MAGYAR NEMZETI BANK

QUARTERLY REPORT ON INFLATION

MAY 2004

The analyses in this *Report* have been prepared by the Economics Department staff under the general direction of Ágnes CSERMELY, Head of Department. The project has been 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* has been approved for publication by István HAMECZ, Managing Director.

Primary contributors to this *Report* also include Zoltán GYENES, Zoltán M. JAKAB, Gábor KÁTAY, Gergely KISS, Mihály András KOVÁCS, Judit KREKÓ, Zsolt LOVAS, Gábor ORBÁN, András OSZLAY, Zoltán REPPA, Zsuzsa SISAK-FEKETE, Róbert SZEMERE, Gergely Károly TARDOS and Barnabás VIRÁG. Other contributors to the analyses and forecasts in this *Report* include various staff members of the Economics Department and the Monetary Instruments and Markets Department. This *Report* has been translated by Csaba KERTÉSZ-FARKAS, Éva LI, Edit MISKOLCZY and Péter SZŰCS.

The *Report* incorporates valuable inputs from the MNB's other departments. It also includes the Monetary Council's comments and suggestions following its meetings on 3 and 17 May 2004. However, the projections and policy considerations reflect the views of the Economics Department staff and they do not necessarily reflect those of the Monetary Council or the MNB.

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

The Monetary Council, the supreme decision making body of the Magyar Nemzeti Bank, carries out a comprehensive review of the expected development of inflation once every three months, in order to establish the monetary conditions that are consistent with achieving the inflation target. The Council's decision is the result of careful consideration of a wide range of viewpoints. Those viewpoints 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 the November 2003 issue, 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.

CONTENTS

OVERVIEW

Assessment of risks related to forint-denominated investments has improved

Owing in part to country-specific factors, between February and April 2004 there was an improvement in the assessment of risks related to forint-denominated assets. In 2004 Q1, investors' attitudes to risks surrounding emerging market economies were positive. However, in April there appeared signs that the interest rate cycle in developed countries might enter an upward phase sooner than expected. This suggests that global appetite for risks may diminish over the near term.

The forint has appreciated,

Regional risks have not lessened since February – the risks of a possible financial contagion due to the political uncertainties in Poland have escalated. But the abatement of concerns relating to the sustainability of Hungary's current account deficit and improvements in business conditions have had a positive influence on the assessment of forint-denominated assets, although the market has remained divided over the evaluation of economic fundamentals.

but there remains uncertainty over the longer term

The improvement in investors' views about the risks related to forint-denominated assets has helped the forint appreciate considerably. However, market expectations and the maturity profile of portfolio inflows suggest that longer-term uncertainties have not fallen. That, in turn, may expose the exchange rate to the risk of increased volatility.

Although short-term yields fell, assessment of long-term risks did not improve

Variations in short and long-term yields were shaped by divergent processes in the period February–April. Short-term yields fell, owing to the market's more positive assessment of the short-term macroeconomic outlook. At longer maturities, however, the differential between implied forint and euro forward rates did not narrow. Consequently, there was no tangible improvement in the market's evaluation of risks facing the Hungarian economy over the long term. In market participants' interpretation, the uncertainties surrounding the convergence path remained – Hungarian economic policy was perceived to show little signs of a firm commitment to convergence.

Inflation turned sharply higher in 2004 Q1, due to the increase in indirect taxes.

Consumer price inflation was 6.8 per cent in 2004 Q1. That meant a significant increase from 5.4 per cent in the previous quarter. The major source of this higher first-quarter rate was the increase in indirect taxes early in the year.

This was reflected by the newly introduced constant tax inflation measure of the Central Statistics Office. It indicated that the indirect tax measures introduced at the beginning of 2004 have contributed to the inflation by some 1.6 percentage points until March.

Unprocessed food prices rose at a broadly flat rate in the period under review. However, taking account of the increase in the rate of VAT, net prices actually fell, bringing an end to the strong increase in prices which began in autumn 2003. On the one hand this partly reflected temporary factors, but an earlier-than-expected effect of EU accession might also had an effect on prices.

There was a considerable increase in inflation of administered prices, due

mainly to the introduction of the environmental pollution charge and the reduction in pharmaceutical subsidies in January.

Contradictory movements in inflation expectations

According to the surveys of inflation expectations, the corporate sector revised down significantly its expectation, after a drastic increase in the previous quarter. Expectations of the household sector, however, remained flat at a fairly high level. At the same time while short term expectations of professional analysts has decreased, their long term expectations have remained higher than at the start of this year. Summing up, so far it is not possible to decide whether the increase in indirect taxes raises price and wage expectations persistently.

Our central projection is conditional, showing one of the possible scenarios

Consistent with the Bank's past practice, our central projection continues to be conditional – it quantifies numerically one of the possible scenarios, which would be likely to unfold if the underlying conditions were met.

In particular, our projection of the fiscal path takes account of the Government's announced intention to reduce the deficit, and the opinion of the respective markets on the future euro/dollar exchange rate and crude oil prices. Instead of providing a forecast of the major monetary policy variables, we use the forint/euro exchange rate and the forint yield curve for the most recent period in producing our projection, in order to avoid anticipating future monetary policy decisions.

Accordingly, the inflation projection prepared this way would only be met if the forint exchange rate fluctuated around the average of April, the most recent reference month, throughout the forecast period. This condition means that we build our forecast on the assumption of tighter monetary conditions, due to the appreciation of the forint exchange rate since February.

Our assumption of unchanged interest rates is reflected in fixing the yield curve at its level on 4 May. The forecast, reflecting the effect of the MNB interest rate reduction on 3 May, contains the convergence of domestic interest rates to euro-area interest rates along a gradual path of interest rate convergence.

The fiscal projection contains our assumption of a 0.5 per cent reduction in deficit in 2005, reflecting the Government's convergence programme. An important factor affecting the future course of inflation, the reduction in subsidised pharmaceuticals prices in April 2004 is assumed to have its effect over the forecast period.

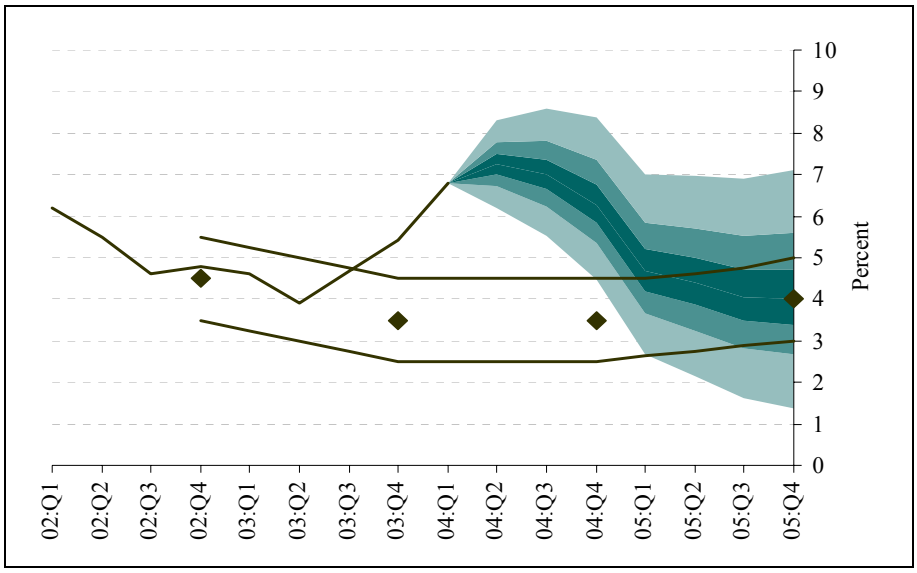
According to our strategic assumption for inflation expectations, no sustained rise in inflation expectations is expected after the pick-up in inflation in 2004 caused by the change in indirect taxes.

The average of April futures underlies our forecast of oil prices. This, coupled with the assumption of a constant dollar-euro rate at its April level, signals a gradual decline in oil prices from their current high levels.

The fan chart is given greater emphasis than earlier

From this *Report*, greater emphasis will be placed on the fan chart within the inflation projection for two reasons. First, the fan chart is judged to better reflect economic logic. Second, it reduces the variability of central point forecasts, which, in turn, is caused by the changes in our rule-based assumptions.

The fan chart of inflation



From 2004H2 disinflation might restart under the assumed monetary conditions

Under the assumed monetary conditions, inflation is expected to rise during the remainder of 2004, before falling rapidly. While the increases in excise duties around mid-year are likely to lead to a rise in core inflation, later core inflation is expected to slow in paralell with CPI. Under our assumption, exchange rate is likely to give a considerable momentum to this drop in core inflation towards year-end. through the fall in import costs. On the demand side, disinflation may receive considerable support from the expected massive slowdown in household consumption.

Disinflation may continue over the longer term, if the increase in indirect taxes does not fuel inflation expectations

Under our assumptions, disinflation may gather considerable momentum in 2005. In addition, macroeconomic processes also point to a slowdown in inflation. The consumer price index may fall below 5 per cent in 2005 Q1, as the increase in indirect taxes in 2004 drops out from the base.

The expected disinflation is supported by supply-side developments. First, wage adjustment is expected to be significant in 2005, which may lower prices through the slowdown in the increase in unit wage costs. Second, by that time the forint appreciation is likely to have its secondary effects. On the demand side, consumption, expected to pick up slightly but continue to grow at a low rate, is unlikely to generate considerable inflationary pressure. As a result of these factors, our forecast is for the consumer price index to be around 4 per cent in December 2005.

The inflation projection has been revised down relative to February

At the horizon relevant to monetary policy, this forecast under the assumed conditions implies a lower inflation estimate than that of the February *Report*. Taking into account of the risk distribution of the forecast, while in February we projected some 4-5 per cent inflation for end-2005 based on the February set of assumptions including a weaker forint, now the forecast shows some 3.5-4.5 per cent range assuming a forint to be around the April level.

Many factors explain this difference. The baseline forecast was revised down for a number of reasons. First, our basic assumptions have changed, new fiscal measures have become available and there has been a slight change in

our views on a part of market events. Second, the difference has been accounted for in most part by the more than 5 per cent stronger exchange rate assumption. Third, the rest of the difference is made up by our assumption of administered pharmaceuticals prices remaining level in 2004 and our revised expectation for changes in unprocessed food prices.

The risk distribution has also changed. The size of upside risks were reduced by the better than expected Q1 data by lessening the risk of higher inflation expectations.

Economic growth is expected to pick up

Economic growth is expected to pick up a few a tens of one percentage point in 2004–2005 relative to 2003. However, the pattern of growth is likely to be different from the experience of past years, as domestic demand-pulled growth is likely to be anchored to improving external business conditions. We expect the rapid growth of gross capital formation in 2004 to contribute to higher GDP growth, overcompensating the considerable slowdown in household consumption. In 2005, net exports are likely to become the most important source of growth. Simultaneously with this, the rates of capital formation and household consumption slows down from the previous year's high level.

Smaller fiscal contraction for next year

In line with our earlier practice, we have prepared our forecast of the general government deficit and its likely impact on demand on the basis of the available fiscal measures and the expected developments. Our forecast for 2005 is based on a normative fiscal path.

There has been no change in our expectation for the ESA based deficit of general government in 2004. The Government's measures which have become available since February have caused us to lower the expected deficit. By contrast, the shifts in the expected macroeconomic path, such as the lower expected outturns for household consumption and consumer price inflation relative to the forecast in the previous *Report*, have been factors weighted towards a higher deficit. Consequently, this year's target of a 4.6 per cent ESA deficit as a proportion of GDP is unlikely to be met, if further measures to reduce the deficit are not taken.

The 2005 deficit is expected to be reduced by 0.5 per cent of GDP, according to the Convergence Program of the Government. This tightening is half of the 1 per cent reduction assumed in the February *Report,* that time based on the 2003 PEP.

Continuing the earlier practice, we also present an alternative (rule-based) fiscal path, which calculates the effects of already accepted measures and determinations. This shows a significant increase for the next year's deficit. The difference between the rule based and normative deficit path- which is more than 2 percentage point at the ESA level - shows the risk level not yet covered by fiscal measures.

Rapid growth in manufacturing and a slowdown in the services sector

The corporate sector picked up considerably in 2003 Q4 and the first half of 2004. However, this improvement in activity was not balanced sectorally. Whereas manufacturing output responded very vigorously to the upturn in external economic conditions, the services sector showed a slight slowdown, due in part to the slackening of activity in the domestic market. The dual nature of this trend is likely to remain on the forecast horizon: we expect manufacturing to replace the services sector as the engine of growth relative

to earlier years, although the latter is not expected to slow considerably.

Dynamic increase in the EU market share

Domestic firms managed to step up total sales more strongly than the rate at which the foreign demand grew. That was evidence of the robust rise in industrial exports. As a result, there was a considerable increase in Hungarian firms' share of the EU market. As our forecast contains strong export growth in 2004 and 2005, Hungary's external market share is expected continue growing rapidly in the period.

Corporate investment activity picked up strongly

With the recovery in firms' overall activity, fixed investment by the sector increased rapidly, particularly in the final quarter of 2003. However, the pick-up in investment was varied across the sectors, similarly to the case of output. Manufacturing investment grew very rapidly, unlike services sector investment, which stagnated. Corporate sector investment is expected to grow robustly on the forecast horizon. However, the fast pick-up towards end-2003 is highly unlikely to be repeated in the quarters ahead.

Household consumption growth is slowing

In connection with the slowdown of real income, household consumption growth slowed towards the end of 2003. The near-term indicators suggest further considerable slowdown in consumption in 2004 H1, caused in part by the drop in the rate of disposable income growth and in part by the tightening of the subsidised house purchase scheme. Starting from end-2004, in line with the pick-up in household income growth, consumption may also gather momentum, although the rate of consumption growth is expected to fall short of that observed in past years.

Investment is expected to remain strong over the near term

Last year, the number of houses built continued to be very high. Data for 2004 Q1 show a still high number of new housing permits. The effect of this is likely to have a dominant influence on the sector's investment activity in 2004. By contrast, household investment activity is expected to slow considerably in 2005, due to the delayed effects of the December 2003 tightening.

Stagnating wage inflation and slowly rising employment in private sector

Labour market data for end-2003 and 2004 Q1 do not suggest any material change relative to mid-2003. Wage inflation of the private sector continued to stagnate, associated with a slow increase in employment. However, labour market conditions were fairly mixed across the sectors. Labour conditions in manufacturing were looser, in comparison with the services sector, where they where extremely tight. The tentative fall in wage inflation in manufacturing was associated with a drop in employment. This compared with stable or slightly rising wage inflation and a strong increase in employment in services. There was a simultaneous drop in wage growth in the government sector, accompanied by a fall in employment.

Substantial wage moderation is expected later

As the latest labour market data do not suggest a market turnaround in earlier trends, wage inflation is expected to fall only slightly over the short term. Employment in the private sector is forecast to grow at a slow pace, along the trends characterising the labour market in earlier periods. Our longer-term main scenario contains a deeper decline in wage growth, as a combined defect of a slowdown in consumption and the of the forint.

An improving external balance partly reflected in a gradual decline

The assumed fiscal consolidation and a projected rise in household savings result in an improvement of the external balance. This is reflected by a lower level of external financing requirement, which combined the current and the capital accounts of the balance of payment statistics. However, the headline

of the the current account deficit

current account deficit will only gradually decline due mainly to methodological reasons.

Looking back, we see that Hungary's external financing requirement rose significantly in 2003, caused in large part by the decline in the household sector's financing capacity and a still high level of fiscal borrowing. Due to firms' lively investment activity, the sector's borrowing requirement is likely to increase towards the end of the forecast period. That, however, is expected to be overcompensated by the steady decline in the general government borrowing requirement and the increase in households' financing capacity. Consequently, a significant decline in Hungary's external financing requirement is expected in 2004–2005 to 7.6 and around 6 per cent of GDP, respectively, from the almost 9 per cent last year.

However the accounting of EU related financial transactions will raise the current account deficit this year, so in EUR a slight increase, while as a percentage of GDP a small decrease is expected due to methodological reasons. From 2005 however, we expect a substantial decline in both, the external financing requirement and the current account deficit.

Summary table of projections

(Projections are conditional, see Section 2; percentage changes on a year earlier unless otherwise indicated)

	2002	2003	2004	2005
	Actual data		Projection	
CPI				
December	4.8	5.7	**6.0**	**4.0**
Annual average	5.3	4.7	**6.9**	**4.3**
Economic growth				
External demand (GDP-based)	0.8	0.5	**1.7**	**2.2**
Household consumption	9.3	6.5	**2.1**	**1.1**
Gross fixed capital formation	8.0	3.0	**9.2**	**3.2**
Domestic absorption	5.4	5.5	**3.4**	**1.9**
Exports	3.7	7.2	**10.8**	**9.2**
Imports	6.2	10.3	**10.3**	**7.1**
GDP	3.5	2.9	**3.4**	**3.4**
Current account deficit				
As a percentage of GDP	7.1	8.9	**8.3**	**7.1**
EUR billions	4.9	6.5	**6.7**	**6.2**
General government				
ESA deficit as a percentage of GDP	9.3	5.9	**5.3**	**4.8**
Demand impact	4.2	(-0.2)	**(-1.6)**	**(-0.3)**
Labour market				
National economy total wage inflation[1]	15.8	10.6	**8.1**	**6.8**
National economy total employment	0.0	1.3	**0.9**	**0.2**
Private sector wage inflation	12.3	8.5	**8.4**	**7.1**
Private sector employment (LFS)	(-0.4)	1.0	**1.6**	**0.4**

With general government, the thirteenth-month salary for 2004, to be disbursed in January 2005, has been added to the 2004 wage-data.

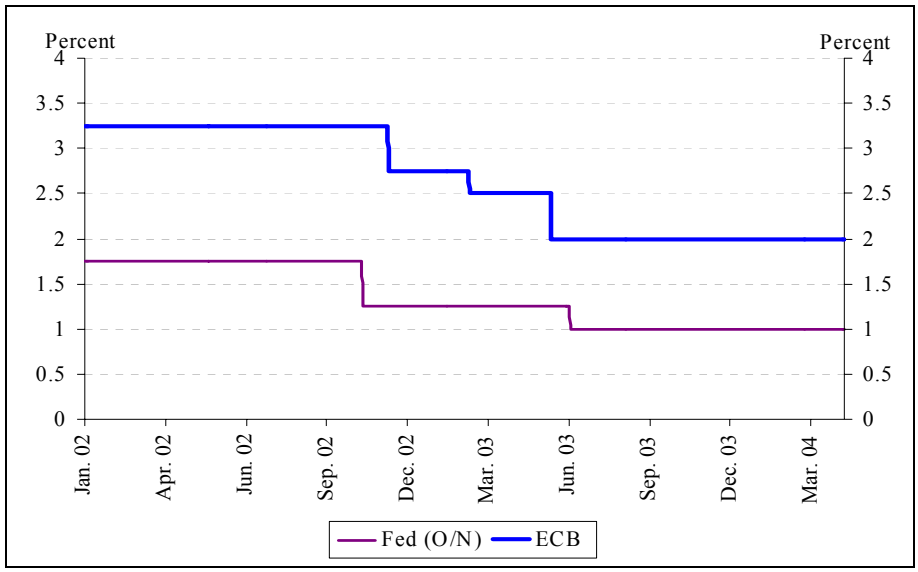
1 FINANCIAL MARKETS

1. 1 Foreign interest rates and investors' perception of risk

Given the small size of the Hungarian economy and its high degree of financial openness its capital market, global economic activity and the related changes in foreign interest rates, as well as investors' perception of global risks, may influence domestic financial markets considerably. Since most foreign investors consider Hungary to be a risky emerging market, the level of their risk tolerance and risk appetite are key to changes in their demand for forint investments.

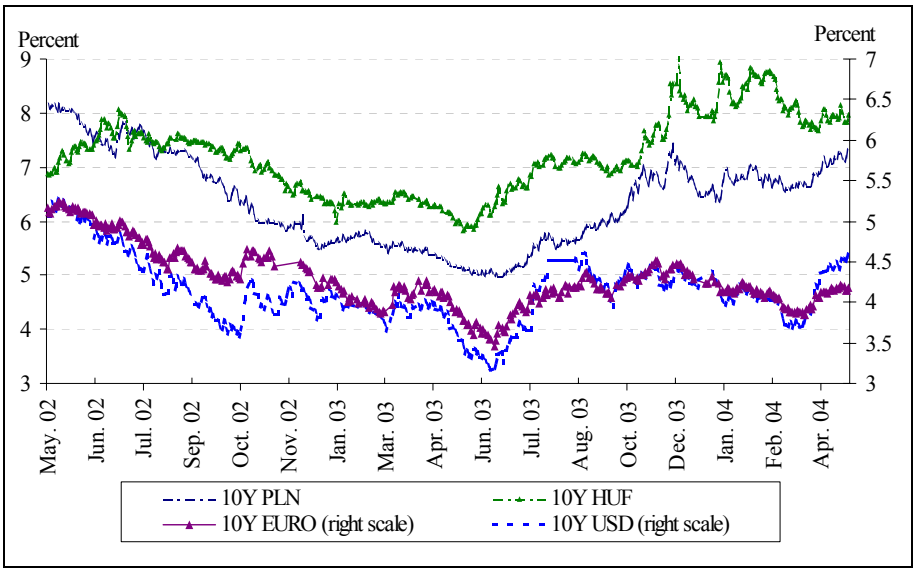
Although the Fed's and the ECB's key interest rates have been flat at their low level since mid-2003, markets anticipate the start of a cycle of interest rate rises over the medium term. Some US macroeconomic data have long been suggesting an upturn in the American business cycle and in the last few weeks, previously controversial developments in the labour market and inflation have also been pointing to an economic recovery. Following the statements of the Fed's chairman, the expected date of the start of the USD interest rate cycle has definitely been brought forward in April: a 25 basis point rise in interest rates was priced in 30-day Fed funds futures with August maturity by end-April. Accordingly, investors' interest rate expectations in the euro area have also changed recently. Imminent Fed tightening measures and the US dollar's appreciation by 8 per cent since our last *Report* dampened the market's former interest rate cut expectations in the euro area and brought forward the expected date of tightening from next year to year-end 2004.

Chart 1.1 Federal Reserve and ECB key rates



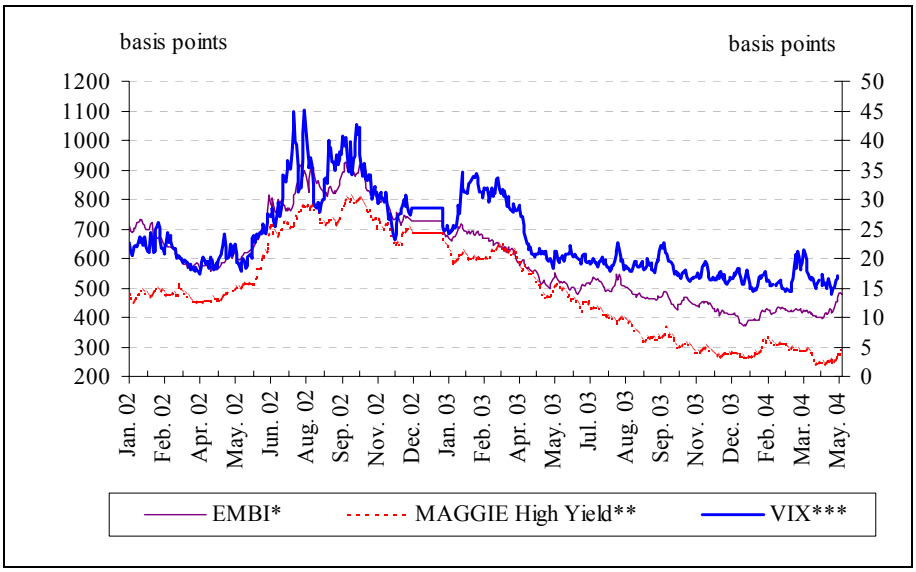
The change in investors' expectations on the short-term interest rates of the two key currencies and the longer-term conditions of economic activity are also reflected in long-term yields moving up from their previously low level. In April, US ten-year benchmark yields rose by more than 70 basis points, while European yields, although much less volatile, kept in line with US rates.

Chart 1.2 Ten-year benchmark yields



Influenced by the low level of USD and EURO yields and to a smaller extent by positive signs of macroeconomic stability in emerging markets, global risk indicators have fallen to a historically low level by end-2003. The spectacular fall in yields in developed countries in February and March may well have led to an increase in risk appetite as well. Global risk indicators, however, have so far not reflected the impact of the above mentioned episode and the change of trend in early April. The EMBI-index indicating the average country risk of emerging countries has remained flat, while the Maggie, showing the interest rate premia of euro bonds has fallen significantly in early-April. Nevertheless, we anticipate that in the near future the rise of interest rates in developed countries will entail a diminishing global risk appetite leading to a drop in demand for emerging market assets and a rise in interest rate premia.

Chart 1.3 Global indicators of risk



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

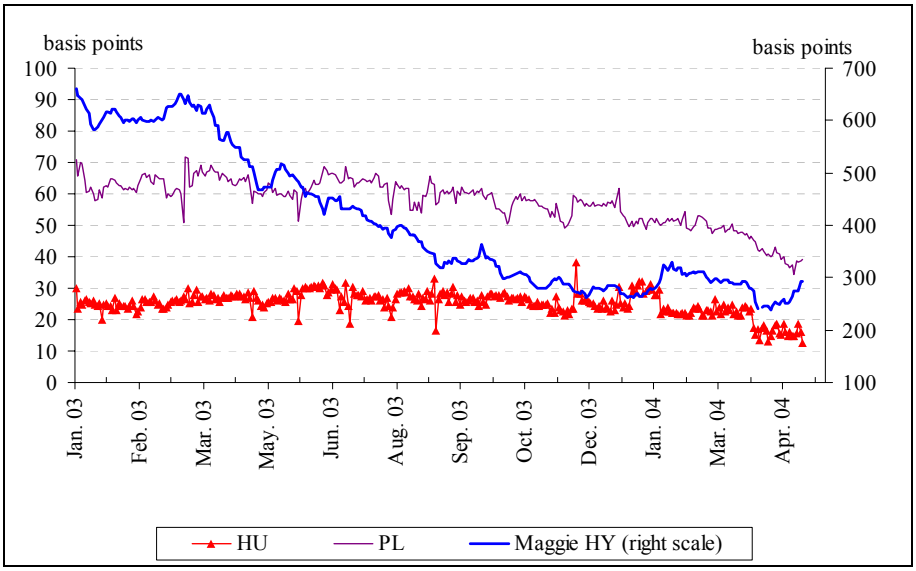
In addition to an increase in global risk due to the rising level of interest rates in developed countries, the danger of regional contagion has also strengthened. In Poland, growing tensions in domestic politics is the main cause for uncertainty. Leszek Miller, the Polish Prime Minister, resigned form his post on May 1 and the support for the new Prime Minister candidate has so far been questionable. We expect political uncertainty to remain until the new government is set up, the date of which may draw out to the end of summer. Although the first elements of the fiscal reform package, critical from the point of view of investor sentiment, were adopted in early-March and this was followed by a robust appreciation of the zloty, doubts have been raised in respect of political support for fiscal reforms. Among other factors, it was the risks related to fiscal path that prompted the Standard&Poor's credit rating agency to revise downward its zloty and foreign currency debt outlook in mid-April. On 5th May Fitch changed its outlook on Poland's BBB+ rating from positive to stable. Due to investors' perception of higher risks, the yields of ten-year Polish government securities have recently risen at a somewhat faster pace than ten-year euro yields.

Investors' perception of risks related to forint-denominated assets has been considerably influenced by both external and country specific developments. During March, ten-year forint-denominated benchmark yields have significantly declined by 70-80 basis points. This may have been partly due to a fall in long-term euro yields and partly to investors' improving perception of domestic fundamentals. Particularly, worries about the mid-term sustainability of the current account have diminished: an imminent need for a significant correction of exchange rates is no longer included in market surveys. In addition, in February the revision of last year's current account from EUR 4.6 billion to EUR 4.2 billion and the data of 2004 Q1 have also shown a more favourable picture of external balance than expected earlier. Positive net export developments and a pick-up in

investment coupled with slowing consumption dynamics suggest improving economic activity and a more favourable GDP structure from the point of view of balanced growth. Some market analysts, however, still consider domestic fundamentals fragile. This is reflected in a more moderate interest in long-term forint-denominated assets and in Fitch's February announcement according to which the credit rating agency retained its negative outlook on domestic (forint and foreign currency) government debt.

Euro bond premia reflecting country risk have unexpectedly and significantly fallen in both Hungary and Poland at end-March. In light of the credit rating and investment assessment surveys, however, it would be difficult to attribute this to a reduction of country or region specific risks. The fact that the Maggie-index, an indicator of more risky euro bond interest rate premia, has also dropped simultaneously, only supports this assumption.

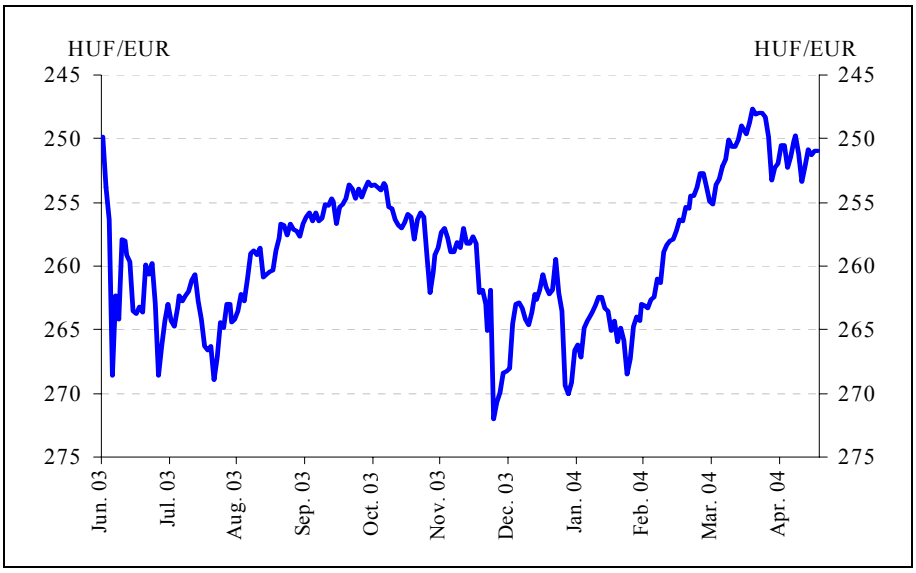
Chart 1.4 Interest rate premia of Polish and Hungarian sovereign euro bonds and the *Maggie High Yield* risk indicator



1. 2 Exchange rate developments

In the period between the publication of our last *Report* and April 2004, the exchange rate of the forint appreciated considerably by around 4 per cent and its volatility also decreased significantly. In fact, the forint started to strengthen already in early February and its path was characterised by a very steep appreciation trend to mid-April in contrast to an exceptionally volatile period at the end of last year. This trend stopped in mid-April and a slight correction occurred, but the exchange rate is still much stronger than the level experienced since June 2003.

Chart 1.5 The exchange rate of the forint

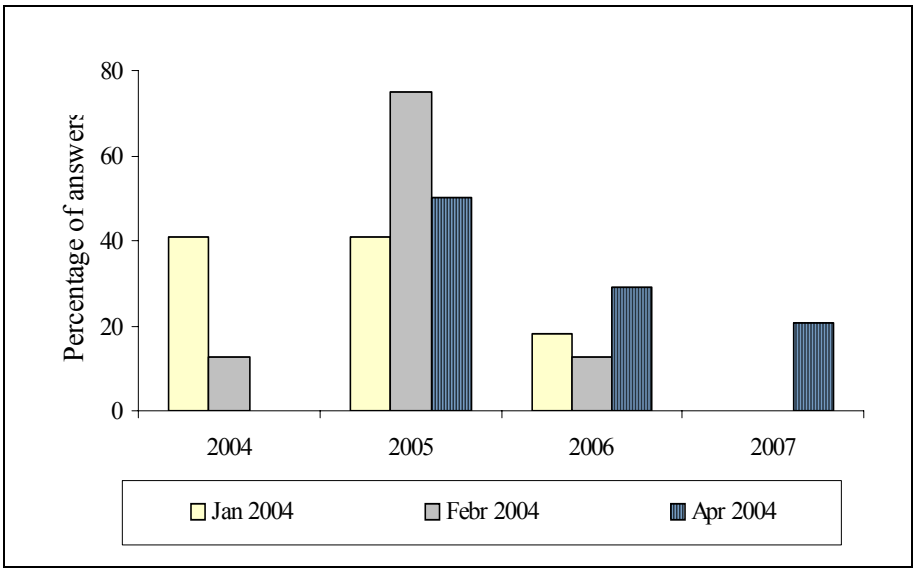


The February-April changes in the exchange rate were influenced both by country specific and by external factors. The February-March strengthening of international risk appetite may have contributed to the appreciation of the forint during this period. The market's moderated risk tolerance due to US interest rate rise and growing regional uncertainty stemming from the Polish events may have also played a role in the weakening of the forint in mid-April.

Of particular significance among country specific factors is the fact that a positive change has occurred in investors' perception of macroeconomic fundamentals. Although market participants' opinions on the durability of the improvement of the current account and economic activity outlook are mixed, the view that external balance is following an unsustainable path has been pushed into the background based on investment bank analyses. As a result, the probability of a short-term significant depreciation has considerably decreased, leading to a fall in expected risk premia on forint yields and the strengthening of the exchange rate.

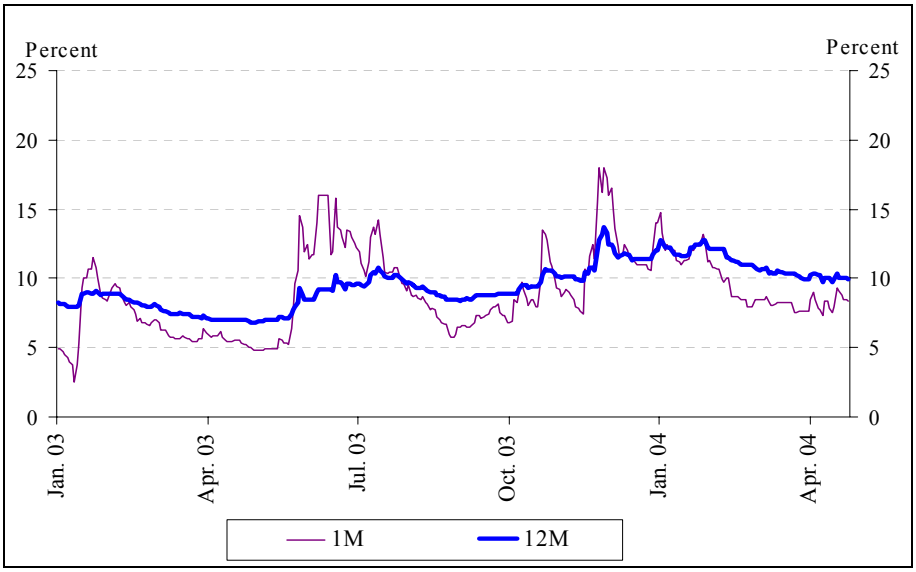
The fact that the expected date of the ERM II entry was considerably postponed as a result of central bank and government communications may have also contributed to the fact that investors' expectations of short-term depreciation have moderated. According to Reuters survey, macroeconomic analysts expected ERM II exchange rate mechanism entry to take place already in 2005-2007 in April, a nearly one year delay compared to the date of 2004-2006 expected in January and February. As some market participants expect the central parity of the forint in ERM II to be around the centre of the current intervention band, the delay in the expected date of the entry may have moderated investors' short-term depreciation expectations.

Chart 1.6 Reuters survey of expected ERM II entry date



On the whole, the uncertainty surrounding future changes in exchange rates has diminished. A number of signs, however, suggests that the improvement in investors' perception of forint-denominated assets was primarily related to short time horizons, while uncertainty seems to remain significant in the long-term. This argument is supported by the maturity structure of changes in implied volatility calculated on the basis of option prices, reflecting uncertainty relating to future changes in exchange rates. According to this, the extent of improvement is relatively more modest in the case of one-year terms than over the shorter one-month time horizon.

Chart 1.7 HUF/EUR implied volatility



According to Reuters survey, simultaneously with the appreciation of exchange rates, the market's expectations also shifted towards higher exchange rates. It was, however, mainly investors' expectations regarding short-term periods finishing by end-2004, that rose

sharply. Investors' exchange rate expectations for end-2005 rose only slightly and consequently, analysts expect the exchange rate to remain roughly flat at around HUF/EUR 253 till end-2005. Expected ERM II central parity has not practically changed since January: analysts anticipate 265 HUF/EUR mid-rate on average, which is much weaker than the expected exchange rate for end-2005. Thus, the difference between the market's short-term exchange rate expectations and ERM II central parity has significantly increased suggesting that ERM II expectations no longer influence short-term exchange rate expectations.

Chart 1.8 Average of Reuters analyst exchange rate expectations

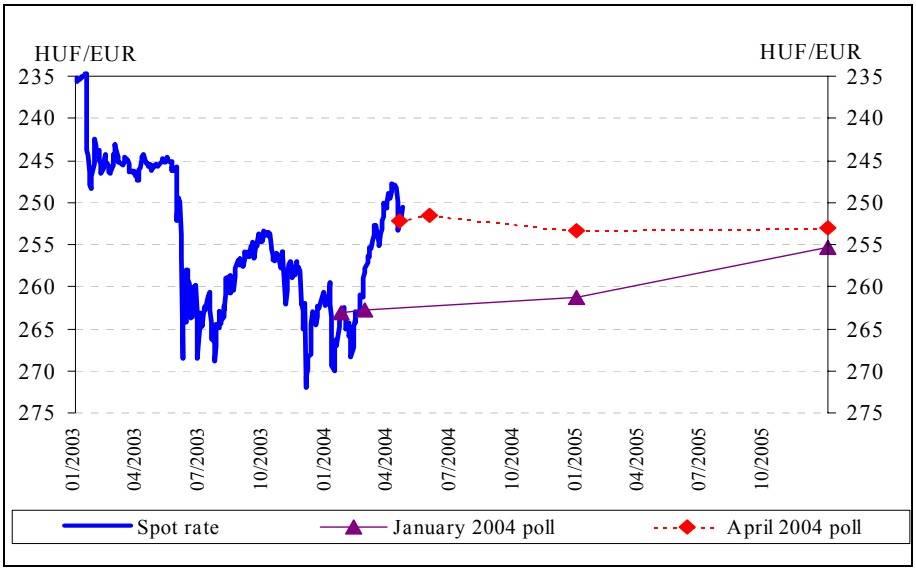
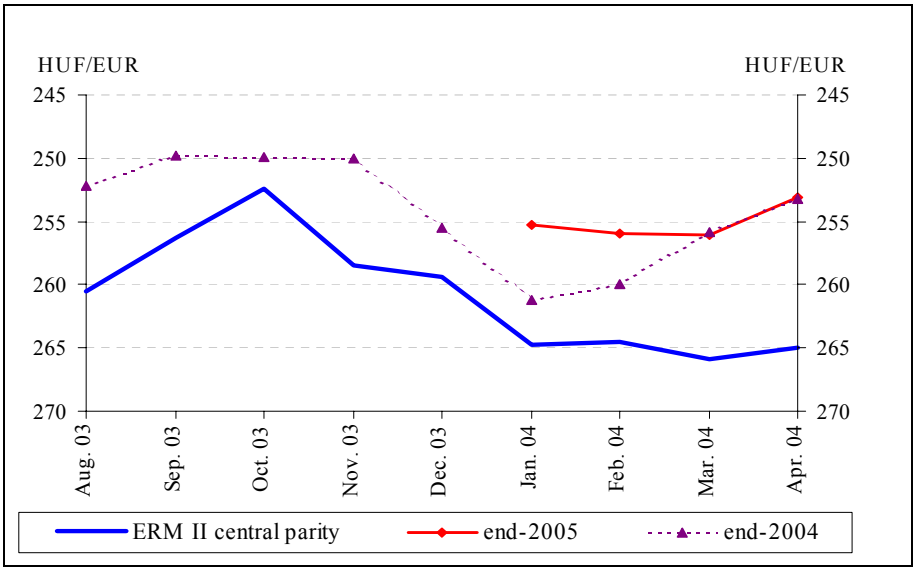


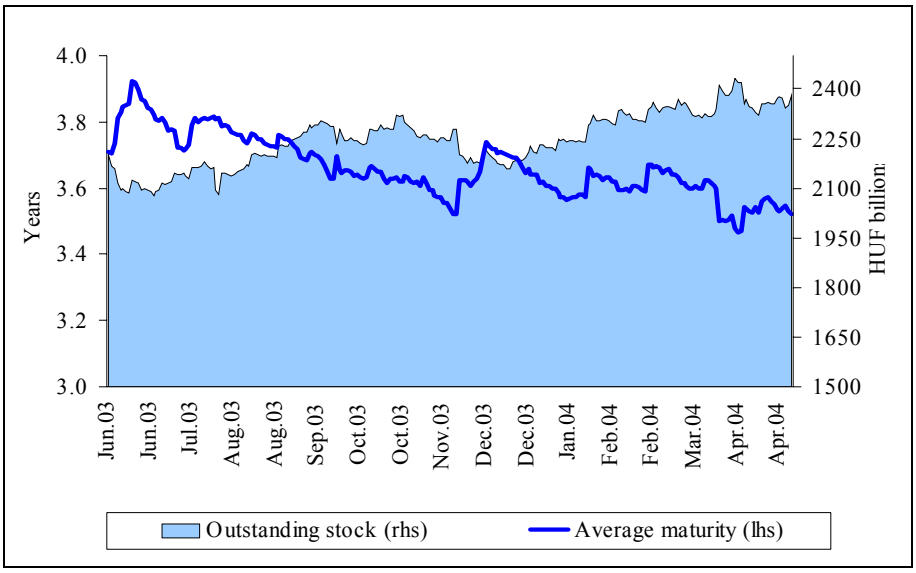
Chart 1.9 Average of Reuters analyst expectations of the forint's ERM II central parity



The changes in portfolio capital inflow also suggest that there is no clear evidence of a long-term improvement in the market's perception of risk. On the whole, the amount of foreign owned government securities has only grown slightly. At the same time, the average

maturity of holdings has also shortened suggesting that investors favour shorter time horizons. Investments in long-term securities carried much less weight in the net capital inflow over the past few months.

Chart 1.10 Outsanding stock and average maturity of non-residents' government securities holdings

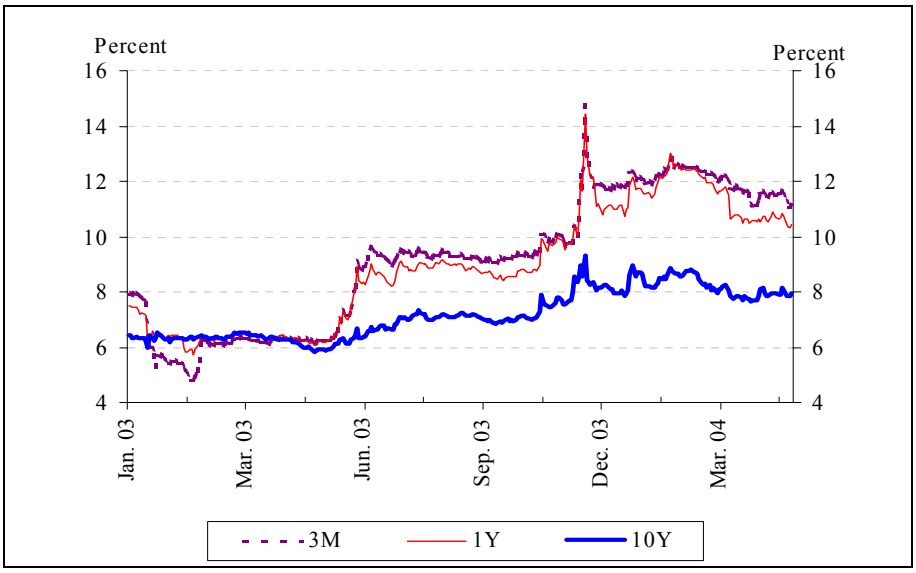


On the whole, the recent strengthening of the forint is primarily due to the market's improving perception of the risks on forint-denominated asset investments. Nevertheless, expectations revealed by the analysts' survey and the price of financial assets, as well as the structure of capital inflow suggest that long-term uncertainty has not yet moderated considerably, resulting in a more fragile exchange rate.

1. 3 Yields

Since the publication of our last *Report*, yields on Hungarian government securities have fallen. The drop in high yield levels of early February 2004, starting at the end of February, resulted in a significant decline (between 80 and 200 basis points) for all maturities by early May. The fall in yields shorter than five years exceeded 100 basis points and the one-year yield decreased most, by around 200 basis points altogether.

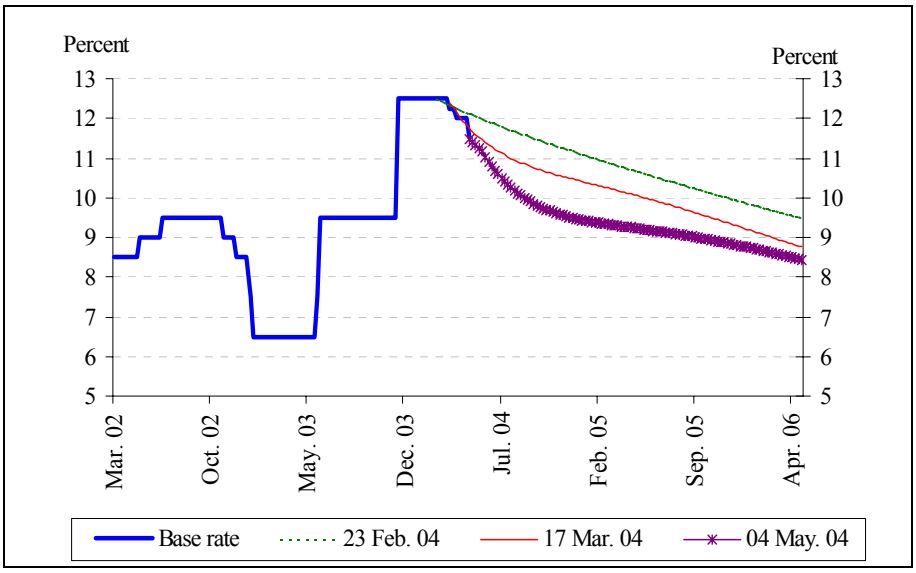
Chart 1.11 Benchmark yields in the government securities market



Between end-February and mid-March –- in parallel with the strengthening of the forint –- the 6 months to 3 years section of the yield curve almost simultaneously fell by 70-75 basis points. This drop in yields was primarily due to investors' improving perception of short-term risks and the easing of worries about the equilibrium of the Hungarian economy.

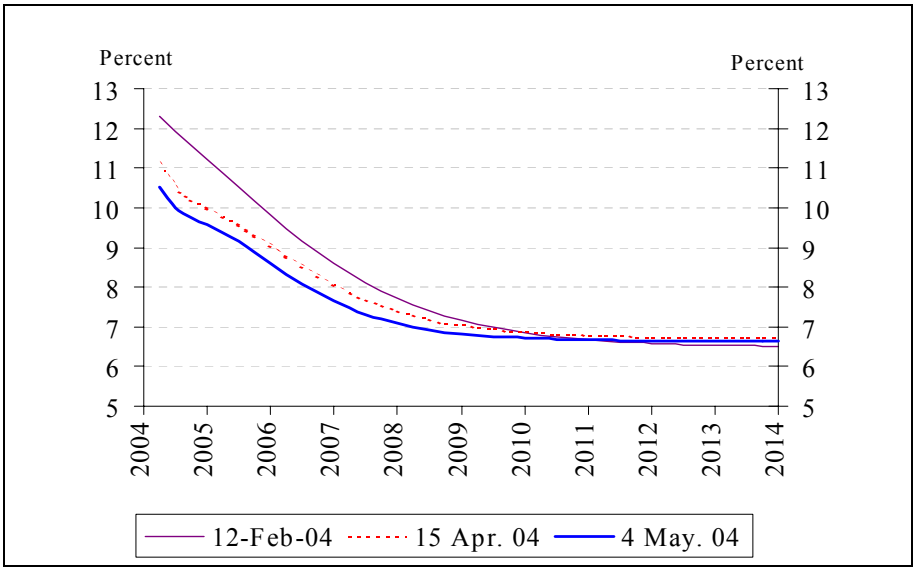
On 22 March and 5 April the MNB's Monetary Council decided to cut the key rate by 25-25 basis points, followed by a 50-basis-point cut on May 3, leading to an overall fall of the central bank key rate, unchanged since 28 November 2003, from 12.5 per cent to 11.5 per cent. The interest rate cuts have significantly changed the path expected of the central bank rate by end-2005: following these cuts a faster falling base rate was priced in market yields. It is important to add, however, that these interest rate moves have not had a significant impact on yields with more than two-year maturity and the MNB's decisions have not affected investors' long-term expectations. Essentially, only the shape of the interest rate path expected for the next two years has changed: as a result of these central bank moves, market participants anticipate that a much bigger part of the approximately 250 basis point cut expected to take place over two years, will in fact happen already this year.

Chart 1.12 The expected path of central bank base rate based on market yields



Events affecting developments in long-term and short-term yields were different. The impact of the drop in short yields over the quarter is gradually diminishing with the lengthening of the time horizon, and the implied forward yields have not fallen over the horizon of more than five years: they continue to exceed the levels characteristic of the first half of 2003.

Chart 1.13 Implied one-year forward yields for different dates*

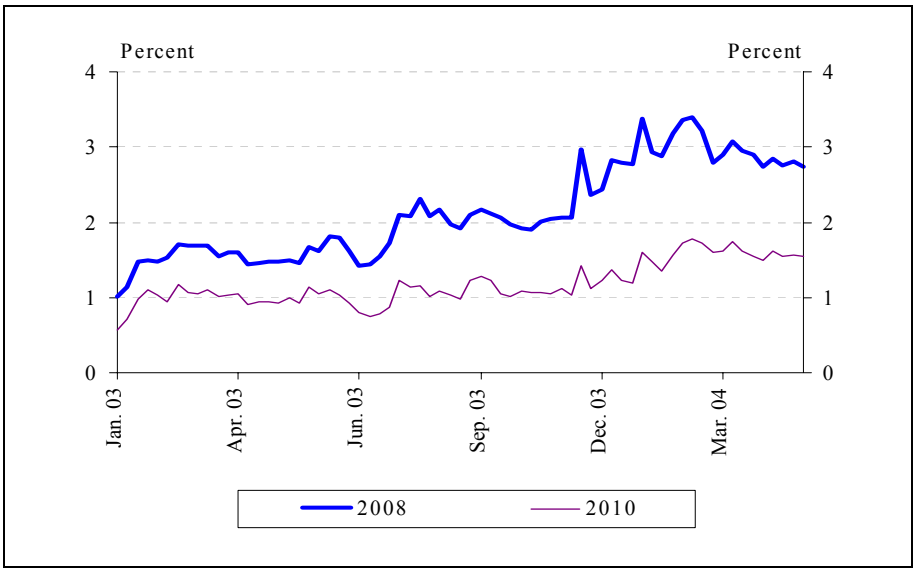


**The horizontal axis indicates the start of the one-year implied forward yield.*

Changes in interest rate differentials of long-term EUR/HUF yields carry important information for monetary policy. The March fall in long-term euro yields following a drop of US dollar yields and then their rise in April has been to a certain extent reflected in ten-year forint yields as well, while the interest rate differential was influenced by other factors

as well. Instead of analysing the changes in spot long-term interest rates, however, it would be more useful to study the differences of implied forward yields over longer time horizons as they express short-term interest rates expected in the future better. They offer a more accurate picture of along what convergence path and by when investors predict Hungary's EMU entry. Information obtained this way confirms that investors' confidence has only improved over the mid-term (over a two-three year time horizon) at the most, but has not appeared over the longer term. The one-year implied forward interest rate differential, starting in early-2008 (in around three and a half years) dropped by nearly 50 basis points and its level sank below 300 basis points between February and early May. By contrast, the one-year forward differential calculated for 2010 did not decrease in the same period. Historically, the value of the 2010 forward interest rate differential is considered high, significantly exceeding the present level of country risk standing at 25 to 30 basis points. Normally, this would be the case if market participants were confident of a 2010 EMU entry. All this, however, suggests that confidence in the convergence process has not improved over longer time horizons.

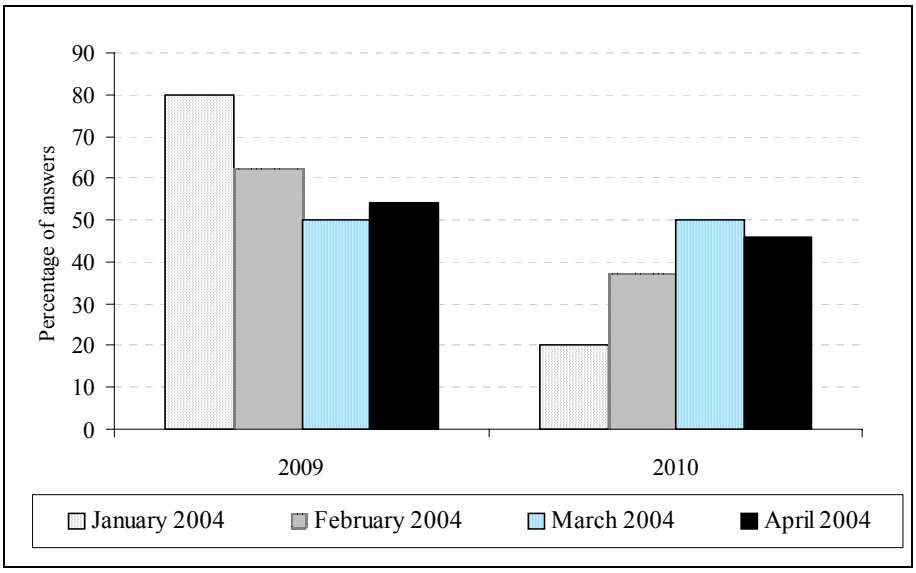
Chart 1.14 One-year implied forward differentials for fixed dates*



**Historical developments of one-year HUF/EUR yield differentials to start in early-2008 and 2010.*

As far as the economy is concerned, a similar conclusion can be drawn from Reuters surveys. The EMU entry expectations of analysts preparing macro-economic forecasts have not improved, but have even shifted out somewhat in the spring months compared to January. Analysts, however believe that the euro may be introduced in 2010.

Chart 1.15 Reuters analysts' EMU entry date expectations

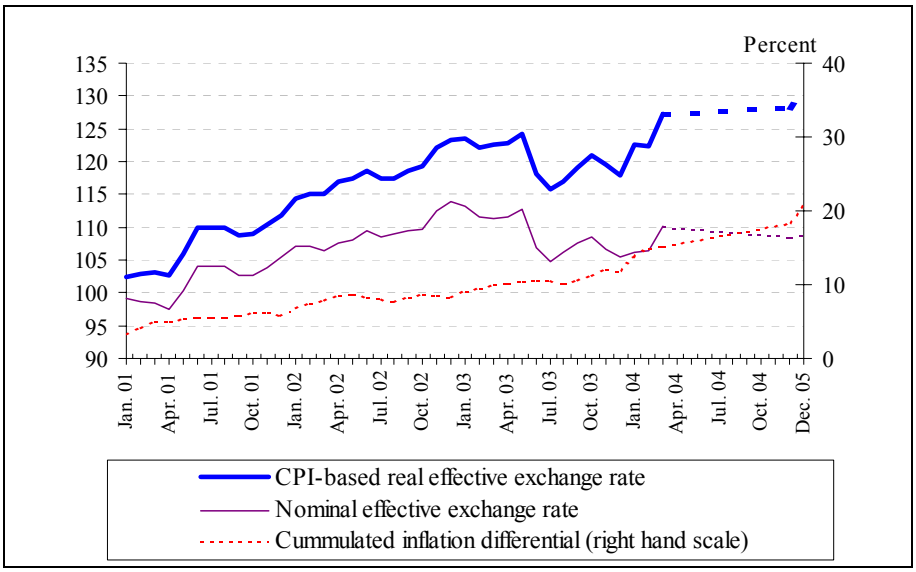


On the whole, short- and long-term yields have been shaped by diverse developments in the period since February. The market's more favourable perception of short-term macro-economic processes resulted in a drop in short-term yields, while in the longer term the difference between HUF and EUR-denominated forward yields has not diminished. Thus, investors' perception of long-term risks in Hungary has not improved significantly in the last few months. Both yields and analysts' expectations suggest that as far as market participants are concerned, the uncertainty surrounding the convergence path has not diminished: they are not yet convinced by Hungarian economic policy's firm commitment to convergence.

1. 4 Monetary conditions

Monetary policy affects real economy primarily through real exchange rates and real interest rates. Given the weight of foreign trade in Hungary, the forint exchange rate channel plays a more important role. What follows briefly outlines changes in these two variables and how market participants perceive future changes in them. This description of market expectations relies on the macroeconomic analyses in the Reuters survey, which, though not a properly representative sample of all economic participants, provides a good picture about tendencies.

Chart 1.16 Monetary conditions: CPI based real exchange rate*



**Real and nominal effective exchange rate, average of 2000 = 100. Cummulated inflation difference since 2001 in per cent. Higher values denote appreciation. End-2004 and 2005 expectation are calculated on the basis of the Reuters inflation and exchange rate consensus, assuming no change in the trading partners' inflation relative to 2003 and that effective exchange rate appreciation expectations correspond to HUF/EUR exchange rate expectations.*

Since January 2003, the real exchange rate has been more volatile compared to the past few years. In 2004 Q1, the real effective exchange rate has appreciated by nearly 8 per cent and its level is exceeding the average level in 2003. This significant appreciation is due to a number of different economic reasons. The raise in indirect taxes, having significantly contributed to the rise of domestic inflation in the first few months of 2004, does not automatically result in monetary tightening as it does not affect the external competitiveness of economic agents. Nevertheless, the excess inflation *vis-à-vis* trading partners arrived at by filtering out indirect taxes and the more than 3 per cent strengthening of the nominal effective exchange rate in March led to a tightening of monetary conditions in the period under review.

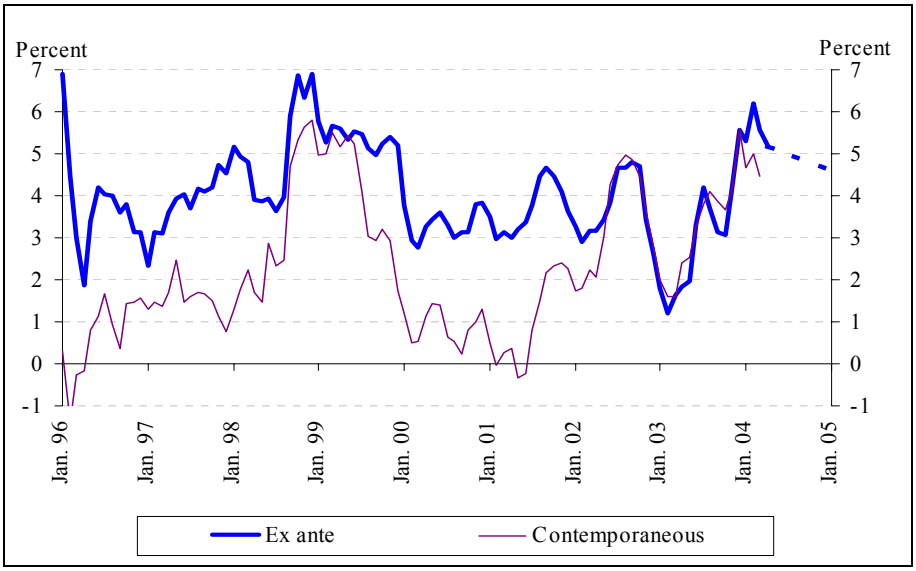
During the rest of the year, another real appreciation of nearly 2 per cent can be expected based on Reuters survey, followed by another 1-2 per cent appreciation in 2005. The expected strengthening of the real exchange rate, however, is only due to the continuously decreasing inflation differential. Thus, in contrast to earlier surveys, analysts do not expect a nominal exchange rate strengthening neither in 2004, nor by next year.

Despite the more than 1 percentage point drop in one-year yields, the forward-looking real interest rate has not fallen on the whole compared to that of in January 2004 and continues to stand at around a relatively high level of 5 per cent. This can be explained by the fact that according to market expectations disinflation continues in 2005 after the impact of the raise of indirect taxes on inflation wears off. As a result, with time the market's one-year forward-looking expectations have been revised down without significantly changing the image of inflation developments, suggesting a real interest rate raise. In contrast with the forward-looking real interest rate, coincident real interest rate has declined from January to

March 2004 as inflation stagnated in this period[1]. Thus, the level of the forward-looking real interest rate exceeds that of the coincident real interest rate, suggesting that market participants predict a decline in inflation.

Market participants expect a moderate decline in the real interest rate by end-2004 as the expected drop in interest rates exceeds the decline in inflation expected a year later.

Chart 1.17 Monetary conditions: real interest rate*



**Monthly average yields on one-year government securities, deflated with the contemporaneous 12-month inflation and Reuters one-year forward-looking inflation consensus (value computed by interpolation from year-end and average inflation expectations.) The expectation relevant to January 2005 is calculated from one-year yields and the inflation consensus applied by Reuters.*

To summarise, the January-March strengthening of the real exchange rate predominantly due to nominal appreciation contributed to a further tightening of monetary conditions, while due to investors' expectations of declining one-year interest rates, the forward-looking interest rate, the other component of monetary conditions, has not for the time being shown any signs of easing despite of central bank interest rate cuts. With regard to future developments, market participants expect a further appreciation of the real exchange rate due to inflation differential. The expected drop in the real interest rate, however, owing primarily to faster-than-expected cuts of central bank interest rates, points to an easing of monetary conditions, exerting pressure in the opposite direction.

[1] See Box '*Different methods for calculating the real rate of interest*' in the December 2000 issue of the *Report*.

2 KEY ASSUMPTIONS TO OUR PROJECTIONS

Beginning with this *Report*, the major focus will be on analysing the fan chart. Although it has been stressed in the past that future outcomes for inflation are a probabilistic process and that it may be more appropriate to present our forward view of inflationary pressure on the fan chart, the central projection has so far been given a greater role in assessing the underlying trends.

The earlier approach is appeared to be a logical one for two reasons. First, a point forecast is more understandable for the public. Second, it is more easily comparable with other forecasters' projections. This change, approved by the Monetary Council, has been motivated by the sensitivity of the inflation forecast on the one-year horizon to changes in our basic assumptions. While this sensitivity is weaker beyond one year, the target horizon for monetary policy decisions, it nonetheless makes it more difficult to compare the conditional point forecast with market analysts' unconditional projections for a year ahead, which is the relevant interval for the public. This, in turn, reduces the efficiency of communication.

However, as it has been mentioned, it seems to be more appropriate to present the relative likelihood of possible outcomes for inflation than to provide only a single point forecast.

Putting together the fan chart involves the consideration of possible deviations from the basic assumptions. Whereas the effect of changes in monetary conditions is deliberately disregarded, which follows from the rationale of the inflation targeting system, estimates are given for inflation risk arising from, for example, any unexpected changes to fiscal policy, expectations or oil prices.

2. 1 Details

In line with earlier MNB practice, the main scenario is subject to conditions such as monetary and fiscal policy, inflation expectations, dollar-euro exchange rate and oil prices. In other words it should be understood as a scenario. Thus, projection in our interpretation shows what the inflation rate would be if the assumptions were realised in the future, which might be different from inflation projection in the classic sense (i.e. unconditional projections).

The assumption of unchanged monetary conditions means that we assume the April averages of HUF/EUR exchange rate prevail over entire the forecast horizon.

Representing the interest rate assumption, the yield curve has been fixed at the level corresponding to 4 May. This implies that we take into account the market effects of the 3 May MNB interest rate cut and assume a gradual decline of the short rates.

As regards the normative fiscal path, we assume an annual adjustment of 0.5 per cent at the level of the ESA balance for 2005, which reflects the Convergence Programme announced on 13 May by the Government. Another important aspect of inflation is our assumption that over the entire forecast horizon the prices of certain subsidised pharmaceutical products remain at levels resulting from the drop in April 2004.

As concerns inflation expectations, the conditional nature of the projection means that no assumption of a permanent rise in inflation expectations is made after the pick-up in inflation in 2004, which was caused by the increase in indirect taxes.

For oil prices the path of the average April futures were used. This implies a gradual decline of world oil prices from the current high levels.

Table 2.1 Summary table of underlying assumptions

	Actual		Assumption	
	2002	**2003**	**2004**	**2005**
Fiscal restriction in 2005 (percentage point)	N/A	N/A	N/A	0.5
The effect of VAT-rise on long-term inflation expectations	N/A	N/A	No effect	
HUF/EUR rate (forint)*	242.9	253.5	252.8	250.3
USD/EUR rate (cent)*	94.5	113.1	121.3	120.0
Brent oil price (USD/barrel)**	25.0	28.9	32.3	27.7
*Memo: Brent oil price (HUF/barrel)***	*6415*	*6482*	*6730*	*5789*
Imported inflation of tradables (per cent)***	1.4	0.8	1.0	1.0

**Annual average, based on the fixed April average since April 2004.*

*** In the February 2004 forecast it corresponds to the path calculated using January 2004 oil futures prices, and in the present forecast to that calculated using April oil futures prices.*

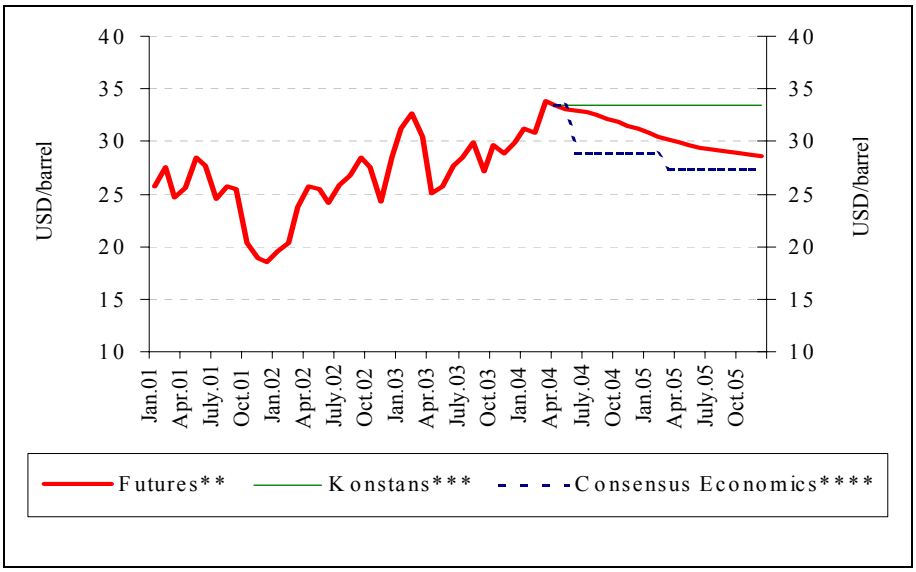
**** Annualised average of month-on-month growth rates. Euro-11 tradables inflation. Source: Eurostat, New Cronos code: igoodsxe.*

When putting the underlying assumptions into a particular context, one must keep in mind the fact that the present exchange rate of the forint against the euro at HUF 250 is by over 5 per cent higher than the February assumption; nevertheless, in a historical perspective it is not exceptionally strong.

By contrast, consistent with our forecast rules for the US dollar, we assume a fairly strong historical EUR/USD rate, though it is not a major variable in the projection system. Since the EUR/USD exchange rate exerts its influence through oil prices, cross-exchange rate movements in themselves play a less significant role in the projection system.

Regarding dollar-denominated oil prices, the March futures' path implies a gradual fall from the historically high starting point until end-2005. A similar futures path is reflected in the results of the Consensus Economics' survey. Although both paths paint a fairly vivid picture of the expected drop in oil prices, given the historically high starting point and the evidence from recent years of the futures path as a flawed projection tool, the likelihood that oil prices remain persistently higher than in the main scenario is not insignificant, creating an upside risk to the inflation main scenario forecast.

Chart 2.1 Alternative oil price scenarios*



*Brent oil prices
**London, IPE, average of April, 2004
***April average
****Consensus Economics survey, March.

3 INFLATION

3. 1 Inflation in 2004 Q1

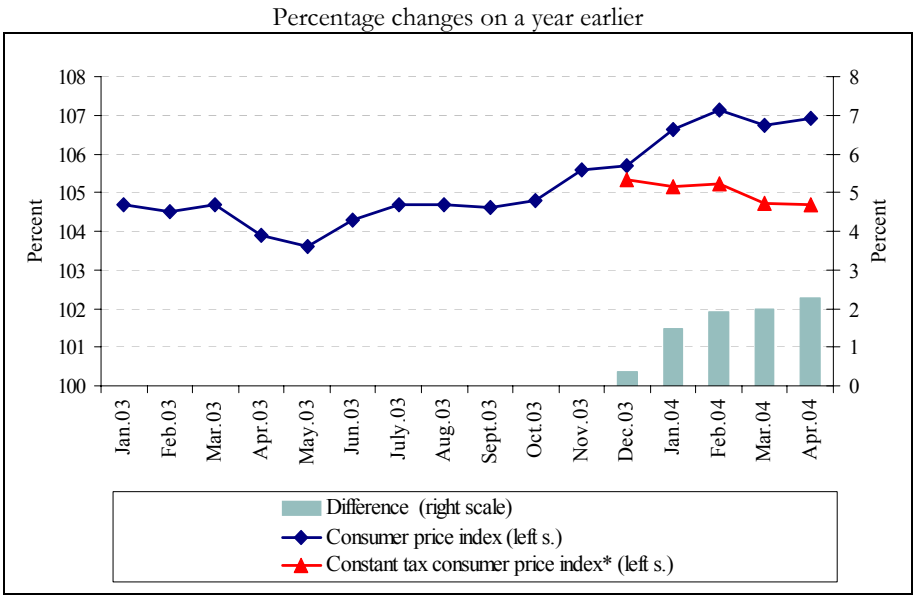
In the first quarter of 2004 the consumer price index (CPI) stood at 6.8 per cent, while core inflation was at 6.0 per cent. The significantly greater increase over the 2003 rates was caused primarily by rises in indirect taxes.[2]

This is further justified by the development of constant tax index (CTI), which was published by the Central Statistical Office (CSO) in May 2004 for the first time. The CTI stood at 5 per cent in the first quarter. The difference between the CTI and the headline CPI signals the magnitude of the indirect tax effect on inflation (for more details about the CTI see Section 6. 5.).

When analysing inflation developments in the previous quarter, it is essential to make a clear distinction between price movements arising from the interaction of supply and demand, and those stemming from any changes to the regulatory environment, particularly, the increase in indirect taxes.

Data published CSO suggest that the extra inflation resulting from the January 2004 increase in indirect taxes was at 1.6 per cent until March 2004. This is entirely consistent with our estimates of the impact of taxes published in the November 2003 and February 2004 issues of the *Report*. Market goods inflation, which has been caused by the tax-increase, occurred rapidly and mainly in January.

Chart 3.1 Developments in headline consumer price index and constant tax consumer price index



** CSO release.*

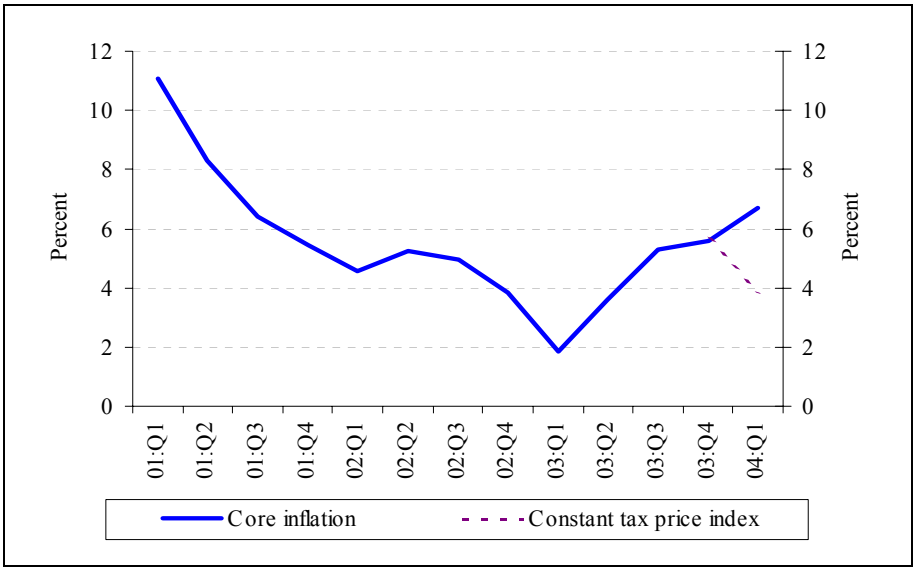
[2] The CPI data for April 2004 was received after the projections had been finalised. The 6.9 per cent value for CPI and the 6.1 per cent value for core inflation are in line with the processes described in the *Report*, although they emphasize the downside risks to our inflation projection, presented in Chapter 3.3.2, for the next one or two quarters.

Since the rises in indirect taxes were first announced in July 2003, we have stressed in each *Report* the importance of the impact of higher taxes on net prices in assessing inflation developments. Our earlier assumption was that regulated prices fully accommodate the feed-through effect of the tax-rise, and that as far as food and market services prices were concerned, market participants do not pass the full effect of the tax-rise on to consumers, which results in lower net prices in these sectors. This drop was estimated to be at 0.2 percentage points in CPI as well as core inflation. Having consulted the actual data, we have concluded that the direct effect of the tax-rise over the entire quarter is consistent with its earlier expectations.

When indirect taxes are raised, it is difficult to determine precisely whether a drop in the net price of a specific product or, what is more common, in its growth rate stem directly from the tax-rise or from the general interaction of supply and demand within the economy. In our view, the slight slow-down in estimated net core inflation is due largely to the direct effect of the increase in indirect taxes.

Chart 3.2 Estimates of core inflation excluding alcohol and tobacco

Seasonally adjusted, annualised quarter-on-quarter growth rates



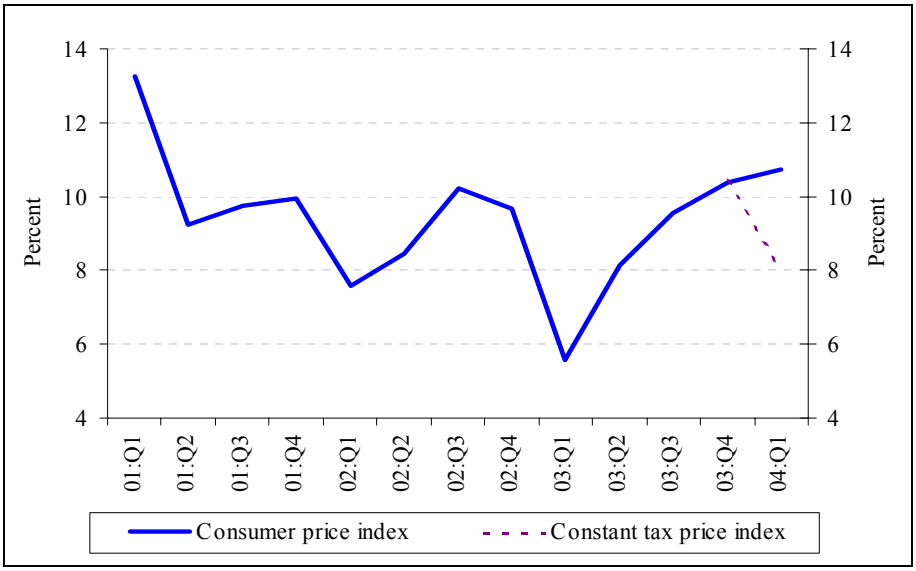
** Estimates using joint CSO-MNB methodology.*

Mostly market services were responsible for the slight slowdown in estimated net core inflation. Similarly to 2003 Q4, service sector costs soared in 2004 Q1. Due to a shortage of labour market supply, unit labour costs (ULC) continued to grow robustly, while corporate costs were up as a result of a shock-like surge in gas production prices at end-2003, and the ecological tax introduced in 2004 led to a rise in energy and public utility fees. However, our now-cast suggests that the growth rate of household spending has continued to decline, which in itself is enough to cause disinflation.[3]

[3] Due to data revision by the CSO, the view on domestic consumption in 2003 changed – the growth rate declined over the entire period. In accordance with our estimate, the slowdown continued into 2004 Q1. For more details see Section 4. 1. 3.

Chart 3.3 Market services inflation

Seasonally adjusted, annualised quarter-on-quarter growth rates

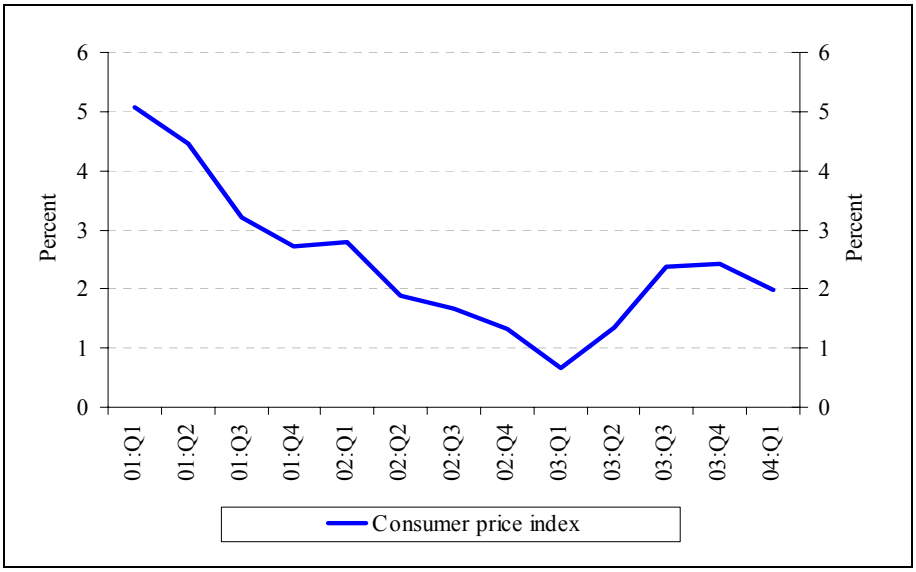


** Estimates using joint CSO-MNB methodology.*

Unlike the services industry, the tradables market was not hit by a dramatic increase in costs in 2004 Q1. The appreciation of the forint exchange rate in 2004 Q1, particularly from early February, points to long-term disinflation driven by import prices; nevertheless, together with the delayed impact of the exchange rate depreciation seen in earlier quarters, all these developments resulted in stabilising tradables inflation. In other words, there was a definitive break in the pick-up in tradables inflation starting in mid-2003.

Chart3.4 Inflation in tradables prices

Seasonally adjusted, annualised quarter-on-quarter growth rates



Excise duties for alcohol and tobacco were raised significantly in early-2004, which resulted in differing reactions in the two sub-segments. Companies producing and selling alcoholic beverages passed the entire burden on to consumers, whereas tobacco producers did so

only in part (i.e. 70-80 per cent). Moreover, news of higher excise duties spurred retailers to accumulate enormous inventories; as a result, the new and more expensive products will not appear on the market until March, and even then they will be distributed sporadically on the shelves.

Unprocessed food prices had a major effect on inflation developments in 2004 Q1. The robust upward price movements of autumn 2003 were offset by considerable correction, despite the rise in VAT rates. The underlying factors behind this were the drop in vegetable and, to a smaller degree, fruit prices, the combined effect of which counteracted unprocessed foods inflation. In our view, the brisk correction seen with fruit and vegetable prices is a sign on intense competition (driven mainly by imported products) on these markets, which is likely to be further strengthened by EU enlargement. [4]

Inflation in regulated price grew substantially in 2004 Q1, by 11.7 per cent over the same period last year. This was caused primarily by rising tax-rates, and the reclassification of electricity from reduced into standard rate. Furthermore, inflation was fuelled significantly by a hike of nearly 15 per cent in sewerage fees, which was brought about by the introduction of the environmental pollution fee, the net increase of just below 8 per cent in gas prices, , and a 10 per cent rise in pharmaceuticals caused by a cut in government subsidies. However, with the government's decree (which in its present version establishes a ceiling for pharmaceuticals for a period of six months) entering into force as of 1 April, the latter may well be a transient phenomenon, resulting in a 15 per cent fall in producer prices.

3. 2 Changes in inflation expectations

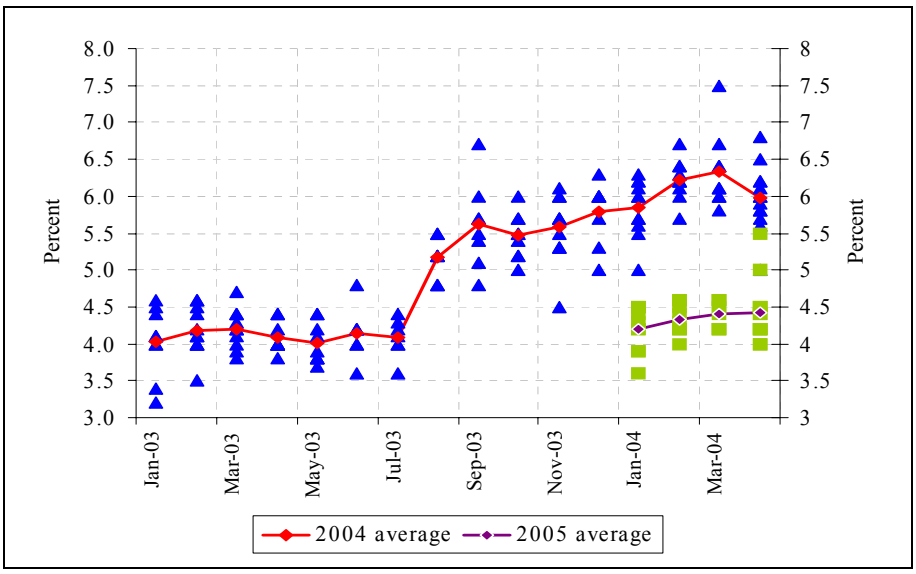
Since the announcement of the hike in indirect taxes in 2004, the MNB's forecast is drawn up using strategic assumptions about economic agents' expectations. According to this assumption, inflation edging up as a result of the changes in indirect taxes is assessed by economic agents (households, companies) as a temporary (i.e. for a period of 12 months), which over the longer term does not affect their expectations about price and wage movements. By regularly monitoring expectations, we intend not only to obtain a clear picture of the accuracy of the central projection, but to assess the credibility of longer-term disinflationary processes by using them.

The most broad-based forecasts for expected inflation developments may be obtained from economic research institutes and macro analysts. Surveys by Reuters and Consensus Economics suggest that in early 2004 market analysts revised up their forecasts both for end-2004 and end-2005. This may have been caused by worse-than-expected actual data for January, and the uncertainty arising from the pass-through effect of the changes in excise duties and VAT into inflation. As a combined effect of favourable actual data for March, changes in the macroeconomic environment (stronger exchange rate, dwindling household consumption) and measures by the government aimed at regulated goods, almost all analysts lowered their projections substantially in April, reverting both 2004 and 2005 forecasts to the January level.

[4] It may also be the case that the rapid correction of the prices of unprocessed food was also affected by household consumption demand, which slowed faster than expected. However, in our judgement, such a scenario could be ruled out, for there was no general drop in prices; it was only the prices vegetables and fruits that fell.

Chart 3.5 Inflation forecasts of market analysts and researchers in the Reuters poll for the end of 2004 and 2005

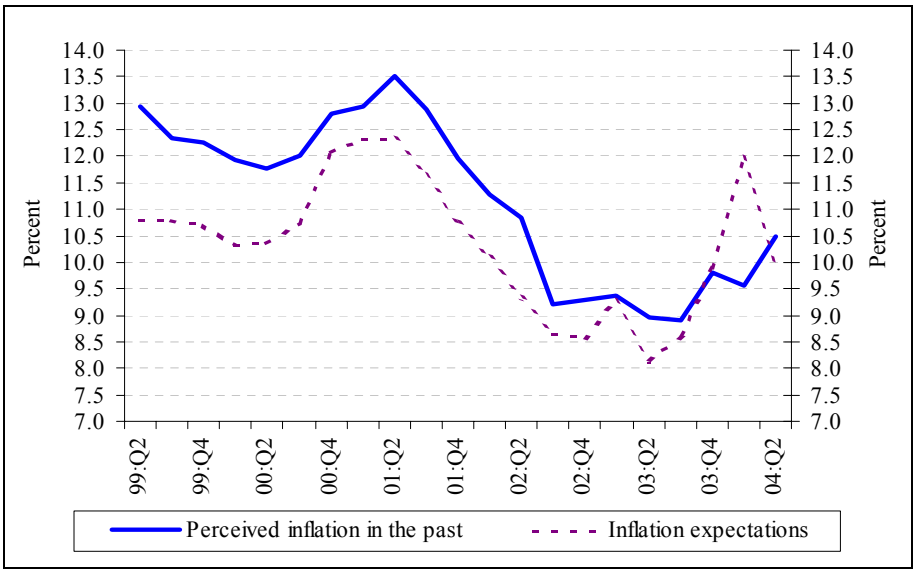
Percentage changes on a year earlier



Surveys of corporate executives and households conducted result in a more representative scope of information. However, the quantitative responses given to the questionnaires (e.g. in the TARKI surveys) have a far wider distribution than the information collected on market analysts; nonetheless, the assessment of shifts in the time series might provide valuable information as to the inflation expectations of economic agents involved in price and wage-setting.

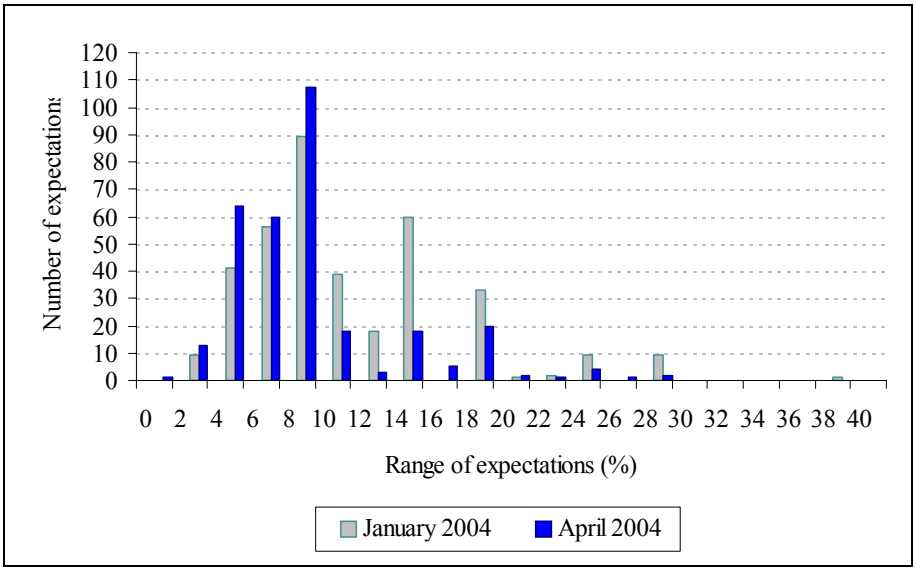
The latest survey conducted by TÁRKI concluded that in terms of expected inflation developments, corporate sector respondents have a far more favourable view than earlier. Although their perception of past inflation has been on the rise since mid-2003 (alongside the halt in the disinflation trend), as regards the future, respondents have lower inflation expectations relative to the January data-collection.

Chart 3.6 Inflation perception and expectations by corporate executives



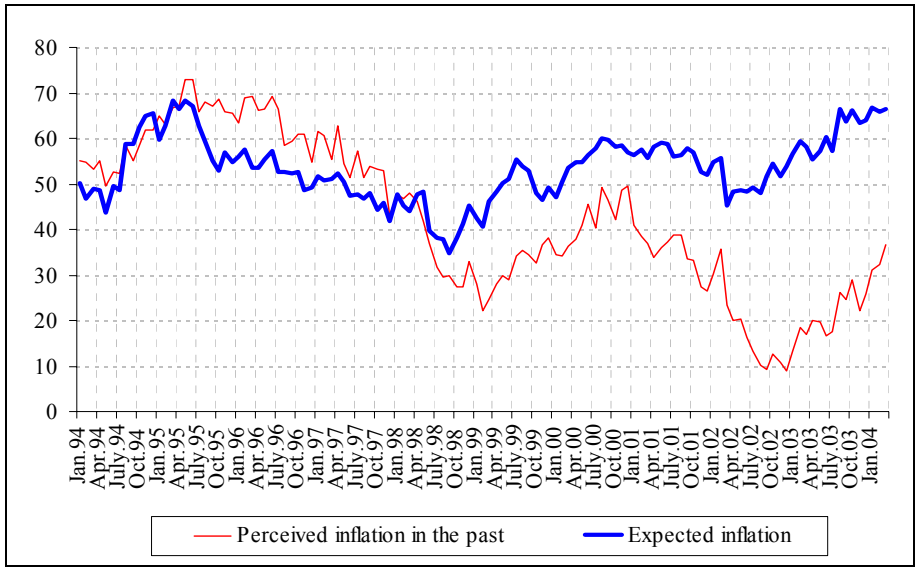
An examination of the internal structure of the responses may paint an even more sophisticated picture of the changes in corporate executives' assessment of inflation expectations. Whereas in April over 75 per cent of respondents set their inflation expectations at just below the average level of 10 per cent, less than half did so in January. Since the two sets of data were not provided by exactly the same subjects, the change may be partly attributed to the composition-effect. However, the mere fact that despite higher perceived inflation, the indicator for expected inflation did not continue its upward trend implies disinflation, particularly in the light of Hungary's inflation history, which also suggest that companies over the long run do not regard the recent tax hike as a factor which would permanently increase inflation.

Chart 3.7 Distribution of corporate executives' inflation expectations for the next 12 months



The latest releases by economic research institute GKI suggest that since early 2004 household inflation expectations remained essentially unchanged. The perception of past inflation by household have been worsening since the end of 2002. At the outset, the assessment of future processes was steadily deteriorating, with a particularly strong climb following the announcement of the tax measures in mid-2003; however, 2004 so far has seen no further build-up of expectations.

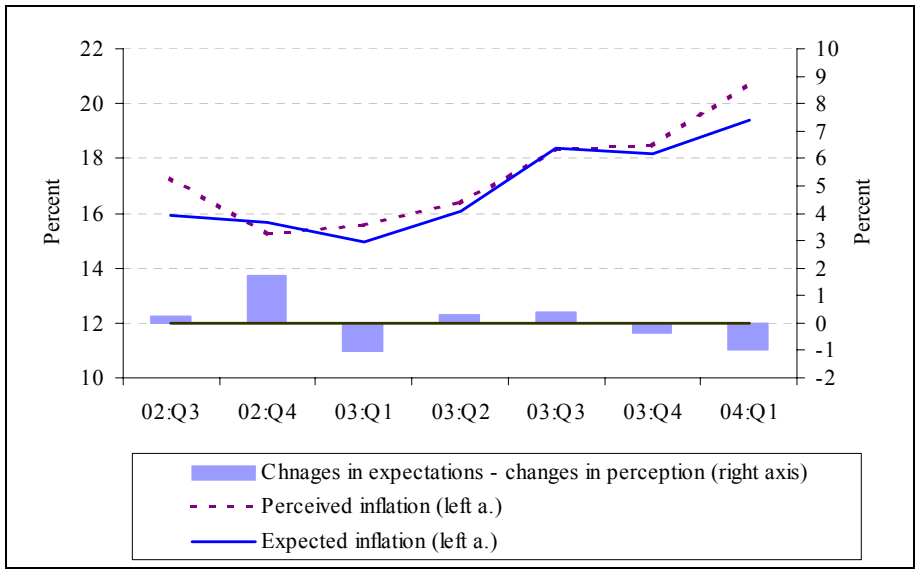
Chart 3.8 Household inflation perception and expectations in the GKIs survey *



** An index of qualitative responses. Higher values denote a distribution of responses more skewed towards increasing perception/expectations.*

Similar tendencies may be elicited from TÁRKI's household survey. However, it should be noted that since the distribution of the responses was materially broader than in the GKI survey, the trends identified here should be considered with an even greater degree of uncertainty. Nonetheless, the fact that in early 2004 the perception of inflation in the past picked up considerably, yet in response to that expectations for the future were down by a nearly 1 percentage point may be assessed as a notable change. However, despite all these changes, both surveys suggest that household expectations, unlike those of corporate executives, stopped to slow in 2004; and, consequently, one may not rule out entirely the possibility of sticky inflation.

Chart3.9 Household's perceived and expected inflation based on the TÁRKI survey



On balance we may conclude that while analysts' and corporate executives' view of future inflation developments is more positive than earlier, no significant change can be detected

in households' future perspective. With all these developments in mind, the MNB continues to regard its assumptions underlying expectations as relevant; at the same time, due to the uncertainty related to the perception of adjustment by households, they are on the whole assessed as factors which may have adverse effects on disinflation.

3. 3 Inflation outlook

In the short run, CPI is expected to rise moderately prior to mid-2004 and reach its plateau at above 7 per cent. Provided that assumed monetary conditions prevail, and given the assumptions set forth in Section 2, we expect on-going disinflation to materialise on the entire projection horizon from 2004 H2. The main engine of such disinflation is the moderation of core inflation. Furthermore, the gradual exclusion of raises in indirect taxes from the basis also contribute to disinflation.

3. 3. 1 Inflation forecast

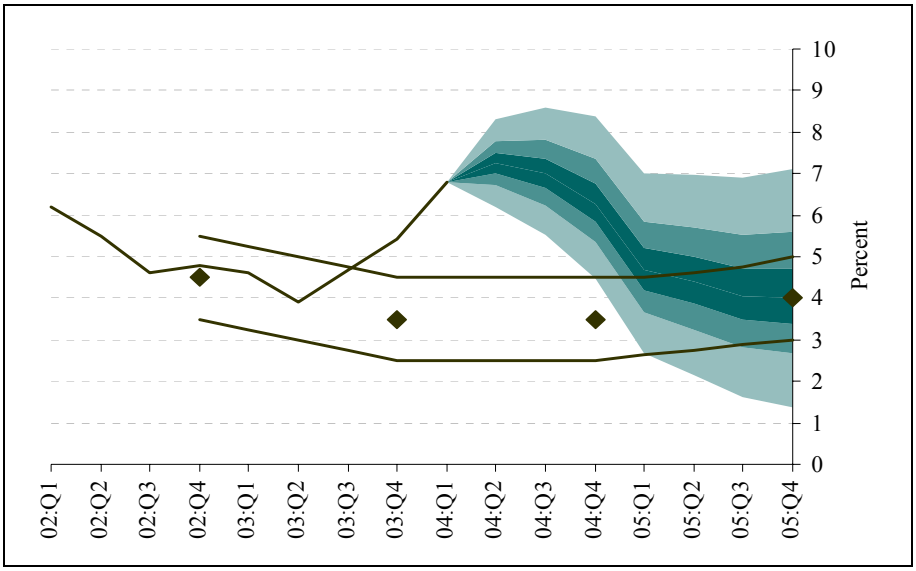
The decrease in core inflation in our conditional projection is supported by both demand and supply side factors of the economy. On the demand side a decrease in the rate of consumption growth, more generally a negative output gap supports disinflation. On the supply side, the assumption of a stronger HUF/EUR exchange rate suppress the growth of import-costs in 2004, while in 2005 the secondary effects of the stronger exchange rate prevail. The moderation of cost-pushed inflationary pressure is also a result of the decline in wage inflation, which in addition to the stronger exchange rate and a slowing consumption growth, might also be supported by a decline in inflation expectations.

Disinflation in non-core items is mainly a result of base year effects: the large increase in energy prices and unprocessed food in the 2003H2, and the increase in indirect taxes in 2004Q1 will disappear from the year on year index.

Under the assumptions discussed in Section 2, we expect end-year CPI inflation to be around 6 per cent and 4 per cent in 2004 and 2005 respectively. According to the CPI fan chart by the end of 2005 the probability of a lower than targeted inflation is 25 per cent, while it is somewhat more, around 30 per cent on the opposite side. Overall under the assumed monetary conditions we see inflation risks to be nearly balanced around the 2005 target.

Chart 3.10 The fan chart of inflation* [5]

Inflation on a year earlier

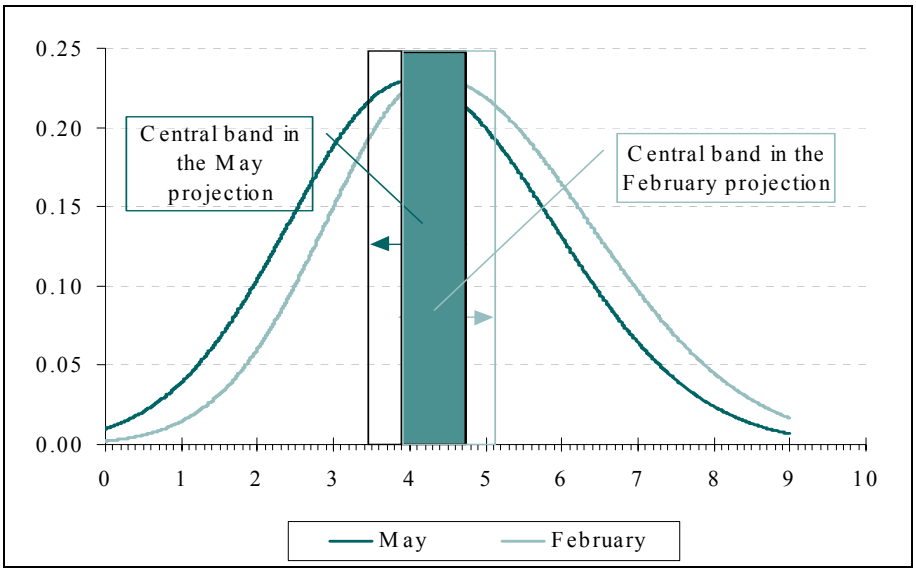


* *The fan chart represents the uncertainty around our main scenario. Overall, the coloured area refers to a 90 per cent probability. The central, darkest band - containing our main scenario as the mode of the distribution - refers to 30 per cent of the probability. The end-year points denote the inflation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

Comparing the central band of the current fan chart with that of the February report, we see that there is a considerable overlap between the two areas. However, in our current projection the risk of missing the inflation target at the end of 2005 is more symmetrical. While in the February projection, we assessed that inflation in December 2005 will most probably be between 4 and 5 percent, in our current forecast we are expecting inflation to be between 3.5 and 4.5 percent in that period. This change is based on two major factors, apart from a stronger forint assumption: due to the analysis of latest surveys about inflation expectations and the less than expected inflation rate in 2004 Q1, we now assess that the upside risk stemming from the increase of inflation expectations caused by indirect tax changes is smaller. On the other hand, we expect a stronger slow-down in household consumption, which may strengthen the disinflation tendency from the demand side.

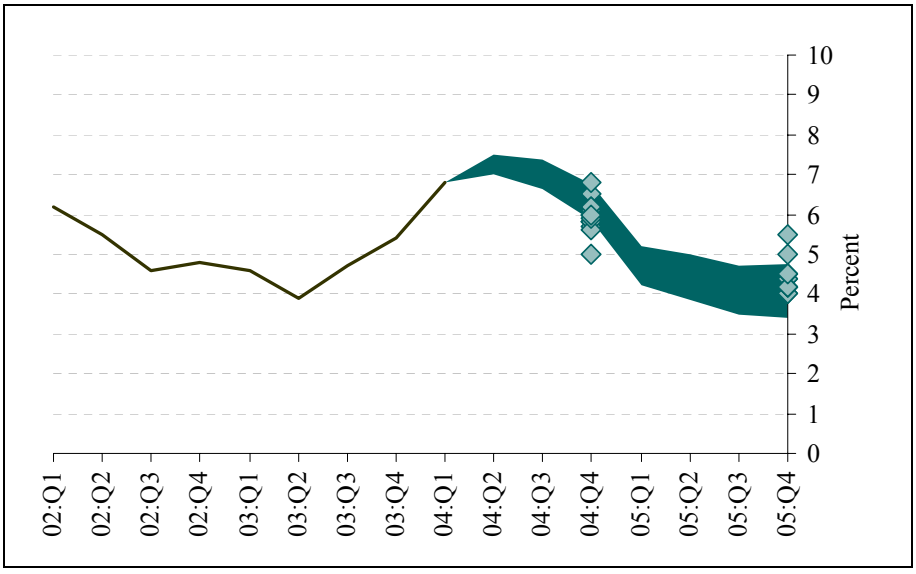
[5] For background information on the fan chart, see Section 6. 7.

Chart 3.11 Cross-section of the probability distribution for 2005 Q4



Comparing the central band of our current forecast with the expectations of market analysts and researchers, we find that these two intervals are again largely overlapping, although there are some analysts forecasting lower inflation for end-2004 and higher for end-2005 than the MNB's projection.

Chart 3.12 The central (30 percent) band of the fan chart and market expectation for inflation



3. 3. 2 Details of our main scenario

Our main scenario suggests that if the assumptions made in Section 2 were to prove right, the growth rate of consumer prices in December 2004 and end-2005 would stand at around 6 per cent and 4 per cent respectively. Dynamic disinflation expected from 2004 H2 is fuelled by a fall in core inflation, which is further augmented by a gradual exclusion of the increase in indirect taxes from the base.

Table 3.1 Consumer price index (CPI) – quarterly projections

	Weight (per cent)	Actual data	Projection								
		2004					2005				
		q1	*q2*	*q3*	*q4*	*dec.*	*q1*	*q2*	*q3*	*q4*	*dec.*
Core inflation	67,6	*6,1*	6,4	6,6	6,3	*6,1*	5,5	5,0	4,5	4,3	*4,2*
Unprocessed food products	6,0	*4,9*	5,2	7,7	2,4	*1,1*	0,4	2,1	1,6	1,9	*2,3*
Motor fuel and market energy	6,2	*1,0*	7,1	4,9	3,9	*2,4*	0,4	-1,5	-1,6	-0,2	*-0,3*
Regulated prices	20,2	*11,7*	10,3	8,8	8,1	*8,0*	4,4	4,8	5,0	4,9	*5,0*
Total CPI	**100,0**	***6,8***	**7,2**	**7,0**	**6,3**	***6,0***	**4,7**	**4,4**	**4,1**	**4,0**	***4,0***
Annual average		*6,9*					*4,3*				

3. 3. 3 Main scenario - Short-term projection

In 2004 Q2, we expect a pick-up in the consumer price index (CPI) and core inflation. We projects inflation to peak out in May 2004. Over the short term, inflation growth is fuelled mainly by an increase in the price of tobacco (caused by January 2004 measures affecting excise duties), as well as high motor fuel price indices.

Core inflation excluding tobacco is likely to see stagnation in 2004 Q2. The moderate short-term disinflationary impact of the stronger exchange rate seen since early February can counter only the long-term effects of earlier depreciation. In addition, the spill-over of the sharp increase in short-term corporate costs, with energy prices in particular, at end-2003 and early 2004 and the resilience of household spending hamper the full-scale disinflation.

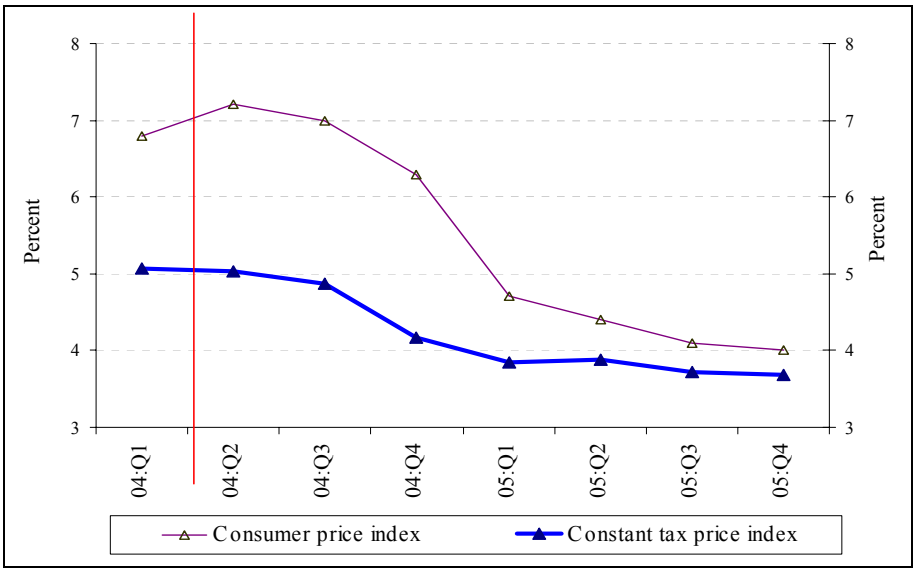
Nevertheless, inflation developments in 2004 Q2 are influenced predominantly by processes exogenous to monetary policy. In accordance with our projection, as the old inventories run out, by around September 2004 tobacco products sold at the old prices should be replaced with those bearing prices effective as of early 2004. Accordingly, in the quarter ahead the increase in indirect taxes should have a significant, i.e. nearly 0.2 per cent, additional inflationary effect. Even more significant is the impact of high motor-fuel price indices on the full CPI, totalling at about 0.4 percentage points, which, however, may be attributed partly by last year's low base. A high Q3 index for unprocessed food prices is also a result of a low 2003 base.

By contrast, regulated prices are expected to witness disinflation caused primarily by the April cut in the prices of pharmaceuticals.

3. 3. 4 Longer-term projection in the main scenario

Starting from 2004 H2 if the assumptions made in Section 2 were to prove right, we expect steady disinflation over the entire forecast horizon. To some extent, this has to do with general economic processes, which is well reflected in the uninterrupted decline of the constant tax index (CTI). However, the dynamics of disinflation is determined predominantly by the gradual exclusion from the base of the rise in energy prices, the massive increase in unprocessed food prices in 2003 H2, and the rise in indirect taxes in early 2004.

Chart 3.13 Main scenario projection for CPI and CTI
Annual percentage changes



** Based on methodology developed jointly by the MNB and the CSO, which is not comparable directly with earlier net price indices estimated by the Bank. CSO data for 2004 Q1.*

Table 3.2 The headline consumer price index (CPI) and the constant tax index (CTI)
Annual percentage changes

	2004 Q4	2005 Q4
CPI	6.3	4.0
CTI	4.2	3.7

Developments in core inflation

The combined effect of supply and demand in the Hungarian economy points to a drop in core inflation. This also implies that the output gap is increasingly negative over the entire projection horizon, which is augmented by some easing in the pressure from imported inflation on account of the MNB's stronger exchange rate assumption.[6] Moreover, foreign demand takes an increasing share in aggregate demand for the next nearly two years, which in itself also points to an easing of domestic price pressures. This may be further

[6] Output gap is the difference between the levels of the actual and the potential output. The latter is given by the supply side capacities in the economy.

strengthened by a possible lowering of inflation expectations, which is also corroborated by the latest survey data.

Supply side developments

Wage inflation and unit labour costs (ULC) play a dominant role in core inflation developments. Our projection concerning the labour market suggest that stagnating high wage inflation in the last quarter strongly declines in 2004, and that the pace of this decline increases in 2005. The forecast for ULC follows a similar dynamics to that of wage inflation in the next two years. Overall, companies are faced with slow-down in labour cost growth over the entire projection horizon.

In the meantime, our exchange rate assumption is stronger than that during the three quarters preceding March 2004, which has a disinflationary impact over the entire projection horizon. In 2004 the stronger forint rate exerts its influence primarily through a drop in import prices. From 2005 secondary impacts are likely to gain strength with the engine of disinflation shifting to competition between domestic and foreign producers, and labour market adjustment to falling inflation.

In addition, we expect the increase in unprocessed food prices to remain below the inflation trend over the next almost two years, which has probably to do with Hungary's EU accession (see ore on this later).

At the same time, the introduction of the ecological tax in 2004, and the rise in energy prices at end-2003 generate substantially higher corporate costs in the majority of cases.

Despite the fact that they are core inflation items, alcohol and tobacco prices are highly exposed to government measures due to their higher tax content. Of equal probability in the projection is the scenario that from mid-2004 net producer prices return to end-2003 levels (which corresponds to a further increase of 4 per cent), and that current consumer prices persist. With regard to alcohol and tobacco, we assume another rise in excise duties in early 2005. For alcoholic beverages the rise is equal to the rate of inflation, whereas for tobacco it corresponds to the linear path defined for the fulfilment of the EU directive by 1 January 2009.

Taken together, factors pointing to disinflation should assume a major role on the supply side from 2004 H2, and remain dominant over the entire forecast horizon.

Demand side developments

In 2003 growth in household consumption expenditure fell steadily, albeit from a fairly high level.[7] We expect a further slow-down in household consumption growth in 2004, in effect, a decline even in its level in the second half of the year. It is not likely to rebound until the end of the year, yet it remains subdued even in the course of 2005. Meanwhile, we estimate that, overall, the level of economic output will be below its potential level. Aggregate demand, comprising both internal and external demand, will bring about a lower level of output than supply capacity would suggest. This means that domestic capacity remains unused, which will have a desinflationary effect over the longer term. In sum, aggregate demand has a disinflationary impact over the entire projection horizon.

[7] Data revisions by the CSO had a considerable impact on the assessment of household consumption. See also Section 4. 1. 3.

Other developments

For the entire projection horizon, we forecast a fairly moderate increase in unprocessed food prices. That can be largely attributed (particularly over the short run) to actual data of 2004 Q1 implying a relatively rapid correction after the price hike of end-2003. This also corresponds to the MNB's view, corroborated by a number of discussions with agricultural market experts, that EU-accession is likely to have a disinflationary impact on the majority of unprocessed foods.[8]

As regards oil prices, by assumptions underlying projections we mean futures prices.9 These suggest that by end-2005 the price of oil will be down from the higher April 2004 level to USD 28 per barrel. Accordingly, the MNB's projected level of motor fuel prices should fall over the entire forecast horizon, following a short-run period (i.e. a quarter) of stagnation. At the same time, there is a strong likelihood of higher-than-projected oil prices.

The MNB's forecast for regulated prices inflation shows a downward trend until early 2005, and stagnation for the remainder of the year. The base effect dominates disinflation in the year ahead – energy prices raised in 2003 H2 gradually drop from the index alongside the price increases triggered by VAT-rates raised in early 2004. Other factors leading to a downward pressure on prices include (i) the freeze imposed by the government on producer prices of pharmaceuticals for a period of six months starting in April at lower-than-earlier levels; (ii) the MNB's assumptions that lower subsidised pharmaceuticals prices should persist over the entire forecast horizon, while non-subsidised pharmaceuticals are likely witness a rise corresponding to the inflation rate. For 2005, we have made the technical assumption that average inflation in the regulated goods category deviates from core inflation by the historical average. (The only exceptions are telephone services in which category the MNB expects a more modest average annual inflation, i.e. at 1.6 per cent.)

Finally, it is important to note that the overall decline in tariffs due to Hungary's EU accession may reduce the prices of several goods such as alcoholic beverages, unprocessed foods, passenger cars etc. However, this only exerts a relatively moderate impact on the entire CPI. A more significant drop in prices is expected to materialise in the category of investment-purpose goods. However, as they are excluded from CPI statistics, they may only have an indirect impact on consumer prices.

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[8] See more on this topic in Ferenczi – Jakab – Nagyné, Van-e inflációs feszültség a hazai élelmiszerárakban? Az EU-csatlakozás várható hatásai, *MNB Háttértanulmányok*, 2002/1. (in Hungarian)

[9] See Section 2. 1.

4 ECONOMIC ACTIVITY

4. 1 Demand

In the main scenario we project that the pick-up in business activity in Hungary would continue.

Looking back to 2001-2003, we see that from early 2001, Hungarian firms reacted very sensitively to the decline in external demand. However, based on currently available information, the upturn in domestic firms' performance is assumed to have already been underway from the beginning of 2003.

In the current forecast, this year's economic growth amounts to around 3.4 per cent. This higher growth projection relative to last year's is based on the pick-up in external business conditions. In contrast with the positive outlook for the external markets, domestic demand growth is forecast to decline considerably.

On the assumption that the upturn in external economic activity remains uninterrupted, Hungarian economic growth is forecast to be around 3.4 per cent, comparable with this year's, driven by the positive contribution from net exports.

Table 4.1 Growth in GDP and its components

Percentage changes on a year earlier

	Actual			Forecast	
	2001	**2002**	**2003**	**2004**	**2005**
Household consumption	5.9	9.3	6.5	2.1	1.1
Household final consumption expenditure	5.7	10.3	7.6	2.7	1.3
Social transfers in kind	6.5	4.9	1.8	-1.0	0.1
Public consumption	5.3	4.8	1.9	0.8	1.5
Gross fixed capital formation	5.0	8.0	3.0	9.2	3.2
*'Final domestic sales'**	*5.6*	*8.5*	*5.2*	*3.6*	*1.7*
Domestic absorption	1.9	5.4	5.5	3.4	1.9
Exports	7.8	3.7	7.2	10.8	9.2
Imports	5.1	6.2	10.3	10.3	7.1
GDP	**3.8**	**3.5**	**2.9**	**3.4**	**3.4**

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

Actual data for 2003 Q4 indicate a recovery in economic growth. The rate of export growth continued to gather momentum in the final quarter of last year. Fixed investment activity in the corporate and household sectors continued to grow, as seen in the previous quarter. Supported by the upturn in external business conditions, the pick-up in corporate performance is expected to be sustained.

Two divergent processes were observable in household behaviour. First, according to the latest data revision, last year household consumption growth slowed at a faster rate than suggested by earlier data. Second, the sector's fixed investment grew at a steady high rate, as a consequence of the wide use of subsidised housing loans, partly on the expectation of a tightening of the conditions of the facility. Explained by a massive curtailment of fixed investment spending by the Government, whole-economy fixed investment grew at a relatively low rate in 2003.

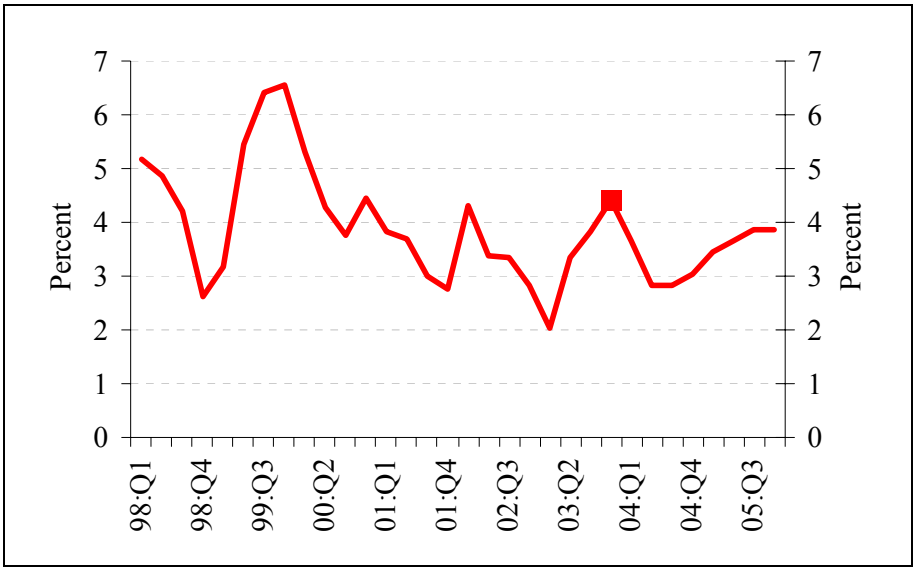
Based on currently available information, growth in 2004 Q1 is forecast to be around 3.7 per cent relative to the same period of the previous year.

The recovery in private sector investment activity is likely to continue in 2004 as a whole, accompanied by the robust upturn in the corporate cycle. At the same time, household investment will still be robust due to the high level of housing permits issues and loans taken towards the end of last year.

Economic growth in 2005 is forecast to be comparable with this year's. Annual growth in whole-economy fixed investment is forecast to slow, as, although corporate sector fixed investment activity is likely to remain robust, household fixed investment is expected to decline considerably and the investment cycle of the government sector to enter a downward phase, caused by the fiscal contraction of demand. Net exports are likely to contribute to the rate of economic growth, as a consequence of the slowdown of domestic demand.

Chart4.1 GDP growth

Annualised quarter-on-quarter growth rates



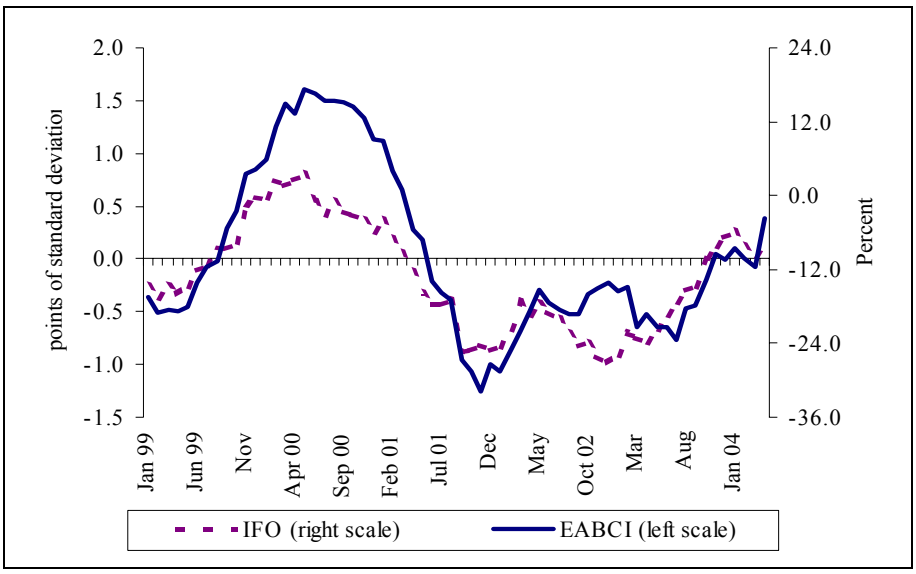
4. 1. 1 External demand

Most analysts have maintained their optimistic approach to the outlook for global economic growth. In the United States, growth continues to be robust; and growth in Japan and the Far Eastern region has maintained its upward momentum. In respect of business conditions in Europe, the relevant region for the assessment of Hungary's growth prospects, expectations have recently become slightly more subdued.

The fact that European GDP data for the final quarter of 2003 turned out to be lower than anticipated would not in itself to be an argument in favour of weaker future growth. The underlying reason for slower growth in most European economies has been lower net exports, which in turn have been attributable to massive stockbuilding; and stockbuilding would, in principle, suggest a pick-up in domestic demand which has so far been anaemic. However, 2004 Q1 data which have since become available contain some warning signs in respect of the robustness of the current upturn.

Germany, Hungary's most important trading partner, registered strong output growth, high new industrial orders and (based on the business climate index of the IFO) an improvement in corporate managers' expectations in the final quarter of 2003. However, all three indicators declined in the first few months of 2004 Q1, undermining forecasters' optimistic mood with regard to the early part of the year. The situation is broadly similar in the entire euro area: the forecasts of economic growth are surrounded by increasing uncertainty over the short term.

Chart4.2 Business confidence index of the euro area (EABCI) and the German IFO Institute

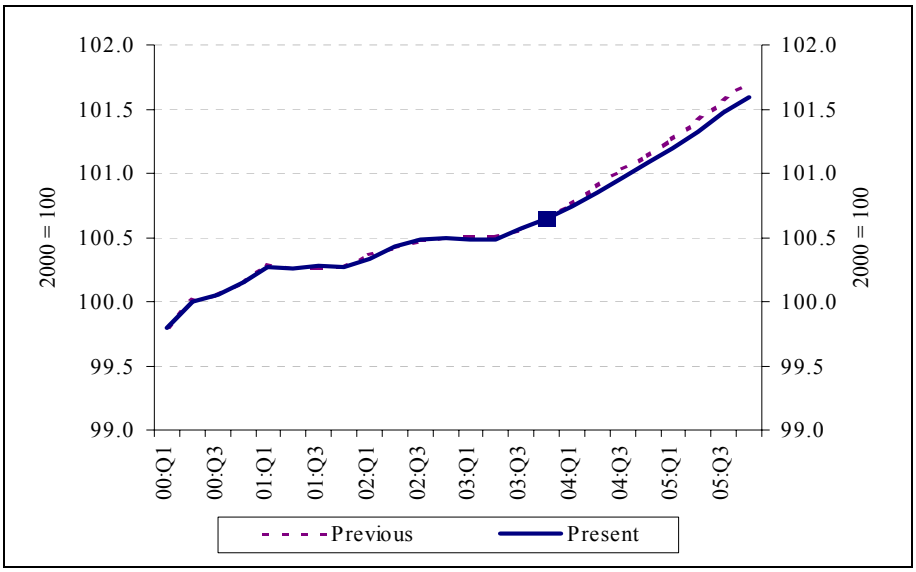


The EABCI shows the deviation of the common component, derived from various individual components, such as inventories, existing orders, etc., from the long-term trend. Consequently, positive values denote positive business expectations and increasing values denote improving business confidence. IFO interprets business confidence similarly, with the exception that the values are provided as a percentage of deviations of improving from deteriorating responses.

All this is associated by slightly higher oil and raw materials prices, although the price of oil, derived from futures contracts, is assumed to turn downwards in 2004. On the forecast horizon, raw materials prices also fall considerably.

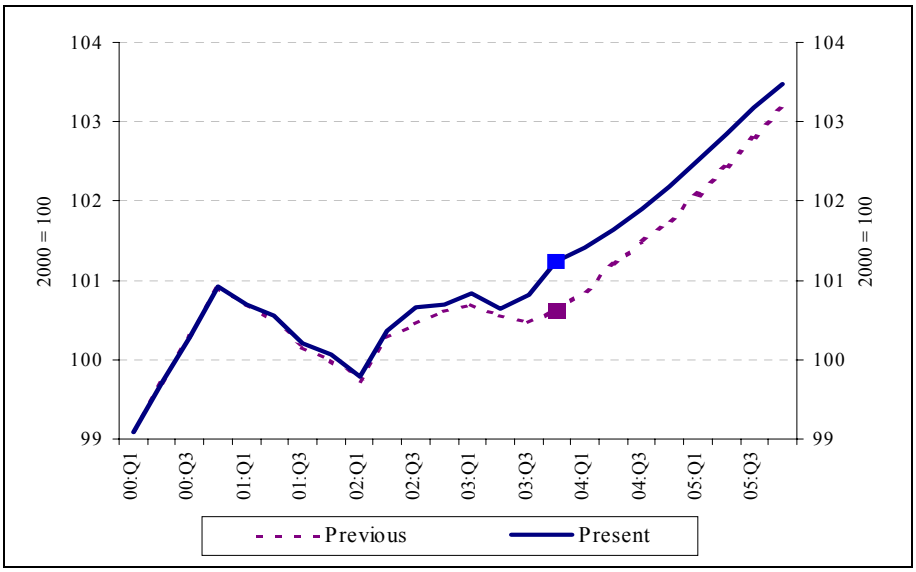
We have revised down slightly our forecast of GDP growth in Hungary's trading partners relative to those of the economic research institutes traditionally featuring in the *Report*, due to the slower-than-expected pick-up in European business activity. This is also reflected in the forecast of the size of Hungary's export market (an indicator of imports by Hungary's major trading partners). However, this indicator is likely to pick up marginally in 2004, due to the upward revision of data for 2003.

Chart 4.3 GDP growth of Hungary's major trading partners* (log scale)



** The volume of GDP of Hungary's major trading partners, weighted by their share in Hungarian exports.*

Chart 4.4 Size of Hungary's export markets* (log scale)



** Import volume of GDP of Hungary's major trading partners, weighted by their share in Hungarian exports.*

Table 4.2 Various forecasts of external demand

Average annual percentage growth

	2003	2004	2005
	Actual	Forecast	
GDP growth of Hungary's major trading partners			
MNB	0.5	1.7	2.2
European Commission*		1.8	2.2
OECD**		1.6	2.4
IMF***		1.9	2.2
Size of Hungary's export markets			
MNB	2.3	4.5	5.8
European Commission*		5.7	6.7
OECD**		5.4	7.5
IMF***		5.1	5.9

** Source: Economic Forecasts, Spring 2004.*

*** Source: Economic Outlook (May 2004).*

**** Source: World Economic Outlook (April 2004).*

We perceive a slight downward risk relative to the central projection. This may be explained by the potential halt in the consumption-driven economic expansion of the United States, the decline in currently high U.S. share prices, the continued weakness of the dollar vis-à-vis the euro because of the country's high current account deficit and the higher indebtedness of European firms relative to their North American competitors.

4. 1. 2 Fiscal developments

The February *Report* provided a comprehensive analysis of the 2004–2005 fiscal path. Consequently, given that the conduct of fiscal policy is basically broken down into annual cycles, our current analysis focuses on the developments that have occurred since the previous *Report*.

In our central projection, the 4.6 per cent deficit target on an ESA basis for 2004 is unlikely to be met unless further measures to improve the balance are implemented in the course of the year. This year, however, fiscal policy is expected to make significant contribution to the gradual adjustment of macroeconomic imbalances. The indicator 'fiscal demand impact' summarises this effect.

As the 2005 government budget has not yet been available and the fiscal policy guidelines underlying the process of preparing the 2005 draft budget are currently unknown, we have based our forecast of the 2005 government deficit on a conditional path. According to the Convergence *Report*, this contains the assumption of a 0.5 per cent improvement in the ESA based deficit in 2005 relative to the deficit expected for 2004. The assumed extent of the 2005 fiscal adjustment is some half of that outlined in the February *Report*.

Table 4.3 Expected outcomes for the fiscal indicators as a percentage of GDP[10]

	Preliminary data for 2003	Forecast for 2004	Assumption for 2005*
1) GFS deficit	**-5.8**	**-6.5**	**-5.2**
2) Corrections on ESA basis	-0.1	+1.2	+0.4
3) ESA deficit (1+2)	**-5.9**	**-5.3**	**-4.8**
4) Adjustment for temporary items	-1.0	-0.9	-0.4
5) Quasi-fiscal expenditure	-1.5	-0.9	-1.5
6) Augmented (SNA) deficit (3+4+5)	**-8.3**	**-7.2**	**-6.7**
7) Augmented (SNA) primary balance	-4.7	-3.3	-3.0
8) Fiscal demand impact	**-0.2**	**-1.6**	**-0.3**

** Normative scenario: it is based on the assumption that the 2005 ESA deficit falls by 0.5 per cent of GDP relative to the expected 2004 ESA deficit as a proportion of GDP.*

*** Change in the augmented (SNA) primary balance. Negative values denote contraction of fiscal demand.*

The fiscal balance expected for 2004

Our forecast of the cash based (GFS) balance remains unchanged relative to the February *Report*.

In the February *Report*, we prepared our forecast on the basis of the estimates in the Budget Act approved by Parliament in December 2003. By contrast, our current projection is related to the forecast of GFS deficit, revised up relative to the December estimate and released by the Ministry of Finance on its website on 15 April. Our forecast contains a 0.7 per cent higher deficit compared with that expected by the Ministry.

Table 4.4 Difference of the MNB's forecast from the April projection of the Ministry of Finance

On a cash basis; HUF billions

Central Government					Local government	Total general government	
VAT	Corporate tax	PIT	Government expenditure	Social contributions and expenditure		**HUF billions**	**As a per cent of GDP**
-45	-20	-40	0	-20	-20	-145	**-0.7**

The central government accounts for 0.5 percentage points of the difference; and the social insurance and local government sub-sectors accounting for a further 0.1 per cent each, as compared with the Ministry's forecast.

Tax revenue of the central government is expected to be 0.5 per cent lower as a proportion of GDP relative to the forecast by the Ministry. Value added tax (VAT) revenue accounts for the most major difference: in our forecast net VAT revenue is some HUF 45 billion (0.2 percentage points of GDP) lower than the Ministry's projection. Revenue of corporate

[10] For more details on the various indicators of deficit used in this *Report*, see the MNB's *Manual on Hungarian Economic Data*, pp. 75–80, the August 2003 *Quarterly Report on Inflation*, pp. 76–77 and the February 2004 *Monthly Report*, p. 84.

tax and personal income tax (PIT) is forecast to be lower by HUF 60 billion, explaining the remaining 0.3 percentage points difference.

The difference between the projections of tax revenue has been the simultaneous effect of a combination of three, partly counteracting, factors. In the Bank's forecast, the 'underlying' tax base, deriving from last year's macroeconomic processes, is judged to be lower than that in the Ministry's forecast. This has been the major driving force behind the forecast of lower tax revenue[11]. On the other hand, the Bank's macroeconomic forecast for this year would imply a higher tax revenue than that in the Ministry's forecast. However, additional tax revenue, deriving form the difference between the macroeconomic paths, does not compensate for the revenue shortfall in our forecast, resulting from the different assessments of the actual outturns for the tax bases in 2003. In addition, in line with our forecasting rules, we do not take account of additional tax revenue assumed on the basis of improvement in the efficiency of tax collection, it may only be expected to be realised over the long term and on the basis of detailed action plans.

Total expenditure of the central government sector is expected to be broadly the same as in the forecast by the Ministry. Compared with the February forecast, we expect housing subsidies to be overrun by HUF 13.0 billion. That is equal to the forecast of expenditure overrun released by the Ministry. This appears to reinforce our earlier view that the tightening of the subsidised house purchase scheme would have full effect from 2005.

At the time of preparing the February *Report*, the exact details of the Government's February 'package' of austerity measures were not available. Accordingly, we assumed that the planned deficit reduction would be implemented by curtailing investment spending and current expenditures in particular. While the size of the fiscal package has turned out to be as assumed, the actual measures differed from those assumed in our February forecast. Wages and current expenditures were curbed by less than expected; however, saving from the postponement, slowdown in, or cancellation of the implementation of capital projects as well as from cost reduction related to the transfers within general government turned out to be much higher[12]. In its different structure from our expectation, the contribution of the austerity package to the implementation of next year's fiscal adjustment programme is likely to be weaker than we assumed in February. The structure of the reduction in expenditure does not imply any pre-determined actions in drafting next year's budget, as it is mostly the curtailment of wage costs and current expenditures which may result in effective saving in the government budget over the long term. Saving from the transfers within general government does not automatically translate into a reduction in expenditure on a sectoral level, as this may be offset from other sources in part or in full.

Looking at the 2004 fiscal forecasts in more detail, our projection contains an increase in general government sector wages as envisaged in the Budget Act. Neither the budgetary units, nor the institutions belonging to the other sub-sectors of general government can expect government grants to cover their additional expenditure. Consequently, wages may only assumed to increase in the sector, if a reduction in staff is implemented in general government. As at the time of the February *Report*, we continue to expect general

[11] According to the calculations of the MNB 'underlying' (or, permanent) level of the net VAT was HUF 100 billion lower in 2003 relative to the MoF assumptions underlied their updated forecast in April 2004.

[12] The term of „transfers" actually covers transfers inside the government sector and transfers to the private sector.

government employees to receive their 13th month salaries of 2004 in January 2005, as provided for by law. Consequently, the increase in average earnings in 2004 on a cash basis is likely to be much lower than the underlying rate of wage increases.[13]

Our current forecast contains a 0.1 per cent higher deficit of the social security sub-sector as a proportion of GDP relative to the Ministry's forecast published in mid-April. Affecting the expenditure side of the social insurance authorities, the Government has lowered and froze pharmaceuticals prices by an administrative action. As an effect of this measure, expenditure on pharmaceuticals subsidies is expected to be lower by HUF 20 billion relative to the previous forecast.[14]

The deficit of the local government sub-sector is expected to be higher by the equivalent of 0.1 per cent of GDP relative to the budget plan, the same deviation as in the February *Report*. In our expectation, current expenditure and investment spending will turn out to be higher than the official estimate in the Budget Act, which additional revenue will offset only partially[15].

We have not prepared an estimate of the adjustments on an accrual basis for the deficit calculated under the GFS and ESA accounting systems, due to the high degree of uncertainty surrounding the accounting methodology to be in use this year. The effect of adjustment used according to the ESA accounting methodology may improve the ESA balance above the average in 2004, as a large difference is expected between VAT receipts on a cash and an accrual basis as a consequence of Hungary's accession to the EU. For this reason, we have accepted the size of expected adjustment (1.2 per cent of GDP) which derives implicitly from the difference between the actual outturn for the 2004 ESA based deficit target (4.6 per cent of GDP) and the cash based deficit projection released by the Ministry for 2004 (5.8 per cent of GDP).

In order to obtain another indicator of fiscal policy, the augmented SNA deficit, we have to eliminate the temporary items from the above deficit indicators and complement with quasi-fiscal expenditures not recorded in the accounts of general government on the ESA and GFS accounting bases. However, we do not take account of expenditure items that no longer have an impact on demand in the current fiscal year, for example, partial payments on investment implemented with contributions of private capital and debts taken over by the Government. Our forecast reflects the effect of the losses of large state-owned enterprises (MÁV and BKV) expected for 2004 as well as expenditure related to other quasi-fiscal activities, for example, the broadly defined expenditure of ÁPV Rt and Government spending on investment which will not be directly charged to the budget, but will be financed with the involvement of private capital (e.g. PPP).

This deficit indicator signals a deficit of 7.2 per cent of GDP in 2004, up 0.4 percentage points on the forecast of deficit in the February *Report*. This higher deficit may be explained by the fact that, at the time of preparing the previous forecast, a few measures were not known. These include, for example, the speed-up of the construction of the M5 motorway,

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[13] In forecasting household behaviour, we accounted for general government wages on an accrual basis – 13th month salaries, to be paid in January 2005, were added to 2004 wages. According to this approach, average earnings growth will be 7 per cent–8 per cent this year.

[14] This measure directly affects our 2004 inflation forecast. For more details, see Section 3. 3.

[15] Our revenue forecast is based on the actual figures of 2003. This actual revenue turned out to be higher than the MoF assumed when the draft budget was prepared.

and the increase in the quasi-fiscal role of MFB, owing to the agreement with farm producers.

Uncertainty of the 2004 forecast

The range of risks has narrowed from 1.6 per cent to 1.4 per cent, relative to the February *Report*; however, it can be seen that, according to our conditional forecast, there is great likelihood of the deficit turning out to be higher than the Government's ESA based 4.6 per cent deficit target, if no further deficit reduction measures are taken.

Table 4-1 Uncertainties surrounding the forecast of the GFS and ESA deficits for 2004
As a per cent of GDP

Central projection of GFS deficit: –6.5 per cent			
Lower deficit scenarios		*Higher deficit scenarios*	
VAT shortfall of base period reverses	+0.3	Higher-than-expected shortfall of VAT (EU accession)	- 0.4
Effect of macroeconomic developments (tax revenue, pension indexation)	+0.2	Effect of macroeconomic developments (lower wage growth, high pensioner inflation)	- 0.1
Delay in implementation of investment projects	+0.1	Higher offsetting effect of autonous fiscal developments (local government, budgetary units)	- 0.3
		Higher increase in open-ended subsidies	- 0.1
Increase in the net interest expenditures in cash flow	+0.1	Decrease in the net interest expenditures in cash flow	- 0.1
GFS deficit under extremely positive scenario	**-5.8**	**GFS deficit under extremely negative scenario**	**-7.5**
GFS – ESA difference assumption +1.2			
Potential correction of fixed investment on an accrual basis	-0.1	Accruals based correction of VAT shortfall and interest overrun	+0.2
ESA deficit under extremely positive scenario	**-4.7**	**ESA deficit under extremely negative scenario**	**-6.1**

The deficit would be lower if VAT receipts grew faster during the remainder of the year. In this case an additional net VAT revenue of up to HUF 60 billion could be realised on top of that in our central projection. On the other hand, we estimate that, as a result of Hungary's accession to the European Union, the risk of a temporary shortfall in VAT revenue, related to domestic consumption, may reach 0.4 per cent of GDP.

The partial curtailment of the budget chapters and estimates for the budgetary units may force a number of institutions to satisfy part of the funding shortages using carry-overs from previous years. The normative grants, ensured by the central government, do not include the 6 per cent wage increase offer for local government authorities in full. Consequently, if a number of local authorities do not create cover for additional wages by implementing savings, then they will only be able to finance the resulting gap by raising additional borrowing.

It was not known at the time of preparing our forecast in February that the Government's package of austerity measures would reduce the amount of government grants to local authorities by HUF 10 billion. This curtailment may cause local authorities to postpone their scheduled investment projects or it may entail an increase in the sub-sector's deficit. Considering the factors noted above, we have not modified our February forecast in

respect of the extent of risks – the risk of funding shortages is estimated to amount to 0.3 per cent of GDP.

The adjustment of the possible time gap between the implementation of certain government capital programmes and their recording as expenditure on an accrual basis of accounting has arisen as a new factor of risk relative to February. In our estimate, the risk of such adjustment, increasing the ESA based deficit, would amount to as high as 0.1 per cent of GDP.

The estimated risk concerning interest expenditures (with a given yield curve) includes the following factors: deviations from the planned financing, deviations in the planned schedule of privatisation receipts, differences between our assumption of nominal interest rate and the interest coupon of the bonds to be issued and finally the unknown date of the interest payments of the bonds to be issued.

Fiscal balance expected for 2005 – uncertainties surrounding the forecast

As the 2005 Government Budget has not yet been approved, we have prepared a risk or rule-based forecast and a conditional forecast (or normative scenario) for the year under review. The latter constitutes the main scenario of the *Report*, the difference between the rule-based and normative scenario the representing the risk of meeting the normative scenario, or the extent to which additional measures should be taken.

The main scenario is based on a plan of an annual 0.5 per cent reduction in the ESA based deficit. Illustrating the extent of measures required for meeting this path, the predetermined measures and trends would result in a 1.8 per cent increase in the ESA based deficit in 2005, assuming no change in fiscal policy. Consequently, a 0.5 per cent reduction in deficit requires a some 2.3 per cent adjustment in the ESA based deficit

Table 4-2 Forecasts of various fiscal indicators for 2005
As a per cent of GDP

	1	2	3	4 = 3 – 2
Deficit indicators	Central projection for 2004	No change in fiscal policy (predetermined measures)	**Central projection for 2005 (normative scenario)**	Risk
GFS deficit	-6.5	**-7.5**	**-5.2**	2.3
ESA deficit	-5.3	**-7.1**	**-4.8**	2.3
Augmented SNA deficit	-7.2	**-8.2**	**-6.7**	1.5

Our main scenario for 2005 is a normative one. Consequently, we have not estimated its details independently. However, we assume that revenues cannot be enhanced further, mainly by reducing current expenditures, particularly wages and current expenditures. It is further assumed that the central government will adjust by reducing investment expenditures at the GFS and, consequently, the ESA level of deficit.[16] The likelihood that

[16] We have used a technical assumption for 2005 to measure the extent of accrual based adjustment between the GFS and ESA based deficits. This time, similarly to the February *Report*, we have relied on the past average of the accrual based adjustment to the GFS and ESA deficits. Accordingly, the accrual based adjustment amounts to +0.4 per cent of GDP. In other words, in our assumption the 2005 ESA deficit may be better by the same amount than the cash based deficit.

the part of the curtailment of investment spending on the level of the ESA balance could be offset through increasing quasi-fiscal expenditure, for example, through the involvement of private capital in financing certain investment programmes, has increased since we prepared our forecast in February.

We project that the size of quasi-fiscal expenditures is about to increase again in 2005. Thus the temporary items between the indicators of the ESA deficit and the augmented SNA deficit, of the main scenario, has been adjusted upwards since the February *Report*. Quasi-fiscal expenditures include our estimates of the losses of state-owned companies (for example, MÁV and BKV), expected in 2005, other quasi-fiscal losses, not recorded in the GFS balance, and spending on other fixed investment programmes to be implemented under deferred payment schemes but actually linked to government investment activity. As a consequence of the assumed change in the composition of expenditures of general government, the fiscal contraction of demand, pertaining to the normative scenario, may amount to around 0.3 per cent of GDP in 2005.

The objective of preparing an alternative, rule-based forecast, in addition to the normative scenario, is to provide a risk-based forecast on the basis of the predetermined measures which shows the possible outturn for the general government balance, if fiscal policy did not take further measures. The estimated rule-based path has not shifted significantly in either direction relative to the February *Report.*[17]

Our main scenario for 2005 still contains a considerable risk of a more expansionary fiscal policy. Based on the principle of 'no change in fiscal policy', our alternative, rule-based forecast only reflects the effect of statutory measures.[18]

Our rule-based forecast contains an increase in deficit, due to the existing predetermined measures. In 2005, settlements related to the European Union are likely to deteriorate the balance by 0.4 per cent of GDP in 2005, the reduction in lump sum health contributions is likely to increase the deficit by 0.3 per cent of GDP, and the investment cycle of local authorities as well as the indexation of pensions are also likely to add 0.2 per cent of GDP to the deficit. As an effect of the system of civil servants' and public servants' 13th month salary, introduced this year, is expected to increase the deficit by 0.3 per cent of GDP.

4. 1. 3 Household consumption, savings and fixed investment

Opposite to the release of preliminary data by the CSO, the rate of household consumption expenditure growth slowed perceptibly in 2003. That has had a major impact on our current forecast. Nonetheless, with last year's 7.6 per cent increase, consumption registered the second strongest annual index in the previous 10 years, after the peak in 2002.

Due to the spectacular rise in consumption in 2003, Hungary belonged to the cutting edge in terms of households' propensity to consume[19] at 2003, even measured by the standards

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[17] The 0.1 percentage point increase in the augmented SNA deficit being the effect of the change in our estimate of higher-than-earlier quasi-fiscal expenditure.

[18] For more details on developing the method for the rule-based forecast of fiscal policy, see Section 5.2 of the August 2003 *Report*.

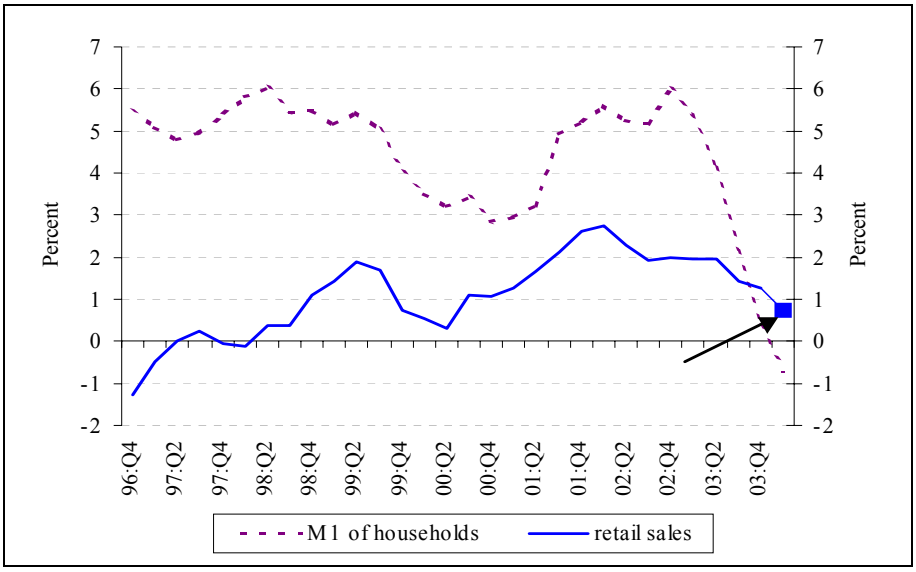
[19] Propensity to consume is the portion of disposable income (excluding transfers in kind) spent on consumption, expressed as a percentage.

of the developed European countries. Robustly rising consumption and household fixed investment resulted in the sector's (net) financial savings barely exceeding zero last year (0.2 per cent as a proportion of GDP).

As expected, the indicators released in the first couple of months of 2004 are evidence of a further massive decline in the rate of household consumption expenditure growth. The real value of household holdings of liquid financial assets (cash and short term deposits) experienced a particularly spectacular fall. Although a decline in the sector's real M1 holdings, lasting for months, on such a scale was not observed in the period 1996–2004, there is evidence of significant correlation between the monetary aggregate M1 and retail trade volume and, ultimately, consumption. That significant drop in households' liquid financial asset holdings in early 2004 is assumed to have been the combined result of high real rates realisable on bank deposits and an increase in indirect taxes.

Chart 4.5 Changes in real household M1 and retail trade volume*

Quaterly changes

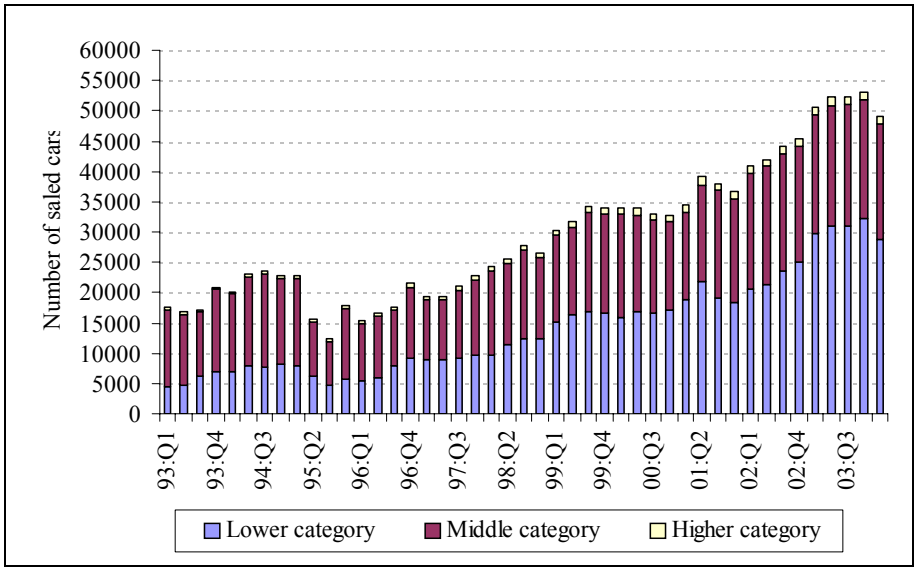


** The household M1 consists of currency and sight deposit held by households*

Not only the indirect indicators, noted above, but those directly linked with consumption expenditure as well, underline the clear slowdown in the rate of household consumption growth. In the first two months of 2004, the volume of retail sales slowed considerably. According to the seasonally adjusted data which also include sales of new motor vehicles and motor fuel, retail sales rose by 5.6 per cent January and by 4.5 per cent in February year on year. That meant a significant drop relative to the average 8.6 per cent increase in the previous year.

In large part, the moderation in retail trade volume was attributable to the slowdown in motor vehicle sales. According to the evidence of seasonally adjusted data, the steady increase in new motor vehicle sales which began in early 2002 stalled in 2004 Q1. (It should be noted, however, that the low number of motor vehicles sold in January–March may have also been caused by the uncertainty surrounding Hungary's prospective accession to the EU and by the longer waiting time due to traders' low stocks.)

Chart 4.6 Development in sales of new cars
Seasonally adjusted data



Source: Hungarian Vehicle Importers Association

Based on the outcomes for these indicators, we expect a further considerable slowdown in household consumption growth in 2004 H1. This may reach its trough in the second half of this year. The sector's consumption expenditure may even fall steadily in real terms in the same period.

Table 4.5 Household consumption, savings and fixed investment
Annual growth rates, per cent

		Household real net income*	Real consumption expenditure	Real value of fixed capital formation
2002	Actual/Estimate	11.4	10.3	13.4
2003		8.3	7.6	5-15
2004	Forecast	1.5	2.7	0-10
2005		2.5	1.3	(-10)-0

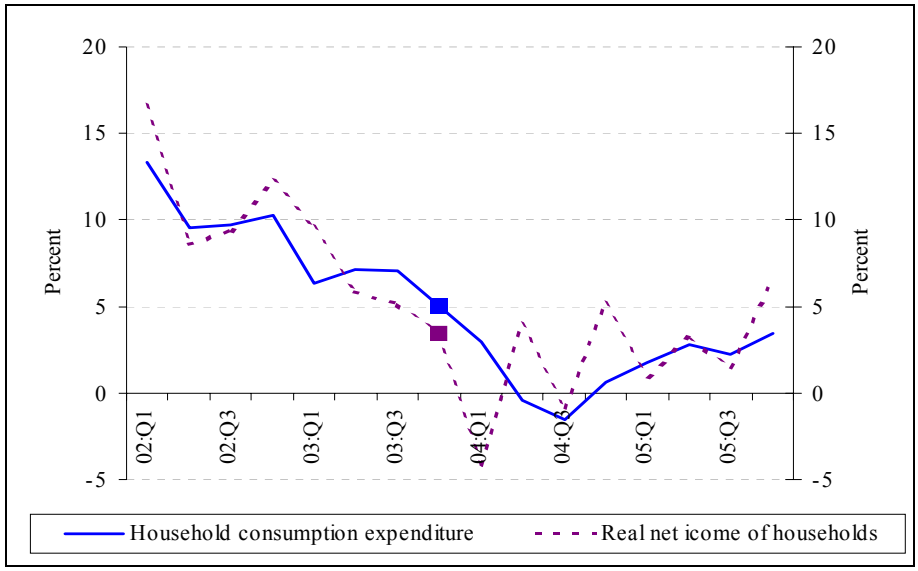
** Real net income has been approximated with sum of net wage bill and social transfers in cash*

Long-term developments in household consumption expenditure may in part be assessed on the basis of the expected turns in the sector's income and in part by mapping out the equilibrium consumption path developing as part of economic convergence.

The sum of household net wage earnings and financial transfers in cash to the sector (together which account for nearly two-thirds of total disposable income) has increased by more than 8 per cent on average in real terms in the past three years. This may in part be the consequence of firms' wage setting behaviour slowly adjusting to the low inflation environment and in part to a loosening of fiscal policy.

As a result of this year's wage developments and fiscal consolidation, the earlier robust increase in wages is unlikely to be sustainable in the coming period. The massive slowdown in wage growth itself may represent a hurdle to the future increase in household consumption expenditure. In our current forecast, a temporary rise in unemployment also leads to a fall in the sector's propensity to consume in 2004.

Chart4.7 Household purchased consumption expenditure and real net income
Annualised quarter-on-quarter growth rates

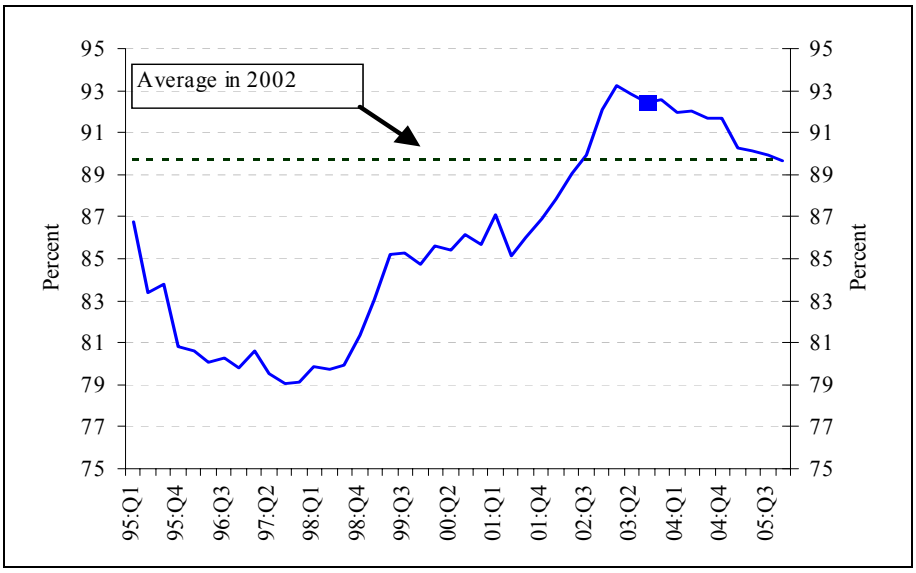


How households' propensity to consume will adjust to an environment characterised by more modest income growth and weaker impulses generated by the government sector (for example, subsidised housing loans) remains to be answered.

In our calculations, the ratio of the sector's consumption expenditure to disposable income was nearly 93 per cent in 2003. This outcome, high even in international comparison, was the consequence of subsidised lending for house purchase; and, given that the conditions of housing loans have been tightened by the Government, this rate is unlikely to be sustained over the long term. The equilibrium value of households' propensity to consume is expected fluctuate around the top of the average of 2001 and 2002.

As part of economic convergence and as a result of increasing competition among banks, propensity to consume increased gradually to around 87.5 per cent up to end-2001, simultaneously with the increasingly widespread use of consumer credit and leasing schemes. The extension by the Government of the subsidised housing programme to used homes in 2002 was an additional catalytic factor in this transition process, as some 15–30 per cent of subsidised loans is presumed to have been used to step up consumption. The tightening of conditions of new borrowing for house purchase may result in propensity to consume developing along an equilibrium path which better corresponds to the convergence process and harmonises with households' decisions on borrowing for consumption purposes.

Chart 4.8 Development in households' propensity to consume*



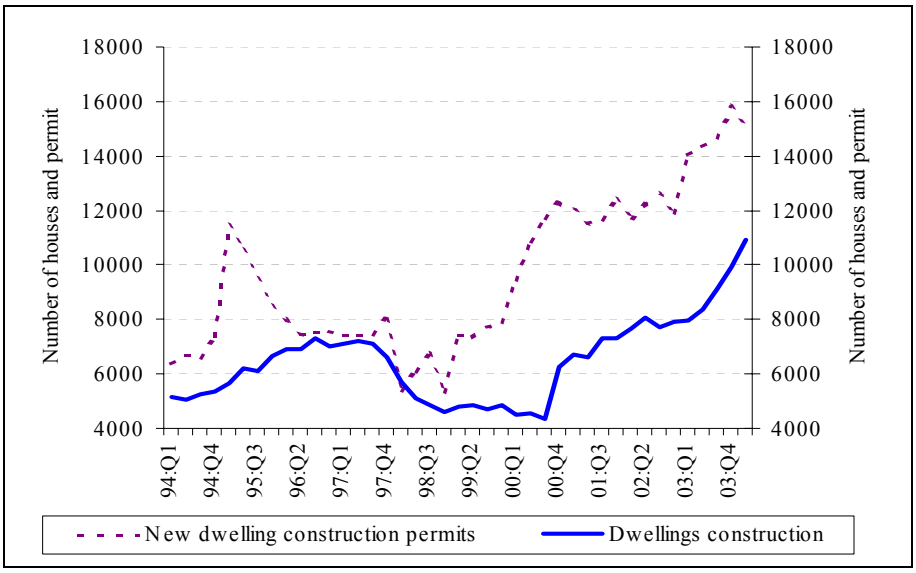
** Propensity to consume is the portion of disposable income (excluding transfers in kind) spent on consumption*

Household fixed capital formation

The expected, and, in December 2003, finally carried out, tightening by the Government of the conditions of the subsidised house purchase scheme influenced significantly the sector's investment behaviour in 2003. Basically as an effect of information related to news of an impending tightening, households stepped up the outstanding stock of their housing loans by some HUF 730 billion in 2003, an amount which had not been seen before. Although only slightly more than one-third of such loans is related to new home construction, borrowing was still significant, particularly in the second half, in comparison with scant demand for loans in earlier years.

The number of housing permits rose significantly, by some 21 per cent in 2003, reflecting the strong pick-up in applications for loan. That was in part the result of demand brought forward in anticipation of an expected thightening of the subsidised house purchase scheme. The experience of earlier years shows that changes in the number of housing permits are reflected in the number of houses built and, accordingly, in household fixed investment with a lag of 3–4 quarters.

Chart4.9 Numbers of houses built and housing permits



Consequently, we expect household fixed investment activity to be lively in 2004, as a result of which the sector's capital expenditure may increase at the same rate as in the previous year. The data on housing loans in the first three months of 2004 appear to reinforce this view, as the amounts borrowed for home construction and the number of loan contracts signed both exceed those recorded in the same period of 2003. But this is definitely the delayed effect of the loan applications submitted towards year-end.

The tightening of the subsidised house purchase scheme is likely to have its effect from 2005, as a result of which the sector's capital formation may fall significantly in real terms (for more details on the longer-term macroeconomic effects, see Section 5.3 of the February 2004 *Report*). It should be noted, however, that the extent of this decline may be largely dependent on the spread of alternatives for subsidised housing loans, offered by commercial banks, for example, on foreign currency-based lending facilities.

Household financial savings

In 2004, households are expected to be able to increase their financial savings only slightly, accompanied by a massive slowdown in consumption expenditure and in capital expenditure determined in large part by last year's decisions. In 2005, in turn, the sector may improve considerably its net saving position, simultaneously with the further declines in consumption expenditure and fixed investment. Over the longer term, that may result in the financial saving rate to return to around 4–5 per cent experienced in 2002.[20]

[20] The financial saving rate is the ratio of net financial savings to disposable income.

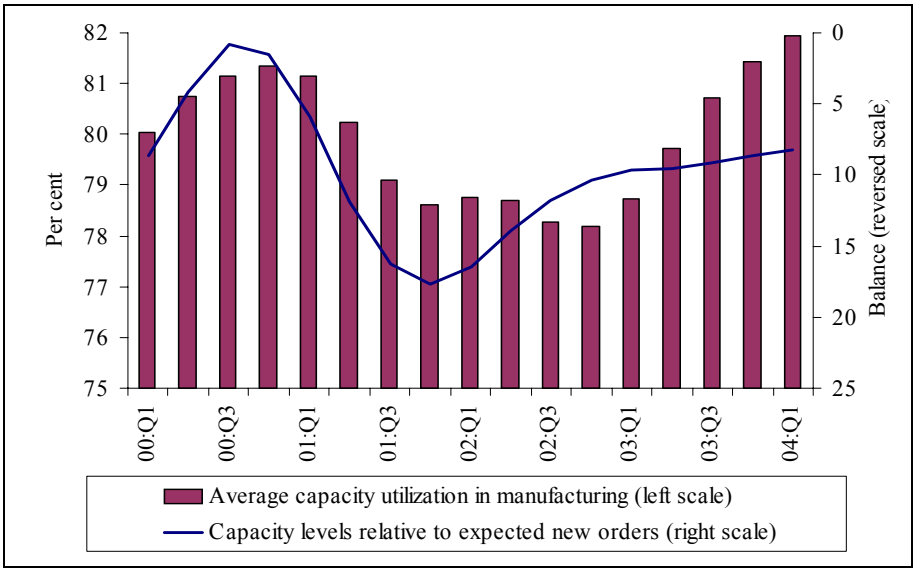
4. 1. 4 Corporate investment and stockbuilding

The observation that investment reacts particularly sensitively to turns in the business cycle was clearly demonstrable at the time of the turnaround in economic conditions at end-2000–early 2001. This is explained by the fact that, at the beginning of the global economic downturn, domestic fixed investment activity slowed considerably before nose-diving in 2001. But, with the pick-up in external economic activity in 2003 H2, fixed investment in the corporate sector, and particularly in manufacturing, responded by a vigorous upturn.

However, in addition to the effect of cyclical factors, this strong recovery may also be explained by the CSO having revised up significantly whole-economy investment data back to 2000. That, in turn, strongly affected the corporate sector (opposite to our expectations in earlier *Reports*, corporate sector fixed investment began rising already in 2002, according to the revised data). In respect of the noisy time series for fixed investment, the data revision and the very strong growth in 2003 H2 both resulted in additional uncertainty.

In the short run, we rely mainly on the results of domestic business confidence surveys which clearly indicate an increase in capacity utilisation and firms' low existing capacities relative to production schedules. These suggest relatively intensive growth in the period ahead, although the planned additions to existing capacities have not recently been rising as robustly as in 2002. In addition, capacity enlargements in the corporate sector in Q3 and in manufacturing in Q4 seem to be at such a high level that is unlikely to be sustained even over the short term. For this reason, we anticipate the rate of growth to be substantially lower in 2004 Q1–Q2 relative to end-2003.

Chart 4.10 Current and expected capacity utilisation in manufacturing
Based on the Kopint-Datorg survey



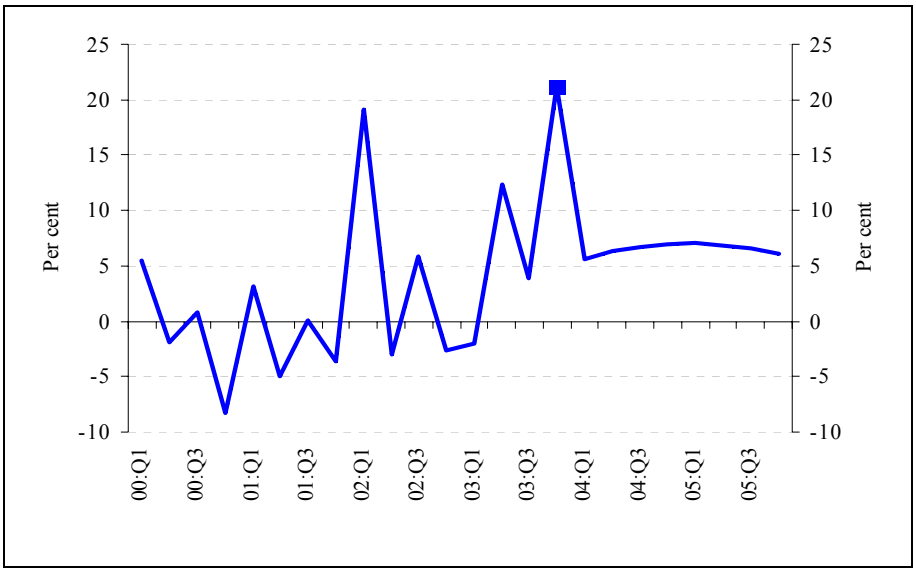
However, we expect growth to be somewhat more stable and stronger over the medium term, due to the continued substitution of labour with capital, even though the increase in the cost of capital is likely to decelerate the rate of growth toward the end of the forecast period. Explanation for this substitution effect is that labour has recently been made more expensive by high wage growth. Corporate fixed investment is forecast to rise by nearly 9 per cent and slightly below 7 per cent on average in 2004 and 2005 respectively. This

suggests a somewhat faster catch-up with the capital stock-to-output ratio of the more developed Member States of the EU.[21]

Manufacturing continues to be the engine of growth within corporate sector investment. In market services, where the substitution of labour with capital is much less significant, the rate of fixed investment growth is likely to be considerably slower. The opening of this gap between the two sectors is reflected in the outlook for output growth.

Chart 4.11 Corporate sector fixed investment volume

Annualised quarter-on-quarter growth rates

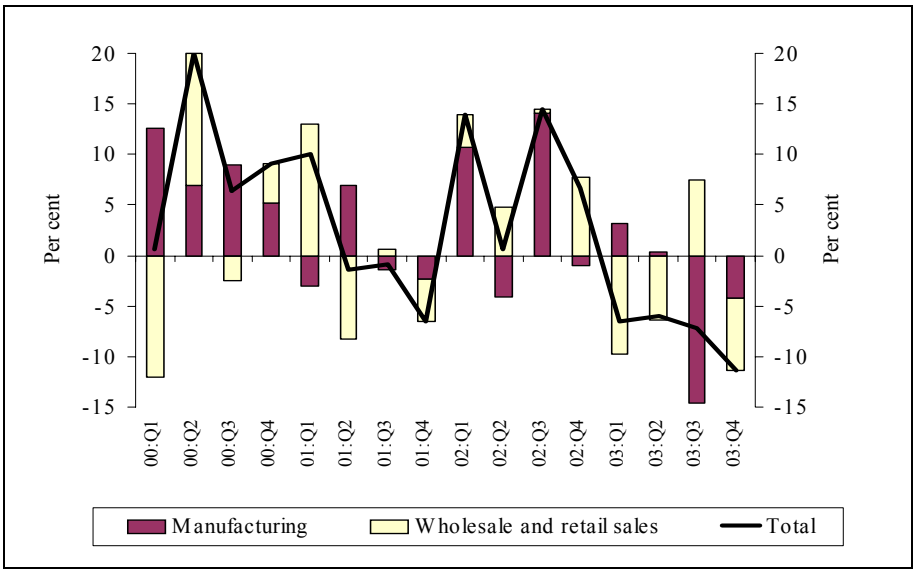


Developments in inventories reflect less the explanatory role of cyclical conditions than the methodological characteristics of registration. Consequently, fixed investment, recorded among manufacturing inventories but not yet activated, constituted a major source of the strong pick-up in investment in 2003 H2. This was reflected in the abrupt, strong decline in manufacturing stocks in Q3. A similar, though less dramatic, drop occurred in the final quarter. However, manufacturing stocks are expected to increase gradually, in line with the business cycle, in the first half of the forecast period.

Commercial stocks are likely to fall markedly with the slowdown in household consumption, more than offsetting the rise in manufacturing stocks, thus we anticipate a slight decline in whole-economy inventories throughout the forecast horizon.

[21] Based on the estimate of the Hungarian capital stock (see Gábor Pula: Estimating the capital stock in Hungary, MNB Working Papers, No. 7/2003), the Hungarian capital stock-to-output ratio was 1.5 in 1999, compared with around 2 of the more developed countries, derived using a comparable method.

Chart 4.12 Manufacturing and commercial stocks
Annualized quarterly contributions to growth



4. 1. 5 External trade

According to the data released by the CSO, whole-economy exports rose by 7.2 per cent and imports by 10.3 per cent in 2003.[22]

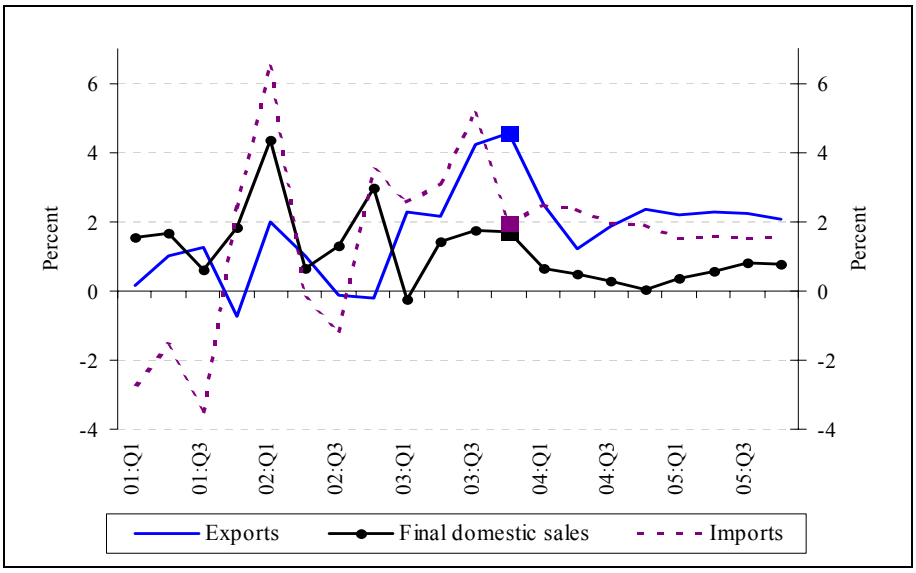
Our forecast contains a dynamic increase in whole-economy exports this year and in 2005, reflecting the favourable turn in external demand.

In the current forecast for 2004, whole-economy exports rise by 10.8 per cent and imports by 10.3 per cent. In 2005, whole-economy exports are forecast to rise by 9.2 per cent, accompanied by a 7.1 per cent increase in imports, as a consequence of a slowdown in domestic demand growth.

The February *Report* contained a discussion of the accelerating growth of goods exports in 2003 H2. The January–February 2004 data are evidence of a continued rapid pick-up in goods exports. Goods imports grew at a slower rate than exports in 2003 Q4. This trend continued uninterrupted in the first two months of this year.

[22] The CSO has recently revised data on whole-economy exports and imports. Accordingly, data on re-export activities, recorded under services, have now been recorded on a net basis, instead of the earlier gross basis. This correction has altered export and import data in the national accounts and services export and import data in the balance of payments back to 1998. This has led to a substantial change in data on services exports and imports and to a slight change in balance. The revision of data for 2003 has been particularly large: whole-economy export and imports are now 2 percentage points lower on the basis of the revised data, compared to the data recorded according to the old methodology. This provides explanation for the difference between our estimate in the February *Report* and the actual data.

Chart 4.13 Quarterly growth rates of goods trade and final domestic sales



Our forecast for 2004 as a whole contains continued fast growth in goods exports. However, last year's trend of travel revenue is likely to remain downwards. Consequently, whole-economy export growth is expected to be slower than import growth. In our current forecast, goods imports rise at broadly the same rate as in 2003, as a considerable slowdown in import demand is unlikely, explained by the recovery in fixed investment activity. Services imports are expected to be only slightly lagging behind growth in goods trade.

In 2005, household consumption growth is forecast to slow and the increase in fixed investment to continue at a much lower rate. As a consequence, export growth is expected to significantly outperform import growth, accompanied by favourable external market conditions.

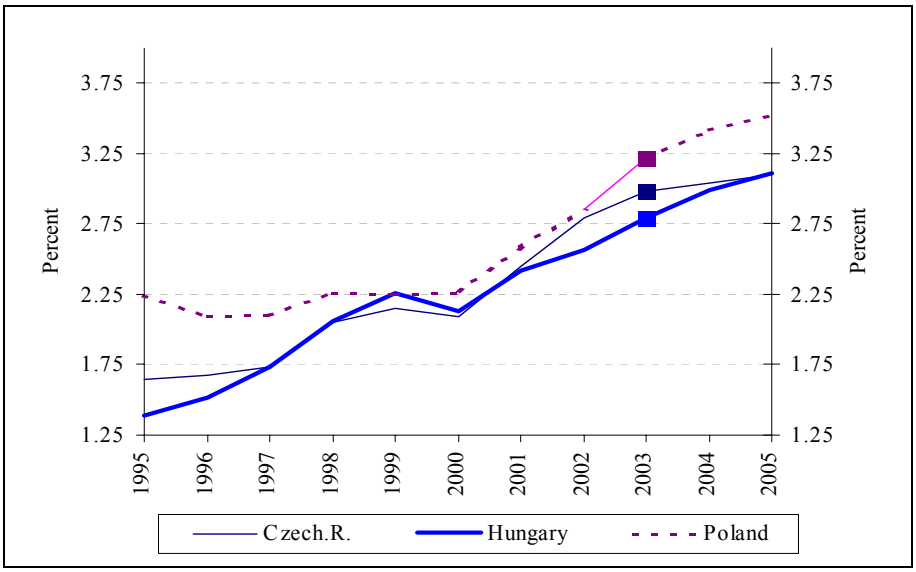
Using the forecast for the European Union and the neighbouring countries, released by the European Commission in April, we have prepared our own projection of external (EU) market shares.

According to within-year data, Hungary's market share saw a decline, though temporarily, last year. The annual data, however, are evidence of a turnaround of this trend and, as an effect of rapid growth in exports in the final quarter, Hungary managed to increase its share of the EU market in 2003. The increase in Hungary's market share remained undisturbed, even despite the massive real exchange rate appreciation of 2001–2002. [23]

Based on the forecasts by the European Commission, the trend of past years continues in the years ahead. Hungary and Poland are likely to increase their market shares at about equally strong rates. The Czech Republic is forecast to increase its share of the EU market less rapidly.

[23] On this, see section 6. 4, *External demand vs. real exchange rate impact in the industrial activity.*

Chart 4.14 Market share in the EU*



** Source: Forecast of the European Commission, April 2004; MNB forecast for Hungary. Market share has been defined on the basis of imports by EU Member states from non-EU countries.*

4. 1. 6 External balance

According to the methodology in effect from 2004, Hungary's current account deficit, including reinvested earnings, amounted to EUR 6.5 billion, or 8.9 per cent as a proportion of GDP, in 2003. In our current forecast, the current account deficit as a proportion of GDP falls slightly in 2004, to 8.3 per cent, and then strongly, to 7 per cent, in 2005.[24]

The data published on 31 May 2004 showed that, as an effect of recording non-residents' reinvested earnings in Hungary, the current account deficit and the country's external financing requirement rose by more than 3 per cent of GDP in 2003. That was some 0.5 percentage points higher than our previous estimate. As it was discussed earlier, the recording of reinvested earnings does not in itself entail additional financing requirement, as it contributes equally to the stock of direct investment by non-residents in Hungary, and so it is financed automatically.

[24] http://www.mnb.hu/For more details on the new structure of the balance of payments and the related methodological issues, see the notes released on 31 March 2004 on the Bank's website (www.mnb.hu).

Table 4.6 Current account deficit and net lending of the economic sectors

As a percentage of GDP, unless otherwise stated

	2001	2002	2003	2004	2005
	Estimate			Forecast	
I. General government*	(-5.0)	(-9.2)	(-8.4)	(-7.5)	(-7.0)
II. Private sector (1+2)	(-0.7)	2.4	(-0.6)	(-0.1)	0.9
1. Households	5.1	2.7	0.2	0.4	1.4
2. Corporate sector**	(-5.8)	(-0.3)	(-0.8)	(-0.5)	(-0.5)
*Financing requirement (I.+II.)****	***(-5.6)***	***(-6.8)***	***(-9.0)***	***(-7.6)***	***(-6.0)***
Current account balance	**(-6.2)**	**(-7.1)**	**(-8.9)**	**(-8.3)**	**(-7.1)**
EUR billions	(-3.6)	(-4.9)	(-6.5)	(-6.7)	(-6.2)

** Specially constructed indicator. It does not necessarily equal to other approaches of the general government balance.*

*** Financial and non-financial corporations combined. Government spending on motorway construction is included in data on the general government sector.*

**** The external financing requirement includes the current and capital account balances.*

According to the final data, in 2003 the financing requirement of the broadly defined general government sector fell by 0.8 per cent of GDP and the financing capacity of the private sector declined by some 3 per cent of GDP. Consequently, the higher current account deficit was attributable to the still high public sector financing requirement and mainly a drop in the households' financing capacity. In large part, this change in the saving position of households was the consequence of subsidised borrowing for home construction, in addition to high consumption. The upturn in firms' investment cycle also added to the financing requirement of the private sector.

In 2004, the external financing requirement is likely to fall, but its effect on the current account balance is expected to be less significant, due to EU-related settlements. In our forecast, the government sector's financing requirement falls by nearly 1 per cent, on the basis of the projection of the fiscal path. However, the private sector's financing capacity does not show a significant shift in either direction. Households' saving position does not improve significantly: although consumption growth slows, dwelling investment remains high in 2004. Corporate sector fixed investment continues to be strong, but profitability also rises, with the result that the sector's financing requirement falls a little.

The change in the current account deficit in 2004 will also be influenced by the methodology applied to recording EU-related settlements. In our estimate, EU-related settlements will add some 0.2 per cent–0.3 per cent of GDP to the current account deficit, as Hungary's contributions will be recorded as 'unrequited transfers' among current items, while a part of transfers from the EU will be recorded in the capital account. (For more details, see Section 3.1.7 of the February *Report*.)[25]

The external financing requirement is forecast to decline considerably in 2005, which is likely to be reflected in the current account balance. Based on a 0.5 per cent decline in the government deficit, assumed in the projection of the fiscal path, the financing requirement of general government is expected to fall by 0.5 per cent. Our forecast is for households to be in a net lending position, as a result of the lower level of consumption and a decline in

[25] In the last years capital account reached a surplus of 0,5 per cent of GDP, we assume the same surplus towards the end of the forecast period. In 2003 the capital account was negative because of one-off factors.

fixed investment activity. Firms' net financing requirement is unlikely to change much, as their capital expenditure is expected to increase in proportion with the sector's profitability.

Current account financing

Accounting for reinvested earnings has changed the structure of financing of the current account and increased the share of direct investment capital. In comparison with earlier years when the inflow of direct investment capital played an important role in current account financing, the share of this item was marginal in deficit financing in 2003. The major reason for this was direct investment by Hungarian firms abroad to the tune of nearly EUR 1.5 billion and large repayments of inter-company loans by Hungarian subsidiaries to their foreign owners. The decline in the role of direct investment inflow in deficit financing was offset in large part by substantial borrowing abroad and by non-residents' purchases of Hungarian government securities in the amount of EUR 1.7 billion. Fund-raising by banks was dominant within the private sector's borrowing abroad, which was associated with a strong increase in outstanding borrowings of the corporate and financial sectors. Looking at the sectoral breakdown of financing, the private sector and the general government sector, including the MNB, borrowed nearly EUR 4.5 billion and EUR 2.2 billion respectively. Non-debt inflows have been dominant within financing in past years, except in 2000. However, debt-creating inflows accounted for nearly two-thirds of financing in 2003.

In 2004, the percentage share of debt-creating financing is likely to fall further as a consequence of an expected drop in the general government borrowing requirement and an increase in the household sector's financing capacity.

Table 4.7 Current account financing
EUR millions

	2002	2003				**2003**	2004
	Year	Q1	Q2	Q3	Q4	**Year**	Q1
		Quarter					Quarter
1. External financing requirement	**-4696**	-1593	-1788	-1406	-1777	**-6564**	-1813
1.1 Current account balance	**-4900**	-1488	-1797	-1418	-1786	**-6488**	-1756
1.2 Capital account balance	**204**	-105	9	12	9	**-75**	-57
2. Financing	**2730**	4279	177	1604	1037	**7096**	1715
2.1 Direct investment	**2734**	-69	250	79	515	**775**	310
2.1.1 Direct investment abroad	**-292**	-472	-169	-37	-729	**-1408**	-252
2.1.2 Direct investment in Hungary	**3026**	403	419	115	1244	**2182**	562
2.2 Borrowing by consolidated general government	**1498**	1559	-289	1236	-271	**2234**	943
2.2.1 Borrowing from MNB	**-1649**	-116	-541	-771	-421	**-1849**	-698
2.2.2 Borrowing by Government (excluding securities issue)	**159**	947	-12	1146	280	**2361**	934
2.2.3 Purchases of government securities by non-residents	**2988**	728	264	861	-130	**1722**	708
2.3 Net borrowing by private sector	**-1851**	2626	102	331	616	**3676**	251
2.3.1 Borrowing by credit institutions	**1543**	2647	-86	320	484	**3365**	258
2.3.2 Portfolio investment (shares)	**-181**	212	38	147	-172	**224**	326
2.3.3 Net borrowing by firms abroad	**-3212**	-232	150	-136	304	**87**	-333
2.4 Net errors and omissions	**350**	163	114	-42	177	**412**	210
3. Change in international reserves (1+2)	**-1965**	2686	-1611	198	-740	**532**	-98

4. 2 Output

According to the latest data, there has recently been a very vigorous response by domestic firms to the pick-up in external demand. Output has been on a definite upward path since early 2003. It reached its peak to date in 2003 Q3. The increase in manufacturing value added has also been robust, though slightly less strong than output. However, market services, which reacted more sharply to developments in both consumption and external demand, have been rising at a slowing pace.

Clearly indicating the dominant effect of external demand, manufacturing output growth has been buttressed by a very lively increase in goods exports. By contrast, domestic sales have continued to be flat. According to evidence of our examinations, the stronger real exchange rate in 2001–2002 barely affected the production process (as stated in the previous *Report* on the basis of stylised facts, but dealt with in more detail in Section 6. 4 of this *Report*). Consequently, we expect external demand to be the backbone of output growth on both our shorter and longer forecast horizons. The recent outturns for domestic business confidence indices appear to underline the expectation that this high growth rate

may remain in the near term. Over the longer term, manufacturing output growth is likely to be kept high by the robust improvement in productivity.

The upturn in manufacturing has been significantly uneven across the sectors. Output growth in the export oriented industries (machinery and equipment, and certain branches of the chemical industry) has been salient; however, the light industry has stagnated, with contraction in some branches, particularly in manufacture of leather and leather products. These sectoral differences among rates of growth are unlikely to change much on the forecast horizon.

Table 4.8 Output growth

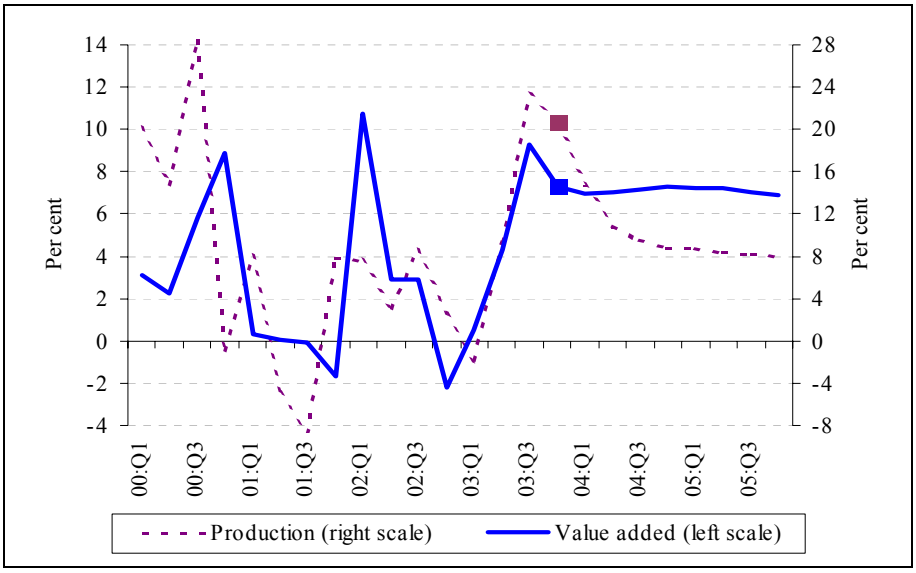
Average annualised growth rates; per cent

	2003	2004	2005
	Actual	Forecast	
Gross manufacturing output	6.9	14.6	8.8
Manufacturing value added	2.6	7.2	7.2
Market services value added	3.5	3.5	3.3

The path of manufacturing value added is expected to be similar in broad terms, despite the growth rates for 2003 Q3–Q4 being less strong than in the case of gross output. Consequently, manufacturing value added is anticipated to be slower but relatively stable over the entire forecast period. Even this implies that the gap between gross output and value added will continue to open up in 2004.

Chart 4.15 Manufacturing output and value added

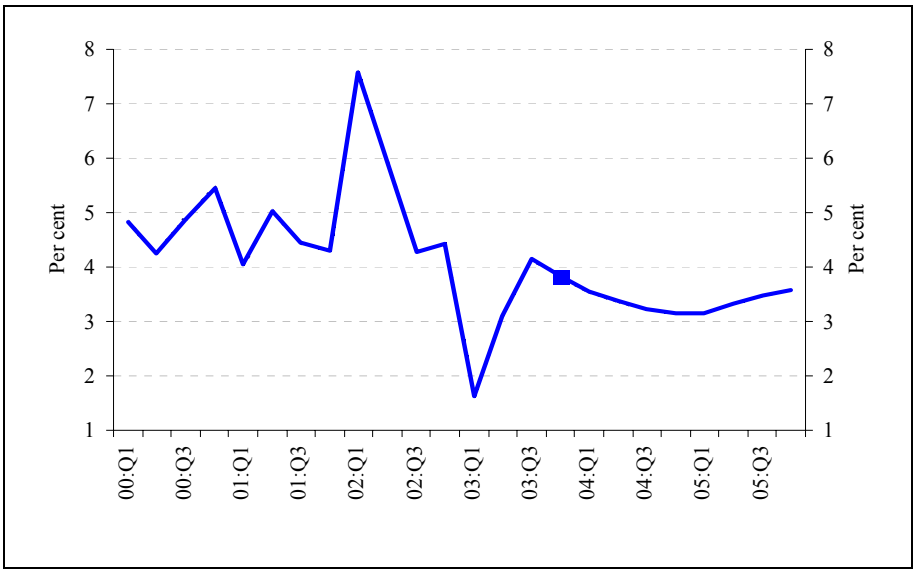
Annualised quarter-on-quarter growth rates



The decline in the rate of growth of market services (the latest data for which the CSO revised simultaneously with the release of GDP data for 2003 Q4) is likely to continue, as a consequence of the considerable slowdown in household consumption growth in the course of 2004. However, we expect the continued rise in employment in the sector to reverse, or at least stop, this trend on the forecast horizon, as it receives support from the resumption of the increase in household consumption growth from 2005.

Chart 4.16 Market services value added

Annualised quarter-on-quarter growth rates



5 LABOUR MARKET AND COMPETITIVENESS

Recent data suggest that the trend of declining wage inflation came to a halt in 2003 in the private sector while employment growth remained slow. This has been brought about by several factors.

One is that an increasingly strong external recovery led to increased demand for labour. As, however, employment adjusted to expanding demand more slowly than did production, productivity accelerated consistently last year. This led to an improvement in corporate profitability, thereby contributing a more relaxed wage policy in the corporate sector.

Secondly, low unemployment points to a tight labour market. This added to wage inflation in the market service sector in particular, where employment increased dynamically. The inter-changeability of qualifications is more realistic between the general government and the market service sectors than between general government and manufacturing. Thus, the general government, expanding in employment prior to mid-2003, offered an increasingly attractive alternative, which in turn rendered potential labour force in the service sector tighter. In addition to having a 'demonstrative impact', wage increases in the government sector fed through to the private sector, affecting its demand/supply balance.

We project that, owing to a pick-up in manufacturing, value added in the sector will continue to increase dynamically in the 2 years to come. However, due to structural changes and a time lag in adjustment, we expect labour demand in the sector to be slow and protracted in adjusting. As a result, a vigorous increase in productivity, similarly to the one at year-end 2003, is likely to stay on the forecast horizon. However, the adjustment of the growth rate of real labour costs to rapidly increasing productivity is not immediate. Having suffered profit losses prior to mid-2003, manufacturing companies are expected to be able to resist growing wage demand in the medium run. Nevertheless, the balance between the price and the profitability of labour is more likely to be restored after 2005.

This leads to slowly but consistently decreasing wage inflation, moderately declining unit labour costs and increasing profit on our forecast horizon. Currently, there is no sign of any reduction in demand in the service sector. In the medium term, however, with consumption being lower, a slower rate of growth in value added in the sector is likely to materialise. Accordingly, initially broadly flat sectoral wage inflation is expected to fall markedly in mid-2004. A drop in demand will prevent prices from growing at earlier rates, thereby restricting room for wage increase. Layoffs in the government sector might also exert downward pressure on the growth rate of wages. Those laid off in the general government may contribute to the expansion of labour supply in the service sector, thereby easing the tightness of the labour market. As a result, with declining wage inflation, unit labour costs are expected to decrease from mid-2004. Calculated at real prices, the balanced growth of labour costs and productivity leads to broadly flat or perhaps slightly increasing profit levels.

As regards the private sector as a whole, we project that nominal wage inflation will decline slowly in 2004 and then more rapidly in 2005. It is mainly dynamically growing productivity and falling inflation that affect wages. Though labour demand is expected to pick up, steady growth in aggregate value added is, however, unlikely to be followed by an equally steady rise in employment. By contrast, unemployment, currently on the rise, will curb wage inflation.

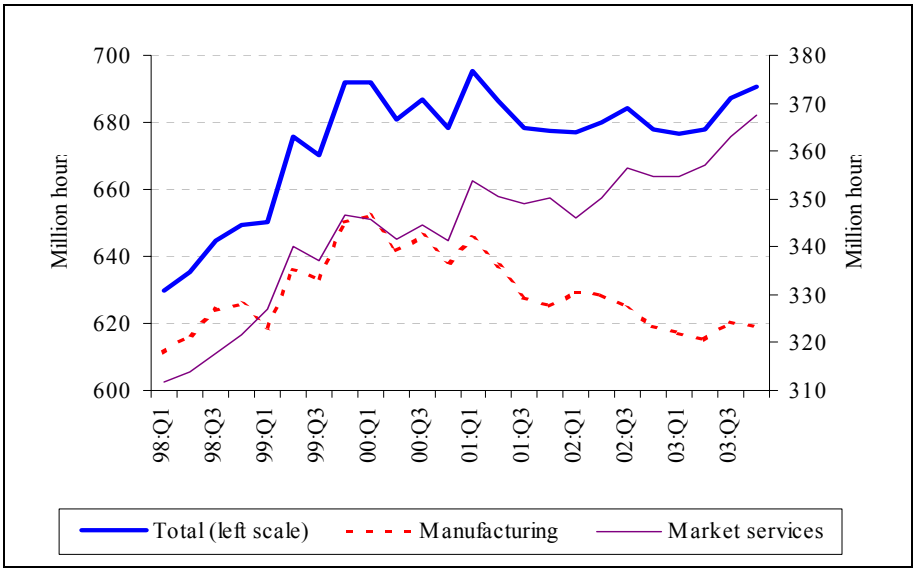
5. 1 Labour utilisation

An increasingly strong recovery in the global business cycle and slow moderation of consumption demand have led to robust growth in private sector output over the past quarters. Improved output perspectives led to an increase in labour demand. The number of hours worked have grown sharply in parallel with a fall in private sector employment. The underlying reasons for expansion in labour demand include various sectoral impacts. The past quarters have seen a sectoral rearrangement of employment.

An upturn in global economy further boosted labour demand in the final quarter of 2003. This is substantiated by data on the total number of the hours worked, which reveal that following an approximately 3-year period when it was broadly flat, the total number of the hours worked started to rise in 2003 H2. Labour demand continued to grow considerably in the market service sector. By contrast, it remained moderate in manufacturing despite dynamic economic activity.

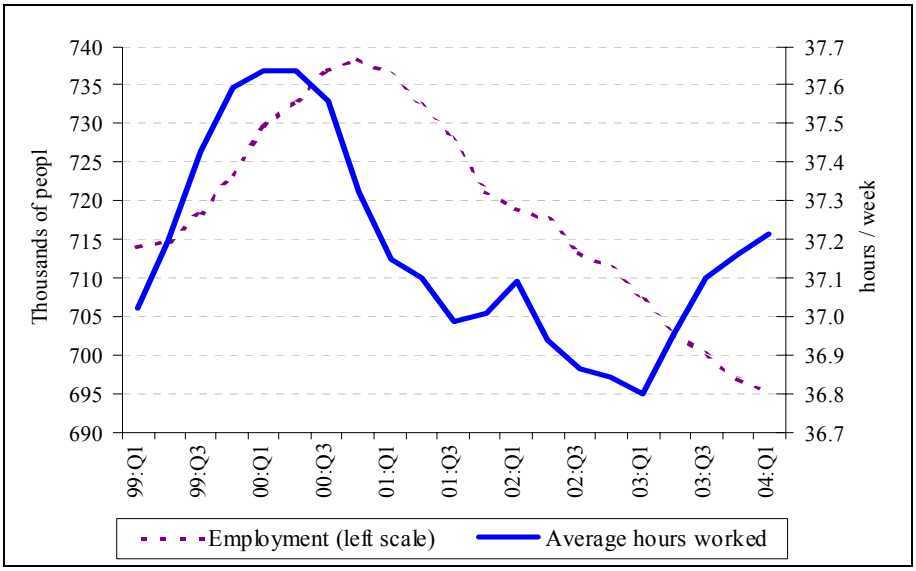
Chart 5.1 Total hours worked

Manufacturing and market services, million hours per month



We believe that moderate labour demand in manufacturing can be attributed to cyclical and structural effects. Previous experience shows that companies' first response to cyclical impacts is changing the intensity of labour utilisation. This is corroborated by recent data, which reveal that average manual hours began to rise in early 2003, while manufacturing employment continued to fall. Cyclical changes in the intensity of labour utilisation are properly attested to by the fact that gross output and average hours worked move in close conjunction with each other, which has remained the case over the past quarters.

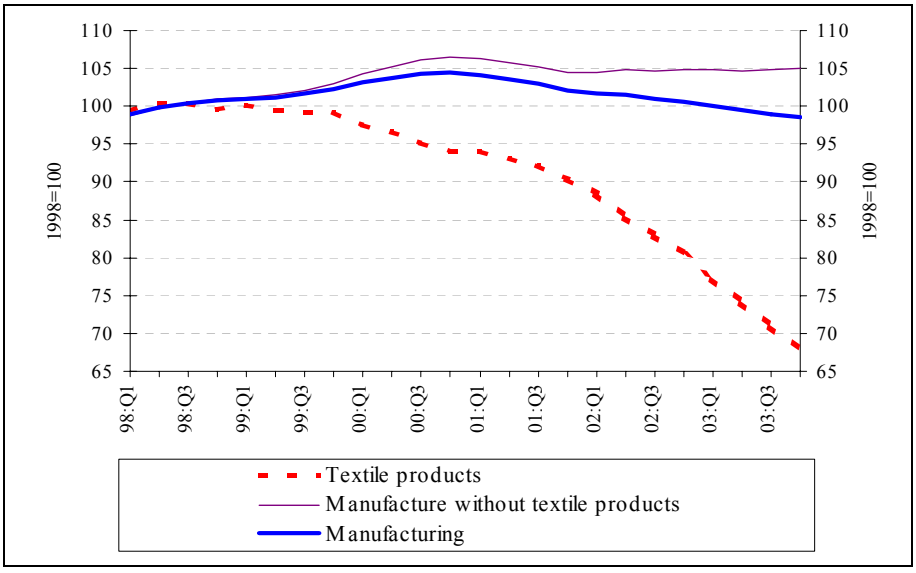
Chart 5.2 Average weekly number of the hours worked by manual workers and developments in the numbers employed in manufacturing



Actual data reported by the CSO available up to February 2004; March data are estimated with statistical methods.

Unlike average hours worked, manufacturing employment continued to decrease in early 2004. Decline in manufacturing employment can be attributed mainly to the ongoing phase-out of activities in the textile industry. Data in January and February show that employment fell considerably in the timber and paper industry, whereas it seems to have started to climb in the machinery industry, which is the most exposed to the business cycle. Employment either remains flat or slightly declines in the majority of the sectors.

Chart 5.3 Changes in the number of full-time employees in manufacturing



The phasing out of labour intensive activities in the textile industry can be regarded mainly a structural impact, which is accompanied by changes in the structural composition of output and an increase in the ratio of more capital-intensive sectors. Furthermore, a shift

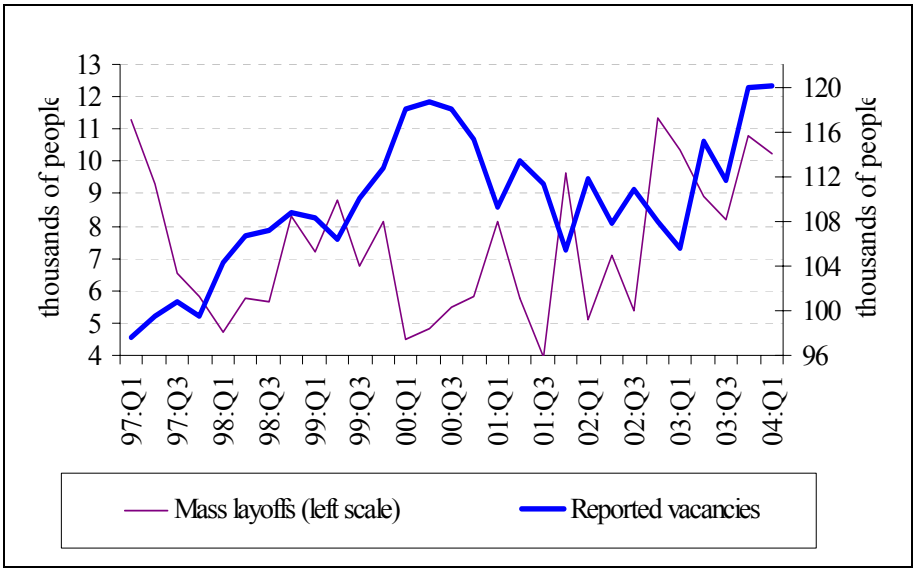
must also have taken place within the individual sectors towards a more capital-intensive structure of production, also boosted by the replacement of relatively costly labour with capital. Our forecast is that, converging to a lower-than-earlier level, expansion in employment in manufacturing continues to be slow.

Expansion in labour demand in market services is expected to remain dynamic. Slowly moderating consumption seems to fail to influence corporate decisions on the labour market. Labour demand is on the increase primarily in the hotels and restaurants, trade and real estate sectors. Interestingly enough, employment in the transport as well as the financial sectors, the most exposed to the global business cycle, remains flat. We project that labour demand will rise in these sectors, while growth in industries that are in closer conjunction with demand in consumption will slow down.

In 2003 both the number of vacancies and mass layoffs increased and the latest data have not indicated any change in the upward trend either. By the first quarter of 2004 the number of vacancies has reached a level similar to the one in 2000, what is considered as a sign of stronger aggregate demand. Interestingly also the number of employees influenced by mass lay-offs upsurged, despite the accelerating production growth. After all it seems that job creation and job destruction has been increasing simultaneously in the recent period.

International experience on EU countries suggests that job reallocation is pro-cyclical, i.e. both job creation and job destruction are less intense during economic downturns. By contrast, the corporate sector is more active in the labour market during upturns. Economic theories claim that intense job reallocation may also result in the acceleration of technical development if productivity in newly created jobs exceeds productivity in the jobs cut. Given that, despite robust manufacturing output, employment, excluding employment in the textile industry, remains flat, we believe that intense job reallocation can act as a vehicle of increasing labour intensity within the corporate sector also in Hungary. For the time being, little is known about the engine of job creation and job destruction. This issue needs further analysis.

Chart 5.4 Number of announced mass layoffs and reported vacancies

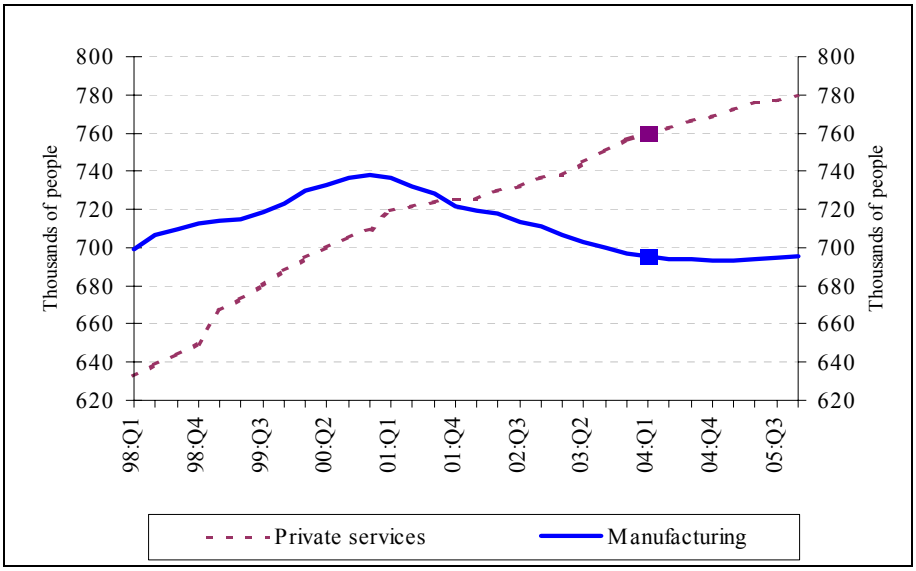


The number of the persons included in the relevant quarterly report and that of the reports in a given quarter (Source: National Employment Office).

We project that, despite beneficial cyclical impacts, increase in capital intensity is unlikely to lead to a significant rise in manufacturing employment prior to year-end 2004. Employment is not expected to return to the level that it stood at earlier. By contrast, expansion in employment in market services is likely to remain dynamic also in the longer run, which may be boosted by stronger labour demand in sectors that are more exposed to an increasingly buoyant business activity in manufacturing.

According to our main scenario manufacturing employment will decline broadly by 1 per cent in 2004, and remain stable in 2005. Employment in the market service sector is expected to rise more significantly, i.e. by 2.2 per cent, in 2004 and somewhat more slowly, i.e. broadly by 1.4 per cent, in 2005. Overall, adding miscellaneous sectors not analysed here, growth in employment in the private sector (by the LFS measure) is expected to rise by 1.6 and 0.4 per cent.

Chart 5.5 Changes in and forecasting of the number of full-time employees*

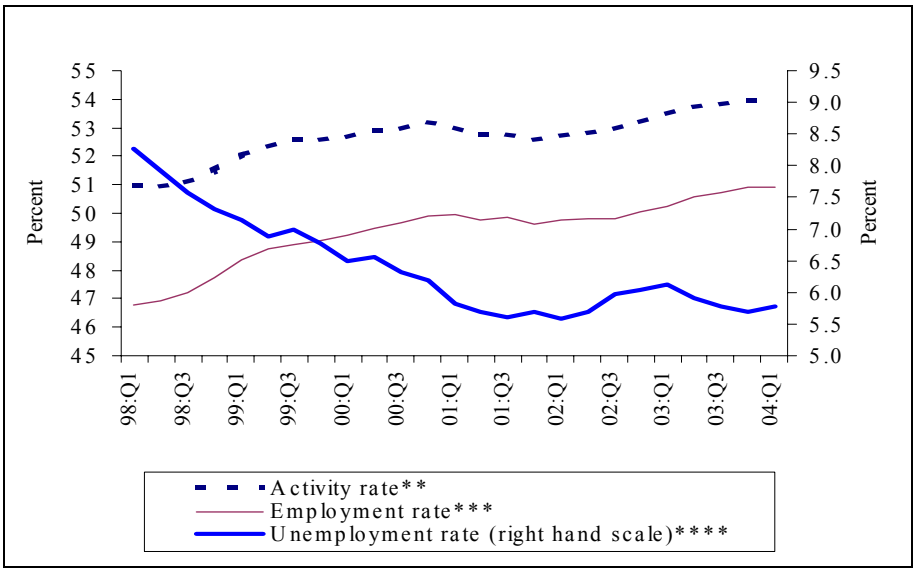


**According to CSO statistics on the institutional labour market.*

5. 2 Labour market reserves and tightness

In 2003 unemployment rate fell continuously, despite the fact that labour demand both in the manufacturing and (toward the year-end) in the public sector has been modest. However, latest data show a halt of the previous trend. According to our assumption there are several factors implying a temporary pick-up in unemployment and we expect a gradual decline to start from the end of this year.

Chart 5.6 Changes in the rate of unemployment, activity and employment

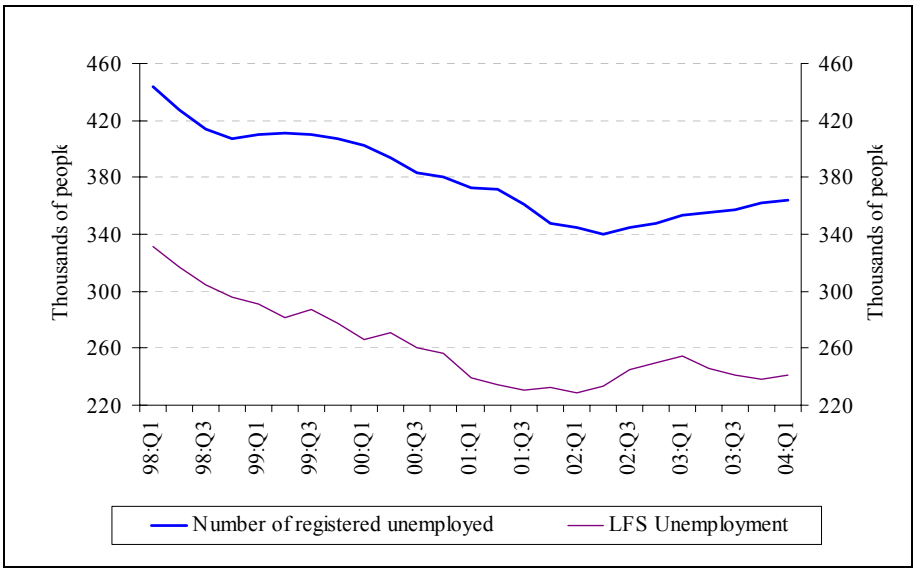


** Based on the CSO Labour Force Survey (LFS).*
*** Rate of activity: the ratio of economically active persons within the working-age population.*
**** Employment rate: rate of the economically active within the population of working age.*
*****Unemployment rate: the number of the unemployed as a proportion of the economically active population.*

Firstly, the fall of unemployment during 2003 is only depicted by the LFS, the data based on the registry show a continuous climb. As the two type of statistics had a strong correlation in the past and we have no information about any significant changes in the regulation, we assume that the upcoming LFS data may correct this deviation partly.

Secondly, the fall of unemployment has occurred despite two opposite effects: the sectoral restructuring of employment and an increase in participation. In our previous Reports we assumed that the labour demand in market services has been able to absorb those laid-off in the manufacturing and the public sector. On the other hand the international experiences show that employment restructuring between sectors and industries produce an increase in unemployment in the short run. This is a result of a sluggish adjustment in the labour market, namely that due to restructuring the skills of the labour supply temporarily does not fit labour demand requirements (skill mismatch). It seems that this phenomenon had no significant effect last year, however we assume that skill mismatch will play a more important role in 2004.

Chart 5.7 Changes in the number of the LFS and registered unemployed

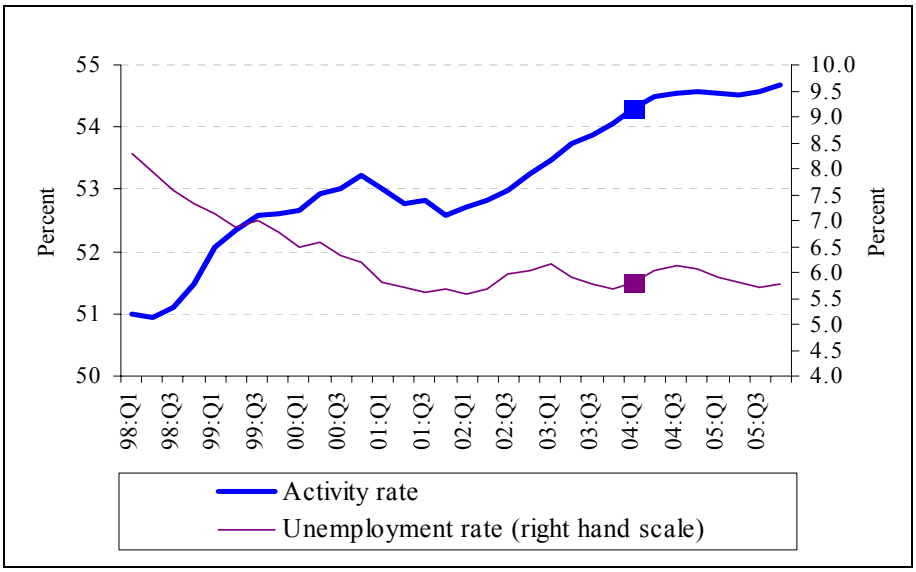


Based on CSO's household labour force survey and Employment Office data.

Finally, participation rate has increased during 2003. The recent participation rate developments has been driven by two different factors. Increase between 1998 and 2002 can be ascribed mainly to the composition effect, as the ratio of higher activity age groups within the population grew during this period. The underlying reason for this is the labour market entry by baby boomers' children and a relatively small number of retirees. To a lesser extent, a gradual extension of the official age of retirement, resulting in an increased activity of the 55-64 age group, also played a part. By contrast, based on data currently available, increase in participation rate in 2003 was brought about by increased activity, discernible in nearly every age group, rather than changes in the age composition of the population. No satisfactory amount of information is currently available for us either to identify the underlying reasons for a general rise in activity or to assess their durability. Data for Q1 2004 already show a halt of the tendency of activity rate increases so we expect no significant rise in the future.

Due to the factors listed above the short term forecast of the unemployment and participation rate is highly uncertain. Unemployment dynamics in 2003 is considered to be ambiguous as the decrease shown by LFS is not consistent with other developments in the labour market. We assume that in 2004 both the mismatch effects due to employment restructuring and the modest labour demand of market services will increase unemployment. On the other hand, according to our forecast the participation rate growth will slow down by the end of the year. We project that the unemployment rate would start declining again only in 2005, parallel with a pick-up in manufacturing labour demand.

Chart 5.8 Projection for unemployment and activity rate



5. 3 Wage inflation and competitiveness

In evaluating the labour market trends of recent years, we focus on the adjustment of nominal wages to inflation on the decline prior to year-end 2003. Though inflation, falling dynamically since 2001, had dampened wage inflation in the private sector, several factors combined to put a brake on adjustment.

Firstly, market participants adjusted to rapid disinflation only gradually. Since, it is often the case during disinflation that both inflation perception and inflation expectations exceed actual inflation for a long period of time, which in turn results in higher negotiated nominal wages. Slow adjustment can also be attributed to massive fiscal expansion in 2002, which boosted domestic demand. Wage inflation was further hampered by minimum wage increases in 2001 and 2002. Recent research reveals that the primary effect of these two examples of labour market intervention was a 2.3 per cent increase in average wages in January 2001 and another of approximately 1.8 per cent in January 2002, compared to the corresponding average in the preceding month.[26] This effect then fed through the distribution of earnings towards higher-wage workers, thereby placing increasing burden on businesses.

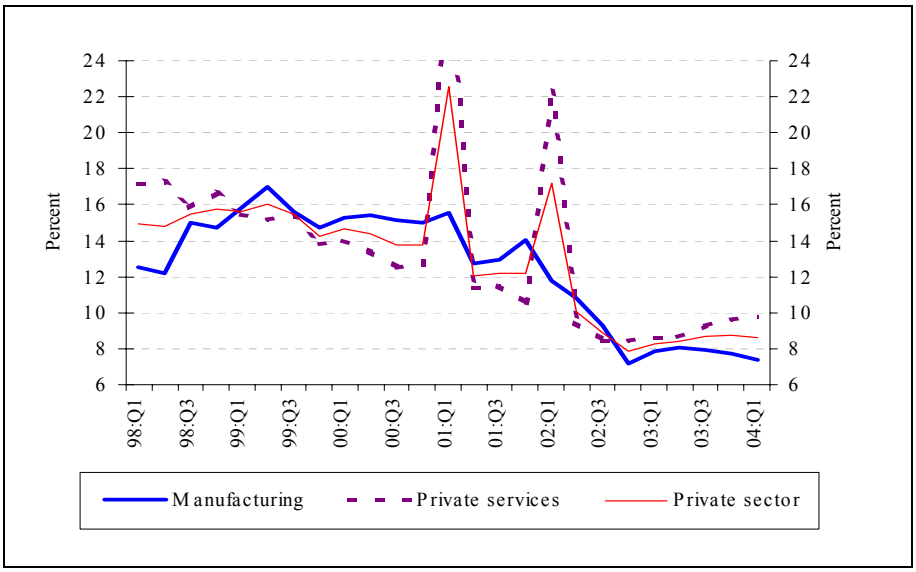
Despite the above shocks to the private sector, wages rose broadly in conjunction with falling inflation prior to early 2003.[27] Last year, however, this process came to a halt, for

[26] Primary effect means the change in the average wage in the private in response to a statutory raise of all subminimum wages.

[27] It should be noted that, as a result of revising our former method of correction, our wage inflation indicator, which is based on CSO average earnings statistics and excludes those impacts of minimum wage raises that do not in effect materialise, has changed, and this change also applies to past data. According to this corrected indicator, since 2001 Q2, the quarterly growth rates of average wages in the market service sector, hence in the entire private sector, have lower than what was quantified earlier. As regards their dynamics, wage inflation indicators corrected with the new method do not differ greatly from data series corrected earlier. Accordingly, our perception of the trends has not changed materially either. Lower wage inflation, however, suggests that wage inflation is stronger than projected earlier. For further details, see Section 6. 6.

which the underlying reasons include trends in manufacturing and the service sector, which – due to the differing cyclical nature of the two sectors – are also different.

Chart 5.9 Wage inflation in the private sector
Annualised quarter-on-quarter indices



Based on Central Statistical Office data up to February. Data for March have been estimated with statistical methods.

By early 2003 economic activity in manufacturing had passed its cyclical trough. Dynamically rising added value and a steady decline in the numbers employed led to significant improvement in productivity. Increased productivity tempted companies into adopting a more lax wage policy, which in turn led to first a halt and then a moderate increase in wage inflation that had been declining before. However, due to dynamically growing production per unit labour, sectoral unit labour costs decreased gradually despite rising wage inflation. This generated profit on labour force, now on the rise.[28]

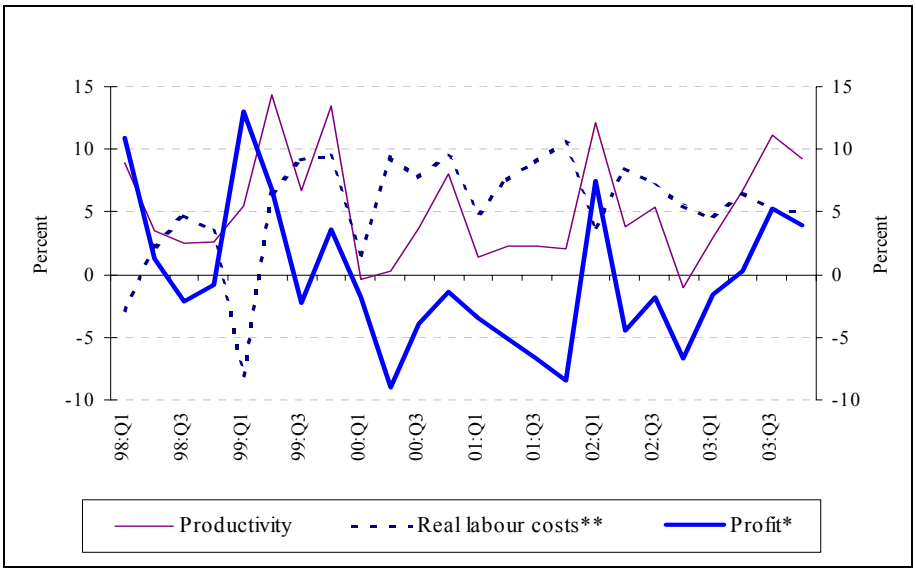
The structural changes outlined in our previous *Report* also provide an explanation for manufacturing trends. The two instances of considerable raise in the minimum wage led to a significant rise in the relative price of labour. As a result, the majority of companies replaced costly – especially low-productivity – labour with capital to a growing extent. As the two factors of production are only partially substituable, a shift in the capital–labour ratio towards the former resulted in wage inflation exceeding labour productivity.

Contributing to a considerable increase in aggregate average earnings, sectoral restructuring in manufacturing can also be related to the above conclusion. As was pointed out on several occasions, the primary victims of recent rise in labour costs were companies in the textile industry. Employing much less costly labour, companies operating abroad represent increasingly fierce competition for highly labour intensive businesses, which, therefore, frequently have to cut back on production or close down altogether. The shedding of low-

[28] Changes in corporate profits are approximated using the inverse of real ULCs. For reasons of simplicity, hereinafter the term 'profit' is used.

productivity and low-wage jobs in the textile industry pushed up both aggregate productivity and average wages.

Chart 5.10 Productivity, wages and profits in manufacturing*
Annualised quarter-on-quarter growth rates



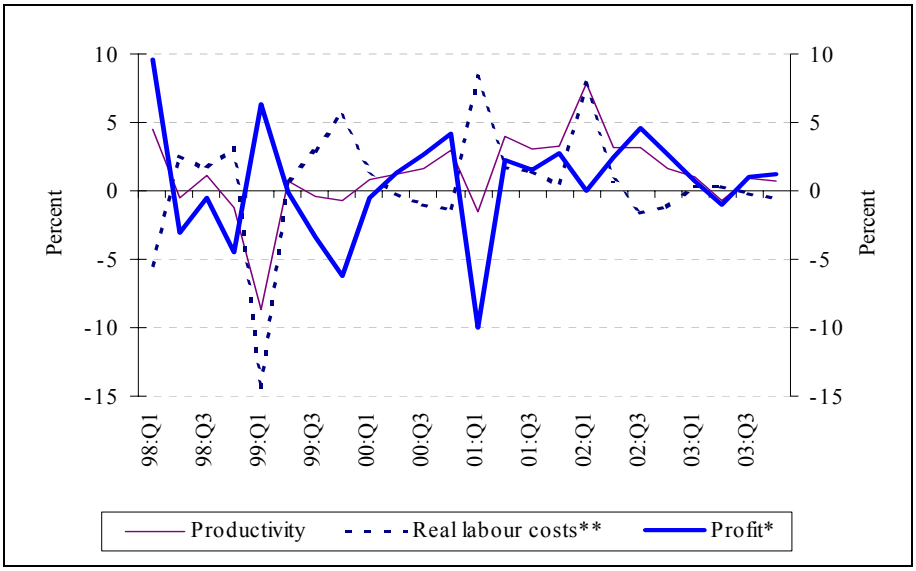
**The inverse of real ULC was used to approximate changes in profit. The category shown in the chart, in effect, denotes a term covering a concept narrower than that of the profit rate. The reason for this is that it does not include cost components other than labour cost. **Deflated by the prices of tradable goods.*

Vigorous economic activity in the service sector has not slowed. Owing to strong demand for market services, added value in the sector has been growing dynamically for years. However, intensive labour demand has prevented any significant growth in productivity. Recent data reveal that in this sector, too, real labour costs were broadly in keeping with rise in productivity. Despite the dynamic economic activity and high sales prices, vigorous headcount expansion and relatively high wage inflation prevented any significant increase in profit. The low rate of unemployment, i.e. a tight labour market, also exerted an upward pressure on wage inflation in the service sector. Intensive labour demand and a tight labour market forced companies to pay higher wages.

Considerable wage raises in the government sector also amplified this trend. The interchangeability of occupations is more realistic viability between the general government and the market service sectors than between general government and manufacturing. Thus, prior to mid-2003, the general government, expanding in employment, offered an increasingly attractive alternative, which in turn rendered potential labour force in the service sector tighter. In addition to having a 'demonstrative impact', wage increases in the government sector fed through to the private sector, affecting its demand/supply balance. As a result, capitalising on increasing demand for services, companies raised their prices in response to rising labour costs. This trend has been increasingly discernible since 2003 Q1. Declining unemployment rate and a related rise in labour costs forced service providers to increase their price more massively. Increasing sales prices in the service sector and relatively high wage inflation combined failed to increase real labour costs (deflated by high service prices). Thus, real labour costs were not out of step with the slow rate of growth in productivity.

Chart 5.11 Productivity, wages and profits in market services*

Annualised quarter-on-quarter growth rates

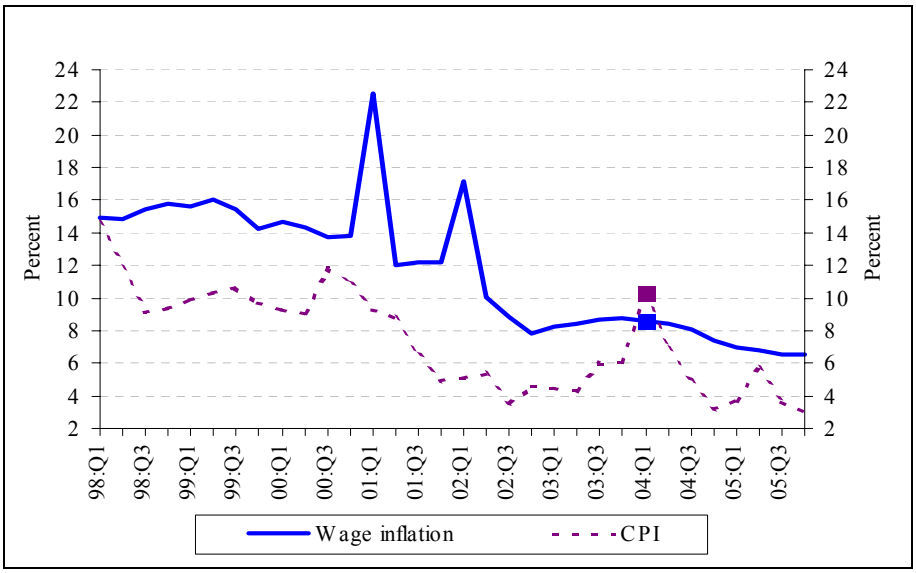


** The inverse of real ULC was used to approximate changes in profit. The category shown in the chart, in effect, denotes a term covering a concept narrower than that of the profit rate. The reason for this is that it does not include cost components other than labour cost. ** Deflated by service prices.*

We project that the trends discernible so far will continue during the first quarters of the forecast horizon. Like our projection in February, the current short-term one, too, assumes that the inflationary effects of raises in indirect taxes will not be incorporated in inflation expectations. Companies will realise that rise in consumer prices generated by indirect taxes will not produce extra sales revenues to them, and they will refuse to relax their wage policy. This implies that they will pass the burden of tax increases on to employees (consumers). We assume that, following a temporary period of real wage losses, the equilibrium will be restored. Past temporary real wage losses are will not induce employees to change their attitude and press for higher wages. Our projection treats inflation expectations, which may be amplified by rises in indirect taxes, as upside risk to wages.

Chart 5.12 Projection for wage inflation and CPI

Annualised quarter-on-quarter indices



We project that, owing to a pick-up in manufacturing, value added in the sector will continue to increase dynamically. However, due to structural changes and a time lag in adjustment, we expect labour demand in the sector to be slow and protracted in adjusting. As a result, a vigorous increase in productivity, similarly to the one at year-end 2003, is likely to stay on the forecast horizon. However, the adjustment of the growth rate of real labour costs to rapidly increasing productivity is not immediate. We expect that over the medium term manufacturing companies will be able to resist increasingly high wage demand after the profit losses they suffered prior to mid-2003. However, the balance between the price and the productivity of labour is unlikely to be restored before 2005. This leads to slowly, but steadily declining nominal wage inflation, moderately declining unit labour costs and rising profits on our projection horizon.

For the time being, nothing suggests an approaching turn-around in the business cycle in the market service sector. Nevertheless, we project that, with consumption falling, added value in the sector will grow moderately. Accordingly, initially broadly flat sectoral wage inflation is expected to start falling markedly in mid-2004. A drop in demand will prevent prices to grow at earlier rates, thereby restricting room for wage increase. Layoffs in the government sector might also exert downward pressure on the growth rate of wages. Those laid off in the general government will contribute to the expansion of labour supply in the service sector, thereby easing the tightness of the labour market. As a result, with declining wage inflation, unit labour costs are expected to decrease from mid-2004. Calculated at real prices, the balanced growth of labour costs and productivity leads to broadly flat or perhaps slightly increasing profit levels.

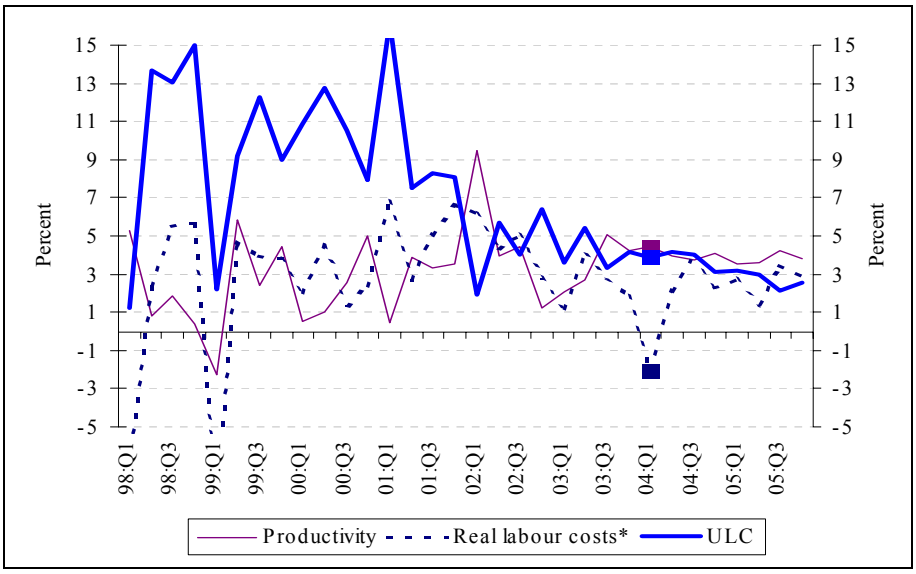
As regards the private sector as a whole, we project that nominal wage inflation will decline slowly in 2004 and then more rapidly in 2005. It is mainly dynamically growing productivity and falling inflation that affect wages. Though labour demand is expected to pick up, steady growth in aggregate added value is, however, unlikely to be followed an equally steady rise in employment. By contrast, unemployment, currently on the rise, will curb wage inflation.

With trends quantified, the most likely paths of wage growth are 8.4 per cent and 7.0 per cent in 2004 and 2005 respectively. Like our earlier projection, the risks to the current central projection appear on the upside. One of these risks can be attributed to the basic assumption that rise in indirect taxes does not fuel inflation expectations. If market participants expect consistently high inflation, demand for higher wages will force companies to further increase their prices. As a result, inflation exceeding our central projection will exert further upward pressure on nominal wages, i.e. it will generate a price-wage spiral.[29] On the other hand, faster-than-projected convergence of real wage growth in manufacturing with a sharp rise in productivity would also lead to higher wage inflation.

[29] In this sense, a scenario with increasing demand for higher wages, attributable to an increase in indirect taxes, is not identical to a general wage shock (due to other reasons) in an environment of declining inflation. For in the latter case, companies, fearing loss in their market share, only increase their prices to a lesser extent than they would in the case of increasing inflation expectations. Thus, compared to a general wage shock, rising inflation expectations translate into stronger inflationary and weaker real economic effects.

Chart 5.13 Productivity, wages and unit labour costs in the private sector

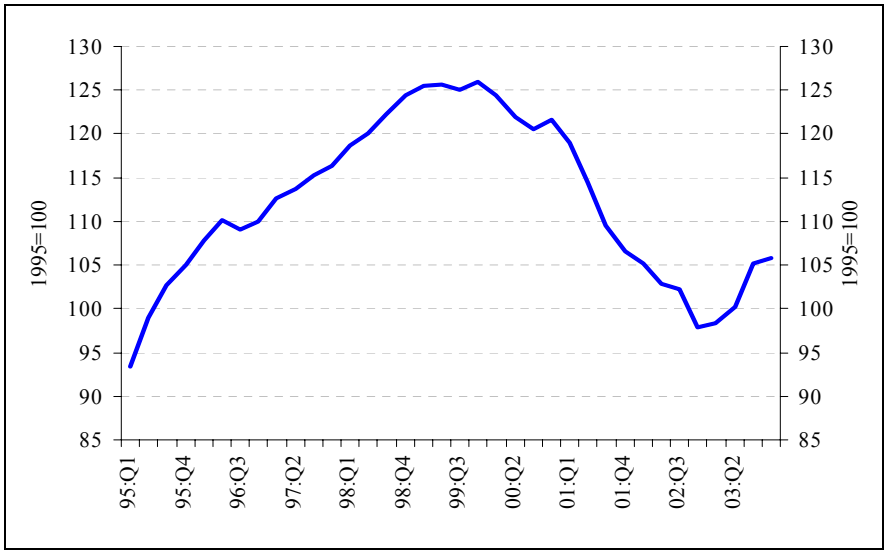
Annualised quarter-on-quarter growth rates



**Deflated by CPI.*

In order to examine changes in the competitiveness of domestic companies, we use data on companies' market share as well as the ULC-based real exchange rate.[30] Chart IV.12 clearly shows that the trend of a consistently appreciating real exchange rate, ongoing since 2000, reversed early last year. Improved competitiveness, which began to be discernible from 2003 Q1, is the combined effect of declining unit labour costs in manufacturing and a weakening nominal exchange rate. The forint had stopped depreciating by year-end 2003. Somewhat higher-than-expected manufacturing productivity and resultant lower unit labour costs, however, continued to be the cause of a weakening real exchange rate.

Chart 5.14 ULC-based real exchange rate, manufacturing*

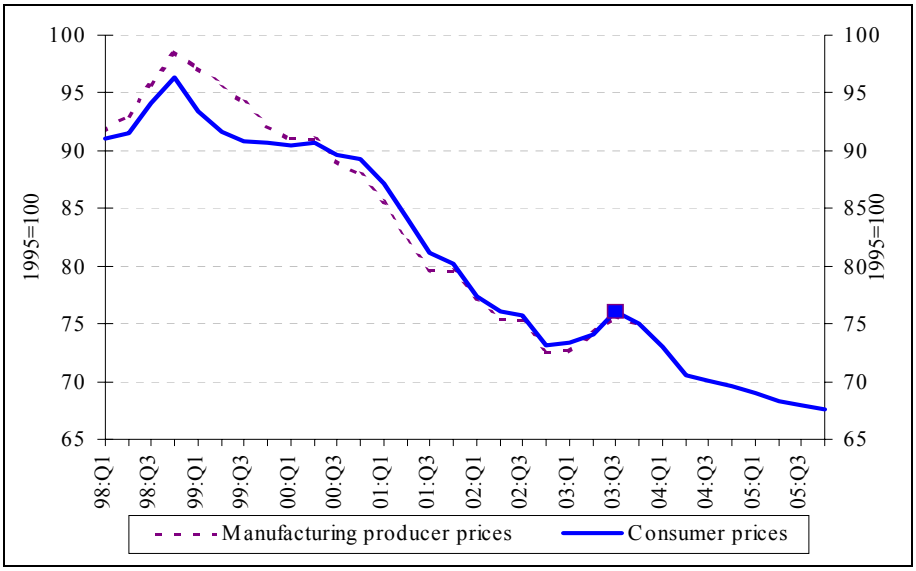


** Higher values denote real depreciation.*

[30] See Section 4. 1. 5.

Over the past year or so, the depreciation of the forint's nominal exchange rate has played a key role in developments in Hungary's price-based competitiveness. By contrast, with the forint's nominal exchange rate having stabilised around 2003 Q4 and with domestic inflation on the rise, the price-based real exchange rate seems to have started to appreciate again. As domestic inflation exceeds inflation abroad, we anticipate the gradual appreciation of the real exchange rate in the years to come.

Chart 5.15 Price-based real effective exchange rate indicators



** Higher values denote real depreciation.*

6 SPECIAL TOPICS

6. 1 Background information on the projections

As of May, structural changes are made in this *Report*. The most important change is that, with the approval of the Monetary Council, we put larger emphasis on the fan-chart, than previously. Another important modification is, that for clearer comprehension, from now on greater emphasis will be laid on the assessment of current trends and MNB's projections in the body text, whereas 'Special Topics' will regularly discuss the reasons for changes in the main scenario and compare MNB's projections with other institutions'.[31]

6. 1. 1 Changes in the main scenario of the current *Report* in comparison with the previous one

In comparison to the February *Report*, the May issue is characterised by two conspicuous differences. First, in our main scenario significantly lower inflation is projected for both years, while somewhat faster GDP growth rate is expected. More specifically, in GDP components, the projection on the 2004 accumulation of fixed assets has been raised considerably and the forecast household consumption has been lowered.

A larger current account deficit, but a more moderate wage inflation is projected than in February. As explained below, in the latter two variables shifts are due to revisions of factual data, thus our view of the trends are essentially unchanged. No major change is seen in our view of this year's general government position and normative reasons underlie the alterations of the 2005 projection.

The reasons for projection modifications may be divided into three fundamental groups. First, as projections are conditional by nature, changes in basic assumptions are crucial. Second, the disclosure of unacquainted fiscal decisions may have significant impacts. Third, our understanding of the Hungarian economy constantly changes with the development of projection methods and the assessment of actual data released. Below is a brief assessment of these factors' impacts on our projections.

The factor that has primary consequence in projection changes is the HUF/EUR exchange rate assumption. The April average included in the first version of this *Report* is 5.4 per cent stronger than the corresponding figure assumed in February. The stronger than earlier HUF/EUR exchange rate will have its disinflationary effect felt through import costs in 2004 and secondary market impacts in 2005. This will change the CPI by nearly 0.6 per cent in December 2004 and approximately 0.3 per cent in twelve months later.

Naturally, in addition to the inflation projection, the stronger than earlier HUF exchange rate assumption has also affected the assessment of growth. The growth projection has been raised despite the allowances made for the impacts the stronger than earlier real exchange rate has on growth. This is because in the Bank's assessment the Hungarian export sector's real exchange rate sensitivity is relatively low in comparison to its sensitivity

[31] The assessment of fan-chart changes might be found in Section 3.

to foreign demand,[32] and so the export sector's sensitive reaction to external demand offset the impact of the real exchange rate in the projection.

Another assumption of a telling effect concerns the fiscal trend of 2005. In keeping with the most recent announcement of the Finance Minister, adjustment is in taken for half a percentage point instead of the earlier one percentage point. In addition to relaxing demand-tightening in the 2005 general government, the cutting the adjustment by half increase growth and inflation prospects.

Table 6.1 Changes in major main assumptions relative to February

	February 2004 projection		**Current projection**		**Change**	
	2004	**2005**	**2004**	**2005**	**2004**	**2005**
Fiscal tightening in 2005 (percentage)	n/a	-1.0	n/a	-0.5	n/a	+0.5
The impact of VAT-rise on longer-term inflation expectations	No impact		No impact		No change	
HUF/EUR exchange rate (HUF)*	264.6	264.6.4	250.3	250.3	-5.4	-5.4
USD/EUR exchange rate (cents)*	126.1	126.1	120.0	120.0	-4.8	-4.8
Price of Brent oil (USD/barrel)**	29.5	27.0	32.3	27.7	9.5	2.6
Memo: Price of Brent oil (HUF/barrel)**	6192	5656	6730	5789	8.7	2.4
Imported inflation of tradable goods (per cent)***	1.0	1.0	1.0	1.0	0.0	0.0

** In the February 2004 projection the average of January 2004, in the current projection the April 2004 average.*
*** The February 2004 projection is calculated with January 2004, and the current projection with April 2004 crude futures rates.*
****Average of annualised monthly growth rates. Inflation of 11 tradables in the euro area. Source: Eurstat, New* Cronos Code: igoodsxe.

Two of the new fiscal measures need to be highlighted. As of April 2004 the Government reclassified pharmaceuticals prices as regulated. As the current regulation allows this measure to remain in effect for a period of 180 days, assumptions must be made for prices on the entire projection horizon from the fourth quarter of this year. On the Monetary Council's recommendation, it is assumed that subsidised medicine prices will remain unchanged along the entire projection horizon, while non-subsidised prices will readopt the earlier market trend after the 180 days are over. Overall, the MNB's assumption on medicine prices had the greatest influence on the December 2004 CPI: it triggered a decrease of some 0.2 percentage points as against the February projection at the level of CPI.

Finally, the third group includes the information that lead to a revaluation of our view of the state of the Hungarian economy. Among these factors, numerically a change in our view of unprocessed food prices had the most significant on CPI projection. In contrast to the MNB's expectations, the aftermath of the significant 2003 year-end rise in the prices of unprocessed food was over very fast, and so the 2004 Q1 prices rose far slower than expected. Following consultation with agricultural experts, now it is thought that the competition generating effect of accession to the EU may temporarily slow down rise in the prices of unprocessed food. Rethinking the trend of unprocessed food prices affected primarily the December 2004 projection to the extent of some 0.2 percentage points.

[32] For more details, see Section 6. 4

Although changes in the calculation of wage inflation, whereby the effects of the ineffective part in the minimum wage was re-estimated,[33] had no major implications on either inflation or the macroeconomic trends, they represent a major methodological change , as a result of which the 2003 annual average private sector wage inflation has dropped by 0.7 percentage points than reckoned earlier. Equations were reestimated with the altered time series and so the possibility that the actual facts, lower than forecast in February, should result in a technically lower inflation projection was filtered out.

A further lesson to learn was that the propulsive effect of external demand in industrial export had been underestimated: at the end of last year and beginning of this one, the sector reacted on external boom more intensely than expected.

Finally, the CSO's revision of the national account data also urged us to reconsider trends. Upon publication of detailed GDP data for 2003 Q4, the CSO performed a significant retroactive revision of the time series relating to corporate fixed investments and household consumption. The 2003 fixed investment data were considerably raised, and in view of the current trends corporations are seen to have increased their investment activity in the second half of 2003, more specifically in 2003 Q4. Simultaneously, household consumption expenditures were revised downwards, and contrary to our picture in in February, now consumption seems to have gradually slowed in the course of 2003.

The current projection took all new information of the real economy into consideration. In our new main scenario, capital accumulation is seen as the fundamental factor to generate growth, and in the short term household consumption is expected to slow more intensely than expected earlier.

[33] Discussed in more detail in a separate section, see Section 6. 6.

Table 6.2 Projection changes in comparison to February 2004

On a year earlier, unless otherwise indicated, percentages

	2002	2003		2004		2005	
	Actual			Forecast			
		February forecast	Actual	February forecast	Current projection	February forecast	Current projection
CPI							
December	4.8	5.7		6.9	**6.0**	4.3	**4.0**
Annual average	5.3	4.7		7.4	**6.9**	4.7	**4.3**
Economic growth							
External demand (GDP-based)	0.8	0.5	0.5	1.9	**1.7**	2.5	**2.2**
Household consumption	9.3	7.7	6.5	2.5	**2.1**	0.9	**1.1**
Memo: Household consumption expenditure	10.3	8.9	7.6	3.1	**2.7**	0.9	**1.3**
Gross fixed capital formation	8.0	2.2	3.0	5.4	**9.2**	2.6	**3.2**
Domestic absorption	5.4	6.1	5.5	3.0	**3.4**	1.7	**1.9**
Exports	3.7	9.1	7.2	9.5	**10.8**	9.1	**9.2**
Imports	6.2	12.8	10.3	8.9	**10.3**	7.0	**7.1**
GDP	3.5	2.9	2.9	3.1	**3.4**	3.2	**3.4**
Current account deficit							
As a per cent of GDP	7.1	8.2	8.9	7.8	**8.3**	6.6	**7.1**
EUR billions	4.9	6.1	6.5	6.1	**6.7**	5.5	**6.2**
General government							
ESA deficit as a percentage of GDP	9.3	5.8	5.9	5.3	**5.3**	4.3	**4.8**
Demand impact	4.2	(-0.3)	(-0.2)	(-1.7)	**(-1.6)**	(-1.0)	**(-0.3)**
Labour market of private sector							
Wage inflation[1]	12.3	9.3	8.5	9.3	**8.4**	8.0	**7.1**
Employment[2]	(-0.4)	1.1	1.0	1.5.	**1.6**	0.4	**0.4**

[1] *Due to changes in the filtering of minimum wage impact, this projection is incomparable with earlier projections.* [2] *LFS measure.*

6. 1. 2 Projections by the MNB versus other institutes

When the MNB's projections are compared to other institutes', it must be born in mind that the former are conditional, while other institutes usually make unconditional projections. This means that in addition to differences in the assessment of current and expected trends, divergences between projections by MNB and other institutes may also result from differences between the MNB's basic assumptions and other institutes' projections on variables that are exogenous from our perspective.[34]

In terms of the 2004 and 2005 CPI, the MNB's May forecast remains in the lower domain of projections by other analysts. This may result from the conditional nature of the MNB forecast, as the stronger HUF/EUR exchange rate, the trend of fiscal regulation and our

[34] It stands to reason that one of the most important variables within this scope is the HUF/EUR exchange rate. This issue is discussed in detail in the February 16, 2004 issue of *Világgazdaság*.

projection on inflationary expectations definitely suggest disinflation. Analysts, however, may not necessarily agree with these normative assumptions.

Similarly, normative assumptions may presumably underlie the fact that the MNB is relatively conservative on long-term growth perspectives, as the above described regulatory assumptions tend to tighten aggregated demand.

Finally, while the MNB's projection on the general government deficit does not significantly differ from market forecasts, its assessment of the current account deficit is higher.

Table 6.3 Comparison of forecasts by the MNB and other analysts*

	2004	2005
CPI (December on December, per cent)		
MNB	6.0	4.0
IIF (April 2004)	6.3	4.2
Reuters survey (April 2004)	6.0	4.4
CPI (average annual increase, per cent)		
MNB	6.9	4.3
Consensus Economics (March 2004)	6.9	4.8
European Commission (April 2004)	6.9	4.7
IMF (April 2004)	7.1	4.4.
OECD (May 2004)	6.9	4.8
Reuters survey (April 2004)	6.7	4.6
GDP (annual growth, per cent)		
MNB	3.4	3.4
Consensus Economics (March 2004)	3.2	3.9
European Commission (April 2004)	3.2	3.4
IMF (April 2004)	3.5	3.8
IMF (April 2004)	3.2	3.4
OECD (May 2004)	3.3	3.8
The Economist poll	3.1	3.5
Reuters survey (April 2004)	3.2	3.7
Current account deficit (EUR billions)		
MNB	6.7	6.2
Consensus Economics (March 2004)[1]	3.9	3.5
IIF (April 2004)	6.1	6.0
Reuters survey (April 2004)	6.2	5.8
Current account deficit as a per cent of GDP		
MNB	8.3	7.1
European Commission (April 2004) [1]	5.4	5.1
IIF (April 2004)	7.5	6.8
IMF (April 2004) [1]	5.3	4.3
OECD (May 2004)	8.5	7.6
The Economist poll [1]	6.0	5.2
ESA deficit of general government (as a per cent of GDP)		
MNB	5.3	4.8[2]
Consensus Economics (March 2004)	4.9	4.0
European Commission (April 2004)	4.9	4.3
IIF (April 2004)	5.2	5.0
OECD (May 2004)	5.2	4.6
Reuters survey (April 2004)	4.9	4.2

**The MNB forecasts are conditional. For certain policy variables (monetary and fiscal policy) and external factors(EURUSD, oil prices) , we do not necessary take into account the most probable outcome, rather the forecast is prepared on rule-based assumptions. As such MNB projections are not necessary comparable with other analysts forecasts.*

[1] Certain analysts presumably forecast the current account in compliance with the earlier methodology excluding reinvested earnings. Consensus Economics Inc. (London) in its "Eastern Europe Consensus Forecasts" and IIF specify current account projections in USD, which are converted at the EUR/USD exchange rate of March 2004.

[2] Assuming normative fiscal path.

Sources: Consensus Economics Inc. (London) "Eastern Europe Consensus Forecasts" (March 15, 2004); European Commission Economic Forecasts, Spring 2004; IIF The Institute of International Finance (13 April 2004); IMF World Economic Outlook (April 2004); OECD Economic Outlook (May 2004); The Economists poll of forecasters (22 Apr 2004) ; Reuters survey, April 2004.

6. 2 The Quarterly Projections Model (N.E.M.)

Since the February *Report* our forecasting practice has changed slightly. While still applying our former forecasting methods we have deployed the Quarterly Projections Model (N.E.M.), as well. There are several advantages of using a macroeconomic model: it helps in performing policy simulation and in preparing simultaneous projections. The detailed description of the model will be found in the forthcoming publication of Jakab et al. (2004).[35]

The forecasts published in the *Reports* are now prepared by using the N.E.M. and relying on the methods used so far. The latter comprises of expert forecasting systems using partial econometric equations, pure expert judgements, time-series techniques and indicator models. The final projection is a consensus of model-based and non-model based projections.

The N.E.M. model has the features of neokeynesian models, with vertical Phillips curve in the long run determined by productivity and demographics, and nominal (price and wage) rigidities in the short run. Short-run sluggish adjustments are captured by the fact that most of the equations are written in error-correction forms (ECM).

The N.E.M. model is a medium-scaled structural, neokeynesian model, comprising of 174 variables (of which 23 variables are exogenous). There are 206 equations in the model with 24 behavioural equations. An interesting feature of the model is that it treats private and public capital, labour demand and prices differently. The model works at quarterly frequency, and most of the behavioural equations are estimated on the sample for the period between 1995 and 2003. Behavioural equations were estimated by Generalised Method of Moments or OLS. Some coefficients are borrowed from microeconometric research (e.g. elasticity of substitution between capital and labour, elasticity of unemployment to nominal private wages). Most of the data are based on the SNA definition, however some (e.g. capital stock, government, housing and corporate investment) are calculated by the Economics Department of MNB.

The model currently runs on backward-looking mode, but the planned revised version of the model will also incorporate forward looking elements, namely model consistent expectations and forward-looking policy-rules. N.E.M. contains policy rules for monetary and fiscal policy, each helping in stabilising budget deficit and inflation (e.g. inflation targeting and fiscal solvency).

In the long run the model is determined by the *supply block*, where the production function has two inputs of capital and labour. The stocks of labour and capital are divided into private and public. Technological progress is modelled as labour augmenting. As our microeconometric empirical findings suggest, capital and labour are not perfect substitutes, the form of the production function is a Constant Elasticity of Substitution (CES) function. The long-run path of the model is then determined by an assumed rate of labour augmenting technological progress, a demographically given labour force, an assumption on the Non Accelerating Inflation Rate of Unemployment (NAIRU), and at last, but not least foreign interest rates and risk premium.

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[35] Jakab M. Z., Kovács M. A., Párkányi B., Reppa Z., Vadas G. (2004): The Hungarian Quarterly Projection Model (N.E.M.), MNB Working Papers, forthcoming.

When establishing the long-run baseline path of the model, one should take into account several specialities arising from the transitional nature of the Hungarian economy. Labour force in the long run is determined by a demographic projection and an activity projection. Due to several institutional and demographic reasons activity rate is lower in Hungary than in other European countries. In the long-run however, the activity rate converges to the average of European Union countries. As Hungary is a transition (converging) country, the capital-to-output ratio cannot be treated constantly on the average. The variable of labour augmenting technological progress has been calibrated in a way that, given our assumption on labour force, the capital-to-output ratio reaches European levels in the long run. One would argue that due to large structural changes in Hungary, NAIRU should not be treated as constant. In fact, NAIRU has been constructed by HP-filtering unemployment for the past. In the longer run we assume a constant level of this variable.

The demand side of the model is relatively standard, as consumption is a function of income and (financial and housing) wealth. Private labour and capital demand (and hence investment) is determined by profit maximisation conditions. Public employment and capital, however, is modelled exogenously. Exports and imports depend on relative export- and import prices, respectively. In the long-run , the Hungarian export market share is constant; however, an integrational effect is also estimated to tackle the increasing market share in the past over the medium term in the future. This integration effect is captured by a special integration variable, which equals to our labour augmenting technological progress measure for the past. However, for projections a smooth slowdown of integration compared to the labour augmenting technological progress is assumed.

A special feature of the model is that apart from relative price effects import demand depends not on aggregate demand, but on a (import content) weighted sum of demand components, with the highest import-content share for exports.[36]

The p*rice-wage block* is set up in a way that, for a given potential output, the output gap and the unemployment gap (the difference between actual unemployment and NAIRU) forces actual GDP to be equal to the potential in the long run. As usual, the output gap changes domestic inflation, and hence at a given exchange rates level, the real exchange rate. The difference between actual employment and potential changes real private wages, which again changes the real exchange rate via the price equation. In the long run private nominal wages depends on the marginal value of labour derived from production function. In the long-run, the GDP deflator is determined by unit labour costs. Public wages are also modelled by an error-correction to private wages, although in forecast they are usually taken as exogenous. For some simulation exercises, however, there is an option to use consumer prices in the (private) wage bargaining mechanism. The key consumer price item is the core inflation, which both depends on import prices and domestic prices (GDP deflator) and as well as on indirect taxes. The consumer price index (CPI) is then a weighted average of core inflation and regulated, fuel and food prices, being exogenous. House prices are also modelled as a function of private wages.

Though not fully, *stock adjustment* is also incorporated in the model. Sum of changes in wealth in the whole system adds up to zero. However not all income accounts are channelled explicitly in wealth changes. Due to lack of reliable data, the corporate income account is not presented in the model, while the change in corporate wealth comes as the

[36] The import content figures were calculated from the input-output matrix of 1998.

residual from changes in the three other wealth components (households', government and foreign wealth). In other words, the current account balance, change in government debt and change in households' financial and housing wealth jointly determine the change in corporate sector's wealth, which does not feed back into other variables in the model.

Currently, the model is *backward-looking*, therefore, there is no role for expectations. *Monetary policy* might follow a standard Taylor-rule policy, an inflation targeting rule, a fixed nominal and a backward-looking fixed real short-term interest rate policy. In the baseline, the nominal exchange rate set-up is treated as exogenous, and as an alternative backward looking uncovered interest rate parity (UIP) can also be analysed in the model.

Fiscal policy is relatively detailed in the model with seven revenue items and six expenditure items. Fiscal data are based on (augmented) SNA figures, which show the fiscal stance including off-budget activities and excludes temporary items. Mostly for long-run simulation purposes fiscal policy might follow a solvency rule, with most of the adjustment taking place with changes either in personal income taxes or government (non-labour) expenditures.

6. 3 A methodology for the accrual basis calculation of interest balance

In its *Reports*, in order to quantify fiscal deficit, the Bank relies on the ESA-95 methodology for calculating the interest balance of the budget, which is also used for the maastricht deficit criteria. In terms of methodology and sensitivity to changes in yields, the accruals-based interest balance differs significantly from the cash-based GFS balance published by the Ministry of Finance. The financing costs of the debt depend on the volume of the debt, the maturity structure, the size of the debt denominated in foreign currency, and on the yield curve, so on the long run the GFS and the ESA-95 net interest rate expenditures ara the same. But the two methodology distribute the financing costs differenty among years.

Differences between the amount of the interest balance under the GFS and that of the ESA-95 interest balance arise from the differing concepts of the two methods. The GFS methodology is an approach focused on borrowing requirement, and quantifies the effects of the net interest burden of government deficit on the borrowing requirement in a given period and on the current disposable income of the lender. By contrast, the accruals-based balance seeks to capture how the net interest burden of government deficit affects general government and the lender's consumption/savings decisions in economic terms. With respect to economic decisions, actual settlement matters only in the case of actual liquidity constraints, as lenders are aware that accrued, but unpaid interest will be paid eventually. Differences in the approaches lead to significant differences in three issues: one is accrued interest on debt and second is the net original issue premium, i.e. the difference between the trading price and the face value of bonds in the case of fixed income bond issues[37]. The third difference is that the ESA-95 methodology consolidates the interest expenditures and revenues among the different levels of the general government, while the GFS not.

6. 3. 1 The ESA-95 interest balance

The ESA-95 interest balance is the amount of interest accrued on government debt during a given period of time, regardless of whether it has been paid or not. Thus, the accrual

[37] If the difference between the trading price and the face value is positive, we speak of an original issue premium; in the opposite case, we speak of an original issue discount.

basis takes into account accrued interest. The amount of the original issue premium or discount at auction sales of bonds affects the balance during a given period of time only to the extent of the amount due on the period in proportion to the entire period of maturity. Due to the foregoing, the ESA-95 interest balance in quarterly terms also depends only on the size, and the average interest burden of the debt, while the the coupon yields and the timing of coupon payments do not affect it, while they do affect the GFS balance. This results, that the fluctuations in the quaterly accruals-based balances are moderate. Changes in yields are only reflected gradually as, upon the renewal of components of debt at their due date, the proportion of new, higher-interest bearing instruments within the debt rises.

The cash-based (GFS) method

When the interest balance is quantified, the cash basis approach only takes into account interest that are actually paid (or received). However, it accounts for the net original issue premium immediately at the date of the relevant financial settlement. These may lead to considerable quarterly fluctuations in GFS based interest balances, rendering their predictability difficult. Another outcome of this approach is that the interest balance is simultaneously subject to changes in the yield curve, the redeption of government bonds issued by the Government Debt Management Agency (ÁKK), the frequency and dates of interest payment and the coupon rate of fixed income bonds.

For insance lets see the folowing cases: The 6-month and the 1-year treasury bill series are sold by 4 occasions for 2 months by the ÁKK in order to increase the size and the liquidity of the series. As a result, redeptions and interest payment dates are concentrated. Consequently, if the redeption dates of two 6-month or one 1-year treasury bill series are due in the same quarter, interest expenditures in that quarter may be higher than those in the previous and the next quarters. Another example: if the date of the first ineterest payment due on bonds sold in 2004 is in 2005, the 2005 payment of the interest accrued in 2004 improves the GFS interest balance of 2004 and deteriorates that of 2005.

In the case of a considerable shift in yields, the immediate recording of the original issue premium may also add to the volatility of the cash-based balance. If yields rise, and the ÁKK fails to increase the coupon rate of fixed income long-term bonds, then the trading price of bonds at auctions will be considerably lower than their face-value, with the GFS interest balance deteriorating equally considerably. (In the case of a considareble fall in yields, than it affects the GFS balance in the opposite way, i.e. it impoves consideraby.)

Due to the characteristics of the GFS method, in the case of variable-rate government securities and treasury bills, the impact of a potential change in yields is reflected in the GFS interest balance only at a later date. Accordingly, after a rise or fall in yields, interest expenditures related to treasury bills will only decrease or increase at maturity dates, i.e. at the end of a 3, 6 or 12-month period.

Box 6.1

In the case of one given bond series a considerable difference can occur between the ESA-95 and the GFS interest burden, if the yields change sharply and unexpectedly after the first auction. One example can be the 2014/C bond, which was auctioned first in June 2003, with 5.5 per cent coupon rate, calculated from the prevailing yield curve. But yields rose significantly in the second half of the year, so bonds were sold well below their face value at auctions. At the one held on 27 November, the average yield and trading price were 8.45 per cent and 80 per cent respectively. The immediate accounting for the auction premium due on the HUF 20 billion volume deteriorated the 2003 GFS balance by HUF 4 billion. By comparison, the interest burden in2003 under the ESA-95 method was only HUF 110 million in 2003 (see the table below).

Table 6.4

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Interest payments under ESA-95 (%)	-0.5	-7.4	-7.4	-7.4	-7.4	-7.4	-7.4	-7.4	-7.4	-7.4	-7.4	-0.9
Interest payments under GFS (%)	-19.6	-3.6	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Interest payments under ESA-95 (bln.fts)	-0.1	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-0.2
Interest payments under GFS (bln.fts)	-3.9	-0.7	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1

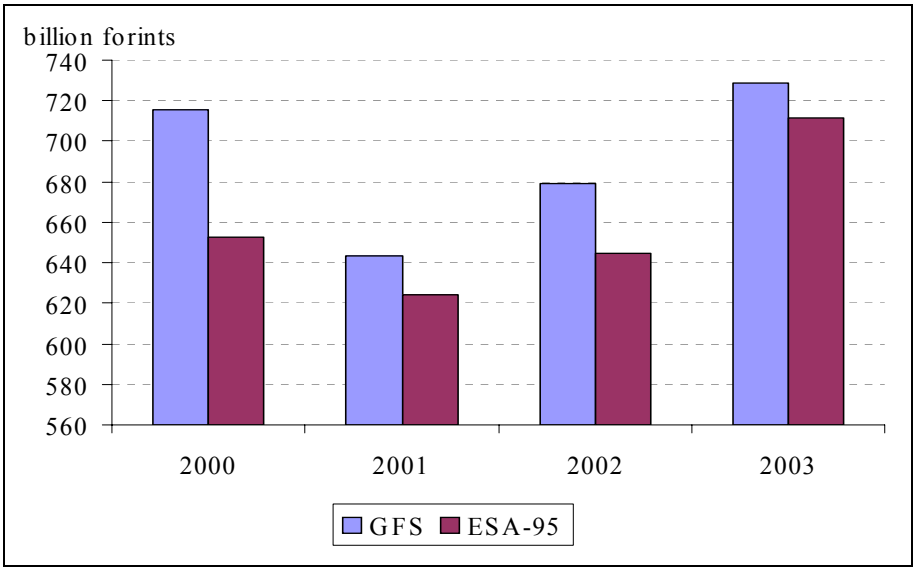
6. 3. 2 Comparison - the effect of change in yields on the interest balance

Due to the differences between the two methods, the GFS and the ESA-95 interest balance responds differently to changes in the yield curve. Due to not taking into account the accrued interest by the GFS methodology, the impact of changes in yields affects the balance later, when the bonds auctioned among the new circumstances pay interest first time, or when the treasury bills mature. This resulted that before 2002, when the yields decreased moderately the GFS net interest payments were higher than the ESA-95. But the unexpected, sharp shifts in yields, like those in 2003 affects the GFS balance sooner than the ESA-95 balance, because the GFS method accounts immedately the whole net issue premium in the first quarter, while the ESA-95 takes into account only a small part of it. In the financing strategy of the ÁKK the significance of the long term fixed income bonds play an increasing role, so after 2002 the net issue premium plays a greater role. Accounted for under the GFS method, net trading losses upon issuance amounted to approximately HUF 40 and HUF 50 billion in 2002 and 2003 respectively, and according to the forecast of the MNB in 2004 it will also reach the HUF 40 billion.

In the ESA-95 balance the impact of changes in yields is reflected gradually, but immediately, in proportion to the weight of the new debt instruments issued at a different rate of interest. Under the accrual method, the amount of the net original issue premium is spread evenly over the full term of the bond. In the case of the mentioned auction of the 2014/C bond, there are only a few days left after the settlement in 2003, so the auction of the HUF 20 billion worth of bonds with a term of 10 years would leave the 2003 interest balance practically unchanged under the accrual method, in contrast to the GFS, regardless of the auction price at which the bonds are sold. Higher yields deteriorate the accruals-based balance over the entire term of the bond, while under the GFS method, the deterioration in the balance materialises already in the first year. The reason why this should be emphasised is that, owing to fluctuations in yields over the past few years, the GFS balance has been invariably worse than the accruals-based balance, with accounting for unsuccessful auctions deteriorating the GFS balance to a larger degree than the accruals based balance. But under the ESA-95 method, the interest burden arising from auctions in

the past will be reflected in the years to come, so in the next few years, the ESA-95 interest balance can be worse, than the GFS interest balance.

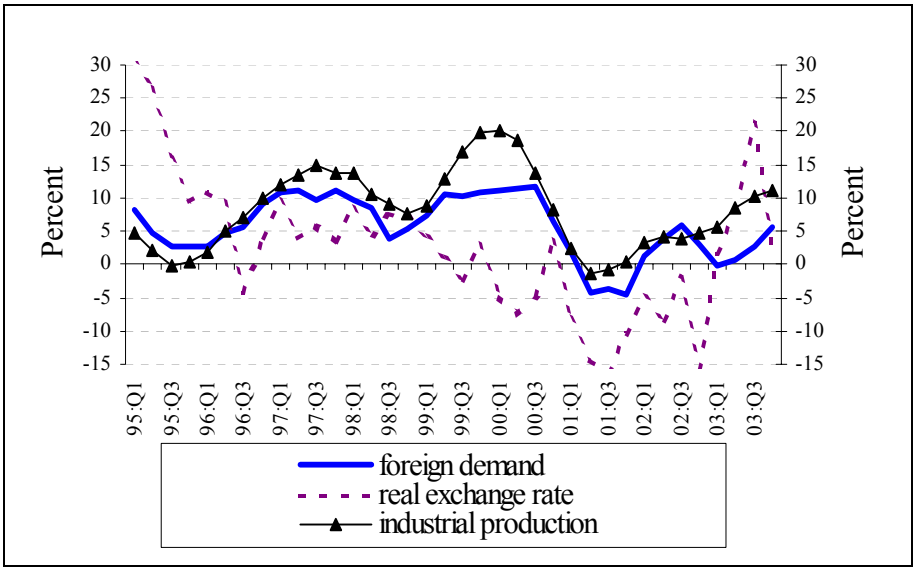
Chart 6.1 The GFS and the ESA-95 interest balance of the government



6. 4 External demand vs. real exchange rate impact in the industrial activity

It is fairly well-known that there has been an upswing in recent quarters in industrial production in Hungary, particularly in industrial exports. The key questions from the point of view of economic policy – to what extend did the expansion of external activity and the depreciation of the real exchange rate in 2003 contributed to that pick-up. There is no simple answer to this question because the expansion in external activity and the depreciation of the real exchange rate started more or less simultaneously, which makes demarcating between the individual effects rather difficult.

Chart 6.2 External business activity, industrial production and the real exchange rate in Hungary



Seasonally adjusted annualised quarter-on-quarter growth rates, three-month moving average

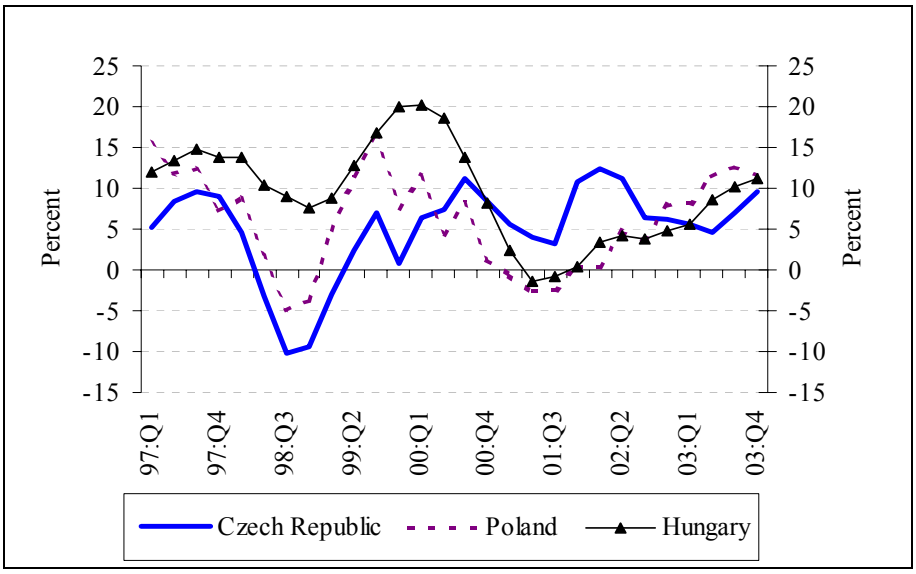
In the February *Report*, staff expressed their view that external business activity had a pivotal role to play in the upsurge. At the time this was based on the fact that industrial production in neighbouring countries (the Czech Republic and Poland), along differing real exchange rate paths, showed remarkable similarities with Hungarian outturns in terms of the pace of growth. The charts below might refine the conclusions made at the time. It is quite clear that from early 2002 industrial production witnessed a turnaround in trend in all the three countries, and has been accelerating perceptibly ever since. Whereas this virtually coincided with a (more hectic than earlier, yet still fairly pronounced) pick-up in external demand in each country, real exchange rates showed a totally different behaviour – the Polish zloty depreciated steadily; the Czech koruna first appreciated, then depreciated; while the Hungarian forint first appreciated then depreciated. However it can be also observed, that on a three to four year horizon, real exchange rates seem to move together more closely, which might refine our earlier conclusion.[38] The main question is whether real exchange rate movements has an effect on one-two our longer horizon in industrial production, and this effect is how strong.

Our earlier conclusion must be also refined as industrial sales depend not only on demand and competitiveness, but technological progress or productivity might also has an effect on the process.

[38] Due to data constraint, in the analysis we use the CPI, instead of the ULC based real exchange rate for the Czech Republic.

Chart 6.3 Industrial production in the Czech Republic, Poland and Hungary*

Three-month moving average of seasonally adjusted annualised quarter-on-quarter growth rates



** ULC based real exchange rate.*

Chart 6.4 External demand in the Czech Republic, Poland and Hungary

Three-month moving average of seasonally adjusted annualised quarter-on-quarter growth rates

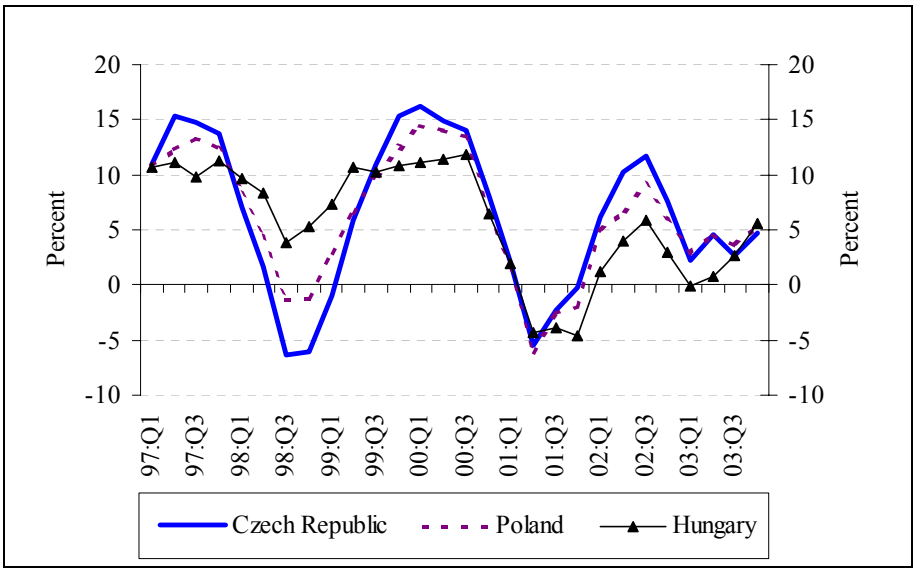
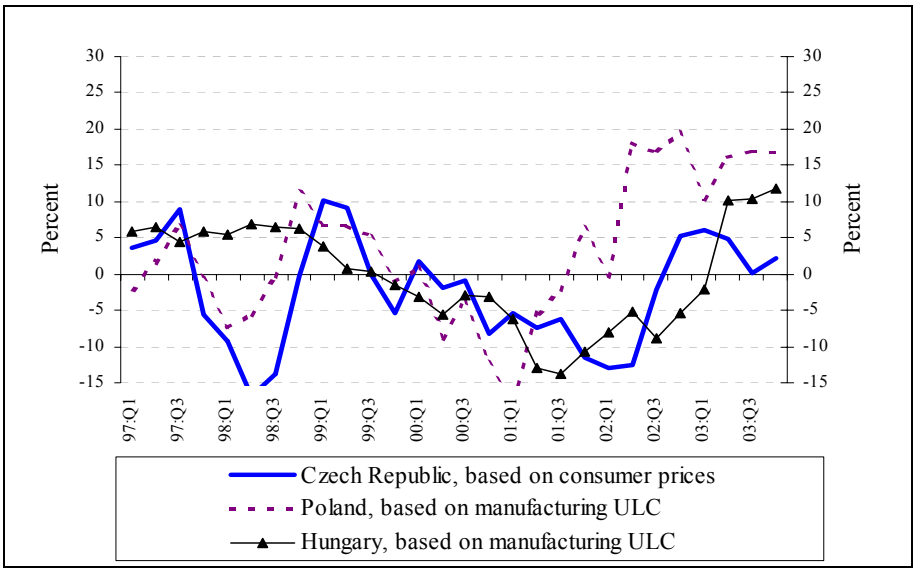


Chart 6.5 Real exchange rates in the Czech Republic, Poland and Hungary



Three-month moving average of seasonally adjusted annualised quarter-on-quarter growth rates

In addition to intuitive analyses, the above statements may also be examined by using more formal approaches. To that end, we will compile country models in which industrial production is represented as a combined effect of external demand as a demand factor, productivity as a supply factor and the real exchange rate as a factor related to competitiveness. By making use of long-term constraints in the time series, we will examine to what extent the variance of industrial production may be explained by changes in external demand and in the real exchange rate.[39]

A fairly accurate answer to this question may be given by referring to the framework of the SVAR model. In addition data congruency, the method applies minor theoretical restrictions. Hence if the results agree with economic theory, it may be safely concluded that such interrelationships were not built into the model, rather they are reflected by the data itself. [40]

We used the following method. As a first step, the best statistical representation[41] of three time series (industrial production, external demand and real exchange rate[42]) was set up for each country.[43]

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[39] One might argue that instead of industrial production , we should have used export data, as both foreign demand and real exchange rate effects export sales. We stick to industrial production data due to the following reasons. First industrial statistics has a better methodological quality and data revisions are less frequent than in international trade data. Second, as in all of the countries considered, export sales are the main driving force of industrial production, presumably we do not loose a large amount of information with this assumption.

[40] For a more detailed discussion of SVAR models see 'VAR: Specification, Estimation, Testing and Forecasting' In.: H. Pesaraan and M. Wickens: Handbook of Applied Econometrics, Blackwell Publishers, pp 77-138.

[41] More specifically, we gave estimates for a three-variable VAR in each country, while the optimum delay figure was determined on the basis of an LR test.

[42] Data source: for Hungary time series used by the MNB, while those for the Czech Republic and Poland have been derived from Eurostat, OECD and NIGEM data bases. It is important to note that while with

Next, for the derivation of the structural model, the following three long-term restrictions (per country) were made – (i) external demand is not affected by productivity/technological changes on the long run ; (ii) on the long run, external demand is not affected by real exchange rate movements; and (iii) on the long run, external demand affects industrial production by a unit of elasticity.

Each theoretical restriction is based on relatively broad economic consensus; moreover, the fact that they are applied on the long run does not delimit the explanation for the behaviour of these indices in the first few years. More specifically, (i) ad (ii) follows directly from the fact that even from a global economic perspective we are dealing with small and open economies with marginal influence on international trade volumes and exchange rates. (iii) originates from a key statement in economic theory – disregarding possible composition effects, and amid unchanged relative supply and competitiveness, an economy's market share is broadly flat over the long term.[44]

By applying the above restrictions, impulse-response functions may be derived.[45] Uncertainty intervals were defined using Monte Carlo Simulations. Significant impulse-response functions have displayed a behaviour consistent with theory, the consequence of which is that it is indeed fit for drawing conclusions. More specifically, with respect to all three countries, the only significant response with the expected sign is the effect of external demand and competitiveness on industrial production, in addition to those received to self-shocks. In other words, a rise in external demand and competitiveness will be coupled with higher industrial production.[46]

Using estimates for structural form derived from the model, it is possible to compile a so-called variance-decomposition of Hungarian, Czech and Polish industrial production time series. In other words, we may determine the extent to which external demand, productivity and the real exchange rate contribute to the variance of industrial production time series in a given quarter or several quarters ahead.

From the tables below it is abundantly clear that the respective figures for the share of external demand, productivity and the real exchange rate in the variance of Hungary's

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Hungary and Poland ULC based real exchange rate was used, in the case of the Czech Republic CPI-based real exchange rates were consulted, given the absence of such data. The sample period was from 1992 Q1 to 2003 Q4.

[43] To be more precise, we estimated a three variable VAR for all of the countries, where the optimal lag-length was determined by LR test in each case.

[44] The validity of this statement is, of course, not necessarily reflected in the data; in this case, however, it did not appear to have resulted in intolerable restrictions.

[45] We have looked at other constraints in addition to those referred to in this article. As a result, the experts' conclusion was that while outturns for Hungary were fairly robust with regard to differing restrictions, Poland and the Czech Republic were fairly sensitive to such changes. Eventually, the reason why the above-mentioned restrictions were employed was that (i) these are long-term statements which can be derived fairly easily from economic theory, and (ii) they resulted in plausible impulse-response functions. For more details, see Kovács (2004) 'Külső kereslet vagy reálárfolyamhatás a kelet-európai országok ipari termelésében' (External demand vs. real exchange rate effects in industrial production in Central and Eastern European countries) MNB draft.

[46] For a more detailed discussion of SVAR models see VAR: Specification, Estimation, Testing and Forecasting In.: H. Pesaraan and M. Wickens: Handbook of Applied Econometrics, Blackwell Publishers, pp. 77-138.

industrial production were nearly 40 per cent, 50 per cent and 10 per cent. Interestingly enough, data for the Czech Republic and Poland are somewhat different. Compared to Hungary in Poland, foreign demand has a similar explanatory power, real exchange rate has higher and productivity has consequently lower explanatory power. Real exchange rate has the largest explanatory in the Czech Republic, though it is also smaller than the foreign demand's share.

Table 6.5 Key factors in the variance of industrial production in Hungary
Percentage of total variance, for the indicated number of quarters ahead

Quarter/shock	External demand	Productivity	Real exchange rate
1	37.5	50.1	12.4
2	44.2	44.8	11.0
3	37.3	50.4	12.3
4	38.0	49.9	12.1
5	38.4	49.6	12.0
6	38.5	49.5	12.0
7	38.4	49.6	12.0
8	38.4	49.6	12.0
9	38.4	49.6	12.0
10	38.4	49.6	12.0

Table 6.6 Key factors in the variance of industrial production in the Czech Republic
Percentage of total variance, for the indicated number of quarters ahead

Quarter/shock	External demand	Productivity	Real exchange rate
1	31.4	42.6	26.1
2	31.5	42.5	26.0
3	32.4	41.9	25.7
4	33.1	41.5	25.4
5	32.9	41.6	25.5
6	33.0	41.5	25.5
7	32.9	41.6	25.5
8	32.9	41.5	25.5
9	32.9	41.5	25.5
10	32.9	41.5	25.5

Table 6.7 Key factors in the variance of industrial production in Poland
Percentage of total variance, for the indicated number of quarters ahead

Quarter/shock	External demand	Productivity	Real exchange rate
1	48.0	36.3	15.7
2	45.8	37.8	16.4
3	41.3	40.7	18.0
4	41.3	40.7	18.0
5	38.7	42.4	18.9
6	38.8	42.4	18.9
7	38.7	42.4	18.9
8	38.6	42.5	18.9
9	38.7	42.4	18.9
10	38.6	42.5	18.9

6. 5 About the constant tax index of consumer prices

Since May 2004, the Central Statistical Office (CSO), in close cooperation with the MNB, has been regularly publishing data on a constant tax index (CTI) of consumer prices. CTI was compiled for analytical purposes, and it is similar to core inflation in being one of the supplementary indicators. A common feature of inflation indicators in this group is that they measure long-term price movements caused by developments in supply and demand. In particular, the CTI eliminates the immediate, direct effect of any changes in indirect taxes on the prices affected. Consequently, it provides information on what the rate of inflation would be if taxes on consumer goods and services were left unchanged relative to the base period.

The calculation of constant tax or net price indices is not unknown in the European Union; however, it will take a few years before a standardised indicator is introduced. In Hungary, an all-round sharp rise in indirect taxes in early 2004 necessitated the elimination from the CPI changes in VAT rates, excise duties and consumption tax for the purposes of monitoring long-term price developments. [47]

6. 5. 1 What does the indicator show? The key characteristics of indirect taxes

Indirect taxes are levies the payers of which are not identical with the actual bearers of the tax burden, and which may be passed on directly to the consumer.

The taxes which may be eliminated from the constant tax price index with absolute precision are the quantitative ones. They include taxes expressed as a percentage of final consumer (retail) prices or forint-based (or so-called lump sum) taxes.

Therefore, in most countries taxes that are in connection with the production cycle (for instance, the ecological tax or the environmental pollution charge) are generally not eliminated from the constant tax inflation indicator. Because value added and retail margins emerge in the later stages of production process, only rough estimates of the exact value of such taxes can be derived from the final consumer price.

VAT, which is levied on most consumer goods and services, is expressed as a percentage of the final consumer price, while excise duties (on tobacco and alcohol) belong to the itemised category and, therefore, these categories will receive foremost attention among tax items to be eliminated from the CTI.[48]

Consumption tax is expressed as a percentage of producer or import prices (for example, in the case of coffee or gold); consequently, they may only be eliminated from constant tax inflation by using estimates.

6. 5. 2 International practice

There is no uniform international practice as to the calculation of inflation indicators which eliminate the effects of tax measures. The following areas display the biggest differences.

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[47] On the need to distinguish general inflation tendencies from the effect of indirect tax changes, see Ferenczi, Valkovszky and Vincze, What are consumer price statistics good for, *MNB Working papers* 2000/5.

[48] The excise duty on tobacco contains a percentage tax, in addition to the itemised tax; however, this value, expressed as a percentage, should also be calculated from the final consumer price.

The content of the indicator

In a small group of countries, price subsidies (as negative taxes) are also eliminated, in addition to indirect taxes, which ensures accounting symmetry. Changes in subsidies should not be regarded as part of inflation generated by the interaction of supply and demand in the economy, but rather, similarly to changes in indirect taxes, as one-off administrative measures.

In some countries, taxes on production are also eliminated; however, given their low quantifiability, the non-exclusion of either price subsidies or production-related taxes is the mainly used approach. As a rule, the items generally eliminated from other countries' CTI are VAT, excise duties and sometimes consumption taxes.

The derivation of the indicator

Indirect taxes may be derived from the price index by using one of two methodologies – the net indicator vs. the so-called constant tax indicator (the latter is also used by the CSO).

Using the former, indirect taxes are subtracted from the price index in the base period as well as the reference month. Net inflation equals the changes in 'net prices' derived using the above method. No doubt, this approach is a logical one; however, from a practical point of view it has the disadvantage that lump sum taxes may cause differences between net inflation and the headline CPI even if tax rates have remained unchanged.

By contrast, constant tax inflation only identifies changes to tax rates. The assumption used in the calculation of this indicator is that no taxation changes have been made since the base period. The advantage of this indicator is that it differs from the CPI only when taxes change relative to the base period.

6. 5. 3 Calculating constant tax inflation in Hungary

It was in the August 2003 issue of the *Report* that the MNB made estimates for net inflation indicators for the first time. The 'net inflation 2' indicator in the February 2004 *Report* may be regarded as an estimate after eliminating the effects of VAT and excise duties, while 'net inflation 3' also eliminates regulated prices. In recent months, experts from the MNB and the CSO have worked together and created a methodology for a CTI for Hungary.

The new methodology made its début with the CSO's publication of CPI data on 11 May.[49] The items eliminated from the CSO's price index include VAT, excise duties, consumption tax[50] and registration tax on passenger cars. As identifying consumer price subsidies is a time-consuming process, such items have not as yet been eliminated. Taxation changes are eliminated by the CSO at the level of elementary aggregates in a manner that their weight is unaffected. Calculations based on the CTI currently go back to December 2002; with monthly indices being available as of January 2003 and annual data as of December 2003.

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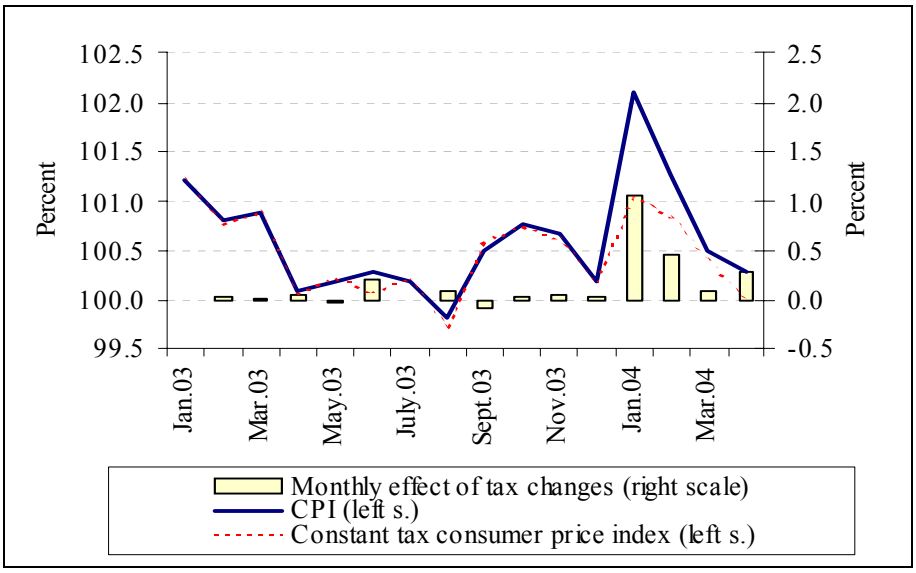
[49] Available on the CSO's website at
http://www.ksh.hu/pls/ksh/docs/eng/xftp/gyor/word7/efogyar2.doc (in Hungarian).

[50] Despite the fact that excise duties on coffee and jewellery were abolished, while the tax levied on passenger cars was replaced by a registration tax, consumption taxes are also covered by the indices calculated going back to December 2002.

Chart 6.6 The consumer price index (monthly changes with seasonality)



6. 5. 4 Interpreting the new indicator

Direct technical impact

Over the short run, the differences between the CPI and the CTI may reveal the direct impact of changes that might occur in the taxation system. By March 2004, the January 2004 indirect tax hikes alone amounted to 1.6 percentage points extra inflation.

Indirect impact

Over the medium term, deeper analysis may uncover some indirect impacts as well, since changes in indirect taxes are not fully reflected in the CPI. From the first releases it is already clear that retailers and service providers have sometimes raised their prices to a smaller extent than that necessitated by higher taxes, resulting in lower margins.

Impact on inflation expectations

Over the longer term, the constant tax price index may be a useful tool to measure the effect on inflation expectations related to increases in indirect taxes. Ideally, economic agents regard such an administrative measure as a one-off event and do not expect inflation to pick up as a result. If these assumptions are correct, the trend of the constant tax index remains uninterrupted by these administrative measures. Similarly, when taxes are reduced monitoring constant tax inflation may assist with distinguishing disinflation resulting from tax cuts from long-term sustained developments. And, indeed, providing a framework for such analyses is the very aim of calculating and publishing data on the CTI.

6. 6 New method for eliminating the statistically distorting effects of minimum wage increases

Influencing developments in the labour market, the minimum wage was increased by 57 per cent, from HUF 25,500 to HUF 40,000 in January 2001, and by 25 per cent, to HUF 50,000 a year later. In our assumption, however, actual wage inflation was lower than the official labour market statistics showed. This distortion resulted form the fact that, in a large part of the economy, the actual amounts of wages paid exceeded the amount of minimum wage, while the taxes on such wages were based on the official minimum wage. Consequently, the statistical data, based on corporate reports, showed a spectacular rise in the total amount of wages officially paid, overestimating the actual increase in labour income. Another method of adjustment to minimum wages by firms was to re-classify full-time employees to part-time employees. In addition, employees with low wages are assumed to have been dismissed, mainly at firms with low productivity. This caused a shift in the pattern of employment towards people with higher wages, which also distorted statistical data upwards.

The effects noted above justify an adjustment of the CSO's average earnings data. There have been occurrences of adjustments to labour market data in the past; however, in the light of recent research and the unjustified difference between data adjusted on the basis of the old method and the original time series released by the CSO, we have revised our own methodology. Below, we present in brief the earlier method and then discuss the three stages of statistical adjustment.

6. 6. 1 Adjustment of minimum wages in the past

Under the earlier method, for every branch and group of branches we identified the upward effects of minimum wage increases on the average wage level using econometric tools. Technically, this meant estimating branch-level ARIMA models, to which we added the times series for minimum wages as a regressor. We considered it justified to adjust wages in the case of branches where the effect of the minimum wage increase proved significant. Then we eliminated the full effect of the minimum wage increases for the entire time horizon, using the estimated parameters. The growth rates, derived this way, we chained on the unadjusted average earnings data released by the CSO for 2001 Q2. As a next step, we seasonally adjusted the time series. Finally, we reimposed the actual effects of the minimum wages increases, on the basis of the estimates by Kertesi–Köllő [2002]. Due to a lack of other information, we spread the effects on the entire private sector, using the weights accounted for by the branches in terms of employment.

The above method proved unsatisfactory for a number of reasons. First, the salient increases in the minimum wages in 2001 and 2002 strongly influence the parameter for the minimum wage regressor and its significance level. In may cases the earlier, smaller increases did not have demonstrable effects – the minimum wage variable only became significant after the changes in wages in 2001 and 2002. In econometric terms, there was a break in the estimated equation. By restricting the parameters estimated for the period before and after 2001, the full effect was overestimated and underestimated for the periods pre and post-2001 respectively. However, the estimate is clearly distorted upwards by the fact, in many cases, wage agreements are usually concluded in the early months of the year. Consequently, the estimated parameters also include the effects of wage increases which are independent of the official minimum wage increases in the beginning of the year.

Second, there is no reason to eliminate from the data the effect of previous years' minimum wage increases. This is further aggravated by the fact that only the 'actual' effects of the increases in 2001 and 2002 were reimposed.

Third, it may influence significantly the seasonal adjustment, if the effects of minimum wage increases are completely ignored. Consequently, there is no guarantee that the rates derived using this method will not differ, perhaps by a large margin, from the growth rates released by the CSO. All this is reflected in the data – there remained a more than half a percentage point difference between the quarter-on-quarter indices of the adjusted data and the CSO's release of seasonally adjusted data. Observably, that difference would not reduce either at a later stage.

Fourth, there is no guarantee at all that the actual effects on branch level will confirm consistently the estimates produced for the entire private sector.

Finally, the increasing gap between the levels may cause an additional problem. It is the underlying feature of the method that, as an effect of the above discussion, adjusted wages, starting from a low level, rise above those released by the CSO; and the gap is increasing with the passage of time.

6. 6. 2 Current method of adjusting minimum wages

As we will see, we have maintained our three-stage approach in the adjustment process, and changes have only been made to the method of adjustment.

Identifying and eliminating the 'extra' effects of the minimum wage increases of 2001 and 2002

We treat the contributions of small increases in the minimum wage in previous years and the wage increases early in the year to average wages as a seasonal influence. The 'extra' effect of the large minimum wage increases of 2001 and 2002, in addition to wage increases early in the year, are identified using two dummies, i.e. two level shifts are introduced into to the adjusted time series. The dummies are only maintained, if they prove to be significant under 5 per cent significance level in the estimated ARIMA model. Consequently, we detected considerable jumps in then time series in the case of the branches and groups of branches as follows:

- In both 2001 and 2002: Agriculture; hotels and restaurants; manufacture of textiles, clothing and leather products; manufacture of non-metallic mineral products; market services; other services.
- Only in 2001: Construction; the entire private sector (excluding agriculture).

Juxtaposing the level shift to trend, we get the original, seasonally adjusted time series released by the CSO. Eliminating the above effect, we get the time series completely free from the 'extra' impacts of the two minimum wage increases.

Reimposing the actual effects of minimum wage increases

For this exercise, we have two clues:

- The estimate by Kertesi–Köllő [2003] of the primary influences of the minimum wage increases. The latter shows the percentage by which the statutory increase in employees with earnings below the new minimum wage contributed to average earnings in the private sector. According to our calculations, the labour policy

interventions resulted in additional wage inflation of 2.33 per cent in January 2001 and one of 1.78 per cent a year later.

- The logit model estimate by Kertesi–Köllő [2003], which explains the odds of below minimum wage (in May 2000) using individual dependent and firm dependent, for example, dummy, variables. Using the odds ratios for the various branches, derived from the estimate, we define the distribution of the effects on the entire private sector, noted above, among the individual branches.

Let γ_t^i be the actual impact of a minimum wage increase in period *t* (quarter) on the average wage level of branch *i*, and w_{t-1} the branch level average wages in the final quarter preceding the minimum wage increase and $(w_t+\gamma_t)$ the branch level average wage in the quarter following the minimum wage increase. Thus:

$\frac{w_t^i+\gamma_t^i}{w_{t-1}^i}=\frac{w_t^i}{w_{t-1}^i}+\frac{\gamma_t^i}{w_{t-1}^i}=\dot{w}_t^i+\dot{\gamma}_t^i$, i.e. wage inflation of branch *i* between periods *t-1* and *t* (quarters) is the combined effect of 'standard' wage inflation ($\dot{w}_t^i$) and wage inflation caused by the minimum wage increase in the given year ($\dot{\gamma}_t^i$).

The same correlation holds true in respect the entire private sector:

$$\frac{W_t+\Gamma_t}{W_{t-1}}=\frac{\sum_i l^i(w_t^i+\gamma_t^i)}{\sum_i l^i w_{t-1}^i}=\frac{\sum_i l^i w_t^i}{\sum_i l^i w_{t-1}^i}+\frac{\sum_i l^i \gamma_t^i}{\sum_i l^i w_{t-1}^i}=\dot{W}_t+\dot{\Gamma}_t,$$

where *l* denotes the weight of branch *i* in terms of employment.[51]

In order to define the effects of minimum wage increases on wage inflation in the various branches ($\dot{\gamma}_t^i$), we used the correlations as follows:

- It should yield the estimate by Kertesi–Köllő [2003] of the impact on the entire private sector:

$$\dot{\Gamma}_t=\frac{\sum_i l^i \gamma_t^i}{W_{t-1}}=\begin{cases}0{,}0233 \text{ if } t=2001q1\\ 0{,}0178 \text{ if } t=2002q1\end{cases}$$

- The branch level effects on minimum wages should reflect the odds ratios (θ^i) estimated by Kertesi–Köllő [2003]:

$$\frac{\dot{\gamma}_t^i}{\dot{\gamma}_t^j}=\frac{\theta^i}{\theta^j}$$

From this system of equations, we can compute the 'actual' effects on minimum wages:

$$\dot{\gamma}_t^i=\frac{\dot{\Gamma}_t}{\sum_j (l^j \frac{w_{t-1}^j}{W_{t-1}}\frac{\theta^j}{\theta^i})}$$

[51] In the case of aggregate average earnings, we calculated with unchanged employment weights, eliminating the effects resulting from changes in structure on branch level.

Level adjustment

After deriving the time series for average wages in every branch and group of branches, free from the 'non-actual' part of the minimum wage increases, we smooth the wage levels on the CSO's unadjusted time series from 2002 Q2, keeping the quarter-on-quarter growth rates unchanged.

6. 6. 3 Results

The most important result of the new adjustment is that, except in 2001 Q1 and 2002 Q1, the growth rates are identical to the original CSO seasonally adjusted time series. Also importantly, there is not level shift at the end of the period.

As the table shows, the rate of adjusted wage inflation in the services sector is similar to the time series adjusted earlier; however, there has remained a 1–2 percentage point difference between the growth rates from 2001 Q2 up to the present. As a consequence, wage inflation of the entire private sector shifted lower by 0.5–1 percentage points in the period examined. This difference is also reflected in the annual indices, which show even wider gaps for 2003 due to the base effects.

As a consequence, our view of the process has changed little; however, lower wage inflation suggests somewhat stronger wage adjustment relative to our earlier assumption. We maintain our observation, however, that the decline in wage inflation stalled and then turned around last year.

Chart 6.7 Wage inflation in market services
(Annualised quarter-on-quarter growth rates)

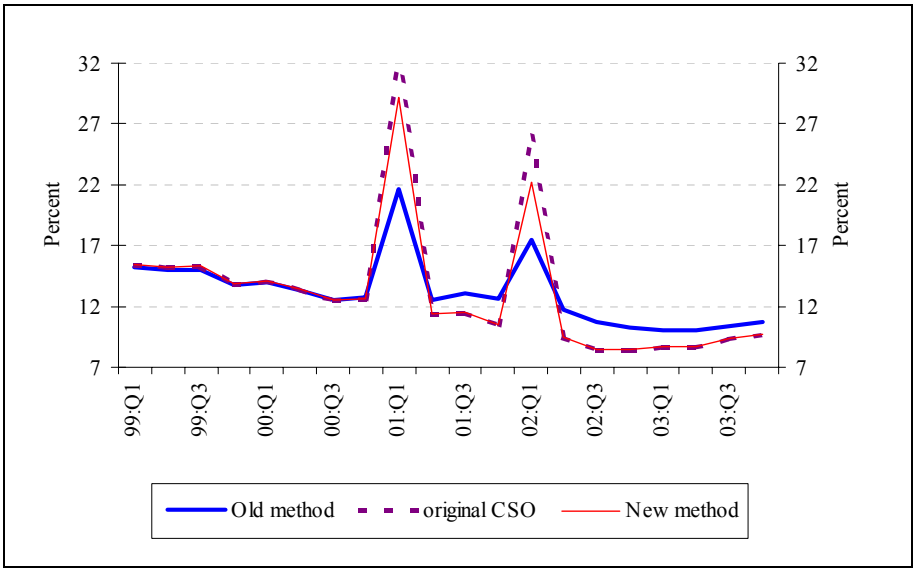
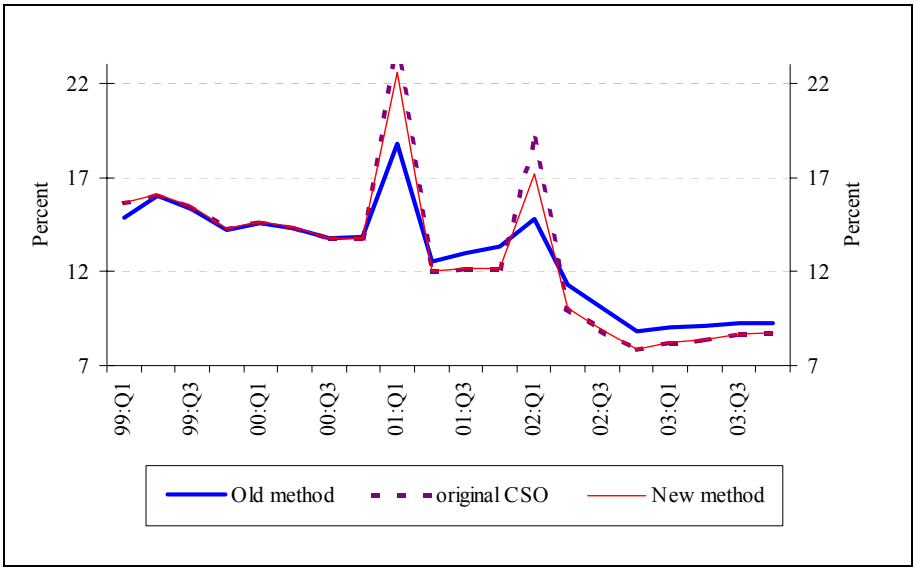


Chart 6.8 Wage inflation in private sector*
(Annualised quarter-on-quarter growth rates)



** Weighted average of manufacturing and market services.*

Table 6.8 Results
year-on-year indices

	original	seasonally adjusted data		
	not corrected (CSO data)		corrected for min.wage effect	
			New method	Original method
Manufacturing				
2001	14.5	14.4	14.4	14.4
2002	11.7	11.6	11.6	11.6
2003	8.1	8.1	8.1	8.1
Market services				
2001	16.8	16.9	16.1	14.9
2002	13.8	13.7	12.9	13.3
2003	8.8	8.8	8.8	10.3
Private sector				
2001	15.7	15.7	15.3	14.7
2002	12.8	12.7	12.3	12.5
2003	8.5	8.5	8.5	9.3

6. 7 What does the fan chart show?

The fan chart shows the uncertainty surrounding the central projection for economic processes transparently and graphically. The reason why this is necessary is that the probability of future actual data agreeing with the data included in the central projection is very small, theoretically zero. For this reason, when forecasting variables of special significance, it is important that both point estimates and the uncertainty surrounding the central projection should be presented.

6. 7. 1 The risks shown in the fan chart

As our projection is conditional, so is the fan chart. This means that, in line with international practice, the distribution does not include the uncertainties inherent in developments in monetary policy (changes to the official interest rate and the exchange rate) and unforeseen fiscal measures.

Apart from this, efforts are made to take all risk factors into consideration: the uncertainty distribution includes the risks arising from the most significant exogenous variables (e.g. oil prices, the EUR/USD exchange rate), the essential endogenous processes (e.g. wage developments, household consumption and inflation expectations) and the errors of projection methods.

For the majority of risk factors, the degree of uncertainty is determined on the basis of historical projection errors. In some cases, however, this is not a viable option. Such cases include primarily uncertainties related to long-term equilibrium trends (e.g. changes in the consumption-to-income ratio).

The use of historical projection errors and the conditional nature of projection raise a significant issue. Variance calculated on the basis of historical forecast errors is an unconditional value, i.e. it also contains the uncertainty arising from changes in monetary conditions. Theoretically, this additional uncertainty should be filtered out when the uncertainty of a conditional projection is determined. It is generally accepted international central banking practice that, rather than quantifying, this "filtering" is performed during the verbal presentation of the projections.

6. 7. 2 Interpretation of the fan chart

As the latest actual data used in the preparation of the current projection are from 2004 Q1, this is the initial date of the distribution bands in Chart III 10.

The darkest, central band covers the domain in which the probability that inflation will fall amounts to 30 per cent. This is essentially made up of two bands around the central projection, i.e. it is the darkest band that always contains the central projection.

The two lighter shaded bands around the central band together with the central band itself cover 60 per cent probability, and adding the two lightest shaded outermost bands, the entire coloured area covers 90 per cent of the probability distribution of inflation.

Accordingly, the area uncovered by the bands denotes 10 per cent of the probability distribution of inflation. It is important to emphasise that, in the case of asymmetric risks, the distribution of the bands of identical colour and the area outside the fan chart is also asymmetrical. That is, it is not true that the probability of inflation being above or below the coloured area is 5 per cent.

However, the most important information provided by the fan chart is not the probability of certain outcomes of inflation, but rather the *extent* and *direction* of the uncertainty of the distribution that determine these probabilities. The following two 'rules of thumb' are useful in their interpretation.

– The extent of uncertainty is represented by the width of the bands in a cumulative sense. A wider band represents greater uncertainty.

– The direction of uncertainty is represented by the proportion of the bands of identical colours above and below the central band. A wider upper band means upside risk, and a wider lower band indicates downside risk.

The first rule, illustrated in Chart III 10, means that with the progress of time from the last piece of actual data, the area covered *jointly* by the darkest and the second darkest bands increases in width, indicating that projections for more distant points in time are increasingly more uncertain. The word 'cumulative' in the first rule means that the bands of identical colours should not be considered in isolation when the extent of uncertainty is read. Rather, progressing from the bands representing lower probability towards the outermost ones, we must interpret the area covered jointly by the increasingly lighter-shaded bands.

In contrast with this, the direction of uncertainty is determined in an exactly opposite manner. According to the second rule, only the bands of identical colours need to be compared. In order to measure the extent of asymmetry, it is worth considering the fact that minor asymmetries are generally perceived only when the lightest bands are compared, while major asymmetries are detectable already in the proportion to the second darkest-shaded bands close to the centre of distribution.

6. 7. 3 Definition of the uncertainty distribution

In order to plot the fan chart, the uncertainty distribution must be determined for each point in time on the projection horizon. Below is a description of this procedure.

Specification of parameters

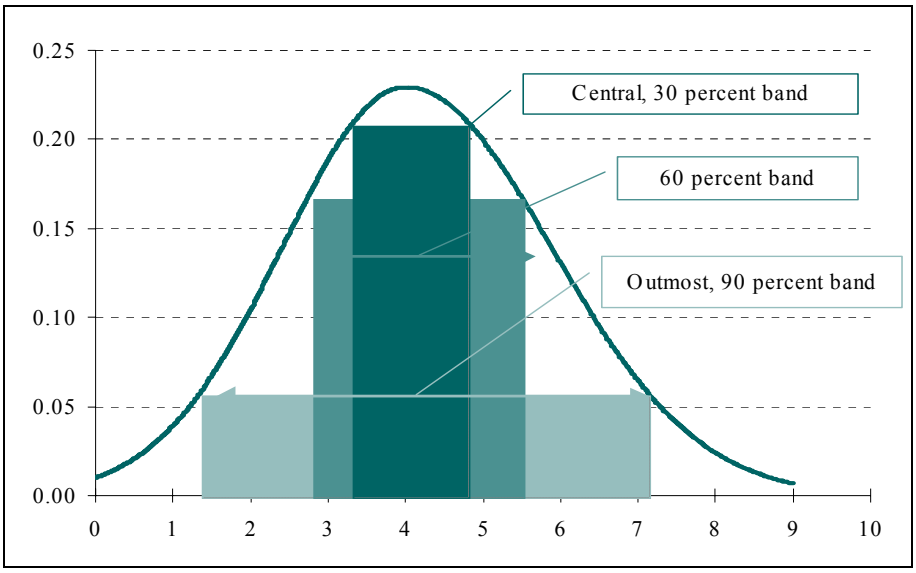
The uncertainty distribution can be described by three parameters. The *mode* of distribution is identical to the central projection. The extent of uncertainty is reflected in the *variance* of distribution. In determining this, the starting point is the variance calculated on the basis of historical forecast errors and considered as a value indicating the deficiencies of the methods used for projection. This variance is usually modified in the light of the relevant risk factors for the given forecast horizon, changes in our risk perception and the extent to which these risk factors influence inflation. The extent of uncertainty shown in a fan chart reflects the views of the specialists who prepare the relevant projections.

In determining the *skewness* that indicates risk direction, the risk perception of the Economics Department prevails. Values are calculated in the manner described in the previous paragraph, with the exception that in this case the starting point is the value indicating symmetrical distribution.

Drawing the fan chart

Once the distribution parameters have been specified for each period of time on the forecast horizon, fan chart bands are determined by, figuratively speaking, slicing off strips, amounting to thirty, sixty and ninety per cent, respectively, horizontally from the distribution, starting from the tip. Chart 1 shows this procedure on the 2005 Q4 section of the current fan chart.

Chart 6.9 Determination of the bands (the 2005 Q4 section)



6. 7. 4 International comparison

In conclusion, let us point out a few issues that may arise when the fan charts published by the MNB and some of the best-practice central banks are compared. We focus on two issues: one is the methodological details of preparing the fan chart and the other is the width of the bands. The fan charts prepared by the Bank of England and the Sveriges Riksbank are quoted as a reference.

The method that we follow in preparing fan charts broadly corresponds to that of the Bank of England, and the same holds true for the Swedish method.[52] It is worth highlighting that both central banks use the same functional form to describe the probability distribution, and the principles of parameter specification are also similar.

As regards the fan chart used for forecast inflation in Hungary, there may arise the issue whether or not its bands are too wide. Our surveys suggest that this is, indeed, the case. However, this can be attributed to higher inflation, a less stable economic environment and the fact that inflation targeting has been in place in Hungary for a relatively short time.

[52] See *The Inflation Report projections: understanding the fan chart*, Bank of England Quarterly Bulletin, February 1998, pp. 30-37., and *Inflation forecast with uncertainty intervals*, Inflation *Report*, Sveriges Riksbank, June 1998, pp. 36-37.

Boxes and Special issues in the Quarterly *Report* on Inflation

June 2000

September 2000

December 2000

March 2001

August 2001

November 2001

February 2002

August 2002

November 2002

February 2003

May 2003

August 2003

November 2003

February 2004

May 2004