0.5)* |
| 2003 | 0.0 *(0.1)* | 1.3 *(0.5)* | –2.2 *(–1.5)* | –5.2 *(–1.8)* | 0.9 *(1.2)* |
| 2004 | –0.4 *(–0.5)* | 1.1 *(0.5)* | –2.3 *(–1.2)* | –3.0 *(–0.9)* | 2.2 *(0.9)* |

[1] Annual average
[2] Deviation from the level of the baseline as a percentage of GDP.
[3] Change as a percentage of GDP.

**Table 5.3 Actual data and the effects of fiscal policy***

| With actual / baseline fiscal scenario | Growth in GDP | Inflation** | Current account of the balance of payments*** | SNA-based primary balance of general government*** |
|---|---|---|---|---|
| 2001 | 3.7 / 3.2 | 9.2 / 9.1 | –2.2 / –1.5 | –0.6 / 1.2 |
| 2002 | 3.3 / 1.9 | 5.3 / 4.6 | –5.6 / –3.6 | –4.9 / 1.2 |

* In per cent. Actual values are those before the "/" sign, simulated values (with the baseline fiscal scenario) are those after.
** Annual average.
*** as a percentage of GDP

count than that simulated for 2002 based on previous assumptions. As the considerable expansion relative to 2000 is unlikely to reverse significantly in 2003 and the spillover effect of the previous years is also likely to manifest itself, the deviation of inflation will grow substantially in 2003 and 2004. Moreover, external imbalance will continue to increase in both years.

The updated analysis substantiates earlier calculations, namely that fiscal expansion in Hungary impairs external balance in particular. At the same time, its effect on inflation is likely to be relatively moderate. However, due to overall expansion in 2001–2003 and its gradual build-up in the entire economy, the inflationary effect in 2003–2004 might be substantial, exceeding one percentage point.

The table below compares the results of the simulation with the actual macroeconomic variables. The data included unequivocally indicate that, given a neutral fiscal policy, growth in 2002 was rather lacklustre and annual inflation stood under 5%. At the same time, however, the fact that the current account deficit rose above 5% of GDP was – in addition to the drop in households savings – caused by the 2001–2002 fiscal expansion.

## *5. 2 What role is monetary policy likely to have played in disinflation?*

Following widening of the intervention band of the exchange rate in May 2001, CPI decreased by a monthly average of 6.0 per cent and a quarterly average of 5.7 per cent by the year-end 2002. The following considers to what extent monetary policy has contributed to disinflation over the past one and a half years.

In sum, calculations on quarterly data reveal that 2.3–4.1 percentage points (i.e. approximately 40%–70%) of the 5.7-percentage-point disinflation at the year-end 2002 can be attributed to the impact of monetary policy. Naturally, this is only the initial and relatively direct impact of monetary policy. With the passage of time, as price and wage expectations subside,

the inflation targeting system will be able to contribute to disinflation to an increasingly greater degree.

The previous chapter (5.1.) dealt with the macroeconomic effects of fiscal policy. The NIGEM simulations revealed that had fiscal policy been on the same track as in 2000, annual average inflation of 5.3% would have been lower by 0.7 percentage points in 2002. That is to say, fiscal policy increased inflation significantly last year. Monetary policy had to counteract this effect in order achieve the jointly agreed inflation target for 2002. In what follows the Bank estimates to what extent monetary policy alone has contributed to disinflation since mid-2001.

In addition to the headline index, the CSO's core inflation index has also decreased considerably, falling by approximately 5.0 percentage points. Since core inflation does not include highly volatile items (e.g. unprocessed food, administered prices and energy), which are exogenous from the standpoint of monetary policy, this alone suggests that disinflation has been significant even within the categories that monetary policy considers relevant. All this happened despite the fact that fiscal policy was expansive in both 2001 and 2002, and the economy was also exposed to severe demand and expenditure shocks.

In small open economies, monetary policy can influence inflation primarily through exchange rates. However, a distinction must be drawn between direct short-term and indirect long-term effects within the scope of the influences that exchange rates can exert.

Reflected typically in the declining price index of tradables, petrol and certain types of food, direct short-term effects manifest themselves mainly through imports becoming increasingly cheaper owing to exchange rate appreciation. This is a relatively short process which, as a rule, is dominant on a 12 to 18-month horizon following exchange rate appreciation.

Indirect long-term effects manifest themselves predominantly in the labour and product markets. On the one hand, exchange rate appreciation pushes down corporate labour demand and hence nominal wages, which in turn reduces inflation both on the cost side and through a drop in aggregate demand. On the other hand, the price margin also shrinks owing to reduced output caused by real appreciation and higher real wages. As real economic adjustment is the most important factor in these processes, indirect long-term effects will take two to three years to make themselves felt.

At the same time, however, the most important component of permanent long-term disinflation is nominal wage adjustment. The more rapidly nominal wages can adjust themselves to a lower rate of inflation, the lower the real costs of disinflation and hence the weaker the aforementioned indirect impacts exerted through reduced output.

It can be concluded therefore that the effects of monetary policy can be expressed in terms of figures only if interaction between nominal and real processes is taken into account. However, only a model adopting a general equilibrium framework can handle this issue of *simultaneity*. The MNB currently employs the NIGEM model for conducting analysis of this kind.[32]

[32] See Section 5.1. for another application and references.

Using this model, simulations have been performed with the goal of examining changes in prices supposing that, following widening of the band, the exchange rate between 2001 Q2 and 2002 Q4 remained at a fixed level, i.e. HUF/EUR 265.7, which was the average rate in 2001 Q1. These simulations revealed that with a lower rate of exchange, CPI would have been 2.3 percentage points higher in 2002 Q4. Consequently, over 40% of the actual 5.7 percentage point decline in inflation must have been induced by monetary policy.

Naturally, no model can perfectly simulate the workings of an economy. Therefore, when NIGEM results are evaluated, a few additional factors that could not be included in the simulations should be taken into consideration.

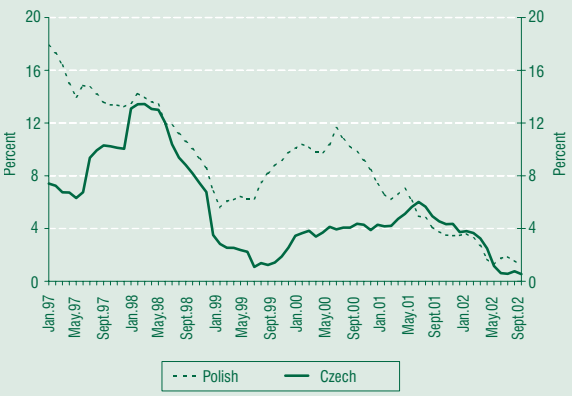
One such important factor is that not only the exchange rate appreciated, but the pricing behaviour of market participants also changed following band widening. In other words, the change to the monetary regime does not simply mean a stronger exchange rate, but also means a different economic environment, in which the effects of exchange rate appreciation on disinflation take a long time to manifest themselves. Another factor is that, for reasons of caution, a fixed exchange rate was employed in the simulation despite the fact that the exchange rate would have declined steadily had the crawling peg devaluation system been still operational. These factors suggest that the 40% that the NIGEM model has established as the share of monetary policy in disinflation is in reality to be interpreted as *a low estimate*.

*A high estimate* of the role of monetary policy can be made if the major factors of disinflation that are definitely *not* linked with changes in monetary policy are taken stock of. Such factors include Brent oil prices in USD, the USD/EUR exchange rate, changes in the price of unprocessed foods in euro and regulatory measures. It must be noted that the petrol price index, which has been an inflationary factor since October 2002, was excluded from this approach.

Adding all these items, the result shows that 1.6 percentage points, or some 30% of the overall 5.7 percentage points disinflation was due to such developments without a doubt. That is, the rest, or 4.1 percentage points (some 70%) of the total amount of disinflation may or may not have been linked to monetary policy.

Recently, there has been debate about the contribution of some 'postponed' regulated price increases in 2001–2002 (e.g. household gas price increases, TV fees, etc.). Had these measures been taken, overall disinflation would have been smaller. Note, however, that the calculations above imply that the contribution of monetary policy to disinflation would not have been altered at all. It follows technically that in such case the relative contribution of monetary policy to disinflation would have been larger.

**Chart 5.1 Czech and Polish inflation**
Annual rates




## 5. 3 What do detailed Czech and Polish inflation data show?

With the increase in the width of the intervention band and the introduction of the inflation targeting system in 2001, the framework of Hungarian monetary policy was altered significantly. As an effect, the forint appreciated strongly. Si-

multaneously with this, inflation dropped to levels around 5%. It may be instructive to examine the developments in prices of goods and services relevant for monetary policy in the period of the successfully implemented disinflation programmes in the Czech Republic and Poland, two other convergence countries in the Central and Eastern European region.[33] It should be noted that our analysis focuses on stylised facts based on disaggregated consumer price data.

Currently, both the Czech Republic and Poland float their respective currencies and also follow inflation targeting regimes.[34] Increasing the width of the intervention bands and subsequently abandoning them opened the door for sustained appreciation of these countries' national currencies, fuelled by the two countries' convergence position. Exchange rate appreciation was directly allowed by a drop in import prices, then by a moderation in output activity, due to the influence exerted on competitiveness. In connection with this, the Czech and Polish experiences provide the following lessons:[35]

- Currency appreciation had the strongest influence on the prices of tradables, and on those of durables in particular. The latter not only experienced a decline in the rate of increase, but their price levels steadily fell as well.
- Disinflation in tradables prices occurring in the periods of currency appreciation was followed by a reduction in the rates of increase of market services prices.
- Flexible wage adjustment was observed as well, in addition to lasting disinflation.

Variations in the exchange rate had the most direct and immediate impact on tradables prices. In Poland, for example, the massive drop in the rate of price increases in this category of goods started after the exchange rate was allowed to float freely from April 2000. From that point on, disinflation became increasingly intense in the categories of both durables and non-durables. Note that although there were episodes of price falls being observed, durables or overall tradables inflation has never been below zero, that is, never reached deflation for longer periods of time.

In the Czech Republic, the appreciation of the exchange rate quickly fed through to tradables prices from early 1998, after introduction of the inflation targeting system. Simultaneously with the trend appreciation of the exchange rate, the prices of durable goods fell. In addition, the price level of the entire tradables aggregate fell or stagnated for a protracted period, in contrast with Poland.

Both in Poland and in the Czech Republic, the moderation in tradables price inflation and the decline in prices was followed by a drop in the rate at which market services prices increased.

**Chart 5.2 Exchange rate of the Czech koruna and Polish zloty vis-à-vis the euro (DEM)**

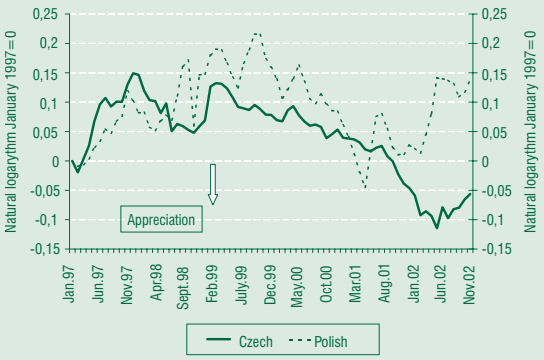



**Chart 5.3 Polish tradables inflation and the zloty exchange rate**

Trend of annualised monthly rates in the case of tradables

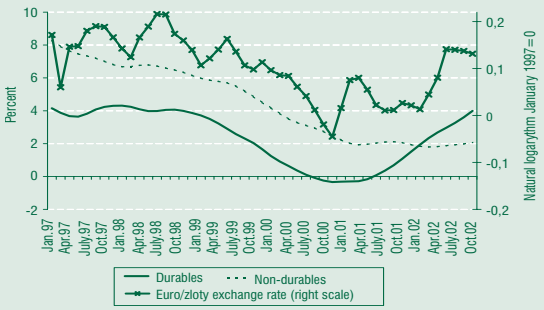



**Chart 5.4 Czech tradables inflation and the koruna exchange rate**

Trend of annualised monthly rates in the case of tradables

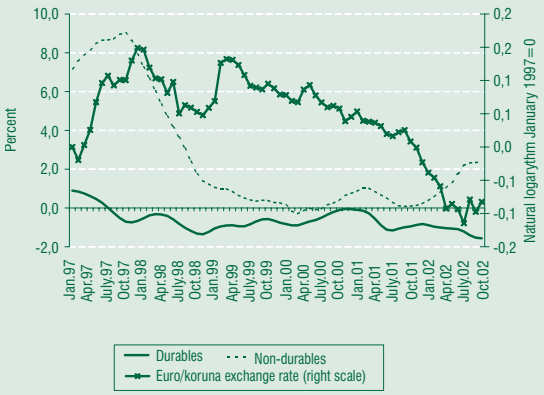
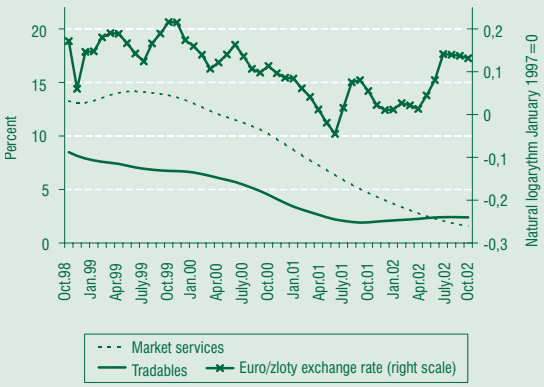



**Chart 5.5 Polish tradables and market services inflation**

(For tradables and market services, trend of annualised month-on-month growth rates)




[33] Based on detailed CPI data received as a courtesy of the Czech and the Polish National Banks. The data was grouped according to the CPI classification employed at the MNB, so that the Czech and Polish groups are comparable to those in this *Report*.

[34] The Czech Republic widened the Koruna's fluctuation band from ±0.5% to ±7.5% in 1996. Then, abandoning the band, it switched to managed floating in 1997. The inflation targeting system has been in operation since 1 January 1998. Poland increased the width of the fluctuation band in several steps – to ±12.5%- on 28 October 1998. On 12 April 2000, a year after the band was widened to ±15%, the country switched to free floating of the zloty. The inflation targeting system was introduced in October 1998.

[35] In his paper 'Exchange rate pass-through and the real exchange rate in EU candidates' Deutsche Bundesbank Discussion Papers 10/01, Zsolt Darvas examined the issue from another perspective, using different methods, for example, aggregated data and econometric estimates.

**Chart 5.6 Czech tradables and market services price inflation**
(For tradables and market services, trend of annualised month-on-month growth rates)

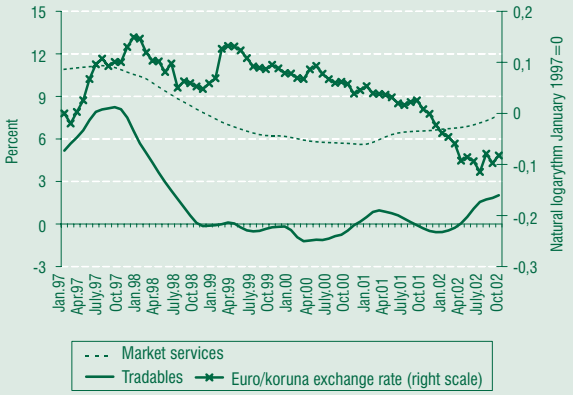
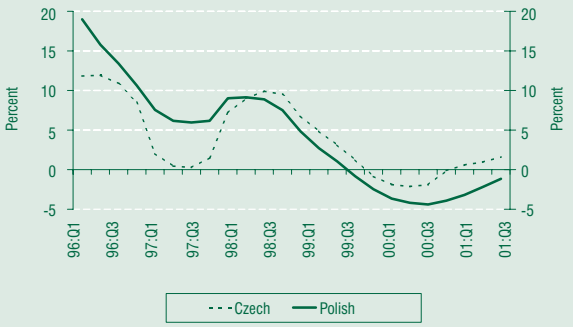
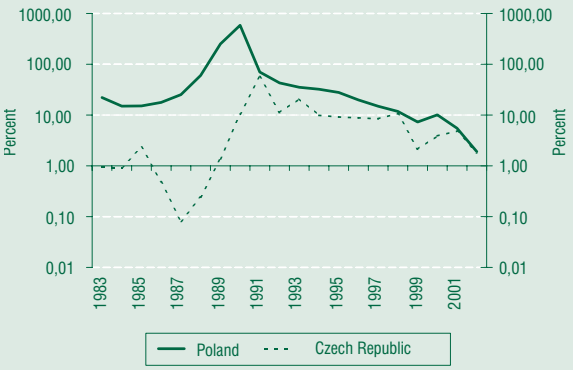



**Chart 5.7 Czech and Polish unit labour costs in manufacturing**
Annual growth rates*




* Source: NIGEM database.

**Chart 5.8 Inflation history of the Czech Republic and Poland***




* Logarithmic scale; source: IFS.

Another lesson to learn is that, in addition to lasting disinflation, wage adjustment was also observable, simultaneously with the easing of inflation expectations.

In addition to the two countries' similar experiences, a number of differences were also observable. Exchange rate pass-through to Czech tradables prices was more intensive. This difference may be explained by several factors. First, the higher the volatility of the exchange rate, the weaker the pass-through effect can be. Second, the exchange rate regime itself may also be a factor influencing movements in prices. In Poland, the exchange rate appreciated strongly and repeatedly, occasionally by more than 10%, within the confines of the ±15% wide fluctuation band, following the introduction of the inflation targeting system. In spite of this, a massive decline in the rate of tradables price inflation only started after the exchange rate was allowed to fluctuate freely from April 2000. In principle, exchange rate volatility may be lower within the band than in the case of a free float, which tends to amplify the pass-through effect. However, introducing the free float in a convergence economy may open room for a lasting exchange rate appreciation.

Another difference between the two countries' experiences with disinflation is that, at the beginning of the sustained periods of currency appreciation, the gap between the rates of increases of tradables and services prices, i.e. the inflation differential, increased in the Czech Republic, while it stagnated in Poland. This was in connection with the MNB's observation that the exchange rate pass-through was more modest in Poland.

Poland experienced that the price effect of short periods of depreciation (at mid-2001 and in the second half of 2002), occasionally observable during longer-term exchange rate appreciation, was not stronger than that of appreciation. This may serve as an interesting lesson.

Undoubtedly, the overall faster and more persistent disinflation in the Czech Republic may as well be explained by the differences between the two countries' inflation history. Characteristically, the Czech Republic was the only country in the region which managed to avoid hyperinflation after World War I. The experience of the past 20 years influenced expectations perhaps more strongly, when the highest and average rates of inflation in the Czech Republic both have remained below those observed in the case of Poland.

## *5. 4 The impact of world recession on certain European economies*

The Bank has always emphasised in its previous *Reports* that the real economic developments which have a major influence over the path of disinflation are very sensitive to external activity.

Thus, the factors to blame for the slowdown in Hungarian manufacturing output, private investment and export activity include the global recession which started in 2000 Q4. Admittedly, the strong appreciation of the forint first since May 2001 also hindered growth in these real economic variables, but it

would be mistaken to think that the slowdown was due predominantly to the appreciation. In order to give a better illustration of the effect of cyclical conditions, let us take a look at some recent developments in key industrial (manufacturing) variables of a few small EU economies, where, thanks to EMU membership, assessment is not affected by nominal exchange rate changes.

Of the EU economies Finland, Ireland, Portugal and Spain have been selected for analysis, as they are viewed as small, open peripheral economies within the EU, just as Hungary will be following accession in 2004. As all four countries have adopted the single European currency, developments in their major macroeconomic variables since the onset of global recession at end-2000 have not been affected by exchange rate changes.

Within six months of the downturn in the business cycle, industrial output growth decelerated in each economy except Portugal (where manufacturing indices had been worsening even previously when European activity was still robust). The downturn was substantial for Finland and Spain, and somewhat less marked for Ireland. Manufacturing employment showed a similar decline, but since the slowdown of the Spanish economy appeared only from the second half of 2001, it is thus only reflected in the data for 2002 Q2. While investment growth fell off within the private sector of each country in a year-on-year comparison, export growth suffered the greatest setback, down from a typical rate of 10% to nearly flat (even negative for Portugal) levels. At the same time, the timing of the impact varied across countries.

**Table 5.4 Key economic variables in selected EU economies and Hungary***

| | Output | | | Employment | | | Private investment | | | Exports | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2001 | 2002 | 2000 | 2001 | 2002 | 2000 | 2001 | 2002 | 2000 | 2001 | 2002 |
| Finland | 9.9 | –2.2 | 5.0 | 2.2 | –0.5 | –0.7 | 5.1 | 4.1 | –0.9 | 26.0 | –0.8 | 0.9 |
| Ireland | 20.8 | 12.1 | 11.7 | 5.4 | 0.5 | –4.0 | 4.5 | –0.1 | 3.0 | 17.0 | 11.7 | –0.1 |
| Portugal | –1.7 | 5.5 | 0.2 | –2.6 | –3.7 | –4.3 | 8.7 | –3.6 | 0.0 | 2.4 | 9.2 | –11.4 |
| Spain | 5.7 | –1.2 | –0.9 | 4.1 | 4.3 | 1.5 | 7.8 | 3.8 | 0.7 | 11.6 | 3.2 | 0.1 |
| Hungary | 23.7 | 6.2 | 2.8 | 2.5 | –0.1 | –2.2 | 2.5 | 2.1 | –2.9 | 23.3 | 11.6 | 6.3 |

* Growth rates in the second quarter of the reviewed year relative to the second quarter of the previous year.
Output: industrial production, except for Hungary, where it is manufacturing production.
Employment: manufacturing employment, except for Finland, where the employment figures refer to the entire industrial sector.
Private investment: excluding household investment in respect of Hungary.
Exports: volume of goods exports.
Source: OECD Main Economic Indicators, NIGEM database, Magyar Nemzeti Bank.

Industry (manufacturing) seems to have shown, in general, a strong response to the global economic recession, and the countries examined above each had at least one variable which suffered a substantial decline in its rate of growth.

The variables for Hungary also reflect similar developments as in the other countries. Perhaps the fall in manufacturing growth exceeds the average for this country group, while the decline in employment and private sector investment is not conspicuous. Undoubtedly, one of the factors behind the pronounced decline in Hungarian export growth has been the appreciation of the forint. Clearly, however, the export growth of the Finnish, Irish and Portuguese economies, which have not experienced any currency appreciation, have also slowed down to the same extent.

The fact that the manufacturing sectors of the small, open EU member states showed largely the same response as in Hungary indicates that the decline in growth rates of the various variables stemmed predominantly from other sources than the appreciation of the forint.

## 5. 5 Inflation expectations for end-2002, following band widening in 2001

The MNB launched its inflation targeting system in June 2001, setting a target jointly with the Government of 4.5% ±1% for December 2002. The new regime had a mixed reception from both market participants and economists. In fact, very few believed that the system would actually work.

In the following an analysis is presented of how analysts and the Bank have changed their CPI forecasts for December 2002 using the Reuters-poll and the MNB *Inflation Reports* since August 2001.[36] The study also looks beyond the Reuters consensus to see whether there is a difference between two groups, 'private sector forecasters' (PSF) and 'research institutions' (RI).[37]

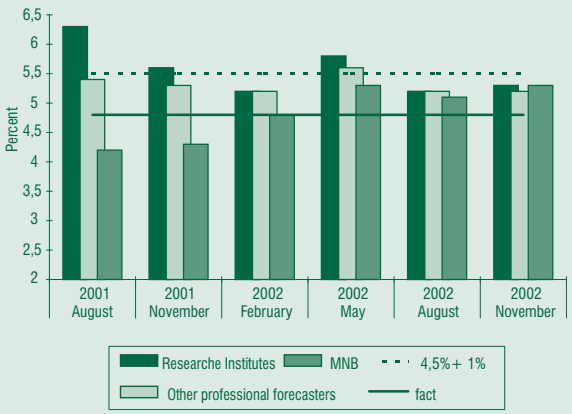
Note that, in harmony with the central bank's scope of responsibility, the MNB's forecasting system is based on some rigid assumptions on fiscal and monetary policy and also some key exogenous variables (exchange rates and oil price), and consequently it cannot be viewed as the best possible forecast based on the most comprehensive set of information.

In the summer of 2001, the low credibility of the new inflation targeting regime was clearly reflected in the fact that the inflation forecasts of the analysts surveyed by Reuters were considerably higher than the announced inflation target for end 2002. Among the group of analyst surveyed by the Reuters after the publication of the first set of MNB forecasts in August 2001 the forecast of the RIs was significantly (almost 1 percentage point) higher than that of the PSFs.

Both the analysts and the Bank revised their expectations down in the course of 2001, so the market and the MNB's forecasts have come closer from early 2002. While the MNB usually increased its CPI projections, market participants lowered theirs in most cases. The only exception was May 2002, when both market analysts and research institutes increased their inflation forecasts.

The credibility of the end-2002 target was on a steady increase among analysts. PSFs started to believe sooner than RIs that the December 2002 inflation target could be met. Moreover, the graph above suggests that RIs could be characterised by a somewhat asymmetric and also more volatile forecast updating pattern. RIs started with the highest forecast in Au-

**Chart 5.9 Inflation projections for December 2002**




* MNB: Quarterly reports on inflation, the other data are based on the Reuters surveys. Dates are the publication dates of the MNB Reports.

[36] For more on this subject, see Krekó Judit and Vonnák Balázs: Macroanalysts' inflation expectations in Hungary, January 2003, MNB Background Studies; 1/2003.
[37] The 'research institutions' (RI) group consists of GKI, KOPINT, Pénzügykutató and Ecostat, all of which are Hungarian research institutions more or less frequently participating in the Reuters poll. 'Private sector forecasters' (PSF) are usually financial sector professional macroanalysts.

gust 2001, then reached the same low point by early 2002 as PSFs. By mid-2002 however RIs again had the highest CPI forecast before gradually converging to those of the PFSs and the MNB by the end of 2002.

Finally, the actual year-on-year CPI stood at 4.8% in December 2002, which means that the MNB successfully met the 4.5% ±1% inflation target set in 2001 with the Government.

# Boxes and Special issues in the Quarterly Report on Inflation

### September 2000



### December 2000



### March 2001



### August 2001



### November 2001



### February 2002



### August 2002



### November 2002



### February 2003