



QUARTERLY REPORT ON INFLATION

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2001

Prepared by the Economics Department
of the National Bank of Hungary
István Hamecz, Head of Department
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Responsible for publishing: Botond Bercsényi, Head of Department
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for General Services and Procurement
1850 Budapest, V., Szabadság tér 8–9.
Mailing: Miklós Molnár
Phone: 36-1-312-4484
Fax: 36-1-302-3714
Internet: <http://www.mnb.hu>

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The new Act on the National Bank of Hungary, 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 National Bank of Hungary, 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 presents the Monetary Council’s position and the grounds for its decisions released on 5 of Nov. This is followed by a projection prepared by the analysts at the Bank’s Economics Department on the outlook for inflation and the underlying principal macroeconomic developments. The expected path and uncertainty of the exogenous factors used in the projection reflect the opinion of the Monetary Council.



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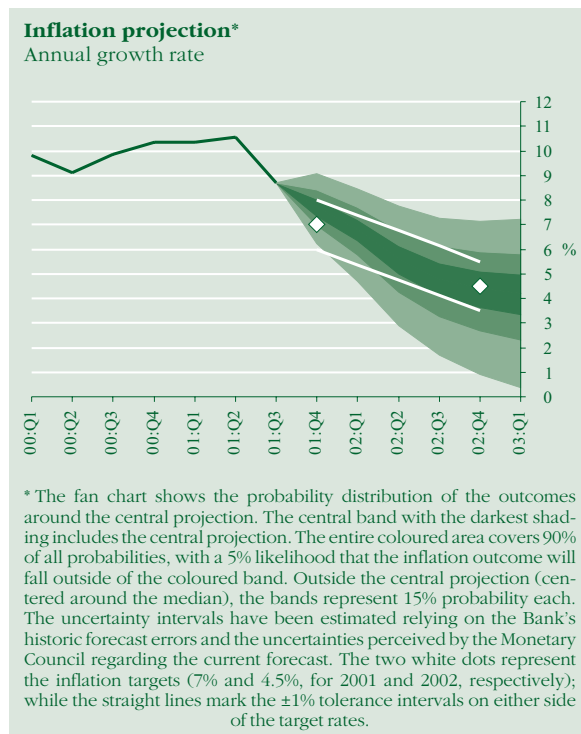
Statement of the Monetary Council

Since the inflation targeting system was introduced, there has been a considerable decline in consumer price inflation, with the annual rate down from 10.8 per cent in May to 8 per cent in September. Inflation expectations have also decreased significantly over the course of the past quarter. In the opinion of the Monetary Council, the economy has progressed on a path that is in line with the inflation target.

Since the publication of the last Report major changes have occurred in the external conditions affecting the course of inflation. Due to international developments, the exchange rate of the forint has showed significant volatility over the past few months, with the average rate being weaker than at the time of the previous Report. The past few months' fluctuations in the perceived risk of forint investments may still be viewed as temporary. Over the longer term, the forint is expected to continue strengthening. Nevertheless, if the average exchange rate level of September were maintained, this would not pose a threat to achieving the inflation target, since the international and domestic deflationary environment appears to offset the effect of a weaker exchange rate.

In the judgement of the Monetary Council, the economy continues to grow at a rapid, although probably at a somewhat slower, pace than previously expected. GDP is expected to expand by roughly 4 per cent both in 2001 and 2002, but this rate may be lower in 2002 due to the uncertain global economic situation. Changes in external demand affect GDP growth via a number of channels. As a direct effect, export growth is expected to slow, just as investment growth, due to increasing uncertainty. Lower revenue growth will force companies to adopt a tighter wage policy, resulting in a slower rate of wage increases, which in turn may lead to slower expansion of consumption. In any case, consumer spending will slow down to a small extent, as other incomes (such as public sector wages and pensions) are expected to grow more rapidly than earlier.

A significant decline in corporate sector investment demand will exert downward pressure on the corporate sector's financing requirement, offsetting the rise in the general government sec-



tor's financing requirement. In 2001, the current account deficit is expected to fall to EUR 1–1.5 billion. There may be a pick-up in investment demand in 2002, but the higher corporate sector financing requirement will be partly offset by the general government deficit being lower than this year. Thus, the increase in next year's external financing requirement is expected to remain within a range which can be viewed as safe from a financing perspective. The volume of longer term foreign capital inflows will cover the economy's external financing requirement both in 2001 and 2002, which will foster the strengthening of the forint, expected over the longer term.

Based on the forecasts, there is currently no need to change monetary conditions. The projected decline in inflation may enable the central bank to gradually lower its base rate in the future.

MONETARY COUNCIL

I. Inflation – the NBH's projection and latest developments

In September 2001, consumer price inflation was 8 per cent, down from 10.8 per cent in May. The slower CPI growth in 2001 Q3 was in line with the Bank's August projection. From a central bank perspective, it is worth examining the strengthening in the trend of disinflation in respect of industrial goods and market services, and the halt in food price inflation.

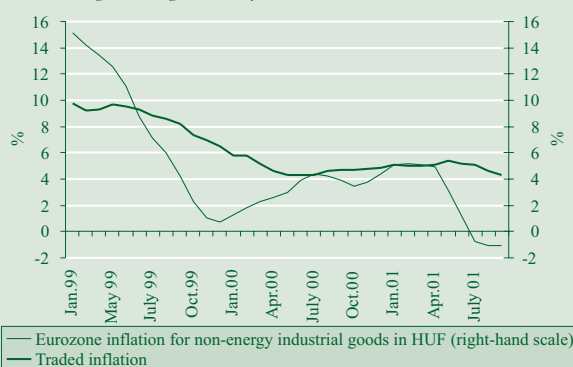
The factors behind disinflation in Hungarian tradables include the initial effects of the third-quarter decline in inflation seen in Europe and the strengthening of the exchange rate (see Chart I-1). The inflation differential between market service prices and tradables prices continued to narrow, although the rapid growth in domestic consumer demand continues to keep the gap relatively wide (see Chart I-2).

Following an acceleration starting in mid-2000, food price inflation peaked, and then recently began decreasing. Food prices have reflected the gradual tapering-off of last year's meat price shock. At the same time, the third quarter saw an unexpected drop in unprocessed food price inflation. This was primarily due to stronger-than-usual seasonal (autumn) decreases in the prices of certain products, such as potatoes, for instance. This, however, is not regarded as a permanent change relevant to the process of disinflation (see Chart I-3).

The inflation indicator over which monetary policy exerts the greatest control, namely core inflation computed by the Central Statistical Office (CSO), also reflects the trend towards disinflation. Although the annual core inflation index continued to be higher than the consumer price index (CPI), the March peak was followed by a slow decline, and then by a major drop from August to September, indicating the lasting nature of the decline in inflation (see Chart I-4 on Page 12).

A detailed comparison of the actual CPI figures with the Bank's projection for August involves analysing three issues (see Table I-1 on Page 12). First, the inflation projection made in August can be viewed as being conditional, as it is required for a special central bank application, namely to provide specialist support for monetary policy decision making. This forecast, based on the assumption of an unchanged level of the exchange rate, shows what would have happened, had the forint/euro exchange rate remained at the assumed level over the entire forecast horizon. The second issue involves analysing the exogenous factors (from a central bank perspective) which have an impact on domestic inflation, in relation to the forecast's assumptions. The final question is how successfully the Bank has been in capturing the effect of these exogenous factors on Hungarian inflation, in other words, pinpointing the economic mechanisms determining inflation.

Chart I-1 Industrial price index and imported European tradables price inflation*
Percentage changes on a year earlier



* Euro-area tradables price inflation in forint terms: calculated with average monthly forint/euro exchange rate, backward looking three-month moving average of annual change.

Chart I-2 Differential between market services and tradables price inflation
Percentage changes on a year earlier

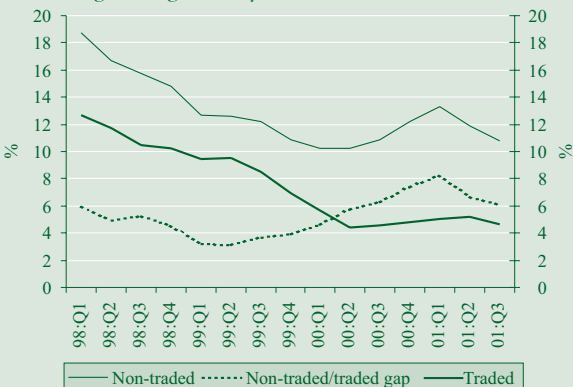


Chart I-3 Inflation in processed and non-processed foods
Percentage changes on a year earlier

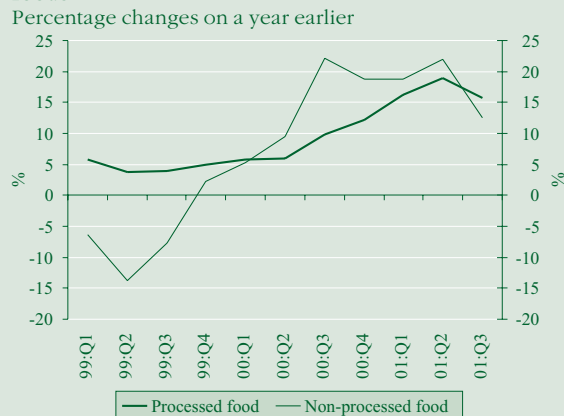
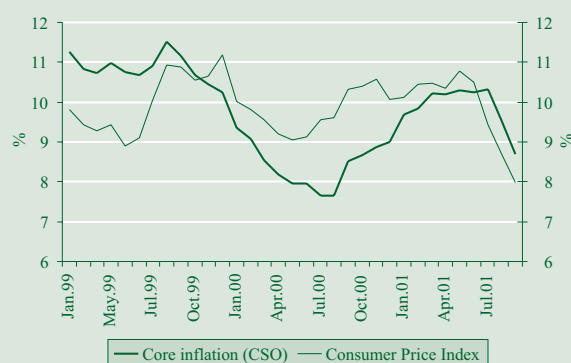


Chart I-4 Core inflation and the CPI*

Percentage changes on a year earlier



* The core inflation index computed by the CSO, excluding unprocessed and other seasonal foodstuff prices as well as market and administered energy prices. This index included 81.4 per cent of the consumer basket in 2001.

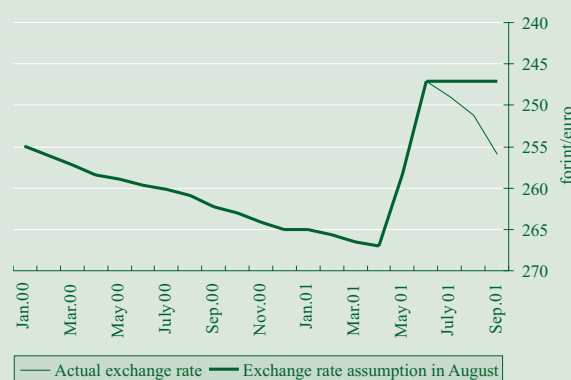
Table I-1 Central inflation projection and actual data in 2001 Q3

Category	Weight	August pro- jection	Actual data	Difference*
		per centage	changes on a year earlier	
Food	19.0	13.6	13.3	-0.2
Unprocessed	5.3	10.3	7.6	-2.7
Processed	13.7	15.1	15.8	0.8
Tradables	26.8	4.3	4.7	0.4
Market services	20.4	10.4	10.8	0.3
Market-priced household energy	1.3	13.6	14.0	0.3
Vehicle fuel	5.0	-4.9	-4.8	0.0
Alcohol and tobacco	9.1	11.5	11.2	-0.3
Regulated prices	18.5	9.4	9.5	0.0
CPI	100.0	8.6	8.7	0.1

* Difference = actual data – projection; in per cent; rounded values.

Chart I-5 Assumed and actual forint exchange rates

Monthly data

**Table I-2 Assumptions of the August forecast and third-quarter data**

Assumption	August fore- cast	2001 Q3
Brent crude oil (USD/barell)	27.7	25.3
Mediterranean price for petrol (EUR/tonnes)	331	267.2
Euro/dollar exchange rate (cent)	85.4	89.8
Imported tradables inflation*	2.4%	2.4%
Unprocessed food price inflation*	10.3%	7.6%
including: prices for pork**	0%	0.6%
Regulated prices**	0.9%	1.0%

* Annual price index.

** Average monthly price increases.

1 Changes in the exchange rate of the forint and developments in inflation

The forint/euro exchange rate has a direct effect on the price changes of tradable goods, which account for about one-quarter of the consumer basket. It also has an indirect impact on the price index of market services, which accounts for one-fifth of the basket, as the inflation differential between the two groups can be characterised by a long-term, trend-like equilibrium path. As processed food prices are governed by changes in both the prices of goods made with imported materials and the prices of internationally traded goods, the forint's exchange rate also affects this category. Finally, together with other dominant factors, the forint's exchange rate also has a direct bearing on import costs associated with certain fuel and energy products, and as a consequence, on their domestic market price. All in all, the exchange rate exerts direct influence over more than one-third of the consumer basket, affecting another 20–30 per cent indirectly. It also affects the profitability of much of the corporate sector, resulting in both long-term cost and demand-pull inflationary effects via adjustments in the labour market.

As noted earlier, based on the concept behind the conditional exchange rate forecast of the August Inflation Report, the Bank modelled the effect on prices of a sustained appreciation of the forint, which was assumed to remain at its June average rate over the long term. However, from July to September, the exchange rate diverged from this assumption in two respects: it exhibited high volatility and was lower than the average (see Chart 1.5). It is no surprise then that tradables price inflation, directly affected by the exchange rate, was higher in the third quarter than had been projected.

2 Have the exogenous factors affecting inflation been forecast correctly?

Domestic inflation is influenced by several external, imported and internal factors which are considered to be exogenous from a central bank perspective. The Bank forecasts the development of these factors, or where it seems prudent, it uses simple assumptions. Table 1.2 shows data on the main assumptions underpinning the August forecast and those observed during the third quarter.

Imported components of inflation clearly show a shift towards disinflation relative to the August forecast. This is only partly the case in respect of domestic factors. While regulated prices and unprocessed food prices rose at a rate on average corresponding to or lower than those of the forecast, the price for pork, which is of key significance in Hungarian consumption, continued to rise in the third quarter, in contrast to the Bank's assumption. This may be the reason for the underestimation of inflation in processed foods, since the price of unprocessed pork is also incorporated into prices of processed foodstuffs. Due to the apparent volatility of unprocessed food price changes, the "surprise" third-quarter fall in the price index will not be extended to the en-

tire forecast horizon: in other words, only slight changes will be made to the food inflation projection, relative to the August forecast (see Chapter 4).

3 Has the Bank been successful in capturing the economic mechanisms determining inflation?

It is clear from Table 1.1 that the prospective changes in the inflation rates of tradables, market services and processed foodstuff prices, significant from a central bank perspective, were underestimated in August. Knowing that the imported components of inflation tend to exert downward pressure on inflation, the question is whether the Bank has been successful in capturing the economic mechanisms that determine domestic inflation.

According to the Bank's forecast, tradables price inflation is typically determined by imported inflation and the forint/euro exchange rate. The forint's exchange rate was weaker than the assumption underlying the August projection. As far as tradables are concerned, inflation in non-durables fell sharply, with particular regard to clothing and apparel, due probably to higher-than-usual discounts at sales, which may also be evidence of exchange rate pass-through. Thus, the third-quarter tradables price index does not call into question the correctness of the Bank's model.

In terms of the model, market services inflation differs from that of tradables in proportion to the productivity differential over the long term (Balassa-Samuelson effect), while other factors (such as wages, food prices, energy prices, etc.) may also play a role over the short term. The third-quarter market services price index was underestimated to the same extent as the index for tradables, i.e. the forecast for the inflation differential was accurate. It should be noted, however, that the third-quarter rise in processed foodstuff prices was also underestimated. Nevertheless, the effect of the underestimation of this cost factor influencing market services prices was partially offset by an overestimation of the increase in manufacturing wage costs. While the August model used increases in the original wage index, from now on the Bank will apply wage-inflation-based estimation, which reflects a lower growth rate in 2001, resulting in a downward revision in the forecast. All in all, although the seemingly accurate forecast of the market services – tradables price inflation differential is based on contradictory developments, we have modified the forecast model accordingly (see Chapter 4).

II. Monetary policy, interest rates and the exchange rate

Chart II-1 Official interest rates and short-term market yields

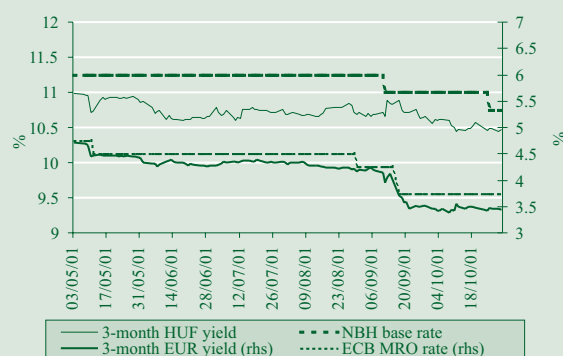
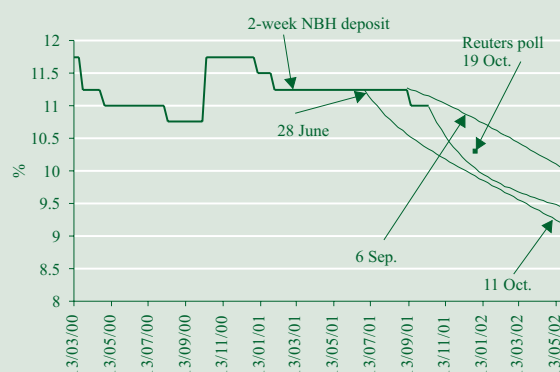


Chart II-2 Three-month interest rate differential vis-a-vis the euro area



Chart II-3 Central bank base rate expectations: two-week interest rate path derived from the yield curve and the Reuters poll



1 Official interest rates and short-term market yields

Since the Hungarian authorities' move to widen the forint's exchange rate band on 4 May, the National Bank of Hungary reduced its interest rates on 10 September and 24 October, each time by 25 basis points. Three-month market yields fell by around 25 basis points in the period end-July to early October (see Chart II-1).

The differential between three-month forint and euro yields fluctuated between 630 and 670 basis points over the May–early September period, then widened to around 740 basis points in September, finally settling into a range of 700 to 720 basis points in October (see Chart II-2). In the review period, the European Central Bank (ECB) lowered its official rate by 25 basis points on 30 August and then by another 50 basis points on 17 September, as the regional slowdown in growth in the euro area proved more broad-based and its extent deeper than had been expected, which was believed to promote a reduction in inflation. Based on three-month interest rates implied by EURIBOR futures contracts,¹ another 25-basis-point interest rate cut by the ECB is expected before the end of the year.

In the period under review, the National Bank lowered its interest rates less than the ECB. Following the 25-basis-point reduction in Hungarian rates in early September and the terrorist attacks against the United States on 11 September, short-term expectations of further interest rate reductions ended temporarily, evidence of which can be clearly seen in the narrowing of the differential between three-month rates and the policy rate. However, even the 50-basis-point increase in the interest rate differential vis-à-vis the euro area was not enough to prevent the Hungarian forint from depreciating. Towards early October, the differential between three-month interest rates and the policy rate returned to the level seen in the period prior to 11 September. Throughout the month, market yields fell further under pressure from renewed expectations of an official rate reduction. The Bank lowered its policy rate by 25 basis point to 10.75% at the end of the month.

Forward yields, derived from the yield curve, and the Reuters poll reflect market participants' expectations regarding the future course of domestic official interest rates. On the measure of forward yields, interest rate expectations were relatively stable in

¹ The difference between the spot and futures rates of three-month EURIBOR on 6 November 2001. Analysts interpret this difference as expectations reflecting the ECB's interest rate moves. Source: <http://www.liffe.com>.

the period between the move to widen the exchange rate band and turbulence in the emerging markets which began on 6 July, with market participants expecting an end-of-year value of around 10%. Thereafter, the expected path of official interest rates shifted slightly upwards. Subsequently there was a downward revision, and expectations of the year-end interest rate once again settled in around 10%. The survey conducted by Reuters on 19 October suggested a 30-basis-point higher value for end-December. Given that, according to the Reuters poll, inflation expectations have eased off in the meantime, expectations of nominal interest rates equal to those seen July reflect higher expectations of real interest rates (see Chart II-3).

2 Changes in risk perception

The risk assessment of forint investments have worsened since mid-June 2001, which has been reflected in the rise in yields and the depreciation of the forint exchange rate. Changes in risk perception have not been governed by country-specific factors but by unfavourable news coming from certain emerging economies, and, particularly following the terrorist attacks in the US on 11 September, by concerns about the world economy slowing down even further. In the past year, perceptions of emerging country risks have been influenced strongly by events occurring in developed markets – the evolution of the business cycle and movements in asset prices. This can be seen clearly from the fact that JP Morgan's EMBI spread, reflecting the risk premia on emerging country sovereign debt, has been moving in tandem with the risk premia on high-risk corporate bonds of industrialised countries and the implied volatility of US stock exchange index options (see Chart II-4).

In mid-August 2001, as in early July, contagion from emerging markets reached the Hungarian foreign exchange and government securities markets. Further aggravation of concerns over the much worse-than-expected Polish budget deficit played a major role, in addition to unfavourable economic news from Argentina and Turkey. Over the month as a whole, while the spreads on Hungarian and Polish foreign currency-denominated bonds widened the EMBI spread did not, on balance, rise. All this may signal a slight deterioration in the relative risk perceptions of the central and eastern European region.

The jump in the EMBI spread in September was linked to the terrorist attacks in the US, which reduced dramatically investors' willingness to take risks. Developed country risk indicators jumped to very high levels in comparison with previous years, and the riskiness indicators of emerging country financial assets deteriorated markedly. Coupled with an approximately 4 per cent depreciation of the forint exchange rate, the yield spread on Hungarian deutschmark bonds rose even more strongly than in July–August, and Hungarian government bond yields, too, rose 20–30 basis points (see Chart II-5).

Uncertainty in international capital markets has tapered off somewhat since the early days of October, strengthening confidence in emerging market investments. Along with the fall in global indicators of risk, the EMBI spread also has dropped by some 70 basis points, although these indicators have still re-

Chart II-4 Global indicators of risk

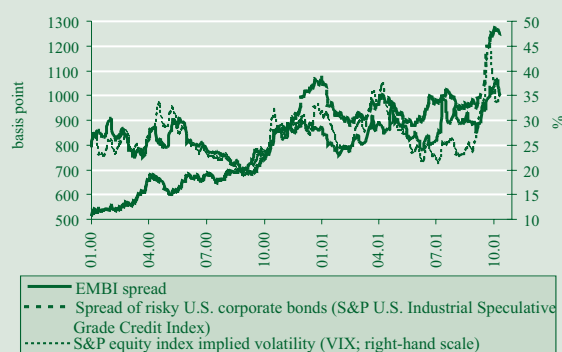


Chart II-5 EMBI spread and the three-year forint yield

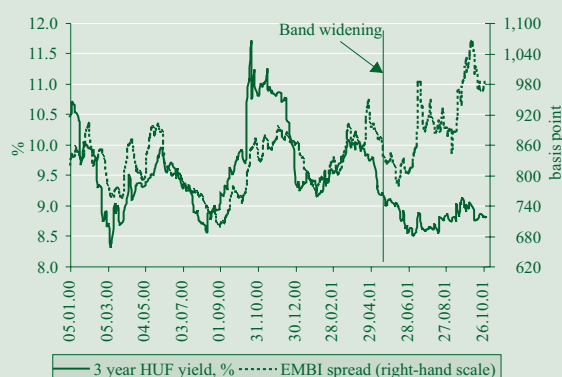
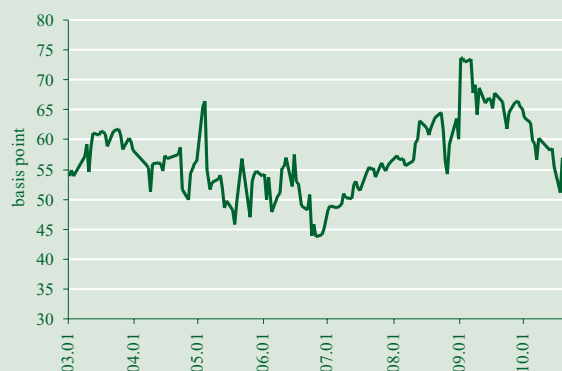


Chart II-6 Average spread on DEM-denominated Hungarian sovereign bonds*



* Over the yields of German Bunds with similar maturities.

maintained at uncomfortably high levels relative to early July. Improvement in the perception of emerging country risks was reflected in the falling spread on Hungarian foreign currency-denominated bonds and the once again increasing demand for forint investments (see Chart II-6 on page 15).

The events from July to September highlight the fact that, despite the considerable upgrading of Hungary's credit rating in recent years, international investors active in the Hungarian money and capital markets still react quite sensitively to adverse events in emerging countries. In addition, negative shocks from developed countries increase the risk premia on Hungarian financial assets as well. This is mainly reflected in the higher volatility of the exchange rate, which is now allowed to fluctuate within a wider band, and, to a smaller extent, in market yields.

3 Capital flows and the exchange rate

The forint's appreciation, on the heels of the Hungarian authorities' move to widen intervention band, quickly ended in early July under influence from the Argentine crisis, and exchange rate volatility increased. In the period July–September, movements in the forint's exchange rate were influenced mostly by events in the international financial market, the solid domestic economic fundamentals being insufficient to offset the ripple effects of the lack of confidence in emerging country performance. Each episode of depreciation was followed by a correction, but despite strengthening again and again, the exchange rate could not climb back to levels preceding the depreciation. Thus, following the peak in early July, the exchange rate was on a downward trend (see Chart II-7).

Significant outflows of interest-sensitive capital were observed in July as an effect of the unfavourable capital market developments (see Table II-1). Non-residents mainly cut their holdings of short-term Hungarian government securities; however,

Chart II-7 Exchange rate of the forint

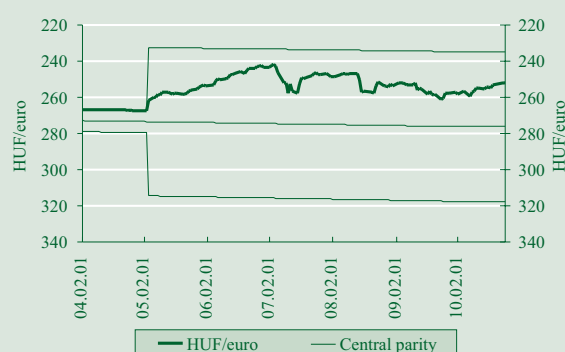


Table II-1 Components of foreign exchange market demand and supply

	2001					
	Q1	April	May	June	July	August
I. Central bank intervention	-177.9	-135.0	-28.0	0	0	0
II. Current account balance	-90.0	-0.5	-34.5	-84.2	47.6	68.5
III. Non-interest-rate-sensitive capital-flows (1+2)	146.0	33.7	21.2	33.3	38.2	17.9
1 FDI inflow (private sector)	140.3	34.2	24.9	39.1	39.0	16.3
2 Equities securities	5.7	-0.5	-3.7	-5.8	-0.8	1.6
IV. Interest rate sensitive capital flows (1+2+3+4)	64.1	50.6	-14.2	27.7	-61.8	-123.7
1 Non-residents, total (a+b)	85.2	81.9	136.7	2.4	-59.6	-22.1
a) Change in non-residents' holdings of government securities	90.8	66.2	101.3	27.6	-59.4	-8.0
of which: short-term	-2.1	28.5	-10.1	-7.2	-48.9	6.8
long-term	92.9	37.7	111.5	34.8	-10.5	-14.9
b) Non-residents' forint deposits	-5.6	15.7	35.4	-25.2	-0.2	-14.0
2 Credit institutions (change in on-balance-sheet open position)	65.5	15.4	-108.9	80.8	72.4	-97.8
3 Corporate sector (a+b)	-78.8	-46.2	-38.3	-65.9	-70.3	4.3
a) Net change in domestic foreign currency borrowing	-26.1	21.9	-9.6	-29.6	-18.3	1.7
b) Net change in foreign currency borrowing abroad	-52.8	-68.1	-28.7	-36.3	-51.9	2.6
4 Household sector	-7.7	-0.6	-3.7	10.4	-4.4	-8.1
V. Other*	57.8	51.2	55.5	25.3	-8.1	53
VI. Purchases of foreign currency by the central bank in equal daily amounts				-2.1	-15.9	-16.0

* Note: The entry 'Other' includes the Bank's and general government's transactions as shown in the current account, other monetary financial institutions' demand for foreign currency and the statistical error.

unlike in the preceding few months, withdrawals affected non-resident holdings of long-term government securities as well. Accordingly, the average maturity of government securities held by non-residents began to increase again in July, following a pause in June (see Chart II-8). As regards other interest-sensitive items, net borrowings by domestic businesses from abroad were negative, as seen in the earlier periods of the year, owing to the build-up of foreign exchange assets and repayments of foreign currency loans, with net domestic borrowings in foreign currency falling as well. Simultaneously with this, banks' on-balance-sheet open position opened up, explained principally by foreign currency demand fuelled by repayments of foreign currency loans by the corporate sector. Another source of demand for foreign currency stemmed from non-residents selling their government securities with the aim of converting their value into foreign currency, banks meeting this need by borrowing in foreign currency. In terms of the non-interest-sensitive items of foreign capital flows, the value of direct investments turned out to be largely comparable with those in the preceding months. This contrasted with outflows from equity securities holdings.

Influenced by another round of eroding confidence affecting emerging economies, the forint depreciated by more than 4 per cent in a couple of days in mid-August. On this occasion, however, depreciation was not accompanied by large-scale sales of government securities, as was the case in July, and for the month as a whole non-resident holdings of government paper fell by only HUF 8 billion. The average maturity of outstanding government securities began shortening from early August. Since the exchange rate band was widened in early May, August was the first month when flows into short-dated government securities were positive on balance. Unlike in earlier periods of the year, net corporate sector foreign currency borrowing abroad was positive, with net domestic borrowings in foreign currency rising slightly. Banks' on-balance-sheet open position closed down, explained primarily by the country's substantial current account surplus. Foreign direct investment was slightly lower than in the preceding months of the year. By contrast, minimal flows into equity securities were observed for the first time since March.

The exchange rate received another shock in September with the terrorist attacks on the US, but its effects were different from exchange rate depreciation caused by contagion from emerging markets. This time the depreciation was more gradual, but lasted longer, and the subsequent correction was more sluggish than in earlier episodes. This may be explained by the different nature of the shock, given that the crisis spreading from the developed quarters of the world was expected to last longer, as concerns over the slowdown of the global economy meanwhile intensified due to the terrorist attacks. This was seen to probably dampen demand for more risky investments. Uncertainties in the international capital markets having reduced, demand by non-residents for Hungarian government securities resumed rising in the first weeks of October, with most demand concentrating on discount treasury bills and NBH bills. All this was reflected in the tentative appreciation of the exchange rate as well. On 1 October, Hungary abandoned the crawling-peg devaluation regime; however, this move had little effect on the exchange rate, as it had been announced by the authorities a couple of months

Chart II-8 Volume and average maturity of non-residents' government securities holdings

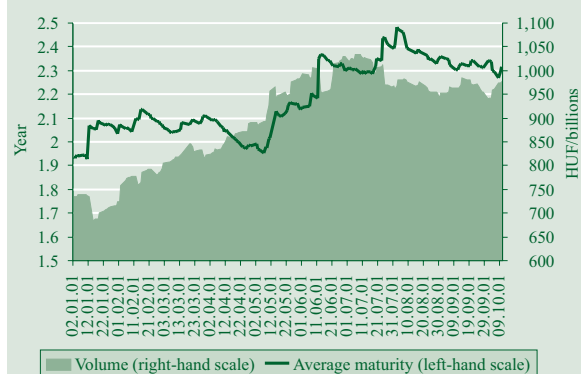
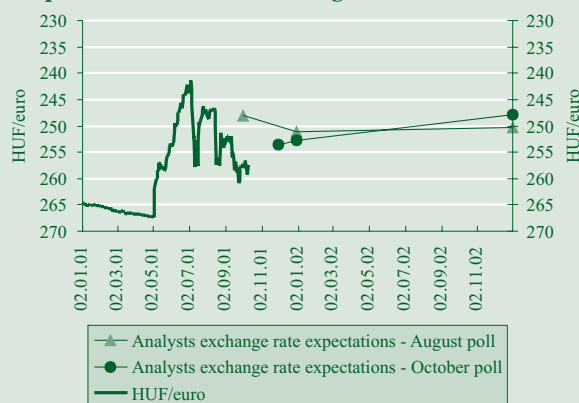
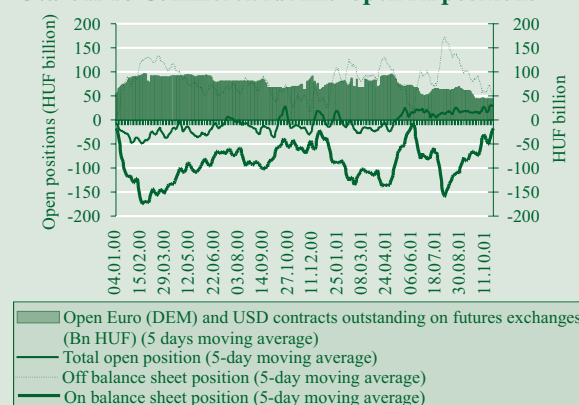
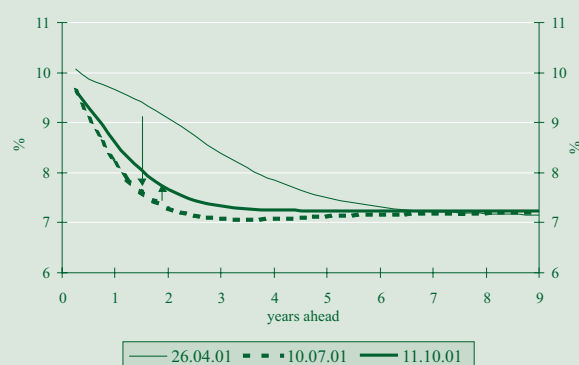


Chart II-9 The exchange rate and analysts' expectations of future exchange rate movements

Source: Reuters elemzői várakozások.

Chart II-10 Commercial banks' open FX positions**Chart II-11 Zero-coupon yields****Chart II-12 One-year implied forward yield curves**

earlier. Owing to fluctuations in the demand for government securities caused by the external shocks, holdings of government securities by non-residents were broadly at the same level as at the end of July.

Analysts have slightly altered their exchange rate expectations recently. Whereas according to the August Reuters poll they expected a 250.3 HUF/EUR exchange rate for December 2002, expectations in September for the same period were revised upwards to 248.3 HUF/EUR and further to 248 HUF/EUR in October (see Chart II-9). Nevertheless, analysts' expectations became a little more pessimistic over the short term: they revised their expectations from 251.1 HUF/EUR in August to 252.3 HUF/EUR in September and to 252.7 HUF/EUR in October.

Mirroring the capital flows presented above, banks' on-balance-sheet position opened up significantly in July, then closed down in August, narrowing to HUF 20–30 billion towards the early days of October. Banks sought to hedge the change in the on-balance-sheet position by entering into forward transactions, so at the beginning of October the sector's total open position was largely comparable with the narrow, HUF 10–20 billion long foreign exchange position seen in July (see Chart II-10).

3.1 Yield movements

The previous Report presented developments in the Hungarian government securities market up to mid-July 2001. Since then, the slope of the curve of zero-coupon yields has fallen slightly. In addition to the one-year yield falling slightly, by approximately 10 basis points, zero-coupon yields with maturities over one year rose 20–30 basis points (see Chart II-11). Rises in implied forward rates in 1–4 years' time explain most of the increase in yields (see Chart II-12). However, the shape of the forward yield curve changed only slightly, even despite the small increase in yields, and, comparing it with that in the period prior to the band-widening, it remained strongly downward-sloping over the 0–2 year bracket.

Partly due to the fall in euro yields, the gap between implied forint and euro forward rates has experienced a quite marked shift of more than 50 basis points in the past three months (see Chart II-13).

The increase in yields was fairly uneven across the curve. Jitters in the market related to the situation in Argentina only had a temporary influence, although the EMBI spread, a gauge of emerging country risk premia, appeared to have risen for a sustained period. In August, when the market was mostly dominated by unfavourable news coming from Poland, a country more comparable with Hungary, increases of 20–30 basis points in yields on government securities with time to maturity of 2–3 years were not followed by a correction. Yields were on a protracted upward trend in the period immediately after the terrorist attacks against the US, this rise affecting every maturity. Demand for more secure assets, such as euro-area government securities, picked up due to the global uncertainty, which, coupled with the ECB's decision to lower interest rates, led to a decline in euro yields.

At the end of September it was announced that Hungary plans to refinance its foreign currency debt maturing in 2002 in domes-

tic currency. Uncertainties surrounding the amount and structure of next year's domestic currency issuing programme may have contributed to the rise in long yields and their increased volatility. From October on, yields began falling across every maturity, simultaneously with the movements in international risk indicators.

The fact that the shift in the forward differential occurred almost across the entire spectrum of curve and by equal measures suggests that mostly external factors rather than expectations of a slower inflation convergence were behind the increase in the gap between forint and euro yields. This appears to be reinforced by foreign investors' behaviour, as they reduced their holdings of government paper by around ½ per cent in the past three months following the continued rise observed since mid-2000. The maturity profile of holdings appear to have reflected the shift in the forward yield curve, i.e. foreign investors sold securities with maturities of 2 to 3 years.

Foreign yields, movements in the nominal exchange rate of the forint and required risk premia are the most important factors determining foreign investors' demand for Hungarian government securities. Government securities yields in the euro area fell during the period under review. Explanation for this is that demand for securities carrying lower risks generally rises in a more uncertain investment climate. It can be presumed based on the survey of the money markets conducted by Reuters that exchange rate expectations over the longer horizon have not changed significantly. In our view, therefore, a higher required risk premium must have caused the rise in forint yields. Global indicators of investors' willingness to take risk also indicate the increase in risk premia on forint investments.

The trajectory of the differential between implied forward forint and euro rates provides a picture of the expected interest rate convergence and, indirectly, of the current status of the 'convergence play'. According to the expectations reflected in the curve of the forward differential, by end-2004 the inflation differential between Hungary and the euro area will have fallen to 1.5 percentage points, the level meeting the Maastricht criterion on inflation convergence.²

The Reuters survey appears to confirm that the rise in yields was not caused by an unfavourable shift in inflation expectations. The increase in consumer prices has slowed down considerably in the past three months, in line with analysts' expectations (see Chart II-14). According to the Reuters poll, inflation expected at end-2001 and end-2002 has been revised downwards by 30 basis points and 20 basis points respectively since mid-July (see Chart II-15). The averages calculated after eliminating the two extreme values are now in the target range for both future points in time, but the value expected for end-2002 is still higher than the Bank's forecast.

Chart II-13 Trajectory of the gap between one-year implied forint and euro forward rates

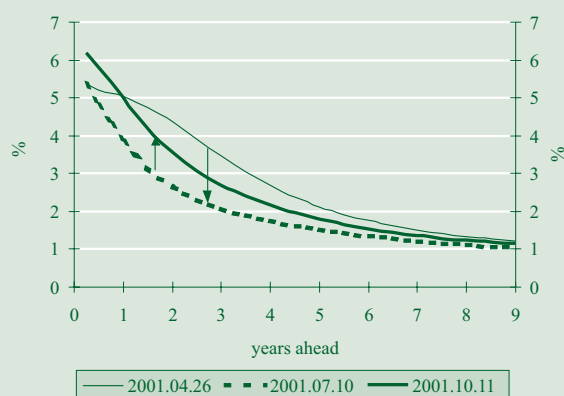


Chart II-14 Reuters survey of monthly inflation expectations versus actual inflation rates

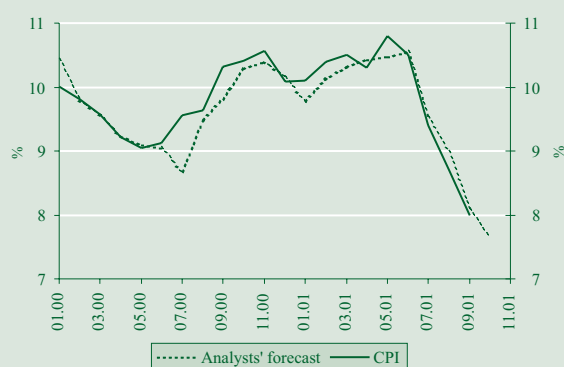
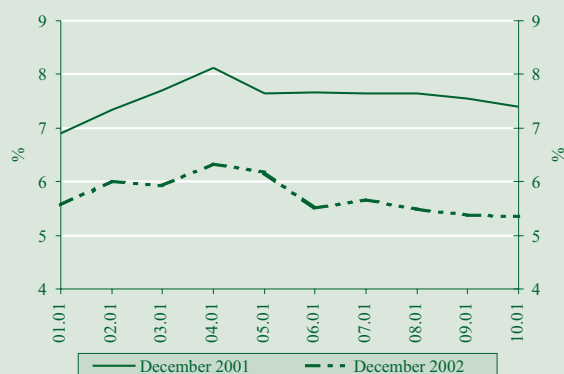


Chart II-15 Reuters survey of inflation expected at end-2001 and end-2002



² The differential between one-year implied forward rates in 4 years' time is 2 percentage points. Assuming equal long-term real interest rates, this gap includes liquidity, and country and exchange rate risk premia on forint yields, in addition to the expected rate of inflation. The exchange rate risk premium will vanish upon joining EMU, with the country risk premium remaining, however. Currently, this amounts to approximately 80–90 basis points, which may fall to 40–50 basis points following Hungary's joining EMU.

III. Determinants of inflation

This chapter analyses the factors determining the path of domestic inflation. In a small open economy, prices are affected to a significant degree by external demand, the terms of trade, international market prices and changes in the nominal exchange rate, as well as by domestic supply and demand. Following a review of domestic demand, this section will assess external trade and inflation trends abroad. Supply-side developments will be examined via the labour market in the private sector.¹

1 Demand

In 2001 Q2, GDP grew by 4 per cent, at a slower rate than in the previous quarter. The driving force behind economic growth in the first half of the year was the upturn in households' consumption expenditure. In contrast to the August projection, investment rose at a slower pace in volume terms. The first six months also saw a slowdown in export growth.² Imports grew more slowly than exports, due to subdued growth in investment. General government contributed to domestic demand growth by 0.4 per cent of GDP during the first six months.

In respect of the exogenous assumptions relating to real economy projections, the forecast for external demand has been revised down significantly in view of the actual second-quarter data and the prospects. Import demand growth of Hungary's main trading partners in the central projection has been lowered from 4.9 per cent in August to 3.5 per cent for 2001, and from 7.3 per cent to 6 per cent for 2002, respectively. Our method for forecasting external demand for Hungarian exports shows that the cyclical slowdown in demand is expected to reverse, i.e. reach the turning point, at end-2001.³ According to the assessment of the Monetary Council, foreign demand carries a great deal of uncertainty, and although the Bank's real economy projections are technically based on these, monetary policy conclusions cannot be drawn from them alone.

¹ Public sector employment and wage policies are treated as part of the demand effect of fiscal policy.

² Due to a subsequent revision of the accounting of the materials content of inward processing in the first quarter, there was a nearly 4 per cent drop in the GDP-based export volume index. By contrast, import volume only fell by 1.5 per cent due to this subsequent data revision. This revision was accounted in unspecified use. Hence contribution of net exports to GDP growth declined to nearly zero from more than one percent in the first quarter.

³ For a description of external demand forecasting, see Jakab et. al.: Forecasting Hungarian Export Volume, National Bank of Hungary Working Papers 2000/4.

In view of the global economic uncertainty which, based on the latest information and changes in international forecasts, seems to be growing, the Monetary Council has requested the preparation of an alternative forecast scenario based on a different external cyclical activity. Therefore, an alternative forecast (a pessimistic scenario) has also been drawn up, based on the assumption of a more prolonged slowdown in Europe, relative to the external demand path used by the central projection (see Table III-1).

According to the central projection,⁴ the Hungarian economy will continue growing rapidly in 2001 and 2002, although the pace will be somewhat slower than assumed in the previous projection. The change in external demand will also push down corporate investment, a prediction supported by the Bank's latest analyses. Fiscal expansion will lead to 2.5 per cent growth in demand as a proportion of GDP this year, and to 0.5 per cent next year in contrast with the previous assumption of 0.2 per cent. The previous projection for consumption expenditure has been revised downward on the basis of actual data and the development of the latest confidence indices (see Table III-2).

Under a prolonged slowdown outlined in the pessimistic scenario, external demand is estimated to grow by 3.1 per cent in 2001 and 3.5 per cent in 2002 as a whole. Based on this assumption, the export growth rate could even decline to 6 per cent in 2002. Lower external demand may be accompanied by a drop in investment growth amounting to over 1 percentage point. By contrast, consumption would slow only slightly in 2002, as wages generally take longer to adapt. These factors combined would reduce economic growth by half a percentage point, in relation to the Bank's central projection.

The Bank's projection for Hungary's terms of trade shows a neutral effect for 2001 as a whole, while in 2002 the terms of trade are projected to improve by nearly 1 percentage point, in line with international forecasts. Thus, in 2001 the changes in the terms of trade will not influence gross disposable income (GDI). By contrast, GDI may grow at a faster pace than GDP in 2002, enabling faster growth in domestic use than in GDP.

The deficit on the current account is projected to be between EUR 1–1.5 billion (1.6–2.6 per cent of GDP) in 2001 and between EUR 1.2–1.8 billion (1.8–2.8 per cent of GDP) in 2002. The de-

Table III-1 European cyclical activity – international forecasts and the National Bank's projection

Weighted average of Hungary's 11 main trading partners)

	2000 Actual data	2001		2002	
		latest	previous	latest	previous
GDP growth of Hungary's trading partners					
NBH projection	3.4	1.2	1.1	1.8	1.8
OECD	3.3	1.3	2.6	1.4	2.8
IMF*	3.4	1.8	2.4	2.2	2.8
Economist Poll*	3.4	1.6	1.9	1.5	2.4
Import demand growth of Hungary's trading partners					
NBH central projection	10.4	3.5	4.9	6.0	7.3
NBH „pessimistic” scenario	–	3.1	–	3.5	–
OECD	10.6	2.6	7.3	3.2	7.0
IMF**	10.6	3.4	6.2	4.4	n.a.**

* The forecast relates to the EMU-12 region and does not contain import forecasts.

** IMF World Economic Outlook for 2002, May 2001, it does not contain import forecasts. Source for the latest IMF projections: World Economic Outlook, October 2001.

Table III-2 Annual growth rate of GDP and its components – projection
Percentage changes on a year earlier

	Per cent		
	Actual data*	Projection	
	2000	2001	2002
Household consumption	4.0	3.9–4.2	3.4–4.1
Household final consumption expenditure	4.3	4.7–5.0	4.0–4.7
Social transfers in kind	3.4	0.9	1.3
Public consumption	2.9	1.5	1.6
Gross fixed capital formation	7.7	2–4	4–6
Exports	21.8	10–11	6–12
Imports	21.1	9–10	7–13
„Final sales”	5.0	3.7–4.3	2.8–4.0
GDP⁵	5.2	3.7–4.5	2.8–4.2

* Data revised by the Central Statistical Office in October 2001.

Table III-3 Current account deficit and the financing capacity/requirement of sectors

As a percentage of GDP

	Per cent		
	2000	2001	2002
	Actual	Projection	
I. General government*	–3.5	–6.0–5.0	–5.4–4.6
II. Private sector(1+2)	0.9	3.4–4.7	2.4–4.2
1 Households	5.1	4.1–4.6	3.4–4.2
2 Corporate sector**	–4.2	–0.7–0.1	–1.0–0.0
External financing requirement (I+II)***	–2.6	–2.0–1.0	–2.3–1.3
Current account balance	–3.2	–2.6–1.6	–2.8–1.8
In EUR billions	–1.6	–1.5–1.0	–1.8–1.2

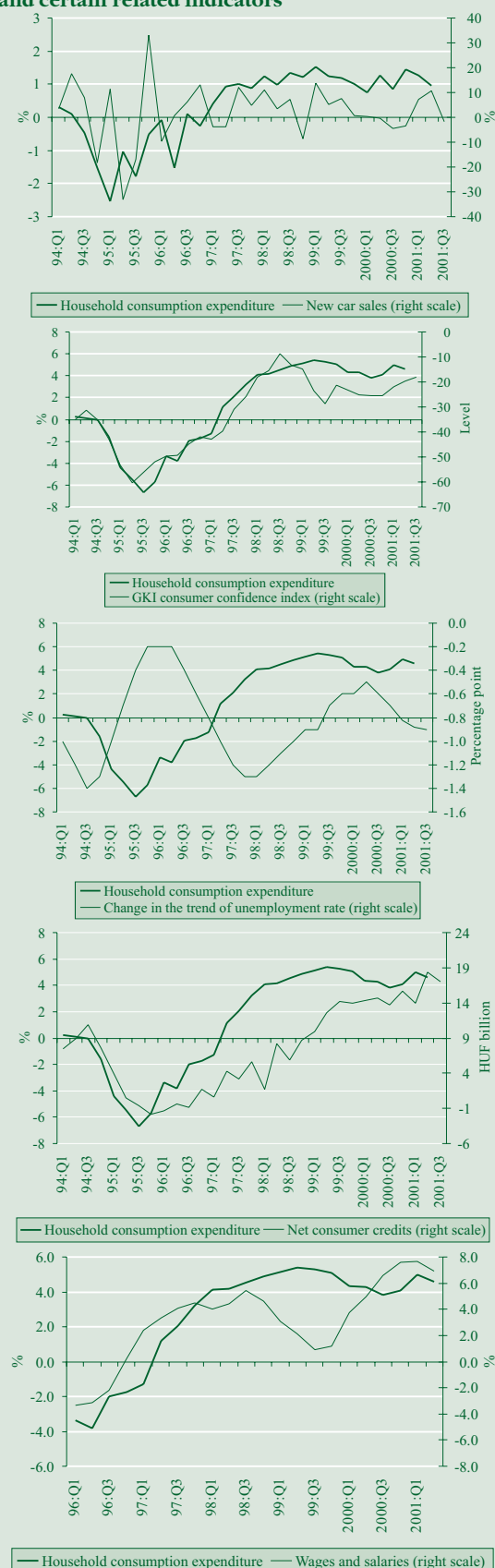
* Consolidated general government (including NBH).

** Financial and non-financial enterprises, total.

*** On cash flow basis. The external financing requirement both includes the current account deficit and the capital account balance.

⁴ The current projection could not take into account the Central Statistical Office's October revision of the GDP data for 2000 as there have been no quarterly data published. In terms of the revised GDP data, both household consumption expenditure and investment were higher in 2000 than in the publication underlying this projection. This implies that the decrease in investment growth may be higher and the increase in household consumption expenditure may be smaller this year.

⁵ In the projection for “Final sales”, growth in inventory investment, inclusive of the statistical discrepancy, is assumed to have a neutral effect on GDP growth, corresponding to the rate determined by consumption, fixed investment and net exports. In other words, inventory investment is assumed to be growing at a constant rate as a proportion of GDP. The Bank's macroeconomic forecasts are based on this category; while the total GDP projection is only given as additional information. Social transfers in kind and public consumption, the estimation of which carries higher-than-average uncertainty, are projected on the basis of a simple rule, using the average of the growth rates in the previous 8 quarters. These items have been greatly affected by the revisions, and the current projection is based on the previous, lower quarterly figures. As a result, these categories represent risks on the upside.

Chart III-1 Household consumption expenditure and certain related indicators

Note: Seasonally adjusted data. The first chart shows quarter-on-quarter changes in household consumption expenditure and new car sales. Another chart represents the annual growth rates of household consumption expenditure and wages and salaries. The chart showing the confidence index depicts the level series, and the one with the rate of unemployment shows the year-on-year change in the trend. Net consumer credits are given in billion HUF at constant prices in 1995.

crease in the external financing requirement, compared with the August projection, could be attributed in both years to slower growth in projected corporate sector investment.

As far as 2001 is concerned, the factor contributing to an expected decline in the total external financing requirement is that the increase in the general government financing requirement will be offset by a decrease in the corporate sector's financing requirement. In line with the previous projection, the household sector will reduce its financing capacity.

In 2002, the Bank expects the total financing requirement to rise relative to this year. General government is expected to reduce its financing requirement, while the private sector will show lower financing capacity. Household financing capacity will continue its downward trend, while companies are expected to cyclically increase their external borrowing, due to a slight pick-up in investment activity.

When projecting the current account, we should take account of the over EUR 1 billion annual difference appearing recently between the balance of trade based on customs statistics and that of the balance-of-payments statistics, primarily due to accounting differences. The current projection expects this difference to remain at the same level in both years. (see Table III.3. on page 21.)

1.1 Household consumption

Although in 2001 Q2 consumption expenditure grew more slowly (4.8 per cent) than in the first quarter, it still exceeded average growth for 2000 as a whole. Higher consumption growth was made possible by a faster expansion in the gross wage bill, relative to last year. Following a downward revision of the previous projection for consumption expenditure, the central projection is 4.8 per cent for 2001 and 4.3 per cent for 2002.⁶ This is partly because second-quarter consumption was lower than expected (by 0.4 percentage points) and partly because the variables used in forecasting consumption, with particular regard to expected wages and earnings growth, have also been revised down.

Estimation of consumption in 2001 is greatly influenced by eliminating the effect of the minimum wage increase from gross average earnings, as the higher level of minimum wages does not affect those people's effective earnings who previously earned lower-than-minimum wages only notionally. Thus, part of the increase in gross average earnings is merely the statistical accounting of the income not measured but consumed previously. This implies that by using total earnings growth for 2001, the Bank previously overestimated the size of household consumption expenditure (see Chart III-1).

The main component of the uncertainty surrounding consumption expenditure forecasts lies in the development of corporate- and government-sector wages. Inasmuch as the corporate sector adjusts its real wage growth intentions to a higher path

⁶ For more on consumption forecasts, see Jakab-Vadas: *Forecasting Hungarian household consumption with econometric methods*, NBH Background Studies 2001/1.

for inflation, the resulting excess real income will boost consumption. A permanent 1 per cent increase in gross average real earnings in the private sector may push up consumption expenditure by 0.5 percentage points during the first year and 0.2 percentage points in the second year. On the other hand, if government-sector employees' gross average real earnings are permanently 1 per cent higher than the Bank's projection, then this may exert upward pressure of 0.1–0.2 percentage points on consumption expenditure over the one-year horizon, but will have no effect during the second year.

Another source of uncertainty may be a weaker performance in external business activity (cf. the pessimistic scenario). Real wages tend to respond to lower-than-expected external economic growth only with a time lag, which also implies a delayed feed-through of external effects to household consumption expenditure. Hence, the slowdown in external demand growth would only affect consumption from the second half of 2002 (reducing it by 0.1 percentage points in 2002 Q3 and 0.2 percentage points in Q4), and thus consumption would fall off by as little as 0.1 percentage points for 2002 as a whole (see Chart III-2).

1.2 Investment

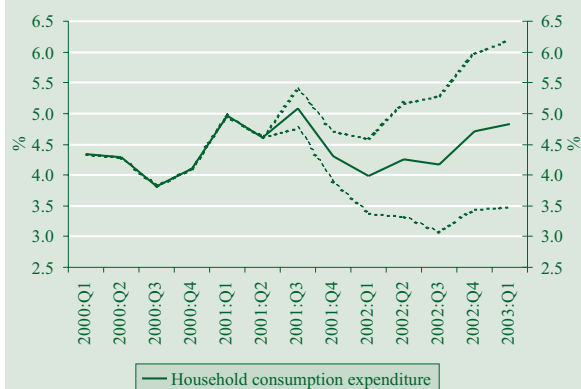
The August projection for the future path of investment has been revised downward significantly by 4–7 percentage points in 2001 and 1–4 percentage points in 2002 under the current projection.

The August projection was based on the assumption that the over 80 per cent average level of manufacturing capacity utilisation seen early in the year may boost investment growth, provided there is improvement in the cyclical outlook. Service sector investment was projected to increase by 7–8 per cent in 2001, due to steady growth in household consumption and relatively cheaper investment imports, thanks in turn to an appreciation of the forint. Stimulated by a number of government measures, household investment is likely to be marked by buoyant home-building activity in both years. State financed investment is projected to grow exceptionally strongly, thanks to a pick-up in the pace of motorway construction.

Nonetheless, second-quarter investment figures did not confirm this projection. In 2001 Q2, total investment rose by merely 3.6 per cent on a year earlier. Manufacturing and service sector investment (especially in telecommunications and transport) lost momentum. The progress of investment with indirect state financing (such as motorway construction) failed to live up to the Bank's expectations of an acceleration. On the other hand, household investment seemed to be gathering pace as projected, clearly reflected in the over 20 per cent investment growth rate of the real estate sector during the first six months.

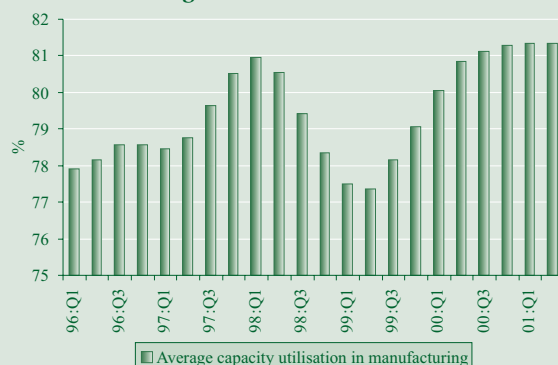
A number of factors contribute to prospective investment tendencies. External demand and capacity utilisation are considered to be critical for making investment decisions (see Chart III-3). Corporate disposable income, credit facilities and prices are all key factors in terms of financing aspects. In the second quarter, manufacturing capacity utilisation remained flat, albeit at a high level. The business confidence index calculated by the

Chart III-2 Growth in consumption expenditure
Percentage changes on a year earlier

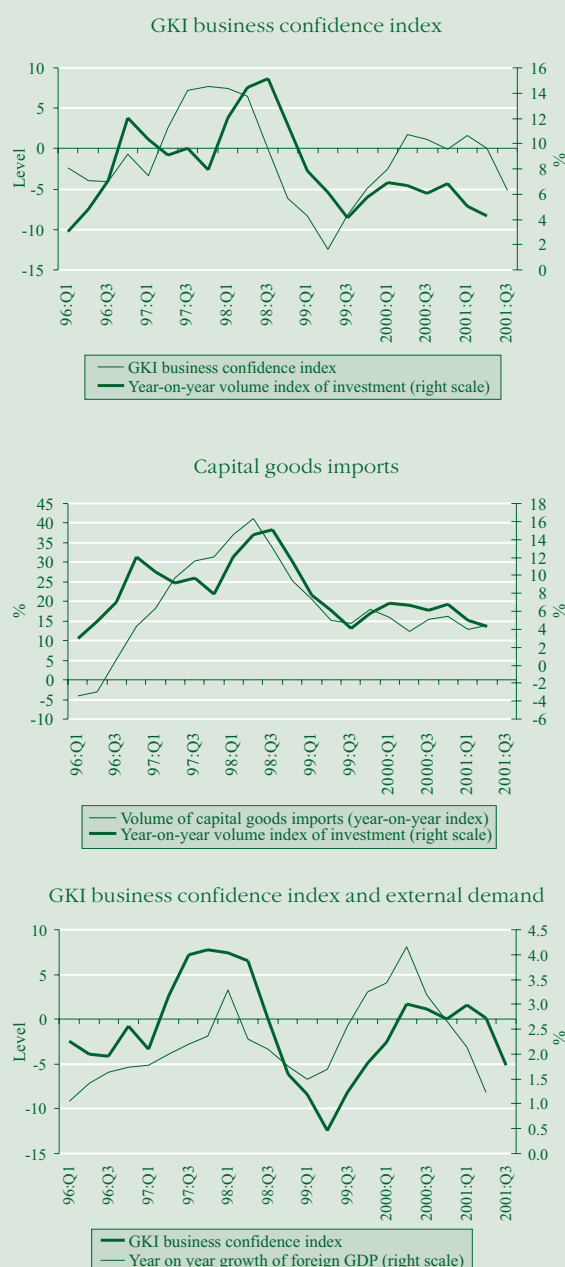


* Quarterly growth rate of the seasonally adjusted series. The confidence interval has been constructed using past forecasting experience. Thus, there is 68% probability that the actual future data will fall in the specified interval.

Chart III-3 Average capacity utilisation in manufacturing*



*Seasonally adjusted data. Source or original data: Kopint-Datorg Rt. The survey typically represents enterprises owned by Hungarian residents.

Chart III-4 Investment and certain related indicators*

* Seasonally adjusted data. The charts depict annual rates of growth in investment, investment goods imports and external demand, as well as the level of the business confidence index.

Table III-4 Sectoral breakdown of investment

Volume indices, changes on a year earlier

	Weight*	2000**	2001	Per cent 2002
Corporate sector	67	4.6	-0.5-1.5	1.5-3.5
Of which:				
Manufacturing	23	4.1	-1-1	0.5-3
Services	34	5.5	0-2	3-4
Public sector***	16.5	13.2	8-10	11-13
Households	16.5	8.5	11-13	10-12
Total	100	6.6	2-4	4-6

* As a percentage of total investment.

** The sectoral breakdown represents National Bank estimates for 2000 as well.

*** Includes direct investment projects and spending on motorway construction.

Economic Research Institute (GKI) fell considerably in both the second and third quarters, while investment goods imports continued the previous rising trend in real terms, in line with the previous projection.

Only the imported investment goods and the business confidence index series of the August projection proved to be suitable for incorporation into the investment forecast. We could not pinpoint the effect of external demand change, as trend-like movements (corporate relocation, FDI) have had a powerful influence over investment growth in the past. However, shortly before and after business cycle turning points corporate sector investment tends to respond in a sensitive manner to changes in external demand even though this cannot be pinpointed by statistical methods. This was seen in the aftermath of the Russian crisis in 1999 and in the better-than-expected net corporate sector income and the balance of payments current account position during the first half of 2001. The implication is that the method the Bank used in August to project investment, involving methods which add an extrapolated trend to the forecast of cyclical factors, resulted in overestimating future developments around the time of the turning point.

As far as growth in investment goods imports is concerned, it is projected to stabilise during the remainder of the year, and is only expected to pick up significantly in 2002 Q2. Due to investment's relatively inelastic nature, the effect of the forint's appreciation will only feed through after a lag, i.e. from 2002. However, our previous estimates suggest that in numerical terms this effect will fall far short of the decrease in the investment growth rate caused by external demand factors, in both years.

Taking into account actual data for the first six months and changes in projection methodology as well, corporate sector investment indicators and company surveys point to weakening investment activity in both manufacturing and services. The resulting growth rates may be -0.5-1.5 per cent in 2001 and slightly higher, in the range of 1.5-3.5 per cent in 2002, with manufacturing investment estimated to be a few percentage points lower than service sector investment.

Forecasted state investment has also been revised in the current projection. Although the growth rate expected for 2001 continues to be high, at around 8-10 per cent, motorway construction growth is to lose momentum compared to the earlier forecast. This, however, entails a higher figure for 2002, in the range of 11-13 per cent.

Projections for households' investment (chiefly residential investment) have remained unchanged since the previous forecast. The number of building permits increased at an ever faster pace between 2000 and mid-2001, and the Bank's calculations suggest that this will be fully reflected in household investment in 2001 and 2002. As completions follow the issue of building permits after a roughly 1-1.5 year lag (average construction time), housing investment is likely to increase in 2001 and 2002.⁷ Preferential housing-related loans and other facilities have promoted faster growth in homebuilding expenditure ever since 2000,

⁷ The number of building permits and the number of completions are not totally identical cumulated over time, as some of the permits issued will lapse in the absence of actual investment.

while the plans for even more preferences also support the Bank's assumption that household investment may grow at a rate in excess of 10 per cent both in 2001 and 2002 (see Tabel III-4, and Chart III-5).

Based on the above factors, whole economy investment is projected to grow in the range of 2–4 per cent in 2001 and 4–6 per cent in 2002. The timing and statistical accounting of state-financed investment projects carries the uncertainty of lower investment growth, which however, evens out when the two years are taken together. Due to the uncertainty regarding the path for external demand, the risk to corporate sector investment growth is on the downside in 2002. According to our calculations, if international demand for imports follows the “pessimistic” scenario, investment growth will drop by around 1.1 per cent in 2002, while this effect is negligible in 2001. The implications are that the central projection has a downward asymmetrical distribution in both years.

1.3 The fiscal stance

The current projection indicates stronger fiscal expansion in both 2001 and 2002. In the previous forecast, we calculated with that part of excess budget receipts that would be spent on excess expenditure in both years. On submission of the Act on “final accounts”, the actual sum of the expenditure for 2001 also became public, showing that the portion to be spent on wage increases during the year will have consumed all the “reserves” projected for 2002. As both values are in excess of the previous assumptions, the Bank no longer expects any major excess spending for either year, apart from the effect of tax allowances.

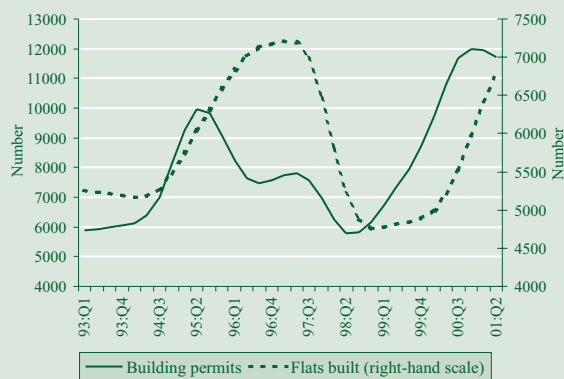
Due to the passage of the Act on Civil Servants in July and certain decisions taken since (e.g. special pay allowances for health care workers) the total wage bill in the government sector is expected to rise at a rapid pace of 17.3 per cent in 2001 and 20.6 per cent in 2002. This is in contrast with the previously assumed rates of 15.9 per cent and 11.7 per cent, respectively. In addition to an annual decrease of 1.3 per cent in public sector employment, the contributing factors include respective growth rates of 18.8 and 22.2 per cent in average earnings.

In addition to the effect of excess expenses included in the ‘final account’ Act, the projection was also revised due to fiscal developments. On the whole, these receipt and expenditure-side developments⁸ would exert downward pressure on the deficit, but they cannot offset the excess spending.

The Budget Act for 2001–2002 approved a rise in pensions of 3 per cent in excess of the Swiss index for both years. As the values determining the Swiss index (inflation and wages) exceeded the originally assumed figures, there were supplementary rises in pensions in July and November, of a size corresponding to the Bank's previous forecast.

The primary SNA-based deficit and demand effect projected for 2002 are also larger than previously expected. This is because the expected demand tightening of 0.6 per cent of GDP will not

Chart III-5 Number of building permits and completions*



* Seasonally adjusted data.

⁸ The estimates for 2001 subsidy programmes contained rapid growth, yet payment transfers so far have fallen short of these figures.

Table III-5 General government's demand effect
As a percentage of GDP

	Per cent			
	Actual		Projection	
	1999	2000	2001	2002
1 Change in SNA operational deficit (2+3)	-1.0	-0.9	2.2	0.5
2 Indirect demand effect (Change in real interest rates)*	-0.4	-0.3	-0.3	0.0
3 Direct effect (4+5)	-0.6	-0.6	2.5	0.5
4 Change in GFS primary balance	-1.3	1.1	0.6	0.6
5 Change in other factors (SNA corrections)**	0.7	-1.8	1.9	-0.1

* Calculation of the operational deficit is based on the assumption that, neither the inflation compensation incorporated into interest rates nor its yearly volatility affects demand. Accordingly, real interest rates were smoothed by moving averages.

** Other factors represent those channels of demand tightening or expanding that are not reflected in the official primary balance. These factors include the effects on demand of the Hungarian Development Bank, the State Privatisation Agency and the National Motorway Company. The "+" sign denotes an expansion in demand, and the "-" sign denotes narrowing.

come through, as other demand factors⁹ are not expected to decrease. This is due to the fact that, contrary to the Bank's previous assumption, the use of excess receipts will not be evenly distributed across the two years but will take place completely during the base period of 2001 (see Table III-5).

The demand effect for 2001 has a symmetrical distribution of uncertainty and is expected to fall in the range of 2.3 and 2.7 per cent of GDP. Expansion in demand is forecasted to be between 0.2 and 1 per cent of GDP in 2002, with the risks being on the upside on the whole. First, the possibility of decisions on additional excess expenditure cannot be ruled out and second, so far this year the actual speed of using up projected expenditure has not accelerated to the planned extent. The lower base value entails higher growth in its own right and exerts upward pressure on expansion in demand in 2002. On the other hand, changes in wages and consumption acting via tax revenues seem to increase the downside risk to the projection.

1.4 Net exports

Growth of external trade in goods and services continued to slow during the second quarter, against a background of flagging external demand growth. Real appreciation of the forint did not have a perceptible impact until the second quarter. The projected pick-up in external demand will only have an effect on Hungary's foreign trade growth in 2002, while the delayed impact of the real appreciation occurring in 2001 will also play a major role.

As the considerable weakening in external activity nearly coincided with the change in the exchange rate regime, it is difficult to separate the effects of external cyclical activity from those of the real exchange rate. The result is the paradoxical situation that the growth rate forecasts for the remainder of 2001 show a higher error than those for 2002. However, the risks for the latter are almost completely on the downside.

External demand and the real exchange rate

Changes in external demand are assessed in terms of three indicators: the GDP of Hungary's main trading partners weighted with the Hungarian export structure, the imports of these countries and the OECD's composite leading indicator. In terms of the external demand path, all three indicators highlight similar

⁹ Other factors of demand are those channels for tightening or expanding demand that are not reflected in the official primary balance. They typically arise from the timing differences of accounting methods and the fact that, due to their nature, certain receipts can be treated as financing. They are also associated with the fact that the legal definition of general government sector does not correspond to that of the statistical and economic approach. In recent years, the weight of these correction factors have typically converged around two values, namely 1.2 per cent of GDP in 1996 and 1998, and roughly 1.9 per cent of GDP in 1997, 1999, which is expected to remain in 2001–2002. The year 2000 was an exception as the level of financing receipts was low, whereas excess receipts were used in a way that caused deposit account and ÁPV Rt (State Privatisation and Holding Company) balances to record a surplus. In 2001, the weight of the other demand factors were to return to the previous level according to the plan. In terms of its overall effect, this will not be changed by the internal restructuring, namely that the weight of the MFB Rt (Hungarian Development Bank Ltd.) and credit-financed road construction will be higher while the financing receipts (from debt servicing, privatisation concessions, etc.) will fall short of the plan. The weight of other demand factors is projected to remain unchanged in 2002, but the noted internal restructuring will continue.

changes in growth, but the Bank views the imports-based external demand measure as being the most suitable indicator for forecasting external trade. External demand growth based on imports followed the same path as in the previous Report, but its level has shifted downwards, as the slowdown which started at end-2000 proved to be more pronounced (see Chart III-6).

In the current projection, average year-on-year growth in external demand has been lowered from the earlier projected 4.9 per cent to 3.5 per cent in 2001 and from 7.3 per cent to 6 per cent in 2002. The differences are not only attributable to the increase in the amount of data available and subsequent data revision, but also to the use of an average past cyclical slowdown in the EU to adjust the estimates and tackle the forecasting uncertainty caused by the turning point in the trend.

The risks to the projections for external cyclical activity in 2002 are significantly on the downside. This is the reason for the assessment of a “pessimistic” scenario, projecting external demand growth to be 3.1 per cent for 2001 as a whole and 3.5 per cent for 2002 as a whole.

Based on external demand in the central projection, the unit-labour-cost based real exchange rate of the forint appreciates by 6.9 per cent this year, followed by a small (1.2 per cent) depreciation in 2002. The key factor in the appreciation in 2001 is the band widening, but the impact of weaker external demand on domestic productivity is also significant. As a result, unit labour costs will rise slightly faster in 2001 than in the year before, while the nominal exchange rate appreciates. In 2002, the nominal effective exchange rate index continues to exhibit a certain degree of appreciation for the year as a whole. On the other hand, thanks to a recovery in international demand, productivity growth gathers pace, with the exchange rate feed-through and another 2-percentage-point cut in social security contributions exerting downward pressure on the wage cost index, resulting in a depreciation of the real exchange rate. In comparison with the August projection, real exchange rate depreciation is 1.5 per cent higher in 2001 and about 7 per cent higher in 2002.

Should the more pessimistic scenario for demand growth materialise, lower domestic productivity growth would cause the unit labour cost based real depreciation projected for 2002 to cease and turn into a stable level of real exchange rate. Therefore, the risk to the projection for 2002 is more to the downside, pointing to a less depreciated real exchange rate (see Chart III-7).

External trade

In the new projection, growth of exports of goods declines in volume terms more markedly than previously projected. This, however, is only partly due to a slowdown in external demand. As was already noted, the Bank has modified the projection method because of estimation problems experienced near the time of cyclical turning points.

An additional factor causing a change in the projection for whole-economy goods exports has been a data revision: the Central Statistical Office revised the first-quarter export volume index down by nearly 4 per cent in its second-quarter GDP publication. This revision of actual data has by itself caused a 2-percentage-point decrease in the Bank's previous forecast of 14 per cent for whole-economy export growth in 2001. Accordingly, there has been an over 4 percentage point reduction (to 10

Chart III-6 Current and previous forecasts on imports-based external demand
Year-on-year growth

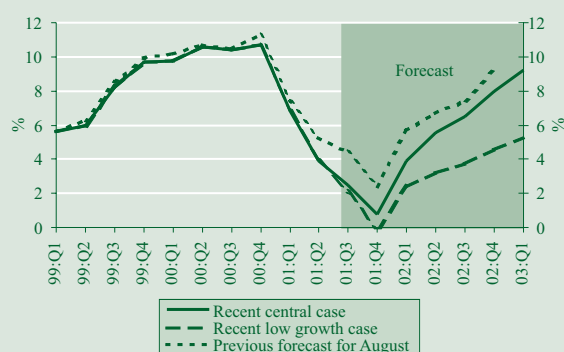
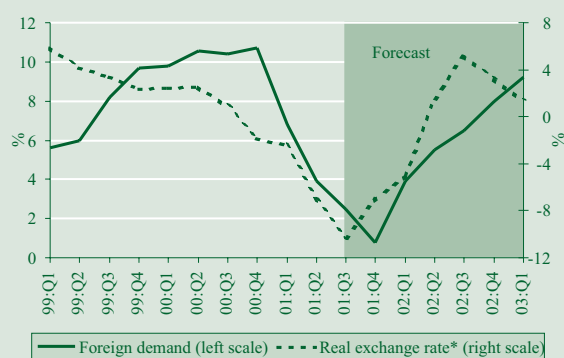


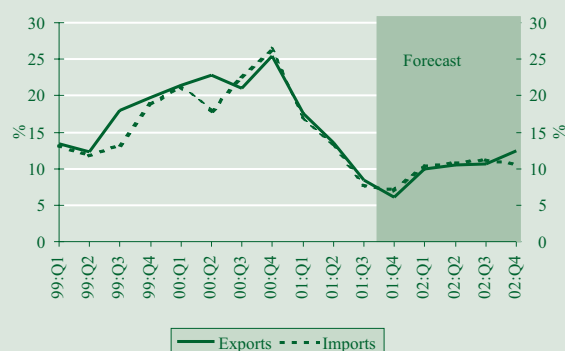
Chart III-7 Changes in external demand growth and the real exchange rate based on unit labour costs
Percentage changes on a year earlier



* A positive value indicates real depreciation.

Chart III-8 Projection for goods export and import growth

Percentage changes on a year earlier



per cent) in the export growth forecast, relative to the August projection. Export growth in 2002 is also projected to rise at a roughly 10 per cent rate, but there is a strong downside risk if external demand expands at the assumed lower rate.

Goods imports continued to slow during the second quarter, and the July and August data foreshadow a continuation of this trend over the third quarter. For 2001 as a whole, import growth is expected to drop by around 10–12 percentage points, in contrast with the 7-percentage-point decline projected earlier. The fact that import growth loses momentum relative to the August projection is primarily due to changes in external demand factors (export growth expected to be 4 per cent lower) and a downward revision in the investment forecast.

In 2002, import demand is expected to increase, due partly to a pick-up in investment and partly to the substitution effect triggered by lower import prices in respect of consumer goods (see Chart III–8).

The change in the external demand projection is also assumed to affect the travel category of services. Receipts in 2002 will grow at a slower pace than previously projected. Lower propensity to travel and price increases prompted by regulatory changes will exert downward pressure on Hungarian residents' spending abroad.

2 Supply side factors –the labour market

In terms of the real economic costs of exchange rate-based disinflation, one crucial factor is labour market flexibility, i.e. the speed at which enterprises are able to adapt to changing circumstances via labour costs. The Bank's labour market projections have been slightly revised down since the August Report, with the central projection for gross private sector wage bill growth down from 14 per cent to 13.2 per cent in 2001 and from 9.8 per cent to 9.2 per cent in 2002.¹⁰ The revision was called for partly by the alteration of the projection methods and partly by modifications in external and internal cyclical forecasts. The risks to the wage projection are on the upside for both years.

An appreciating exchange rate, price disinflation and relatively inelastic wage contracts may trigger a surprise increase in real earnings over the short term. At the same time, the profitability of export-oriented businesses (chiefly in manufacturing) may prove to be vulnerable to a pronounced weakening in external demand and a protracted recovery. The service sector experiences a pull from strong domestic demand, but it is expected to fall short of the rate projected in the August Report.

In view of the special features of the Hungarian labour market, enterprises are expected to adapt to the long-term appreciation of the forint and the effects of demand first of all by reducing pay received by workers on an irregular basis (such as bonuses and premiums). Thus, the band widening is not assumed to have a considerable impact on employment in 2001.

¹⁰ In this analysis, "labour market" solely denotes that of the private sector; while the wage and employment-related developments within the general government sector are discussed in the chapter on fiscal policy.

In 2002, worsening prospects for profitability due to the deferred effects of the forint appreciation and the slower-than-expected recovery of external demand may force enterprises to adopt a more cautious wage policy from as early as the start of the year. The accommodation process may be reflected in moderate real wage increases and dampened employment growth. As a result of changes in the projections for demand factors, both the number of employed people and average earnings are assumed to increase at a more subdued rate than projected in the August Report. As noted in the chapter on the factors of demand, the Bank's calculations have also taken account of the downside risks to external demand assumed by international forecasters. According to the alternative scenario predicting much lower growth in external demand both employment and wages may increase below the rate of the central projection.

One crucial development for the labour market was the increase in minimum wages (up 57 per cent), to HUF 40,000 in January 2001, to be followed by another (25 per cent) rise in January 2002, to HUF 50,000. The August Report featured an in-depth analysis of the considerations on which the Bank bases its opinion that the rise in minimum wages has a smaller effect on labour costs in 2001 than could be expected in view of the magnitude of the rise and the official statistics available on average earnings growth. By contrast, the rise to be effected in 2002 may exert greater upward pressure on labour costs.

2.1 Labour use and reserves

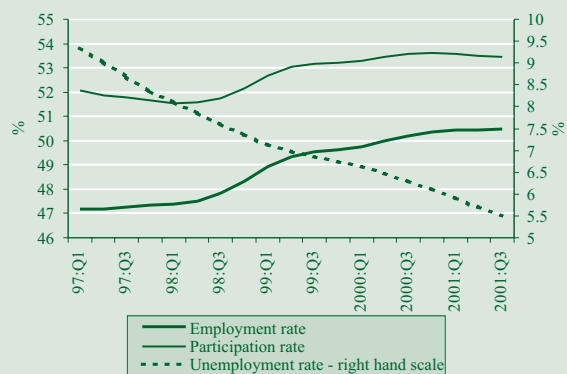
In 2001 Q2 and Q3, the labour market was characterised by a virtually flat employment rate for the economy as a whole. The unemployment rate continued to decline. At the same time, in contrast to previous years, the participation rate was flat to falling, due presumably to cyclical developments as well as the fact that the upward pressure on the participation rate of certain demographic changes and the gradual rise of the retirement age wore off (see Chart III-9).

Relative to the previous trend, the private sector experienced a slowdown in the growth rate of extensive labour use, though the number of employed people rose both in manufacturing and in services (see Chart III-10).

The labour reserve for extensive growth is comprised of economically active people (those employed and unemployed). The proportion of unemployed persons within the economically active group has been decreasing for several years now, and this trend has not been interrupted this year either, with the seasonally adjusted unemployment rate standing at 5.5 per cent in the third quarter. However, effective labour reserves were lower in size, as people who have been out of work for a long period of time and those with poor qualifications represent a high percentage, and the geographical mobility of unemployed people is also limited. The halt in participation rate growth also indicates some tightening in labour market reserves.

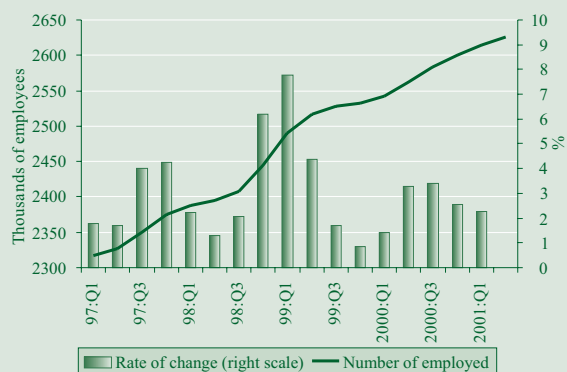
The intensity of labour use is measured in terms of the average number of hours worked. Simultaneously with the decline in output growth, weekly average hours worked by manual workers in manufacturing decreased in 2000, and this trend continued

Chart III-9 Labour market indicators*

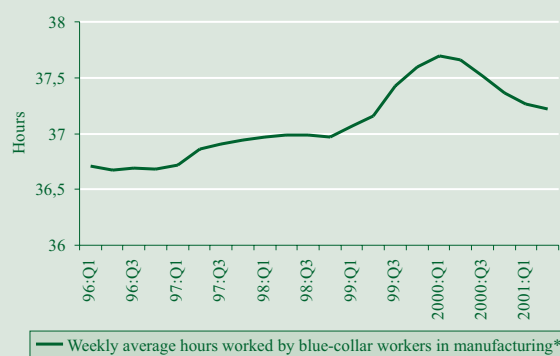


*Labour Force Survey of the Central Statistical Office. Derived from seasonally adjusted data.

Chart III-10 Number of employed people*



* CSO Labour Force Survey. Derived from seasonally adjusted data. Annualised quarter-on-quarter changes. Private sector (excluding agriculture).

Chart III-11 Average weekly hours worked by manual workers in manufacturing*

* Seasonally adjusted data, recalculated statistically for businesses employing over five people.

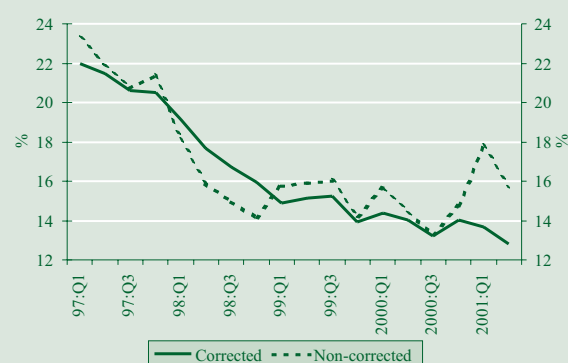
throughout the first six months of 2001, in line with cyclical changes (see Chart III-11).

In contrast to the slow growth projected in the August Report over the forecast horizon, the current projection expects the level of employment to remain unchanged (in other words, the number of employed people remains fixed at the second-quarter level).¹¹ This is based on several assumptions. As far as manufacturing is concerned, the corporate sector is assumed to adapt to the long-term appreciation of the forint, above all, in the area of wages, which implies that it will have a minimal negative effect on employment. At the same time, the higher-than-expected and more prolonged slowdown in external cyclical activity is assumed to exert downward pressure on labour demand in manufacturing, which will sooner or later be reflected in the extensive indicators of labour use as well. On the other hand, buoyant domestic demand may stimulate service sector employment, whereas the rise in minimum wages scheduled for 2002 may dampen growth and result in a virtually flat employment rate in this sector. Simultaneously with the stabilising of employment, the Bank expects no proliferation of sectoral or regional labour market bottlenecks.

2.2 Wage inflation

Increases in labour costs are governed by combined changes in wage inflation and tax rules. Statistics on the private sector for 2001 Q2 reflected an over 15 per cent growth in average earnings.¹² However, our corrected wage inflation indices, which also eliminate the statistical distortion caused by the increase in minimum wages, indicate lower and slightly moderating growth.¹³ This tendency is in line with the August projection (see Chart III-12).

The methodology used by the Bank for preparing wage projections has become more formalised, relative to the earlier forecasts. With regard to manufacturing, wage growth is largely determined by changes in productivity: Wages follow cyclical developments in productivity (i.e. corporate profitability) slowly and in a dampened way, as initially businesses tend to respond to information on prospective cyclical activity and the outlook for profits by changing labour use intensity (number of weekly hours worked) and pay received on an irregular basis (such as bonuses, premiums, etc.), since extensive adjustments (dismissals and admissions) result in significant costs. In addition, changes in the price of non-tradable goods, the assumptions for the credibility of anti-inflationary policy and the prospective effects of the increase in the minimum wage are also taken account of. When projecting service sector wages, the starting point of the analysis is inflation expectations, that is the assumptions for dis-

Chart III-12 Wage inflation in the private sector*
Percentage changes on a year earlier

*Year-on-year change recalculated using a statistical method for businesses employing over five people. The corrected indicator reflects wage inflation with the effects of the rise in minimum wages and seasonal fluctuations eliminated.

¹¹ The Bank's projection for the level of employment has been revised down by 0.2–0.3 percentage points in 2001 and 0.3–0.4 percentage points in 2002, relative to the August forecast.

¹² Wage inflation eliminates from the data reported by the Statistical Office the effects arising from sectoral and structural composition and changes in days worked, providing thereby a picture specifically of the increase in the price of labour.

¹³ See August Report for a detailed discussion.

inflation credibility, in addition to the prospective effects of the rise in the minimum wage.

The Bank's projections are based on the assumption that growth in manufacturing productivity slows down considerably in 2001, before accelerating again in 2002 in line with changes in external demand (which have a delayed impact on wages). Accommodation to the long-term strength of the forint is expected to pick up pace in 2002, simultaneously with a substantial fall in the price index of tradable goods. The rise in minimum wages is expected to exert no upward pressure on wage inflation in manufacturing and only minimal pressure on service prices in 2001. In both sectors the effect is assumed to be on the magnitude of 1.5 percentage points in 2002.

Labour costs will also be affected by a 2-percentage-point drop in employers' social security contributions in 2002. If the wage bill remained unchanged, this would imply a 1.5-percentage-point lowering in labour costs. The Bank's central projection is based on the hypothesis that for the corporate sector as a whole the excess costs resulting from the minimum wage rise will be financed exclusively from the amount saved on labour costs.

The central projection for average wage growth in the private sector decreased by 0.5–0.6 percentage points in 2001 and 0.2–0.3 percentage points in 2002, relative to the figures published in the August Report. This could be attributed partly to changes in factors of demand and partly to a modification in the method of wage estimation.

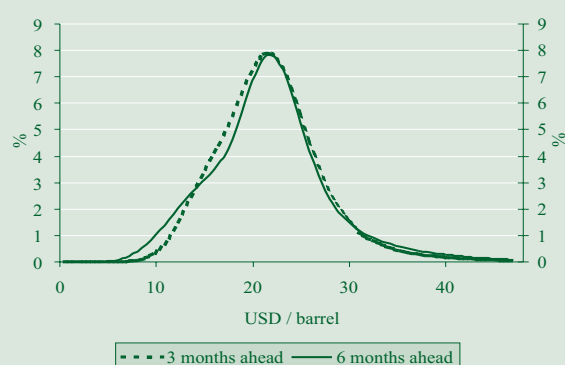
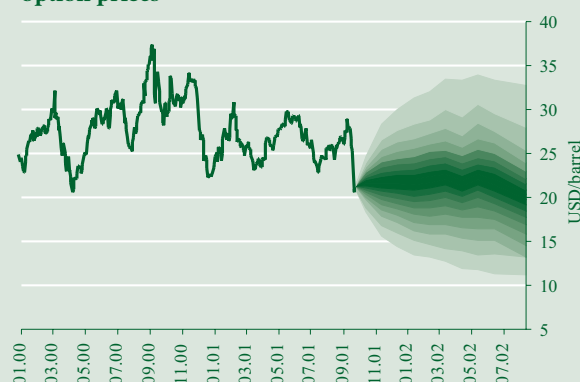
In the central projection, the increase in the gross wage bill in the private sector drops from 16 per cent in 2000 to 12.5–14.5 per cent in 2001, and to 8–11 per cent in 2002. If the labour market proves to be less flexible than assumed above in adapting to the changed circumstances, the balance of risks to nominal wage growth will be on the upside. If monetary policy is less credible than assumed that may also cause labour costs to rise at a higher rate. At the same time, a higher-than-projected slowdown in manufacturing external demand may entail more moderate wage growth. The overall balance of risks to the projection for both years is judged to be on the upside.

3 Imported inflation

The period so far in 2001 has seen a moderation in imported inflationary pressures, which is expected to continue over the next one and a half years.

In the second quarter, all three factors of imported inflation, such as the world price for crude oil, the euro/dollar exchange rate and tradables prices in the euro area, are thought to have increased inflationary pressure, but from the third quarter, they began to reduce this pressure.

In the period from January to September 2001, the barrel price for Brent crude peaked during the second quarter, due to price increases in May and June, while in the third quarter it levelled out at roughly USD 25. A stronger and more prolonged slowdown in the world economy points to a downward trend in oil prices over the longer term. The fan chart for oil prices shows an increase in the spread of the probability distribution in the wake

Chart III-13 Changes in the distribution of Brent crude oil options prices**Chart III-14 Projection based on Brent crude oil option prices***

*The applied probability distributions are derived from WTI options and then recalculated in terms of Brent.

Table III-6 Market forecasts for the dollar/euro exchange rate*

Forecast date	Projection horizon		
	Three months ahead	Six months ahead	Twelve months ahead
August 2001	0.87	0.87	0.88
September 2001	0.90	0.88	0.91
October 2001	0.96	0.95	0.93

* Mean of forecasts by 11 large investment banks.

Table III-7 Projections for consumer price increases in the euro area
Percentage changes on a year earlier

	2001	2002
ECB poll*	2.7	1.9
Economist poll	2.6	1.7
IMF	2.7	1.7

* Forecast by specialists surveyed by the ECB.

Chart III-15 German tradables price index
Percentage changes on a year earlier

of the September terrorist attacks, in evidence of market participants' increased uncertainty (see Charts III-13 and III-14).

In 2001 Q2, the exchange rate of the euro fell relative to the dollar to 0.87, the rate seen at end-2000, and then rose to 0.89 during the third quarter. In general, projections by major foreign investment banks for three, six and twelve months ahead predict a further strengthening of the euro. Expectations in terms of the extent of this appreciation have increased during the course of the year. This is especially the case with regard to the October forecast, which already reflects the change in market sentiment in the aftermath of the terrorist attacks on the US (see Table III-6).

In the euro area, tradables price inflation (excluding energy prices) peaked at 1.6 per cent during the summer of 2001, having followed a steady upward trend since August 2000. This implies that the inflationary pressure exerted by energy price increases and the weaker euro over most of 1999 and 2000 is beginning to taper off. Nevertheless, twelve-month growth in tradables price inflation is only expected to show a perceivable decline around the end of the year.

Technically the Bank's inflation projection is based on the German tradables price inflation as the relevant import price index for Hungarian tradable goods (see Chapter IV). The twelve-month indices derived from the long-term trend of German tradables price changes continues to decline over the one-year horizon, leading to a 0.5 per cent rate of inflation from August 2002 (see Table III-7 and Chart III-15).

4 Effect of regulation and extraordinary factors

In the central projection for 2002, regulated prices, accounting for roughly one-fifth of the consumer basket, are expected to rise at a slower pace than this year, by 6.4 per cent.

Regulated energy prices are projected to rise by 9.2 per cent on average in 2002. This includes a 6 per cent increase in the price of electricity in January 2002. The central projection for the July 2002 increase in natural manufactured gas prices is assumed to be 12 per cent, with no divergence expected.¹⁴

When projecting pharmaceuticals prices, the Bank has taken account of the three-year agreement between the health ministry and pharmaceuticals manufacturers. The essence of the agreement is that, over a three-year period, manufacturers are allowed to raise the producer price of subsidised pharmaceuticals by 70 per cent of the inflation projection (by 3–4 per cent from July 2002). The Bank expects higher price increases in respect of non-subsidised products.

Projected increases in centrally regulated service prices are estimated to amount to around headline inflation, with the exception of the telephone service, where agreement may involve a lower rate of increase in charges, due to the productivity factor incorporated into the regulatory system.

¹⁴ The low-probability outcome for a higher-than-projected gas price increase would have the following effect on the CPI: an extra 10 per cent rise in July would raise the end-2002 CPI by 0.2 percentage points.

Excise duties on fuels remain unchanged this year (that on petrol being HUF 93 since 2000). In 2002, this value rises to that designated by the Act on Excise Duties (HUF 103.5 + VAT), causing fuel prices to rise by nearly 6 per cent. The current inflation projection is based on an oil price fixed at its average level in September (USD 25.5 per barrel), in consistence with the above-noted size of the excise duty rise scheduled for July 2002. However, the world price for oil has been below USD 25 since end-September, and if this trend proves to be lasting, then under the terms of an earlier agreement, the increase in the duties may theoretically occur at an earlier date, but this is not included in the assumptions.

For 2003 there are no announced government plans for the measure of regulated price increases. The Bank assumes an identical rise in energy prices with the measure foreseen for 2002. Excise duties could be estimated to increase at a lower rate than in 2002, due to a lower rise in the duties on fuels, simultaneously with some acceleration in the tax content growth of tobacco prices.

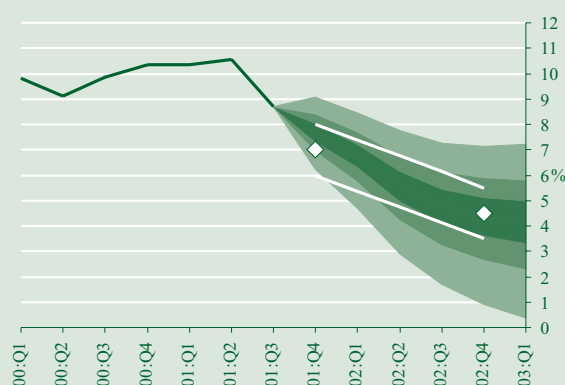
In general, agricultural prices change subject to temporary shocks, and independently of monetary policy. Consequently, inflation of unprocessed food prices appears to be rather volatile and is difficult to predict. In the third quarter, growth in domestic agricultural prices slackened off. The slowdown had been expected on account of the good outlook for this year's crops and provisional price agreements promoting the smoothing of prices, as well as of base effects. Over the past 12 months, the prices of agricultural raw materials crucial for domestic consumption increased at a high rate even in an international comparison, causing the producer price level of wheat and pork to exceed the average European level. However, the third quarter witnessed a turning point, with the level of pork prices stabilising, apart from some minor fluctuations, and a drop in the wholesale price of wheat.

The Bank assumes effective regulation to continue over the remainder of the year, satisfying the requirement of smoothing price adjustments. The central projection is for meat producer prices to remain stable in the second half of 2001 and the first half of 2002. The assumptions for agricultural product prices are surrounded by an element of uncertainty. The probability of stronger producer price increases cannot be ruled out, given the chance that participants in the market for meat products will not comply with their self-imposed commitments. Nevertheless, cereal prices, indicating a fall in fodder costs, are likely to dampen price increasing intentions.

IV. Forecast of the Consumer Price Index and risk assessment

Chart IV-1 Inflation fan chart*

Annual growth rate



* The fan chart shows the probability distribution of the outcomes around the central projection. The central band with the darkest shading includes the central projection. The entire coloured area covers 90% of all probabilities, with a 5% likelihood that the inflation outcome will fall outside of the coloured band. Outside the central projection (centered around the median), the bands represent 15% probability each. The uncertainty intervals have been estimated relying on the Bank's historic forecast errors and the uncertainties perceived by the Monetary Council regarding the current forecast. The two white dots represent the inflation targets (7% and 4.5%, for 2001 and 2002, respectively); while the straight lines mark the $\pm 1\%$ tolerance intervals on either side of the target rates.

In the Bank's central projection, inflation will drop to 7.5 per cent this December and to 4.3 per cent in December 2002. This projection is based on the assumption that the following three factors remain stable at their average September levels: forint exchange rate (HUF 255.9/euro), euro/dollar exchange rate (91 cents) and the price of Brent crude oil (USD 25.5/barrel), as well as the real economy forecast presented in Chapter 3 (see Chart IV-1).

The uncertainty associated with the central projection for inflation has been assessed using the Monetary Council's evaluation. There is a high likelihood in both years that inflation exceeds the upper +1 per cent tolerance limit of the inflation target. At end-2001, the risk to inflation remains firmly on the upside, although to a somewhat lower extent than at the time of the August projection. By contrast, the uncertainty about the central projection for 2002 is nearly symmetrical, i.e. the chances are equal that inflation ends up above the upper edge or below the lower edge of the target range. The symmetrical distribution of uncertainty in 2002 is the result of opposing trends. The uncertainty about fiscal policy and private sector wage developments, which creates an upside risk to inflation, is offset by the uncertain course of disinflation due to external cyclical activity and changes in world oil prices.

The central projection for the end-2002 CPI has remained virtually unchanged relative to the August Report, as two diverging trends have balanced each other out. The actual exchange rate, which has been weaker than the exchange rate of 247.1 forints to the euro assumed in the August projection, would have caused an upward shift of 0.6–0.9 percentage points in the projection for end-2002, were there no other factors stimulating disinflation. These factors include a slowdown in external demand and the downward revision in the Bank's projection for domestic demand, as well as the strengthening of the euro and lower world

Table IV-1 Central projection for the CPI* (same period of previous year = 100)

	Basket weight	2001					2002					Per cent
		Actual data					Projection					2003
		Q1	Q2	Q3	Q4	Dec.	Q1	Q2	Q3	Q4	Dec.	Q1
Food	19.0	16.6	19.5	13.3	12.7	12.2	10.7	8.0	5.5	5.2	5.0	4.9
Unprocessed	(5.3)	17.8	20.9	7.6	10.5	10.7	9.3	5.6	2.8	4.2	4.4	4.0
Processed	(13.7)	16.2	19.0	15.8	13.5	12.7	11.2	8.9	6.6	5.6	5.3	5.2
Tradables	26.8	5.0	5.2	4.7	4.0	3.7	2.7	1.8	0.3	-0.4	-0.4	-0.3
Market services	20.4	13.3	11.9	10.8	9.9	9.6	8.8	8.3	7.1	6.1	6.0	5.8
Market-priced energy	1.3	32.4	22.8	14.0	-0.7	-4.2	-5.2	-3.1	-2.8	-1.3	-0.0	1.0
Vehicle fuel	5.0	5.3	3.3	-4.8	-6.9	-5.1	-0.9	-4.3	6.6	6.5	6.5	7.7
Alcohol and tobacco	9.1	11.3	11.7	11.2	10.6	10.6	10.5	8.7	8.3	7.9	7.9	8.0
Regulated prices	18.5	7.6	8.0	9.5	8.7	8.8	7.8	7.4	6.4	6.5	6.4	5.9
CPI	100.0	10.3	10.5	8.7	7.7	7.5	6.8	5.6	4.8	4.4	4.3	4.2
Annual average				9.3					5.4			

* The uncertainty intervals associated with the central projection are shown in Chart IV-1.

oil prices. Hence, the increase in the projection for the tradables price index has been offset by a decrease in the market services price index (see Table IV-1).

1 Assumptions of the central projection

The assumptions on which the Bank has based its current projection differ from those of the August Report in several respects (see Table IV-2). There has been a revision to the forint/euro exchange rate assumed for both the period under review and the forecast horizon. Estimation for the May to August

Table IV-2 Assumptions of the central projection for inflation

Assumption	Where does it play a role?	August projection		Current projection	
		2001	2002	2001	2002
Forint exchange	Tradables, petrol, market-priced energy, certain food-stuffs	247.1		255.9	
Price of Brent crude (USD)	Petrol, market-priced energy	27.7		25.5	
EUR/USD exchange rate (cent)	Petrol, market-priced energy, some foods	85.4		91.0	
Imported tradables price inflation	Tradables	0.5	0.5	0.5	0.5
Change in manufacturing productivity*	Market services	6.3	6.6	6.3	6.6
Wage growth**	Food and market services	14.0	10.0	13.2	9.2
Consumption growth***	Food and market services	5.2	4.6	4.8	4.3

* Long-term trend productivity, which differs from the cyclical productivity path used in the real economic forecast.

** Change in the private sector's gross wage bill.

*** Household consumption expenditure.

period was based on the exchange rate's "permanent" component rather than on an average of observed rates (See Special topics). The exchange rate pass-through mechanism serving as the basis for the inflation projection describes the impact on the domestic price level of an exchange rate change which is assumed to be permanent. Therefore, in formulating projections it is expedient to assess that particular component of exchange rate change which is seen as permanent. In the absence of direct observations on the permanent component, the Bank has carried out simulations, using the actual tradables price index and the assumed exchange-rate pass-through into tradables (50 per cent in the course of one year). Accordingly, the reasonable assumption for the permanent component of the exchange rate level is 253.5 forints/euro in the period May to August. Under the terms of the "rule" formulated in the August Report, the exchange rate level on which projection is based for the October 2001 to March 2003 period of the projection horizon corresponds to that of the last observed month, in this case September 2001, when the rate was HUF 255.9 (see Chart IV-2).

When assuming a permanent exchange rate level, the previous assumption for the exchange rate pass-through remains a valid parameter. It shows the unfolding over time of the effect of a 1-per cent permanent exchange rate change on the price level of tradable goods (see Chart IV.3), based on data on foreign countries resembling Hungary (see Special topics no. 3 of the August 2001 Report).

In accordance with the Bank's forecasting rule, there has also been revision to the path of certain exogenous factors, in line with changes in actual data. As the world price for oil plunged in September, the average September price which has been used is higher than actual prices in recent weeks. The Mediterranean price for petrol, which is of relevance for the pricing of petrol in

Chart IV-2 Actual and assumed exchange rates
Monthly averages

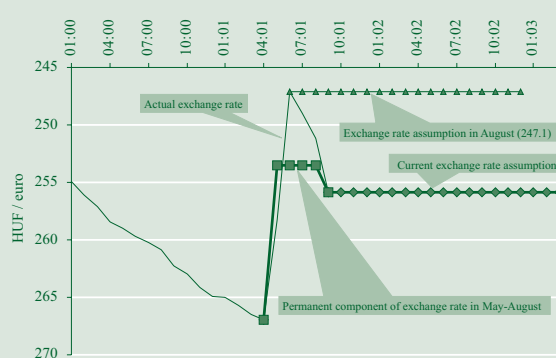
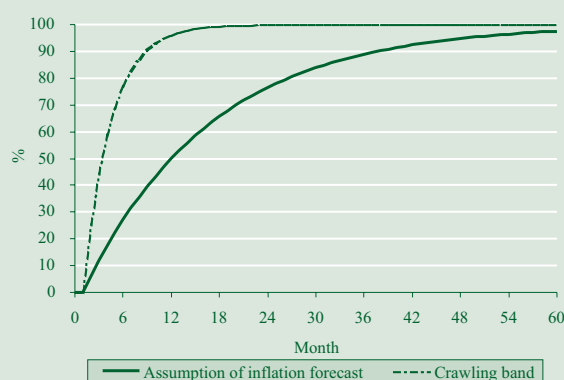


Chart IV-3 Exchange rate pass-through to tradable goods under the crawling peg versus the wide-band exchange rate regime*



*The chart depicts the effect over time of a change in the level of tradables prices triggered by a 1 per cent nominal change in the exchange rate. The "crawling peg" path gives the exchange rate pass-through parameter that has been assumed for the narrow-band regime.

Hungary, is assumed to move in conjunction with world oil prices, and repetition of the one-off divergence at mid-2001 is not expected.

The euro/dollar cross exchange rate rose in September. Thus, the average monthly rate of 91 cents to the euro is stronger than the assumption used at the time of the August Report.

The current projection has made no revision to the tradables price component of imported inflation. In accordance with the relevant notes in Chapter 3, the present Report continues to base its assumptions on the long-term trend of tradables price inflation in Germany (steady 0.5 per cent annual growth).

The exogenous factors of the inflation forecast also include variables projected in the framework of the macroeconomic forecast. The projection for wages, on which the forecast for processed food and certain service price indices are based, is presented in Chapter 3. Although the wage bill projection has remained virtually unchanged at the whole economy level, the forecast for private sector wage growth has been revised down from the August rate. There has also been a downward revision to the projection for domestic demand (consumption) growth for the 2001-2002 forecast horizon, as noted in Chapter 3.

2 Details of the central projection

In the current projection, the tradables price index, accounting for one-quarter of the consumer basket, declines by over 5 percentage points by end-2002, relative to 2001 Q1, due broadly to the strengthening of the exchange rate, while the disinflation in imported tradables prices will only account for a 0.3-percentage-point decrease at the most. At the same time, relative to the August forecast there is a significant increase in the tradables price inflation projection, attributable to a weaker and volatile forint/euro exchange rate over the period between May to September. Based on the August assumption of a HUF 247.1 exchange rate in effect from June, tradables price inflation projected for end-2002 would have been 1.6 percentage points lower (using the assumptions and methods of the current projection in other respects).

Projected inflation in market services has been revised down from the August projection. The decrease in projected wage and domestic demand growth as well as the lower price level for oil lead to an over one-percentage-point narrowing in the inflation differential between tradables and services prices at end-2002, relative to the previous projection.

The current treatment of food prices reflects a more cautious approach. The significant difference between the projection for unprocessed food prices in 2001 Q3 and the actual data has only partially been considered, and, on the whole, the estimate for food price inflation has remained virtually unchanged. This decision could be attributed to the fact that unprocessed food prices follow a rather volatile course, governed by shocks regarded as exogenous and transitory from a monetary policy perspective. This explains why the National Bank seeks to produce a robust inflation projection, unaffected by such shocks.

The central projection for the other components of the consumer basket has remained virtually unchanged since the August

Report. Over the annual horizon, the lower assumption for the exchange rate has led to an increase in the projected vehicle fuels (petrol) prices, which was not offset by the assumption for a lower oil price or stronger euro. However, these effects cease at the end of the forecast horizon, as all three factors affecting vehicle fuel prices are fixed at a constant level.

3 Uncertainty in the central projection

At its September 24 meeting, the Monetary Council identified the main factors of uncertainty affecting the current inflation projection. Then, at its October 24 meeting, the Council defined its views on the expected distribution of these uncertainty factors.¹ This was the basis for the construction of the fan chart depicting the probability distribution for the inflation outlook. In the first stage, the Bank's analysts computed the effect on CPI projection of one unit of divergence (shock) by the uncertainty factors from the path assumed in the central projection. Then they applied weights to the effects of the various shocks in accordance with the distribution defined by the Monetary Council.

Table IV-3 shows a summary of the effects these uncertainty factors had on the inflation projection. The shocks considered are as follows:

- the exchange rate of the forint being 10 per cent weaker/stronger than the assumed permanent exchange rate
- slower exchange rate pass-through
- sticky inflation expectations: private sector wage growth being 3 percentage points higher
- stronger fiscal expansion: household disposable income rising by HUF 25 billion a quarter
- a further one-per-cent change in external demand
- from January 2002, oil prices being persistently higher by 10 per cent than assumed in the projection
- from January 2002, the euro being persistently weaker by 10 per cent than assumed in the projection
- a different path for regulated prices, as a result of an additional 10 per cent rise in gas prices in July 2002.

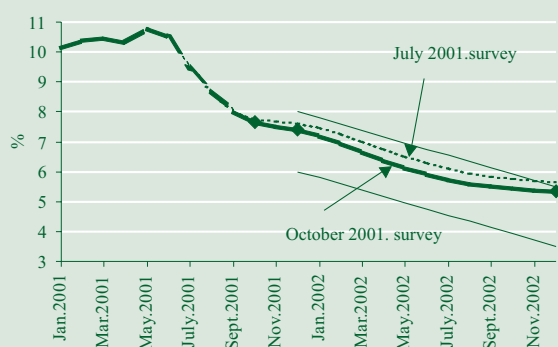
The Monetary Council approved the values recommended by the Bank's Economics Department for the assumptions underlying the central projection (see Table IV-2). Apparently, there are two factors that represent upside risks to the central inflation projection. In the initial phase of inflation targeting there is a strong likelihood that private sector agents will set wages in expectation of a higher path for inflation. Although in the Monetary Council's judgement a significantly different fiscal position from the current projection is not very likely, the risks posed by fiscal policy (government sector wages and transfers) to next year's inflation projection are on the upside. At the same time, two other factors engender strong disinflationary uncertainty. Slower global economic growth and prolonged sluggish activity in Europe may exert downward pressure on domestic inflation. Associated with this, there is a high likelihood of a lower price level, as compared

Table IV-3 Unit effect of individual uncertainty factors on the inflation projection
Changes of CPI in percentage points

	Q4 2001	Q4 2002	Q4 2003
<i>A) Persistent change in the forint/euro exchange rate</i>			
10% persistent depreciation of the forint	0.7	1.9	1.7
<i>B) Changes in the intensity of exchange rate pass-through</i>			
33% a year	0.05	0.4	0.4
67% a year	–0.06	–0.5	–0.35
<i>C) Changes in the credibility of disinflation policy</i>			
3% higher nominal wages	0–0.2	0.1–0.4	0.1–0.4
<i>D) Changes in fiscal effect</i>			
HUF 100 billion higher spending on wages and transfers	–	0–0.2	0–0.2
<i>E) Changes in external demand</i>			
1% higher demand for imports	0–0.05	0.1–0.2	0.1–0.2
<i>F) Changes in oil prices</i>			
10% higher price for oil	0.0	0.4	0.1
<i>G) Changes in euro/dollar exchange rates</i>			
10% weaker euro	0.0	0.4	0.1
<i>H) Changes in regulated prices (such as price for pipeline-supplied gas)</i>			
Additional price rise in July 2002	–	0.2	0.2

¹ This is the first stage of the construction of the inflation projection. See section 3 in *Current Issues*.

Chart IV-4 Paths for inflation expectations derived from the Reuters' surveys
Based on trimmed means³



Note: the outlook for inflation is based on the average of expectations for the year as a whole, the end of the year and the coming month, choosing the curve that best fits the average of the expectations.

Table IV-4 Market analysts' and research institute forecasters' projection for the inflation outlook at December 2002

	Date of publishing the projection					
	June	July	August	September	October	November
NBH	–	–	4.2	–	–	4.3
Trimmed mean	5.5	5.7	5.5	5.4	5.4	–
– Market analysts' mean*	5.5	5.6	5.4	5.2	5.2	–
– Research institutes' mean*	6.3	6.5	6.3	6.2	5.9	–

* Based on Reuters survey.

to the constant world prices for oil taken as a basis in the central projection.

As a result of the noted factors, the overall risks to the central projection appear to be balanced at end-2002, with equal probability (27 per cent and 33 per cent respectively) of inflation overshooting or undershooting the upper or lower edges of the target range.

4 Inflation expectations

According to the October Reuters poll, analysts' inflation expectations for end-2001 roughly coincide with those of National Bank forecasters. In contrast, inflation expectations for 2002 continue to be higher than the Bank's projection, but the difference seems to have narrowed considerably compared to July. Both market analysts and research institute forecasters seem to have moved closer to the central bank in their expectations.² The trimmed mean of Reuters' October survey on inflation expectations, excluding extreme values, is 5.4 per cent, 1.1 per cent higher than the Bank's projection (see Chart IV-4 and Table IV-4).

4.1 Possible causes of the differences

In view of the fact that the National Bank seeks to reduce inflation primarily by controlling the exchange rate of the forint, it seems worthwhile to take a joint look at analysts' exchange rate and inflation forecasts. Exchange rate expectations for December 2001 and 2002 show great variance, and are stronger on average than the Bank's assumption used as the basis of its projection (the mean being 248 forints to the euro in 2002 and 252 forints at end-2001, compared with the Bank's constant assumption of 255.9 forints to the euro). However, the divergence in exchange rate expectations by analyst group does not correlate with the variance in inflation expectations. Thus, the differences in exchange rate expectations neither account for the differences in the projections between the Bank and the forecasters, nor that between the different groups of forecasters.

The implications of the above facts are that either there are major differences in terms of expectations as to the intensity and path of the exchange rate pass-through (between the analyst groups and the analysts and the Bank) or analysts expect the impact of the exchange rate to be negligible in comparison with that of other factors bearing on inflation.

² For a study of the inflation expectations of various analyst groups, see the paper to be published shortly in the National Bank's new series called *Background Studies*.

³ Trimmed means, calculated excluding the highest and lowest values, do not significantly differ from the full-sample means published by Reuters, nevertheless they partly neutralise potential data errors as well as movements that could be regarded as noise, arising from the changing composition of the sample.

1 The effects of fiscal policy on Hungary's economic growth and external balance in 2001–02

Upon request from the Monetary Council, the Economics Department staff have analysed the macroeconomic effects of the 2001–02 fiscal policy.

The most important feature of the fiscal budgets for 2001–02 is their boost to the demand side of the national economy. The measure of direct stimulus provided to demand by fiscal policy, which can be captured through the change in the primary balance, will likely reach 2.5 per cent of GDP in 2001 and 0.5 per cent in 2002 (see Section 1.3 of Chapter III). However, fiscal policy will presumably affect the national economy in quite different ways in the two years considered. Whereas in 2001, demand will expand mainly via boosts received from fixed investment and purchases of goods and services, in 2002 it will be wages that will have the same effect (see Table 1). As presented in the following, changes in the structure of fiscal revenues and expenditures contain important information for assessing the effects of fiscal policy. This article seeks to answer the question about the extent to which the discretionary measures of the state will alter the paths of GDP, inflation and external balance in 2001–02.

The change in the general government balance has an effect on developments in volumes and prices in the whole economy, and thus on developments in GDP and the country's external balance. According to experience and economic theory, the extent of fiscal stimulus largely depends on the structure of revenues and expenditures in which demand expands, and on the external and domestic conditions of the economy in the base year.¹

An important observation from the perspective of the effect of general government structure is that whereas purchases of goods and services and fixed investment both directly feed through to GDP as demand, wage settlements influence individuals' disposable income. This latter, in turn, would only feed directly through to demand in full, if individuals spent their entire extra income. But because the non-liquidity-constrained segment of individuals' smoothes consumption, increased wage income feeds through to consumption only gradually.

Of the theoretically plausible structural effects and contexts, we have attempted to capture the most important ones with the

Table 1 General government balance
Change in relation to the previous year as a percentage of GDP

	2001	2002	2001–2002	2001	2002	2001–2002
	Original version			Expected		
Wages, transfers	–0.2*	–0.2*	–0.4*	0.2	0.8	1.0
Gross fixed investment	0.0	0.0	0.0	1.3	–0.1	1.2
Purchases of goods and services	0.0	0.0	0.0	0.6	–0.4	0.2
Total expenditure	–0.2	–0.2	–0.4	2.2	0.3	2.5
Personal income taxes	0.0	0.0	0.0	0.3	–0.1	0.2
Corporate income taxes	0.0	0.0	0.0	0.0	0.0	0.0
Other taxes	–0.2**	–0.2**	–0.4**	–0.8	–0.1	–0.9
Total revenues	–0.2	–0.2	–0.4	–0.5	–0.2	–0.7
Balance (excluding repayments of debt by Russia)	0.0	0.0	0.0	–2.7	–0.5	–3.2
Fiscal effect of repayments by Russia	0.0	0.0	0.0	–0.2	0.0	–0.2
Overall balance	0.0	0.0	0.0	–2.5	–0.5	–3.0

* Automatic savings in pensions based on the Swiss indexation method.
** Automatic revenue shortfall in taxes related to customs and imports.

¹ For a more detailed discussion, see Gábor P. Kiss: The role of general government in Hungary; NBH Working Papers 4/1998.

Chart 1 The effect of 2001–02 fiscal budgets on GDP
Percentage change from the neutral case; real GDP levels³

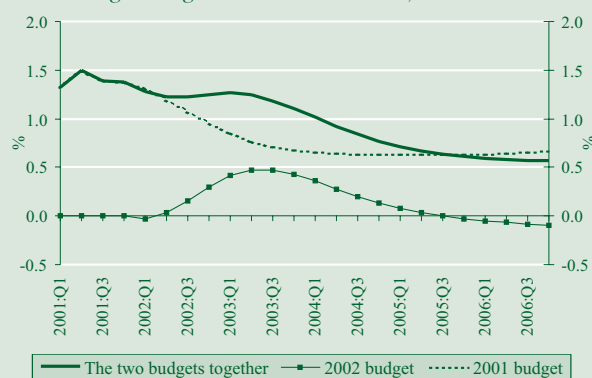


Table 2 Effects of general government on the major macroeconomic variables⁵
Percentage difference from the neutral fiscal budget as a percentage of GDP

	Household consumption	Government consumption	Private fixed investment	Government fixed investment	Exports
	(1)	(2)	(3)	(4)	(5)
2001	0.1	0.6	0.1	1.3	0.0
2002	0.8	0.2	0.2	1.3	-0.1
	Imports****	GDP (1)–(6)	Inflation*	Current account balance**	Primary balance of general government****
	(6)				
2001	-0.8	1.4	0.3	-1.1	-2.7
2002	-1.2	1.2	0.5	-1.8	-3.2

* Yearly average.

** Percentage point difference.

*** Excluding the effects of debt repayments by Russia.

**** The negative sign denotes increase in imports.

help of the NIGEM macroeconomic model.² Throughout our analyses we have employed the assumption that the national economy and general government were in a broad balance in 2000 from a conjunctural perspective. Thus, we have measured the effects of the 2001–02 fiscal budgets against a basic situation in which the general government balance as a percentage of GDP remains at its 2000 level. However, in order to have a realistic picture of the fiscal effects, we have added those structural shifts, neutral from the perspective of the balance, which can be regarded as pre-determined over the short term (see Table 1). We have measured our results against the basic situation derived in this way, and thus obtained a picture of how changes in fiscal policy affect GDP, prices and the external balance.

According to our findings, nearly one-half of the 2.5 per cent deterioration in the primary balance in 2001 will pass through to GDP, with a significant part of additional demand adding to the external imbalance. Although the 2002 fiscal budget is envisaged to give some additional stimulus, its magnitude remains below that of the previous year (see Chart 1).

Our calculations show that the deterioration in the general government balance will probably increase GDP by 1.4 per cent in 2001; however, we have only been able to demonstrate a relatively small impact on prices (0.3 percentage points).⁴ From the above discussion it follows that a significant portion of the excess demand will feed through to the current account. The current account deficit as a proportion of GDP will rise by 1.1 percentage points in 2001. The output effect in 2002 will amount to 1.2 per cent, and the current account deficit will be 1.8 per cent higher than if the state were to maintain its neutral stance in 2001–02. The inflation effect in 2002, at 0.5 per cent, will likely be higher than in the previous year.

² See Jakab–Kovács: Hungary in the NIGEM model, NBH Working Papers, publication pending.

³ As the Chart clearly shows, according to our calculations the fiscal expansion increases GDP over a longer term as well. This may be due to the fact that government investment expands the production capacity of the economy. According to the empirical investigations, this impact cannot be demonstrated unambiguously. We have focussed on the short-term effects in our analysis, while the long-term effects are included only for purposes of illustration.

⁴ In spite of the fact that the estimated impact is relatively low, it is higher than the fiscal coefficient employed in our inflation forecast system, which yields an approximately 0.1 percentage point increase in inflation in 2001. This difference can be explained by several factors. First, our inflation forecast system is based on a multi-sectoral approach, in contrast with the NIGEM model, which is a single-sector model. Second, the NIGEM model is capable of taking into account indirect effects, being a simultaneous system, in contrast with our basic system, which consists of partial models linked together. Third, while employing the model, we have eliminated the within-year dynamics of the demand effect; and we have assumed that the total impact is felt continuously from the first quarter onwards.

⁵ As we have conducted our analysis on the level of variables, in 2002 the variables reflect cumulative effects. However, the cumulation is a special one in the sense that we are not talking about cumulative changes relative to 2000, but are analysing changes relative to the 2002 neutral budget, which, however, includes the effect of the expansion that occurred in 2001. Resulting from the raising of the problem, the 2002 neutral budget is equal to the 2000 budget as a percentage of GDP; however, in the case of the rest of variables the 2002 neutral values are not equal to the 2000 values.

2 Estimating the permanent exchange rate of forint in the May–August period

The calculations presented below seek to answer the question about the extent to which the data for the latest five months since the change to the exchange rate regime have influenced our knowledge of the parameters pertaining to the exchange rate pass-through of tradable goods. As is known, the National Bank prepared both its August and current inflation forecasts by taking into account international experience, i.e. the averages of estimates given for Greece and the Czech Republic, due to a lack of data. According to these, the pass-through effect amounted to 50 per cent in one year's time and 75 per cent in two years' time.

Tradable goods price inflation was somewhat higher in the review period than the forecast suggested. There may be two reasons for this: (1) actual pass-through may have been slower than was previously thought; and (2) when taking their price decisions, market participants may have used different price levels from ours in their calculations. We are unable to give an answer to the first question based on the five data currently available, as such a short series does not allow for a fair estimate. Consequently, we have followed the method of making an estimate of the HUF/EUR exchange rate, which, provided that it remained permanent since May, would have yielded the smallest difference between actual and forecast tradable goods price inflation using the assumption for the exchange rate pass-through.

We have conducted two alternative calculations, depending on the measure of the inertial component of tradable goods price inflation. Our results show that the forecast of tradable goods price inflation would have been consistent with the actual numbers and the assumed exchange rate pass-through, if the HUF/EUR exchange rate had remained between 251 and 256 permanently, i.e. free of fluctuations. So, we proceed prudently in our calculations, if we use a HUF/EUR 253.5 exchange rate as the average of our estimate for the May–September period. This permanent component, therefore, is more depreciated than the HUF/EUR 247.1 exchange rate in our August inflation forecast.

3 How do we prepare the Quarterly Report on Inflation?

The November 2001 Report includes the results of the second round of forecasts since the announcement of inflation targeting. The processes for making projections for the real economy and inflation as well as the drafting of the Report are being developed and perfected. Below, we present an outline of the process followed in writing the Report.

One of the major characteristics of the Bank's projections is the involvement of decision makers, i.e. the members of the Monetary Council, in the forecasting process. This is implemented via a series of discussions between the staff of the Economics Department and the Monetary Council, which covers three Council sessions. Another important feature of the Bank's forecasts is that they include not only one central projection, but

a calculation of uncertainties surrounding the forecasts and an assessment of those risks as well. Finally, all projections are based on the basis of the HUF/EUR exchange rate fixed over the entire length of the forecast horizon, i.e. they inform decision makers about how inflation would behave if monetary conditions remained unchanged.

The calendar of statistical data releases is essential for the forecast and determines the stages of drafting and publishing the Report. Of these data releases, the consumer price index for the final month of the given quarter, released by the Central Statistical Office (CSO), is probably the most important. (Generally, the index is published in the middle of the month following the current month.) With knowledge of the time required for completing the various stages, the date of publishing the Report on the Internet is announced in advance.

The first phase of writing the Report begins with identifying the basic conditions of the actual forecast and the main factors of uncertainty. This takes place about 1.5 months prior to the Monetary Council meeting before the publication of the Report. At the meeting, the Economics Department staff and the Monetary Council finalise the assumptions for the central path prior to making the numerical forecasts and the range of factors of uncertainty (shocks). The Monetary Council expects the Economics Department staff to assess the effects of these uncertainties on the inflation forecast at a later stage.

The first draft of the numerical inflation forecast is prepared in view of the business cycle and consumer price index data for the given quarter. The forecasts are prepared on the basis of the economic model and methods used by the Economics Department staff, taking into account the assumptions and factors of uncertainty specified by the Monetary Council. However, in the first draft it is the Economics Department staff which provide the numerical assessment of assumptions and uncertainty in the reconciled data set, i.e. the first draft of the Report reflects the central projection and the assessment of uncertainties as arrived at by the Economics Department staff.

The Monetary Council then discusses this draft Report three weeks prior to publication. At its meeting, the Council reviews the numerical assumptions on which the central path of the forecasts have been made and the way in which the Economics Department staff have evaluated the expected uncertainties surrounding the projection. Using a survey, the Council members have the opportunity to suggest modifications in respect of both the basic assumptions and the distribution of uncertainties, in order for the forecast to reflect the Monetary Council's subjective judgement with regard to the future and its perception of uncertainties. This plays an important role, as it is the Monetary Council that makes the decisions, which are only consistent with its forecast reflecting its vision of future developments.

The Economics Department staff prepare the updated draft of the forecasts taking into account the consensus view developed by the Monetary Council at this stage. Naturally, the forecasts are updated on a continuous basis, taking into account the statistical data released and economic policy measures taken in the meantime.

The Monetary Council reviews the forecast reflecting the decision makers' vision of the future and their perception of uncertainties as well as the latest pieces of information one week prior

to publication. In the light of the final inflation forecast, the Monetary Council decides on the required monetary policy measures. At the same time, the Council formulates the ‘message’ of the forecast, i.e. the statement on monetary conditions, which comprises the first (unnumbered) chapter of the published version of the Report.

The forecasting process		
Stage	Topic of the Monetary Council meeting	Timing*
Preparing the ‘shock list’	Definition of the assumptions for the central forecast and the range of uncertainty factors	– 7 weeks
End-quarter CPI data published by CSO		–5 weeks
Discussion of the first draft of the forecast	Discussion by the decision makers of the forecast; formulation of the Monetary Council’s subjective risk assessment	–3 weeks
Final review of the forecast	Endorsement of the final version of the forecast; decision on the monetary conditions	–1 week
Electronic publication		0

* Relative to the time of publication on the Bank’s web site.

