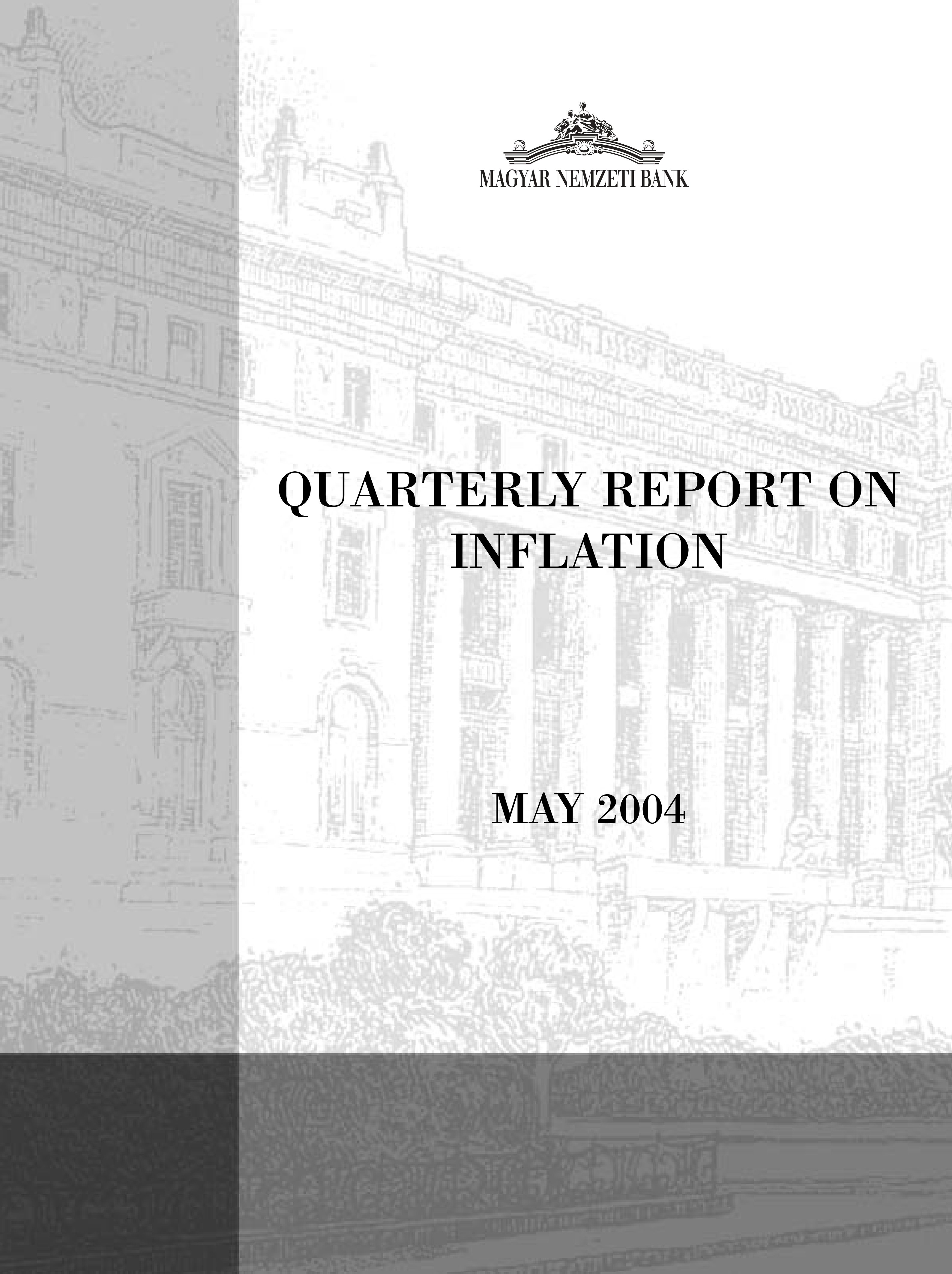

MAGYAR NEMZETI BANK

QUARTERLY REPORT ON INFLATION

MAY 2004

QUARTERLY REPORT
ON INFLATION

AUGUST 2004

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Act LVIII of 2001 on the Magyar Nemzeti Bank, which entered into effect on 13 July 2001, defines the primary objective of Hungary's central 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.

The Monetary Council, the supreme decision-making body of the Magyar Nemzeti Bank, performs a comprehensive review of the expected development of inflation every three months, in order to establish the monetary conditions that are consistent with achieving the inflation target. The Council's decision is the result of careful consideration of a wide range of factors. These include an assessment of prospective economic developments, the inflation outlook, money and capital market trends and risks to stability.

In order to provide the public with a clear insight into the operation of monetary policy and enhance transparency, the Bank publishes all the information available at the time of making its monetary policy decisions. The Quarterly Report on Inflation presents the forecasts prepared by the Economics Department for the anticipated developments in inflation and the macroeconomic events underlying the forecast.

Starting from November 2003, the Quarterly Report on Inflation focuses more clearly on the MNB staff's expert analysis of expected inflation developments and the related macroeconomic events. The forecasts and distribution of uncertainties surrounding the forecasts reflect the expert opinion of the Economics Department. The forecasts of the Economics Department continue to be based on certain assumptions. Hence, in producing its forecast, the Economics Department assumes an unchanged monetary and fiscal policy. In respect of economic variables exogenous to monetary policy, the forecasting rules used in previous issues of the Report are applied.

The analyses in this Report were prepared by the Economics Department staff under the general direction of Ágnes CSERMELY, Head of Department. The project was managed by Barnabás FERENCZI, Deputy Head of the Economics Department, together with Attila CSAJBÓK, Head of the Monetary Assessment and Strategy Division, Mihály András KOVÁCS, Deputy Head of the Conjunctural Assessment and Projections Division, and Zoltán M. JAKAB, Head of the Model Development Unit. The Report was approved for publication by István HAMECZ, Managing Director.

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The Report incorporates valuable input from the MNB's other departments as well as the Monetary Council's comments and suggestions following its meetings on 2 and 16 August 2004. However, the projections and policy considerations reflect the views of the Economics Department staff and do not necessarily reflect those of the Monetary Council or the MNB.

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OVERVIEW

Changes to the Report's structure

Having reviewed the experience of the past three years of the inflation targeting system, we arrived at the conclusion that changes to the structure of the *Quarterly Report on Inflation* might render it easier to follow. Our *Report,* now featuring a new structure, presents our projections in a more unified framework than previously, discussing the inflation outlook in one part (Section 3), after an analysis of the financial markets (Section 1) and recent macroeconomic developments (Section 2). Underlying technical details of the projections, fiscal deficit indicators, and expected developments in external balance continue to be included in Special topics (Section 4).

Increase in the risk premium in May and June did not lead to depreciation of the forint

In May and June, risk premia on forint-denominated investments rose. The underlying reason for this development was the worsening perception of Hungarian economic trends, in particular external balance. Expectations about the beginning of the US interest rate cycle and related lower global risk appetite were perceptible during the period, mainly in April and May. The increase in risk premia occurred without a sustained decline in the exchange rate of the forint, materialising in higher forint yields.

Rising yields

Rising yields in May affected the entire length of the yield curve. As of June, the deteriorating risk perception was mainly reflected in higher interest rate expectations for the coming 3–4 years. A monetary policy maintaining the key policy rate and central bank communication pointing out equilibrium-related problems and urging caution may have both contributed to the relative stability of the exchange rate and helped put an end to the rise in long-term interest rates.

Improved end-of-period risk perception

Risk perception improved somewhat in the second half of July, primarily due to global and regional influences. Yields declined at all maturities, with the exchange rate of the forint appreciating. Nonetheless, yields are still higher than in early May.

Inflation accelerated in 2004 Q2

In 2004 Q2, CPI and core inflation stood at 7.3 and 6.2 per cent respectively, suggesting an acceleration of inflation, relative to Q1. The increase in inflation compared to 2003 can be attributed mainly to rises in indirect taxes in early 2004. Furthermore, unprocessed food and motor fuel prices also boosted inflation considerably in Q2.

Wage inflation accelerated

Of the major supply side factors affecting inflation in 2004 H1, high wage inflation in the private sector, in addition to a rise in indirect taxes, should be pointed out. Buoyant external economic activity, a sharp increase in productivity and a structural labour shortage are all likely to have contributed to stronger wage growth. Although high wage inflation boosted cost-push inflation, a sharp rise in productivity and the forint's higher exchange rate relative to last year may have helped offset this development.

Demand-pull inflationary pressure eased temporarily

In terms of demand side trends, the delayed impact on inflation of the exceptionally sharp rise in consumption between 2001 and mid-2003 may have been a dominant factor in early 2004 H1, while in Q2, this factor may have been offset by a slowdown in consumption, which helped to reduce inflation.

Contradictory inflation expectations

Information on inflation expectations is contradictory: while market analysts and research institutes revised up their expectations for both 2004 and 2005, the inflation expectations of households and corporate managers were somewhat more favourable.

Projection is based on unchanged monetary conditions

In keeping with earlier practice, our projection presented in the *Report* is based on unchanged monetary conditions (exchange rate and interest rate). With respect to fiscal policy, due to the lack of an approved budget for 2005, we assume a 0.5 per cent decrease in the ESA-based deficit for 2005, based on the Government's Convergence Programme. A gradual decline in oil prices, inferred from futures prices, is another major assumption in the forecast.

A temporary pick-up, followed by stable economic growth

This year's trends in the global and domestic business cycle will result in a significant 3.8 per cent rate of economic growth. In 2005, growth is expected to taper off to 3.6 per cent. This initially faster growth, followed by stabilisation, is attributable predominantly to developments in investment.

Export markets expected to expand

Export markets are expected to expand dynamically over the forecast horizon. This will lead to a robust rise in exports, which may be further strengthened by the recent improvement in manufacturing productivity.

Buoyant corporate investment activity, with household and general government investment activity waning

The upturn in the business cycle encourages corporate sector investment, which is further supported by the fact that companies are increasingly substituting labour with capital. While household investment has been declining consistently since the tightening of the subsidised housing finance scheme, the effect of this trend will only be perceptible late in the year. General government investment will slow markedly in 2005. Overall, whole-economy fixed investment is expected to grow dynamically this year and less vigorously in 2005.

Initially, consumption slows down, then picks up

Households' disposable income and household consumption will grow relatively moderately in 2004. Gradual improvement in income positions points to a moderate pick-up in consumption later on. Trends indicate a gradual increase in households' net financial savings in the future.

Fiscal tightening remains significant in 2004

General government dampens aggregate demand this year, as demand contraction in 2004 may amount to slightly more than 1.5 per cent of GDP, in order to reduce the fiscal deficit. Our basic assumption is for a normative 0.5 per cent decline in the ESA deficit in 2005.

Initially negative, then positive net exports

Owing to the strong impact of domestic demand (and in particular dynamic investment activity) on imports, net exports will have a slightly negative impact on growth in 2004, despite exhibiting rapid growth. In 2005, however, net exports will make a positive contribution to growth.

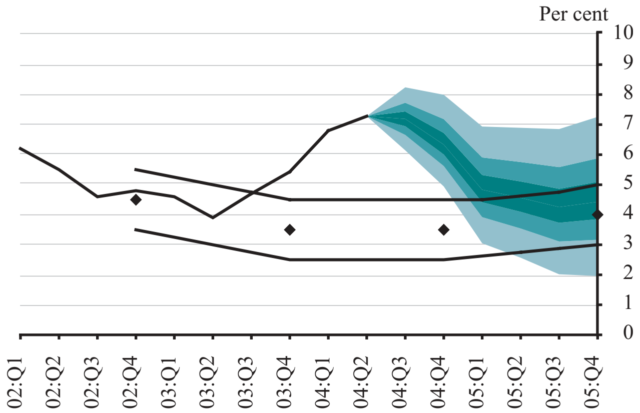
Recovery in labour demand with supply constraints leads to high wage inflation

The favourable business cycle conditions are also expected to stimulate corporate labour demand. Nevertheless, a number of factors will likely impede dynamic growth in employment. High wage inflation in recent years has encouraged capital-labour substitution, and certain sectors are already experiencing a structural labour shortage. As a consequence, higher corporate sector output is accompanied with fairly moderate growth in employment. Based on the assumed fiscal path, general government employment is assumed to decline, with general government wages increasing at a more moderate pace than seen in the private sector.

Prior to early 2005, disinflation is expected to be first significant then moderate

In our main scenario, disinflation will be rather significant in late 2004 and early 2005. By contrast, from 2005 Q2 onwards, it is expected to slow down gradually and remain moderate. Provided that our basic assumptions apply, consumer price inflation is expected to stand at around 6 per cent at year-end 2004, and between 4 to 5 per cent in 2005. While in May we anticipated inflation at year-end 2005 to be in the middle of the target zone, our current projection is for inflation to be in the upper section of the target range, with the balance of risks slightly on the upside.

Current inflation projection



Core inflation does not slow this year significantly

Disinflation this year will be essentially attributable to regulated and unprocessed food prices. No significant decline in core inflation is expected to occur yet.

In 2005 Q1, the impact of indirect tax hikes will drop out. Supply side trends will lower inflation, with demand factors becoming more important

In early 2005, however, both CPI and core inflation will decelerate considerably as a result of the exclusion of the impact of rises in indirect taxes from the base. Aside from the base effects, we anticipate only gradual disinflation next year. On the supply side, a drop in unit wage costs will help reduce inflation. Furthermore, assumed developments in oil prices, competition in the market of unprocessed food and a below-average expected rise in regulated prices all contribute to lower inflation next year.

Our outlook for economic activity points to stronger demand-pull inflationary pressure. Aggregate demand side factors and the widening of the output gap somewhat offset supply side effects.

Overall, in view of the above influences, we have revised up our inflation projection for end-2005 relative to the previous Report, reflecting somewhat lower risks to the central projection.

Summary table of the main scenario

(Projections are conditional, with the main scenario reflecting the projection that applies if all of the assumptions presented in Section 3 materialise;
unless otherwise specified, changes on a year earlier in per cent.)

	2002	**2003**	**2004**	**2005**
	Actual/Estimate		**Forecast in the main scenario**	
CPI				
December	4.8	5.7	**6.1**	**4.4**
Annual average	5.3	4.7	**6.9**	**4.5**
Economic growth				
External demand (GDP-based)	0.8	0.6	**1.9**	**2.2**
Household consumption	9.3	6.5	**2.2**	**2.5**
Gross fixed capital formation	8.0	3.0	**11.4**	**3.9**
Domestic absorption	5.4	5.5	**4.4**	**2.8**
Exports	3.7	7.2	**12.2**	**9.5**
Imports	6.2	10.3	**12.3**	**8.2**
GDP	3.5	2.9	**3.8**	**3.6**
Current account deficit				
As a per cent of GDP	7.1	8.9	**8.8**	**8.0**
EUR billions	4.9	6.5	**7.2**	**7.0**
General government				
ESA-based deficit as a per cent of GDP[1]	9.3	5.9	**5.4**	**4.9**
Demand impact[2]	4.2	(-0.1)	**(-1.7)**	**(-0.3)**
Labour market				
Whole-economy total wage inflation[3]	15.8	10.9	**9.5**	**8.5**
Whole-economy total employment[4]	0.0	1.2	**0.5**	**0.2**
Private sector wage inflation[5]	12.3	8.7	**10.2**	**9.2**
Private sector unit labour cost[5]	5.5	4.4	**5.9**	**4.8**
Private sector employment[4]	(-0.4)	0.7	**1.1**	**0.4**
Real disposable income of households[6]	11.8	8.1	**2.5**	**3.6**

[1] *For 2005, we assume a conditional path, based on Convergence Programme submitted to the European Commission, which assumes a 0.5 per-cent decline in the ESA-based deficit compared to 2004.*

[2] *Change in the SNA primary balance, corrected for the effects of payments to the private pension system.*

[3] *In the case of general government, this was calculated on the basis of our estimate of annual wage inflation; the thirteenth-month wage for 2004, to be disbursed in January 2005, was added to 2004 wages.*

[4] *According to the Central Statistical Office (CSO) labour force survey.*

[5] *Weighted average of manufacturing and market services.*

[6] *Net household income is proxied by the sum of total wage bill plus financial transfers.*

1 Financial markets

On the whole, since the May issue of the *Quarterly Report on Inflation,* yields on government securities have risen, while the forint exchange rate has been more stable. However, conflicting trends alternated throughout the period. While May and June were characterised by rising yields, yields declined slightly and the exchange rate strengthened in July, especially in the second half of the month. While the deteriorating assessment of domestic economic trends led to a lasting increase in the premium on forint-denominated investments, external factors only increased the risk premium temporarily. Postponement of the scheduled date of adopting the euro is also likely to have contributed to the rise in long-term yields. A monetary policy maintaining the base rate and central bank communication pointing out equilibrium-related problems and emphasising necessary caution both contributed to the relative stability of the exchange rate, and helped to put an end to the rise in long-term interest rates.

1. 1 FOREIGN INTEREST RATES AND INVESTORS' PERCEPTION OF RISK

In terms of global factors, the recent changes in US money markets have been of key importance and have had a considerable impact on developments in Hungary as well. With the upturn in the US business cycle, expectations of an official interest rate increase increased considerably since April. Investors interpreted the stronger-than-expected employment data published on 7 May as a definite sign of economic recovery. At end-June, the Fed raised interest rates by 25 basis points, citing solid growth and favourable labour market developments. Thus, the United States has embarked on the upward phase of the interest rate cycle, as had been anticipated for some time. This was also reflected by the 30-day Fed funds futures contracts incorporating interest rate expectations: investors priced in another 50 basis point raise for maturity in October.

In its statement, the Fed pointed out that it would continue to tighten monetary policy at a measured pace in the future, which helped dampen exaggerated expectations of interest rate hikes. At the beginning of the period under review, markets harboured serious concerns about the prospects of a sudden, large-scale increase in interest rates, in line with the rapidly improving economic activity. This could have had an unfavourable impact on emerging markets, but the developments have taken place in a steady and smooth manner so far. Accelerating inflation in the US, however, may be a factor of risk as far as future interest rates are concerned: the Fed pointed out repeatedly that it stands ready to tighten monetary policy faster if price stability is jeopardised.

In the euro area, in line with the developments in the US, the expected date of an interest rate increase moved closer slightly between May and June, with a correction taking place in July. In addition to the events in the US, this was also due to the ECB's communications suggesting that inflationary pressure in the euro area was temporary and that price stability was not exposed to risks over the medium term. According to market expectations, any policy tightening in the euro area is likely to take place at end-2004, as previously anticipated.

Chart 1.1

Federal Reserve and ECB key rates

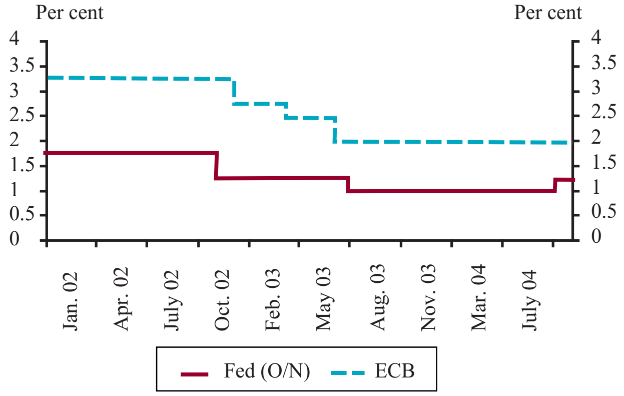
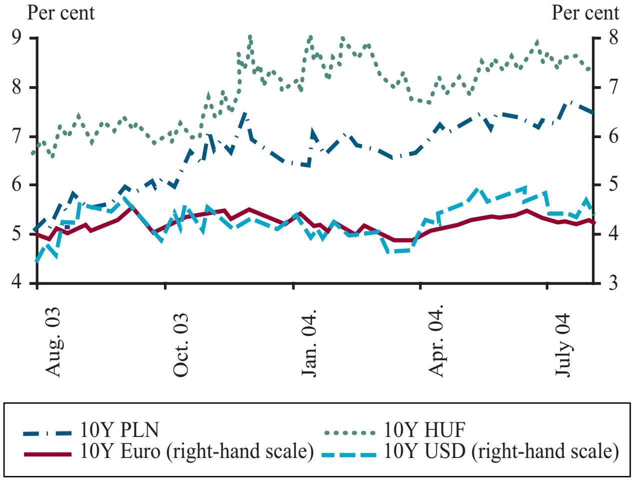


Chart 1.2

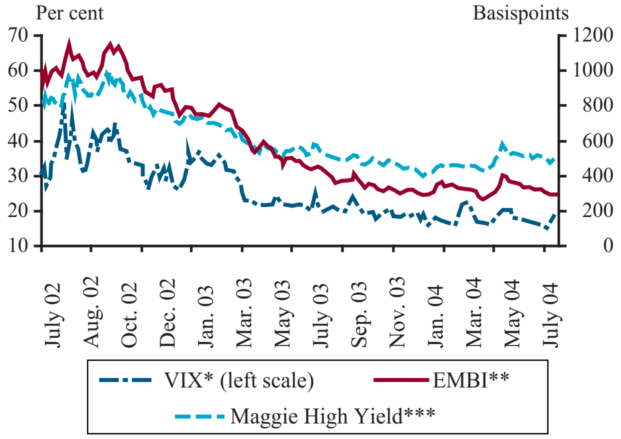
Ten-year benchmark yields



Movements in long-term US dollar yields reflected expectations relating to the Fed's prospective measures. Ten-year yields rose by nearly 100 basis points between early April and mid-June and declined by 50 basis points by mid-July. Ten-year euro yields moved broadly in the same direction as dollar yields, although they were substantially less volatile.

Chart 1.3

Global risk indicators



** VIX – Implied volatility derived from options for the S&P500 index.*
*** EMBI Global Composite.*
**** Maggie High Yield – Interest rate premium index (basis points) euro-denominated corporate and government bonds calculated by JP Morgan-Chase.*

Although highly volatile, global risk indicators remain rather depressed. At end-April, risk indicators – probably influenced by growing expectations of an increase in dollar interest rates – began to rise rapidly. Since mid-May, however, the EMBI, an index of average emerging-country sovereign risks, the Maggie index, a gauge of interest rate premia of euro-denominated bonds, and the VIX, an indicator of implied volatility of the US S&P500 share index, have all declined. Although short-term US dollar interest rates rose in July (led by continuously favourable news about the economic recovery), this did not have an impact on global risk appetite. By historical standards, all three indices are at low levels, and the rise in interest rates in developed countries may lead to a loss of global risk appetite in the near future. This, in turn, may result in a decline in demand for emerging-country financial assets and a rise in interest rate premia.

Since early May, investors' perception of risk has improved in a number of countries in the region, leading to significant strengthening of the Polish, Czech and Slovakian currencies. In terms of regional factors, formation of the new Polish government was considered a favourable development. Political uncertainties subsided and investors' perception of the country's risks improved significantly, which was also reflected by Polish yields and the exchange rate of the zloty. According to market commentaries, the zloty may have contributed to the strengthening of the forint at the end of July. In the Czech Republic, however, political uncertainty grew following the resignation of the Prime Minister in early July, although formation of a new government helped reduce the uncertainties. The Czech developments, however, did not have a significant impact on the Hungarian markets. The strengthening of the Czech and Polish currencies was partly due to the fact that the interest rate cycle entered an upward phase in both countries.

In addition to global developments, country-specific factors also had an effect on investors' perception of risks related to forint-denominated assets. The market's assessment of domestic economic fundamentals deteriorated somewhat since the latest Report, probably due to growing risks related to the sustainability of economic activity over the medium term. Although investors attributed the exceptionally high current account deficit in April to a one-off effect related to EU accession, growing uncertainty about the sustainability of the current account deficit over the medium term is reflected by the fact, that since May, analysts' consensus in the Reuters poll indicates a steady rise in deficit expectations for both this year and next year. Following the considerably worse-than-expected inflation data for May, professional analysts' inflation expectations also took a turn for the worse. Nor did investors' assessment of the fiscal outlook improve in the period under review: they still consider the fiscal path to be a significant uncertainty factor. The international credit rating agency Fitch announced that the fiscal path for this year and next year remains a factor of key importance in assessing Hungary's sovereign debt.

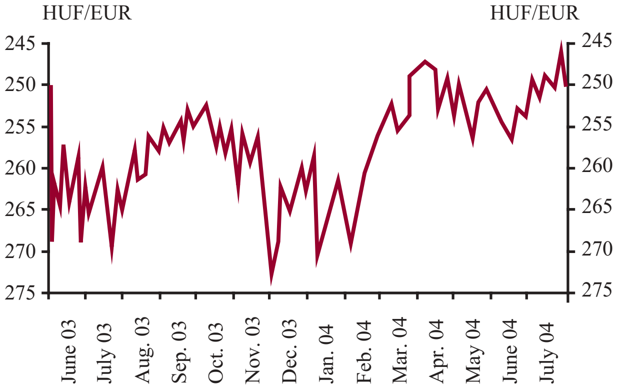
At the same time, the slow decline in premia on euro-denominated bonds, reflecting country risks, which started in early 2004, has continued both in Hungary and Poland. This may be due in part to external developments, as the Maggie index showing the interest rate premia on high-risk euro-denominated bonds has also been declining since May. Moreover, certain Polish and Hungarian euro-denominated bonds have also been traded in the London-based NewEuroMTS system since last November, which may have resulted in a fall in liquidity premia on these securities. In addition, the favourable impact of accession to the EU cannot be ruled out either. The size of the decline, however, was only 5–10 basis points over the past three months, and had no significant impact on forint-denominated government securities yields.

1. 2 EXCHANGE RATES

The HUF/EUR exchange rate has remained broadly flat since mid-April, apart from some volatility. The appreciating trend between early February and early April, which resulted in an 8 per cent appreciation of the forint, has broken and since then the exchange rate has been moving in a narrow band. The exchange rate fell below HUF/EUR 255–256 only for brief periods following the publication of the Hungarian current account balance data in April, May and June, the release of inflation data in June and growing concerns related to the earlier-than-expected upturn in US interest rates.

Chart 1.4

Exchange rate of the forint



Since April, the Polish zloty and the Czech crown have been appreciating considerably, due primarily to country-specific reasons.[1] Simultaneously with the appreciation of the Polish currency against the euro, the forint also strengthened, perhaps in line with the trend in US dollar exchange rates.

Information on changes in exchange rate expectations can be gained from Reuters' regular monthly surveys, from analyses of investment banks operating in the forint market and from the prices of derivative products. According to the Reuters survey, expectations for end-2005 appear to have changed little between January and July. This means that analysts' average expectation of an exchange rate around HUF/EUR 255 has not reacted to movements in the spot exchange rate.

Chart 1.5

Exchange rates of the currencies of certain new EU countries vis-à-vis the euro

Appreciation in percentages since 2 January 2004

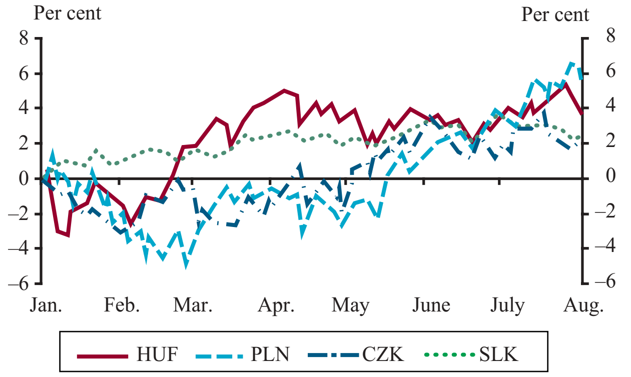
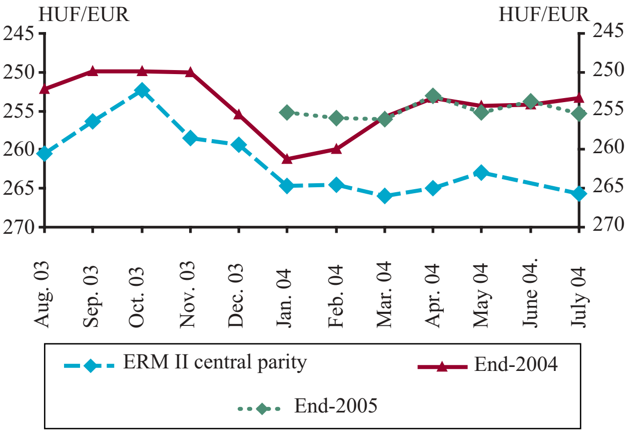


Chart 1.6

Reuters analysts' exchange rate expectations for end-2004 and end-2005 and the forint's ERM II central parity



Average expectations for end-2004 rose between January and April, possibly as a result of the appreciation of the spot exchange rate. Since early 2004, when the delay in introducing the euro was first announced by the Government (original plans had planned for introduction of the euro in 2008), the guiding power of the anticipated central parity in the ERM II exchange rate system on exchange rate expectations has weakened. The Reuters survey also reveals that the anticipated date of entry into ERM II has been postponed. While previously macro analysts predicted entry to take place in the near future (in 2005), in July they expected Hungary to join the European exchange rate mechanism sometime between 2006 and 2008.

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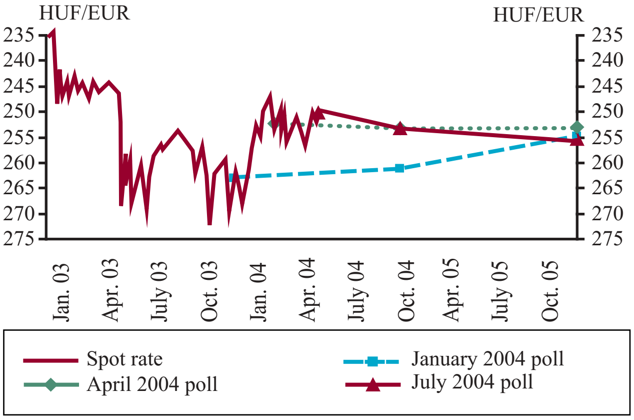
[1] See Section 1.1.

Based on exchange rate movements in recent months and the Reuters consensus, we found that analysts expect a practically flat or a slightly depreciating exchange rate path in the 18 months ahead. Some analyses by foreign investment banks, however, still contain a pessimistic scenario of a significant depreciation of the forint. In general, the possibility of exchange rate weakening is usually related to persistent, serious concerns about Hungary's external balance.

Chart 1.7

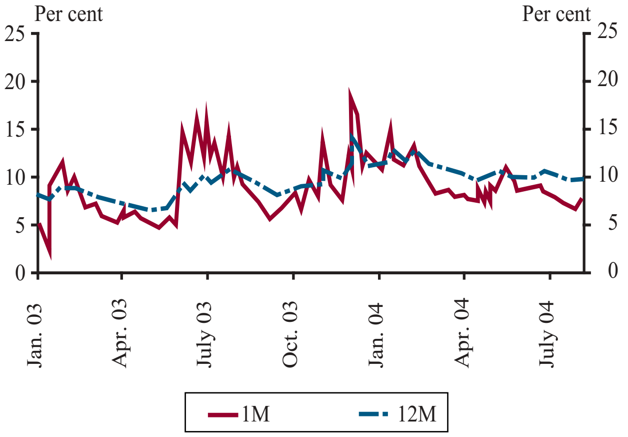
Shifts in the forint exchange rate and Reuters analysts' exchange rate expectations



Data on the options market presents an ambiguous picture of the uncertainty in the market's exchange rate expectations. One-month HUF/EUR implied volatility has been on the decline since mid-May (in line with the EMBI index reflecting emerging market risks), and remained below the early-May level even at the beginning of August. However, one-year volatility only embarked on a definite downward trend in the second half of July, and then rebounded in early August to the level recorded at the beginning of May. In terms of the uncertainty of market rate expectations, these developments suggest that the likelihood of a significant devaluation in the very short term declined continuously, but only decreased later with regard to the longer, one-year horizon. Currently, uncertainty is still roughly at the level recorded three months ago.

Chart 1.8

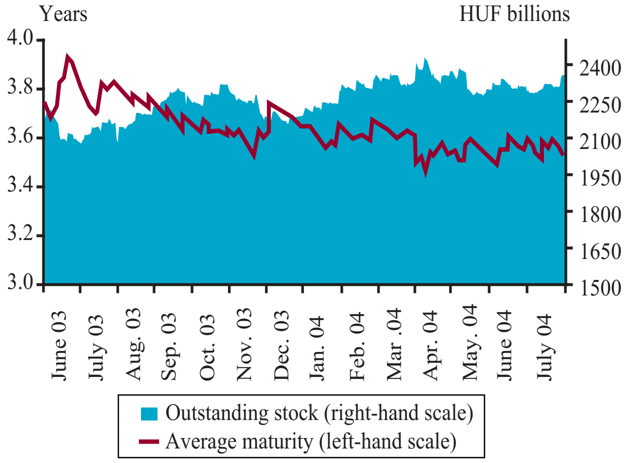
HUF/EUR implied volatility



The fact that exchange rate appreciation has stopped is closely related to developments in the forint positions taken by foreign participants in the market. In February and March, significant long forint positions were opened and investors closed short forint positions. By contrast, since April a stagnating tendency has been seen.

Chart 1.9

Outstanding stock and average maturity of non-residents' government securities holdings



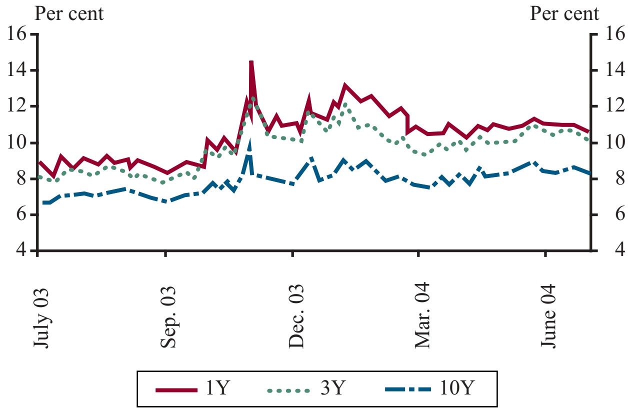
Since April, foreign investors' holdings of forint-denominated government securities have not changed substantially, and thus the increase seen since the beginning of the year has come to an end. As evidence of the uncertainty surrounding long-term developments, although the decline in the average maturity of these securities since mid-2003 has apparently stopped, foreign investors' interest in longer-term government securities is still moderate.

1. 3 YIELDS

In the market of Hungarian government securities, the decline in yields which characterised the previous quarter came to an end in early May, with yields subsequently rising significantly over nearly every maturity up to mid-June. Although yields fell between mid-June and early August, they still considerably exceed early-May yields (by 40–80 basis points).

Chart 1.10

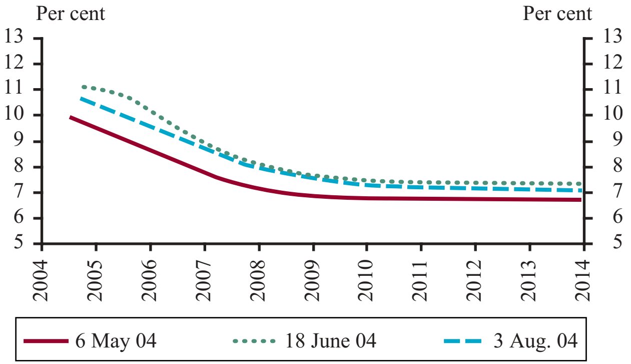
Benchmark yields in the government securities market



Foreign investors' risk perception and appetite were probably major factors affecting yields. In May, the underlying reason for the increase in yields was the uncertainty regarding the interest rate cycle in the USA, whereas in June the predominant motives were concerns about Hungarian inflation, the country's economic equilibrium and the pace of convergence. Since mid-June yields have fallen, presumably as a result of improving global and regional risk perception, whereby the declining short-term uncertainty related to forint exchange rates may also have had an influence.

Chart 1.11

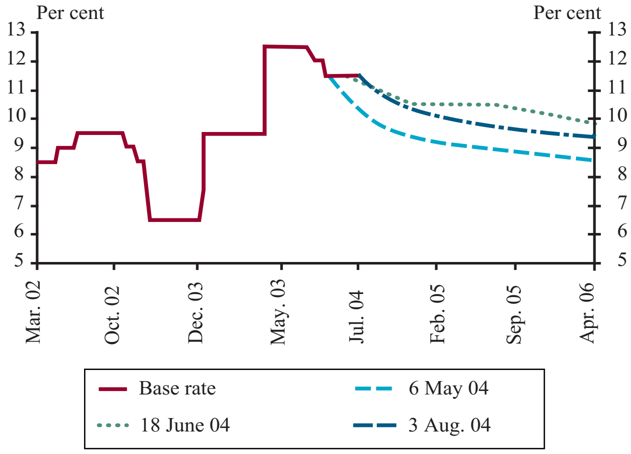
Implied one-year forward rates for different dates



Following earlier interest rate cuts, the Monetary Council of the MNB maintained the key policy rate at 11.5 per cent throughout the period, arguing in favour of a cautious interest rate policy in its releases in light of the deteriorating inflationary outlook and risk perception.[2] As a result of worsening risk assessment and the corresponding reactions of the central bank, expectations of the base rate for the next two years rose in May and June, as revealed in the responses given by market analysts surveyed by Reuters, and the implied forward yield curve. Simultaneously, longer-term forward yields stopped rising and soon a clear decline was recorded at longer maturities more accurately reflecting the long-term risk assessment. An improvement in risk assessment at the end of July resulted in a slight decline in the expected 2004-2005 interest rate, which, however, still exceeds early-May expectations by 60–100 basis points.

Chart 1.12

Expected path of the central bank base rate based on the yield curve



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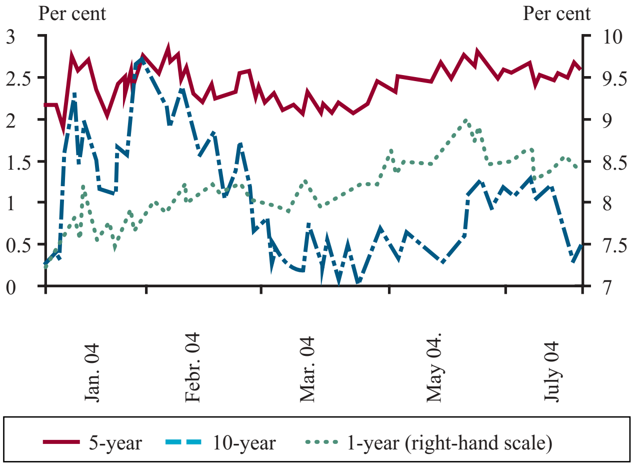
[2] Furthermore, the Monetary Council decided that, as of 5 July, as much as reasonably possible, its second monthly meeting would be a rate-setting meeting. The *Current topics* section offers an overview of the international practice of scheduling rate-setting.

HUF/EUR forward differentials, which reflect risk assessment trends more directly than forint forwards, followed a similar trend. In other words, instead of euro yields, forint yields were predominantly affected by the expected risk premium and, at shorter maturities, perhaps by exchange rate expectations.

Chart 1.13

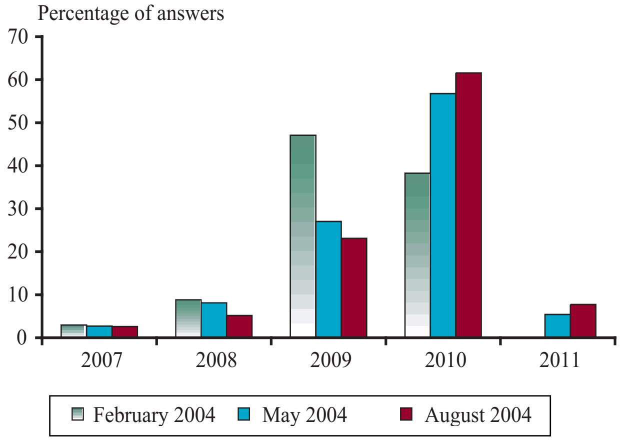
Three-month implied forward differentials



Long-term yields may have been influenced by the fact that market participants have postponed the expected date of Hungary's adoption of the euro. Regional Reuters surveys confirm that in line with the Government's announcements, market participants' expectations of the adoption date gradually shifted, and on the basis of the May and August 2004 surveys the majority of market analysts considered 2010 as the most likely date of euro adoption.

Chart 1.14

Reuters analysts' expectations of the date of euro area entry (Regional survey)



The rise in forward differentials on horizons relevant from the point of view of the euro adoption also supports the idea that market participants have postponed the expected date of Hungary's entry into the euro area. The continued uncertainty regarding convergence is reflected in the persistently high level of long-term forward differentials, and in the fact that at horizons of 6–7 years they significantly exceed the current country risk premium (10–20 basis points), which could be expected if the market participants were certain of the 2010 euro adoption date.

1. 4 Monetary conditions

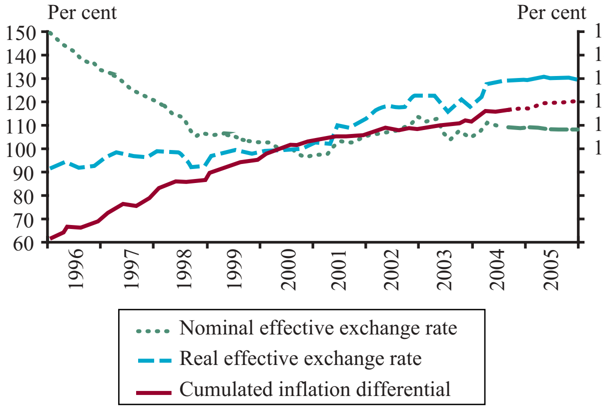
Monetary policy affects the real economy primarily through real exchange rates and real interest rates. Given the dominance of foreign trade in Hungary, the forint exchange rate channel plays a more important role. Below, we briefly outline the recent changes and future developments in these two variables as anticipated by market participants. This description of market expectations relies on macroeconomic analyses in the Reuters survey, which, although it is not a perfect representative sample of all economic participants, provides a good picture of general trends.

Following nominal appreciation in the period February–March, the effective real exchange rate calculated on the basis of the consumer price index (one of the most widely used measures of external competitiveness) strengthened only moderately up until May. The 0.5 per cent appreciation was caused by excess inflation in Hungary. During the period, the nominal effective exchange rate remained practically unchanged.

Chart 1.15

Monetary conditions: consumer price index-based real exchange rates

Average of 2000=100

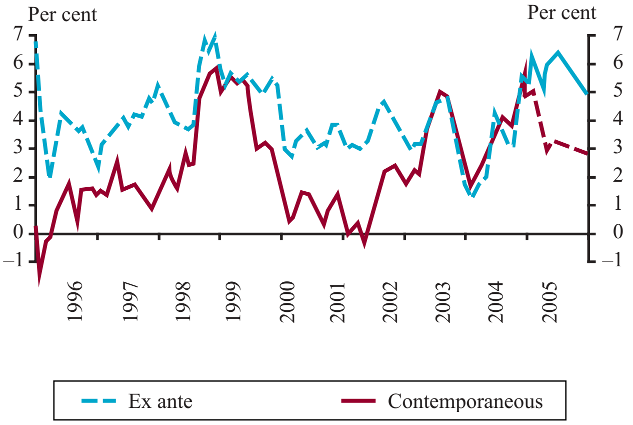


Based on macro analysts' exchange rate and inflation expectations, we calculated the real exchange rate path they anticipate up to end-2005.[3] Similarly to the past three months, the 1.4 per cent real appreciation expected for the rest of this year and the further 2.4 per cent real appreciation expected for 2005 are wholly attributable to Hungarian excess inflation, as the nominal exchange rate is not anticipated to appreciate. The extent of the expected strengthening of the real exchange rate is broadly in line with the pace of equilibrium appreciation for the Hungarian economy.

The rise in nominal yields, discussed in the previous section, was also reflected in various real interest rate indicators.[4] Nevertheless, the increase in the forward-looking real interest rate can to a greater extent be attributed to subsiding inflation expectations.[5] The indicator increased by 1 per cent from April to June; and its current 6 per cent value is considered high even by historical standards. The contemporaneous real interest rate[6]

Chart 1.16

Monetary conditions: real interest rate



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[3] The following simplifications were used: 1) the effective exchange rate time series was lengthened by the anticipated changes in the HUF/EUR exchange rate, 2) we assumed that the annual (weighted) inflation of the trading partners would be similar to that registered in the last two years (2.4 per cent).

[4] We used monthly average yields on one-year treasury bill, deflated with the contemporaneous 12-month inflation and Reuters one-year forward-looking inflation consensus (value computed by interpolation from year-end and year-average inflation expectations.) The expectation relevant to January 2005 is calculated from Reuters' one-year yield and inflation consensus.

[5] As the inflation expectations for the next twelve months are values calculated from the Reuters survey and as next year's (twelve-month) inflation is largely influenced by technical factors (base effect), and we only have limited information on expectations, the error in the estimated forward-looking real interest rate may be greater than usual.

declined during the same period, due to the rising twelve-month inflation figure.

In mid-July, macro analysts anticipated a two-percentage-point decline in one-year government securities yields by end-2004. According to this, in January 2005 the forward-looking real interest rate may fall by more than 100 basis points, to below 5 per cent.

Therefore, the rise in the risk premium was reflected in monetary conditions similarly as in nominal variables. Accordingly, the rise in the real interest rate can be considered the most important development, and it remained consistently high in 2004 H1, even measured by historical standards. Analysts' expectations suggest a significant drop in real interest rates and a slight appreciation of the real exchange rate in the future.

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[6] The box entitled *Different methods for calculating the real rate of interest* in the December 2000 issue of the Report provides a detailed description of the characteristics and information content of various real interest rate measures.

2 INFLATION AND ITS DETERMINANTS UP TO MID-2004

2.1 BUSINESS CYCLE DEVELOPMENTS

After beginning to accelerate at end-2003, domestic real economic trends further strengthened in 2004 Q1. As reflected in output indicators suggesting a high growth rate, domestic enterprises responded with the usual intensity to the pick-up in external demand. On the demand side, vigorous fixed investment activity and powerful export growth outweighed the expected slowdown in household consumption, leading to a faster-than-expected increase in GDP.

2. 1. 1 EXTERNAL DEMAND

The upturn in external economic activity from 2003 H2, especially in Europe as Hungary's most important export market, maintained its momentum in 2004 Q1. Industrial output data, which were rather volatile after the global recession came to an end in early 2002, have been reflecting steadily faster growth since January 2004. In Hungary's most important trading partners, GDP grew rapidly in 2004 Q1 (at an annualised quarterly growth rate of over 2 per cent).[7] Such a high growth rate has not been recorded since 2000 Q4. Growth was fuelled primarily by net exports based on a robust recovery in the USA and the East Asian region, while domestic demand only picked up slowly. Although there was a brief upswing in fixed investment in 2003 Q4 in Hungary's trading partners, this growth slowed in 2004 Q1, and an expansion in household consumption still failed to occur.

Thus, Hungary's export markets grew vigorously, with a particularly significant increase in imports in Germany, Hungary's most important trading partner. Stock building continues to be one of the underlying reasons for high imports, indicating an anticipation of a pick-up in domestic demand.

Due to the strong appreciation (against the US dollar, in particular), the euro somewhat neutralised skyrocketing oil prices, but in recent months the US dollar has regained its strength to a certain extent. Although the strong euro may mar euro area net export over the long term, up till now there has been little indication of such a trend. Oil prices, however, continued to rise in 2004 Q2. While this will not reverse the upturn in external demand, it may arrest its speed.

Chart 2.1

Size of Hungary's export markets (import-based external demand) and GDP growth in major markets

Log scale

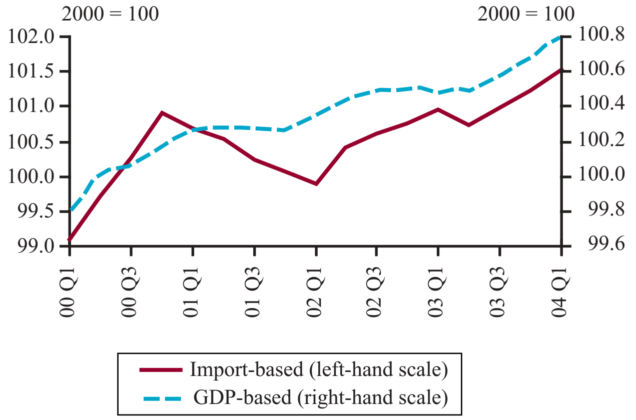
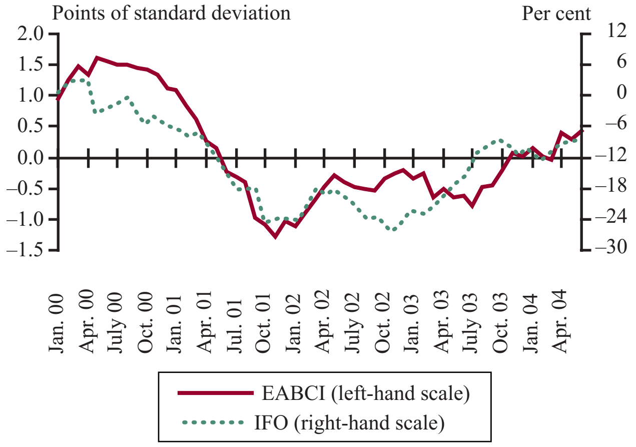


Chart 2.2

Business confidence indices of the euro area (EABCI) and the German IFO Institute



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[7] In our Reports, monthly and quarterly growth rates are always calculated based on time series adjusted for calendar effects and seasonality. To facilitate comparison with annual growth rates (i.e. change compared to the same period of the previous year), monthly and quarterly growth rates are expressed in annualised form (i.e. in the case of quarterly growth rates figures are raised to the fourth, in the case of monthly growth rates figures are raised to the twelfth power). See Manual on Hungarian Economic Statistics, 2002, MNB, www.mnb.hu.

Despite all of this, business sentiment is improving in most countries in the euro area. Although the IFO Institute's index of German corporate executives' expectations has fallen slightly since early 2004, it is still well above the values typical of recessions.

Thus, the Hungarian economy, and especially the export-oriented business sector, has been receiving clearly positive impetus from external demand.

2. 1. 2 OUTPUT

Primarily driven by improving external demand, domestic output continued to strengthen. Actually, by as early as the beginning of 2002 the Hungarian manufacturing sector had already recovered from the recession caused by the global downturn, and after initially slow growth in gross output, from early 2003 it embarked on a path of decidedly rapid expansion.

As manufacturing value added rose somewhat slower, a relatively significant gap developed between the two output indicators (in 2003 the gross manufacturing output increased by 7 per cent, whereas value added rose by a mere 3.5 per cent). Data for 2003 Q4, and even more so for 2004 Q1, indicate that this gap is closing, as gross output growth slowed while value added increased faster than expected. The latter primarily reflected the performance of export-oriented manufacturing branches (machinery and equipment, and certain branches of the chemical industry), which is also evidenced in sales data: stagnation, or rather a decline in domestic sales (based on 2004 Q2 data) was accompanied by vigorous, although recently decelerating export sales.

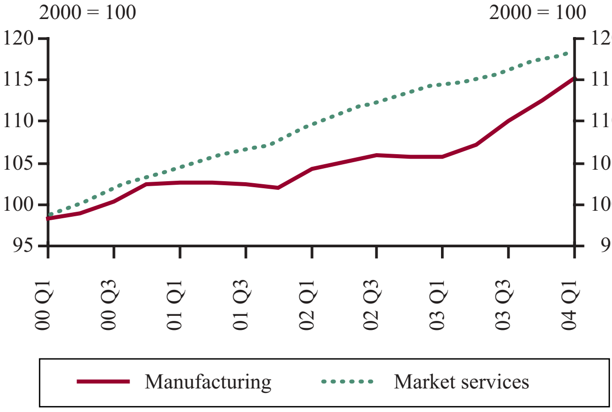
Manufacturing output growth is founded on a relatively firm basis: improvement in productivity. A more detailed analysis of productivity (see Section 4.5) reveals that although productivity growth does not exceed the rate 'usual' for a cyclical upturn, structural effects (such as sectoral shifts and the (partially connected) increase in capital intensity) can be observed which may extend the period of strong productivity growth.

Surveys of domestic business activity in 2004 Q2, however, provide contradictory information: although sentiment is improving, future sales possibilities and investment intentions were not always assessed favourably by private sector managers.

Up to end-2003 value added generated in market services appeared to be growing at a measured pace, but then in 2004 Q1 it suddenly shot up (to nearly 5 per cent on an annualised quarterly basis as compared to 3 per cent in 2003 Q4). One fact likely to have contributed to this development was that the service sectors which are more strongly dependent on the external business cycle (e.g. transport and communications services) performed better than expected, and thus the impact of the slowdown in household consumption (primarily via commercial services) on service sector output was less severe.

Chart 2.3

Value added



2. 1. 3 HOUSEHOLD CONSUMPTION, SAVINGS AND FIXED INVESTMENT

As expected, 2004 Q1 saw considerably slower growth in household consumption than last year's average (household consumption expenditures increased at an annual rate of 3.8 per cent, while the annualised quarterly rate was 3.4 per cent), although this is due partly to one-off effects. Most importantly, postponement of consumption due to a change in the registration tax for newly purchased motor vehicles should be mentioned here. This postponement also appears to be confirmed by the retail trade turnover recorded in the two-month period around Hungary's accession to the EU (April and May 2004), which indicated massive growth in motor vehicle purchases. This means that deferred motor vehicle purchases certainly played a major role in the low growth rate of 2004 Q1 consumption.

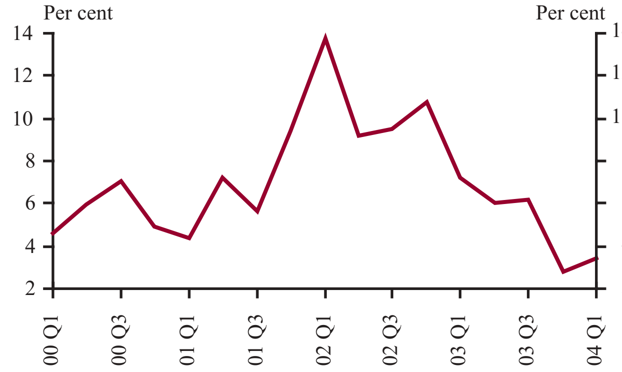
Simultaneously, an adjustment began in household savings, which hit an historical low in 2003: instead of spending most of their additional income generated as a result of the faster-than-expected rise in real wages, households began to increase their savings. Based on data available from commercial banks' reports, this trend continued in 2004 Q2. Nevertheless, increased disposable income earned in the form of higher wages can still provide an impetus for household consumption expenditure despite a growing savings rate. However, the earlier propensity to consume, which – as a result of a massive expansion in household consumption in the previous two years – was extremely high even by international standards, has clearly started to drop, and this trend may continue.

As a result of new loan agreements concluded at end-2003, household fixed investment was still strong in 2004 Q1, but new borrowing tapered off considerably. Second-quarter data for retail trade turnover and the number of housing permits issued still reflect a boom in household fixed investment activity, which means that on the whole the slowdown in household consumption and fixed investment is not proceeding as rapidly as was earlier expected.

Chart 2.4

Household consumption expenditure

Annualised quarter-on-quarter growth rates



2. 1. 4 CORPORATE FIXED INVESTMENT AND STOCKS

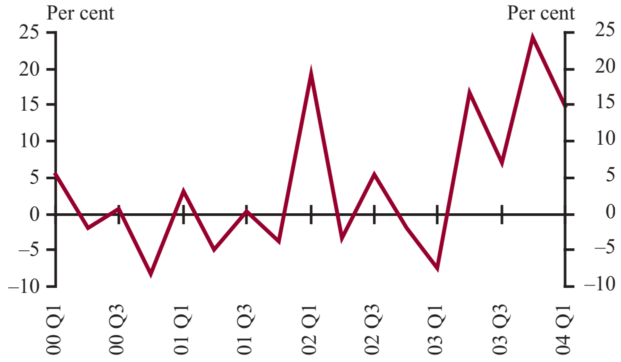
To a great degree, corporate fixed investment activity was shaped by the external business cycle during the period under review. In the previous Report, we indicated that corporate fixed investment, and in particular manufacturing fixed investment, was especially sensitive to changes in external demand. Accordingly, as the expansion in external demand started to gather pace from 2003 H2, corporate sector growth soared and reached at rates that were last seen during the 1997-1998 period of foreign company relocation and expansion.

According to the most recent business surveys, growth in capacity utilisation seems to have slowed, evidently because a growing number of companies consider their current capacities sufficient to meet future orders. In the light of this, the fact that corporate fixed investment continued to grow at a very high rate in 2004 Q1 may be deemed unexpected. The underlying reason was that although manufacturing fixed investment actually slowed (in line with expectations), market service providers increased their fixed investment activity at a rate that was surprising after the stagnation that had characterised the whole of 2003 (chiefly in the field of transport/telecommunication and real estate and general business activities).

Chart 2.5

Corporate sector fixed investment volume

Annualised quarter-on-quarter growth rates

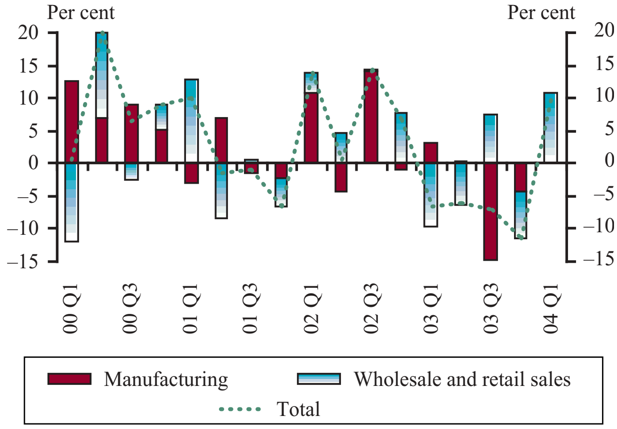


In earlier issues we indicated that one source of strong manufacturing investment activity was probably not yet activated fixed investment recorded among inventories. The 2004 Q1 pause in the decline in manufacturing stocks was in line with the sector's trend in fixed investment. By contrast, commercial stocks increased significantly in 2004 Q1, which may reflect lower household consumption.

Chart 2.6

Inventories

Contribution to annualised quarter-on-quarter growth rates



2. 1. 5 FOREIGN TRADE AND MARKET SHARE

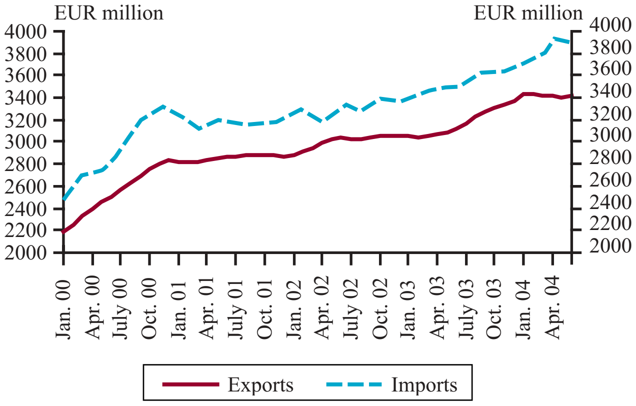
Developments in foreign trade were largely dictated by strong foreign demand, and in conjunction with this, EU accession in May 2004 also had an effect on export and import figures. Firstly, customs borders changes (a result of accession) led to increased purchases from non-EU countries facing higher duties in the future. Secondly, the uncertainty arising from the transformation of customs offices also induced some companies (predominantly in the wholesale trade sector) to stock up their inventories by increased purchases abroad. These motives mainly affected import figures.

However, with accession the statistical reporting system was also changed, resulting in greater uncertainty with respect to preliminary data. Thus, from now on significantly higher revisions of foreign trade data are expect-

Chart 2.7

Exports and imports of goods in customs statistics

At current prices



ed, rendering short-term analysis and even medium-term forecasting of these processes more problematic.

Monthly trade data indicates a deceleration in exports of goods in the first half of 2004, but growth compared to 2003 H1 is still strong. Part of this deceleration can be attributed to the slowdown in manufacturing export sales, but obviously, methodological changes in connection with EU accession also played a role. When it published the preliminary June data for foreign trade, the Central Statistical Office already revised down the May export data by a sizeable amount. As a result, data show much less expansion in goods export. Moreover, making use of estimated price indices, the volume of goods export actually stagnated rather than increased in 2004 Q2.

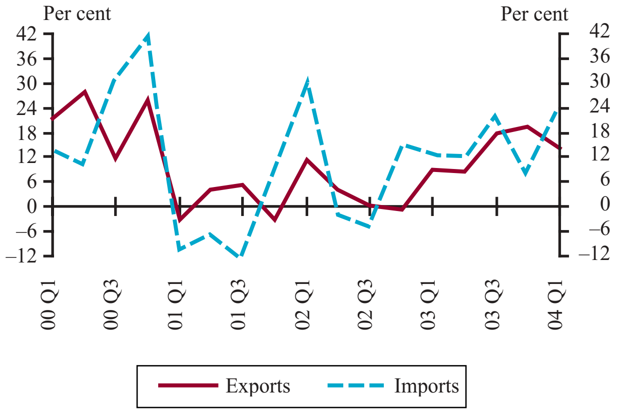
Imports of goods were particularly strong up to April 2004, probably attributable to a sizeable amount of purchases drawn forward. Due to their very nature, these effects will not leave import data unaffected for the rest of 2004, as much of the intended purchases have already been carried out. Thus, imports of goods may be lower in the remainder of the year compared to what would be expected based on the cyclical situation. May and June data for goods imports may already mirror this development.

Foreign trade data in the national accounts (also incorporating trade in services) exhibited strong growth in 2004 Q1 driven by solid external demand. Import growth outstripped export growth in terms of quarterly rates (annualised quarterly growth was 24 per cent for imports and 14 per cent for exports), but annual growth rates still indicate an improvement in net exports. Data from the second quarter, however, imply a worsening in net exports.

Chart 2.8

Exports and imports of goods and services in National Accounts data

Annualised quarter-on-quarter growth rates

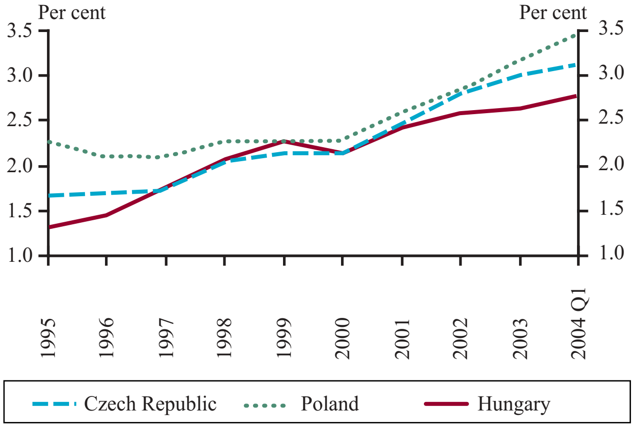


On the whole, as imports increased far more quickly than expected, the current account balance of trade in goods was much less favourable than forecast in the May 2004 issue of the Report. For this reason the current account deficit is also higher than expected; moreover, we forecast a significantly higher current account deficit (see Section 4.4) for the whole year.

Based on exports growth, which began to pick up pace in the second half of 2003, Hungary slightly increased its share in the markets of the EU-15, and as a result of further strengthening in 2004 Q1, contributed 2.8 per cent to total (non-EU) imports to the European Union.

Chart 2.9

Market share in the EU*



** Share in the European Union's total import from areas outside the EU at current prices (Eurostat).*

2. 1. 6 ECONOMIC GROWTH

Currently, the domestic business cycle is determined by a strong upturn in the corporate sector fuelled by a rapid increase in external demand, on the one hand, and a slowdown in household consumption, on the other. Meanwhile, despite the opposing short-term trends, annual net export indices are improving. The strong GDP growth of 4.2 per cent in 2004 Q1 resulted from the above factors.

Our analyses suggest, however, that other technical factors such as the so-called calendar effect, which is independent of underlying cyclical developments, have also contributed to this high growth rate. Accordingly, although it appears clear that economic growth is accelerating based on output and demand data, the actual rate of growth was presumably slightly slower than the figure derived from the original data.[8]

Chart 2.10

GDP growth

Adjusted for seasonal and calendar effects, annualised quarter-on-quarter growth rates

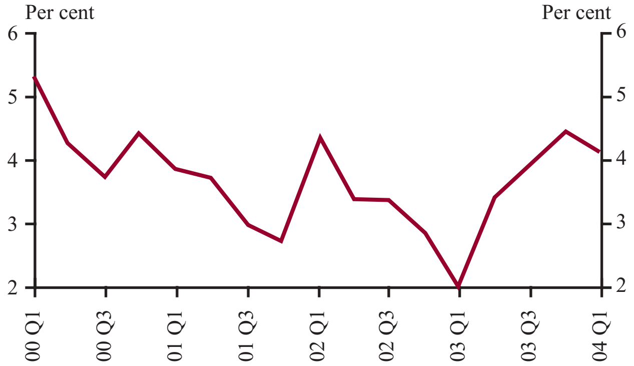


Table 2.1

GDP growth and its constituents

Percentage changes on a year earlier

	2001	2002	2003	2004 Q1 *
Household consumption	5.9	9.3	6.5	3.0
Household final cons. expenditure	5.7	10.3	7.6	3.8
Social transfers in kind	6.5	4.9	1.8	-0.8
Public consumption	5.3	4.8	1.9	1.3
Gross fixed capital formation	5.0	8.0	3.0	18.9
'Final domestic sales'**	5.6	8.5	5.2	5.3
Domestic absorption	1.9	5.4	5.5	4.3
Exports	7.8	3.7	7.2	17.4
Imports	5.1	6.2	10.3	16.6
GDP	**3.8**	**3.5**	**2.9**	**4.2**

** Data are not adjusted for seasonal effects, CSO.*

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

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[8] Note that, if our estimates for the significance of the calendar effects are correct, the 2005 Q1 GDP data would be distorted downwards to the extent of these effects in 2004 Q1. See Section 4.6 for more details.

2.2 LABOUR MARKET

2. 2. 1 LABOUR INPUT

The lively recovery seen in Hungary's export markets since early 2003 has resulted in stronger use of and demand for production factors. In addition to boosting investment activity, labour demand has also increased, although the various branches of the economy exhibit different patterns in this regard.

Businesses tend to adjust to changes in the business cycle mainly by altering the intensity of the factor which is least costly for them, namely labour utilisation, i.e. by adjusting the average number of the hours worked. Consequently, the steady improvement in manufacturing since 2003 Q1 is mirrored in the data on average hours worked.

Despite the constant rise in labour intensity over the last 12 months, there are no indications that the decline in manufacturing employment seen since 2000 has come to a halt. An analysis of the data for the past few years reveals the striking fact that employment-which usually follows a rise in the average number of hours worked with a delay of two to three quarters-is far behind schedule in the current business cycle. The reasons for this include long-term restructuring of corporate production, intra-industry realignment and scarcity of labour supply in certain manufacturing professions.

Over recent years, the price of labour has risen considerably. A large number of companies reacted to the sudden rise in labour costs by substituting labour with capital. During periods of economic upturn, this substitution of labour accelerates, generating increasing demand for capital and lower employment.

Re-structuring within manufacturing is related to the phenomenon mentioned above. As pointed out in several earlier issues, companies in the textiles industry have been the main victims of the rapid growth in labour costs in recent years. Highly labour-intensive businesses were hardly able to compete with their competitors operating abroad which employ significantly cheaper labour, and thus these companies were frequently compelled to cut back production or close down factories. Data on recent months reveal that the decline in the number of people employed in the textile industry has been slowing, but this industry remains the primary factor behind the drop in manufacturing employment.

Further factors impeding an increase in employment include the scarce labour supply in some professions. According to anecdotal information, rising demand is more and more frequently confronted with difficulties due to the lack of skilled labourers in a number of fields, while there is oversupply in others, primarily in non-manual professions requiring higher qualifications.[9] The resulting structural labour shortage prevents a major increase in employment.

In the field of market services, labour demand continues to grow rapidly as evidenced by brisk employment growth and the sharp increase in hours worked. The trend over the last few months suggests that the slow decline in consumption has not yet affected companies' employment policy decisions. Employment data for 2004 Q1 suggest especially robust labour demand due primarily to the jump in employment in the sectors 'trade and repairs' and 'real estates and business services' recorded in early 2004. The other branches of the extremely heterogeneous service sector have seen no change in 2004 in terms of employment growth rates. Over the medium term, the slowdown in consumption will presumably have an impact on labour demand in sectors which are more strongly dependent on consumption, while manufacturing and sectors linked more closely to external markets are likely to further increase their workforce. However, for the time being the available data do not reveal any such shift.

2.2.2 LABOUR MARKET RESERVES AND TIGHTNESS

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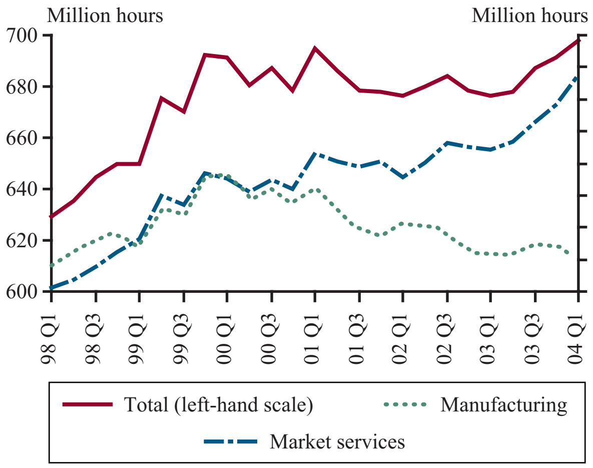
[9] In addition to anecdotal evidence the 2004 Q1 labour survey of the Employment Office also indicates labour market tightness. According to the data the share of companies complaining about skill mismatch has doubled in the course of one year.

Chart 2.11

Total hours worked*

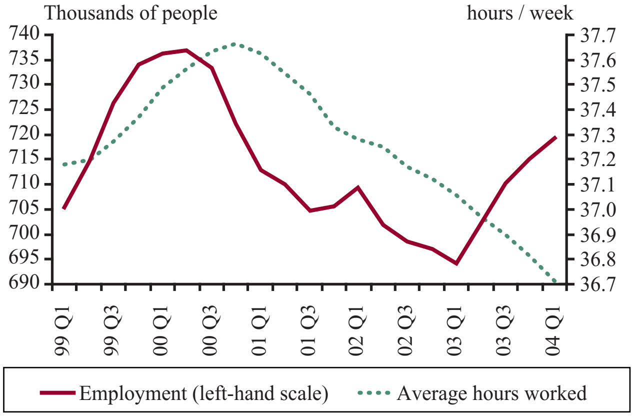
Manufacturing and market services; million hours per quarter



* *Source: CSO. Seasonally adjusted.*

Chart 2.12

Average weekly hours worked by blue-collar workers and employment in manufacturing*

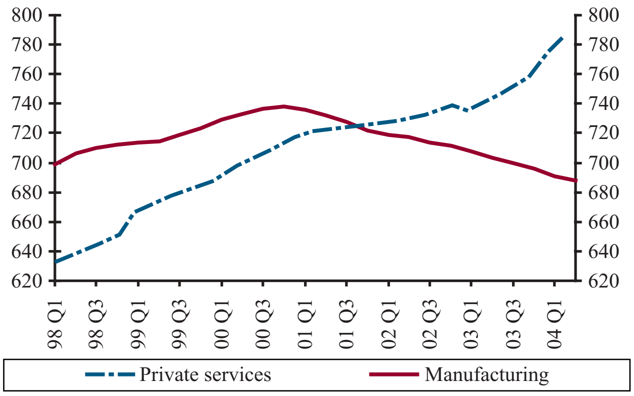


**Seasonally adjusted.*

Chart 2.13

Number of full-time employees*

Thousands



* *CSO statistics from the institutional labour statistics. Actual 2004data reported by the CSO are available up to May; June data estimated using statistical methods. Seasonally adjusted.*

Latest data reveal that steady, modest decline in unemployment, which represents the most important labour reserve for the economy, in 2003 was interrupted in early 2004. Although it is too early to conclude that the growth in unemployment seen in the second quarter was a turning point, this year's increase in the number of unemployed and the rate relative to the economically active population is in line with our earlier expectations.

Government sector and manufacturing lay-offs may help alleviate labour market tightness, albeit the rapidly growing service sector will only be able to absorb the labour released from these two sectors with a certain delay. This rise in unemployment stemming from inter-industry labour shifts is supported by international experience. The main reason is the difference between the skills of workers dismissed from sectors which are shrinking and the qualifications required in sectors which are expanding.

The acceleration of labour market reallocation is substantiated by the number of vacancies registered by the National Employment Office of Hungary and reported mass redundancies. The simultaneous creation and loss of jobs is related on the one hand to long-term realignment in the private sector and on the other hand to the scarce labour supply in certain branches.

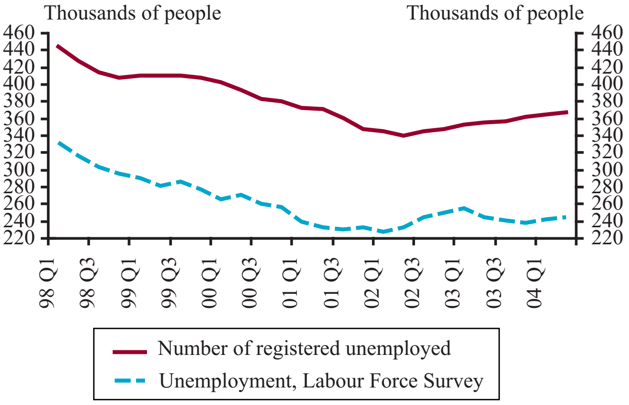
In view of these facts, the question arises as to why there are no signs of this effect in the 2003 data. The decline in manufacturing workforce and growth in that of the service sector were strong in 2003, and labour migration was quite smooth based on the unemployment data from the CSO's labour force survey (LFS), which uses ILO methodology. The statistics on the number of unemployed registered by the National Employment Office slightly contradict this picture. Although registered unemployment obviously does not correspond to actual labour supply, the number of registered unemployed moved in line with the number of people in search of jobs as per the LFS up to early 2003. Since then, however, the two statistics have diverged: the former pointed to a continuous rise in labour supply, while the latter indicated a declining labour supply in 2003.

Although unemployment has started to increase, it remains low, which is a clear sign of a tight labour market. For a long time only the service sector suffered from scarce labour supply, as staff numbers increased rapidly in this sector. However, in the past few quarters, there have been indications of bottlenecks also in certain manufacturing trades, primarily in respect of skilled labourers. The skill mismatch in manufacturing hampers any increase in the sector's workforce and pushes wage inflation up.

2. 2. 3 WAGE INFLATION

Chart 2.14

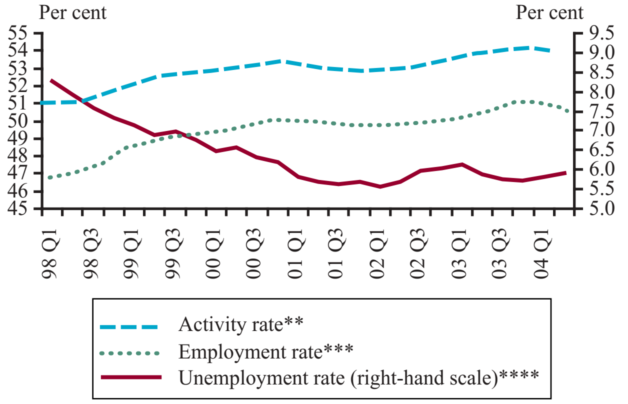
Number of LFS and registered unemployed*



** Based on CSO's labour force survey and data from the National Employment Office. Seasonally adjusted.*

Chart 2.15

Changes in the rate of unemployment, activity and employment*



** Based on CSO's household labour force survey (LFS), ILO indicators.*
*** Rate of activity: the ratio of economically active persons within the working-age population.*
**** Employment rate: the ratio of employed people within the working-age population.*
***** Unemployment rate: the ratio of unemployed people within the working-age population.*

Most recent data reveal that wage inflation has been rapidly increasing in the private sector since early 2003. The data available in May 2004 did not indicate this increase in average earnings, but in light of the new data, seasonally adjusted private sector wage inflation had to be revised up considerably.[10] In the first few months of 2004, the rate of wage increase did not slow. This trend affects manufacturing and the service sector alike, but the underlying reasons are different for the two sectors.

By early 2003, manufacturing had passed its cyclical low point. Due to burgeoning external demand, manufacturing companies recorded rapidly rising value added. As indicated in the previous section, the brisk increase in labour costs characteristic of the past few years increasingly forced businesses to substitute labour with capital. The loss of low productivity jobs and substitution with capital drives up the sector's productivity and wage inflation. With the increase in output, labour can be increasingly substituted by capital. Thus, the above-described trends accelerated during the manufacturing boom.

The decline in the textile industry can also be considered as an aggregated substitution of labour with capital. With the loss of jobs at highly labour-intensive companies, manufacturing output has shifted towards more capital-intensive branches, as reflected in the indicators of both aggregate productivity and aggregate average earnings.

Another reason for the constant rise in manufacturing wage inflation is bottlenecks in labour supply that have developed over the past few months. Despite favourable cyclical trends and rising output, there are no indications of staff adjustments by manufacturing businesses. In addition to more capital-intensive production, this is explained by the skill mismatch in the labour market. As a result of increasing demand for specialised skills and limited labour supply in certain trades, enterprises were compelled to yield to pressure for higher wages.

As a result of these factors, wage inflation started to accelerate as early as 2003 Q1. By end-2003, the steady decrease in employment and a rapid rise in value added resulted in outstanding productivity growth. As a result, despite an acceleration in labour costs, real unit labour costs (ULC) have fallen over the past 12 months.

Within the framework of market services, both the corporate recovery and strong domestic demand contributed to a rapid rise in value added in the sector. Despite this fact, high labour demand in the sector has stunted productivity growth. Moreover, as a result of a strong increase in employment in this sector, which even exceeded the growth rate of value added, stagnation turned into a decline in productivity. Increased labour demand was presumably confronted with repeated difficulties because of the shortage in labour supply, and thus employers were forced to raise wages. Corporate service providers capitalised on vigorous consumer demand and the domestic recovery, and offset rising labour costs by increasing prices. Nevertheless, early in 2004 the rise in specific labour costs left service price inflation far behind, exposing companies in the sector to declining profit on labour. However, the early-2004 trends probably reflect a delayed adjustment of firms and are merely temporary, especially with a view to the fact that the outstanding rise in employment registered in early 2004 was confined to a few branches within the sector.

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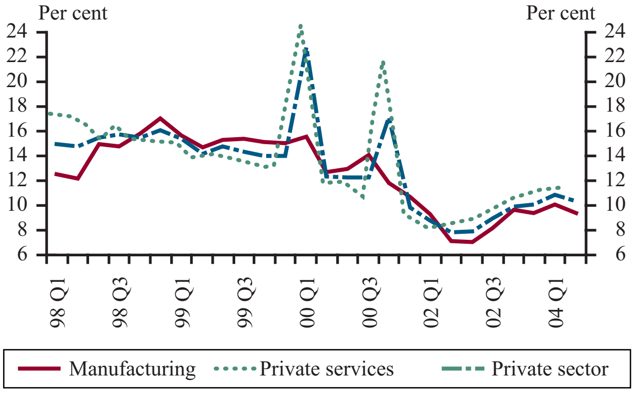
[10] The assessment of CSO average earnings statistics is rendered more difficult by the fact that a number of companies pre-scheduled premium and bonus payments, in the previous years characteristically due in May, to March, thus raising March and lowering May headline wage indices. In our analysis, this seasonality shift has been adjusted by statistical methods. For further details see the box in Section 4.2.

Chart 2.16

Wage inflation in the private sector

Annualised quarter-on-quarter indices

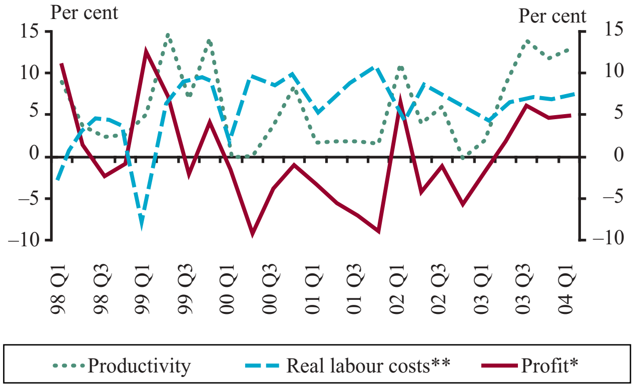


* Source of original data: CSO. Actual data reported by the CSO are available up to May; June data estimated using statistical methods. Seasonally adjusted.

Chart 2.17

Productivity, wages and profit* in manufacturing

Annualised quarter-on-quarter growth rates



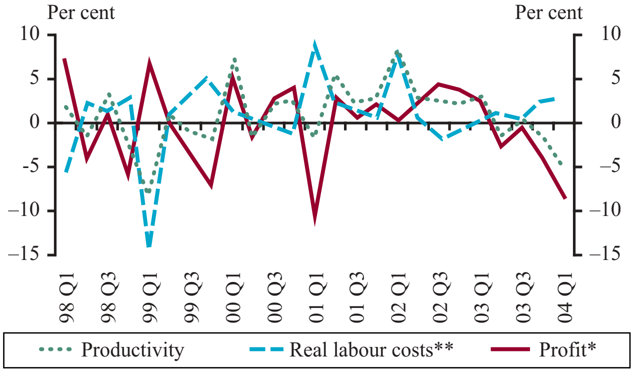
* Profit changes are approximated using the inverse of the real ULC. The category included in this chart actually stands for a concept that is narrower than the profit rate, as it does not contain any other constituents than labour.

** Deflated by the prices of tradables, assuming constant taxes.

Chart 2.18

Productivity, wages and profit* in market services

Annualised quarter-on-quarter growth rates



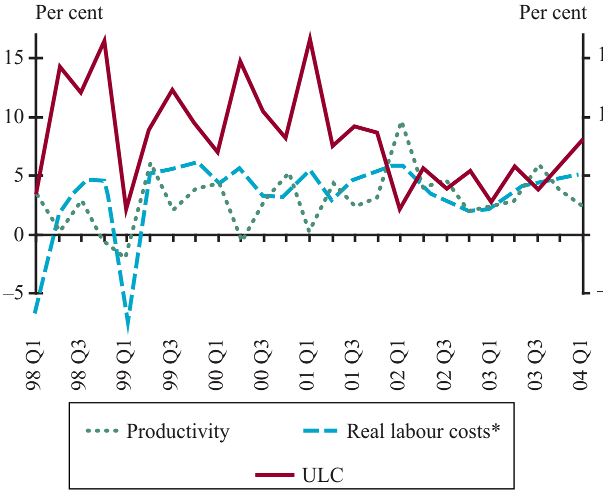
* Profit changes are approximated using the inverse of the real ULC. The category included in this chart actually stands for a concept that is narrower than the profit rate, as it does not contain any other constituents but labour.

** Deflated by the prices of non-tradables, assuming constant taxes.

Chart 2.19

Productivity, wages and unit labour costs in the private sector

Annualised quarter-on-quarter growth rates



* Deflated by the constant tax price index.

2.3 INFLATION

In 2004 Q2, CPI and core inflation stood at 7.3 and 6.2 per cent, respectively, representing growth of 0.5 per cent in the CPI and a 0.2 per cent increase in core inflation relative to Q1. Thus, in the first half of 2004 fundamental indicators of inflation reached the levels recorded two years earlier.

Table 2.2

CPI and its major components

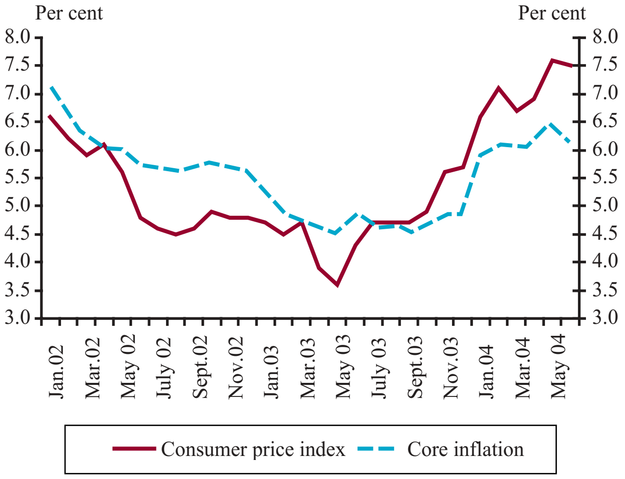
Annual percentage changes

	2003 Q4	2004 Q1	2004 Q2
Core inflation	4.8	6.0	6.2
Unprocessed foodstuffs	5.7	4.9	8.0
Motor fuels and market priced energy	2.3	1.0	7.8
Regulated prices	7.8	11.7	10.1
Total CPI	5.4	6.8	7.3

Chart 2.20

CPI and core inflation

Annual percentage changes

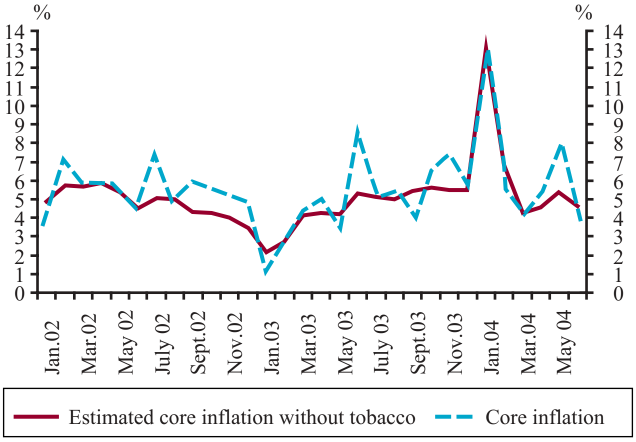


This rise in inflation compared to the previous year is mainly explained by the increases in indirect taxes in early 2004. It is noteworthy, however, that the indicator adjusted for the primary direct effects of tax rises, the so-called 'constant tax-based consumer price index' (CTI[11]) has also increased over the past six months. Core inflation estimated with constant taxes certainly captures the essence of long-term inflation-related developments even more fully. In our estimation, this indicator rose by a significant 0.6 percentage points in 2004 Q1, and then fell slightly (by 0.3 percentage points) in Q2.

Chart 2.21

Core inflation indicators

Seasonally adjusted, annualised monthly growth rates



It should be noted, however, that analysis of net inflation indicators requires great care. As explained on several occasions, this is because as an effect of indirect tax rises, net prices may drop, as depending on the supply and demand situation, producers are unlikely to pass increased tax burdens on to consumers in the short run, and they do not necessarily in the long run. This also means that net inflation indicators may not be considered as 'underlying' inflation indicators in the traditional sense of the word, as they do not indicate the level of inflation in the absence of indirect tax rises. In other words, these indices are adjusted exclusively for the direct effects of tax rises, but not for the secondary effects.

On the whole, the underlying reason for the CPI rise seen in the past six months was indirect tax rises, but that demand and supply trends also contributed to the increase in inflation. More specifically, the price index was raised by products and services covered by core

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[11] For more details on the CTI see: *Report on Inflation*, May 2004, Section 6.5.

Table 2.3

Inflation indicators

Annual percentage changes

	Indirect tax changes					
	Included			Not included (CTI)		
	2003 Q4	**2004 Q1**	**2004 Q2**	**2003 Q4**	**2004 Q1**	**2004 Q2**
CPI	5.4	6.8	7.3	4.9*	5.0	5.1
Core inflation	4.8	6.0	6.2	4.3*	4.9*	4.6*

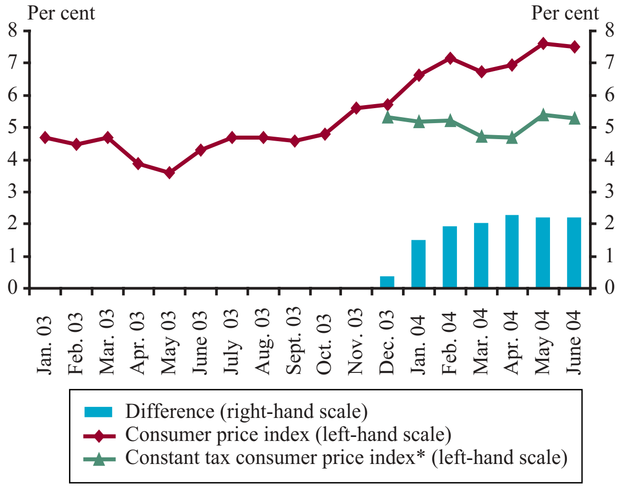
** MNB estimate.*

inflation in Q1, and by items exogenous to monetary policy (unprocessed foods and motor fuels) in Q2.

Chart 2.22

Developments in headline (CPI) and constant tax (CTI) inflation*

Annual percentage changes



** CSO data.*

Over the last twelve months, each Report pointed out our expectation that inflation would reach a turning point in mid-2004, as economic developments would no longer exert inflationary pressure.[12] In our opinion, this is confirmed by data from the end of 2004 H1.

On the basis of the above estimates it can be established that although the demand-supply trends exerted upward pressure on inflation in 2004 H1, indicators reflecting long-term trends suggest no increase in this inflationary pressure in 2004 Q2.

Among the factors pushing up inflation in 2004 H1, soaring private sector wages and unit labour costs, the end-2003 and early-2004 energy price rises and the introduction of eco-taxes need to be highlighted on the *supply side.* Meanwhile, the currently stronger HUF exchange rate may have offset the delayed inflationary effects of last year's weak exchange rate, and in some sectors it may have even strengthened disinflation.

The *demand side* cannot be clearly assessed. While at the beginning of the first half of the year, the delayed inflationary effect of the rapid consumption growth between 2001 and mid-2003 may have been predominant, in the second half of the period reviewed this may well have been offset by the decline seen in consumption growth in the past twelve months. These macroeconomic trends affected the various sectors of the economy in different ways.

Annualised quarter-on-quarter inflation data for tradable goods suggest stagnation in a band between 2.0-2.5 per cent since 2003 Q3. At the same time, another drop in durable prices was recorded in 2004 Q2, a phenomenon which was last seen twelve months ago. The stronger forint exchange rate probably played the most important role in this development.

The significance of disinflation in the prices of such goods is enhanced by the fact that the price index for new and used cars (which is also included in this group) rose in 2004 Q2, presumably partly because of the introduction of the registration tax, which replaced the consumption tax and resulted altogether in a higher tax burden (especially for used cars). However, in comparison to durables, the price index for non-durables (which characteristically includes value added from several services) did not decrease in 2004 H1. This means that the effects of the strong forint exchange rate may have been offset by trends causing domestic inflationary pressure, and wage inflation may have played a pivotal role in this respect.

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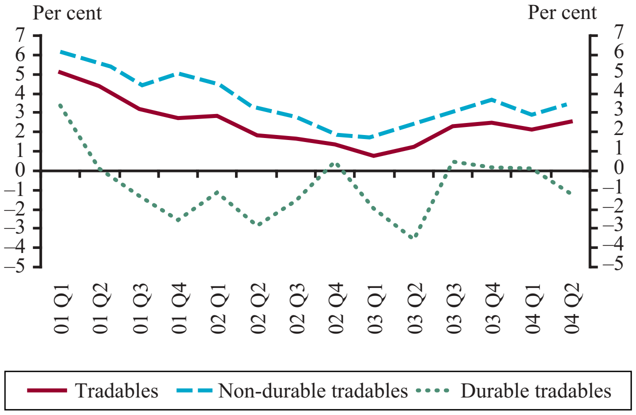
[12] See: *Quarterly Report on Inflation,* August 2003, p. 19; *Quarterly Report on Inflation,* November 2003, p. 20; *Quarterly Report on Inflation,* February 2004, pp. 32–33; *Quarterly Report on Inflation,* May 2004, pp. 40–41.

Chart 2.23

Inflation in tradables prices

Seasonally adjusted, annualised quarter-on-quarter growth rates

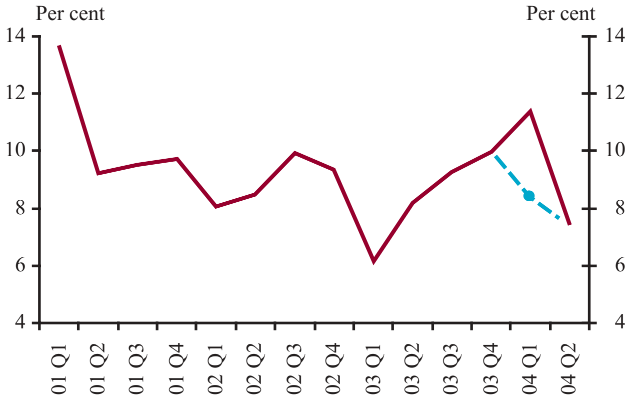


Inflation in *market services* developed differently in the two quarters of 2004 H1: after initially increasing in Q1, it then decreased in Q2. The Q1 increase was caused primarily by VAT rises, but other supply shocks including energy price rises (at the end of 2003 and the beginning of 2004) and the introduction of the energy tax may also have contributed to this development.[13]

Chart 2.24

Market services inflation*

Seasonally adjusted, annualised quarter-on-quarter growth rates



** The broken line illustrates our estimate of the price changes adjuster for the direct effects of VAT.*

Inflation in processed foods shot up in 2004 Q1, basically as a result of the VAT increase at the beginning of the year. If the time series is adjusted for the direct effect of this tax rise, from the seasonally adjusted quarterly data it can be concluded that inflation in processed foods has held stable at roughly around 5 per cent over the past twelve months. Nevertheless, inflation definitely gathered pace during the past two quarters, mainly as a result of massive rises in the price of sugar. The reason for this was the introduction of a guaranteed minimum wholesale purchase price after Hungary's accession to the EU. Increased competition resulting from the EU membership pushed prices down in a number of food products (primarily milk and dairy products), although the extent of cuts remained insignificant.[14]

Rises in excise duties in early 2004 boosted *alcohol and tobacco* prices considerably. Nevertheless, producers in these two sectors reacted to tax rises differently: alcohol producers passed on the entire increase, while tobacco producers passed only part of the burdens on to consumers. According to our calculations, the tax rises on alcohol products raised the overall CPI by 0.2 percentage points in 2004 H1. Resulting from a 10 per cent cut in the net (producer) prices of tobacco products and a roughly 30 per cent rise in unit excise duties, prices rose by approximately 17 per cent according to our calculations, but only two-thirds of this increase appeared in the statistics.[15]

As indicated earlier, over the past six months other items contributed significantly to the CPI rise, but indirect tax rises also played a key role. Disregarding additional price rises caused by tax changes, it can be stated that exogenous items had an essentially neutral effect in 2004 Q1, but a clearly inflationary effect in 2004 Q2.

After the shock-like price rise seen at the end of 2003, *unprocessed food prices* rose only slightly in 2004 Q1, failing to even keep pace with VAT rises. Subsequently, during May and June, prices rises regained impetus. If the constituents of end-2003 and 2004 Q2 price rises are compared, a significant difference is found. While the 2003 price rises basically affected a single range of goods, namely domestic and imported fruit, the 2004 increase was found for several products, although increases in pork prices, in line with a similar trend in the EU, are undoubtedly the leading factor.

In the past quarter, *motor fuel prices* contributed considerably to the increase in inflation. The underlying reason is the rise of international crude oil prices: while at end-2003 a barrel of oil cost EUR 25, the June 2004 average price approached EUR 30. In addition, rises in motor fuel prices are also explained by the low 2003 base prices.[16]

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[13] At this point let us note that the inclusion of the M5 motorway in the new pricing system cut market service prices: month on month, in March and April as well, according to data provided by the CSO. If this effect is adjusted for, the annualised quarter-on-quarter growth rate of market service price rises would be 0.2 and 0.3 percentage points higher in 2004 Q1 and Q2, respectively.

[14] For further details on the expected food price effects related to Hungary's accession to the EU see: Ferenczi, Jakab and Nagyné: Is there inflation tension in Hungarian food prices? The expected effects of Hungary's accession to the EU, MNB Background Studies, 1/2002 (in Hungarian).

[15] In terms of tobacco products, producer price changes appear in the statistics only gradually and with a delay, in line with the fact that the products of changed prices hit the shelves only after earlier stocks are used up.

Increase in *regulated prices* is a major factor behind the 2004 Q1 CPI rise, however, it is connected primarily with VAT rises. The indices adjusted for tax rises indicate that in 2004 Q1 the faster rise in regulated prices, which commenced in early 2003, continued, but in the second quarter this trend broke. The underlying reason was the freezing of pharmaceuticals prices at a lower level than earlier.

2. 3. 1 INFLATION EXPECTATIONS

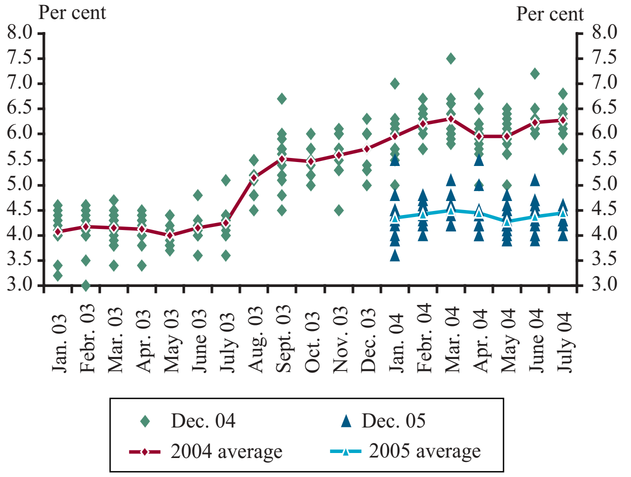
Economic agents and professional forecasters held rather different opinions in respect of expected inflation. In line with the inflation peak in May and June, nearly every poll established that perceived inflation rose, but while market analysts and research institutions characteristically increased their expectations, households and corporate managers assessed the inflationary outlook as more favourable than previously.

The sudden rise in inflation in May exceeded even the most pessimistic expectations. Relying on May and June inflation data, market analysts and research institutes corrected their projections for end-2004 upward by 0.3 percentage points and by 0.2 percentage points for end-2005. With the current information in view, the overwhelming majority of professional forecasters (except for a single analyst) consider the objectives of the Magyar Nemzeti Bank achievable by end-2005, and expect inflation to move somewhere in the upper part of the targeted band (4±1 per cent) in December 2005.

Chart 2.25

Analysts' relevant inflation projections for end-2004 and 2005, on the basis of a Reuters survey

Percentage changes on a year earlier

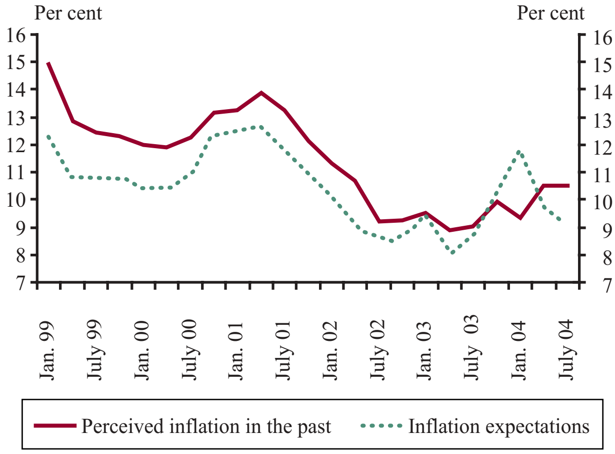


The corporate executives included in TÁRKI's survey continue to assess expected inflation more favourably than previously. Despite the actual strong upswing in inflation, the rate of inflation they perceived in the past quarter did not rise any further, and their responses to questions regarding expected price rises indicate a gradual decrease since the second survey.[17]

Chart 2.26

Inflation perception and expectations by corporate executives

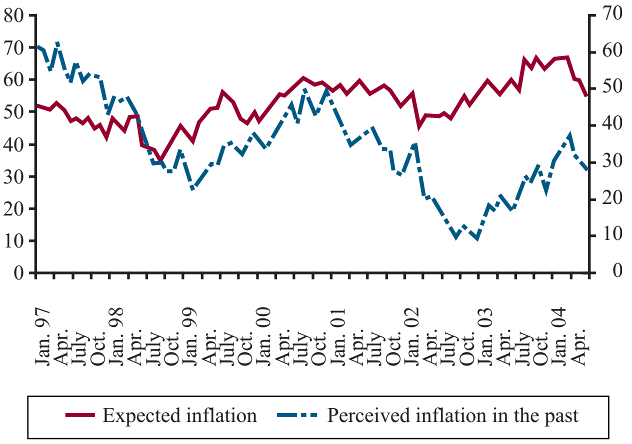
For the previous and the next 12 months



While consumer prices most probably reached their annual peaks in May and June 2004, according to GKI's polls in 2004 Q2 household inflation perceptions and expectations gradually improved.

Chart 2.27

Responses to inflation-related questions in GKI's survey of households



Similar shifts can be seen in inflation expectations in TÁRKI's survey of households, which also contains questions on the level of price rises. In line with actual

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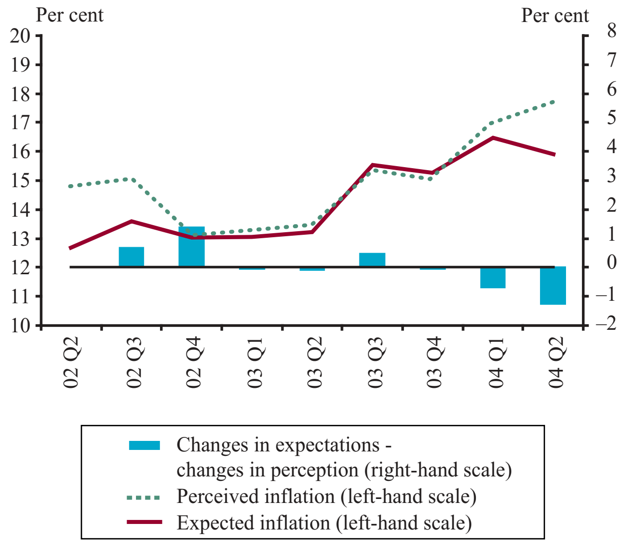
[16] The motor fuels excise tax cut introduced by the Government with effect from June 2004 reduced motor fuel prices by approximately 1 per cent in June.

[17] The TÁRKI survey responses on perceived and expected wage inflation show similar growth rates.

Chart 2.28

Households' perceived and expected inflation based on the TÁRKI poll

For the previous and the next 12 months



inflation, perceptions have been rising since mid-2003, but the May 2004 poll indicates that the trend of gradually deteriorating inflation expectations appears to have broken. Despite this decline in expectations, inflation anticipated for the next twelve months continues to be higher than the values typically stated prior to the announcement of the indirect tax rises.

On the whole, corporate executives' expectations changed little, as they still anticipate an upcoming decline in inflation. Polls of household inflation perceptions also indicate an improvement, but these data are more difficult to interpret. In contrast to the May 2004 issue of the Report, professional analysts revised up both their short-term and longer-term inflation projections.

3 INFLATION OUTLOOK

3.1 OVERVIEW OF PROJECTIONS

Assuming no change in the monetary conditions that prevailed in July 2004 and that all other assumptions of the main scenario apply, a gradual decline in inflation is projected over the forecast horizon. Disinflation will be particularly rapid in late 2004 and early 2005, after which it is expected to be gradual and moderate. *On the whole, the annual CPI is expected to stand at around 6 per cent at end-2004 and drop to 4–5 per cent by late 2005.*[18]

The marked slowdown in the annual CPI in 2004 H2 will be due to base effects for the most part. A significant reduction will occur in the index at end-2004 as the high end-2003 unprocessed food and regulated price indices are included in the base, whereas the 2005 Q1 index will decline considerably as indirect tax rises drop out of the base.

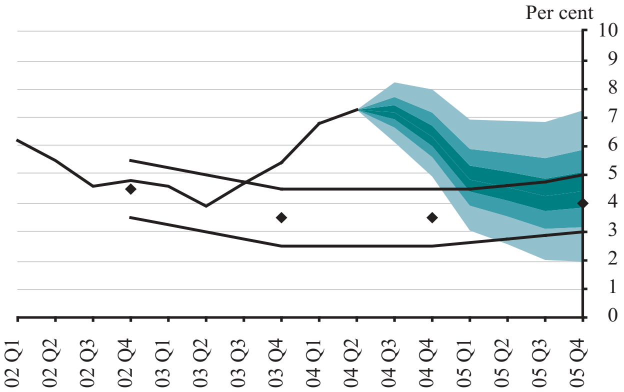
Starting from 2005 Q1, the slowdown in core inflation adjusted for tax effects will become the predominant factor in the index. Declining unit labour costs will be the primary factor promoting disinflation, however, a gradual opening of the output gap will slightly counteract their effect as this tends to boost inflationary pressure on the demand side. In addition to a decline in core inflation, a moderate rise in unprocessed food prices and the gradually slowing increase in motor fuel prices may exert downward pressure on the overall CPI.

With regard to the risks to our inflation projections, it is important to highlight the uncertainty inherent in private sector wages, fiscal policy, growth in household consumption, and the expected price changes of unprocessed foods and oil. The combination of these factors determine to a great degree the risk distribution of inflation in the future, i.e. the bands of the fan chart.

Looking at the time profile of different risks, in 2004 unprocessed food and oil prices are the most important factors, while in 2005 fiscal policy is an additional, more dominant source of uncertainty.

Chart 3.1

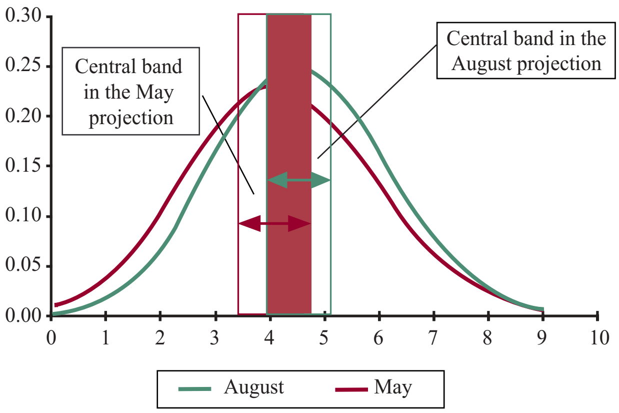
Current inflation projection*



** The fan chart represents the uncertainty around our main scenario. Overall, the coloured area refers to a 90 per cent probability. The central, darkest area – containing our main scenario as the mode of the distribution – refers to 30 per cent of the probability. The end-year points denote the inflation targets, while the two lines denote a tolerance interval of ±1 per cent assigned to the targets.*

Chart 3.2

Cross-section of the probability distribution for 2005 Q4, according to the August and May projections



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[18] For the technical details on the main scenario, its assumptions and change since the May *Quarterly Report on Inflation*, see Section 4.2.

In comparison to the MNB's May projection, it is clear that our inflation outlook has risen over the horizon relevant from a monetary policy perspective. While in May 2004 the highest probability of inflation expected for end-2005 was in the middle of the target band, *the current forecast envisages that price rises will most likely fall in the upper domain of the target band.*[19]

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[19] The July 2004 CPI data was published after the inflation projection had been finalised. The 7.2 per cent CPI was in line with our expectations, and thus corroborates our forecast.

3. 2 Expected inflation and its determinants in the main scenario

In line with the MNB's earlier practice, the projection depicted in the main scenario is *conditional.* In compliance with our projection rules, the August issue of the Report assumes that the average July HUF/EUR (249.8) and EUR/USD (1.23) exchange rates and interest rates (11.5 per cent) remain unchanged over the entire horizon. In agreement with the July futures course, oil prices are assumed to gradually decline (to around 35 USD/barrel by the end of 2005) from the current high price level (approximately 40 USD).

As the 2005 Budget Act is not yet available, the MNB's earlier rule is applied, whereby a 0.5 per cent drop in the deficit is assumed for next year, pursuant to the government's convergence programme.

3. 2. 1 EXPECTED TRENDS IN THE BUSINESS CYCLE

We expect *export markets to expand dynamically* over the forecast horizon. Although the risk of a slowdown in economic growth will increase if there is no drop in the historically high oil prices, most recent data and European business confidence indices suggest that the current recovery should have a solid basis. The acceleration of economic growth from 2004 to 2005 will be due to base effects, for the most part, and in the next two years the economy is expected to grow at a steady rate, comparable with that seen in the period immediately preceding the 2001 recession.

The favourable conditions established by the external recovery present an ideal opportunity for rapid development in the Hungarian export sector. The MNB's projection expects that Hungarian exporters will continue to rapidly increase their share in the export markets, though somewhat more slowly than in previous years. For the most part, the increase in market share is explained by earlier intensive foreign trade integration, whereas over the past few quarters real depreciation

Table 3.2

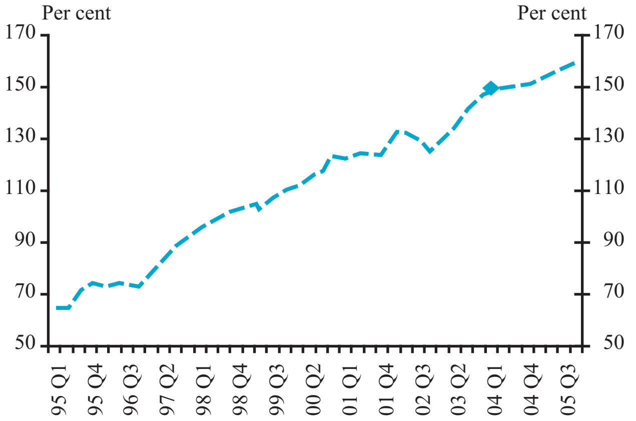
Expected trends in external demand*

	Import-based	GDP-based
2003	2.6	0.6
2004	4.7	1.9
2005	5.9	2.2

** Weighted for the foreign trade structure of exports.*

Chart 3.3

Expected trends in the share in export markets*



** Volume index for goods exports/volume index for import-based external demand, 1998=100.*

Table 3.1

Summary table of major assumptions

Main scenario

	2002	2003	2004	2005
	Fact		Assumption	
Normative fiscal tightening in 2005 (percentage point)	n/a		0.5	
HUF/EUR exchange rate (forint)*	242.9	253.5	253.0	249.8
USD/EUR exchange rate (cent)*	94.5	113.1	122.7	122.7
Brent oil price (US dollar/barrel)**	25.0	28.9	36.1	36.2

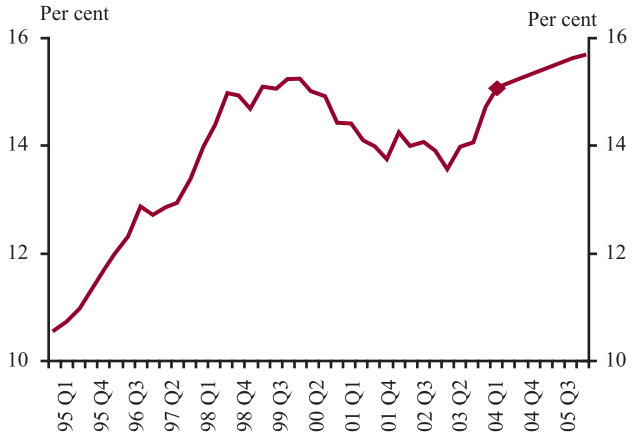
** Annual average on the basis of the fixed July average.*
*** Calculated on the basis of July futures prices for oil (IPE stock exchange).*

based on unit labour cost may have also facilitated this trend.

Favourable sales possibilities are a pressing reason for the corporate sector to carry out *fixed investment*, and further impetus is given by the fact that firms have been increasingly substituting labour – which has become expensive over the past three years – with capital. Owing to the above factors, a gradual increase in the investment-to-GDP ratio is projected, although we do not expect a continuation of the strikingly rapid capital expansion seen in the past two quarters as well as at the beginning of the previous recovery. This is because in our assessment, just as in the case of exports, to a substantial extent the 1996–1999 investment boom was due mainly to temporary and relocation-related factors, which are not expected to be lasting.

Chart 3.4

Corporate sector investment ratio*



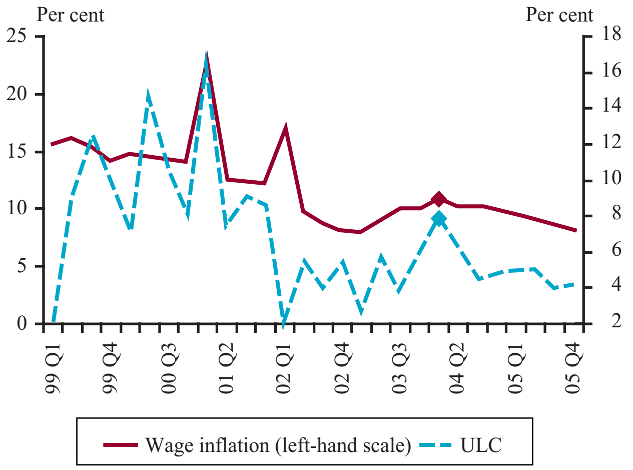
* *Corporate fixed investment to GDP.*

Favourable business cycle conditions are expected to boost corporate labour demand as well. Nevertheless, a number of factors stand in the way of dynamic growth in employment. The aforementioned recent strong wage inflation has raised labour costs, which, in turn, has pressed companies into substituting labour with capital. Another consequence of this trend which is typical of manufacturing, is that there is a shortage of a skilled labour required to operate the substantial portion of the expanded production capacities. As mentioned in the section on labour market, skill mismatch may put gradual pressure on wage inflation in the future. Although at the aggregate level no bottleneck can be detected in the labour market, corporate sector growth will only be accompanied by a moderate increase in employment and there will be unrelenting pressure on wages due to skill mismatch.

Accordingly, private sector wage inflation is projected to slow at a moderate pace over the forecast horizon, as employment gradually increases. As a consequence of the acceleration in wage inflation at end-2003 and early 2004, the annual average index is expected to exceed the corresponding data for 2003, despite the gradual slowdown in wage inflation. The primary reason for this is that based on the actual data provided by the CSO, private sector wage increases slightly exceeded 10 per cent in the first five months of 2004, and this defines the annual trends to such an extent that even if quarterly wage growth declines, no significant drop can be expected in the annual index.[20] Following an annual average growth rate of 9 per cent in 2003, 10 and 9 per cent rates of wage growth are expected for 2004 and 2005, respectively. In terms of this wage growth, private sector real labour costs are expected to expand at roughly the same rate as average productivity in 2004–2005.

Chart 3.5

Private sector wage inflation and unit labour costs*



* *Annualised quarter-on-quarter growth rates, weighted average of manufacturing and market services.*

The total wage bill is expected to grow more slowly in the public sector than in the private sector, as according to our normative assumption a decline in employment and compared to the private sector, lower wage increases are projected.

Disposable household income grows at a relatively moderate pace this year, as the 2004 rise in inflation lessens real wage growth compared to the past few years. A moderate increase in real disposable income is expected for 2005, as inflation slows down substantially, while the slowdown in wage inflation follows only part of this decline.

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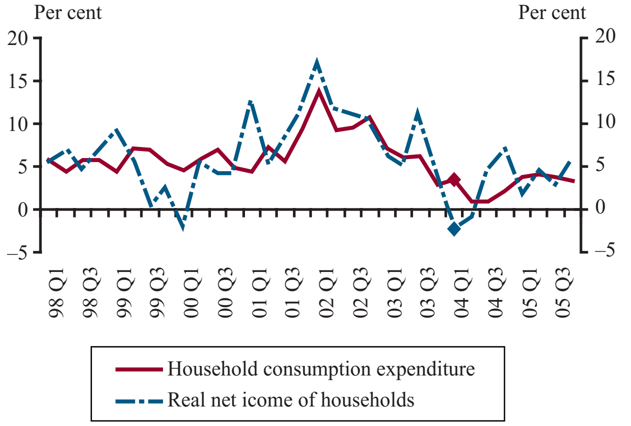
[20] It is important to note that the MNB's short-term projection is based on information provided by the CSO on 16 July 2004 advising us that a number of businesses paid bonuses in March instead of the usual timing in May. For further details, see the box in Section 4.2.

As a result, the growth rate in *household consumption* will fall to half or one-third of the rate recorded in 2003. Household consumption is projected to increase at a rate of 2.2 per cent in 2004, and around 2.5 per cent in 2005. As a result of regulatory changes introduced in late 2003, *household investment activity* is anticipated to slow gradually. In the course of 2004, the after-effects of previously issued building permits and construction projects already commenced will still be an important determinant. Consequently, a decline is to be expected only from late 2004. As the propensity to save is assumed to gradually rise in the wake of strikingly low values recorded in the past few years, owing primarily to more modest investment activity, and thus a gradual increase is projected in net financial savings.[21]

Chart 3.6

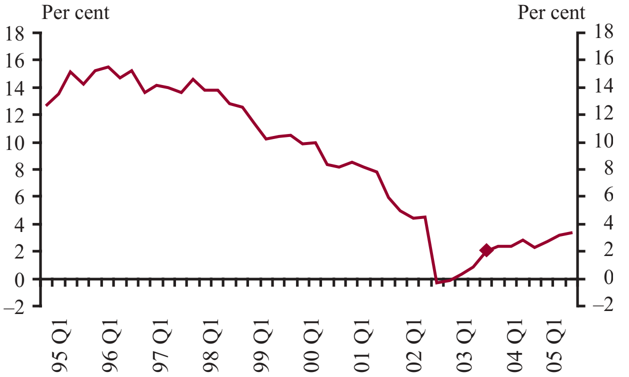
Household consumption expenditure and disposable income at real value*



* *Seasonally adjusted and annualised quarter-on-quarter growth rates.*

Chart 3.7

Household net financial savings rate*



* *(Gross financial savings–change in credits)/disposable income.*

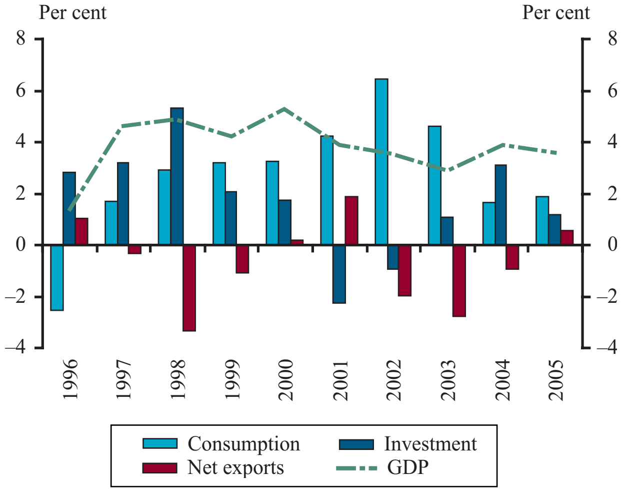
The general government has a restrictive impact on the economy this year, as the contraction in demand in 2004 may amount to more than 1.5 per cent of GDP, in order to *reduce the fiscal deficit.* As mentioned above, based on the relevant normative fiscal assumption, a 0.5 per cent drop in the deficit is assumed for 2005 (but the amount of demand contraction will be lower than this as the decline in the interest rate balance may improve equilibrium). Thus, in 2005 the government's influence on the business cycle will remain relatively moderate.[22]

As a result of the above described trends, *economic growth is expected to accelerate to 3.8 per cent* in 2004. For the most part, this increase will result from an upswing in whole-economy fixed investment. In comparison to 3 per cent in 2003, the average investment index is expected to rise above 10 per cent this year. As mentioned above, with the current recovery, corporate fixed investment will experience robust growth in 2004, and the slowdown in household fixed investment is likely to be felt only at around the end of the year. Government fixed investment will also be restricted only gradually. Although exports will also grow rapidly due to the favourable conditions stemming from the external recovery, net exports will have a slightly adverse impact on growth this year, due to the demand for imports necessary for dynamic investment activity.

In 2005, economic growth is expected to stabilize at around 3.6 per cent. Even though the investment rate rises continuously over the forecast horizon, as soon as the outstanding end-2003 and early 2004 data drop out of the base, annual corporate fixed investment data will be substantially lower. The decline in household fixed investment and limitations on government projects will further hamper national fixed investment. As a result, the double-digit fixed investment indicator for 2004 is likely to fall to around 4 per cent in 2005. A slight acceleration in consumption arising from the faster increase

Chart 3.8

GDP growth and its constituents*



**Percentage change on the previous year.*

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[21] Net financial savings rate = (gross financial savings–change in credits)/disposable income

[22] For a detailed analysis of the government deficit indicators, see Section 4.3.

Table 3.3

Projections in the main scenario

	2003	2004	2005
Economic growth			
Household consumption	6.5	2.2	2.5
Gross fixed capital formation	3.0	11.4	3.9
Domestic absorption	5.5	4.4	2.8
Exports	7.2	12.2	9.5
Imports	10.3	12.3	8.2
GDP	2.9	3.8	3.6
General government			
Demand impact*	-0.1	-1.7	-0.3
Household sector			
Real disposable income of households**	8.1	2.5	3.6
Labour market			
Whole-economy wage inflation	10.9	9.5	8.5
Whole-economy employment***	1.2	0.5	0.2
(Private sector) unit labour costs****	4.4	5.9	4.8

** Change in an SNA primary balance, corrected with changes in payments of private pensions.*
*** Net real income of households is proxied by the sum of the net wage bill and financial transfers.*
**** CSO labour force survey.*
***** Weighted average of manufacturing and market services.*

in real incomes will somewhat counteract this trend. Net exports are also envisaged to change for the positive, supporting GDP growth.

Under the aforementioned conditions, external balance only improves slightly this year because of the massive investment activity. With the slowdown of fixed investment in 2005, external equilibrium will improve more significantly.[23]

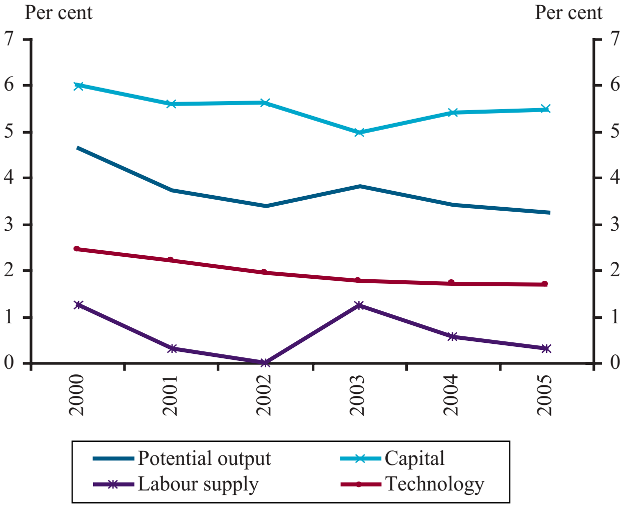
3. 2. 2 CAPACITIES AND THE OUTPUT GAP

In an assessment of inflation and longer-term economic growth expectations, it is indispensable to take stock of the production capacities of the economy, or in other words, to quantify potential GDP.

According to our calculations potential GDP will grow by roughly three to four per cent annually. This is partly due to the aforementioned rapid growth in corporate fixed investment, which increases the production capacity of the economy by raising the capital stock. In terms of labour, the economically active population is expected to increase slowly, and as our estimate of the equilibrium rate of unemployment does not change over the forecast horizon, the growth pace of the active population will also determine labour increase. Other factors do not have a significant impact on potential GDP changes, as in connection with economic convergence, slightly declining growth is expected in technological development over the forecast horizon.

Chart 3.9

Potential GDP and its determinant factors*



** Percentage change compared to the previous period.*

A comparison of the estimate of potential GDP and the projection of actual GDP reveals that in 2004 actual GDP growth will outstrip the expansion in potential GDP, whereas in 2005 it will grow at roughly the same rate. As according to our estimate the level of actual GDP fell somewhat below potential in 2003, from its current slightly negative position, the output gap will gradually shift to the positive domain, and increase inflationary pressure on the demand side.

Potential GDP and the output gap

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[23] For a detailed analysis of the external disequilibrium, see Section 4.4.

Box 3.1

The production capacity of an economy is characterised by the so-called potential GDP. The output gap is usually defined as the percentage difference between actual and potential GDP. Thus, the latter indicates how current economic growth stands in relation to capacities.

The term 'potential GDP' has several meanings in the literature. In the so-called production function approach, potential GDP denotes the volume of output that can be realised at a specified level of technology, labour supply and capital stock. Most frequently this is calculated from an (estimated) production function, which gives potential GDP[24] if the formula is substituted with the figures for capital stock and the (potential) labour supply.[25]

In another approach potential GDP can be characterised by its – not necessarily linear – trend. The underlying assumption for this approach is that over the long term economic output fluctuates around a trend, and therefore potential GDP can be described by the long-term trend embodied in a time series.[26] Potential GDP in this approach can be estimated by time series methods.

The third and most frequently used approach views potential GDP as a level of income realised if both prices and wages adjusted flexibly, without any stickiness. The difference between GDP values realised under the actual and the flexible price/wage conditions appear as price and/or wage pressures.

Clearly, the three different approached highlight different features of the 'potential' in an economy. The production function approach takes production opportunities as a point of origin, while output at a flexible price takes inflationary pressure as a starting point. Potential GDP calculated by time series methods relies on the cyclical features of economies.

The three methods have certain common features. For instance, the similarity between the approaches of potential GDP realised at flexible prices and the one based on the production function is that both operate with labour supply at the so-called natural instead of the actual rate of unemployment.

In the projection practice of the MNB (the Hungarian Quarterly Projection Model – N.E.M.) potential GDP is calculated on a production function basis. A so-called Constant Elasticity of Substitution (CES) production function is used. The capital/labour substitution parameter is estimated from the labour supply function (as the optimum labour and capital demand at maximum profit can be obtained from this specific function). In addition to these, the production function includes the active labour force (expressed in demographic factors), adjusted for the natural rate of unemployment (NAIRU). The latter is estimated by time series methods. The capital stock variable (calculated by the MNB) is a sum total of the capital stocks of the private and public sectors.[27] Technological development is interpreted as a labour-augmenting technological development, the historical cost of which is estimated on the basis of shares of national accounts in income.

3. 2. 3 DETAILS OF THE MAIN SCENARIO INFLATION FORECAST

If the assumptions of the *main scenario* described above are *valid, consumer price inflation will slow down to 6.1 and 4.4 per cent by the end of 2004 and 2005, respectively.* Instead of core inflation, the slowdown in late 2004 will essentially be governed by the technical effect of the inclusion of robust price rises affecting regulated products and unprocessed foods into the base at end-2003. By contrast, in the course of 2004 core inflation is not expected to exhibit a major decline. Reasons for this include that, on the one hand, most of the 2004 H2 data are already given because of the inertia in short-term price changes, and on the other, because demand and supply trends are unlikely to see major changes in the coming two quarters.

Nevertheless, in 2005 Q1, both CPI and core inflation will decelerate considerably as a result of the exclusion of the impact of rises in indirect taxes from the base. In the course of 2005, further gradual, moderate disinfla-

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[24] For a description of the production function used in the Hungarian Quarterly Projection Model (N.E.M.) see Jakab, M. Z., Kovács, M. A., Párkányi, B., Reppa, Z. and Vadas, G. (2004) 'The Hungarian Quarterly Projection Model (N.E.M.) – Non-technical summary', MNB forthcoming. The Cobb-Douglas production function was calibrated for the Hungarian economy in: Darvas, Zs. and Simon, A. (1999) 'A növekedés makrogazdasági feltételei – Gazdaságpolitikai alternatívák' (The macroeconomic conditions of growth – Economic policy alternatives), Working Papers 3/1999.

[25] The 'potential labour supply' is a labour supply where the unemployment rate is at the so-called natural level.

[26] For the estimates for the Hungarian economy resulting from this method see e.g. Darvas, Zs. and Vadas, G. (2003) 'Univariate Potential GDP Estimations for Hungary', Working Papers, 8/2003; and Darvas, Zs. and Simon, A. (2000) 'A potenciális kibocsátás becslése a gazdaság nyitottságának felhasználásával' (Estimation of potential GDP relying on the openness of the economy), Working Papers, 9/2000.

[27] For details of the estimation, see Pula, G. (2003) 'A tõkeállomány becslése Magyarországon a PIM módszerrel. Módszertani leírás és eredmények' (Capital stock estimation by the PIM method in Hungary. A description of the method and results), Working Papers, 7/2003.

Table 3.4

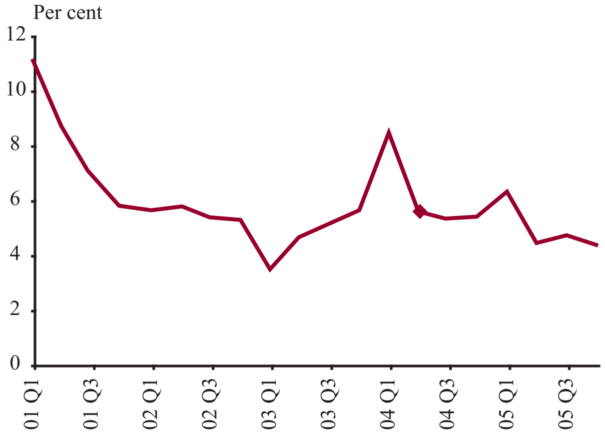
CPI and its major constituents in the main scenario

	2004					2005				
	Q1	Q2	Q3	Q4	Dec.	Q1	Q2	Q3	Q4	Dec.
CPI	6.8	7.3	7.1	6.4	6.1	4.8	4.6	4.3	4.4	4.4
Core inflation*	6.0	6.2	6.3	6.1	6.0	5.6	5.3	5.2	4.9	4.7
Unprocessed food	4.9	8.0	12.1	3.5	0.8	-0.5	-1.4	-4.7	-1.3	1.5
Motor fuels and market-priced energy	1.0	7.8	7. 8	8.8	7.6	5.3	2.8	1.9	1.6	1.3
Products with regulated prices	11.7	10.1	8.5	7.6	7.5	3.8	4.7	5.4	5.5	5.5

** For technical reasons, the core inflation measures projected may deviate from the CSO core index temporarily, but in general it follows the same trend. For more information, see Section 4.2.1.*

Chart 3.10

Expected core inflation*



**Annualised quarter-on-quarter growth rates.*

tion is expected. Disinflation will be fuelled primarily by a decline in *core inflation,* fundamentally caused by decreasing nominal unit labour costs. Simultaneously, the rise in the output gap will slightly offset disinflation on the demand side. In our main scenario, disinflation will also be facilitated by a decline in oil prices, as they directly reduce the *motor fuel* price index and indirectly relieve inflationary pressure in terms of general costs.

Having consulted agricultural experts, we expect a gradual decline in the prices of *unprocessed foods.* Technically speaking, this will take the form of a slow decrease in the annual indices, which will then turn negative or stagnate.

A slowdown is expected in *regulated prices* in the course of 2005 compared to the previous year, primarily because no change is assumed in the prices of subsidised pharmaceuticals and telephones over the forecast horizon.[28]

In our main scenario, from end-2004 to end-2005 the constant tax based consumer price index (CTI) will decline only slightly, clearly indicating that the overall two percentage point decline in the headline index is largely caused by the base effect of indirect tax increases in 2004.

Table 3.5

Consumer price index and constant tax index*

	2004 Q4	2005 Q4
Consumer price index	6.4	4.4
Constant tax based price index	4.3	4.1

** Percentage change compared to the previous year.*

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[28] Following from the MNB's projection rules, in the case of items for which no detailed information is available on changes in regulated prices, an MNB-estimated historical relationship is used, which assumes that the prices of such items rise at a rate 1.3 times higher than core inflation.

4 SPECIAL TOPICS

4. 1 CHANGES TO THE STRUCTURE OF THE REPORT

Starting from August, the MNB's *Quarterly Report on Inflation* will be published in a new, more compact format. The Monetary Council has endorsed these changes. The new structure is based on (i) the lessons learnt from earlier Hungarian practices; (ii) the experiences of other central banks using inflation targeting; and (iii) the conclusions of a CEPR survey[29] comparing national central banks' inflation reports.

4. 1. 1 WHY RESTRUCTURE?

An analysis of readers' feedback and the practices followed by central banks which publish inflation reports reveals that the most well-received reports tend to be those that are short and easy to understand. Moreover, such reports usually present a thorough analysis of actual data, yet are less detailed when it comes to the projections. Instead, they concentrate on providing a description of the key mechanisms.

Viewed in an international context, the old version of the Report published by the MNB was twice as long as those published in other countries, which was due to the fact that the projections sections of the MNB's Reports were longer and that the structure of these sections was different. More specifically, while in other countries the projections and the analysis of actual data are dealt with in separate sections, the MNB's *Quarterly Report on Inflation* integrated these two components into single sections (Economic activity, Labour market, Inflation).

What was the philosophy behind the earlier Hungarian practice, which deviated to some degree from international trends? At the time of its introduction of the inflation targeting regime by the MNB, it provided some sort of technical credibility, and so it seemed absolutely imperative to present the projections in meticulous detail. In that context, it was reasonable to treat the analysis of actual data and the projections within a single editorial framework, as the other option of loading a single section with detailed information seemed less viable.

Over the long run, however, publishing a Report which is more compact and easier to follow is likely to be more beneficial.

4. 1. 2 WHAT ARE THE CHANGES?

Turning to the details, starting from the August issue of the Report the macroeconomic projections will become shorter and will be presented in a separate section, in line with international practice, while actual data for the review period will be set forth in the preceding section. Within the latter section, separate sub-sections will be devoted to economic activity (demand and output), the labour market and inflation.

The proposed changes represent a shift towards international practice, and are consistent with the MNB's own forecasting practice, which are increasingly based on an aggregate correlation rather than on the assessment of disaggregated impacts. This will provide a unified view of the MNB's projections.

As of August, analysis of actual data and the projections will only focus on the so-called fiscal demand impact, which is the only fiscal factor with some relevance to the understanding of inflation developments on this horizon. Deficit indicators and specific fiscal policy issues will be discussed in a separate sub-section under Special topics. Similarly, Hungary's external balance will be analysed in a separate sub-section also under the Special topics section of the Report. These changes will enable Bank staff to use these sub-sections to examine more general longer-term issues which are not necessarily linked directly to the inflation projection (e.g. debt, issues related to sustainability, etc.).

Already featuring in the May issue of the Report, the sub-section entitled 'Background information on the projections' will also be affixed to the Special topics section. This sub-section of the Report will also regularly include our inflation projection based on analysts' expectations of monetary conditions. This approach is also used by the central banks of the UK, Brazil and Norway and has the advantage of providing a framework for comparing the Bank's conditional projections with the market's projections which are not subject to conditions. Thus, with forecasts based on the market's expectations of monetary conditions, it is clearly discernable to what extent the difference between the projections by the central bank and the market arises from differences between these assumptions of the forecasts, or are attributable to differences in the projection models used.

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[29] Fracasso, A., Genberg, H. and Wyplosz, Ch. (2003) 'How do central banks write? An Evaluation of Inflation Targeting Central Banks' Geneva Reports on the World Economy Special Report 2.

4. 2 BACKGROUND INFORMATION ON THE PROJECTIONS

4. 2. 1 CHANGES IN THE AUGUST PROJECTION COMPARED TO MAY 2004

The effects of macro-economic information from the period following publication of the May Report on our projections can be summarised as follows: while Hungary's growth outlook improved, the main macroeconomic conditions determining the disinflation path worsened perceptibly, mainly due to the upturn in the global business cycle. As several economic trends, mentioned among the upward risks in May (e.g. oil prices, wage inflation) which reinforce each other persisted, we

Table 4.1

Changes in central projections relative to May

Annual changes, in percentage, unless otherwise noted

	2003	2004		2005	
	Actual	Projection			
		May	Actual	May	Actual
Consumer price index (CPI)					
December	5.7	6.0	6.1	4.0	4.4
Annual average	4.7	6.9	6.9	4.3	4.5
Economic growth					
External demand (GDP-based)	0.6	1.7	1.9	2.2	2.2
Household consumption	6.5	2.1	2.2	1.1	2.5
Memo: Household consumption expenditure	7.6	2.7	2.9	1.3	3.0
Gross fixed capital formation	3.0	9.2	11.4	3.2	3.9
Domestic absorption	5.5	3.4	4.4	1.9	2.8
Exports	7.2	10.8	12.2	9.2	9.5
Imports	10.3	10.3	12.3	7.1	8.2
GDP	2.9	3.4	3.8	3.4	3.6
Current account deficit					
As a percentage of GDP	8.9	8.3	8.8	7.1	8.0
EUR billions	6.5	6.7	7.2	6.2	7.0
General government (as a percentage of GDP)					
ESA-deficit[1]	5.9	5.3	5.4	4.8	4.9
Demand impact[2]	(-0.1)	(-1.6)	(-1.7)	(-0.3)	(-0.3)
Labour market					
National economy total wage inflation[3]	10.9	8.1	9.5	6.8	8.5
National economy total employment	1.2	0.9	0.5	0.2	0.2
Private sector wage inflation[4]	8.7	8.4	10.2	7.1	9.2
Private sector unit labour cost[4]	4.4	4.0	5.9	3.1	4.8
Private sector employment[5]	0.7	1.6	1.1	0.4	0.4
Net real income of households[6]	8.1	1.5	2.5	2.5	3.6

[1] *In our current projection for 2005 we assume a conditional path, based on the Convergence Programme submitted to the European Commission, which calculates an annual 0.5 percent GDP-proportionate improvement in the ESA-based deficit in this year.*

[2] *Change in the SNA primary balance, corrected with changes in payments of private pensions.*

[3] *We use our estimation for wage inflation in general government; accordingly, the thirteenth-month salary for 2004, to be disbursed in January 2005, has been added to the 2004 wage data.*

[4] *Weighted average of manufacturing and market services.*

[5] *According to CSO labour force survey.*

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

slightly revised upward our projection for year-end 2004 inflation, and more significantly upward for 2005.

Our assessment of the state of external and internal economic equilibrium also worsened, and therefore we changed our projections in the case of both of the relevant measures (general government and current account deficit) in the direction of slower improvement.

Changes in technical assumptions

In contrast to the May projection, the changes in our technical assumptions concerning the exchange rate path (HUF/EUR and USD/EUR) did not have a considerable effect on the current projections.

At the same time, in the past few months world oil prices have increased significantly, due to supply and demand processes in global oil markets. Since in our technical assumption we employ futures prices for expected oil prices, the increase in world market prices resulted in a similar increase in hypothetical oil prices over the projection horizon. Higher oil prices characteristically increase consumer prices on a cost-push basis, but in a small, open country the effects of the real economy must also be taken into consideration.[30]

As far as wage growth is concerned, up until the previous Report we expected that wage setting would quickly adapt to the anticipated lower-inflation environment. Events did not confirm this assumption, and therefore we currently project a much more persistent wage path characterised by a slower decrease in wage inflation. The stronger growth of wages exercised a particularly significant effect on the more distant periods of our projection (1–1.5 years).

Changes in real economy projections

The first quarter gross domestic product figure exceeded our earlier expectations. Although the calendar-effect – due to the leap year – may have had a considerable influence on the outstandingly high growth, the positive development was primarily driven by corporate decisions on production and capital expenditures, which reacted to the effects of global upswing more quickly and robustly than expected. Following the exceptionally high growth rate at end-2003 and in contrast to the experiences of the previous years, corporate investment continued to exhibit dynamic growth in the first quarter as well.

Although household consumption growth was lower than expected, due mainly to one-off factors, we adjusted the consumption path for this sector slightly upward for this year and more significantly upward for next year, primarily in light of the fact that wage inflation significantly exceeded our May projections. This new wage path, delineated to a great degree by increasing private sector wages, justifies stronger-than-expected income growth over our projection horizon, which may have a significant impact on the consumption decisions of households as well.

Table 4.2

Changes in the major assumptions of our projections relative to May

	May 2004 projection		Current projection		Change (percentage)	
	2004	**2005**	**2004**	**2005**	**2004**	**2005**
Normative fiscal tightening in 2005 (as a percentage of GDP. basis points)	n/a	-0.5	n/a	-0.5	n/a	0.0
HUF/EUR exchange rate (HUF)*	252.8	250.3	253.0	249.8	+0.1	-0.2
*(Our assumption**)*	*(250.3)*	*(250.3)*	*(249.8)*	*(249.8)*	*(-0.2)*	*(-0.2)*
USD/EUR exchange rate (cents)*	121.3	120.0	122.7	122.7	+1.2	+2.3
*(Our assumption**)*	*(120.0)*	*(120.0)*	*(122.7)*	*(122.7)*	*(+2.3)*	*(+2.3)*
Price of Brent oil (USD/barrel)	32.3	29.5	36.1	36.2	+11.7	+22.6
Memo: Price of Brent oil (forint/barrel)	6730	6156	7429	7364	+10.4	+19.6
Imported inflation of tradable goods (per cent)***	1.0	1.0	1.0	1.0	0.0	0.0

** Annual average exchange rate.*
*** According to our technical assumption we use the last full month average exchange rate for the entire forecast horizon. In the current projection our calculations are based on the July 2004 average.*
**** Average annualised monthly domestic growth rates. Euro area-11 goods inflation. Source: Eurostat, New Cronos Code: igoodsxe*

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[30] See more on the economic effects of oil prices in Section 4.8.

Box 4.1

What are the factors behind the change in our wage inflation estimates?

In Section 2.2, we noted that our estimate of wage inflation in 2004 H1 has changed significantly compared to May. Based on new information on wages in the March-May period, which arrived after the wage data for February, wage inflation accelerated and the timing of non-regular wage payments changed as well.

Evaluating wage developments is rendered even more difficult due to the fact that, as the CSO noted in its data release of 16 July, many companies decided to pay the one-off remunerations and bonuses in March, which would have otherwise been due in May in line with the practice followed in recent years. This change increased the headline wage index for March, and led to a corresponding decline in the May figure.

This change in remuneration practices is also reflected by statistics on non-regular wage payments and our studies using the time series method. It is clear that this phenomenon primarily affected manufacturing, and more particularly the chemical industry, where the remunerations and bonuses paid in March of this year significantly exceeded the generally characteristic proportion to gross wages, while the May payments were considerably below average.

Adjustments to compensate for this seasonal shift were made using statistical methods. On the whole, these adjustments did not result in a change in wages paid in the first five months of the year, but the extra payments made in March were taken into account in May, in line with the earlier seasonality. This adjustment was necessary in order to obtain a clearer picture of longer-term wage inflation processes, without distortion from seasonal components.

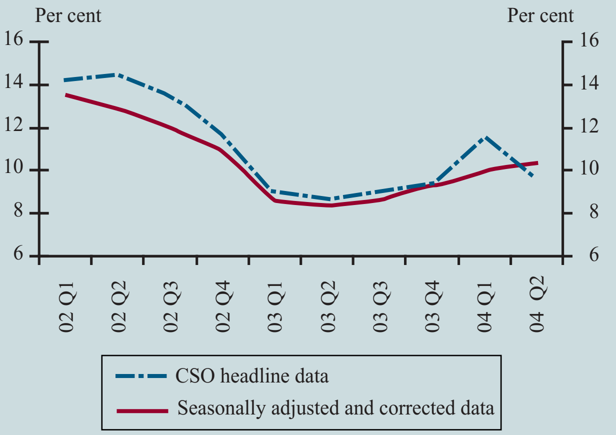
The chart below clearly shows that, based on the annual indices of average income resulting from our calculations, adjusted for temporary effects and seasonality, private sector wage inflation gradually accelerated in the first half of 2004. In contrast to this, the CSO's original non-corrected, non-adjusted data show a spike in wage inflation in the first quarter, followed by a sudden sharp downturn in the second quarter.

An annualised, short-based index of average wages provide a more precise picture of the underlying processes. On the basis of the seasonally adjusted data, this indicator attempts to capture the wage dynamics of the economy in line with the trends occurring within a single quarter. The main advantage is that it does not have a base-year effect, as it is not related to the same period of the previous year.

Chart 4.1

Growth rate of average private sector wages

Annual change



** Since actual data was only available until May 2004, June figures were estimated using the time series method. Aside from the effects of the changed timing of bonus payments in 2004, the 'adjusted' series of data also filters out the statistical distorting effects of the minimum wage increases in 2001–2002, see May Report.*

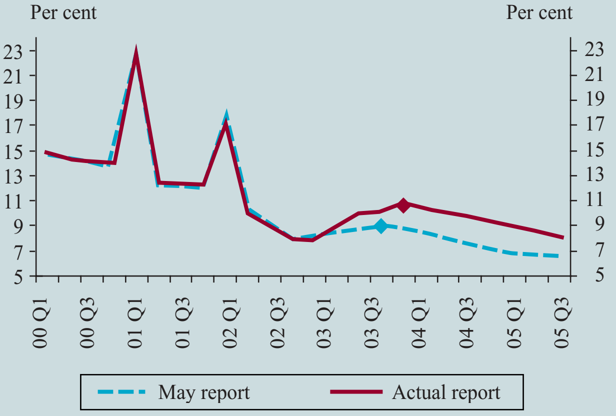
Accordingly, it shows the turning points more quickly than the traditional annual index. Its drawback, however, is the fact that as it is an estimated figure (due to the seasonal adjustments), it is subject to revision as new data become available.

In the chart below it is evident that the data coming in since the May Report significantly modified our view of past developments in wage inflation. Based on the actual data for the past three months (since February) it is clear that wage inflation has grown significantly quicker since the beginning of 2003 as compared to our May estimate, and currently stands at 10 per cent. This evaluation is also confirmed by the fact that

Chart 4.2

Change of our projected wage inflation

Annualised quarter-on-quarter indices



** Source of the basic data: CSO. Actual data through May, with June data estimated using statistical methods. Seasonally adjusted data.*

according to the CSO the average private sector wage index for the first five months was 10.2 per cent.

As wage inflation was found to be higher in the recent past than postulated in our previous Report, our projections for the next two years naturally increased, in spite of the fact that in a qualitative sense we did not alter our projection of a future slow-down of wage inflation (see Section 3.2.1).

The combined effect of the above-mentioned factors (higher-than-expected first quarter GDP, significantly higher capital investment activities, slower decline in household consumption) leads us to adopt a more favourable growth outlook for this year, while only slightly increasing our projections for the 2005 growth rate, due to base period effects.

The stronger-than-expected rebound in domestic absorption – in particular capital expenditures – has considerably changed our previous views regarding Hungary's external economic equilibrium in 2004. Higher capital expenditure activities and the presumably softer 'landing' in consumption significantly increases the economy's demand for imports, while our slightly higher exports projection is mostly a result of the better-than-expected first quarter figures. The changes in 2005 are predominantly due to base period effects on the export side and to our projections of higher household consumption on the import side.

Compared to the earlier projections, our estimate of potential GDP was changed as well. In reviewing the calculation methods, we revised our estimate for the capital stock downward, consequently leading to lower potential output for Hungarian economy as well. Accordingly, our projections (in contrast to the last issue of the Report) assume that from the second half of 2004 on there will be a small, but positive so-called 'output gap' (i.e. actual economic output will exceed the level justified by the expansion of production factors). The higher-than-expected actual growth will increase demand-pull inflation pressure.

Changes to the inflation projection

Compared to May, we have slightly changed our projected inflation figure for December 2004 and increased the end-2005 figure by 0.4 percentage points. Our assessment of the longer-term inflationary processes was predominantly influenced by changes in the anticipated real economic processes, and in terms of the short-term inflation outlook by rising prices for some exogenous factors (from the point of view of monetary policy).

Core inflation[31] in the second quarter was in line with our earlier projections, while the overall consumer price index slightly exceeded our expectations, by 0.1 percentage points, due to dynamic rises in unprocessed food prices. Since actual price development during the period was practically in line with our expectations, our projections were characteristically influenced over the short run by the changes in the basic assumptions. Among these, it was the increase in oil prices that mainly had a significant effect. In terms of key exogenous items, only the higher-than-expected unprocessed food prices have a considerable effect, while our exchange rate assumption remains practically unchanged.

The reasons for increasing our projection for inflation at end-2005 by close to 0.4 percentage points include the impact of a substantially higher-than-expected assumption for oil prices and trends in supply and demand. It is mainly the effect of our higher wage inflation projection, compared to May, which plays a dominant role in the latter factor. The reason for this is that it fuels inflation on both the cost side (in the services sector, in particular) and the demand side (driven by expanding household consumption).

Developments in other items (e.g. a slightly stronger HUF/EUR exchange rate, compared to the May projection, and expected lower prices of pharmaceuticals, owing to government decisions) could have contributed to a lower inflation projection in 2005, but these items do not seem to exert a significant impact over the forecast period.

4. 2. 2 EFFECT OF ALTERNATIVE INTEREST- AND EXCHANGE RATE PATHS ON OUR PROJECTIONS

As usual, in our projections we assume that both the exchange rate and the central bank base rate remain stable over the projection horizon. Accordingly, these factors can only be directly compared to other projections, if the projections in question – for instance, those of market analysts – also assume unchanged monetary conditions. However, many existing projections are not prepared based on this assumption, i.e. they also attempt to project as best as possible central bank reactions to economic processes and conditions.

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[31] For reasons of methodology, the indicator under review, may in the short term be different from the one published by the CSO. Over the longer term, however, both follow identical trends. The cause of the technical discrepancy is that the core inflation calculated by the CSO cannot be reproduced accurately from available group CPI data, since the CSO breaks down several groups into core inflation items and sub-items (e.g. pharmaceuticals) are excluded from it. Therefore, we have adopted a single approximation in our projection. In respect of the trends, this will not result in any departure from the core inflation value published by the CSO over the long run. More specifically, the MNB's forecast for core inflation covers 67.6 per cent, whereas CSO's 65.8 per cent of the consumer basket. This, however, leaves the MNB's forecast for the total CPI unaffected, the only implication being the rearrangement of the categories that the Bank uses for its analyses (e.g. those of regulated prices and core inflation).

Chart 4.3

Exchange rate path according to Reuters survey and fixed rate assumption

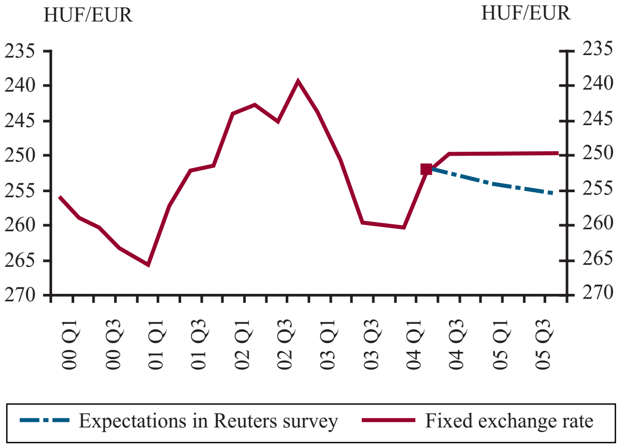
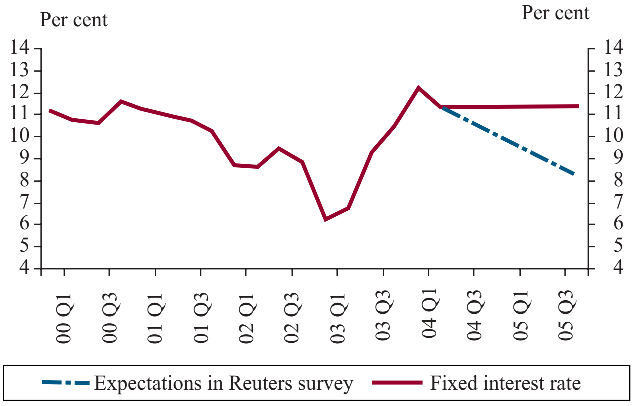


Chart 4.4

Interest rate path according to Reuters survey and fixed rate assumption



In the following, we attempt to formulate a basis for the comparison with such projections. Accordingly, we show how our projections would change if we sacrificed our assumption of fixed interest rates and exchange rates to a certain extent (please note that in these simulations we did not change our projections for fiscal policy).

For both the exchange rate and the interest rate, in the simulation we used the average expected exchange rate and interest rate paths of the Reuters survey in July. At the end of 2005 the exchange rate is some 2 per cent weaker while the interest rate is about 3 percentage points lower than assumed in the main scenario.

Using the Reuters survey-based assumptions, our projections would not change considerably. For the average price increase in 2005 we would project a 0.1–0.2 percentage point higher value, while the 2005 year-end figure would change by 0.2–0.3 percentage points.

4. 2. 3 PROJECTIONS BY MNB VERSUS OTHER INSTITUTIONS[32]

When the MNB's projections are compared to those of other institutions or market analysts we find that in terms of the 2004 inflation outlook the central bank's forecast is in the lower range, while in terms of equilibrium measures (public sector and current account deficit) it continues to be the highest. Our inflation projection for year-end 2005 is in the middle range of the analysts' projections.

The fact that our inflation projection for year-end 2005, which was still in the lower range of analysts' projections in May, has moved towards the middle of the range (i.e. higher inflation) is mainly the result of adjustments in the real economic and wage inflation outlook.

As the 2005 budget is not yet available, we do not have a most probable projection for the 2005 general government deficit. Therefore, it is not expedient to compare the normative path applied by the MNB (obtained by deducting the projected tightening of 0.5 per cent from the 2004 GDP-proportionate ESA deficit) to the projections of other analysts.

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[32] It must be borne in mind that the MNB projections cannot fully be compared to the projections of other institutions. The projections prepared by the MNB are conditional, while other institutions usually make unconditional projections. The divergence between the MNB and the other institutions is not only caused by differences in the assessment of current and expected trends, but also results from differences between the MNB's basic assumptions and other institutes' projections on variables that are exogenous from our perspective.

Table 4.3

Comparison of the central projection of the MNB and other projections*

	2004	2005
Consumer price index (CPI) (December on December, percent)		
MNB	6.1	4.4
Reuters survey (July 2004)	6.3	4.5
Consumer price index (average annual increase, percent)		
MNB	6.9	4.5
Consensus Economics (July 2004)	6.8	4.5
European Commission (April 2004)	6.9	4.7
IMF (April 2004)	7.1	4.4
OECD (May 2004)	6.9	4.8
Reuters survey (July 2004)	6.9	4.6
World Bank (July 2004)	6.5	4.9
GDP (annual growth, per cent)		
MNB	3.8	3.6
Consensus Economics (July 2004)	3.6	3.8
European Commission (April 2004)	3.2	3.4
IMF (April 2004)	3.2	3.4
OECD (May 2004)	3.3	3.8
Reuters survey (July 2004)	3.8	4.0
World Bank (July 2004)	3.2	3.7
Current account deficit (in EUR billions)		
MNB	7.2	7.0
Consensus Economics (July 2004)[1]	6.2	5.8
Reuters survey (July 2004)	6.7	6.2
Current account deficit (as a percentage of GDP)		
MNB	8.8	8.0
European Commission (April 2004)[1]	5.4	5.1
IMF (April 2004)[1]	5.3	4.3
OECD (May 2004)	8.5	7.6
World Bank (July 2004)	8.2	8.0
Public sector deficit (according to ESA-95, as a percentage of GDP)		
MNB	5.4	4.9
Consensus Economics (July 2004)	5.0	4.4
European Commission (April 2004)	4.9	4.3
OECD (May 2004)	5.2	4.6
Reuters survey (July 2004)	5.0	4.5
World Bank (July 2004)	5.2	4.6

** MNB projections are so-called 'conditional' projections. Therefore MNB's projections cannot always be directly compared to other projections.*

[1] Consensus Economics Inc. (London) 'Eastern Europe Consensus Forecasts' gave their current account balance projections in US dollars, which we converted at the June and March 2004 EUR/USD rate. The European Commission and the IMF apparently still project the current account balance without re-invested revenues, calculated in accordance with the earlier method.

Sources: Consensus Economics Inc. (London) Eastern Europe Consensus Forecasts (July 21, 2004); European Commission Economic Forecasts, Spring 2004; IMF World Economic Outlook (April 2004); OECD Economic Outlook (May 2004); Reuters survey, July 2004. World Bank EU-8 Quarterly Economic Report (July 2004).

4. 3 DEVELOPMENTS IN GENERAL GOVERNMENT DEFICIT INDICATORS

As we provided a detailed forecast for the fiscal path in 2004 and 2005 in the May Report, we shall now focus on the changes that have occurred with regard to this forecast.

Our central projection continues to be a conditional one in the sense that it provides a projection of the deficit based on fiscal developments. Thus, it cannot take into account the possibility that the Ministry of Finance will take further measures in 2004 H2 to meet the established deficit target.

In our central projection, the Government's ESA-based deficit target (4.6 per cent of GDP) for 2004 is unlikely to be met unless further measures to improve the balance are implemented as the year progresses. Assuming that no further measures are taken, we slightly revised up our projection for both cash flow basis (GFS) and accrual basis (ESA) general government deficit (6.6 and 5.4 per cent as a per cent of GDP, respectively) in 2004, relative to the May Report.

In 2004, fiscal policy will greatly contribute to the gradual adjustment of macroeconomic imbalances by way of a pronounced reduction in aggregate demand. At the time being, fiscal contraction of demand, i.e. what is called the annual reduction in the augmented (SNA) primary balance, is estimated to be somewhat stronger (1.7 per cent of GDP), relative to the May Report; however, this is explained by the modification of our estimate of the augmented (SNA) deficit for last year rather than for this year.

We continued to make assumptions for accrual based adjustment to the ESA and GFS balances in 2004 and 2005. For 2004, we have accepted the extent of the adjustment published by the Ministry of Finance (1.2 per cent of GDP). Relying on past adjustments, we formulated a technical estimate for 2005 (0.4 per cent). These estimates are, however, highly tentative, as the CSO methodology is not yet definitive.

As there is neither an approved budget for 2005 nor a detailed draft bill of the budget, our forecast for the 2005 government deficit continues to be based on the assumption presented in May. Compared to the ESA balance forecasted for 2004, our conditional fiscal path for 2005 assumes a 0.5 per cent improvement in the

Table 4.4

Fiscal indicators

As a per cent of GDP[33]

	Preliminary data for 2003	Forecast for 2004	Assumption for 2005*
1) GFS deficit	**-5.9**	**-6.6**	**-5.3**
2) ESA corrections	0.0	+1.2	+0.4
3) ESA deficit (1+2)	**-5.9**	**-5.4**	**-4.9**
4) Adjustment for temporary items	-1.3	-0.6	-0.3
5) Quasi-fiscal expenditure	-1.5	-1.1	-1.4
6) Augmented (SNA) deficit (3+4+5)	**-8.7**	**-7.1**	**-6.6**
7) Augmented (SNA) primary balance	-4.8	-3.3	-2.9
8) Fiscal demand impact**	**-0.1**	**-1.7**	**-0.4**

** A conditional path, based on the Convergence Programme submitted to the European Commission, which assumes an annual 0.5per cent GDP-proportionate improvement in the ESA-based deficit in the years to come.*

*** Changes in the augmented SNA primary balance, corrected with changes in payments to private pension funds. Negative values denote contraction of fiscal demand.*

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[33] For a detailed treatment of the deficit indicators used here, see the August 2003 issue of the *Quarterly Report on Inflation*, pp. 76–77. If the CSO defines the state-owned companies that perform certain tasks for the government as part of general government (the possibility of which was raised by the Ministry of Finance in what is called the 2005 budgetary planning circular on its website), this may affect the ESA-based general government deficit and outstanding debts. This is a project currently underway at the CSO; actual decisions may well have a retrospective impact.

ESA-based deficit, identical to what is set in the Government's Convergence Programme submitted to the European Commission in May. At the same time, we also prepared the usual risk-based alternative scenario showing that, due to the impact of already legislated measures, the fiscal deficit would increase in 2005. We estimate that some 1.6 per cent in deficit-reducing measures will be needed next year, in order to achieve the 0.5 per cent (GDP-proportionate) reduction of the deficit.

4. 3. 1 DETAILS OF THE FISCAL BALANCE EXPECTED FOR 2004

Our baseline projection for the general government cash based (GFS) balance contains a slightly (0.1 per cent of GDP) higher deficit relative to the May projection. The primary underlying reason for this shift is that, in the case of certain autonomous expenditure items (e.g. housing and pharmaceutical subsidies as well as net interest expenses), we now expect higher expenditure than was assumed when the previous Report was prepared. Although there have only been minor changes in our separate projections for these items, they combine to add to the cash based (GFS) deficit.

At the level of the primary balance, our projection for the sub-sector of **the central budget** reflects some deterioration in the balance, compared to the May projection.

On the revenue side, consistent with the changes in our forecast for the macro-economy, we expect higher income tax revenues (e.g. corporate tax, uniform business tax and personal income tax); by contrast, in the light of actual data on H1, and despite changes in our macroeconomic forecast (e.g. higher consumption), we expect lower revenues from consumption taxes (i.e. VAT and excise duties). Overall, no significant changes have occurred in our forecast for the total amount of tax revenues to the central budget.

On the expenditure side, with respect to all expenditure estimates under government control, similarly to the practice we adopted in preparing our earlier projections, we accepted the current projection of the Ministry of Finance. As there has been no change in our approach, our projection for the expenditure included in this category continues to be based on the MoF projection. Therefore, our projection for the annual net expenditure of budgetary institutions and units is identical to that of the Ministry of Finance. At the same time, we would like to point out that, based on actual data for the first seven months of the year, risks of a higher deficit seem to be on the upside in the case of these balance sheet items. We include this in the uncertainties surrounding our projections (more information below.)

We assume full implementation of the measures aimed at reducing expenditure which were announced in March, with the majority of the measures taking effect in 2004 H2. However, with regard to certain open-ended expenditure items, our projection somewhat differs from what the MoF anticipates: on balance, relative to our projection in May, we expect slightly higher actual spending in the case of these items (i.e. expenditures arising from housing and pharmaceutical subsidies).

Relative to our projection in May, the cash flow-based *interest balance* has deteriorated somewhat (amounting to less than 0.05 per cent of GDP), as we have revised up our assumption for yields.

In compliance with our rule-based projections, in preparing our central projection we consider the balance of the carry-overs from the previous year and those carried forward to the next to be zero. In June 2004, the Government decided to impose restrictions on the use of part of the carry-overs from last year to this year (amounting to approximately HUF 105 billion). Budgetary institutions and units must seek approval from the Government in order to be able to utilise these blocked carry-overs. This government measure leaves our central projection unaffected, as in this case the point is that the Government wished to reduce the risk of net expenditure overruns arising from carry-overs.[34]

Relative to our projection in May, as regards **the social security sub-sector,** we raised our projection for the deficit of the social security funds, owing mainly to changes to the pharmaceuticals subsidy scheme as of 1 July. Assuming unchanged consumer prices, raising the producer prices of pharmaceuticals by 15 per cent to their original level on 1 July will result in expenditure overruns for the budget. We incorporated the full amount of this extra expenditure into our projection for the deficit of the social security sub-sector. Furthermore, in accordance with the changes in our central projection for macroeconomic developments (i.e. higher wage growth), we expect higher expenditure on old-age pensions now than in May.

Our projection for *the local government sub-sector* has remained unchanged relative to May, with the deficit continuing to stand at close to 0.2 percentage points of GDP.

Given the high degree of uncertainty surrounding methodology in the year of Hungary's EU accession, we prepared no comprehensive estimate for the accrual basis correction *of the difference between the GFS and ESA deficit.* Instead, as the level of the expected accrual basis correction, we accepted the amount arising from the difference between the MoF projection for the GFS deficit in 2004 and the ESA deficit as its target (1.2 per cent of GDP).[35]

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[34] The use of carry-overs from previous years adds to the deficit; by contrast, those left from the budget estimates of the year reviewed as they were not fully used up, and carried forward to the following year reduce the central government deficit in the year reviewed. As an interim assessment of the amount of unused expenditure estimates is difficult to provide, the Government, taking the interim use of expenditure estimates into consideration, aims to control the use of net carry-overs, thereby restricting the potential development of a higher level of deficit.

In sum, with respect to the entire general government, our central projection is for an ESA deficit that is 0.8 percentage points of GDP higher than the MoF forecast published in July.[36]

As noted earlier, whereas we have revised up our deficit forecast compared to our projection in May, mostly due to changes in projections for the individual types of expenditure, the fact remains that the fundamental underlying reason for the differences between the MNB projections and those of the MoF is the differences between their respective forecasts for major tax revenues (see the May Report).

4. 3. 2 UNCERTAINTY OF THE 2004 FORECAST

In this section we present all the risk factors which are attributable to autonomous macroeconomic and fiscal developments, but which our central projection cannot allow for when we calculate the main scenario. However, our risk assessment does not provide an assessment of the measures aimed at the reduction of expenditure that the Ministry of Finance may take in H2. Moreover, we assume no change in monetary policy (more specifically, no change in the yield curve from early August) for the whole of H2.

Relative to what was outlined in the previous issue, there have been no major changes in the domain of the distribution of risks. As is shown in the table below, in the absence further measures aimed at improving the balance, the Government's ESA-based deficit target for 2004 is unlikely to be met even under the best case scenario.

As regards the risks pointing to a lower level of deficit, based on actual data on H1, it is still too early to provide an accurate forecast as to whether there will be a reversal in the trends of the dynamics of VAT payments, experienced in the past two years, and whether net VAT payments will gradually return to a higher, closer-to-trend level, as seen in earlier years. As the first four months (i.e. the period preceding Hungary's EU accession) failed to show any sign of either, in our judgement such dynamics carries lower risks, compared to our risk perception in May.

Since May, with regard to the risks of a lower deficit, our baseline forecast for macroeconomic developments has shifted towards higher wage growth and higher inflation. As their impact, which was quantified among the downside risks to the deficit in May, has been included in our central projection, we only allow for the possibility of further risks of this direction to a lesser extent.

Consistent with our growth expectations, which are higher than previously forecast, higher-than-usual advance payments of corporate tax may occur. No similar kind of risks improving the balance was perceived at the time of preparing the May Report.

Based on data for the first seven months, we consider the risk implied in the one-off shortfall of VAT revenues,

Table 4.5

Factors of uncertainty in the GFS and ESA deficit projection for 2004

As a per cent of GDP

Central projection of GFS deficit: -6.6 per cent			
VAT shortfall of base period reverses	0.2	Larger-than-expected shortfall in VAT (EU accession)	- 0.2
Delay in implementation of investment projects	0.2	Higher expenditure overruns incurred by institutions and local governments	-0.5
Impact of macroeconomic developments	0.1	Higher-than-expected increase in some items of open-end expenditure	-0.1
Extra revenues in corporate tax	0.1		
GFS deficit under a best case scenario	**-6.0**	**GFS deficit under a worst case scenario**	**-7.4**
GFS – ESA bridge assumption +1.2			
		Potential correction of fixed investment on an accrual basis	-0.1
ESA deficit under a best case scenario	**-4.8**	**ESA deficit under a worst case scenario**	**-6.3**

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[35] The Ministry of Finance published its most recent projection for 2004 in July. It is for a cash flow-based government deficit of 5.8 per cent of GDP (excluding the local government sub-sector), associated with a 4.6 per cent ESA deficit.

[36] Within this, at the level of the central government, we assume a cash flow-based deficit of 6.4 per cent of GDP, which is 0.6 percentage point higher than the MoF forecast based on an identical approach. Thus, our forecast associates a 5.2 to 5.3 per cent ESA deficit with the central government category.

due to Hungary's EU accession and interpreted for the purposes of our central projection, to be lower now than earlier (0.2 per cent of GDP).

However, in our estimate, risks to a rise in expenditure, attributable to certain fiscal developments, have increased, representing 0.5 per cent of GDP. Relative to our projection in May, there has also been an increase in the risk of a higher deficit in the local government sub-sector, along with expenditure overruns by budgetary institutions and units. The reason for this is that, compared to last year, the balance of the sub-sector deteriorated in the first five months of 2004.

In quantifying the risks, we did not allow for the risks represented by developments in the net balance of carry-overs from previous years, since – as was pointed out before – our central projection did not allow for the use of the net carry-overs. Furthermore, a forecast for any potential shift would run counter to the principle of unchanged fiscal policy applied in this case as well.

4. 3. 3 FISCAL BALANCE EXPECTED FOR 2005 – UNCERTAINTIES SURROUNDING THE FORECAST

As there is neither an approved budget for 2005 nor a detailed draft bill of the budget, we prepared a normative and a risk-based forecast for 2005. The objective of preparing a risk-based forecast is to provide an alternative scenario, based on existing determinations, which shows the possible outturns for the general government balance if no fiscal policy intervention (e.g. in the 2005 budget) occurs.[37]

The normative forecast constitutes the Report's main scenario, while the difference between the baseline and the alternative scenario reflects the risks to reduction in the deficit (0.5 per cent of GDP) along the targeted path.

Our *normative* path is based on the assumption that in 2005 the level of the ESA-based deficit will improve by an annual 0.5 per cent as a proportion of GDP, as set in the Convergence Programme finalised in May.

The *risk-based* path, as earlier, continues to indicate a rising deficit, owing to certain already legislated or officially decided measures that either increase expenditure or reduce revenues. Major determinations behind this include the agreement concluded with the National Council for Interest Reconciliation on the reduction of lump-sum health contributions, resulting in a shortfall of tax revenues, a shortfall of net customs revenues attributable to Hungary's EU accession, expenditure overruns attributable to (delayed) disbursement of the 13th month's wages in the public sector, developments in the local government investment cycle, based on historical data, and obligations arising from Hungary's NATO membership.

Thus, the difference between the assumed and the risk-based fiscal scenario indicates that the planned 0.5 per cent of GDP decline in the deficit in 2005 requires larger, some 1.6 per cent in deficit-reducing measures.

Table 4.6

Expected developments in fiscal indicators in 2005

As a per cent of GDP

	1	2	3	4 = 3 – 2
	2004	2005		
Deficit indicators	Central projection	Risk-based forecast	Central projection (assumption)	Risk
GFS deficit	-6.6	**-6.9**	-5.3	1.6
ESA deficit	-5.4	**-6.5**	-4.9	1.6
Augmented SNA deficit	-7.1	**-8.2**	-6.6	1.6

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[37] For the preparation of a risk-based fiscal forecast, see Section 5.2 in the August 2003 issue of the Report.

4. 4 DEVELOPMENTS IN EXTERNAL BALANCE

As regards developments in external balance, 2004 Q1 departed from what was expected in the previous Report in many respects. Most importantly, the external financing requirement of the corporate sector rose considerably during this period, owing to brisk investment activity. In May, we reasoned that with productivity on the rise the external financing requirement of the corporate sector might well decline. However, we also anticipated more moderate growth in investment, and it is now clear that the corporate sector's financing requirement is growing strongly, despite the increase in productivity.

One major source of investment was imports, reflected in a sharp rise in investment goods. As discussed in Section 2.1.5 on goods trade, one-off factors also contributed to a sharp increase in imports. In 2004, the trade balance deficit will be significantly higher than expected in May. Moreover, in the light of new, revised CSO data, we attach a downside risk (i.e. toward a higher trade deficit) to our new deficit forecast for 2004. Although the dynamics of corporate investment will have tapered off somewhat by 2005, the sector's borrowing requirement (as a per cent of GDP) will increase, even despite improved profitability.

As discussed in Section 2.1.3 on household consumption, households' financing capacity in 2004 Q1 already suggested a marked improvement: the downward trend in the savings rate stopped and credit expansion also slumped owing to the tightening of the subsidised housing finance scheme affecting mortgage loans. The extent of improvement exceeded what was expected in May. As a consequence, households' financing capacity in 2004 is likely to be substantially stronger than was forecast in May even if household fixed investment continues to rise this year. In 2005, however, housing fixed investment will decline significantly, and an even less marked improvement in the net saving position will be able to further boost the household sector's financing capacity.

The general government external financing requirement failed to improve to the extent expected in May, owing to a steep rise in investment in Q1. Moreover, notwithstanding the announced measures to cut expenditure, the nearly 1 per cent (relative to GDP) decrease in financing requirement assumed in May is also unlikely to occur in 2004. Nonetheless, there will be a slight improvement, but any substantial drop in the general government borrowing requirement along the currently assumed fiscal path is only expected to materialise in 2005.

Thus, for reasons related to general government and the private sector, the whole-economy external financing requirement will be higher in 2004 than previously expected, despite the improvement in households' posi-

Table 4.7

The current account and the financing position of the individual sectors

As a per cent of GDP

	2001	2002	2003	2004	2005
		Estimate		Projection	
I. General government*	-5.0	-9.2	-8.4	-8.0	-6.7
II. Private sector (=1+2)	-0.7	2.4	-0.6	-0.4	-0.3
1. Households	5.1	2.7	0.2	1.4	1.9
2. Firms	-5.8	-0.3	-0.8	-1.8	-2.2
Financing requirement (I+II)**	-5.6	-6.8	-9.0	-8.4	-7.0
Current account	**-6.3**	**-7.1**	**-8.9**	**-8.8**	**-8.0**
EUR billions	-3.6	-4.9	-6.5	-7.2	-7.0

** General government data reflect the cash-based deficit, which, although identical to the GFS deficit, also includes MNB and ÁPV Rt. profits and quasi-fiscal expenditure.*

*** Financial and non-financial corporations combined. Motorway construction expenses are recorded in the general government entry.*

tion. As a result, the GDP-proportionate current account deficit may reach 8.8 per cent, approximating the level recorded in 2003. Due to a considerable drop in the general government financing requirement and a minor decrease in the private sector financing requirement, more marked improvement is expected to occur in the external balance in 2005. The external financing requirement and the current account deficit are likely to improve by over 1.5 per cent and roughly 1 per cent, respectively, as a proportion of GDP.

4. 4. 1 FINANCING THE CURRENT ACCOUNT DEFICIT

In June 2004, consistent with international practice, the MNB adopted a quarterly publication timetable with respect to balance of payments statistics. Accordingly, this year actual BOP data are available for the period between January and April.

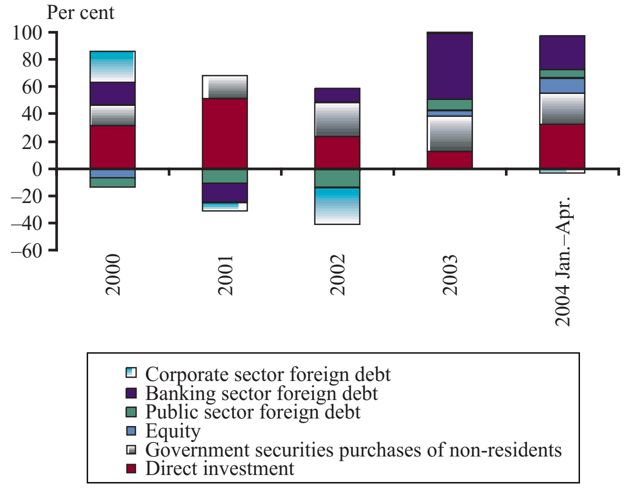
The current account deficit in the first four months of 2004 amounted to close to EUR 2.8 billion. The whole-economy external borrowing requirement was identical, also standing at EUR 2.8 billion, with the capital account balance being nearly neutral. While in 2003 the current account deficit was financed primarily by borrowing abroad and non-residents' purchases of Hungarian government securities rather than by FDI inflows, in early 2004 favourable changes occurred in the structure of financing. FDI inflows, which plummeted last year, have picked up this year. Simultaneously, the share in the the private sector's financing by foreign debt has been on the decline.

Over the first four months of 2004, FDI inflows financed 31 per cent of the current account deficit, compared to 12 per cent coverage one year earlier and in 2003 as a whole. In addition, portfolio inflows related to shares and other shareholdings were also significant.[38] Consequently, the proportion of non-debt financing amounted to 37 per cent in the first four months in 2004, compared to a mere 20 per cent one year earlier. Relative to last year's high levels, the private sector's net borrowing abroad dropped markedly. In early Q2, however, net borrowing abroad started to rise again, due to the banking system in particular. As resident banks' borrowing abroad increased, so did foreign currency lending to households and firms. In the first four months of 2004, private sector borrowing amounted to almost EUR 1.7 billion, while that of general government consolidated with the MNB amounted to EUR 800 million,[39] which is roughly identical to the structure of financing in 2003, in terms of proportions.

In 2004, owing to the anticipated increase in the corporate sector's financing requirement and moderation in that of general government, the currently high level of FDI inflows (relative to last year) and the resultant non-debt financing are expected to continue or rise slightly. Furthermore, compared to the current level, the proportion of financing the current account deficit through FX-borrowing abroad is also likely to increase, which, however, is expected to be much lower than last year's high levels. As the scheduling of EU transfers is different than anticipated, the capital account balance is expected to be lower than assumed in the last Report. As a result, the external financing requirement is expected to improve to a lesser extent than was previously projected.

Chart 4.5

Structure of current account financing



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[38] Owing, mainly, to the partial sale of the state shareholdings in MOL.

[39] Following a steep rise in non-residents' purchases of government securities in Q1, there was a significant drop in the portfolio in Q2.

Table 4.8

External financing requirement

EUR millions

	2003				2003	2004	2004
	Q1	Q2	Q3	Q4	FY	Q1	April
1. External financing requirement	**-1593**	**-1788**	**-1406**	**-1777**	**-6564**	**-1762**	**-1018**
1.1 Balance of the current account	-1488	-1797	-1418	-1786	-6488	-1705	-1070
1.2 Balance of the capital account	-105	9	12	9	-75	-57	52
2. Financing	**4279**	**177**	**1604**	**1037**	**7096**	**1629**	**996**
2.1 Direct investment	-69	250	79	515	775	327	537
2.1.1 Abroad	-472	-169	-37	-729	-1408	-252	-14
2.1.2 in Hungary	403	419	115	1244	2182	579	551
2.2 Consolidated government	1559	-289	1236	-271	2234	972	-183
2.2.1 MNB	-116	-541	-771	-421	-1849	-736	-35
2.2.2 Government (without government securities)	947	-12	1146	280	2361	923	14
2.2.3 Foreigners' purchases of government securities	728	264	861	-130	1722	785	-163
2.3 Private sector	2626	102	331	616	3676	134	643
2.3.1 Credit institutions	2647	-86	320	484	3365	246	327
2.3.2 Portfolio investment (equity)	212	38	147	-172	224	270	26
2.3.3 Corporate sector foreign borrowing	-232	150	-136	304	87	-382	290
2.4 Net errors and omissions	163	114	-42	177	412	139	-2
3. Change in international reserves (1+2)	**2686**	**-1611**	**198**	**-740**	**532**	**-133**	**-23**

4. 5 HOW ROBUST IS THE RECENT RAPID RISE IN MANUFACTURING PRODUCTIVITY?

Since the second half of 2003, the external recovery in the global economy has had an increasingly strong impact on Hungarian economic growth. In manufacturing, however, labour demand has not followed this pick-up in output, which in turn has triggered a salient increase in productivity.[40] Simultaneously with this, wage inflation began to accelerate in manufacturing last year, and in relation to the projections the question arose: How long can the rapid increase in productivity sustain corporate competitiveness when accompanied by high rate of wage growth in the future? In other words: Can we expect Hungarian productivity to keep growing at the recent fast pace in the future?

Recent growth in productivity cannot be considered as a unique feature of the Hungarian economy: this phenomenon, termed in the literature as a 'jobless recovery', was first observed in the USA at the beginning of the 1990s. The current recovery is characterised by similar features overseas and in Europe. It is no accident that numerous papers have focussed on this subject in the past few months.[41] The overwhelming majority of these studies conclude that the underlying reason for a 'jobless recovery' is the restructuring of production and, consequently, a permanently high growth rate of productivity can actually be expected in the long term.

The following analysis is a survey of productivity in Hungary over the past 18 months. As productivity tends to move in close correlation with the business cycle, it is shaped by both structural and cyclical effects. Accordingly, in the framework of an analysis of aggregate time series, we first seek an answer to the question as to what extent the manufacturing productivity growth of the past few quarters can be explained by cyclical and structural effects. In the second part of the analysis, productivity growth is broken down in both a growth accounting and a shift share framework, and the role of structural shifts, capital deepening and technological progress is examined.

The results of our time series analysis indicate that cyclical effects give an essentially sound explanation for the variations in productivity. However, that part of our analysis which focussed on the components of growth also identified structural factors: the substitution of labour by capital and the decline in the textile industry both contributed to the pick-up in productivity. But the factor that played the greatest role in rapid growth was technological progress, most probably related to the fast development of information and communication technology (ICT) in Hungary. Over the long run, however, these structural effects are expected to weaken. On the whole, we conclude that over the long term such a high rate of productivity growth cannot be maintained, and that a slowdown is likely in the future.

4. 5. 1 TO WHAT EXTENT DOES THE BUSINESS CYCLE EXPLAIN GROWTH IN PRODUCTIVITY?

Theoretical considerations and domestic experience suggest that productivity moves pro-cyclically: in times of recovery it accelerates, whereas during a recession it slows. As a first step, we seek an answer to the question what productivity growth would result from the cyclical fluctuations of production and labour input in the current stage of recovery, if the relationship observed in the past were taken as a basis. If the estimated productivity growth numbers roughly correspond to the actual data, then, in our opinion, the trends of the past period result from cyclical effects, and if they are smaller, structural effects may have also affected them.

The production/labour-input relationship is estimated by a regression between labour input and the output gap in the period between 1995 Q1 and 2002 Q4.[42]

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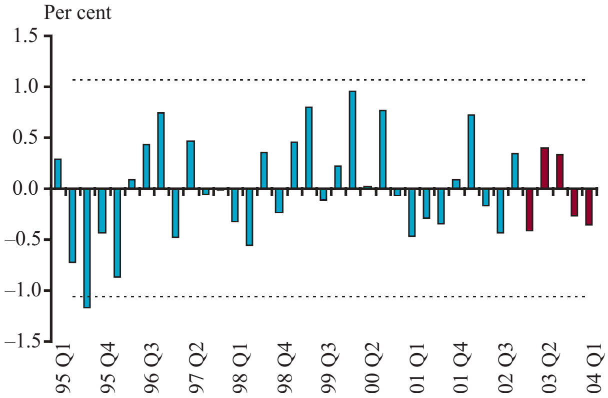
[40] In this analysis, productivity is interpreted as a ratio of added value to total hours worked, which is justified by several reasons. Division by the number of total hours worked allows for a direct analysis of the relationship between the unit of labour input and production. As the productivity indicator is used for the most part to analyse competitiveness, value added is seen as a more appropriate indicator than gross output, as the latter also contains materials input.

[41] On the USA, see Groschen, E. and Potter S. (2003) 'Has Structural Change Contributed to a Jobless Recovery?', Current Issues in Economics and Finance, Vol. 9., No. 8.; on the EU see the European Commission's Quarterly Report for 2003 Q4, and Sweden is analysed in the 2004 Q1 Inflation Report of the Sveriges Riksbank.

Chart 4.6

Difference between estimated and actual labour input, 1995 Q1–2004 Q1



Broken line: double the standard error of regression in both directions.

Then, with the help of the estimated parameters we make a projection for the period 2003 Q1–2004 Q1, and then establish the difference between the projected and the actually measured labour input. Our calculations show that, although residuals were in the negative domain in the past two quarters (indicating that labour input remained lower than justified by the current stage of the business cycle), on the basis of past behaviour, the discrepancy cannot be considered as either systematic or abnormally large.[43] Thus, the growth rate of productivity can be adequately explained by cyclical fluctuations. In the following, we continue with a more disaggregated analysis and focus on the various components of productivity growth.

Capital deepening, structural shifts and technological progress

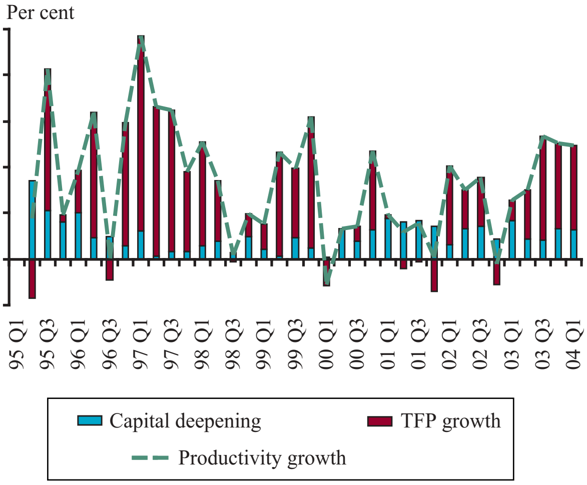
As indicated in earlier issues of the Report, the relative rise in labour costs during 2001–2002 is assumed to have prompted companies to substitute labour with capital, which perhaps contributed to the rapid growth of productivity. Decomposition of productivity growth by factors of production indicates that capital deepening had an increasing part in explaining the rise in productivity in the recent period.

Earlier issues of the Report also explained that the decline in manufacturing labour demand, commencing from end-2004, was due in most part to the downturn in a single industry, namely textile manufacturing. The questions that arise are: (i) to what extent is the rise in capital intensity in manufacturing attributable to the so-called structural shift effect (e.g. to the decline in the highly labour-intensive textile industry); and (ii) whether the decline in the textile industry increased capital intensity, and thus productivity, in manufacturing permanently?

Chart 4.7

Decomposition of manufacturing productivity growth (Growth accounting framework)

Quarter-on-quarter growth rates



Source: own calculations.

The outcome of our analysis suggest that structural shifts played a major role in the recent growth in manufacturing productivity.[44] In 2001 and 2003, labour-intensive sectors lost significance, promoting growth in productivity. This is partly related to the textile industry decline. But despite a major decline in that branch, labour-intensive sectors increased their share in employment in 2002, as a result of growth in the food industry, and the manufacture of rubber and metals. Growth in labour-intensive sectors other than the textile industry suggests that the collapse of this industry alone does not necessarily entail a permanent decline in overall manufacturing labour intensity. Moreover, the structural shift effect is far smaller in the EU Member States than in Hungary and is decreasing, while in the USA it has a negative value.[45]

Based on this, over the long run the sectoral composition effect is assumed to diminish and finally to disap-

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[42] We estimated this relationship, cited in economics as Okun's law, in the following form: y_t=c+x_t+y_{t-1}+x_{t-1}+ε_t, where y_t is the logarithm of the labour input gap and x_t is the logarithm of the output gap. Gaps were calculated using an HP filter. Due to the endogenous nature of the explanatory variable x_t, the equation was estimated by Two-Stage Least Square method.

[43] The significance of the difference is approximated by double the standard equation error.

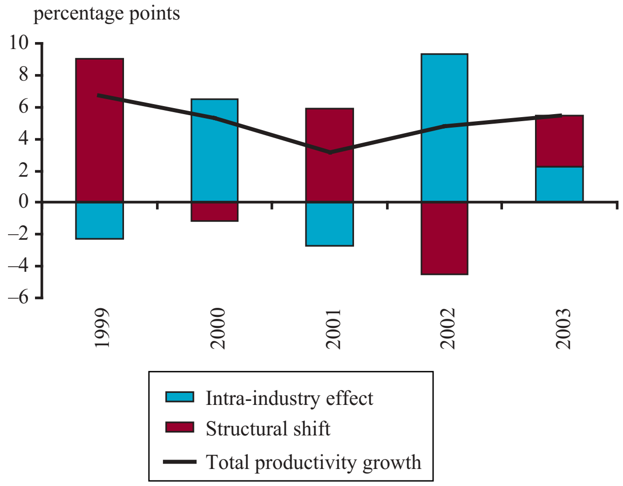
[44] If manufacturing productivity is defined as a sum of the employment weights of productivity in the individual sub-sectors, then total productivity growth can be divided into two constituents. On the one hand, sector productivity variations cumulated by invariable employment weights give a value for the intra-industry change in labour intensity. On the other, weighting of changes in the employment rates with productivity weights gives a value for the impact of structural shifts.

[45] See Focus on 'Slow productivity growth in the euro area: causes and possible remedies' in: Quarterly Report of the Commission of the EU, 2003 Q4.

pear. This means that even the effects resulting from structural shifts cannot maintain a high rate of productivity growth over the longer term.

Chart 4.8

Decomposition of manufacturing productivity growth (Shift share analysis), 1999–2003



Our calculations indicate that the rise in labour productivity in recent quarters has been due to strong TFP growth rather than capital deepening. Currently, the academic literature identifies technological progress predominantly with the spill-over of ICT.

Information on the ICT sector's role in Hungary during the past six quarters, particularly relevant for this analysis, is scarce. Based on the international literature,[46] it may be established that, due to the relocation of computer manufacturing to Hungary, the significance of the ICT sector is relatively high in a regional comparison and, on the average of the period between 1995 and 2001, the ICT sector's contribution to productivity growth exceeded the corresponding data of the CEE countries and the EU. However, the so-called spill-over effect, a pivotal factor in the long-term sustainability of the current rate of productivity growth, is not apparent in the Hungarian data. Although the ICT sector's contribution to productivity growth and quantification of the spill-over effect require further analysis, the recent rise in productivity seems to be unsustainable on the basis of the current state of technological progress.

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[46] Van Ark, B. and Piatkowski, M. (2004), 'Productivity, Innovation and ICT in Old and New Europe', GGDC Research Memorandum GD-69. and Piatkowski, M. (2004) 'The Aggregate Contribution of ICT to Output and Labour Productivity Growth in Transition Economies', paper prepared for the TIGER Conference 'ICT as Drivers of Development in Transition Economies' held in Warsaw, 14 May 2004.

4. 6 CALENDAR EFFECTS IN ECONOMIC TIME SERIES

In the past, first quarter outturns for certain significant real economic indicators have often revealed more robust improvements in the underlying processes than the forecasts in the Report. 'Calendar effects' were thought to be the main reason behind these phenomena since they are eliminated from the seasonally adjusted time series serving as the basis of our forecast. Consequently, if these effects are considerable within a year, the growth rates derived from the original data will differ from those derived from the seasonally adjusted time series. Having examined the calendar effects in more detail, we also found that in certain important real economic variables (most markedly in the time series for GDP and industrial output) these effects were significant from a statistical point of view, and that a part of the high increase in these time series, exceeding our implicit forecast for the first quarter in the Report, can be attributed to calendar effects (for example, an extra day due to the leap year). Another interesting finding is that, at the same time, no calendar effect can be seen in the items on the expenditure side of GDP at the approved statistical significance levels. As the time series analysed go back only for a relatively short period, the estimated and quantified value of calendar effects should be treated with caution.

4. 6. 1 CALENDAR EFFECTS IN BRIEF

In analysing or forecasting real economic developments, seasonally adjusted time series are used. Under our adjustment method (TRAMO/SEATS), which is also officially recommended by Eurostat, the various time series components (trend, cycle, seasonal) are decomposed not on an ad hoc, but on a model basis.[47] This type of decomposition can only be adequate if 'extraordinary' effects (such as outliers, calendar effects, identifiable one-off effects and effects caused by possible lack of data) are eliminated from the time series by pre-adjustment. Thus, these effects are not included in the seasonally adjusted data or the time series used in a number of our analyses.

In respect of time series, we talk of calendar effects when the number of working days or the time span are different in subsequent (or compared) periods, or when public holidays resulting in certain increased activity fall in different calendar periods.

In the first case, a calendar period of a given year (a month or a quarter) can contain even two or three working days more (or less) than the previous period or the same period a year earlier, due to the difference caused in turn by variations in weekend days or fixed public holidays in the yearly calendar. Here, a possible higher increase due to extra working days will not reflect the actual direction of developments: this is the reason why this effect is eliminated in preparing our forecasts. This is the first type of calendar effects: the working-day effect.[48]

An extra day appears in the appropriate period of leap years (in February in the case of data of monthly frequency and in the first quarter in the case of quarterly frequency), also resulting in a calendar effect. Due to its periodic occurrence, this effect can be distinguished from the working-day effect, and so a separate leap-year effect can be described.

In order to see that two different effects are at work, it is worth comparing a plant (for example, a power station) practically operating permanently and another one closed on all weekends and public holidays (for example, a cloth manufacturer). In the case of the power station, there is no working-day effect, while the leap-year effect (one extra calendar day) is reflected. In the case of the cloth manufacturer, however, a strong working-day effect is likely to be detected, while the leap-year effect may be insignificant. In reality, there are a great number of both types of plants, but we have reliable methods at our disposal to separate working-day effects from leap-year effects even at higher levels of aggregated data.

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[47] The program can be downloaded from the EUROSTAT's homepage on seasonal adjustment.
http://forum.europa.eu.int/Public/irc/dsis/eurosam/library?l=/software/demetra_software&vm=detailed&sb=Title

[48] In longer time series of higher (monthly) frequency a change in the number of the different days of the week (Monday, Tuesday ...) can also lead to calendar effects. These are called 'trading-day effects'.

The third type of calendar effects is related to moving holidays. In Hungary, these include Easter and Pentecost. These official holidays may occur in different months in different years and Easter may even occur in a different quarter. This may upset the otherwise normal seasonality of the time series and, as a result, this type of calendar effect must also be dealt with before decomposing the actual seasonal component. As increased activity has an effect on more than one day before Easter Sunday, we used the Easter effect,[49] a special correction factor in our seasonal adjustment method.

If a time series is affected by any type of calendar effects, there will be a difference between the growth rates derived from the unadjusted time series and the seasonally adjusted time series from which calendar effects have previously been removed. Therefore, in our analysis we search for calendar effects in those real economic variables for which we publish forecasts in the Report and in indicators of major relevance to our inflation forecasts. Where these effects were clearly demonstrable, we analysed them from the point of view of our forecasts for 2004, with the aim of quantifying the direction and the size of their possible deviation from the figures given in May.

4. 6. 2 THE TOPICALITY OF CALENDAR EFFECTS

Calendar effects have gained importance recently, as in 2004 many more public holidays fall on weekends than the multi-year average and, as a result, the number of working days is higher than the multi-year average and the number of working days in 2003. In addition, 2004 is also a leap year and as such, both working-day and leap-year effects are reflected in the 2004 figures of certain real economic indicators. As explained above, it is not advisable to merge the two effects into one.

As we have found calendar effects in the outturns for certain important time series for 2004 Q1, discussed in the Report, it may be worth considering whether our present forecasting practice should be continued. At the moment, only seasonally adjusted time series are analysed and included in the forecast, neglecting the fact that growth rates based on unadjusted data deviate (or may deviate) from those calculated explicitly or implicitly. This approach will most likely not be continued, as our forecasts of seasonally adjusted time series would have to be corrected on the basis of the estimated calendar effects.

As an illustration, the analyses by the ECB and the Deutsche Bundesbank are available.[50] In the June 2004 issue of its Monthly Bulletin, the ECB examined calendar effects in the GDP time series of six countries: Belgium, France, Germany, Italy, the Netherlands and Spain. As regards the 2004 average annual GDP growth rate, the strongest effect was estimated in Germany (+0.5 percentage points), a relatively strong effect was estimated in the case of France (+0.2–0.3 percentage points), while there was no considerable effect in the other countries. In addition to GDP time series, the Deutsche Bundesbank analysed calendar effects for the aggregates of the time series for the production and expenditure sides as well. A rather strong, 0.6-percentage point calendar effect was estimated for GDP itself: an economic growth rate of 1.2 per cent was calculated eliminating the calendar effects, and a 1.8 per cent increase was estimated including them.

4. 6. 3 QUANTIFYING CALENDAR EFFECTS

The method we use for seasonal adjustment (TRAMO/SEATS[51]) eliminates calendar effects from the time series under review even before decomposing them. The quality of pre-adjustment also determines the quality of the decomposition of the time series and, consequently, in parallel with our present analysis, we examined whether or not the Hungarian calendar settings of the adjustment programme, defined back in 1999, were adequate.[52]

The estimates of calendar effects are illustrated on the constant price GDP time series, while the calendar effects found in other time series are shown in a summary table (Table 2). Based on the adjustment of the GDP time series data from 1995 Q1 to 2004 Q1, currently viewed as producing the best results, only the leap-year effect out of all the calendar effects has a significant explanatory power (i.e. at the most acceptable 5 per cent level). Therefore, no significant working-day or Easter effect can be demonstrated in the time series, and no other pre-adjustments are needed apart from those required by calendar effects.

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[49] In principle, such effect can also be felt before Christmas, but as Christmas is a fixed holiday, the effect can always be felt in December, i.e. in the fourth quarter and as such can be treated as part of normal seasonality.

[50] In addition, based on verbal consultation, we are also aware that the OECD also tried to quantify calendar effects as it considered them important, but estimated the extent of these effects as relatively low.

[51] In addition, Demetra also offers the X12-ARIMA method as a possibility for adjustment. Unless we have a strong argument against it, in the case of ‘flow’ time series the TRAMO/SEATS method should be used as it also takes into account country-specific bank holidays (e.g. 15 March in Hungary). In the case of ’stock’ time series, however, the X12-ARIMA has better built-in possibilities, although at present we do not often work with ‘stock’ time series.

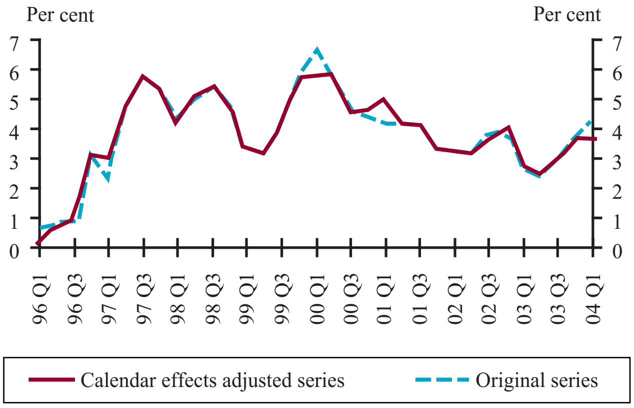
[52] Having reviewed the built-in country-specific holiday block of TRAMO/SEATS, we noticed that the Hungarian ‘set’ did not contain 1 November, a day that has been a bank holiday since 2000: a fact in itself justifying the readjustment of the main time series. In addition, we also decided to treat 24 December as a bank holiday in the adjustment programme since on 24 December and 31 December, officially announced as working days, economic activity is much lower than normal and this must also be taken into account when making corrections. As these two dates always fall on the same day of the week, this decision did not result in additional complications.

Accordingly, by comparing the GDP time series after eliminating the calendar effects with the unadjusted series, we derive the leap-year effect.[53] Due to the calendar nature of the leap year, its effect is rather easy to follow: we can only see a significant deviation in the first quarter of the calendar years divisible by four and in the first quarter of the subsequent year (here with an opposite sign; see Chart 2).

Chart 4.9

Deviation between the GDP time series adjusted for calendar effects and the original GDP time series

Quarter-on-quarter growth rates



The above differences also suggest that a significant deviation in average annual GDP growth rates can only be detected in the leap year and the subsequent year, and that these deviations will also be of the opposite sign. These differences, however, were not significant when expressed in percentage points.

Thus, while there were significant differences between the annual growth rates for the first quarters of leap years and the subsequent years (in the case of the most up-to-date data for 2004 Q1, the 4.2 per cent growth rate calculated from the original data published by the CSO is in contrast with a growth rate of only 3.6 per cent derived from the time series adjusted for calendar effects), on a yearly level the most significant deviation was merely 0.2 percentage points in 2001. Accordingly, despite the great difference in the first quarter, we should not presume that a difference higher than 0.2 percentage points can be expected between our forecast for the annual growth rate based on seasonally adjusted time series after eliminating the calendar effects and the annual growth rate calculated from the original GDP time series including calendar effects.

It should be noted, however, that the time series available for adjustment is not too long (containing only three leap years) and the two preceding leap years (1996 and 2000) had significantly fewer working days than 2004. It is possible, therefore, that the working-day effect is not too robust due to the short time series. Consequently, in 2004 we have included a somewhat higher deviation in our calculations for the benefit of the growth rates derived from the original time series than the estimated average leap-year effect.

Our findings related to calendar effects, based on a similar analysis of other real economy macro variables, are summarised in Table 2. It shows that, apart from the time series for GDP and industrial production, practically no other time series contain calendar effects. This should be treated with some reservation as, in addition to the offsetting factors or the relatively short time series discussed above, we suspect that certain time series of lower aggregation are not properly published, due to problems related to data collection or to the statistical reporting system, or that these time series are corrected before publication in a way blunting or totally eliminating calendar effects. A similar suspicion related to the publication of Hungarian data has been raised before at international level.

Consequently, the interpretation and discussion of calendar effects detected in certain Hungarian real economic time series should be treated with increased caution.

Table 4.9

Original growth rate and growth rate adjusted for calendar effects calculated from GDP time series and their deviation

Percentages

	Year-on-year growth rate for Q1			Annual average growth rate		
	Original	Corrected	Difference*	Original	Corrected	Difference*
1996	0.59	0.11	0.48	1.32	1.20	0.12
1997	2.31	3.01	-0.70	4.57	4.71	-0.14
2000	6.56	5.73	0.83	5.20	5.15	0.05
2001	4.17	4.88	-0.71	3.85	4.04	-0.19
2004	4.24	3.63	0.60			

** Percentage points.*

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[53] Additional smaller differences indicate non-significant working-day effects. As mentioned above, a single leap-year correction cannot be expected and thus these will be pre-adjusted in every case whether they are significant or not.

Table 4.10

Calendar effects in certain significant real economy time series

	Sample period	Trading day effect	Leap year effect	Easter effect
GDP	1995 Q1–2004 Q1	-	+	-
- parameter		0.0003	0.0065	
- t-value**		1.17 (2.02)	2.42 (2.02)	
Industrial output	1992 Q1–2004 Q1	-	+	-
- parameter		0.0005	0.0082	
- t-value**		1.20 (2.01)	2.79 (2.01)	
Manufacturing output	1992 Q1–2004 Q1	-	-	-
Manufacturing value added	1995 Q1–2004 Q1	-	-	-
Market services value added	1995 Q1–2004 Q1	-	-	-
Household consumption	1991 Q1–2004 Q1***	-	-	-
Private sector wages	1993 Q1–2004 Q1	-	-	-
Corporate investment	1995 Q1–2004 Q1	-	-	-
Goods export	1995 Q1–2004 Q1	-	-	-
Goods import	1995 Q1–2004 Q1	-	-	-

** Changes in percentage points attributable only to calendar effects.*

*** The value at 5 per cent significance level is in brackets.*

**** The time series is not homogenous, it is made up by chaining time series separately adjusted on partial samples.*

4. 7 THE EFFECTS OF ECONOMIC CYCLES ON THE GENERAL GOVERNMENT BALANCE

The cyclically adjusted budget deficit (CAB) is an indicator of the fiscal position assessed by a wide array of European institutions, including the European Commission (EC) and the European Central Bank (ECB). The key concept behind CAB is to eliminate the transient effects of economic cycles from the underlying budget balance and identify actual, discretionary fiscal expansion or restriction.

The first step in eliminating the cyclical effects is to identify the potential level or long-term trend of the various economic variables. There are two fundamentally different approaches in the international literature to identify the potential level of variables and thus the CAB. For example, the EC directly calculates the effects of economic cycles on the fiscal budget using the aggregate output gap derived from GDP, that is, the cyclical position of the economy is expressed by a single real economic cyclical indicator.[54] Accordingly, the underlying assumption behind this procedure is that the individual components of GDP are in the same cyclical position as the aggregate output gap.

As, at any given moment, the various aggregates of GDP are not necessarily in the same cyclical position and they may have different effects on the budget balance, the ECB uses a disaggregated approach which means evaluating the various aggregates of GDP separately.[55] However, the disaggregated approach is based on examining the various aggregates independently rather than on decomposing the aggregate output gap. The ECB uses a single-variable method (the so-called HP filter) to define trend values, for the sake of easy reproduction.

In a recent Working Paper,[56] we have amalgamated the advantages of the two approaches discussed above to develop a model, using the output gap derived from the production function according to the EC's methodology, which, however, decomposes the aggregate output gap into the relevant GDP components using economics relationship. Due to the disaggregated nature of the method, its results are close to those produced by the ECB's approach.

The cyclically adjusted general government balance (CAB) can be derived by deducting the estimated cyclical component from the headline (GFS or other) deficit as a percentage of GDP. If the cyclical component is negative, the cyclically adjusted deficit is smaller than the headline deficit, and vice versa, in the case of a positive cyclical component, the cyclically adjusted deficit is higher than the not adjusted, headline deficit.

The major difference between the aggregated and the disaggregated methods can be best captured in 2002–2003 data. Due to the negative aggregate output gap resulting from lower-than-previous GDP growth, the EC's approach indicates a negative cyclical component, meaning that, after eliminating the cyclical effects, the deficit is smaller than the headline deficit (see the negative values of the cyclical component in column 'EC' of the Table). However, in the ECB's and our own research approach (CMHP) wages and consumption were above their potential levels, due to the significant increases in real wages and consumption, which are the dominant factors of fiscal revenue, meaning that the cyclically adjusted deficit was higher than the actual.

Another interesting finding of our paper is that, due to the different inflation of the various components of GDP, price shocks may counterbalance the cyclical position of the real variables. Accordingly, the cyclical component after and before eliminating the price shocks may have different signs. This was the case in 1995–1996, when the widening gap between the consumer price index and the GDP deflator partly offset the cyclical impact of real variables deteriorating the fiscal position and, moreover, its overall impact was an improvement in the fiscal balance according to certain approaches.

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[54] Denis, C., M. K, and Röger, W (2002) 'Production Function Approach to Calculating Potential Growth and Output Gaps – Estimates for the EU Member States and the US' European Commission, Directorate-General for Economic and Financial Affairs, Economic Papers No. 176, September 2002.

[55] Bouthevillain, C., Cour-Thimann, P., van den Dool, G., P. H. Cos, Langenus, G., Mohr, M., Momigliano, S. and Tujula, M. (2001) 'Cyclically Adjusted Budget Balances: An Alternative Approach' European Central Bank, Working Paper No. 77, September 2001.

[56] Gábor, Kiss and Gábor, Vadas: 'Mind the gap – Watch the ways of cyclical adjustment of the budget balance', MNB Working Paper No. 7/2004, Magyar Nemzeti Bank, http://www.mnb.hu.

Table 4.11

Contribution of the cycle to general government balance under various calculation methods*

	Cyclical component			Cyclical component including price effects		
	EC	ECB	CMHP	EC	ECB	CMHP
1995	0.0	-0.4	0.1	0.6	0.2	0.7
1996	-0.4	-1.0	-0.6	0.3	-0.3	0.1
1997	0.1	-0.9	-0.3	0.1	-0.9	-0.3
1998	0.3	-0.4	0.0	0.7	0	0.4
1999	-0.2	0.1	-0.1	0.2	0.5	0.3
2000	0.1	0.2	0.0	0.3	0.4	0.2
2001	0.1	0.0	-0.1	0.2	0.1	0.0
2002	0.1	0.5	0.4	-0.1	0.3	0.2
2003	-0.2	0.8	0.4	-0.4	0.6	0.2

** As a per cent of GDP. Positive (negative) values indicate that the business cycle reduced (increased) the general government deficit on its own. The cyclically adjusted budget balance (CAB) can be derived by subtracting the cyclical component from the headline general government balance (GFS or, for example, ESA based).*

4. 8 THE EFFECT OF GLOBAL CRUDE OIL MARKET PRICES ON THE HUNGARIAN ECONOMY

Increasing oil prices have directed the attention of many macroeconomic analysts towards the expected economic effects and potential risks. Since the development of oil prices may have a considerable effect on both the world economy and the Hungarian economy, in this analysis we attempt to summarise the expected effects, expressing them in figures as well. Before showing the results of the simulations we find it important to present a historical overview of crude oil prices and the characteristics of Hungarian economy – relevant from the point of view of the effects expressed in actual figures.

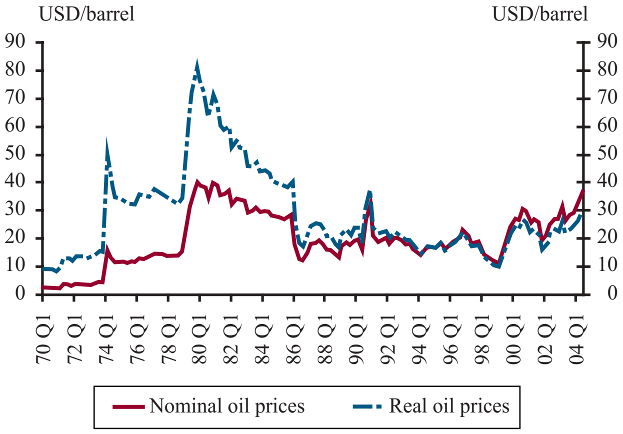
4. 8. 1 HISTORIC OVERVIEW OF GLOBAL CRUDE OIL PRICES

As mentioned in the summary, global crude oil prices have not been as high as the June or July level since the oil crisis of 1979–80. At the same time, should we wish to summarise the relevant economic effects we have to consider the price changes of other products and services as well. On the basis of the so-called real price level, filtering out inflationary effects, it is clear that in real terms current oil prices are far lower than prices at the time of the 1979–80 and the 1973–74 crises.

Chart 4.10

Real and nominal oil prices

Deflated by the US consumer price index; at 1995 price levels

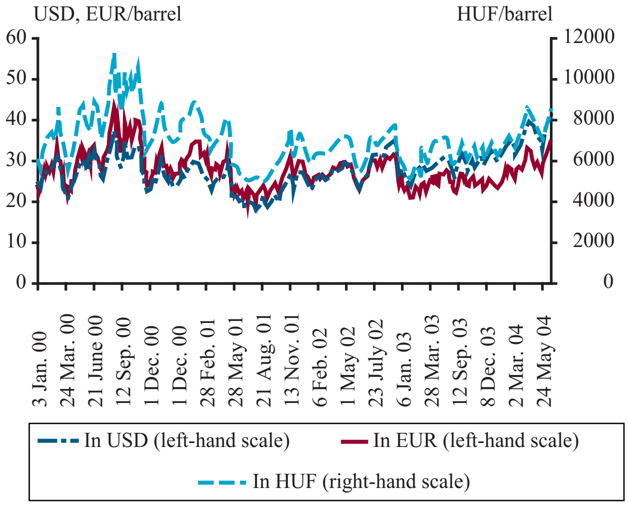


Source: IFS.

The effect of oil prices on Hungarian economy can only be estimated by considering the development of the USD/EUR – or parallel, the HUF/EUR – exchange rate. Although the trend of oil price increase expressed in dollars already started in May 2003, until February of this year the strengthening of the euro to a similar extent fully compensated for this upward price trend. Therefore, in the euro area and the closely integrated economies – such as Hungary – the increase of oil prices has only become strongly perceptible since the beginning of this year. Disregarding some periods of weakening of the forint against the euro (June–August 2003), oil prices expressed in forints essentially showed a similar behaviour as the euro-denominated prices.

Chart 4.11

Brent crude prices expressed in dollars, euros and forints



Source: Reuters.

4. 8. 2 THE MAIN FACTORS BEHIND HIGH OIL PRICES

The development of the current level of oil prices is the joint effect of several price-boosting factors taking place almost simultaneously.

Last year, the world economy appeared to rebound from the trough in the economic cycle, which – apart from the economic upswing – is also mirrored in the *increasing demand for oil.* A particularly quick rise took place in China and in the other South East Asian countries. Owing to a sustained economic increase we may expect to see even greater demand for crude oil.

On the demand side, the *limited nature* of current capacities did not allow the demand to be satisfied without a price increase. The global crude oil production is currently at 80-85 million (corr. 17.08.2005., editor) barrels per day, and to the best of our knowledge this quantity cannot be further increased to a considerable extent over the short run. The members of OPEC,[57] consisting of the most significant oil-producing countries, are already producing over their quota and they do not have any further significant production capacities (apart from Saudi Arabia). The non-OPEC states are in a similar position. The low supply is generally due to the non-occurrence of capacity increasing investment, which is further exacerbated by production stoppages due to the danger of war.

In the past few months the insecurities relating to the oil prices were heightened by the war (Iraq) and the tense domestic political situations (Nigeria, Venezuela, Russia) in several large oil producing countries.

As seen from our brief list, the current increase in oil prices cannot be tied to just one economic or political event. The price increase is a result of shocks in the supply and demand, jointly with psychological factors (due to the risk of war).

4. 8. 3 GENERAL CONSIDERATIONS OF THE MAIN ECONOMIC EFFECTS OF HIGH OIL PRICES

On the basis of the experiences of past decades a lasting increase in oil prices leads to a slackening GDP growth rate in the developed economies. This is partly the result of real economic processes and partly of the economic policy measures taken as a reaction.

Changes in oil prices primarily have an effect on the real economy via a decline in global demand. The increase of oil prices results in a redistribution of revenues from oil importing countries to oil exporting countries. As the crude oil exporting countries (primarily less developed countries) have a lower demand and are less import-intensive than the crude oil importing countries (mainly developed economies), through this redistribution of revenues aggregate demand decreases as well, worsening the prospects for external recovery for these economies.

Increasing oil prices result in a worsening terms of trade for the importing countries, which also decreases the real and financial assets of the economic participants in the given countries. As a result of the so-called 'asset-effect', the aggregate demand of the economy may also decrease.

A similar effect occurs if wages – as a consequence of the inflexible approach of the labour market – do not react over the short run to increasing inflation stemming from higher oil prices, thereby decreasing aggregate demand.

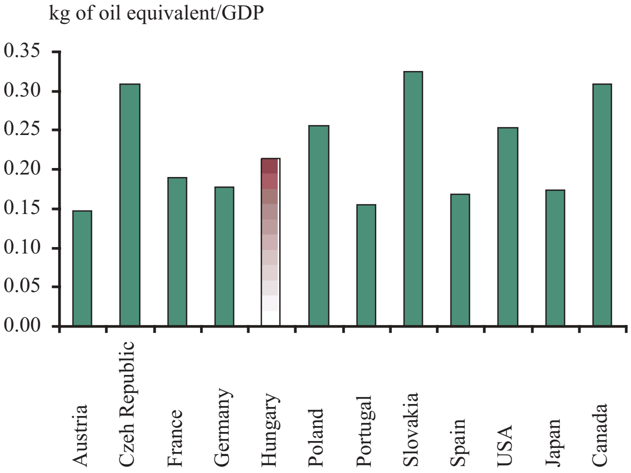
The macroeconomic effect of oil prices is greatly influenced by economic policy reactions. On the basis of the experiences of the oil crisis in the 1970s, the only way to prevent a lasting price increase from increasing the inflationary expectations of the economic participants is to maintain strict monetary conditions (via fiscal policy).

The extent of the impact on the real economy greatly depends on the sensitivity of a given economy to oil import and the energy intensity of production. As Hungary does not have any large exploitable oil reserves and the energy intensity of production is significantly higher than in more developed European countries, the real economic effects presumably have a greater influence on Hungary than on the countries with the above described characteristics.

Chart 4.12

Energy intensity of certain economies

Energy consumption needed for producing one dollar's worth of GDP on the basis of 2001 data



Source: World Bank, WDI databases.

Inflationary effects

The effect of oil prices on consumer prices largely depends on the duration of the effect of oil market prices. A relatively narrow range of consumer basket components (fuels) immediately react to oil price movements on the world market. Within this product category the oil price movement is characteristically symmetrical. Contrary to this, in the case of most consumer goods only lasting oil price changes have an inflationary effect. In respect of these products or services, the price change is the result of a longer 'carry-over' period, which – taking the strict pricing behaviour into consideration – results in a characteristically asymmetric adaptation of prices. The inflationary effect of increasing oil prices – be it lasting or transitory – is particularly dangerous and can hardly be combated by economic policy instruments if the price increase involves an increase of inflationary expectations as well.

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[57] On the basis of the 2004 figures this organisation accounts for 41 per cent of global crude oil production.

In the following, we attempt to map the main channels through which global oil prices may influence inflationary developments in a small, open economy. We have tried to provide a list of the factors in line with the time that the inflationary effect appears.

Cost-side factors (in the order of the appearance of price effects)

The change of oil prices denominated in the domestic currency directly and practically immediately modifies fuel prices which represent a considerable component of the total consumer basket. At the same time, as the price of petrol is subject to significant taxes and other administrative fees in most developed economies, changes in producer prices appear in quite a subdued way in consumer prices.

Most energy prices (including fuels, marked-to-market energy items and those with regulated prices) move in close conjunction with global oil prices, either as a result of cost-side effects or as a result of the development of pricing formulae or price regulatory decisions (gas prices).

In the industrial sectors using fuels or crude oil products (e.g. transportation and chemicals industry) increases in oil prices appear relatively quickly as a cost-push pressure after any existing reserve stocks have been exhausted.

If high oil prices are sustained for a longer period of time, due to the effect of price increases of the above-mentioned 'mediating sector', inflation becomes felt in practically all components of core inflation and beyond this scope as well (e.g. regulated non-energy prices).

Demand factors

The increase of inflation may be moderated by the fact that a lasting increase in oil prices decreases the extent of output gap characteristic of the given economy by retarding the economic growth, which eases the inflationary pressure on the economy.

Effect on expectations of market participants

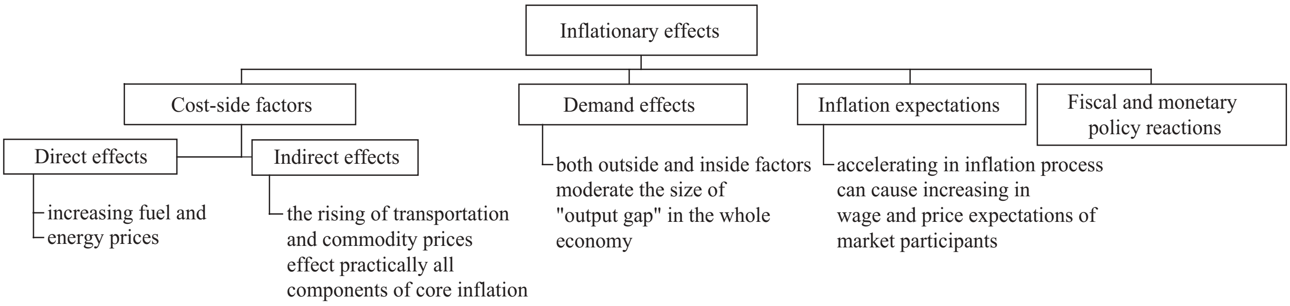
A sustained increase in oil prices may modify the inflation perceptions and expectations of key economic participants, which worsens the inflation outlook of the given economy over the long run via price and wage agreements (increase in real wages independently of production). The impact of this factor depends on the economy's degree of labour capacity utilisation, the capacity of employees to protect their interests and the history of inflation in the given country.

4. 8. 4 SIMULATION RESULTS

The effect of a sustained oil price increase on inflation and on the real economy was simulated by preparing an alternative oil price path, higher than assumed in the basic scenario. The resulting oil price path assumes a 10 per cent higher price level than the futures prices at the end of 2004 Q2. In the simulation we used a constant dollar/euro and forint/euro rate, and did not assume a change in the economic policy environment. Clearly, both the central bank and the Government can immediately exercise a significant effect on the above-mentioned inflationary and real economic processes through direct or indirect economic policy instruments. The estimates do not calculate the effects arising from

Table 4.12

Overview of the main inflationary effects of oil prices


Inflationary effects
Cost-side factors
Demand effects
Inflation expectations
Fiscal and monetary policy reactions
Direct effects
Indirect effects
increasing fuel and energy prices
the rising of transportation and commodity prices effect practically all components of core inflation
both outside and inside factors moderate the size of "output gap" in the whole economy
accelerating in inflation process can cause increasing in wage and price expectations of market participants

changes in inflation expectations (since our current models only apply so-called 'retroactive' methods).

The simulations were carried out with the help of a global model of the world economy (NIGEM[58]) and a simultaneous macroeconomic model developed for the Hungarian economy (NEM[59]). The results are summarised in the following table.

Effect on GDP

Higher crude oil prices hardly lead to a decrease in the current GDP growth rate, but do decrease the 2005 data more significantly. In particular, the slower increase in external demand has an effect on Hungarian economic output. The gradual slackening of internal demand – compared to the projections of the basic path – appears parallel to the slackening dynamics of external demand. This is partly the result of the decreasing profitability of export-producing companies, and partly the result of the effects on private revenues (e.g. effect on assets). We estimated that the retarding effects of higher oil prices are most strongly felt in the middle of the following year and with the establishment of new revenue-producing and production structures they are gradually priced out.

Inflationary effects

At first, increasing oil prices influence consumer inflation through their direct impact. The increase in the price of raw material is immediately realised in fuel prices. However, since in Hungary various taxes and tax-like burdens amount to almost two-thirds of the petrol price, the change of producer prices does not result in a similar change in the total price and – due to the fact that other production costs do not change immediately – producer prices are not increased to an extent fully equalling the oil price increase. With a delay of a few quarters the changes in the global oil prices may directly influence certain energy prices as well (e.g. the global price of diesel oil explicitly appears in the gas price formula, though with a due delay), because their production is mostly based on crude oil.

According to our calculations these direct effects are dominant in the consumer prices in 2004, as a result of which the value of the total consumer price index increases by an annual average of 0.1 percentage point and by approximately 0.2 percentage points at year end. After an approximately six month transition, the direct – mostly cost-side – effects of the shock come to bear as well, as a consequence of which in the first quarter of 2005 the consumer price inflation may exceed the value projected in the basic scenario by 0.4 percentage points. As the high oil prices come into the base data, the impact of inflation becomes gradually more moderate and the prices will not have a significant effect on average inflation of 2006.

The simulation results do not include the impact on expectations. These effects may be particularly important in a small, open economy, where adaptation to a stable low-inflation environment has not been fully completed or is quite fragile, in light of the country's inflation history. On the basis of the above factors, the calculated inflationary effects should only be treated as downside estimates.

Effect on the current account balance

Increasing oil prices may worsen Hungary's external equilibrium index (current account balance/GDP) by more than 0.4 percentage points roughly one and a half years later. Despite the decline in global demand, price effects are dominant (imports become more expensive than exports), since in accordance with our calculations the (import) demand for Hungarian products will exhibit less of a decline. This is presumably due to the lower sensitivity of the economies of our export markets (mainly the European Union and Russia) to the oil prices (partly owing to their existing reserves, and partly as a consequence of their more efficient energy utilisation). Over the longer run (a period exceeding one year), the export activities of the

Table 4.13

Effect of a hypothetical third quarter 2004 oil price shock on the Hungarian economy

Change in annual average indices compared to the baseline; in percentage points

	GDP	CPI	Current account balance / GDP
2004	-0.1	+0.1	-0.2
2005	-0.2	+0.3	-0.4
2006	0.0	0.0	-0.3

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[58] See in more detail: Zoltán M., Jakab and Mihály András, Kovács (2002) 'Hungary in the NIGEM model' (Hungary in the NIGEM model) MNB Working Paper 3/2002.

[59] See in more detail: Zoltán M., Jakab, Mihály András, Kovács, Balázs, Párkányi, Zoltán, Reppa and Gábor, Vadas (2004) 'The quarterly projection model (N.E.M.) – Non-technical summary', MNB 2004, under publication.

corporate sector will decline to a significantly lower extent than the price effects, but to a greater degree than the decline in import demand, which may be attributed to the considerable amount of lost revenues due to the worsening terms of trade.

4. 9 THE OPTIMAL RATE OF INFLATION IN HUNGARY

In developed economies, maintenance of price stability is considered to be the primary objective of central banks. The underlying reason for this is the realisation that inflation causes welfare losses. However, price stability is generally defined as low, but not a zero inflation rate. The rationale why positive inflation should prevail is that very low inflation, approximating zero, reduces long-term social welfare. This is explained by a number of factors such as asymmetric nominal rigidities, the risk of deflation, the necessity of positive nominal interest rates and statistical measurement bias in the CPI. These factors were examined in the light of Hungary's catching-up status. We sought to find an answer to the question of whether or not, owing to the country's catching-up status, optimum inflation is higher in Hungary than the 1–2.5 per cent inflation rate defined as optimum inflation in developed countries.

The rate of inflation corresponding to price stability should be higher in Hungary than in developed economies, due to the Balassa–Samuelson effect. Relative price changes, expected as a result of the Balassa–Samuelson effect, may only justify the necessity of positive inflation if there is a certain degree of downward price rigidity. The reason for this is that inflation facilitates flexible relative price adjustment. In practice, Hungary as a small, open economy should allow for not only downward price rigidity, but also for developments in the global market prices of tradable goods. Explanation for this is that, over the long run, only in the case of nominal appreciation can the inflation of tradables prices be lower in Hungary than abroad.

Downward nominal wage rigidity, and asymmetric price rigidity resulting from wage rigidity, seems to be less relevant in Hungary than in developed economies, which can be ascribed to the very fact that labour productivity growth is faster in Hungary than in developed countries. Distortions in the Hungarian CPI are presumably higher than in most other EU members, which is attributable primarily to improved quality and a more significant impact of newly introduced products. The Hungarian economy can be considered similar to more developed economies in respect of the other factors, which therefore do not warrant any differences between the optimal rates of inflation.

To summarise the above considerations, we estimate the rate of inflation corresponding to price stability presumably to be higher than the ECB's inflation target. Our calculations suggest that, over the long term, inflation in the range of 2.3–3.2 per cent can cushion the costs of deflation and compensate for distortions in the CPI. In addition, it allows for relative price adjustments even if Hungarian tradable prices move broadly in tandem with those of Hungary's trading partners and downward price rigidity is assumed.

It should be emphasised, however, that the optimal inflation rate according to our calculations refers to the concept of long-term inflation (i.e. over a 15–20 year horizon), from which the optimal rate of inflation may depart in the short run in response to a change in the cyclical position or a supply shock.

4. 10 ON THE TIMING OF INTEREST RATE DECISIONS

Central banks following an inflation targeting regime formulate their opinion on the future development of inflation in light of the changes of economic and monetary trends, and their assessment thereof. The desirable level of the central bank base rate is determined on this basis. In most cases, the perception of the future development of inflation only changes, if a new piece of information is published in relation to economic and monetary trends. Since most of the data required for decision-making are usually published on a monthly basis, the logic of direct inflation targeting dictates that it is not reasonable for the central banking decision-making bodies to revaluate the state of the economy and decide over the monetary conditions more frequently at one-month intervals – apart from extraordinary situations.

International practice usually follows the above-mentioned concept: most of the central banks in developed countries make decisions on interest rates of their key policy instruments on a monthly basis or even more infrequently. In the case of the European Central Bank, the governing body making these decisions has bi-weekly sessions, but since November 2001 it is only the first session of the month that decides on interest rates. By decreasing the number of sessions dealing with monetary policy, on the one hand they wanted to reduce the insecurity of market participants and to cut pre-decision speculation, and on the other hand this allowed for more opportunities during other sessions to discuss questions not directly related to monetary policy but to fulfilling their other tasks. The decision-making body of the central bank of the United States, the open market committee, has more sessions than the at least four per year required by law; in fact, they meet eight times a year and discuss monetary policy questions at each session. For the Bank of England, the law requires at least monthly sessions. Consequently, the monetary policy council responsible for the British key policy rate usually has a session on the Wednesday and Thursday following the first Monday of each month, discussing interest rates at each session. The decision-making body of the Reserve Bank of Australia can itself decide over the frequency of their sessions: they have 11 sessions a year, on the first Tuesday of each month except for January, discussing interest rates at each session. The Executive Board of the Swedish central bank holds three meetings per month, but only deals with questions relating to the key policy rate at eight pre-designated sessions. The Canadian and the New Zealand central banks make decisions on their key policy rates eight times a year as well. One session per month is characteristic of the central banks of the central European region to determine policy rates. The decision-making body meets weekly in the case of the Czech central bank and bi-weekly in the case of the Slovakian central bank, but they both change the key policy rates at the last session of the month. The decision-making body of the Polish central bank has monthly sessions, discussing monetary policy questions on each occasion.

Table 4.14

Schedule of sessions of the monetary policy decision-making bodies in the examined countries

Central bank	Monetary decision-making body	Number of rate-setting meetings
European Central Bank	Governing Council	12
Federal Reserve (United States)	Open Market Committee	8
Bank of England (United Kingdom)	Monetary Policy Committee	12
Sveriges Riksbank (Sweden)	Executive Board	8
Reserve Bank of New Zealand (New Zealand)	Governor	8
Bank of Canada (Canada)	Governing Council	8
Reserve Bank of Australia (Australia)	Reserve Bank Board	11
National Bank of Poland (Poland)	Monetary Policy Council	12
Czech National Bank (Czech Republic)	CNB Board	12
National Bank of Slovakia (Slovakia)	Bank Board	12

According to a resolution adopted at its session on 5 July 2004, the MNB's Monetary Council established a session schedule in line with the above-described international practice. Starting with this session – if possible – the Monetary Council will only make decisions on changing the central bank base rate at its second session of the month. During their first monthly meeting they intend to discuss other questions pertaining to the tasks and responsibilities of the central bank.

For the MNB the inflation targeting regime is supplemented by its commitment to maintain the exchange rate band. The commitment to the band may require more frequent discussion of monetary policy-related questions in certain cases, therefore, also in line with international practice, the Council may decide on changing the base rate any time between sessions as well, if necessitated by developments.

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