



# INFLATION

## REPORT



MARCH

2016

*'... wise is the man who can put purpose to his desires.'*

*Miklós Zrínyi: The Life of Matthias Corvinus*



# INFLATION REPORT

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*Pursuant to Act CXXXIX of 2013 on the Magyar Nemzeti Bank, the primary objective of Hungary's central bank is to achieve and maintain price stability. Low inflation ensures higher long-term economic growth and a more predictable economic environment, and moderates the cyclical fluctuations that impact both households and companies.*

*In the inflation targeting system in use since August 2005, the Bank has sought to attain price stability by ensuring an inflation rate near the 3 per cent medium-term target. The Monetary Council, the supreme decision-making body of the Magyar Nemzeti Bank, performs a comprehensive review of expected developments in inflation every three months, in order to establish the monetary conditions consistent with achieving the inflation target. The Council's decision is the result of careful consideration of a wide range of factors, including an assessment of prospective economic developments, the inflation outlook, financial and capital market trends and risks to stability.*

*In order to provide the public with a clear insight into how monetary policy works and to enhance transparency, the Bank publishes the information available at the time of making its monetary policy decisions. The Report presents the inflation forecasts prepared by the Directorate Economic Forecast and Analysis, the Directorate Monetary Policy and Financial Market Analysis, the Directorate for Fiscal and Competitiveness Analysis and the Directorate Financial System Analysis, as well as the macroeconomic developments underlying these forecasts. The forecast is based on the assumption of endogenous monetary policy. In respect of economic variables exogenous to monetary policy, the forecasting rules used in previous issues of the Report are applied.*

The analyses in this Report were prepared under the direction of Barnabás Virág, Executive Director of the Directorate Monetary Policy, Financial Stability and Lending Incentives. The Report was prepared by staff at the MNB's Directorate Economic Forecast and Analysis, Directorate Monetary Policy and Financial Market Analysis, Directorate for Fiscal and Competitiveness Analysis and Directorate Financial System Analysis. The Report was approved for publication by Márton Nagy, Deputy Governor.

The Report incorporates valuable input from other areas of the MNB and the Monetary Council's comments.

*The projections are based on information available for the period ending 18 March 2016.*



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## THE MONETARY COUNCIL'S KEY FINDINGS RELATED TO THE INFLATION REPORT

**In the Council's assessment, Hungarian economic growth continues. A degree of unused capacity remains in the economy, and therefore the domestic real economic environment continues to have a disinflationary impact. The path for inflation has shifted downwards significantly relative to the December projection and remains substantially below the Bank's target. Hungary's persistently strong external financing capacity and the low budget debt are expected to contribute to a sustained reduction in the vulnerability of the economy over the coming years.**

**Global economic growth has slowed in recent months; inflation rates remained low, below central banks' target levels.**

Global economic growth slowed in the fourth quarter of 2015. In the developed economies, the recovery from the crisis continued, accompanied by decelerating growth. Prospects for growth in emerging regions deteriorated. Inflation was subdued around the world. Fragile economic activity and the moderate inflation environment warrant a growth supportive, loose monetary policy stance by the majority of the world's leading central banks for a prolonged period.

**Inflation will remain low for an extended period and only approach the 3 per cent level corresponding to price stability in the second half of 2018.**

Based on data for recent months, the increase in domestic prices has been significantly weaker than earlier projected, mainly reflecting the sharp decline in oil prices since December. In the Council's assessment, core inflation will only increase gradually as a result of rising household consumption and moderate wage growth. The persistently low global inflationary environment is restraining an increase in domestic consumer price inflation. Persistently low cost-side inflationary pressure, the slowdown in global growth and the historically low level of inflation expectations have heightened the risk of second-round effects which result in below-target inflation over a sustained period. Looking ahead, inflation will only approach the medium-term inflation target in the first half of 2018, reflecting a pick-up in consumption in parallel with the gradual easing of precautionary motives and due to low commodity prices and declining inflation expectations.

**Domestic economic growth will continue, mainly driven by rising domestic consumption.**

Hungarian economic growth was strong in the fourth quarter, in line with the Bank's expectations. The gradual recovery in the country's export markets supports further growth in exports. The deceleration in funding inflows from the EU leads to a slowdown in growth, but the Bank's and the Government's policy measures continue to contribute to economic recovery. In the Council's assessment, economic growth of around 3 per cent can be maintained by the Bank's Growth Supporting Programme and the steps taken by the Government to encourage home construction and to facilitate the faster draw-down of EU transfers. With regards to developments in the corporate loan market, lending to SMEs has been growing dynamically, in line with the Bank's intentions, and this growth has also been supported by the Market Loan Programme through the use of interest rate swaps conditional on lending activity. In the case of lending to households, the significant increase in lending for house purchase is consistent with the turnaround in the real estate market and the continuing pick-up in economic activity. Rising incomes, the pick-up in lending and the gradual decline in precautionary motives contribute to a substantial expansion in consumption, which in turn provides a considerable support for economic growth.

**External debt continues to fall, associated with strong external financing capacity.**

In 2016-2017, the economy's external financing capacity is likely to decrease slightly from the exceptionally high level of over 9 per cent of GDP last year. This will reflect lower receipts of transfers related to the EU's new budget cycle, which will only partly be offset by the higher trade surplus due to rising external demand and the improving terms of trade. Despite this, Hungary's external financing capacity will remain strong over the entire forecast horizon, facilitating a further decline in the country's external debt and thus a continued reduction in its external vulnerability. In addition, over the forecast horizon disciplined fiscal policy will continue and the budget deficit will remain below last year's historically low level, resulting in a further reduction in public debt.

**Sentiment in international financial markets improved, after deteriorating significantly in the first half of the period. Changes in global risk appetite had no significant impact on domestic market developments.**

From mid-February, sentiment in international financial markets improved, after having deteriorated significantly earlier in the year. In parallel, equity indices and risk indicators rebounded from their previous declines. The main factors influencing market developments were expectations related to decisions by the world's leading central banks, the outlook for global growth and developments in oil prices. The initial deterioration in global risk appetite had little if any effect on domestic financial markets, and, overall, perceptions of the risks associated with forint assets improved significantly. The forint exchange rate appreciated more than the currencies of the region. Yields on government securities and interbank forward rates fell considerably in the past quarter.

**The macroeconomic outlook is surrounded by both upside and downside risks.**

In addition to the baseline projection in the March Inflation Report, the Monetary Council considered three alternative scenarios, which could significantly influence the future conduct of monetary policy. A looser-than-expected external monetary policy environment and strengthening second-round effects imply a lower path for inflation, while rising wage growth, and stronger consumption imply a higher path for inflation than assumed in the baseline projection. A looser-than-expected external monetary policy environment does not significantly influence domestic economic growth. In the case of strengthening second-round effects and higher domestic consumption reflecting rising wage growth, domestic economic growth is higher than in the baseline projection. In addition to the key risk scenarios, the Council identified other less significant uncertainties, such as slower growth in emerging market economies, weaker domestic investment activity, financial market turbulence and the possibility of a more rapid correction in the low oil and commodity prices.

With the March Inflation Report, the Bank has introduced a new forecasting model which, drawing on the lessons from the financial crisis, provides a more versatile and accurate picture of the economic trends determining monetary policy.

In the Council's assessment, there continues to be a degree of unused capacity in the economy and inflationary pressures remain moderate for an extended period. The real economy has a disinflationary impact over the policy horizon. Based on the March Inflation Report projection, the time when the inflation target is met has lengthened as an effect of the persistently and substantially lower cost environment than earlier expected.

In the Council's assessment, the easing of monetary conditions is consistent with the medium-term achievement of the inflation target and a corresponding degree of support to the real economy.

## SUMMARY TABLE OF THE BASELINE SCENARIO

(Forecast based on endogenous monetary policy)

	2015	2016	2017
	Actual	Projection	
<b>Inflation (annual average)</b>			
Core inflation	1.2	1.7	2.4
Core inflation without indirect tax effects	1.1	1.6	2.4
Inflation	-0.1	0.3	2.4
<b>Economic growth</b>			
External demand (GDP based)	1.9	2.0	2.2
Household consumption expenditure	3.1	3.5	2.8
Government final consumption expenditure	0.6	0.7	0.5
Gross fixed capital formation	1.9	0.3	4.1
Domestic absorption	1.9	2.3	2.5
Exports	8.4	6.3	6.7
Imports	7.8	6.1	6.7
GDP	2.9	2.8	3.0
<b>External balance<sup>1</sup></b>			
Current account balance	5.0	5.7	5.9
External financing capacity	9.3	7.6	8.4
<b>Government balance<sup>1,5</sup></b>			
ESA balance	-2.0	-1.8	-1.7
<b>Labour market</b>			
Whole-economy gross average earnings	4.3	4.6	4.1
Whole-economy employment	2.7	1.8	1.7
Private sector gross average earnings <sup>2</sup>	3.9	4.3	4.7
Private sector employment	2.5	1.7	1.3
Unemployment rate	6.8	6.5	6.3
Unit labour cost in the private sector <sup>3</sup>	1.7	2.6	2.6
Household real income <sup>4</sup>	3.2	3.5	2.5

<sup>1</sup> As a percentage of GDP.

<sup>2</sup> According to the original HCSO data for full-time employees.

<sup>3</sup> Private sector unit labour cost calculated with full time equivalent domestic employment.

<sup>4</sup> MNB estimate.

<sup>5</sup> Estimation for 2015. We assume the use of free reserves for 2016 and 2017.

## 1. INFLATION AND REAL ECONOMY OUTLOOK

*In the period under review, the economy continued to expand as expected. The growth was primarily linked to domestic demand components, with consumption in particular picking up significantly. Inflation was moderate and remained lower compared to the December forecast, mainly due to the further strong declines in commodity prices. In the fourth quarter, private sector employment continued to increase, while wage dynamics remained around 4 per cent.*

*According to our latest forecast, inflation will stay below the 3 per cent inflation target this year and next year as well, and will only move towards the medium-term inflation target in the first half of 2018. Inflation developments are substantially influenced by the price-depressing effect of persistently low costs, which increases the risk of formation of second-round effects. In the first months of the year, a period relevant in terms of repricing, services price inflation was lower than in the previous years. Inflation expectations continued to decline, accompanied by a strong downward shift in imported inflation, and consequently inflation may move on a lower path in the longer run. In the coming months, if oil prices remain low it may cause annual inflation rate to drop back into the negative domain. According to our forecast, core inflation adjusted for indirect taxes will accelerate moderately due to recovering domestic demand, in parallel with a slow increase in the external inflationary environment. Meeting the inflation target may be delayed until the first half of 2018.*

*Over the forecast horizon, the domestic economy should continue to grow at a rate close to 3 per cent. The recovery in household consumption will become an increasingly important growth factor. We expect household consumption growth to accelerate, supported by the gradual easing of precautionary motives, in addition to favourable income developments. In early 2016, growth will be temporarily restrained somewhat by the weaker inflow of EU funds, but this impact will be smaller than previously expected, due to the faster drawdown of EU funds planned by the government. The recovery in lending activity as a result of the Growth Supporting Programme and the measures supporting home construction will support growth. Expanding exports will also continue to contribute positively to economic growth.*

*Along with improving labour market conditions, the low inflation and the reduction of the personal income tax rate will raise households' real income. Household indebtedness has gradually declined in the past years, and thus debt servicing will restrain the recovery in consumption to a lesser degree. Although there was a turnaround in household consumption last year, it still falls short of its pre-crisis level. Consumption – which was postponed after the crisis as a result of deleveraging – may be realised through easing savings considerations and improved lending activity, flanked as well by the favourable development of real income. In the coming years, the share of whole-economy fixed investment within output will remain steadily above 20 per cent, but the structure of investment will change substantially in 2016. In parallel with the steep decline in inflows of EU funds, public investments may contract especially in the first half of the year, while private investments are projected to pick up gradually. In addition to the easing lending restrictions, it is mostly the capacity expansion investment of sectors producing for the domestic market that may support private investment growth on the demand side. Households' investment activity may strengthen as a result of more stable longer-term income expectations and the historically low yield environment. The recovery in real estate investment is also bolstered by the housing market scheme.*

*In parallel with the output growth, both the participation rate and total employment continue to increase. The latter is supported by the increase in the private sector employment rate and the number of public workers. The unemployment rate will decrease further over the forecast horizon. In our forecast, in spite of the increase in labour market tightness, we expect nominal wages to increase only gradually in the private sector as a result of low inflation expectations, the segmentation of the labour market by regions and qualifications, and the still existing labour market reserves.*

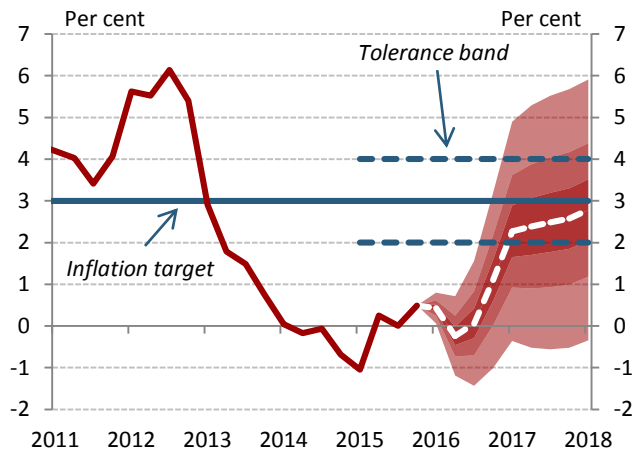
*According to our forecast, the external financing capacity of the Hungarian economy will remain steadily high in the coming years as well, contributing to the ongoing decline in net external debt and consequently vulnerability. With continued discipline in fiscal policy, the budget deficit will be below 2 per cent of GDP this year and next year as well.*

*On the whole, the disinflationary effect of the real economy environment will decrease only gradually over the coming years. The level of household consumption will still fall short of its pre-crisis value, but looking ahead, the pick-up in domestic demand will result in the closing of the output gap. Meeting the inflation target may be delayed until the first half of 2018.*

## 1.1. Inflation forecast

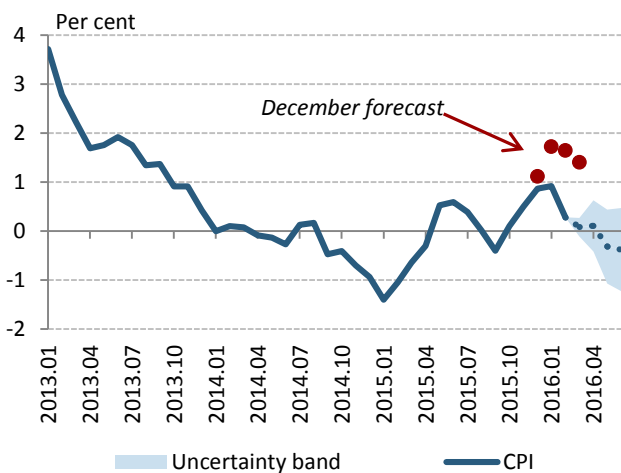
According to our latest forecast, inflation will fall short of the 3 per cent inflation target this year and next year, and will only approach the medium-term inflation target in the first half of 2018. The path of inflation is significantly influenced by the further decline in inflation expectations, in addition to the price-depressing effects of persistently low costs. The projected increase in core inflation adjusted for indirect taxes reflects both recovering domestic demand and strengthening wage dynamics.

Chart 1-1: Fan chart of the inflation forecast



Source: HCSO, MNB

Chart 1-2: Monthly evolution of the near-term inflation forecast



Note: Annual change. The uncertainty band shows the root mean squared error of previous years' near-term forecasts.

Source: MNB

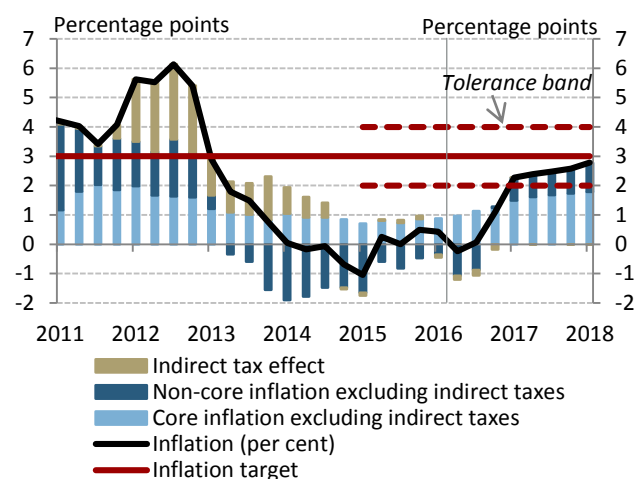
**Inflation will fall well short of the 3 per cent medium-term target both this year and next year, and may only approach the target in the first half of 2018.** The low inflation, which falls substantially short of the value representing price stability, is primarily the result of the price-depressing effect of imported inflation and nominal accommodation of the economy. We expect the second-round effects of cost shocks, which significantly restrain inflation, to wear off in the second half of the forecast horizon. Core inflation adjusted for indirect taxes will rise only gradually over the forecast horizon, supported by recovering consumption as a result of improving income prospects and easing precautionary motives, but partially offset by low imported inflation and the price-depressing impact of second-round effects (Chart 1-1).

**According to our near-term forecast, due to the decline in commodity prices since December, the annual growth rate of consumer prices will drop into the negative domain during the spring months** (Chart 1-2). The fading base effect from declining fuel prices will result in rising inflation at the turn of 2016 and 2017. According to our expectations, annual average inflation will be 0.3 per cent this year and 2.4 per cent next year (Chart 1-3, Table 1-1).

**Inflation in Hungary's most important trading partner, i.e. the euro area, is also substantially amended downward by the low cost environment,** and inflation is generally moderate globally as well. As a result, over the medium term, pressure from imported inflation will remain modest by historical standards.

**Over the forecast horizon, core inflation adjusted for indirect taxes remains subdued** (Chart 1-3, Table 1-1), reflecting both the moderate imported inflation and the historically low expectations. Looking ahead, the rise in core inflation is facilitated by recovering demand and a slight increase in costs. The negative output gap gradually closes over the forecast horizon, and thus the disinflationary impact from the real economy declines. In parallel with the decline in free capacities of the labour market, the unit labour cost of the private sector gradually rises over the forecast horizon.

Chart 1-3: Decomposition of the inflation forecast



Source: MNB

According to our forecast, the price index of non-core items will be moderate as a result of the substantial decline in oil prices (Chart 1-3). Futures quotes only point to a slightly rising path. As a result of the base effect of the declines in fuel prices in the last few months, a considerable increase is expected in the price index of this product group at the turn of 2016 and 2017, resulting in a rise of the consumer price index as well.

The direct impact of government measures on inflation will still remain subdued. The reduction of the VAT rate on pork at the beginning of this year has a minor disinflationary impact. We assume unchanged regulated energy prices over the entire forecast horizon. Furthermore, non-energy regulated prices are also expected to rise only moderately (Table 1-1).

Table 1-1: Details of the inflation forecast

		2016	2017
Core inflation		1.7	2.4
<i>Contribution to inflation</i>		<i>1.1</i>	<i>1.6</i>
Non-core inflation	Unprocessed food	2.0	3.0
	Fuel and market energy	-9.5	4.9
	Regulated prices	0.1	1.2
	Total	-2.4	2.5
<i>Contribution to inflation</i>		<i>-0.8</i>	<i>0.8</i>
Inflation		0.3	2.4

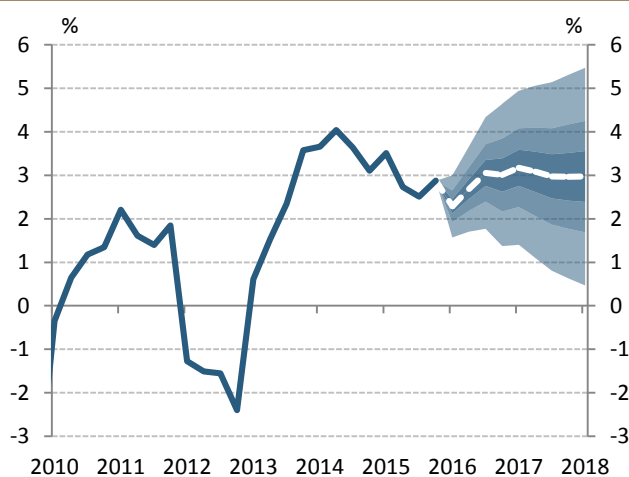
Note: The subgroups may not sum to the aggregate figure due to rounding.

Source: MNB

## 1.2. Real economy forecast

Over the forecast horizon, domestic economic growth continues at a rate close to 3 per cent. The exhaustion of funds from the 2007-2013 EU programming period is a factor restraining growth, but the Growth Supporting Programme, the decreasing bank levy and the housing market stimulus scheme, along with the accelerated allocation of the 2014-2020 EU programming period funds, will encourage further expansion of the economy by stimulating internal demand. Over the forecast horizon, domestic demand will become the key growth driver. Additionally, the expansion of export markets will also support the improvement of the real economy. Consumption and the pick-up in private investments are key factors in domestic demand. There was a turnaround in household consumption last year, it still falls short of its pre-crisis level. Consumption – which was postponed after the crisis as a result of deleveraging – may be supported by easing savings considerations and improved lending activity, along with favourable developments in real income. The structure of investments will change, as the share of public investments will decline this year. In the context of low yields, household investment activity will be boosted by the rise in real income as well as government measures supporting home construction, while corporate investment will expand due to the easing of lending restrictions.

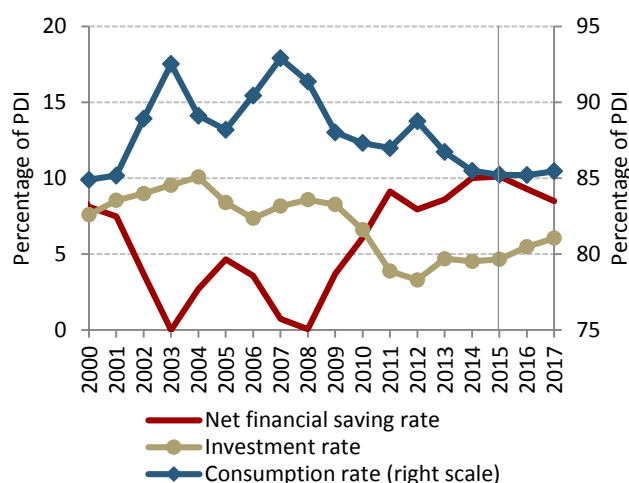
Chart 1-4: Fan chart of the GDP forecast



Note: Seasonally adjusted and reconciled data.

Source: MNB

Chart 1-5: Use of household income



Note: As percentage of disposable income (PDI). Net financial savings of households excludes mandatory contributions payable to private pension funds.

Source: HCSO, MNB

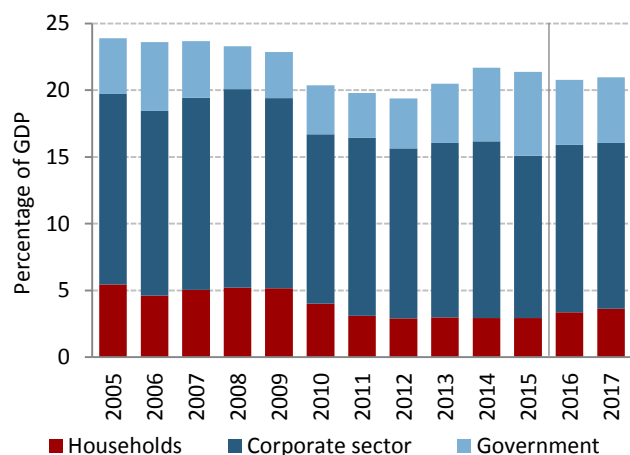
### The Hungarian economy continues to grow over the forecast horizon.

Domestic demand will have key role in the structure of economic growth, particularly through the acceleration of consumption and private investments. Despite the subdued growth prospects in emerging countries, Hungary's export markets will continue to expand modestly over the forecast horizon and net exports will support economic growth. According to the forecast, the Hungarian economy will grow by 2.8 per cent in 2016 and by 3 per cent in 2017 (Chart 1-4), and accordingly Hungary's economic convergence, which restarted in 2013, will continue.

The Growth Supporting Programme and the decreasing bank levy will stimulate lending activity, and through that private investments. In addition, the VAT reduction on new dwellings and the housing market incentive schemes (HPS, see also Box 4-2) will stimulate housing market investments on the demand side as well. Furthermore, the government will support economic growth by boosting domestic demand through the accelerated allocation of funds from the 2014-2020 EU programming period.

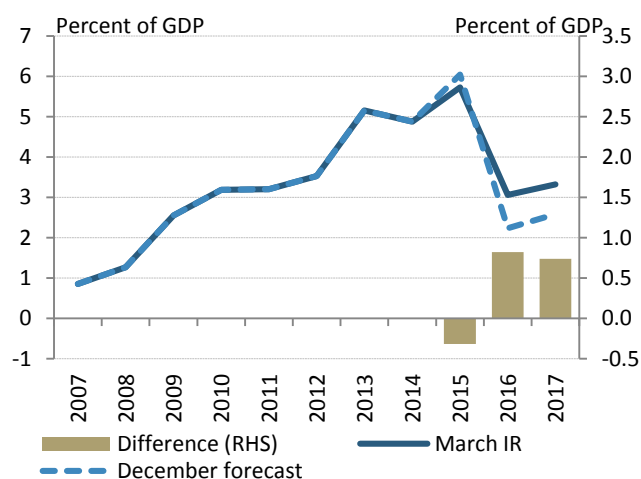
Household consumption is expected to continue rising in the years ahead, supported by improving income conditions and gradual easing of precautionary motives. From early 2016, households' disposable income will increase, thanks to the low inflation processes and the reduction of the personal income tax rate. Permanently improving labour market conditions will affect long term income expectations positively. Although there was a turnaround in household consumption last year, it still falls well short of its pre-crisis level, and thus this segment still has strong recovery potential. In addition to stably improving long-term income prospects, rising lending activity supports the realisation of consumption postponed after the crisis as part of the deleveraging process (Chart 1-5).

Chart 1-6: Breakdown of gross fixed capital formation



Source: HCSO, MNB

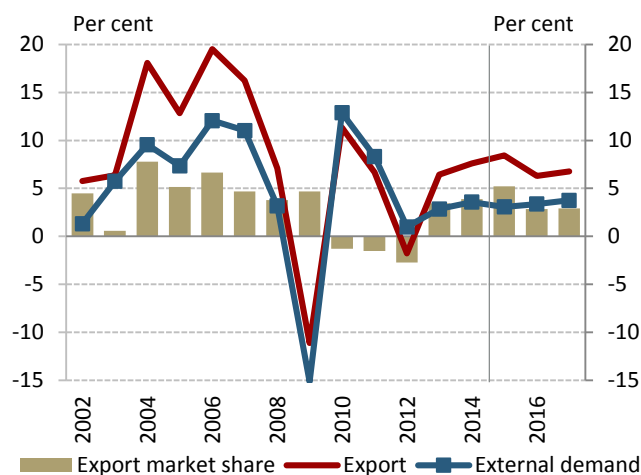
Chart 1-7: Transfers by the EU budget in ESA terms



Note: The figures do not include agriculture subsidies.

Source: HCSO, MNB

Chart 1-8: Changes in export market share



Note: Annual change.

Source: MNB

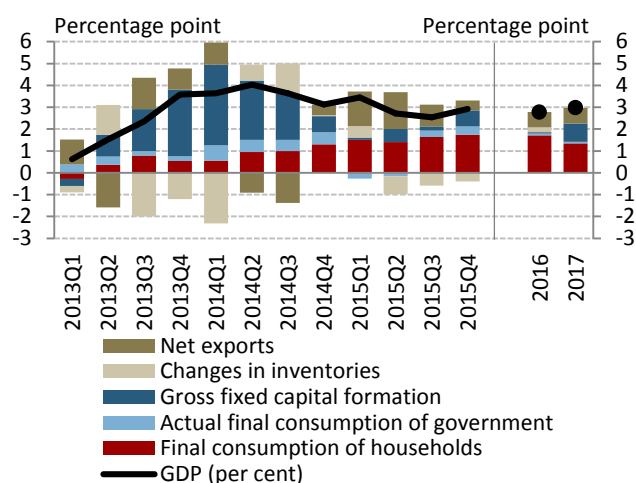
Over the forecast horizon, the completed conversion of the foreign currency loans into forints will reduce precautionary motives and households' sensitivity to exchange rates, and facilitate a gradual decline in debt servicing. Consequently, the financial savings rate is expected to decline slightly from its current high level in the next two years, while the consumption and investment rates will gradually increase.

Within output, the share of gross fixed capital formation in output will remain stable above 20 per cent over the forecast horizon, while the investment structure will change (Chart 1-6). The decline in the share of public investments will be accompanied by an increase in the weight of private investments. Public investments may decline sharply this year in line with the decreasing absorption of EU funds from 2015 to 2016. However, looking ahead, in parallel with the accelerated allocation of EU funds (Chart 1-7), public investment will once again increase from the second half of the year. In addition to the accelerated allocation of EU funds and easing lending restrictions, private investment growth may be mainly supported from the demand side by the capacity-expansion investments of sectors producing for the domestic market. Looking ahead, households' investment activity may increase gradually due to the more stable longer-term income expectations and the persistently low yield environment, as well as the government measures supporting home construction.

With strengthening credit demand, outstanding corporate loans are expected to continue increasing substantially over the forecast horizon. The Funding for Growth Scheme will be gradually phased out from 2016. On the other hand, the central bank's Growth Supporting Programme will boost lending to SMEs significantly. The gradual phase-out of the bank levy will also stimulate commercial banks' credit supply. In addition, the low interest rate environment supporting credit demand enables commercial banks to increase lending activity. As a result of the government measures supporting home construction, the housing market continues its recovery, which leads to an increase in new housing loans (Chart 1-8).

Hungary's export market share will continue to increase. Despite the weak growth prospects for emerging countries, in line with the forecast of international institutions the moderate expansion in Hungary's export markets will continue over the forecast horizon. In addition, the ECB's asset purchase programme indirectly supports the output of Hungarian exporters by improving the competitiveness of the euro area's exporters through depreciation of the euro. Hungarian exports continue to grow moderately compared

Chart 1-9: Evolution of GDP growth



Source: HCSO, MNB

to the previous years, while net exports still contribute positively to economic growth, albeit at a rate lower than last year (Chart 1-9).

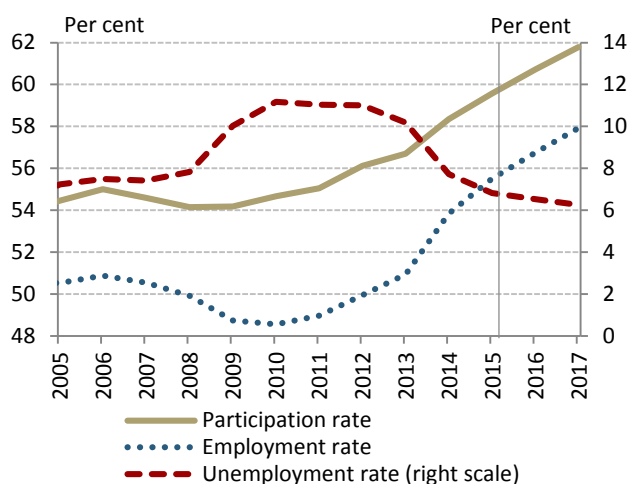
**The disinflationary effect of the real economy environment will only decrease gradually over the coming years.** In line with the low cost environment and the deteriorating growth prospects for emerging countries, the development of external inflation is expected to remain subdued. In Hungary, the moderate underlying inflation processes are determined by the disinflationary impact of the domestic economy, along with the low demand-pull inflation pressure. However, this impact will gradually fade over the forecast horizon with the pick-up in household consumption, which will be a key factor in the recovery of domestic demand (Chart 1-10).

**Potential growth will rise over the forecast horizon,** primarily due to the increase in the labour market participation rate, in addition to the investment ratio stabilising at a high level and recovering private investment. The dynamic growth in corporate investment to increase capital stock and expand capacities is supported by the Growth Supporting Programme, the declining bank levy and the EU funds available for enterprises. Household investments are promoted by the government's home purchase supporting measures (VAT cut, HPS). The rise in lending contributes to increasing productivity, primarily through the growth in the market share of the more productive enterprises. Over the forecast horizon, labour force participation expands in parallel with the pick-up in private sector investments. Improving demand also boosts the potential growth rate of the economy. Thus, on the whole, economic growth is facilitated by the gradual closing of the output gap and the increase in potential growth.

### 1.3. Labour market forecast

Participation and employment in the national economy will keep rising over the forecast horizon. In parallel with the improving economic activity, the number of employees in the private sector may increase, while public work programmes continue to contribute materially to the increase in whole-economy employment. In our forecast, the unemployment rate may fall below the pre-crisis level to nearly 6 per cent next year. Tighter labour market conditions are offset in the wage-setting decisions by the decline in inflation expectations, and thus the increase in nominal wage dynamics may be gradual. Unit labour cost will rise at a moderate pace due to improving productivity.

**Chart 1-10: Employment, participation and unemployment rate in the national economy**

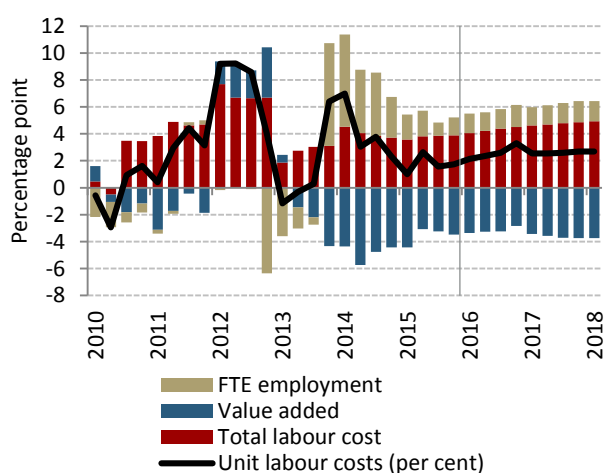


Source: MNB calculations based on HCSO data

**We project a continued rise in the participation rate over the forecast horizon.** The measures taken since the crisis to boost labour supply may continue to increase the participation rate, albeit to a decreasing extent. As a result of the expanding public work programmes, we expect ‘discouraged workers’ to return to the labour market, which will also contribute to the increase in the participation rate (Chart 1-10).

**Labour demand in the private sector will gradually rise over the forecast horizon, in parallel with dynamic economic growth.** Enterprises respond to increasing demand conditions by expanding employment. As the increase in part-time employment has stopped in recent years, looking forward, in parallel with the rise in labour demand, the ratio of part-time employees to the number of employees is expected to decrease. In addition to rising employment in the private sector, the planned expansion of public employment programmes will also contribute substantially to employment in the national economy in the years ahead. In the forecast, we project that the number of people in public employment will gradually rise close to 300,000 by the end of 2017.

**Chart 1-11: Decomposition of unit labour costs in the private sector**



Note: FTE – Full-time equivalent.

Source: MNB calculations based on HCSO data

**Over the forecast horizon, as a result of low inflation and in spite of tighter labour market conditions, we expect only moderately increasing nominal wage dynamics in the private sector.** On the other hand, low inflation environment will result in a substantial increase in real wages. Unit labour costs rise at a moderate pace due to increasing productivity (Chart 1-11).

In relation to the general government, we expect to see unchanged nominal wages apart from the wage increases implemented within the framework of the already announced career schemes. The national economy wage index is reduced by the expansion of the public work programme through the composition effect, due to the low wages earned by participants.

**Box 1-1: Main assumptions applied in the forecast**

Hungary is a small, open economy, and as such our forecasts for the most important macroeconomic variables are fundamentally influenced by the development of external factors and the changes in the assumptions based on such. The purpose of this brief presentation of the changes in the external assumptions – published in the chapter on forecasts – is to make the central bank's forecasts more transparent.

**Table 1-2: Main external assumptions of the projections**

Technical Assumptions	2016		2017		Change	
	December	March	December	March	2016	2017
EUR/USD	1.06	1.10	1.06	1.10	3.8%	3.8%
Oil (USD/barrel)	47.9	38.6	53.9	44.4	-19.4%	-17.6%
Food prices						
Wheat (USD/bushel)	4.91	4.75	5.33	5.19	-3.3%	-2.6%
Maize (USD/bushel)	4.00	3.72	4.19	3.96	-7.0%	-5.5%
Euro area inflation (%)	0.8	0.4	1.4	1.2	-0.4 pp.	-0.2 pp.
GDP growth of our main trading partners* (%)	2.1	2.0	2.3	2.2	-0.1 pp.	-0.1 pp.

Note: \* GDP growth of Hungary's 21 main export partner countries, weighted by export shares.

Source: CBT, Bloomberg, OECD, Consensus Economics, MNB calculations

**In the past month, USD-denominated oil prices declined significantly compared to our last assumption.** The decline in oil prices was attributable to the strengthening of demand and supply processes, which were observed earlier as well. In addition to the stabilisation of crude production at a high level, sluggish demand – primarily the slowdown in the growth of emerging countries – may keep oil prices at this low level in the future as well. The production data published by OPEC also do not suggest that the group might be planning to curtail production; the present level of production continues to exceed the volume specified in the quota. The lifting of sanctions on Iran – which reopens the opportunity of global oil trading for the country with considerable reserves – also supports low prices. The increase in the efficiency of the US shale oil fields reduces oil prices through ongoing decrease in production costs. The slowdown in the Chinese and other emerging market economies may restrain stock exchange prices through the fall in demand. We assume that price movements in the opposite direction may appear as a risk, which may be prompted by the reduction of oil production in the US and its adjustment to cost pressure, the escalation of the domestic situation in Saudi Arabia, as well as an agreement among OPEC countries on production.

On the whole, futures quotes continue to point to a moderate increase in the coming period. On the other hand, the uncertainty about expected oil price developments remains high among analysts, and oil prices for break-even points are distributed in a wide band. According to our technical assumption about the EUR/USD cross rate, the euro has slightly appreciated against USD in the past period. On the other hand, looking ahead, we assume that the euro may remain persistently weak against the dollar, which is probable in light of the expected difference in the monetary policy stance of the European Central Bank and the Fed.

**Since the December Inflation Report, futures prices of wheat and maize have decreased.** Due to last year's positive agricultural crop yields and large stocks, exchange quotes for wheat and maize were moderate in recent months. Looking forward, based on the futures quotes, grain prices may increase slightly. Compared to the assumption in the December Inflation Report, wheat prices have essentially remained steady. In the case of maize prices, we may assume a slightly lower path, reflecting the better-than-expected crop yields, increasing Latin American production and growing maize stocks.

The global economy was characterised by persistently low inflation in recent quarters. The substantial fall in oil prices since the end of last year has significantly restrained the development of global inflation. The oil prices is substantially lower even compared to the December forecast, and thus we have lowered our expectations with regard to inflation in the euro area.

Our assessment of the GDP growth in Hungary's export markets deteriorated slightly compared to December forecast. In the fourth quarter, economic growth in emerging economies fell short of the rate seen in previous quarters, while other developed countries expanded at a pace similar to that in the past quarters and in accordance with our expectations. The prospects for the euro area continue to be negatively affected by the deceleration of emerging economies and the Russia-Ukraine conflict. However, low commodity prices and the depreciated euro may support growth in the region.

Table 1-3: Changes in the projections compared to the previous Inflation Report

	2015	2016		2017	
	Actual	Projection			
		December	Current	December	Current
<b>Inflation (annual average)</b>					
Core inflation	1.2	2.4	1.7	2.6	2.4
Core inflation without indirect tax effects	1.1	2.0	1.6	2.6	2.4
Inflation	-0.1	1.7	0.3	2.6	2.4
<b>Economic growth</b>					
External demand (GDP based)	1.9	2.1	2.0	2.3	2.2
Household consumer expenditure	3.1	3.2	3.5	2.6	2.8
Government final consumption expenditure	0.6	0.2	0.7	0.5	0.5
Gross fixed capital formation	1.9	-2.0	0.3	3.6	4.1
Domestic absorption	1.9	1.6	2.3	2.4	2.5
Exports	8.4	6.3	6.3	6.6	6.7
Imports	7.8	5.9	6.1	6.5	6.7
GDP	2.9	2.5	2.8	3.0	3.0
<b>External balance<sup>1</sup></b>					
Current account balance	5.0	5.6	5.7	6.0	5.9
External financing capacity	9.3	7.2	7.6	7.8	8.4
<b>Government balance<sup>4,5</sup></b>					
ESA balance	-2.0	-2.0	-1.8	-1.7	-1.7
<b>Labour market</b>					
Whole-economy gross average earnings	4.3	3.9	4.6	3.8	4.1
Whole-economy employment	2.7	2.9	1.8	1.9	1.7
Private sector gross average earnings <sup>2</sup>	3.9	4.3	4.3	4.7	4.7
Private sector employment	2.5	1.4	1.7	1.1	1.3
Unemployment rate	6.8	5.7	6.5	5.2	6.3
Private sector unit labour cost <sup>3</sup>	1.7	2.6	2.6	2.2	2.6
Household real income <sup>4</sup>	3.2	2.8	3.5	2.0	2.5

<sup>1</sup> As a percentage of GDP.<sup>2</sup> According to the HCSO data for full-time employees.<sup>3</sup> Private sector unit labour cost calculated with full-time equivalent domestic employment.<sup>4</sup> MNB estimate.<sup>5</sup> Estimation for 2015. We assume the use of free reserves for 2016 and 2017.

Table 1-4: MNB baseline forecast compared to other forecasts

	2016	2017
<b>Consumer Price Index (annual average growth rate, per cent)</b>		
MNB (March 2016)	0.3	2.4
Consensus Economics (February 2016) <sup>1</sup>	0.1 – 0.9 – 1.8	1.6 – 2.3 – 3.0
European Commission (February 2016)	1.7	2.5
IMF (October 2015)	2.3	2.9
OECD (November 2015)	2.2	2.7
Reuters survey (February 2016) <sup>1</sup>	0.4 – 0.8 – 1.3	1.8 – 2.4 – 3.0
<b>GDP (annual growth rate, per cent)</b>		
MNB (March 2016)	2.8	3.0
Consensus Economics (February 2016) <sup>1</sup>	2.0 – 2.4 – 2.8	2.1 – 2.6 – 3.3
European Commission (February 2016)	2.1	2.5
IMF (October 2015)	2.5	2.3
OECD (November 2015)	2.4	3.1
Reuters survey (February 2016) <sup>1</sup>	2.0 – 2.3 – 2.8	2.1 – 2.7 – 3.0
<b>Current account balance<sup>3</sup></b>		
MNB (March 2016)	5.7	5.9
European Commission (February 2016)	5.6	6.3
IMF (October 2015)	4.3	3.7
OECD (November 2015)	5.5	6.4
<b>Budget balance (ESA 2010 method)<sup>3,4</sup></b>		
MNB (March 2016)	-1,8	-1,7
Consensus Economics (February 2016) <sup>1</sup>	(-1,1) – (-2,0) – (-2,5)	(-2,9) – (-2,0) – (+0,1)
European Commission (February 2016)	-2,0	-1,9
IMF (October 2015)	-2,3	
OECD (November 2015)	-1,9	-1,5
Reuters survey (February 2016) <sup>1</sup>	(-1,6) – (-1,9) – (-2,2)	(-0,5) – (-1,6) – (-2,2)
<b>Forecasts on the size of Hungary's export markets (annual growth rate, per cent)</b>		
MNB (March 2016)	3.4	3.8
European Commission (February 2016) <sup>2</sup>	5.0	5.6
IMF (October 2015) <sup>2</sup>	4.9	5.3
OECD (November 2015) <sup>2</sup>	4.2	5.0
<b>Forecasts on the GDP growth rate of Hungary's trade partners (annual growth rate, per cent)</b>		
MNB (March 2016)	2.0	2.2
European Commission (February 2016) <sup>2</sup>	2.2	2.3
IMF (January 2016) <sup>2</sup>	2.1	2.2
OECD (February 2016) <sup>2</sup>	1.8	2.2

<sup>1</sup> For Reuters and Consensus Economics surveys, in addition to the average value of the analysed replies (i.e. the median value), we also indicate the lowest and the highest values to illustrate the distribution of the data.

<sup>2</sup> Values calculated by the MNB; the projections of the named institutions for the relevant countries are adjusted with the weighting system of the MNB, which is also used for the calculation of the bank's own external demand indices. Certain institutions do not prepare forecast for all partner countries.

<sup>3</sup> As a percentage of GDP.

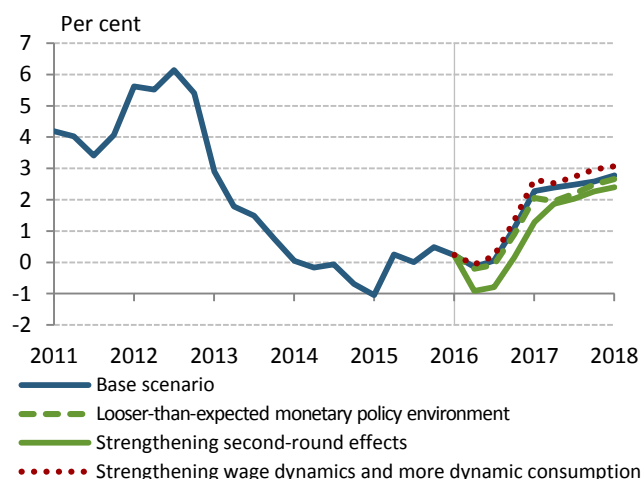
<sup>4</sup> Estimation for 2015. We assume the use of free reserves for 2016 and 2017.

Source: Consensus Economics, European Commission, IMF, OECD, Reuters poll

## 2. EFFECTS OF ALTERNATIVE SCENARIOS ON OUR FORECAST

In addition to the baseline projection in the March Inflation Report, the Monetary Council also considered three alternative scenarios, which might influence the future conduct of monetary policy. A looser-than-expected external monetary policy environment and strengthening second-round effects caused by inflation being below the target for an extended period, imply a lower path for inflation than the baseline projection, while the realisation of strengthening wage growth and more dynamic consumption imply a higher path for inflation than the baseline projection. A looser-than-expected external monetary policy environment does not significantly influence domestic economic growth. In the case of strengthening second-round effects and stronger domestic consumption resulting from more robust wage growth, Hungarian economic growth may be more favourable than projected in the baseline projection. In addition to the key risk scenarios, the Monetary Council identified other, less significant uncertainties. Higher oil and commodity prices and financial market turbulence causes higher inflation and slower economic growth. In the case of more moderate growth in the emerging market economies, inflation will be lower than forecast in the baseline scenario. Slower draw-down of EU funding than assumed in the baseline scenario and the protraction of the housing market programme points in the direction of lower growth.

Chart 2-1: Impact of the risk scenarios on the annual inflation forecast



Source: MNB

### Looser-than-expected monetary policy environment

The divergence in the monetary policy stances of the world's leading central banks continued in the past quarter. While in **December the Fed decided on the first step in tightening the interest conditions, the European Central Bank eased monetary conditions further** both in December and March.

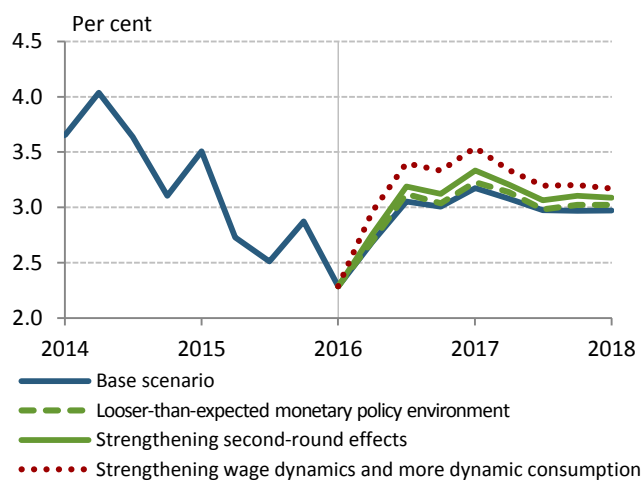
The Hungarian risk premium may also be impacted favourably if, in the absence of improvement in demand in the euro area, the ECB is forced in the coming period to undertake further easing, which is more than assumed in the baseline scenario, or if the tightening cycle of the Fed is implemented more slowly than expected. The excess liquidity appearing in connection to the ECB's easing programme may generate increasing demand for Hungarian assets due to the increase in the relative yield differential. The major fall in Hungary's short-term external debt, observed in the past period, as well as the improving net lending position also help reduce the risk premium. The fall in risk premium may also lead to a decrease in banks' funding costs. The easing of household and corporate lending conditions supports economic activity through the pick-up in lending activity.

In this alternative scenario, the **risk premium path is lower** than assumed in the baseline projection, which leads to the easing of lending conditions through decreasing funding costs. All of this **leads to** appreciation of HUF exchange rate and **lower inflation** (Chart 2-1), and thus **in terms of the monetary policy** the realisation of this risk scenario **points to looser monetary conditions than in baseline projection**.

### Strengthening second-round effects

In recent months, oil prices in USD terms decreased compared to the assumptions in the December Inflation Report, and fluctuated around USD 30-40. Commodity prices

Chart 2-2: Impact of the risk scenarios on the GDP forecast



Source: MNB

are still moderate, which – in addition to the increased supply and the weak demand – may primarily be attributable to the deceleration in the growth of some major importing countries.

If, in the baseline scenario, instead of a slow increase in costs, **commodity prices remain at a level that is persistently lower than the current level**, it may result in a further decline in production costs for companies and an increase in purchasing power for households. Households' increasing purchasing power usually has a positive impact on importing countries' growth, which contributes to domestic growth through the improvement in both external and domestic demand conditions. As a result of inflation developments being lower than consistent with the medium-term inflation target for a longer time, companies take account of these effects in their waging practices as well. Accordingly, wages in the private sector may be more restrained. **Second-round effects also strengthen** through the further decline in inflation expectations and the adjustment of wages.

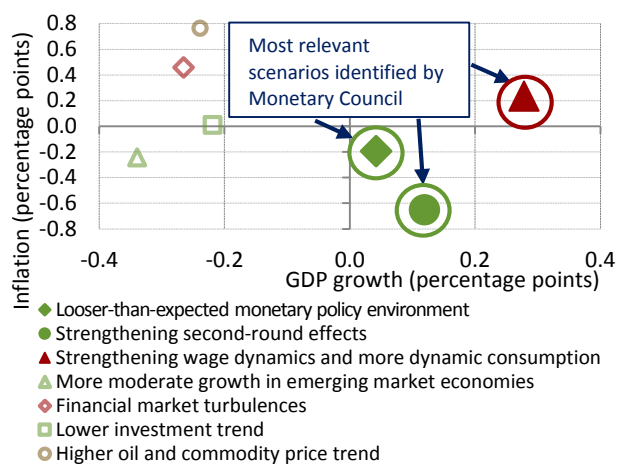
**In this alternative scenario, commodity prices persistently lower than assumed in the baseline scenario, will reduce inflation, while the growth path is more favourable (Chart 2-2).** Due to the stronger disinflationary effects, in this scenario **achieving the inflation target points to looser monetary conditions than those assumed in the baseline scenario.**

Strengthening wage dynamics and more dynamic consumption

In the fourth quarter of 2015 the **pick-up in domestic demand – and particularly consumption growth – continued** on the expenditure side, as also evidenced by the favourable retail trade figures. **In addition, based on the various tightness indicators, the labour market became gradually tighter since the beginning of 2013.** According to the baseline projection, wage dynamics in the private sector will increase in 2016, and **in parallel with income growth, consumption will also increase gradually over the forecast horizon.**

If the labour force which is available for production is unable to satisfy the labour demand of enterprises – for example, due to the structural divergence of labour demand and supply – the **labour market will become tighter.** Companies will have to pay higher wages, which will partially pass through to their prices, and thus the tightening of the labour market will be accompanied by higher inflation. The increase in households' disposable income, the sounder balance sheet structure achieved through deleveraging and the

Chart 2-3: Risk map: effect of alternative scenarios on the baseline forecast



Note: The risk map presents the average difference between the inflation and growth path of the alternative scenarios and the baseline forecast on the forecast horizon. The red marker means tighter and the green markers mean looser monetary policy than the baseline forecast.

Source: MNB

**faster-than-expected easing of precautionary motives boost propensity to consume**, which, looking ahead, results in a higher consumption path. This entails **the closing of the output gap faster than projected in the baseline scenario**.

**In this scenario** actual wage growth is higher than assumed in the baseline scenario, as a result of which households' disposable income increases. The more favourable income position of households and the stronger-than-expected impact of the easing in the need for deleveraging results in a higher consumption path than projected. **Rising domestic demand entails a narrower output gap and a more moderate disinflationary impact** (Chart 2-1 and 2-2). Overall, **achievement of the inflation target is ensured by a monetary policy that is tighter than the one forecast in the baseline scenario**.

#### Other risks

In addition to the key risk scenarios, the Monetary Council identified other modest uncertainties. Higher oil and commodity prices and financial market turbulence cause higher inflation and slower economic growth. In the case of more moderate growth of emerging market economies, inflation will be lower than forecast in the baseline scenario. Slower draw-down of EU funding than assumed in the baseline scenario and the protraction of the housing market programme points in the direction of lower growth.

### 3. MACROECONOMIC OVERVIEW

#### 3.1. International environment

Global economic growth slowed in the fourth quarter. Recovery from the crisis continued in developed countries, but the rate of growth decelerated somewhat. Conditions for growth deteriorated in the emerging regions. Inflation rates remained moderate. In the case of the world's leading central banks, developments point to looser monetary conditions. In March, the ECB announced further loosening steps.

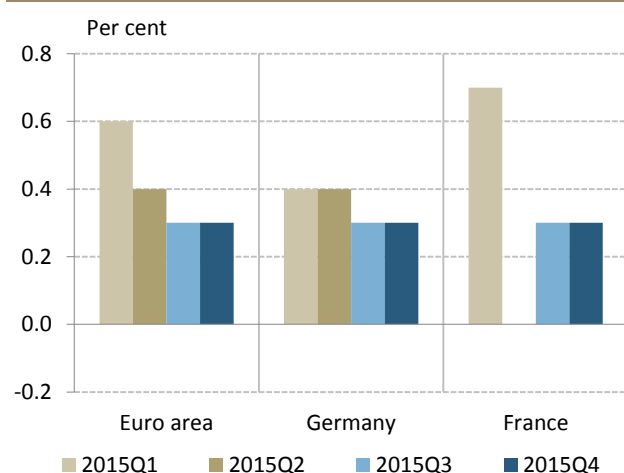
**Table 3-1: GDP growth in major economies**

	Q1-2015	Q2-2015	Q3-2015	Q4-2015
Japan	-1.0	0.7	1.7	0.8
United Kingdom	2.6	2.4	2.1	1.9
United States	2.9	2.7	2.1	1.9
Euro area	1.3	1.6	1.6	1.6
China	7.0	7.0	6.9	6.8

Note: Annual change, per cent.

Source: OECD

**Chart 3-1: Quarterly GDP growth in the euro area**



Note: Seasonally adjusted series.

Source: Eurostat

#### 3.1.1. Developments in global economic activity

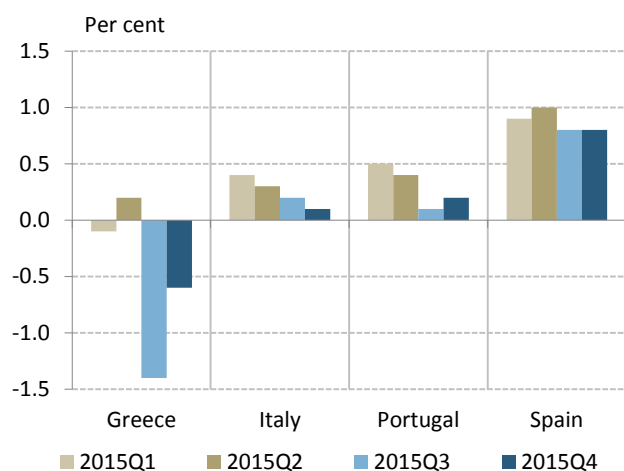
**In the fourth quarter of 2015, global economic performance was restrained and significant differences between the individual regions remain.** The euro-area economy expanded in the fourth quarter of 2015 at a similar rate as in the previous quarter, while economic growth decelerated in the United States. Growth in the emerging economies continued to slow further, and the downside risks to the growth forecast rose. On the whole, amidst persistent regional disparities, the global growth situation deteriorated slightly compared to the previous quarter (Table 3-1).

**Data for the fourth quarter indicate that euro-area growth decreased somewhat, but did not change quarter on quarter** (Chart 3-1). The German economy, as Hungary's most important trading partner, expanded at a rate of 0.3 per cent compared to the previous quarter, and for 2015 as a whole the growth rate was 1.7 per cent. Germany's economic growth was driven by domestic demand and gross capital formation, whereas the contribution of net exports to GDP was negative, due to exports falling more than imports. Growth remained subdued in the peripheral countries in the fourth quarter (Chart 3-2). The rebound in euro-area internal demand in 2016 may be boosted by the low oil price and the expansion of the ECB's asset purchase programme.

**Forward-looking indicators deteriorated in recent months and point to moderate growth** (Chart 3-3). Expectations regarding the German economy (Ifo) have deteriorated significantly since December 2015. After subdued performance in recent months, German industrial output rose. However, the poor export performance may persist in the coming months as well.

**Average growth dynamics in the Central and Eastern European region did not change substantially compared to the previous quarter, and the region's performance remains outstanding by European standards** (Chart 3-4). The Polish economy expanded by 1.1 and 3.6 per cent quarter on quarter and year on year, respectively. In Slovakia, industrial production and net exports were the key drivers of stable growth. The rate of growth in Romania

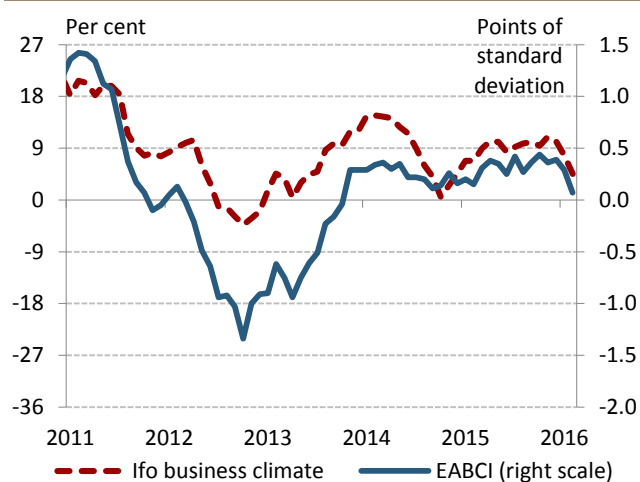
Chart 3-2: Quarterly GDP growth in peripheral countries



Note: Seasonally adjusted series.

Source: Eurostat

Chart 3-3: Business climate indices for Germany and the euro area



Source: European Commission, Ifo

declined slightly in quarter-on-quarter terms. The Czech economy stagnated in the final quarter of 2015 after growth of 0.7 per cent in the third quarter.

**Based both on the quarterly rate and the annual rate, economic growth slowed in the United States in the fourth quarter** compared to the previous quarters (Table 3-1). In the last quarter, the lower growth rate was attributable to decreases in exports and inventory investments. On the whole, similarly to 2014, the US economy grew by 2.4 per cent in real terms in 2015, which was attributable to consumption expenditure, investments, public sector spending and exports. Lower oil prices are affecting the US economy on two sides: hampering investment dynamics in the energy sector while increasing households' disposable income.

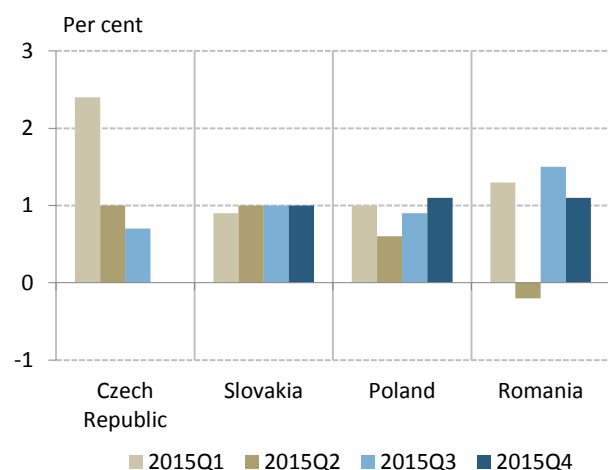
**Growth in the United Kingdom decelerated on an annual basis, while in quarter-on-quarter terms a minor expansion was observed.** Growth was supported by the higher consumer spending resulting from the low inflation, while on the output side, services made substantial contributions in the fourth quarter. Unemployment has decelerated continuously since January 2015 and stabilised at 5.1 per cent in the previous quarter.

**Year-on-year growth amounted to 0.8 per cent in Japan, but compared to the previous quarter a 0.3 per cent decline was recorded.** The slowdown was attributable to the retail services, the weak industry and output data, and the fall in consumption.

**Looking at the main emerging economies, Chinese economic growth slowed somewhat compared to previous quarters, falling to a rate of 6.8 per cent in 2015 Q4 in year-on-year terms.** With this, economic growth decelerated to historic low levels. The data were somewhat better than economists' expectations; however, the economists once again questioned the credibility of the growth rate since other indicators suggested more significant slowdown (e.g. Baltic Dry Index). The slowdown is attributed to a contraction in industrial production, while on the consumption side weak real estate market investment and the decline in exports made a negative impact. Expansion is expected to remain slow in the coming period, surrounded by downside risks. Economists project a growth rate of 6.5 and 6.3 per cent in 2016 and 2017, respectively (Table 3-2).

**Economic growth is expected to be subdued in the other emerging economies as well.** The slowdown in world trade can be still attributed to the waning import demand of the emerging economies. The Brazilian economy is being simultaneously hit by falling demand for commodities, the

Chart 3-4: Quarterly GDP growth in CEE countries



Note: Seasonally adjusted series.

Source: Eurostat

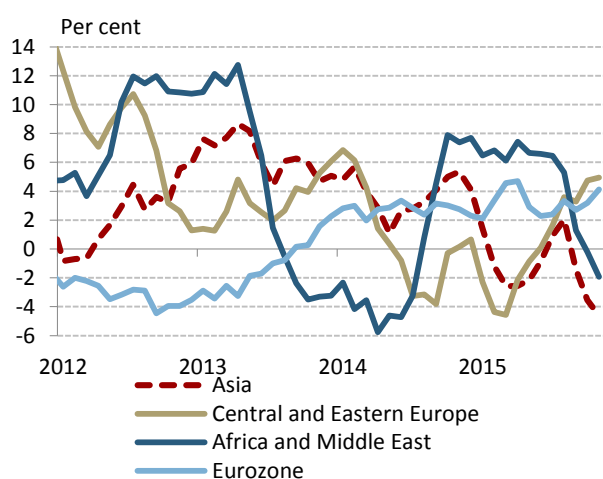
Table 3-2: Growth forecast in BRICS

	2015	2016	2017
Brazil	-3.7	-3.1	0.6
Russia	-3.7	-1.4	1.2
India	7.4	7.7	7.7
China	6.9	6.5	6.3
South-Africa	1.4	1.2	2.1

Note: Annual change, per cent.

Source: Consensus Economics

Chart 3-5: Changes in imports in some regions



Note: Annual change of 3-month moving average.

Source: CPB

high level of USD-denominated government debt and uncertainties in domestic politics, with analysts consequently anticipating a contraction of 3.1 per cent in this year and 0.6 per cent in the following year. There are also downside risks to growth in India, and analysts' expectations were also lowered for the current year, and they are not expecting a tangible rebound in growth for the next year either. In South Africa, economists' expectations were lowered for the current year, while modest growth is projected for 2017. **As for Hungary's main emerging export markets, analysts still expect a downturn in the Russian economy** due to the low oil prices, economic sanctions and geopolitical tensions (Table 3-2).

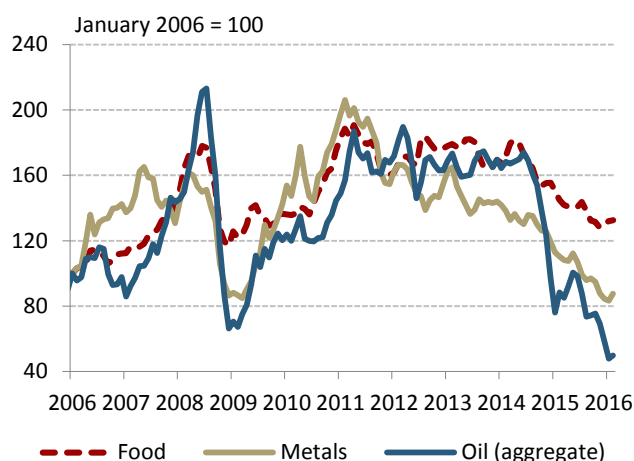
### 3.1.2. Global inflation trends

**In the fourth quarter of 2015 and in the first half of 2016 commodity prices continued to fall, and the oil prices in particular were characterised by sharp declines** (Charts 3-6 and 3-7). The average world market price of Brent crude plunged to around USD 30 per barrel, a level last seen in 2004, and has thus decreased by almost 40 per cent in total in the past one year. On the supply side, the continued fall in oil prices reflected the combined effect of the lifting of the sanctions on Iran, the OPEC countries' persistent over-quota production and the improved efficiency of shale oil extraction, while on the demand side, the deceleration of growth in China and in the emerging economies, as well as concerns about global activity weighed on oil prices. On the other hand, financial market factors may have also had a bearing on oil price developments. Adjustments in pricing started in mid-February due to negotiations over supply cuts in oil producing countries. As a result of the correction in the second half of the period by mid-March the price of crude oil per barrel has increased close to the value of that of three months ago.

**The decline in industrial commodity prices continued in the review period.** As a result of fading demand and volatility on the Chinese stock market, world metal prices dropped further in 2015 Q4 and January 2016, followed by an increase in February as a result of a pick-up in demand. Agricultural commodity prices have increased continuously since December. The modest growth was attributable to the relatively poor supply. Concerns about the El Niño weather phenomenon faded due to the high level of stocks.

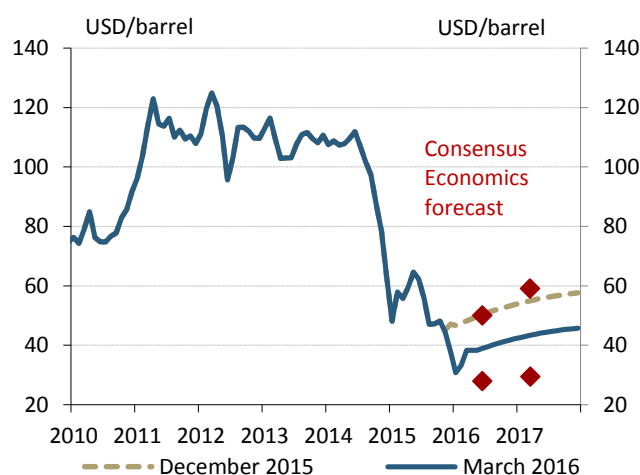
**Due to the low commodity prices and subdued demand, global producer price developments are restrained.** Producer price projections for the next year have been also revised downward (Chart 3-8). Producer prices in China stagnated in the last quarter of the year, with the index standing at -5.3 per cent in January and expected to stay in

Chart 3-6: Changes in major commodity prices (USD)



Source: IMF

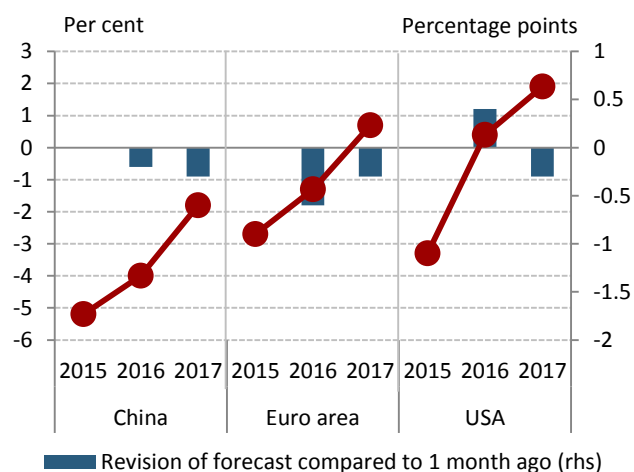
Chart 3-7: Change in oil price assumptions



Note: The chart shows the maximum and minimum of the individual forecasts in the Consensus Economics poll.

Source: Bloomberg, Consensus Economics

Chart 3-8: Development of producer prices



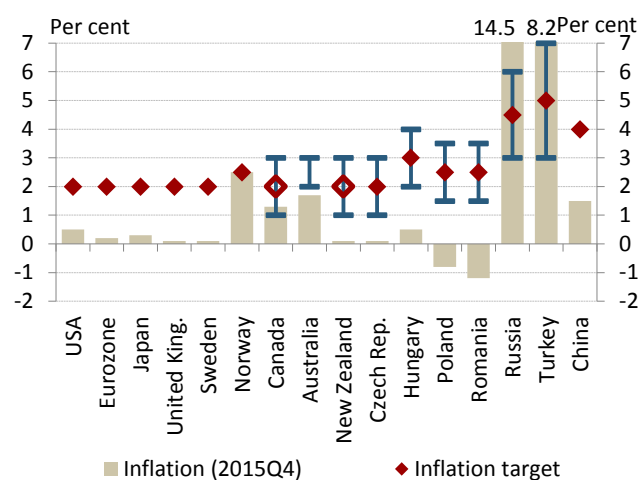
Note: Annual change.

Source: Consensus Economics

the negative domain going forward. The euro-area producer price index decreased as well, and economists anticipate a negative value throughout 2016, which is only expected to turn positive in 2017. In the United States, economists forecast a producer price index of close to 0 per cent for the current year.

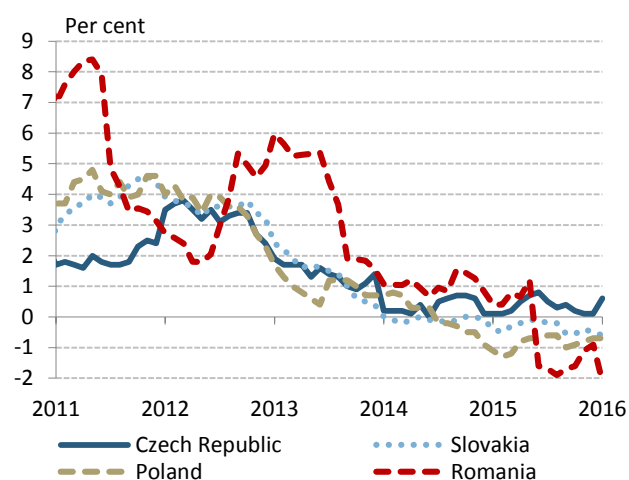
**The rate of increase in consumer prices has remained below the central bank targets in developed countries** (Chart 3-9), and central bank forecasts show the rate staying below target for a longer period. Average inflation in the developed and emerging countries is still at a low level. Developed countries generally continue to be characterised by negative output gap and moderate demand-pull inflation. Since commodity prices have been persistently low, and accordingly there is no significant inflationary pressure from the expenditure side. **In the United States, the annual consumer price index increased considerably in the fourth quarter, but remains at a low level** (1.4 per cent in January). The price index for personal consumption expenditure (PCE) – a measure relevant in terms of monetary policy – also rose in the previous period to 1.3 per cent, while core PCE price index was 1.9 per cent. **The annual consumer price index also rose gradually in the euro area**, but according to preliminary data inflation was in the negative domain again, at -0.2 per cent in February, while core inflation stood at 0.7 per cent. In the last quarter of the year, an upward shift was observed in the core countries, while the consumer price index showed mixed developments in the peripheral countries. At the same time, there was a downward shift in inflation expectations related to the euro area. Looking at the developed economies, in the United Kingdom the annual rate of inflation gradually increased. In Japan, the inflation rate rose slightly early last quarter, followed by a drop in January as a result of the continued slump in oil prices, and stood at around 0.2 per cent on average.

**Inflation remained low and was below target levels in the Central and Eastern European region** (Chart 3-10). **Average inflation remained in the negative domain across the region.** Domestic demand in Poland is increasing at a moderate rate. The output gap is still negative, and thus no inflationary pressure can be perceived in the economy. Inflation continues to be negative, coming in at -0.7 per cent in January. In Romania, as a result of the general reduction of the VAT rate from January 2016, inflation declined further (to -2.1 per cent) and is only expected to rise to the tolerance band around the inflation target at the beginning of 2017 when the temporary disinflationary impact of the VAT reduction fades, and due to the loose fiscal policy and

**Chart 3-9: Inflation targets in central banks and actual inflation**


Note: The blue lines represent the inflation control range in Australia, Canada and New Zealand, while in other countries they mark a permissible fluctuation band. In Canada and New Zealand the mid-point of the target band is accentuated, which is marked by empty diamond.

Source: Databases of central banks, OECD

**Chart 3-10: Inflation in CEE countries**


Note: Annual change.

Source: OECD, National Institute of Statistics Romania

strengthening wage dynamics. Inflation in Slovakia fell substantially in quarter-on-quarter terms, dropping below the level measured early this year. Czech inflation rose in January 2016, but still considerably falls short of the inflation target.

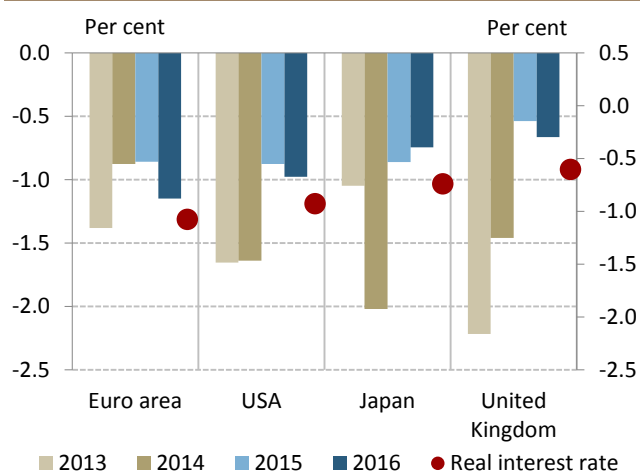
Regarding the larger emerging countries, inflation in China has gradually increased after the trough in October, with a rate 1.8 per cent in January. In Russia consumer price index decreased gradually to 9.8 per cent in January. On the other hand, the depreciation of the exchange rate increases inflationary pressure and inflation expectations.

### 3.1.3. Monetary policy and financial market developments

The central banks which are monitored have not changed their monetary policy strategies in recent months. Achieving and maintaining price stability remain the primary goal of the world's leading central banks, while the divergence between their monetary policy stances has gradually increased. At the moment, most countries do not exhibit any inflation and capacity utilisation trends pointing to monetary tightening in the short run, and developed countries are still characterised by negative real interest rates (Chart 3-11). While the Fed decided to tighten interest rate conditions in December 2015, the rest of the central banks that are monitored continued to reduce or did not change the base rate in recent months.

At the December meeting, the policymakers of the Federal Reserve unanimously voted in favour of the policy rate increase, as they expect the economy to expand further and the labour market to strengthen as a result of the expected gradual adjustment of monetary policy in the future. Both in January and in February the FOMC left the policy rate unchanged. In recent months, the forward guidance of the Fed emphasised that the monetary policy environment would remain accommodating after the increase in the policy rate as well. The Committee will define the timing and magnitude of the additional monetary policy measures based on developments related to overall employment and the 2 per cent inflation target, and incoming data going forward. According to the March press release, in the opinion of the FOMC, economic circumstances will only justify a more gradual increase than that assumed in December, and accordingly the policy rate may fall short of the long-term average value for some time to come. In addition to the interest rate increase in December, the FOMC also decided on continued reinvestment in long-term securities, thereby maintaining accommodating monetary conditions.

Chart 3-11: Real interest rates in developed economies



Note: The real interest rate is annual average. The one-year ex ante real interest rates are calculated as difference of one-year bond yields and market actors' one-year inflation expectations.

Source: Consensus Economics, Bloomberg

Chart 3-12: Changes in the EUR/USD exchange rate



Note: \* February 2016 Consensus poll. Higher values represent euro appreciation.

Source: ECB, Consensus Economics

**The Governing Council of the ECB announced a broad loosening program at the March meeting.** In line with Mario Draghi's announcement in January, the ECB reviewed whether it was necessary to expand the scope of unconventional instruments in view of the incoming macroeconomic data and decided to decrease all three components of the interest rate corridor (See Box 3-1 for more details).

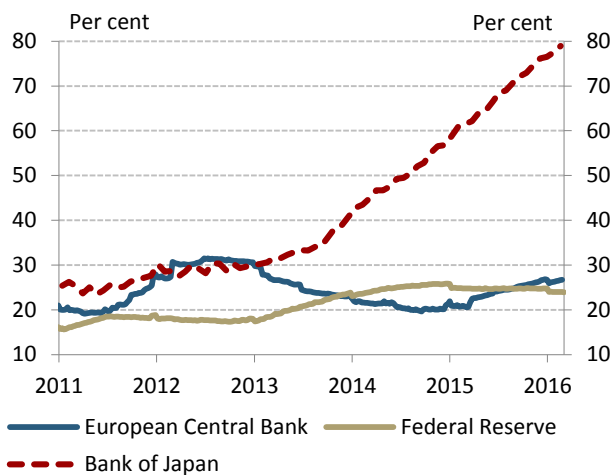
Although the US dollar strengthened slightly against the euro in the wake of the interest rate increase by the Fed in December, in the second half of the period it adjusted and on the whole it weakened moderately compared to the mid-December level as a result of the ECB's communication following the March decision and the Fed's more dovish tone in its press release. From the second half of January to mid-February, the US dollar steadily depreciated both against the other developed and emerging currencies (including the CEE region), amid deflationary fears (Chart 3-12) and uncertainty over the Fed's next interest rate hikes.

With its decision at its December meeting, the **Bank of Japan** extended the average residual maturity of the government securities purchased within the framework of the Quantitative and Qualitative Easing Programme. In addition, **in January** the central bank **introduced a tiered system and reduced the interest rate payable on excess reserves placed recently by the commercial banks with the central bank to a negative level.** Japanese policymakers left the central bank's asset purchase programme unchanged even with the negative interest rates. In March, the central bank specified the operational scope of the programme and signalled that the interest rate payable on newly placed excess reserves may be decreased further if necessary.

The Bank of England left both the key policy rate and the asset purchase facility amount unchanged, while it extended the Funding for Lending Scheme by two years.

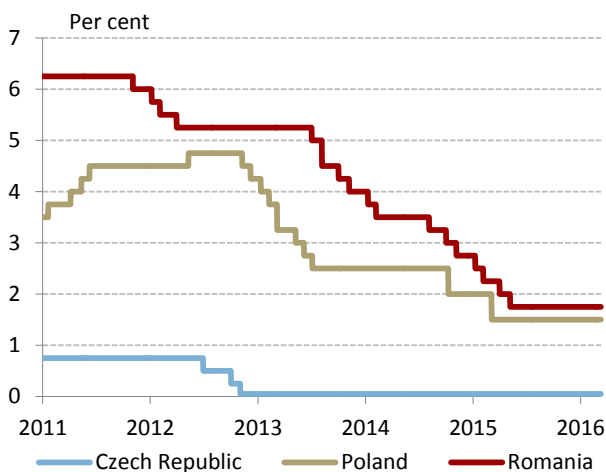
**As regards the emerging countries, the People's Bank of China (PBoC) responded to the unfavourable macroeconomic releases and financial market turbulences with a number of measures.** In several steps, the PBoC has allocated almost CNY 5,000 billion (USD 765 billion) in extra liquidity to the Chinese banking system through its various facilities in recent months. Within its standing lending facility (SLF), it reduced the 7-day repo rate and the overnight interest, thus providing further liquidity to the banking system. In addition, it reduced the 3-month MLF rate to 2.5 per cent, the 6-month interest to 2.6 per cent and the one-year interest to 2.75 per cent. At the end of January, the PBoC announced that in view of the Lunar New

**Chart 3-13: Central bank balance sheet total in developed countries (Percentage of GDP)**



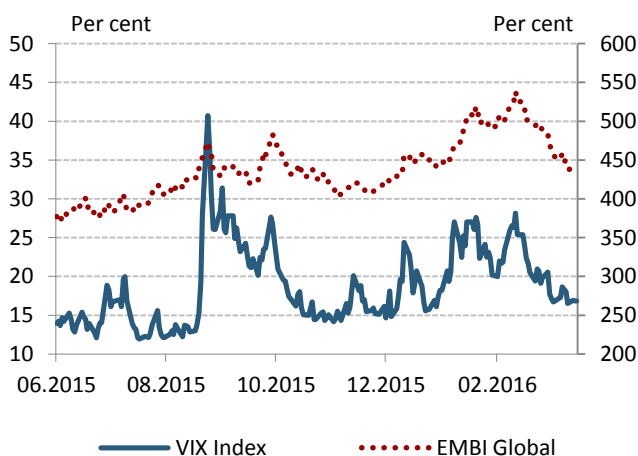
Source: Databases of central banks, IMF, Eurostat

**Chart 3-14: Central bank rates in other CEE economies**



Source: Databases of central banks

**Chart 3-15: Risk indicator developments**



Source: Bloomberg

Year Festival between 29 January and 19 February, it would perform open market operations daily – in contrast to the usual two-week practice – to prevent liquidity problems. This is necessary because liquidity conditions are often tightened before the Lunar New Year, as cash withdrawals by the households surge, owing to the holidays. Due to the substantial widening of the offshore-onshore exchange rate gap, i.e. in order to converge the two renminbi exchange rates, the Chinese central bank intervened in the offshore market to reduce high volatility in the market and stop the speculation on further major depreciation. **The Russian central bank still has not changed its 11 per cent key policy rate**, but policymakers signalled that continued upward risks to price stability may result in the tightening of the policy rate.

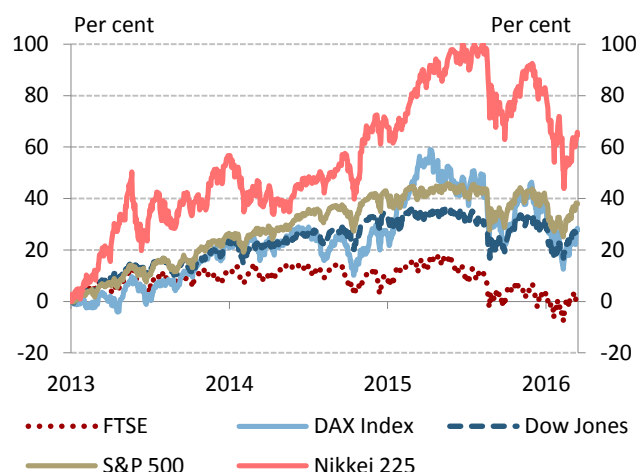
**Central banks in the Central and Eastern European region maintained loose monetary conditions** (Chart 3-14). Policymakers at the Czech National Bank maintained the key policy rate at 0.05 per cent, and confirmed their commitment to the continued use of the koruna exchange rate as a monetary policy instrument until at least the end of 2016, according to the central bank’s latest, February guidance. On the other hand, they anticipate cancellation of the exchange rate cap in the first half of 2017.

Policymakers at the Polish central bank closed the easing cycle in March 2015. On the other hand, the policymakers are divided on the likely interest policy. Some policymakers believe that due to the uncertainties influencing monetary policy, it would be practical to stabilise interest rates. Other council members argued that it might be worth considering a possible interest rate increase in the coming months, which would provide monetary policy with more room for manoeuvre in relation to external shocks. According to the March press release, the present level of the base rate supports sustainable growth and macroeconomic stability.

The National Bank of Romania has not reduced its key policy rate in recent months. In January, it reduced the reserve requirement rate with regard to foreign currency-denominated liabilities from 14 to 12 per cent, due to the more moderate growth in foreign currency lending and to converge further to the practice of the ECB; this was not changed in February. Inflation is only expected to rise to a tolerance band close to the inflation target in early 2017 after the effect of the VAT rate cut fades, and as a result of the loose fiscal policy and strengthening wage dynamics.

**Global market sentiment deteriorated in the first half of the period, due to global growth concerns triggered by the Chinese economic slowdown; this was followed by a**

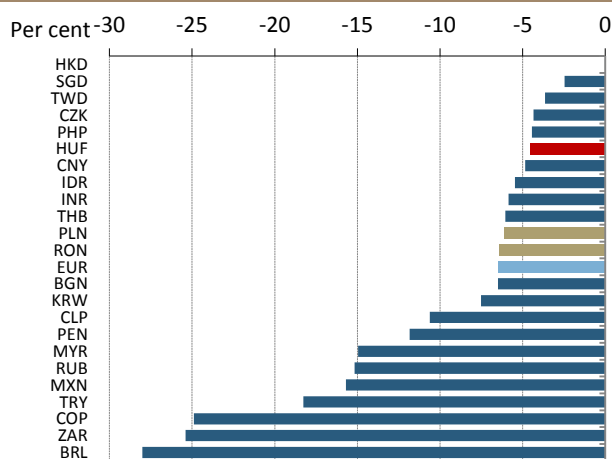
Chart 3-16: Leading stock exchange indicators



Note: 1 January 2013 = 0.

Source: Bloomberg

Chart 3-17: Depreciation of emerging market currencies against USD



Note: 2 January 2015 = 0.

Source: Bloomberg

**significant adjustment in the past month.** Risk indicators worsened substantially until the first week of February, due to growth fears and the future path of oil prices, followed by a strong adjustment amid improving investor sentiment from mid-February (Chart 3-15). The stock market indices, following a similar path as the risk indices, declined for the most part of the period and rebounded in the last month of the period under review (Chart 3-16). While stock exchanges in the West climbed back to their mid-December level, Asian indices – in particular Chinese and Japanese ones – dropped sharply in the past quarter. The 20 per cent drop in the Chinese stock market indices was attributed to changes in equity trading regulations in the first half of the period, in addition to the macroeconomic releases suggesting the slowdown of the economy.

The decline in yields on long-term government securities in the developed markets also suggests stronger risk aversion, as well as a shift in expectations towards looser monetary policy by the world’s leading central banks.

**In addition, the steep decreases in oil prices dominated international money market developments in January.** Generally, commodity prices have decreased since mid-2015, which had a tangible effect on the currency devaluation of commodity exporting countries. The general appreciation of the US dollar in the past 6 months affected each country to varying degrees due to their different exposures to commodities, and thus the currencies in our region depreciated only slightly (Chart 3-17). An adjustment could be observed in both the price of oil and the currencies vulnerable to its change in the last month.

**Box 3-1: European Central Bank decided on a comprehensive easing programme in March**

The March meeting of the Governing Council of the ECB was preceded by intense market expectations, fuelled by deterioration in inflation and macroeconomic outlooks and the communication by Mario Draghi, Governor of the ECB, suggesting additional easing. According to economists' reactions, the measures announced by the Governing Council in December 2015 fell short of market expectations, and in view of the downside risks to growth and inflation, market participants anticipated the announcement of a more significant easing package. **In its March forecast, the European Central Bank performed a substantial downward revision of its inflation projection**, which market analysts believed to point to more intensive easing.

**Table 3-3: March macroeconomic forecast of the European Central Bank**

ECB projection	2015	2016	2017	2018
Real GDP growth	1.5%	1.4%	1.7%	1.8%
<i>December projection</i>	<i>1.5%</i>	<i>1.7%</i>	<i>1.9%</i>	
HICP inflation	0.0%	0.1%	1.3%	1.6%
<i>December projection</i>	<i>0.1%</i>	<i>1.0%</i>	<i>1.6%</i>	
Core inflation	0.8%	1.1%	1.3%	1.6%
<i>December projection</i>	<i>0.9%</i>	<i>1.3%</i>	<i>1.3%</i>	
Wage growth	1.3%	1.5%	1.9%	2.1%
<i>December projection</i>	<i>1.4%</i>	<i>1.5%</i>	<i>2.1%</i>	

Source: ECB

**At its rate-setting meeting in March, the Governing Council of the ECB decided on a comprehensive easing programme:**

- As part of this, it reduced all three elements of the interest rate corridor. It reduced the interest rate on the main refinancing operations by 5 basis points to 0.00 per cent, the marginal lending rate by 5 basis points to 0.25 per cent and the deposit rate by 10 basis points to -0.40 per cent.
- In addition, under the securities purchase programme it raised the facility amount for monthly purchases by EUR 20 billion to EUR 80 billion from April, and extended the programme to the investment grade EUR-denominated bonds issued by non-bank corporations established in the euro area. The additional purchases amount to EUR 240 billion and with this change the securities purchase programme increases the balance sheet total of the European Central Bank by EUR 1,740 billion in total since the start of the purchases until March 2017.
- In addition, a new targeted longer-term refinancing operations programme (TLTRO II) will be launched from June 2016, with four credit instruments of 4-year maturity each, the interest rate of which depends on lending activity and may be as low as the ECB deposit rate (at present -0.4 per cent). The commercial banks participating in TLTRO II receive funding from the ECB at the rate applied in the main refinancing operations; however, over the entire term a lower interest rate will be charged to those banks whose eligible net lending exceeds their benchmark between 1 February 2016 and 31 January 2018. Eligible loans include loans to non-financial corporations and non-housing loans disbursed to households. The lower interest rate is linked to the deposit rate prevailing at the time when the financing source is drawn down. The lowest interest rate (the difference between the rate on the main refinancing operations and the deposit rate) is charged to the participating commercial banks, if their eligible outstanding lending increases by 2.5 per cent compared to the reference period until 31 January 2018. The interest rate is decreasing linearly up to the upper bound depending on the percentage at which the participating commercial bank increased its outstanding lending compared to the reference period. The benchmark net lending is zero for those participating commercial banks that achieved positive net lending in the 12-month period to 31 January 2016. The reference net lending for those commercial banks whose net lending was negative in the 12-month period to 31 January 2016 equals the net lending in that period.

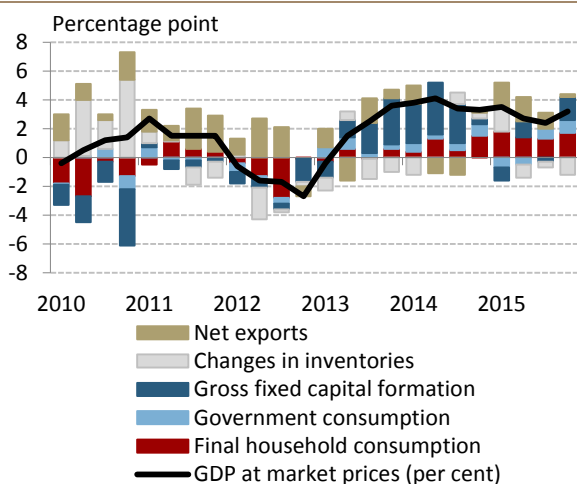
The rate of reduction in the deposit rates corresponded to preliminary expectations, but the reduction in the key interest rate caused a minor surprise. Analysts expected a slightly smaller increase in the securities purchase programme, while only a few of them anticipated the extension of TLTRO. **On the whole, market analyses considered the easing to be stronger than expected.**

Following the announcement of the measures, the euro depreciated against the dollar by almost 1.5 per cent, but this trend turned around and the euro rebounded after the press conference as a result of the message that cooled expectations with regard to additional interest rate cuts. Yields in the 2-10 year segment increased by 6-10 basis points as result of the announcements. Since then there was no substantial change in the EUR/USD exchange rate and in yields. **According to the monetary policy decision and the announcements made at the press conference, the monetary policy strategy of the European Central Bank has slightly changed. Since the March decision, the European Central Bank is paying more attention to further improving the efficiency of the credit channel.**

### 3.2. Aggregate demand

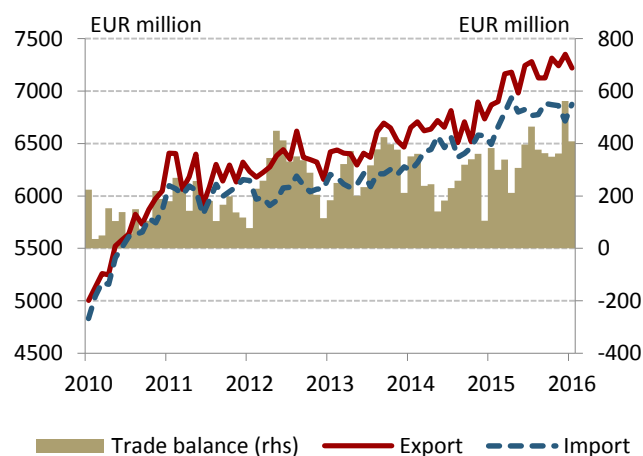
In the fourth quarter of 2015, Hungary's gross domestic product expanded at a year-on-year rate of 3.2 per cent, with growth thus advancing to 2.9 per cent for the year as a whole. Growth was primarily driven by domestic demand items, with particularly strong expansion in consumption. The distribution of investments by sectors was heterogeneous throughout 2015: while private investment weakened, there was a tangible rise in public investment linked to the absorption of EU funds. Net exports made a positive contribution to growth throughout the year.

Chart 3-18: Contribution to annual GDP growth



Source: HCSO

Chart 3-19: External trade in goods



Source: HCSO

**In 2015, Hungary's gross domestic product expanded by 2.9 per cent, in a balanced structure.** GDP rose by 3.2 per cent year-on-year in the fourth quarter and expanded by 1.0 per cent compared to the previous quarter. The structure of growth continued to be balanced. The pick-up in domestic demand is contributing more and more to the expansion in output (Chart 3-18).

#### 3.2.1. External trade

**Net exports continued to make a positive contribution to growth in the fourth quarter as well, but fell short of the 2015 average.** Exports of goods increased to a lesser degree than in the previous quarters, in line with the more moderate expansion of services exports. In the fourth quarter of 2015, import growth exceeded export growth, due to the dynamic expansion of import-intensive domestic demand items (Chart 3-19). Boosted by the balance of goods and the balance of services, Hungary's trade surplus increased further in the fourth quarter.

**Around two thirds of the trade surplus is linked to services.**

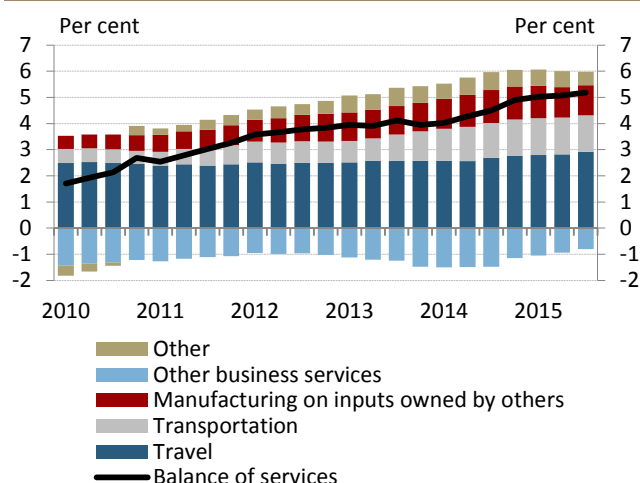
The four-quarter trade surplus amounted to 8.5 per cent of GDP in the third quarter, while services surplus exceeded 5 per cent of GDP. According to the sector breakdown, tourism and delivery services play the largest role in the services surplus, but computing and information services contribute the expansion of services surplus as well (Chart 3-20). In recent years, the improvement in the services surplus was supported by EU funds, loans granted in the Funding for Growth Scheme and the depreciation of the real exchange rate.

**In 2015 Q4, the year-on-year improvement in the terms of trade continued,** primarily still reflecting the positive contribution of the low oil price.

#### 3.2.2. Household consumption

**Household consumption expenditures continued to expand in 2015 Q4 as well.** This can be mainly attributed to improving labour market conditions, increasing real wages in the low inflation environment and the relaxation of precautionary motives. The dynamic expansion of retail sales volume continued at the end of last year (Chart 3-21).

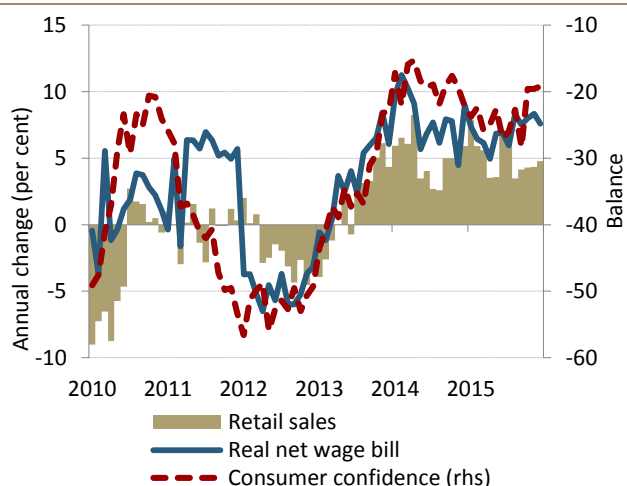
Chart 3-20: Key items of the balance of services



Note: Four-quarter values as a percentage of GDP.

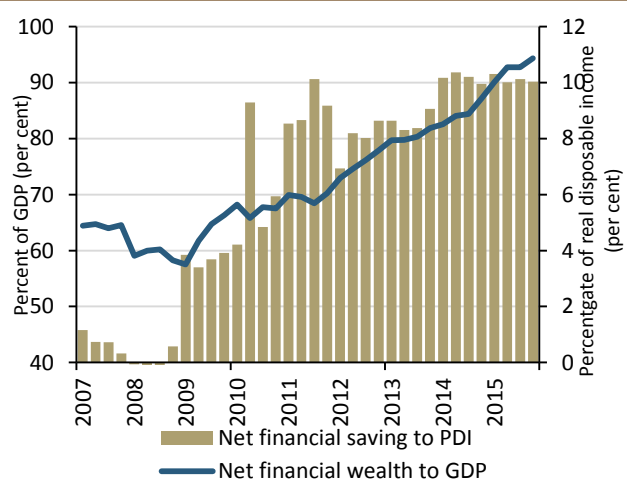
Source: MNB

Chart 3-21: Developments in retail sales, income and the consumer confidence index



Source: ESI, HCSO

Chart 3-22: Savings and assets of households



Source: MNB calculations

**Households' net financial wealth continued to increase in the fourth quarter**, with financial accumulation and the decline in debt both contributing to this development.

**The saving rate is still at a historic high.** According to the underlying trends (excluding the effects of the conversion of households' foreign currency loans and settlement affecting foreign currency debtors), households' net savings amounted to 5.9 per cent of GDP in 2015 Q4 and to 5.7 per cent of GDP in annualised terms.

**In the past period, households' precautionary savings began to ease, supported by the high ratio of households' financial wealth to disposable income, stable economic growth and falling unemployment in line with the improving labour market.** Additionally, the conversion of foreign currency loans significantly reduced households' sensitivity to exchange rate developments, which contributed to a decline in precautionary considerations and eases the pressure for balance sheet adjustment. In line with this, the rise in the saving ratio seen since the crisis came to an end (Chart 3-22).

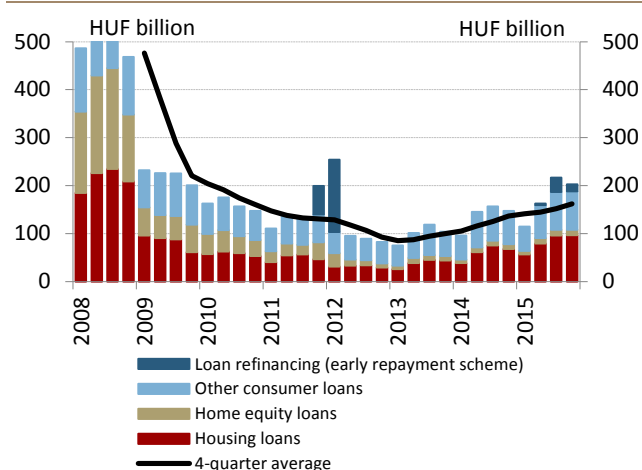
**The volume of new housing loans extended to households continued to expand, primarily reflecting demand factors.** Total outstanding loans of households provided by the entire financial intermediary system fell by HUF 129 billion in the fourth quarter of 2015, which was partly attributable to the FX-conversion of personal and car purchase loans at a preferential exchange rate. At the same time, the volume of new contracts picked up in the period under review, particularly in the housing loan segment (Chart 3-23). Gross new housing loans in the fourth quarter of 2015 were higher by 42 per cent year-on-year, while the total rate of increase in 2015 was 34 per cent compared to 2014. The pick-up in housing loans is attributable to expanding demand, reflecting favourable housing market trends, low interest rates and improvement in households' income and wealth position.

### 3.2.3. Private investment

**In the fourth quarter, the volume of whole economy investment increased by 7.0 per cent in year-on-year terms.** The ratio of investment to GDP was 21.3 per cent in 2015. This growth was primarily supported by the public investments financed by EU funds while the corporate sector's investment activity declined, similarly to the previous quarters. Household investments remained subdued (Chart 3-24).

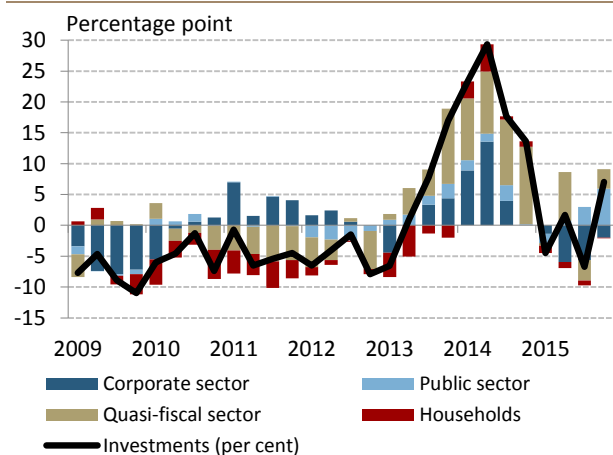
**The decline in corporate sector investment was mainly caused by export-oriented companies, and to a lesser**

**Chart 3-23: New household loans in the credit institution sector**



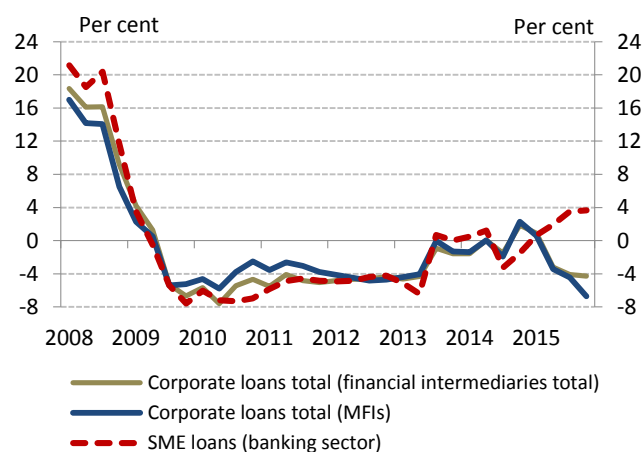
Source: MNB

**Chart 3-24: Contributions of main sectors to annual change in national investments**



Source: HCSO

**Chart 3-25: Annual growth rate of lending to non-financial corporates and SMEs**



Note: Data for corporate loans total are based on transactions. For SME loans, estimated transactions are applied from 2013 Q4.

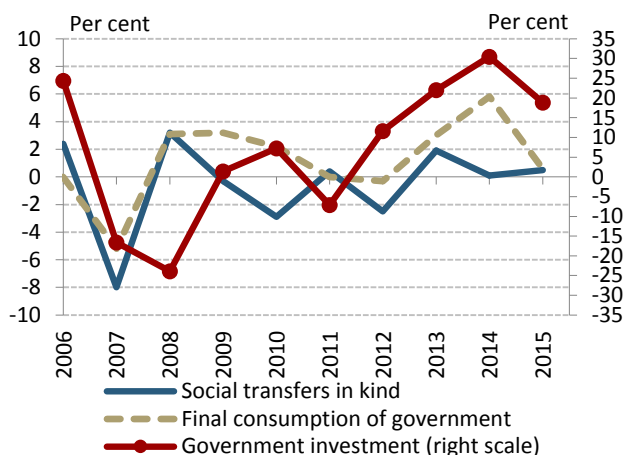
Source: MNB

**extent by industries producing for the domestic market.** Part of the decline can be attributed to the completion of earlier manufacturing investments, and to the fall in agricultural investments. In the case of agriculture, the slowdown is attributable to the high base resulting from projects implemented in previous years under the Funding for Growth Scheme. Corporate capacity utilisation indicators are higher than their historical averages, and thus supply conditions continue to support expansion projects. At the same time, the Financial Conditions Index (FCI) calculated by the MNB suggests that the banking sector's declining propensity to lend at the end of 2015 may have contributed to the fall in corporate investment.

**Corporate lending is characterised by expansion primarily linked to the SME segment.** On the whole, the outstanding borrowing of non-financial enterprises from the domestic financial intermediary sector increased by roughly HUF 53 billion in the last quarter of 2015. In year-on-year terms, however, the overall portfolio decreased overall by 4.3 per cent in 2015, primarily as a result of several one-off large corporate transactions (Chart 3-25), but after adjusting for these items, the rate of contraction for the portfolio is about 2 per cent. On the other hand, the outstanding borrowing of the SME sector increased by 3.6 per cent on the whole during 2015, with major contribution by the disbursements made under the Funding for Growth Scheme. Considering the rising output of the industrial and commercial sectors at the end of the year, corporate lending processes may have been characterised by stable or slightly increasing demand at the end of 2015. By contrast, supply developments were may have still been marked by cautiousness, and lending conditions remained essentially unchanged at the end of the year. However, looking forward, this factor is also expected to ease, as the banks indicated substantial easing in credit supply conditions, primarily through interest rate spreads.

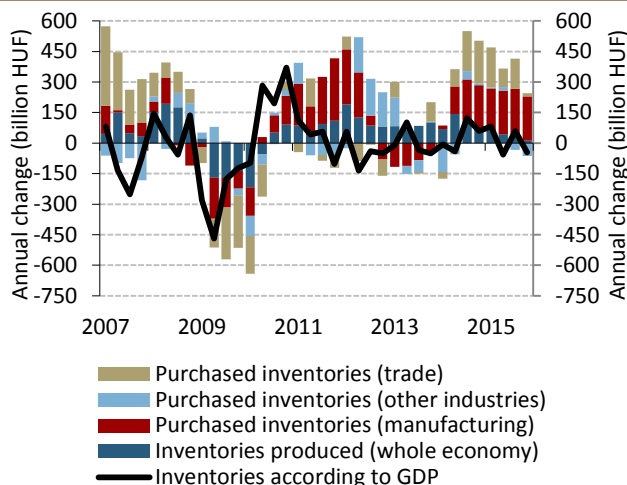
**Transaction data indicate a continuing moderate expansion in aggregate housing market turnover. Accordingly, housing prices are on an upward trend.** The number of homes sold increased by 1.4 per cent in the fourth quarter in annual terms. In 2015, housing market transactions expanded by 27.6 per cent on the whole. Housing prices are still below their pre-crisis levels, but prices of used and new homes rose by 12.1 per cent and 7.3 per cent, respectively, in response to recovering demand in the first nine months of 2015. **New home construction was restrained in the fourth quarter, but the number of construction permits issued continued to rise;** this suggest further recovery on the housing market. On the whole, households' investment activity was subdued last year.

Chart 3-26: Annual volume changes in government consumption and investments



Source: HCSO, MNB

Chart 3-27: Changes in inventory



Source: HCSO, MNB

### 3.2.4. Government demand

Government consumption increased compared to the previous quarter. Along with the absorption of EU funds, government consumption was boosted by border protection measures as well. At the same time, owing to the government's efforts to control budget expenditures, in 2015 the volume of public consumption and government transfers in kind was only slightly higher than the level observed in the year before (Chart 3-26).

**The investment activity of government-related sectors varies across the segments of the narrowly interpreted public sector and the quasi-fiscal sector.** The significant increase in the investment projects of the narrowly interpreted public sector was supported by the administrative, healthcare and education branches. Within the quasi-fiscal sector, water supply investments significantly increased in line with the absorption of the EU funds, while the investment activity of the transportation and storage segment became more moderate. To a large degree, the performance of the sector was shaped by the accelerated drawdown of EU funds at the end of the year, which may point to a contraction in public sector investment.

### 3.2.5. Changes in inventories

**Throughout the year, changes in the inventories of the national economy made a negative contribution to growth,** which may be mainly attributable to the deteriorating performance of agriculture. Primarily the contraction of inventories in own production and bought inventories of trade and other sectors contributed to the changes in inventories, while the inventories of manufacturing slightly expanded in 2015.

**Box 3-2: Details and possible macroeconomic effects of the home construction subsidy**

The home purchase subsidy scheme for families (HPS) changed significantly from 1 January 2016. Families with three or more children which are building or buying new residential property may receive a non-refundable grant of HUF 10 million and may also apply for preferential interest subsidy from the state for the housing loans they take out, as a result of which the rate of interest payable by them may not exceed 3 per cent. The maximum duration of the interest subsidy is 25 years and it is available for loan amounts up to HUF 10 million.

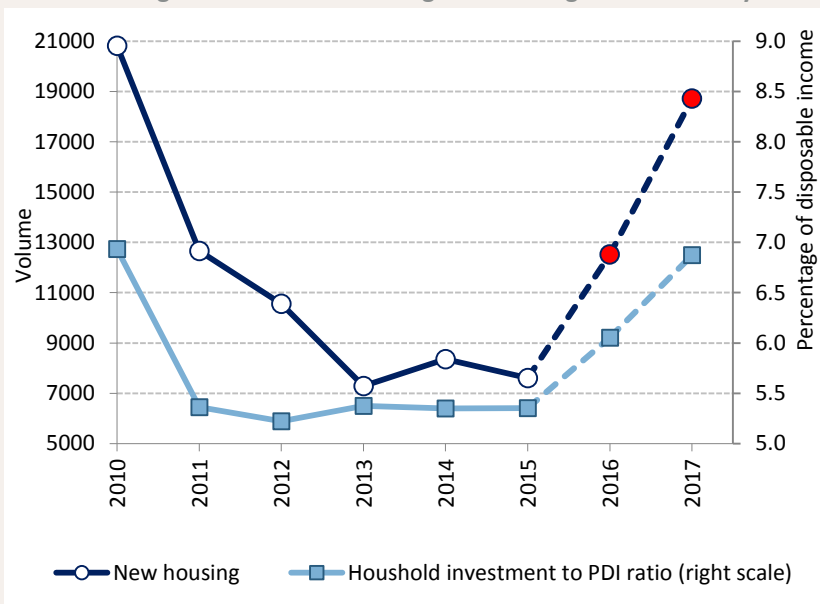
Contrary to the early announcements, fewer restrictions apply to the size and value of the property eligible for purchase in the case of newly built or purchased residential properties. On the other hand, the scheme also contains a number of constraints: a criminal record makes the applicant ineligible, and a minimum of six months social insurance is also mandatory. The latter condition is stricter for the subsidy of HUF 10 million, as it increases to two years. However, the details have not yet been elaborated in full; in the coming months the government may still fine-tune the details of the scheme. Most of these changes are expected to ease the conditions and expand the range of eligible persons.

The Hungarian market of new homes was characterised by a negative trend since 2008, which determined the situation of the housing market for several years. As a result, household expenditures on domestic home construction declined substantially and were extremely low by international standards as well. In accordance with the improving employment and income developments in line with the recovery from the crisis, the aforementioned negative trend turned around in 2013 and since then the sector has been characterised by a slow pick-up. However, the share of new homes in the housing market turnover remains moderate, and upward trends primarily affected the market of pre-owned homes. On the other hand, the number of construction permits issued has already significantly increased in the past quarters. Both income side developments and the improving financing environment contributed to the rise in the number of construction permits. Improving employment and increasing real incomes raise longer-term income expectations, which are important determinants of house purchases. The historically low interest rate contributed, on the one hand, to the easing of price-type credit conditions and on the other hand, it increased the appeal of housing market investments.

As follows from the real estate market mechanism and is shown by past experience, with the development of an upward trend, the rise in construction permits precedes the expansion in new construction by 4 to 8 quarters. The widening gap seen in recent quarters between the number of construction permits issued and the number of new dwellings may suggest that real estate developers opted for a strategy of “wait and see” in the past period. This may have been attributable to the government’s signals about the possible adoption of various housing market stimulus measures. The extended home purchase scheme and the large cut in the VAT rate related to housing market transactions substantially improve both the supply and demand conditions of the housing market.

Following the introduction of the measures, the postponed constructions may be realised swiftly, and thus based on the number of permits already issued, as many as another 5,000 new dwellings may be completed this year, which may be followed by a surge in the utilisation of the scheme resulting in the construction of yet another 5,000 new dwellings. **On the whole, the number of new dwellings may double within two years as a result of the scheme** (Chart 3-28). The measures may also cause employment to rise in line with the pick-up in housing market investments.

Chart 3-28: Housing construction and changes in housing investments by households



Source: HCSO, MNB

It is assumed that the subsidy of HUF 10 million, available for families with 3 children, will be drawn down for three quarter of the 13000 new homes to be built in 2016, while the subsidies drawn down by families with 2 and 1 children may significantly fall short of this, due to the progressive increase of the subsidies. The ratios may be similar in 2017. Based on these assumptions, the HPS drawn-down for new dwellings in 2016 represents a fiscal subsidy of HUF 110-115 billion (0.3 per cent of GDP) rising to HUF 150-160 billion (0.4 per cent of GDP) next year. Assuming that half of the applicants also draw down the interest-subsidised loan in addition to the home purchase subsidy of HUF 10 million, the burden of the subsidy on the budget may reach HUF 3 billion this year and HUF 5 billion next year.

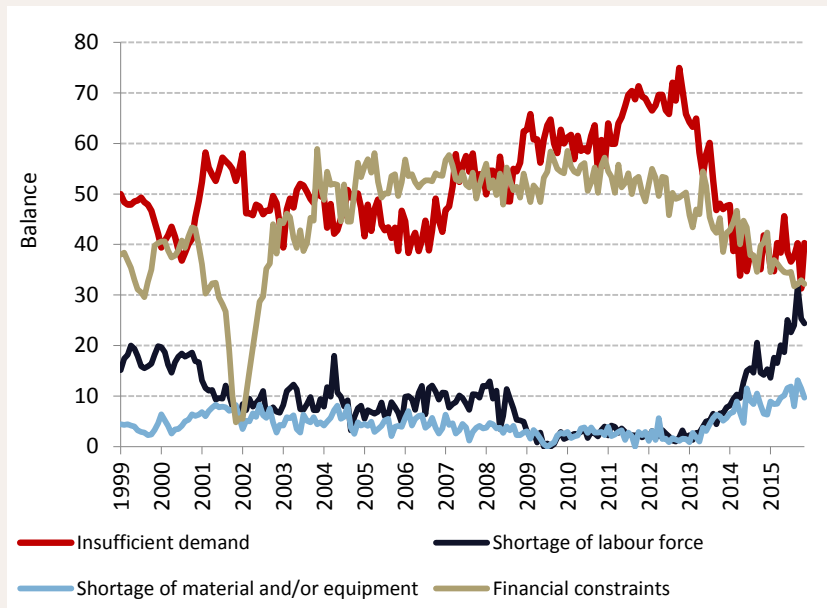
Also considering the fiscal stimulus of the home construction projects, the total effect on the budget balance may be lower than this. Employment growth increases the personal income tax and contribution revenues, the additional constructions contribute to the rise in VAT revenues, and a minor growth may also be expected in other tax types. The fiscal stimulus effects generate tax revenue surplus of HUF 20-25 billion this year, and HUF 40-45 billion in 2017.

The HPS expenditures related to used homes amounted to HUF 4.7 billion last year, but the measure was introduced only from 1 July. On a pro-rata basis, this year and next year we expect twice this much, i.e. roughly HUF 10 billion. Despite the extension of the scheme, utilisation is unlikely to be higher, as we expect that the reduction of VAT and the substantial subsidy applicable to new dwellings will divert demand from the used home market.

The measures encouraging the construction of new homes effect several sectors in the economy. Completed new investments directly increase the production of construction, while they exert an indirect influence on the performance of the property trading, financial and insurance sectors. The output of other non-metallic mineral manufacturing is expected to rise through the manufacturing of concrete, cement and glass used for construction. According to our estimates, the expected upturn in home construction will raise the level of GDP by 0.3 and 0.6 per cent by the end of 2016 and 2017, respectively.

**The expected rate and degree of the pick-up in the housing market may be primarily determined by the easing of supply constraints.** On the one hand, following the crisis the financial system has materially curbed the financing of the sector and tightened the conditions thereof. The financing situation of the sector is still characterised by tight lending conditions, which may hinder the accomplishment of the scheme's fiscal stimulus effect. In addition, the availability of skilled labour may also have a major impact on the growth rate of the housing market. In recent years, favourable demand conditions were accompanied by labour and base material shortage, which became the primary obstacle to production in the construction sector (Chart 3-28). The HPS stimulates demand, and thus the housing market scheme may boost the sector in the longer run. However, the slower-than-expected easing of supply constraints may mitigate the positive effect of the measure on economic growth.

Chart 3-29: Main factors currently limiting construction building activity

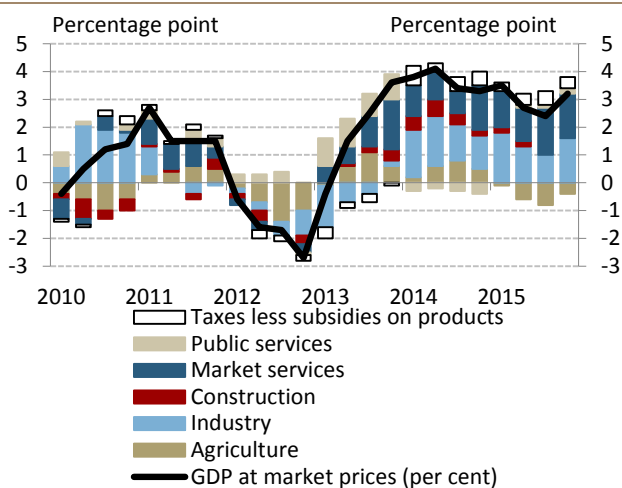


Source: HCSO, MNB

### 3.3. Level and structure of output

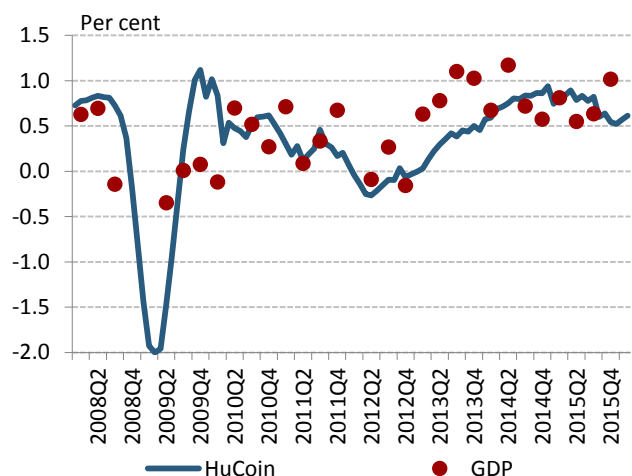
Throughout last year all sectors, except agriculture, made a positive contribution to growth. At the end of the year, the improvement in the performance of services and industry supported expansion. Construction gradually decelerated during 2015 in parallel with the phase-out of the absorption of EU funds. In addition, after the outstanding harvest results of 2014, value added in agriculture declined in 2015.

Chart 3-30: Contribution of the output of the main sectors of the national economy to GDP growth



Source: HCSO

Chart 3-31: Development of the HuCoin indicator



Note: Due to the revision of GDP figures, the past values of the HuCoin indicator have also changed.

Source: HCSO, MNB calculations

**In the fourth quarter of 2015, growth was primarily driven by the expansion of industrial production compared to the previous quarter** (Chart 3-30). The forward-looking indicators forecasting underlying trends in economic activity point to positive prospects. The HuCoin indicator – which captures the underlying trends in economic growth based on a broad range of indicators – still indicates brisk growth (Chart 3-31).

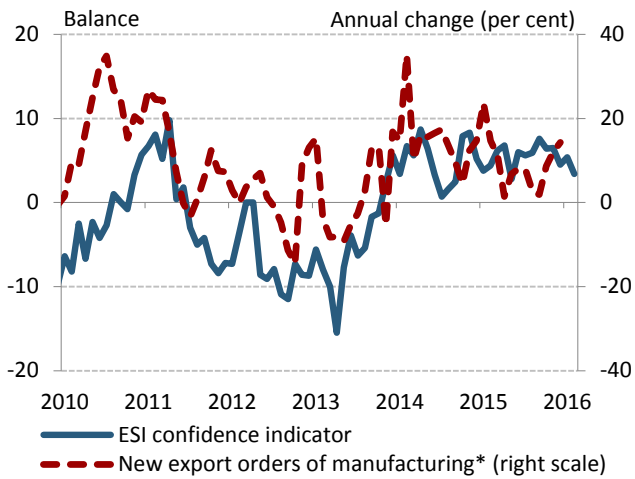
**The performance of industry improved compared to the previous quarter.** Growth is still attributable primarily to the expansion in the output of vehicle manufacturing, but production also increased in other subsectors in year-on-year terms. According to preliminary January figures, the level of industrial production essentially did not change compared to the end of last year.

**Forward-looking indicators signal favourable prospects for domestic industry over the short term.** The value of the ESI index, which captures the prospects of Hungarian industry, still indicates a favourable outlook, and the value of the Eurocoin indicator, which gauges the economic activity of the euro area, increased in January 2016. New export orders in domestic manufacturing increased in recent months. At the same time, as regards the medium-term outlook for industrial performance, the moderate performance of the German industry and the subdued growth expectations in the emerging economies may represent downside risks (Chart 3-32).

**Construction output was subdued at the end of 2015,** owing to the exhaustion of the investments financed with EU funds. Outstanding orders continued on a downward trend after a year and a half of contraction, but the volume of new contracts increased in the second half of the year (Chart 3-33).

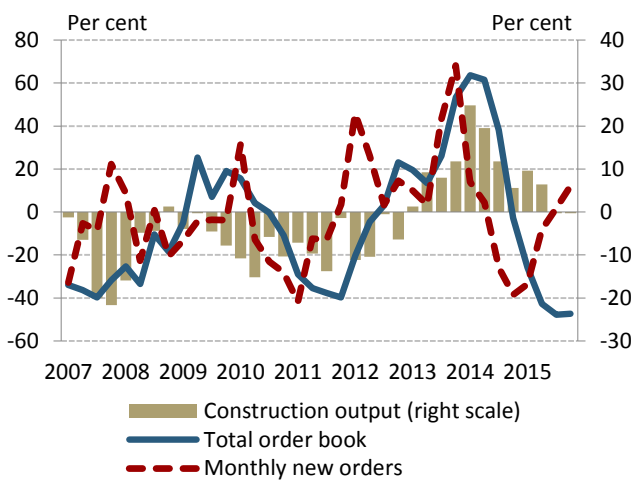
**Value added in agriculture fell sharply in 2015 after the outstanding harvest results of last year.** The sector restrained GDP growth by 0.5 percentage points on average at the annual level. Of the crops determining the fluctuations of the value added in agriculture, wheat yields were consistent with the 2014 harvest. However, corn yields decreased by nearly a third compared to 2014 as a result of the recent drought.

Chart 3-32: Industrial business climate indicators



Note: \*Three-month backward-looking moving average.  
Source: European Commission, HCSO

Chart 3-33: Annual changes in construction output, orders and new orders



Source: HCSO

**Value added in the services sector continued to increase in the fourth quarter**, with general expansion observed in the subsectors. The expansion was supported by the stable growth of consumption demand.

**Value added in the catering and tourism sectors continued to grow in the fourth quarter**, and the number of tourism nights increased further. The upturn in domestic tourism was supported by the improving income position of households and the increased utilisation of fringe benefits aimed at boosting domestic tourism. In addition, the depreciation of the exchange rate supported the steady increase in the overnight stays of foreign tourists.

**The performance of the financial sector increased in year-on-year terms.** The performance of the sector reflects the gradually improving lending activity. Growth in the real estate sector is mainly attributed to the upswing in the market of pre-owned homes.

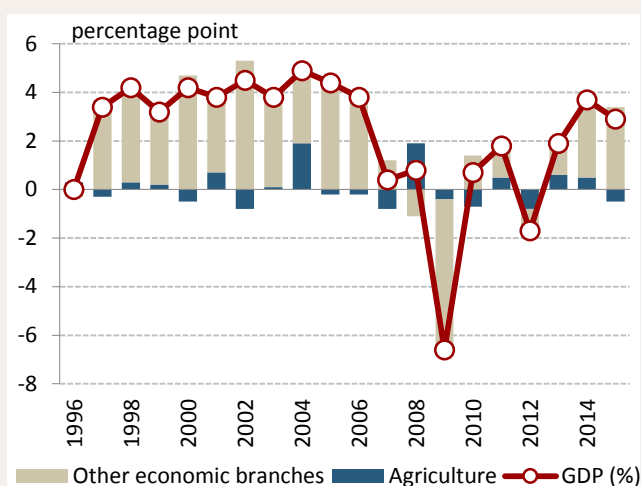
**In parallel with rising demand, potential growth also recovered in 2015.** Better employment prospects improved the match between labour demand and labour supply. In addition to facilitating capital accumulation, the easing of financial constraints supported the improvement of productivity.

**Box 3-3: Underlying factors behind the volatility of agricultural performance**

Value added in Hungarian agriculture has been rather volatile in recent period, and hence its contribution to GDP growth also fluctuated (Chart 3-34). There are major differences between European countries in terms of weight, structure and quality attributes of this sector. The following box examines the key factors underlying the performance of Hungarian agriculture, which exhibits substantial volatility.

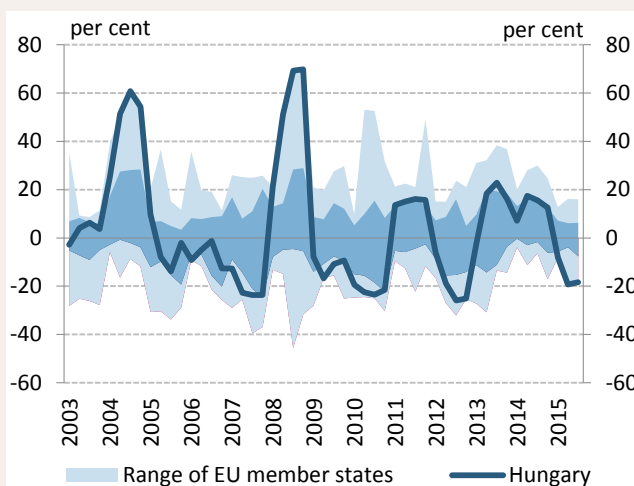
Since EU accession, **Hungarian agriculture** has essentially operated under identical rules and conditions as its European peers and has **shown substantially higher volatility than the European average** (Chart 3-35). Agricultural sectors in countries that joined later and have relatively high contribution to GDP typically show significant volatility. The direct share of Hungarian agriculture in gross domestic product has been steadily around 4 per cent in recent years, only outstripped by Romania and Bulgaria in terms of its weight.

**Chart 3-34: Growth contribution of agriculture**



Source: HCSO

**Chart 3-35: Changes in agricultural value added**

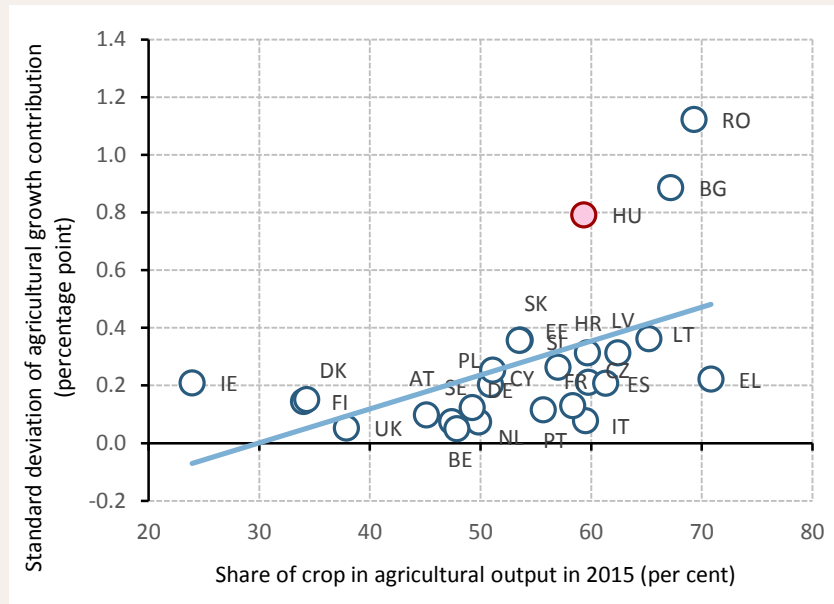


Note: Darker bend displays the range between the upper and lower percentile.

Source: Eurostat

The performance of agriculture is essentially influenced by weather conditions, and thus **the structure of agriculture also explains the volatility of the sector's value added performance**. Typically, the performance of agriculture is more volatile in those countries, where crop farming has a major share in agricultural output (Chart 3-36). In Hungary, the share of crop farming in agriculture is close to 60 per cent; however, the performance of the sector is more volatile than in the countries with similar agricultural structure. Among the EU Member States, volatility is higher only in Romania and Bulgaria.

Chart 3-36: Structure and volatility of agriculture



Source: Eurostat

Apart from the structure of agriculture, additional factors also explain the volatility of the sector's performance. **Irrigation** is a key factor in the efficiency of agriculture and its exposure to harsh weather. The size of irrigable areas has been gradually decreasing in Hungary in recent years. Farmers effectively irrigate only half of these areas, close to 100,000 hectares, which falls short of the EU-28 average.

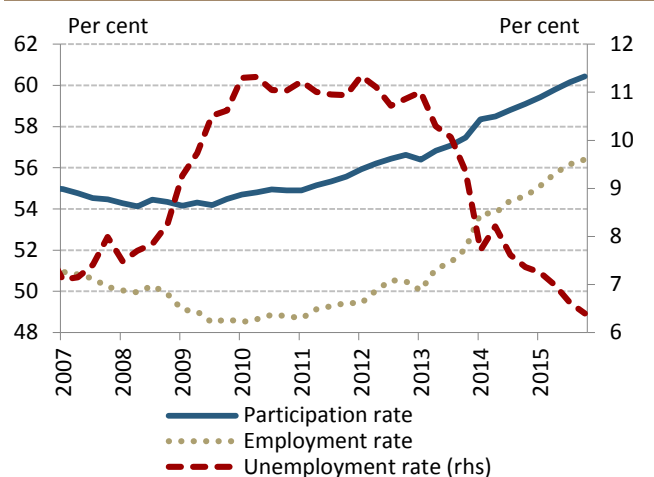
Hungary's agriculture is characterised by **small, scattered holdings**, similar to those in the East European and Mediterranean countries, which contribute to the weak capitalisation, economies of scale and competitiveness problems of smallholdings. Some modernisation took place in the 2000s, but the lag compared to the Western European countries in the quantitative and qualitative attributes, and average age of the machine pool is still outstanding. Motorisation of the sector has not changed to a great degree since 1990.

Subsidising agricultural **research and development** (e.g. plant breeding) may serve as a source of productivity improvement. Shortcomings in knowledge and specialist skills, the decline in cultivation technology, and smallholdings mostly producing for own consumption, hamper productivity in Hungary.

### 3.4. Labour market

In 2015 Q4, the number of employees working in the private sector continued to rise. The rise in employment was observed in manufacturing, while employment in the sector of market services decreased. The unemployment rate was 6.2 per cent in the fourth quarter. The gradual increase in labour market tightness continued.

**Chart 3-37: Participation, employment and unemployment rate, total economy**



Source: HCSO

**Chart 3-38: Employment in the private sector**



Note: \* Full-time equivalent without workers employed abroad.

Source: HCSO

**In the final quarter of 2015, the flow into the labour market of potential employees previously regarded as economically inactive persons continued, although to a lesser extent.** Looking at the gradually increasing labour market participation, the participation rate for the 15–74 age group was over 60 per cent (Chart 3-37), and the participation rate for the 15-64 age group was 69.1 per cent.

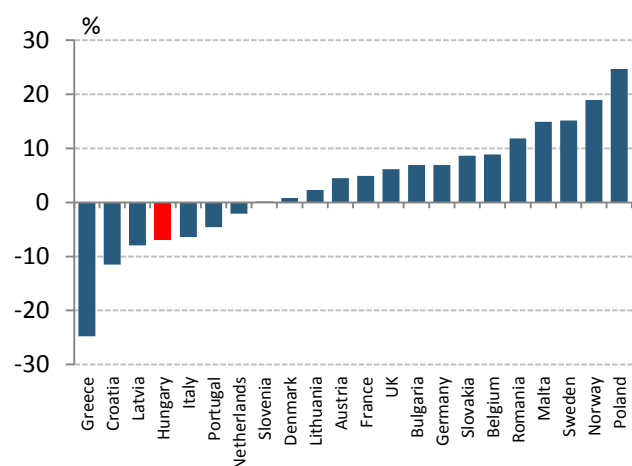
**During the fourth quarter, the number of employees in the national economy increased further, albeit to a lesser degree than before.** The number of persons employed in the general government remained the same as in the previous quarter, while private sector employment rose dynamically as in the previous quarters. Regarding the private sector, the rise in employment was observed in manufacturing, employment in the sector of market services decreased. The ratio of part-time employees and the average weekly hours worked by such employees decreased in parallel, and as a result of these effects the full-time equivalent of domestic private sector employment increased slightly in the fourth quarter (Chart 3-38).

**Continuing its downtrend since 2013, the unemployment rate was 6.2 per cent in the fourth quarter.** The number of non-subsidised vacancies slightly decreased compared to the third quarter, while the number of non subsidised new jobs remained in the range of 40–50 thousand, similarly to the previous quarters. **The tightness indicators indicate the continual tightening of the labour market in the past years.**

### 3.5. Cyclical position of the economy

The real economy continued to display disinflationary effects, and the output gap remained in negative territory at the end of 2015 as well. Recently the resource utilisation gap, which relies on the information content of the confidence indicators and the corporate surveys, suggests that corporate capacity utilisation increased further in the final quarter of 2015.

**Chart 3-39: Level of consumption in 2015 compared to pre-crisis**

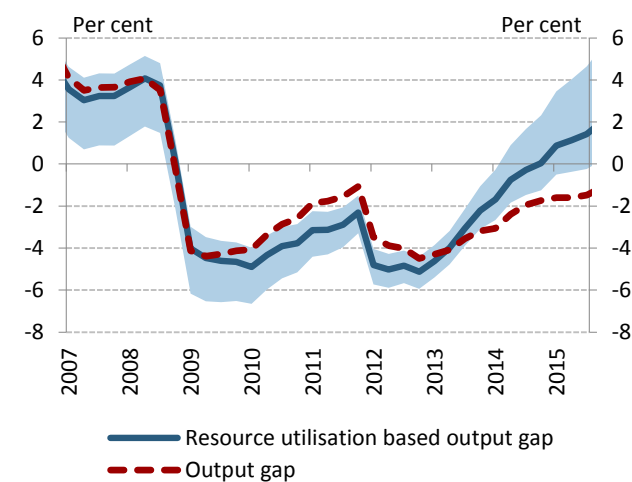


Source: MNB calculations based on Eurostat data

**According to our estimates, the output gap still remained negative, but the closing of the gap continued in the fourth quarter of 2015.** The negative output gap is primarily attributable to household consumption, which fell short of its pre-crisis level and is characterised by a more risk averse consumer attitude (precautionary savings), (Chart 3-39).

**The indicator capturing corporate capacity utilisation continued to increase in the fourth quarter,** pointing to a rise in capacity utilisation (Chart 3-40). The assessment of demand prospects improved further, and the indicators reflecting business sentiment were typically above their historical average, while labour shortage may have figured as a bottleneck in certain sectors. On the other hand, there are still considerable uncertainties in the estimation of the resource utilisation gap, which is due to the fluctuations in corporate surveys.

**Chart 3-40: Output gap measures**



Note: The resource utilisation based output gap consolidates the information content of various corporate capacity utilisation indicators into a single indicator. The band reflects the uncertainty of that estimate. For a detailed description of the methodology, see: Rác O. M. (2012): Using confidence indicators for the assessment of the cyclical position of the economy, MNB Bulletin, June 2012.

Source: MNB

The difference between the indicators denoting the cyclical position of the economy is attributed to several factors. Uncertain demand prospects and stronger financing constraints in the post-crisis years both led companies to exploit their production capacities more intensively than before. The calculation of the resource utilisation gap is based on confidence indicators and capacity utilisation indicators. On the whole, **the level of the resource utilisation gap overestimates the degree of demand-side inflationary pressure.** On the other hand, temporal changes in the indicator still reflect properly the direction of shifts in inflationary pressure.

**According to data received since the December Inflation Report, the output gap continued to close in the fourth quarter of 2015.**

### 3.6. Costs and inflation

Inflation remained moderate, at levels below the 3 per cent target in early 2016. Restrained inflation trends reflect the substantial decrease in commodity prices, low imported inflation and weakening inflation expectations. Private sector wage growth was stable in the fourth quarter.

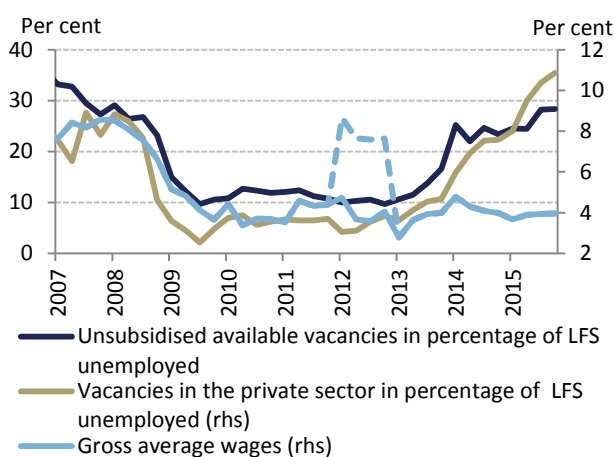
**Table 3-4: Annual wage growth in the main private subsectors**

	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Jan
Private sector	3.7	3.9	3.9	4.0	4.4
Manufacturing	3.5	4.0	4.1	4.2	4.2
Market services	3.1	3.5	3.6	4.0	4.7

Note: Annual change, in per cent.

Source: HCSO

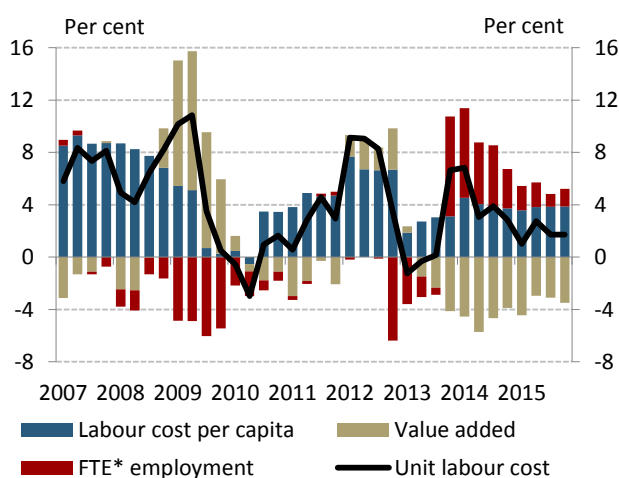
**Chart 3-41: Development of gross averages wages labour market tightness indicators**



Note: In the case of the gross average wages the effect of the minimal wage rise has been excluded.

Source: National Employment Service, HCSO, MNB calculation

**Chart 3-42: Annual changes and components of unit labour cost in private sector**



Note: \* Full-time equivalent. Seasonally adjusted data.

Source: MNB calculation based on HCSO data

#### 3.6.1. Wages

**Private sector wage dynamics did not change notably compared to the previous quarter, with gross average wages rising 4 per cent in annual terms.** Corporate bonuses corresponded to the level usual in the last quarter. Based on seasonally adjusted data, a mild increase in private sector wage growth was observed last year. In the private sector, the annual average gross wage growth (as in the previous years) in manufacturing was still more robust than in the sector of market services (Table 3-4). Due to the impact of a few opposing factors (immobile labour force, low inflation environment), the continually strengthening of labour market tightness exerted only minor pressure on nominal wage growth (Chart 3-41).

**Growth in unit labour cost (calculated using full-time equivalent employment) did not change notably compared to the previous quarter** (Chart 3-42). The unchanged unit labour cost dynamics stem from the faster increase in value added and in full-time equivalent employment.

#### 3.6.2. Producer prices

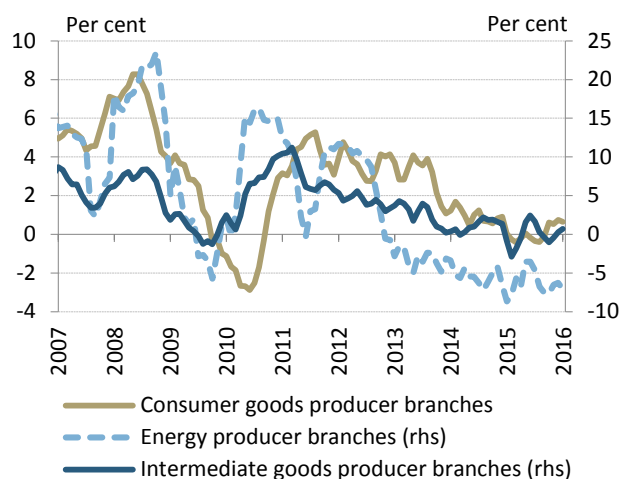
**Agricultural producer prices remained at low levels in the previous period.** The price level of seasonal products – fresh fruits and potato – sensitive to environmental factors continued to increase, while the price of products of animal origin declined further. After the decline seen in the previous period, the producer price of milk did not change notably in the final quarter of 2015.

**Industrial producer prices were restrained in the period under review.** The annual price indices of the energy-producing sectors remained moderate, reflecting the low level of oil prices. Price dynamics of sectors producing goods for further processing have accelerated moderately, while no notable change was observed in the price dynamics of the sectors producing consumer goods (Chart 3-43). Changes in domestic producer prices were consistent with the trends observed in the euro area.

#### 3.6.3. Consumer prices

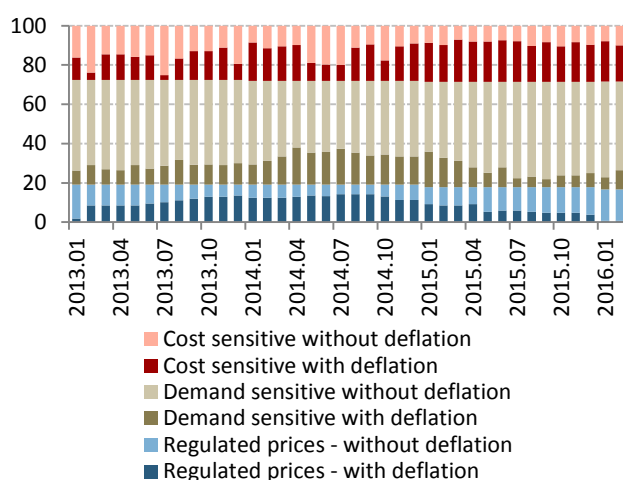
**Inflation remained below the 3 per cent target in recent months.** The substantial fall in commodity prices, weak imported inflationary pressure and weakening inflation expectations all contributed to low inflation. The domestic

Chart 3-43: Annual change in industrial producer prices



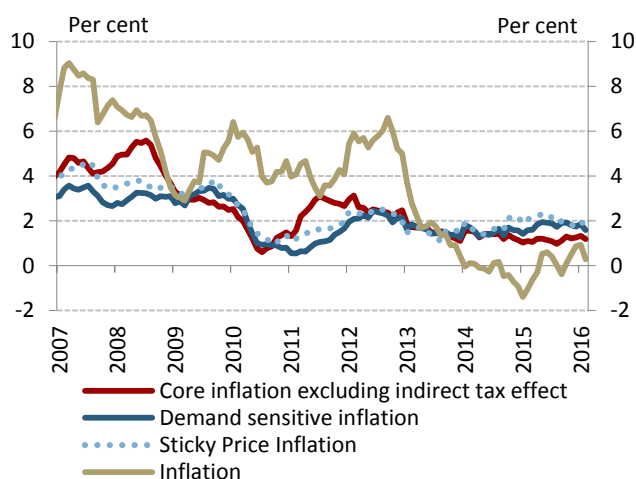
Source: MNB calculation based on HCSO data

Chart 3-44: Inflation decomposition by the most relevant factors of price determination



Source: MNB calculations based on HCSO data

Chart 3-45: Development of inflation and underlying inflation indicators



Source: MNB calculation based on HCSO data

consumer price index began to fall again in recent months, which is attributed mainly to price dynamics of cost-sensitive product group according our cross sectional data (Chart 3-44).

**Indicators capturing longer-term inflation trends** (inflation of demand-sensitive products and inflation of products with sticky prices) **have fluctuated consistently in the 1.5–2 per cent band since the second half of 2013**. The level of the indicators still points to a moderate inflation environment, which is attributed to depressed cost side and subdued demand side developments (Chart 3-45).

**Prices of industrial goods increased slightly in the previous months.** Inflation rose in both the durable and non-durable product segments early in the year, with developments in the volatile prices of flight tickets contributing to this in the non-durable segment. In the past quarter, besides the price-reducing effect of moderate import prices, prices of industrial goods were shaped by the gradual pass-through of the earlier exchange rate depreciation and the continuous recovery in domestic demand.

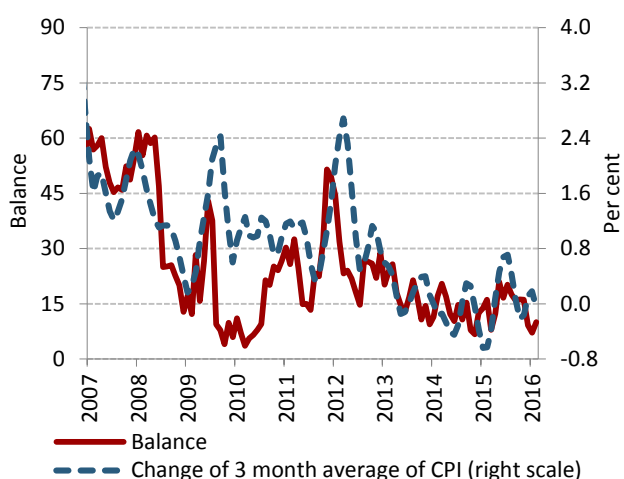
**The annual index of market services remained essentially unchanged in the past months.** In January, the month which is determinant in the context of repricing, market services prices increased slightly in a monthly comparison. A more substantial rise was observed only in insurance premiums, whereas other services were generally characterised by moderate price developments at the start of the year.

**Prices of processed foods essentially did not change in recent months compared to late last year.** The price development of unprocessed foods remained moderate. The price development of this product group was influenced strongly by the VAT cut on pork, which appeared in the prices almost in full and proved to be higher than in the case of earlier VAT changes. The prices of poultry products fell moderately in February, which may be related to the decrease of VAT on pork.

**Fuel prices declined due to the substantial fall in HUF-denominated oil prices resulting from the continued increase in global oil production.** Since December 2015 the global price of Brent oil has decreased considerably.

**The price index of regulated prices slightly decreased in recent months,** primarily due to the drop-out of the price effect of the new motorway toll scheme – introduced in the beginning of 2015 – from the base.

**Chart 3-46: Expected changes in retail sales prices in the next 3 months\* and actual inflation**



Note: \* Balance is the difference between the proportion of corporations expecting price increase and price decrease.  
 Source: ESI and MNB calculation based on HCSO data

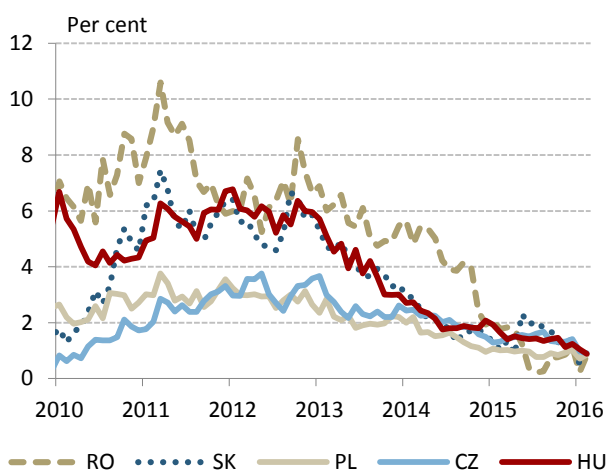
Inflation fell short of the forecast in the December Inflation Report, primarily reflecting the continued substantial decline in commodity prices since December.

3.6.4. Inflation expectations

**With regard to retail sales prices, inflation expectations decreased further in recent months.** This suggests that producer price trends do not warrant price increases in the coming months (Chart 3-46).

In a regional comparison, Hungarian households' expectations were at the levels seen in countries characterised by persistently low inflation (the Czech Republic and Poland). In February, Hungarian households' inflation expectations decreased compared to the previous months. While no notable change was observed in the Czech Republic, inflation expectations slightly decreased in Poland and Slovakia, and rose in Romania (Chart 3-47).

**Chart 3-47: Inflation expectations in the region**



Source: MNB calculations based on data of the European Commission

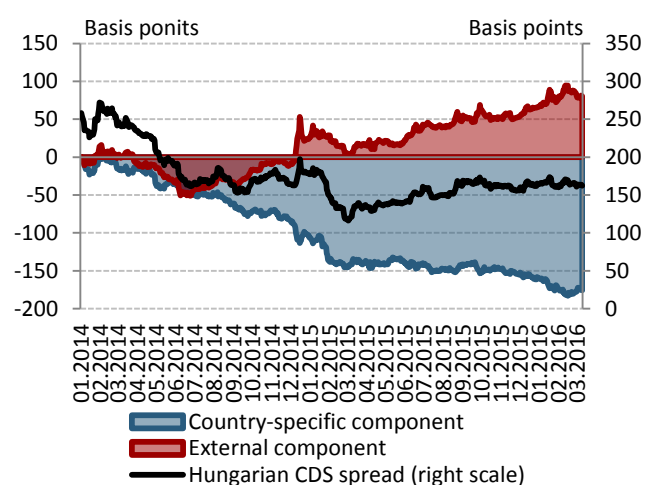
## 4. FINANCIAL MARKETS AND INTERES RATES

## 4.1. Domestic financial market developments

Due to growth concerns related to the deceleration of the Chinese economy, in the first half of the period under review global market sentiment deteriorated, followed by a significant adjustment last month. Risk indicators and the leading stock market indices substantially worsened until the first week of February due to the growth fears and the future path of oil prices, followed by a material adjustment amidst improving investor sentiment from mid-February. The decline in long-term government bond yields in developed markets reflects increasing aversion to risk and the expectations with regard to a shift in the central banks' monetary policy to easing.

Hungary's risk assessment has improved on the whole in the last three months. In the first half of the reporting period, despite the mounting risk aversion, indicators for the region did not deteriorate substantially, and domestic markets proved resilient to the international trends. Hungary's favourable risk assessment is reflected both by the stable CDS spread and falling long-term yields. The appreciation of the forint exchange rate against the euro exceeded the regional average.

Chart 4-1: Components of 5-year Hungarian CDS spreads



Source: Bloomberg

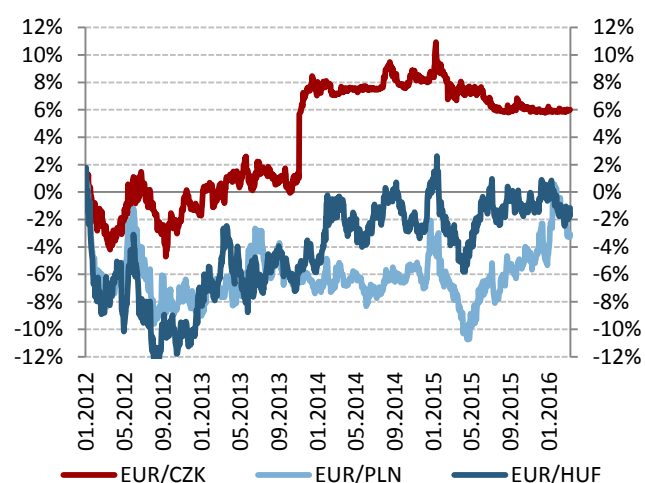
## 4.1.1. Risk assessment of Hungary

**Hungary's risk assessment improved since the December Inflation Report.** The Hungarian 5-year sovereign CDS spread fell by 5 basis points compared to the beginning of the period under review and remained at a moderate level (in the 160–175 basis point range). The 10-year government bond yield fell by 35 basis points, while the forint exchange rate against the euro fluctuated in the 307–318 band, appreciating by almost 2 per cent relative to the start of the period.

**The small decline in the Hungarian CDS spread was primarily due to domestic factors.** During the global market wobbles at the beginning of the year, the CDS spreads of the countries of the region temporarily increased, followed by a decrease in the regional risk indicators – with the exception of Poland – from mid-February. Overall, regional sovereign CDS spreads slightly decreased. According to our CDS decomposition methodology, the slight decrease in the Hungarian risk spread was mainly attributable to domestic factors, while the international component exerted a slight upward impact on the spread (Chart 4-1).

**The EUR-denominated Hungarian foreign currency bond spread also decreased compared to mid-December.** In line with the regional trend, the Hungarian foreign currency bond spread increased from the start of the year, and then dropped below its mid-December level as a result of a correction in early March (Chart 4-2).

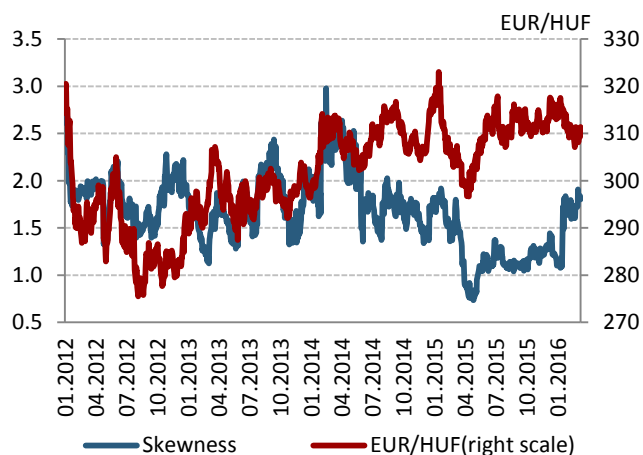
Chart 4-2: Exchange rates in the region



Note: Changes compared to beginning of 2012. Positive values represent appreciation of the currency.

Source: Bloomberg

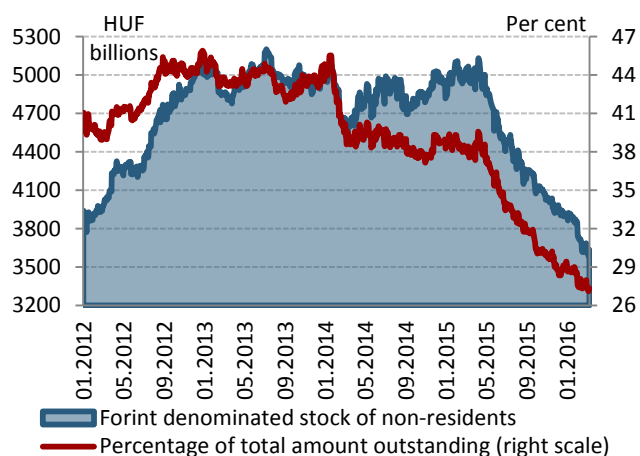
Chart 4-3: EUR/HUF exchange rate and 1-month skewness



Note: Skewness = Risk reversal/Volatility \*10.

Source: Bloomberg

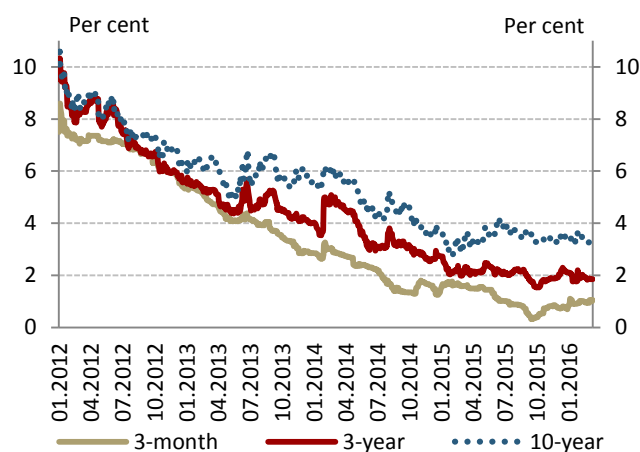
Chart 4-4: HUF-denominated government securities held by non-residents



Note: The chart shows the stock of T-bills and T-bonds and the amount of government securities held by non-residents; retail securities are not included.

Source: MNB

Chart 4-5: Yields of benchmark government securities



Source: GDMA

#### 4.1.2. Developments in foreign exchange markets

**The EUR/HUF exchange rate appreciated in the period after mid-December, outstripping the currencies of the region.**

On the whole, the forint exchange rate fluctuated in a range of 307–318 during the period. The currencies of the region proved resilient to the negative global investor sentiment observed late last year and early this year.

**Until mid-January, the forint exchange rate fluctuated in the range of 313–317, followed by substantial appreciation from the latter half of January amid improving global investor sentiment.** On the whole, for the entire period Hungary's currency appreciated by 2 per cent against the euro. The central bank's communications with regard to additional easing of the monetary stance weakened the HUF exchange rate only temporarily. However, from mid-January, in parallel with the forint appreciation the negative skewness of the exchange rate movements increased substantially (Chart 4-3).

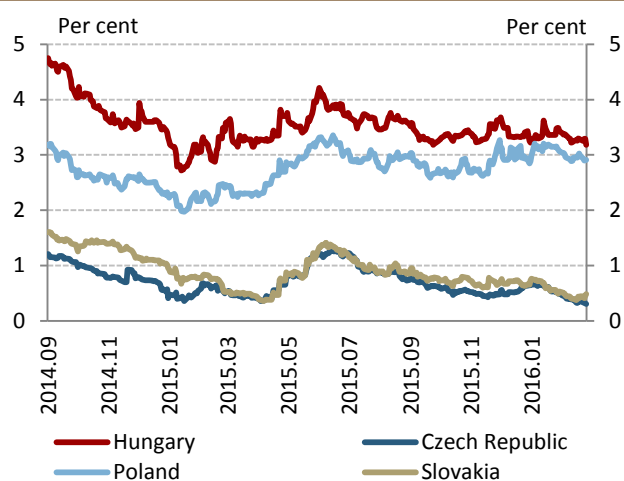
During the period, due to country-specific factors, the Polish zloty was more volatile than the other currencies of the region, but on the whole, it behaved similarly to the Romanian leu and appreciated by roughly 1 per cent against the euro, while the Czech koruna continued to move in a narrow band, close to its exchange rate floor. Regional exchange rates appreciated against the US dollar by approximately 2–4 per cent.

Swap spreads for short-term maturities were typically slightly above the value observed in the previous quarter, even if we ignore the year-end highs. In the second half of December spreads for medium-term maturities (1 to 6 months) substantially decreased, followed by a rebound in mid-February back to the start-of-period levels. In the case of long-term maturities spreads fell by 20–25 basis points during the quarter.

#### 4.1.3. Government securities market and changes in yields

In parallel with the decrease in the long-term government bond yields, the proportion of government securities held by non-residents continued to fall. The stock of HUF government securities held by non-residents, which has steadily declined since April last year, continued to fall in recent months as well, approaching HUF 3,600 billion by the end of the period. The stock of government securities held by non-residents fell by HUF 300 billion since the last Inflation Report, with their share in HUF-denominated securities dropping from 28 per cent close to 27 per cent. The reduction of the non-residents' government securities

Chart 4-6: 10-year government benchmark yields in CEE countries



Source: Bloomberg

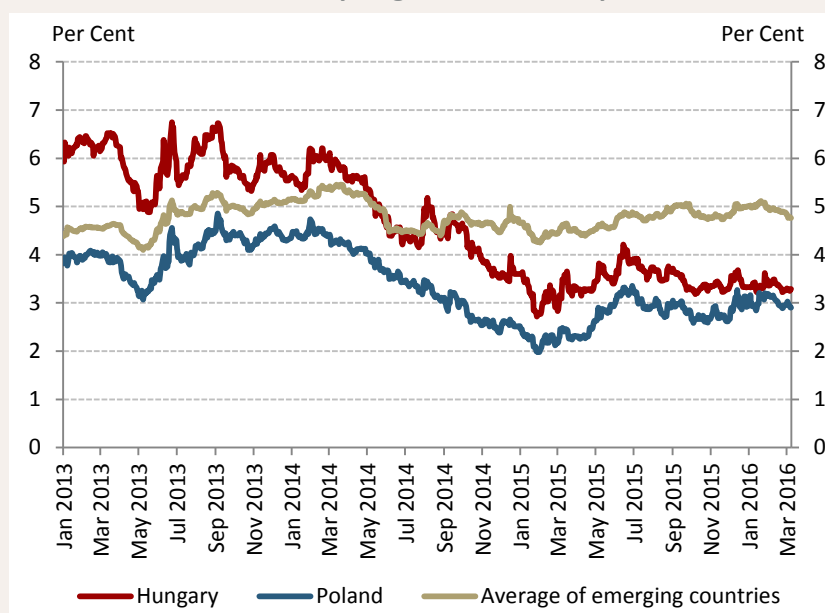
portfolio did not cause any notable volatility in yields (Chart 4-5).

Government securities benchmark yields for short-term approached the base rate after a minor rise, while in the medium-term and long-term segments yields dropped materially, falling by 30-50 basis points (Chart 4-5). The decline in Hungarian yields outstripped the fall in the long-term benchmark yield in other countries of the region (Chart 4-6).

**Box 4-1: Trends in long-term yields in Hungary and the emerging region**

**Past years were characterised by divergent yield environments in the emerging markets.** This phenomenon is attributable to several factors. The diverging monetary policies in the developed market, the fall in commodity prices in recent periods and the different economic policy measures of the individual countries all contributed to the different development of government securities yields in emerging countries.

**In the emerging economies, yields in the CEE region basically declined** in recent years. This was linked to the ECB's accommodating monetary policy and to the fact that the development of inflation in the economies with close links to the euro area remained subdued, facilitating interest rate cuts by the region's central banks. The fact that the region's economies tend to be commodity importers is another important factor, and thus the fall in commodity prices did not induce similar increases in the risk premium as seen in the case of the commodity exporter countries.

**Chart 4-7: 10-year government bond yields**

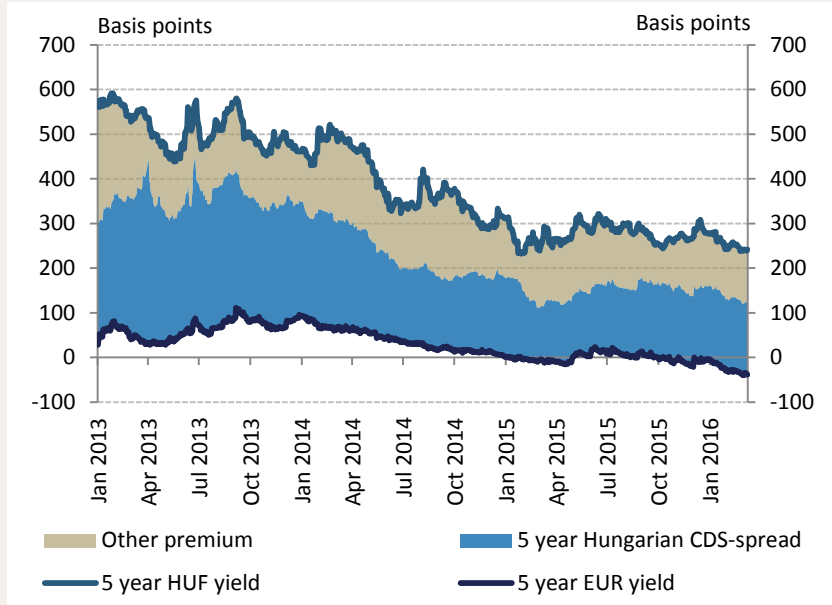
Source: Bloomberg, MNB calculation

The trend for 10-year government bond yields shows that **Hungarian and Polish yields fell in recent years, both in absolute terms and compared to the average of the emerging region.** On the other hand, **the Hungarian yield level has gradually converged to Polish yields in the last two years:** the difference of 200 basis points measured in early 2013 had declined to 30 basis points by March 2016. In addition, yields also fell compared to other countries in the region, suggesting that country-specific factors also contributed to the trend seen in Hungary.

These **country-specific factors may include the improved growth position, favourable trends in the level and structure of government debt, declining vulnerability and the effects of the measures of the MNB.** In addition to the easing cycle, in respect of the MNB's measures it was primarily the self-financing scheme and the reform of the monetary policy instruments which may have contributed to the decreasing level of long-term yields.

Similar conclusions may be drawn from the decomposition of the 5-year government securities yield. On the external side, the gradual decrease in euro yields also exerted downward pressure on the Hungarian yield level, while the favourable developments in Hungary's risk assessment, as captured by the CDS premium, and the decline in other yield factors suggest the presence of country-specific effects as well. In this decomposition, in the short term the MNB's measures may have been reflected primarily by the "other" yield factors, while in the medium term they may appear more distinctly in the risk perception through decreasing vulnerability.

Chart 4-8: Decomposition of the 5-year government bond yield

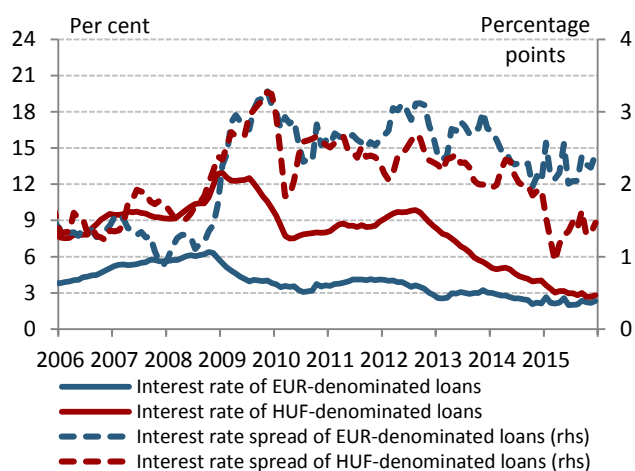


Source: Bloomberg, Reuters, MNB calculation

## 4.2. Credit conditions of the financial intermediary system

Costs of financing decreased in the corporate segment, as well as in the household consumption and the fixed-rate housing loan segments in 2015 Q4. In the Lending Survey, about one fifth of the responding banks reported an easing in corporate credit conditions, while half of the respondents anticipate further easing in the next half-year. This may reflect the reduction of the bank levy in 2016, and the conditions of the central bank's Market-Based Lending Scheme (MLS) the purpose of which is to stimulate lending. Conditions for housing loans remained unchanged, while broad-based growth in demand continued, which is also supported by the elements of the home purchase subsidy scheme (HPS) to a large degree. The one-year forward-looking real interest rate recovered from its historical low in January, as a result of declining inflation expectations.

Chart 4-9: Smoothed interest rates and spreads on corporate loans by denomination



Note: Interest rates smoothed by the 3-month moving average. The spread on the moving average of the 3-month BUBOR and EURIBOR, respectively. Loans with floating interest rates or with up to 1-year initial rate fixation.

Source: MNB

### 4.2.1. Corporate credit conditions

#### Financing costs of HUF-denominated corporate loans slightly decreased further.

The average interest rate level on new HUF loans with floating interest rates or with up to 1-year initial rate fixation<sup>1</sup> declined by 0.2 percentage point compared to the end of the previous quarter, dropping to 2.8 per cent by the end of the year (Chart 4-9). This mainly reflects the decrease in average spreads, which was attributable to both the decline in the average spread on small-amount loans and the composition effect, i.e. the ratio of large-amount new loans increased in total new loans. The average interest rate on long-term investment loans to small and medium-sized enterprises was 4.2 per cent for short-term working capital loans. The interest level on working capital loans has exhibited a trend-like decrease in the last two years and moved very close to the 2.5 per cent cost of finance under the Funding for Growth Scheme, which may help the changeover to market conditions after the phase-out of the scheme. The interest spread on EUR loans increased somewhat, but this was offset by a fall in the reference rate, and accordingly the average level practically remained unchanged.

#### In the fourth quarter, corporate credit conditions continued to ease.

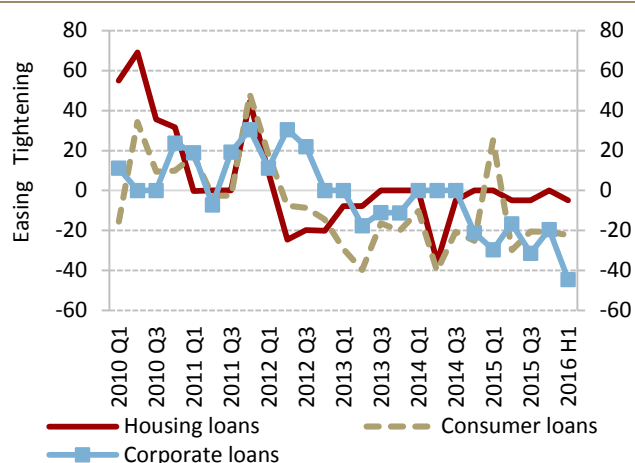
The Lending Survey revealed that, in net terms,<sup>2</sup> 19 per cent of banks eased their corporate credit conditions (Chart 4-10). In addition to market share objectives, which was also most typically referred to in the previous periods, the improvement in the economic outlook was mentioned the most often as a factor contributing to easing.<sup>3</sup> In addition, improvement in industry-specific factors also appeared as a factor contributing to easing. According to the respondents, these factors may support the easing of conditions in 2016 H1 as well. This is supported by the

<sup>1</sup> The majority of loans granted under the Funding for Growth Scheme are long-term loans; therefore, the interest rates reviewed mainly reflect lending developments outside of the scheme.

<sup>2</sup> Net percentage balance of respondents tightening/easing credit conditions weighted by market share.

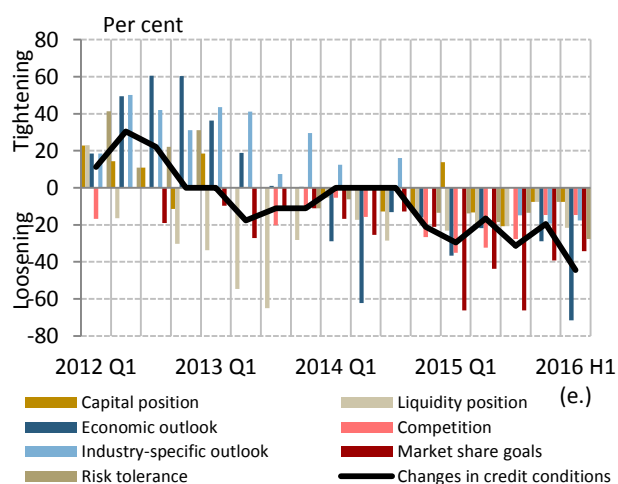
<sup>3</sup> For a detailed analysis of the findings of the Lending Survey, please refer to the MNB's 'Trends in Lending' publication, available at: <http://www.mnb.hu/letoltes/hitelezesi-folyamatok-201602-en.PDF>

**Chart 4-10: Changes in credit conditions in the corporate and household sectors**



Note: Net percentage balance of respondents tightening/easing credit conditions weighted by market share. Forecast for 2016 H1.  
Source: MNB based on banks' responses

**Chart 4-11: Changes in credit conditions and factors contributing to the changes in the corporate segment**



Note: Net percentage balance of respondents tightening/easing credit conditions weighted by market share.  
Source: MNB based on banks' responses

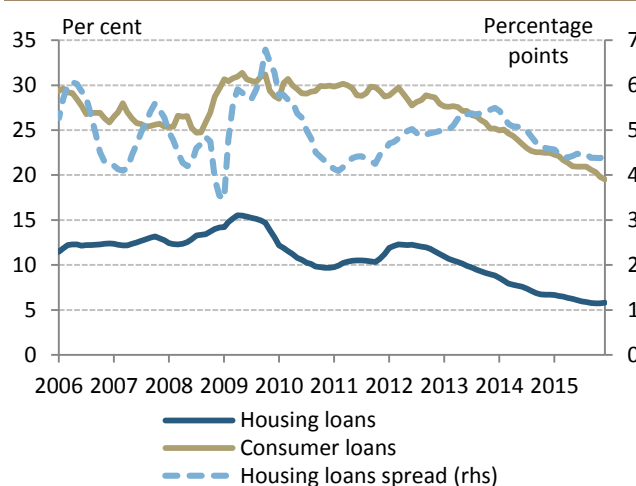
reduction of the bank levy in January 2016 and the introduction of the interest rate swap conditional on lending activity (LIRS); hence, 45 per cent of the respondents anticipate a decrease in spreads. On the other hand, improvement in the quality of the corporate portfolio may help increase banks' risk tolerance (Chart 4-10).

#### 4.2.2. Household credit conditions

**In addition to interest rates on consumer loans, rates on fixed-rate housing loans also declined.** Although the annual percentage rate of charge (APR) on new disbursements declined by 1.1 percentage points for consumer loans in 2015 Q4, the average interest rates on housing loans did not change in the period under review, and amounted to 5.8 per cent (Chart 4-11). Despite the apparent steadiness, the decline in the average interest rate on new housing loans resulted from heterogeneous developments: interest rates on collateralised floating-rate loans increased by 0.3 percentage point, while fixed lending rates decreased by 0.2 percentage point. The average interest rate spread on housing loans increased by 0.1 percentage point to 4.5 percentage points.

**Demand for housing loans increased, while credit conditions remained unchanged.** Based on banks' responses to the Lending Survey, in net terms, 21 per cent of the banks reported an easing of the conditions on consumer loans in the fourth quarter of 2015, mainly with regard to the maximum maturity (Chart 4-12). The easing is explained by market competition and market share objectives, as well as by trends in clients' creditworthiness. On the whole, credit conditions for housing loans remained unchanged, while the increase in new loans is induced by intensive expansion in demand. From 2016, the pick-up in demand is also supported by the availability of the home purchase subsidy scheme (HPS) and the VAT rate cut. Respondents primarily mentioned the trends in the housing market processes as a factor that would warrant the easing of credit conditions. Looking forward, the trends are expected to continue: 22 per cent and 5 per cent of the respondent banks (in net terms) may ease the conditions on consumer loans and housing loans, respectively, in 2016 H1.

**Chart 4-12: Smoothed annual percentage rate of charge (APRC) and spreads of housing and consumer loans**



Note: Interest rates and spread smoothed by the 3-month moving average. Prior to 2009, HUF-denominated mortgage lending played a marginal role.

Source: MNB

#### 4.2.3. Changes in real interest rates

**The one-year forward-looking real interest rate reached a historic low in 2015 Q4.** In December 2015, on the basis of the yield estimated from government securities, the real interest rate level reduced by inflation expectations stood at  $-0.9$  per cent, after an increase of 0.3 percentage point. The real interest rate calculated on the basis of deposit rates fell to yet another historic low of  $-1$  per cent in December, after a decrease of 0.3 percentage point. However, in January the real interest, derived in both ways, increased significantly, the first one reaching 0.1, while the latter at 0 per cent (Chart 4-13). The increase in the real interest rate in January primarily reflects the fact that although inflation expectations slightly increased in 2015 Q4, they fell by 1 percentage point to 0.9 per cent in January.

**Chart 4-13: Forward-looking real interest rates**



Note: \* Based on the one-year forward-looking inflation expectations of analysts calculated by the MNB using the 1-year zero coupon yield and the Reuters poll. \*\*Based on the one-year forward-looking inflation expectations of analysts calculated by the MNB using deposit rates with maturity up to 1 year and the Reuters poll.

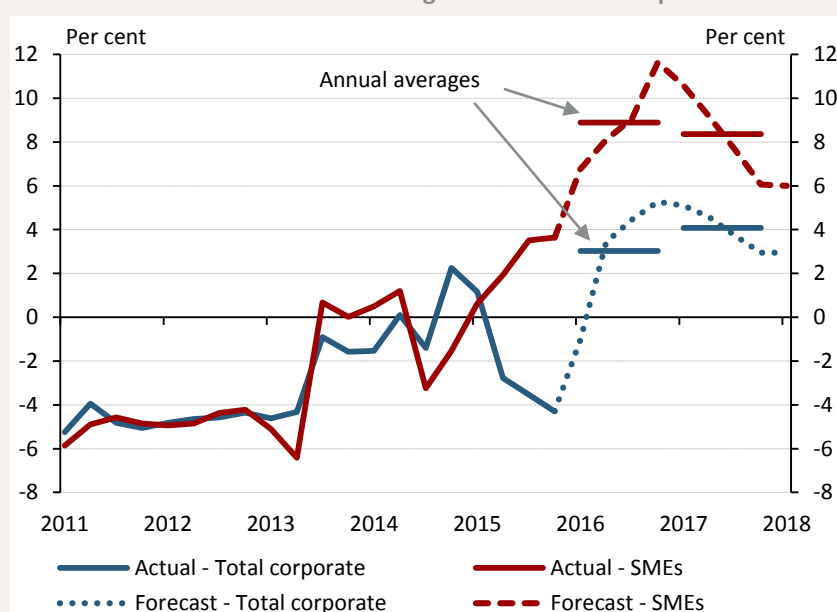
Source: MNB, Reuters poll

**Box 4-2: Assessment of the interest rate swap (LIRS) tenders announced under the Market-based Lending Scheme**

In order to boost economic growth through lending to SMEs and to help banks change over to market-based SME financing, **in January 2016 the MNB launched its Market-based Lending Scheme (MLS)**. Within the framework of the scheme the MNB helps banks change over to market-based lending by an instrument that supports risk and liquidity management. The MNB elaborated the regulatory details of the scheme considering the conclusions of the consultations conducted with the Hungarian Banking Association.

The key instrument of the MLS is the interest rate swap conditional on lending activity (LIRS), which facilitates management of the participating credit institutions' interest rate risk. By concluding the three-year LIRS transactions, **banks make an explicit commitment to increase their outstanding lending to SMEs** in each calendar year during the maturity of the transaction **by one-quarter of the concluded LIRS transactions**. During the first four tenders announced for LIRS, in the context of robust demand, **HUF 772 billion was allocated in total** of the global amount of HUF 1,000 billion approved by the Monetary Council for the entire scheme. It follows from the conditions of the instrument that the participating credit institutions thus **committed to lending growth of more than HUF 190 billion**. **In 2016, this will generate an increase of 5 per cent in the context of the total SME loan portfolio**, which is consistent with the forecast published in the Financial Stability Report of November 2015. **The growth effect exerted on SME lending may further increase in the future**, as the MNB will announce one last tender, subject to observing the global amount, until the end of March.

Within the Funding for Growth Scheme, **the third, phase-out stage of the FGS also supports growth in outstanding lending**. Based on the joint effect of the two schemes **growth of 5 and 10 per cent can be expected in the entire corporate and SME lending, respectively, for 2016**.

**Chart 4-14: Forecast for lending to non-financial corporations**

Source: MNB

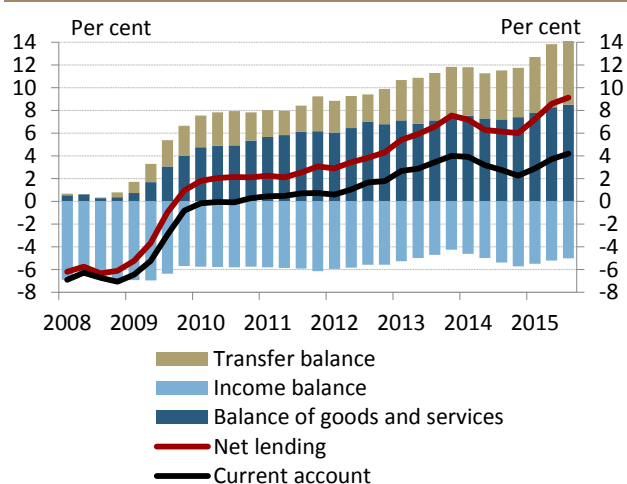
The MLS may **contribute to the growth in SME financing also in 2017 and 2018**. If the credit institutions do not close their outstanding LIRS position in early 2017 and 2018, they undertake continued and repeated commitments to increase SME financing for the coming calendar year. Accordingly, the **MLS conditions ensure balanced, market-based growth in corporate lending**, which can support the necessary lending dynamic for the sustainable growth in the medium term.

## 5. BALANCE POSITION OF THE ECONOMY

## 5.1. External balance and financing

Hungary's net lending rose to 9.1 per cent of GDP in the third quarter. All three factors contributed to the improving external position. In the case of the trade surplus, the stronger expansion in exports than imports was also supported by better terms of trade, accompanied by intensifying absorption of EU transfers. According to the monthly data, net lending increased further in the last quarter, thanks to the substantial trade surplus. On the financing side, the outflow of funds – in line with the high net lending – reached unprecedented levels in the third quarter. The sectors reduced their net external debt by EUR 3.5 billion, with banks playing a key role in this development. The repayment of external debt continued in the final months of the year as well, accompanied by modest FDI inflows. In the third quarter, both gross and net external debt decreased to a larger degree, with the net indicator falling to close to 27 per cent of GDP. In a sectoral breakdown, net lending increased in the context of growth in the net lending of the general government and the corporate sector.

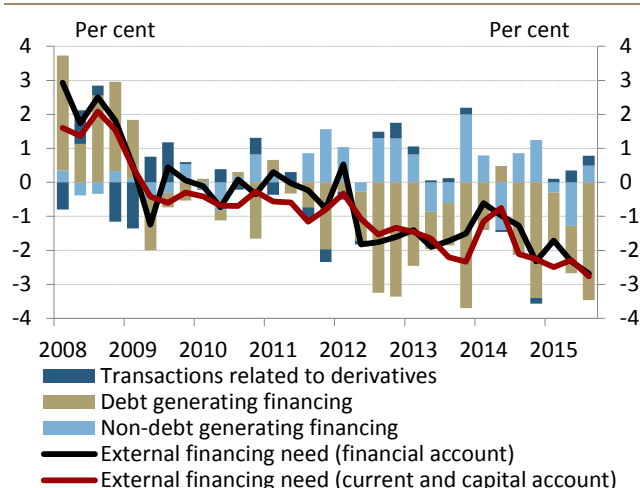
Chart 5-1: Changes in external financing capacity (cumulated four-quarter values; percentage of GDP)



Note: Cumulated four-quarter values

Source: MNB

Chart 5-2: Structure of external financing



Note: The net borrowing calculated from financial account side corresponds to the total of the net lending and the net errors and omissions.

Source: MNB

## 5.1.1. Developments in Hungary's net lending position

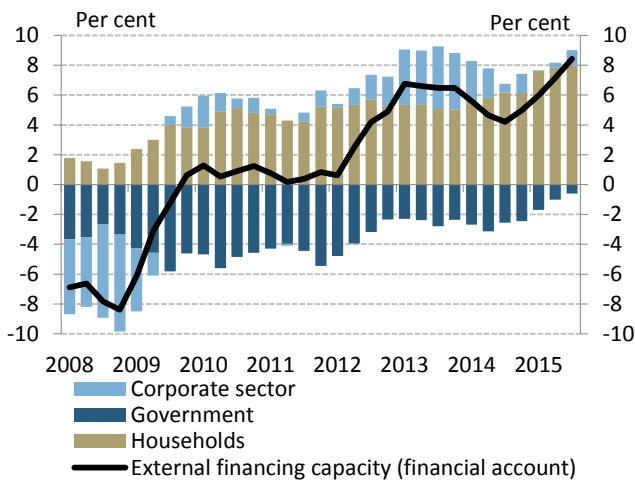
In 2015 Q3, Hungary's net lending rose to 9.1 per cent of GDP, while the current account surplus exceeded 4 per cent (Chart 5-1). The growth in the annual trade surplus was achieved in the context of decelerating external trade while import expansion still fell short of the growth in exports. The decreasing export dynamics reflected the slightly decelerating industrial production in parallel with more moderate external demand. At the same time, the improved terms of trade, attributable to lower oil prices and the slower increase in investments of high import content, pointed to a deceleration in import growth. The transfer balance also supported net lending to a large degree, as the EUR 1.6 billion absorption of EU transfers exceeded the year-on-year value. The deficit of the income balance declined amidst the improving interest balance of external loans and the adjustment of the profit of foreign enterprises. Based on preliminary monthly data, the net lending of the economy increased again in the fourth quarter, resulting from a further increase in the trade surplus.

## 5.1.2. Developments in financing

Hungary's net lending calculated from the financing side reached an unprecedented amount of EUR 2.7 billion in the third quarter (Chart 5-2). Since non-debt liabilities increased during the quarter, the fall in debt liabilities was even higher than the total outflow of funds, and reached EUR 3.5 billion in one quarter.

In the third quarter, net foreign direct investment (FDI) by non-residents increased by more than 0.5 billion. The rise in FDI is primarily attributable to the reinvestment of the earnings of non-resident companies, the impact of which was offset by the increase in disinvestments by domestic companies. Based on preliminary monthly data, the stock of net FDI inflows continued to increase in the fourth quarter, although the growth fell short of the value recorded in the same period of the previous year.

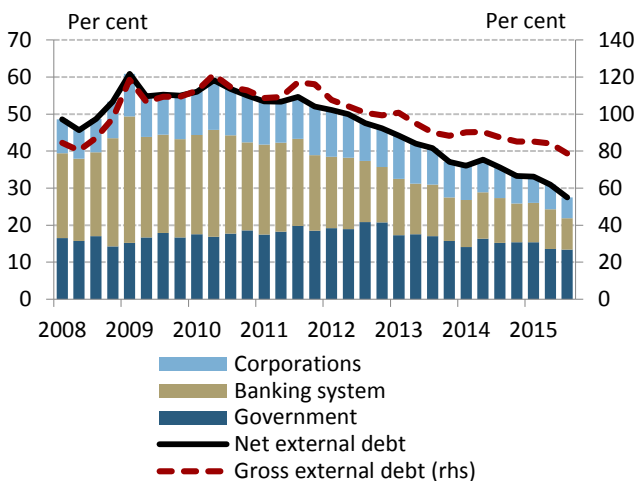
Chart 5-3: Breakdown of external financing capacity by sectors (four-quarter cumulation, per cent of GDP)



Note: Four-quarter cumulation.

Source: MNB

Chart 5-4: Breakdown of net external debt by sectors (values as percentage of GDP)



Note: Excluding intercompany loans.

Source: MNB

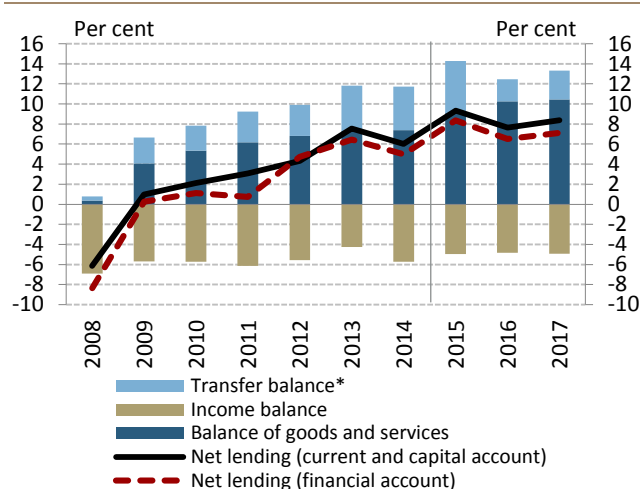
The net external debt of the Hungarian economy fell considerably, by EUR 3.5 billion, in the third quarter, with a major contribution from the banks. The fall of over EUR 2 billion in banks' external debt may reflect the foreign currency liquidity available from the central bank since the beginning of the year – due to the conversion of foreign currency loans into forint – which could be used by the banks for the repayment of their external debts. In addition, the tightening of the foreign exchange funding adequacy ratio, announced in July, and the new foreign exchange coverage ratio regulation limiting the on-balance sheet foreign currency exposure, also pointed to lower external debt of banks. In the case of the general government, the continued sale of government bonds by non-residents contributed to the reduction of external debt. Based on preliminary monthly data, deleveraging by banks and the sale of government securities by non-residents continued in the fourth quarter.

The increase observed in Hungary's net lending can be attributed to the decreasing borrowing requirement of the government and to increased financial saving by enterprises (Chart 5-3). The favourable budgetary developments are associated with increasing tax revenues from higher employment and consumption, as well as decreasing interest expenditures. The increasing net lending of enterprises may be attributed to the declining investments, while the high saving of the households can be associated with persistently low credit demand and rising incomes. Based on the preliminary financial account data pertaining to the fourth quarter, the four-quarter net financial savings of households stabilised at a high level, while the net borrowing of the general government slightly increased. The ratio of net external debt to GDP sank close to 27 per cent by September 2015 (Chart 5-4). As a result of the continuing debt reduction and expansion of GDP, both the net and gross external debt to GDP ratio decreased to a larger degree. In a sectoral breakdown the adjustment of the net external debt was associated with enterprises, in addition to the banking system. The purchase of foreign currency bonds by the central bank and the prepayment of a development loan by the government also contributed to the substantial fall in the gross ratio (below 80 per cent of GDP). Based on the preliminary monthly data the external debt ratios fell in the fourth quarter as well.

## 5.2. Forecast for Hungary's net lending position

The anticipated persistent high net lending will result in a further decline in Hungary's external vulnerability in the years ahead. Hungary's net lending may fall short of last year's outstanding level, but still remain high, at around 8 per cent of GDP. This year's fall reflects the decline in the inflow of transfers related to the EU's new programming period, which is partially offset by the growth in the trade surplus. In addition to increasing external demand, we expect growth in the Hungarian economy's export market share as well, while the deceleration in investments points to higher net exports. Furthermore, the substantially improving terms of trade, attributable to lower oil prices, make a considerable contribution to the growth in the trade surplus. In 2017, net lending is expected to increase, reflecting a continued growth in trade surplus as well as the renewed rise in the transfer balance. In terms of sectors, all three sectors contribute to the high net lending: the net borrowing of general government may be extremely low, fundamental developments indicate persistently high financial savings of the households accompanied by a minor decline, while the net lending of enterprises increases as a result of rising incomes. On the whole, net lending over the entire forecast horizon may remain high, which – combined with the MNB's self-financing programme – leads to further decline in Hungary's external vulnerability.

Chart 5-5: Changes in the savings of sectors (percentage of GDP)



Note: \* The sum of the balance of the current transfers and the capital account balance.

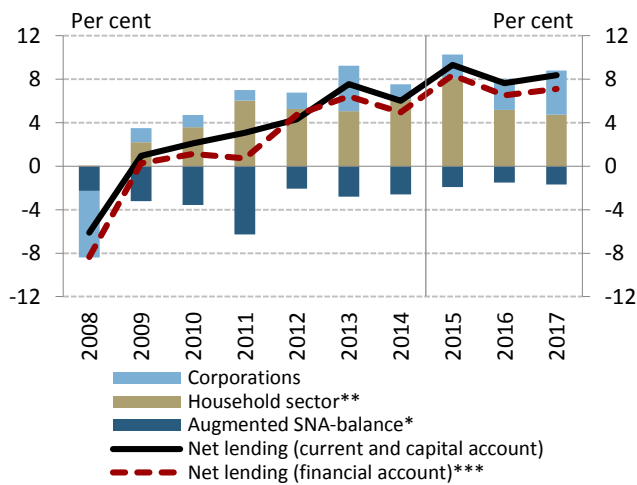
Source: MNB

**In 2016-2017, the net lending of the economy will stabilise at a very high level, corresponding to 8 per cent of GDP according to our forecast (Chart 5-5).** The net savings of the economy only decreases moderately this year. The inflow of EU transfers decreases as a result of the new programming period, but the impact of this is offset almost in full by the increase in the trade surplus. The trade balance is still supported, in addition to increasing external demand, by major growth in exports, as well as by the continued improvement in the terms of trade attributable to lower oil prices and also by more moderate imports due to modest investment dynamics (the terms of trade are expected to contribute to the increase in trade surplus by more than 1 per cent of GDP). According to our expectations the income balance deficit may remain constant due to the combined effect of decreasing interest expenses and the increasing profits – subject to positive economic growth – of foreign enterprises.

**In terms of the savings of sectors, all three sectors contribute to the high net lending of the economy.** The general government's net borrowing is expected to remain below 2 per cent, households' savings – despite a modest decline – may be persistently high, while net lending of the private sector may increase (Chart 5-6).

**In 2015, households' net financial savings increased as a result of the one-off effect of the settlements, but fundamental developments indicate that a modest decline may follow in the coming years.** Excluding the one-off effects, a slight decline in households' savings is expected for 2016 and 2017, amidst continued strong consumption growth resulting from the reduction of the personal income tax rate and the increase in family allowance, and rising investments due to the state subsidy and lower VAT.

Chart 5-6: Changes in the savings of sectors (percentage of GDP)



Note: \* In addition to the central government, the augmented general government includes local governments, MNV Inc., institutions discharging quasi-fiscal duties (MÁV, BKK), and the MNB. The augmented SNA deficit takes into account private pension savings. \*\* Net financial saving of households consistent with the SNA deficit does not contain the pension savings of those who return to the public pension system. The official net saving is different from the data in the chart. \*\*\* We expect that 'Net errors and omissions' (NEO) will return to the historical average.

Source: MNB

**Over the forecast horizon, the net lending of the corporate sector may rise considerably.** Last year, the settlement resulted in a temporary decrease in the net lending of enterprises. Eliminating the impact of this, in 2016 corporate net lending should decrease slightly, as the effect of increasing investment resulting from the MNB's Growth Supporting Programme and the declining absorption of EU transfers is offset only partially by the increasing corporate income attributable to growth in exports. In 2017, in addition to the continued rise in exports, increasing EU transfers also raise income, and thus an expected slowdown in investment may result in a substantial increase in the net lending of enterprises.

**The extremely low net borrowing of the general government may persist in the coming years, supported by one-off incomes in addition to decreasing interest expenses.** The expenditure side is essentially increased by the home purchase subsidy measures, while on the revenue side the reduction of the bank levy, the lower personal income tax rate and the expansion of the family tax allowance point to a higher deficit. On the other hand, these impacts are offset by the further decrease in interest expenses resulting from the repricing of forint debt, the lower own contribution due to the decrease in EU transfers, while the government also realises one-off revenues (land sales, tax credit for growth). Next year, the government's net borrowing will be also determined by this year's developments: the balance deteriorating effect of the anticipated higher home purchase subsidy and the larger own contribution related to EU transfers will be offset by the decrease in interest payments and the growth in pension expenditures falling short of the increase in GDP.

**The high net lending is expected to reduce external debt indicators, and thus Hungary's external vulnerability as well.** With persistently high net lending, the economy may continue the repayment of its foreign debt, also supported by the MNB's self-financing scheme, since ultimately this entails a decrease in the government's external debt. Overall, developments in financing point to a further major decline in external debt indicators in the coming years as well.

### 5.3. Fiscal developments

Over the forecast horizon, the ESA deficit of the government sector may fall below 2 per cent of GDP. The accrual-based deficit in 2015 may have been at a historic low, at around 2 per cent of GDP, which corresponds to our forecast in the December Inflation Report. According to our forecast, the ESA deficit may decrease further, falling to 1.8 per cent and 1.7 per cent of GDP in 2016 and 2017, respectively. Compared to December, our deficit forecast for 2016 decreased slightly, while that for 2017 did not change. This is due to the fact that the deficit increasing effects of the fiscal stimulus measures announced by the government (expansion of the home purchase subsidy for families, public road improvement, faster drawdown of EU funds) are offset by the better-than-expected tax revenue developments and the one-off revenues (land sales, tax credit for growth). The measures taken in 2016 also determine the balance of 2017, since the home purchase subsidy for families and the higher absorption of EU funds point to an increase in the deficit due to the higher own contribution, which may be offset by the further decrease in interest expenses supported by the central bank's programmes. At the end of 2015, government debt amounted 75.3 per cent of GDP, which represents a decrease of 0.9 per cent compared to the end of 2014. Calculated at the end-2015 exchange rate, the debt ratio may decline dynamically both in 2016 and 2017 as a result of the positive underlying processes.

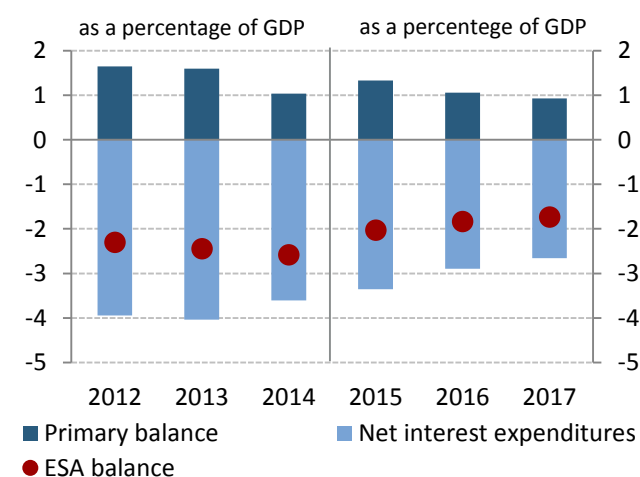
**Table 5-1: General government balance indicators (percentage of GDP; estimation for 2015, forecast for 2016 and 2017)**

	2015	2016	2017
ESA deficit*	-2.0	-1.8	-1.7
Primary ESA deficit	1.3	1.1	0.9
Fiscal impulse**	-0.4	0.2	0.4

Note: \* The use of the available free reserves (Country Protection Fund) was assumed upon the calculation of the balance indicators. Our estimation for the 2015 ESA balance is different from the net financing need in the preliminary financial account data because of the upgraded statistical and expert estimations. \*\* Change in the augmented (SNA) primary balance.

Source: MNB

**Chart 5-7: Decomposition of the ESA balance**



Note: The numbers do not include the imputed interest expenditures related to the reform of the pension system.

Source: Eurostat, MNB

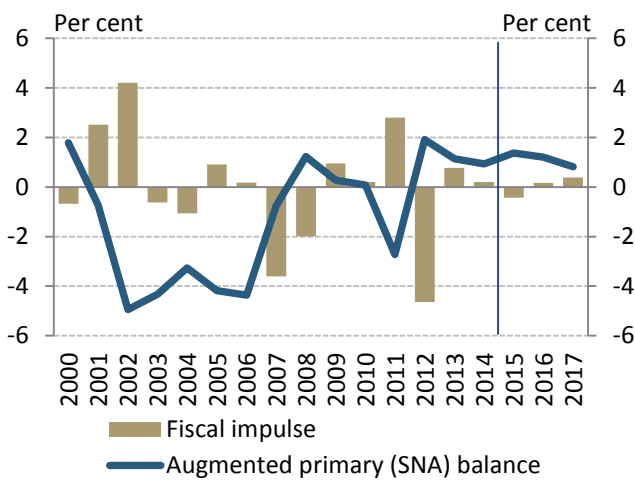
#### 5.3.1. Main balance indicators and the fiscal demand effect

According to our estimates, the ESA deficit of the government sector may amount to 2.0 per cent of GDP in 2015, which is historically low. According to our forecast, the accrual based deficit may amount to 1.8 per cent of GDP in 2016 and to 1.7 per cent of GDP in 2017 (Table 5-1). Stabilisation of the deficit at a historically low level is facilitated by the persistently favourable primary surplus, as well as by a strong fall in interest expenditures as a proportion of GDP (Chart 5-7). The decline in net interest expenditures year after year is attributable to the fall in government securities market yields resulting from the central bank's programmes, the stable domestic macroeconomic situation and the accommodating international environment. Our forecast anticipates the utilisation of the National Protection Fund both in 2016 and 2017, as the underlying processes permit this.

According to our forecast the demand effect of the fiscal policy may be mildly demand-decreasing in 2016, followed by slightly more demand-increasing in 2017 (Chart 5-8)<sup>4</sup>. The neutral demand effect in 2016 is the result of several substantial stimulatory measures and the one-off increases in the revenues offsetting those. Demand may be stimulated by the decrease of the general personal income tax rate by 1 percentage point and the expansion of the family tax allowance, the increase of HPS for families with one and two children, the substantial rise in the home purchase subsidy for families with 3 children, the reduction of the levy on banks, and the reduction of the VAT rate on pork and new homes from 27 to 5 per cent. In 2016, these

<sup>4</sup>For more details see: <http://www.kormany.hu/hu/nemzetgazdasagi-miniszterium/parlamenti-allamtitkarsag/hirek/penzugyi-segitseg-a-legalis-gyorsan-novekvo-cegeknek>

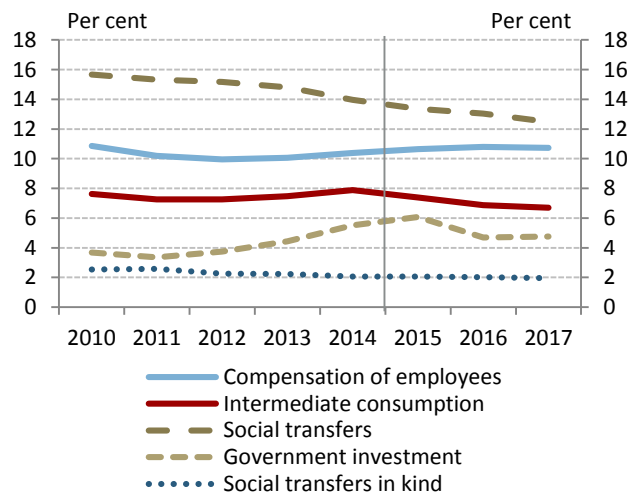
Chart 5-8: Fiscal impulse (percentage of GDP)



Note: 1) The fiscal impulse corresponds to the change in the augmented (SNA) primary balance. 2) The positive prefix indicates demand expansion, while the negative prefix implies demand restraint. 3) Assuming the use of the available free reserves in 2016–2017.

Source: MNB

Chart 5-9: Government sector primary expenditures (percentage of GDP)



Source: HCSO, MNB

will be offset by the declining cash transfers as a per cent of GDP, the surplus in corporate income tax paid by the companies benefiting from the tax credit for growth and proceeds from the sales of lands. The minor demand-increasing effect in 2017 is generated by the impact of the measures effective since 2016 but exerting higher effect in 2017, and by the fact that the sale of lands is not repeated in 2017.

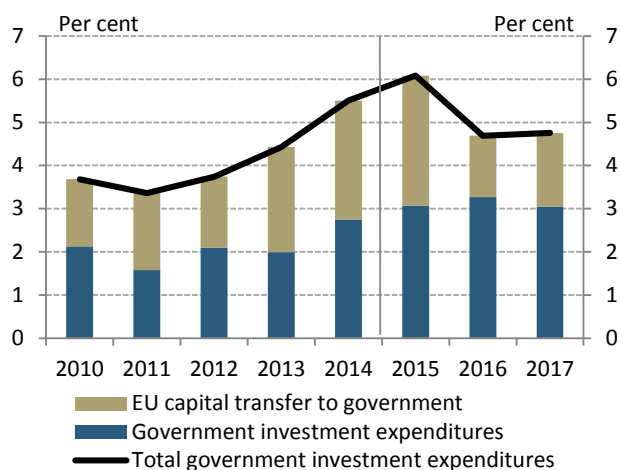
**The improvement in the balance of the government sector is the joint result of a moderate decline in revenues and a substantial fall in expenditures as a proportion of GDP** (Chart 5-9). On the expenditure side, it is the interest expenses, the decreasing absorption of EU funds (albeit higher in both years than our December forecast) and the cash transfers to the household sector as a proportion of GDP that decline to the largest degree. The decrease in cash transfer in 2017 compared to 2016 is primarily attributable to the declining – as a proportion of GDP, but increasing in terms of purchasing power – pension expenses, while the expenses related to the HPS increase the level of expenditures compared to our December forecast. Total revenues as a proportion of GDP will decrease in 2016 compared to the previous year as a result of tax cuts and the decline in EU funding.

### 5.3.2. Budget balance in 2016

**In 2016, according to our forecast, the ESA deficit of the general government – assuming the utilisation of the National Protection Fund – may be 1.8 per cent of GDP, i.e. 0.2 percentage points lower than our forecast prepared for the December Inflation Report** (Table 5-2). On the revenue side the difference is mainly caused by the 0.9 percentage point increase in our forecast with regard to the payments by economic organisations, primarily attributable to the tax surplus paid by the companies that benefited from the tax credit for growth. The improvement in the balance is also supported to a large degree, by 0.3 per cent of GDP, by the revenues of the sale of state-owned lands within the "Land for Farmers" programme. In the December Inflation Report we projected revenues of HUF 133 billion, as appropriated in the 2016 Budget Act, however, based on recent data, we estimate the actual revenues to be higher by 0.3 per cent of GDP. Revenues are expected to be received in the second half of the year.

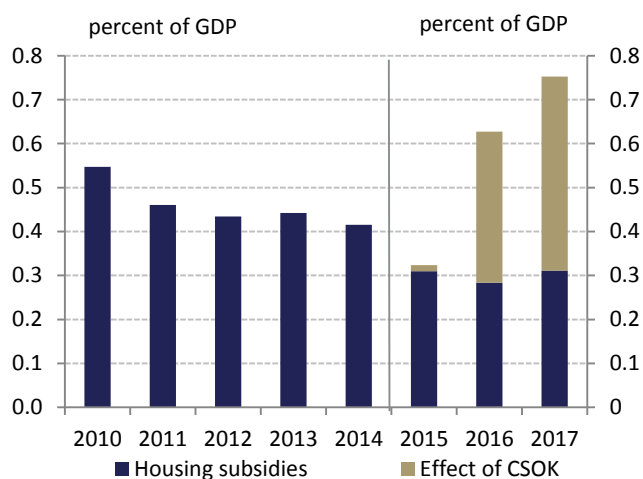
The increase in VAT revenues may be caused by the absorption of EU funds in 2016, being significantly higher than forecast in December, expected on the basis of the

**Chart 5-10: Composition of government sector investment expenditures (percentage of GDP)**



Source: HCSO, MNB

**Chart 5-11: Effect of the CSOK on development of housing subsidies**



Source: HST, MNB

government's measures<sup>5</sup> and the revenues observed at the end of 2015. The decrease in the VAT rate applicable to new homes and pork was already taken into account in the December Inflation Report.

On the expenditure side we project an increase in the net expenses related to EU funds, mainly attributable to the fact that in our forecast we reflected the impact of the government's strong commitment to paying EU funds in higher amounts than stipulated in the Budget Act (Chart 5-10). The 0.3 per cent of GDP increase in the home construction subsidies is attributable to the expansion of the HPS. The net expenditures of budgetary institutions may exceed our forecast prepared for the December Inflation Report by 0.2 per cent of GDP, which mainly reflects the HUF 69 billion surplus expenses related to the public road improvement programme. Our forecast assumes the full utilisation of the National Protection Fund, as the feasibility of the deficit target allows it.

**The ESA deficit target in the 2016 Budget Act is 2.0 per cent of GDP, exceeding our latest forecast by 0.2 percentage points** (Table 5-3). The difference is mostly attributable to the same items that explain the change compared to our December forecast, i.e. the revenue side difference primarily reflects the higher corporate income tax revenues related to the tax credit for growth. As regards the revenues related to state property, the proceeds from land sales may exceed the amount appropriated in the Budget Act by 0.3 per cent of GDP. According to our forecast, labour taxes may exceed the budget estimate by 0.2 per cent of GDP as a result of the favourable wage dynamics expected this year based on recent macroeconomic data.

On the expenditure side, net expenditures of budgetary institutions may exceed the estimate by 0.7 per cent of GDP. The difference is the combined result of several minor items, with the increase in the public road improvement expenditures and the excess funding requirement of the Klebelsberg Centre being the most significant ones. The 0.1 percentage point difference in the net expenditures related to EU funding is attributable to the higher budget contribution as a result of our forecast projecting higher absorption of EU funds than stated in the Budget Act. In the case of housing subsidies, the difference between our forecast and the Budget Act reflects the estimated, 0.3 per cent of GDP impact of the expansion of the HPS. The net expenditures of pharmaceutical budget exceed the estimate by roughly 0.1 per cent of GDP, which is attributable to the 2015 base which became higher than estimated upon the planning of the 2016 budget.

**Table 5-2: Decomposition of the change in the 2016 ESA balance forecast (compared to the previous Inflation Report; percentage of GDP)**

	Macro data	Measure	Other
<b>I. Central government revenues</b>	0.2	0.0	1.0
Taxes on consumption	0.1		
Payments by economic organisations	0.1		0.8
Income related to state property			0.3
<b>II. Central government expenditures</b>	0.0	-0.5	-0.3
Road development		-0.2	
Net expenditures related to EU-funding			-0.3
Housing subsidies		-0.3	
<b>III. Other effects</b>	0.0	0.0	-0.2
Use of Country Protection Fund			-0.1
Other items			-0.1
<b>Total (I. + II. + III.)</b>	0.2	-0.5	0.5

Note: The positive and negative prefixes indicate deficit-reducing and deficit-increasing effects, respectively. The subgroups may not sum to the aggregate figure due to rounding. Source: MNB

**Table 5-3: Differences between our forecast and the appropriations set out in the 2016 Budget Act (percentage of GDP)**

	Difference from appropriation
<b>I. Central government revenues</b>	1.3
Payments by economic organisations	0.9
Labour taxes	0.2
Income related to state property	0.3
<b>II. Central government expenditures</b>	-1.2
Net own expenditures of budgetary organisations	-0.7
Net expenditures related to EU-funding	-0.1
Housing subsidies	-0.3
Net expenditures of pharmaceutical budget	-0.1
Public work programme	0.1
<b>III. Other effects</b>	0.0
Other items	0.0
<b>Total (I.+II.+III.)</b>	0.2

Note: The positive and negative prefixes indicate deficit-reducing and deficit-increasing effects, respectively, compared to appropriations. The subgroups may not sum to the aggregate figure due to rounding. Source: MNB

### 5.3.3. Budget balance in 2017

According to our forecast, assuming full utilisation of the National Protection Fund, the ESA deficit of the general government may be 1.7 per cent of GDP in 2017. Our forecast corresponds to our projection in December; however we expect several differences in the individual items (Table 5-4). Of the changes the most significant one is the 0.8 percentage point increase, as a proportion of GDP, in the corporate income taxes. Of this, similarly to 2016, a growth of 0.7 per cent of GDP is attributable to the payments by the companies benefiting from the tax credit for growth, while the growth of 0.1 per cent of the GDP is the effect of the favourable macroeconomic developments. In the case of consumption tax revenues the 0.2 percentage point growth in our forecast – as a proportion of GDP – was attributable to the fact that, similarly to 2016, we anticipate higher absorption of EU funds in 2017 as well, which also increases expenditures due to the higher co-payment.

In the case of expenditures, as a result of the higher absorption of EU funds, we forecast growth in the co-payment to EU funds amounting to 0.4 per cent of GDP. The effect of the new elements of the HPS may increase further in 2017 up to 0.4 per cent of GDP. According to our forecast, the government deficit target stated in the Convergence Programme may be met in 2017 even upon spending the National Protection Fund, hence for the purpose of the projection we assumed the utilisation thereof.

### 5.3.4. Risks surrounding the baseline scenario

**The risks concerning both 2016 and 2017 balance are nearly symmetrical.** The absorption of the EU funds may be surrounded in both years by symmetric risks. Over the forecast horizon, the expenses related to the HPS programme may cause the deficit to increase compared to our forecast, because of the rapid growing of building capacities, but this may be fully offset by the utilisation of the National Protection Fund.

### 5.3.5. Expected developments in public debt

**The 2015 year-end gross public debt-to-GDP ratio fell to 75.3 per cent** from 76.2 per cent measured at the end of 2014. Hence, since 2011 the Hungarian debt ratio has decreased by roughly 5.5 percentage points, which is an outstanding achievement in European Union terms. The underlying macroeconomic processes, and particularly the expansion of real GDP, as well as the historically low net

<sup>5</sup> Government Resolution No. 1018/2016 (I.22) on the measures necessary for the full absorption of the EU funds available in the 2014–2020 programming period

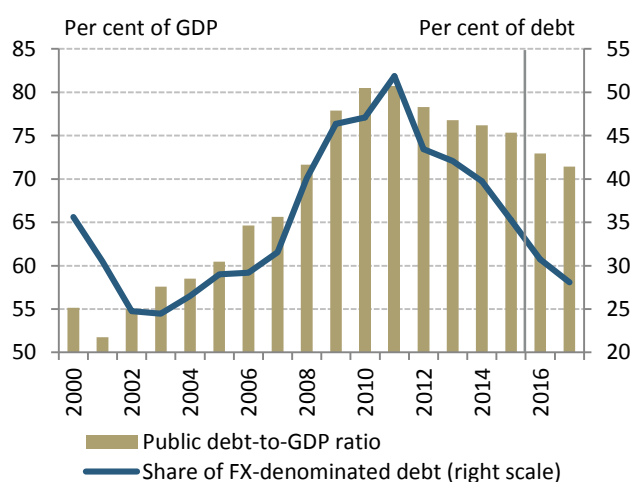
**Table 5-4: Decomposition of the change in the 2017 ESA balance forecast (compared to the previous Inflation Report; percentage of GDP)**

	Macro data	Measure	Other
	0.3	0.0	0.7
I. Central government revenues	0.2		
Taxes on consumption	0.1		0.7
Payments by economic organisations	0.0	-0.4	-0.4
II. Central government expenditures			-0.4
Net expenditures related to EU-funding		-0.4	
Housing subsidies	0.0	0.0	-0.2
III. Other effects			-0.2
Use of Country Protection Fund	0.3	-0.4	0.1

Note: The positive and negative prefixes indicate deficit-reducing and deficit-increasing effects, respectively. The subgroups may not sum to the aggregate figure due to rounding.

Source: MNB

**Chart 5-12: Gross public debt forecast – from 2015 calculated with unchanged (end-of-2015) exchange rate**



Source: MNB

financing need of general government and particularly the continuously declining interest expenditures resulting from the low interest rate conditions, substantially supported the reduction of the debt ratio last year as well. In addition, last year's decline in public debt was also supported by the repurchase of foreign currency government securities – purchased earlier by the MNB as part of its self-financing programme – by the Government Debt Management Agency. On the other hand, one-off factors influencing public debt acted against the decrease in the debt ratio. The advancing by the budget of the transfers not paid by the European Union last year, the acquisition of Budapest Bank by the state, the assumption of the debt of BKV and MÁV, as well as the increase in the margin deposit portfolio attributable to the more than 10 per cent appreciation of the US dollar, all increased the 2015 government debt on their own.

**Over the forecast horizon – calculating using the end-2015 EUR/HUF exchange rate, we forecast a dynamically decreasing debt path, and compliance with the debt rule set forth in the Fundamental Law (Chart 5-12).** As regards the dynamics of the public debt-to-GDP ratio, for the coming years we anticipate a larger fall than last year. This is attributable to the fact that the underlying trends may continue to support the gradual decrease in the debt ratio, while we do not expect one-off impacts to occur, offsetting this to a large degree as was the case last year. According to our forecast, the gross public debt-to-GDP ratio may decline close to 73 per cent this year, and below 72 per cent by the end of 2017. In parallel with the decrease in the debt ratio, the dynamic fall in the foreign currency ratio within public debt may also continue, which – supported by the MNB's self-financing programme – may reduce further Hungary's external vulnerability.

## 6. SPECIAL TOPICS

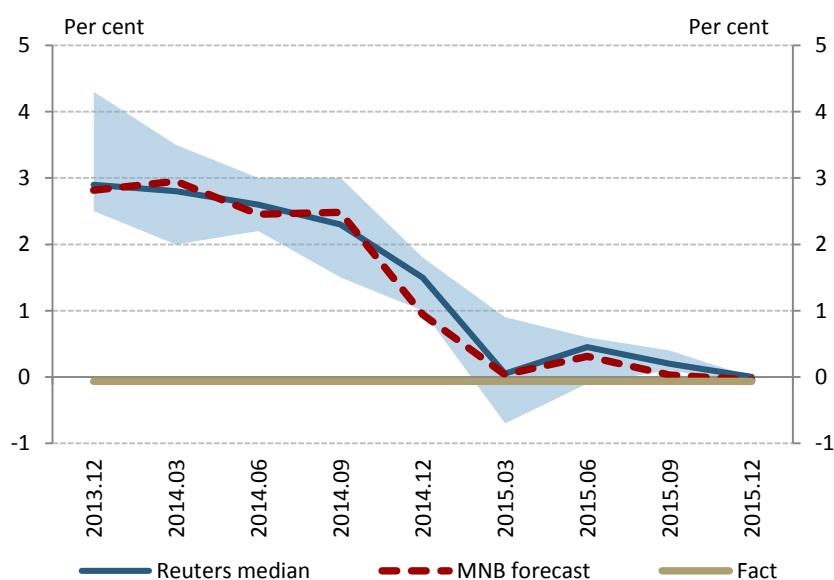
## 6.1. Evaluation of the central bank's forecast for 2015

The purpose of our analysis is to present the level of accuracy of our forecasts regarding the values of the key macroeconomic variables in the previous calendar year. In addition, we also examine how the central bank's forecasting performance compares to that of market analysts. In the case of the variables assessed for 2015, the first forecast was prepared in December 2013. On the whole, inflation in 2015 became lower, while the growth and number of employees became higher compared to our forecast.

## 6.1.1. Inflation

At the turn of 2013 and 2014, we expected inflation to remain steadily around the level of 3 per cent in 2015. This expectation was supported by the gradual pick-up in consumption demand and the gradual (but compared to 2014 a somewhat slower) pass-through of the exchange rate depreciation to consumer prices. In 2014, we revised our forecast slightly downwards in two quarters; then at the end of the year and the beginning of the following year, as a result of the substantial fall in oil prices, we conducted a major downward adjustment in our projection (Chart 6-1).

Chart 6-1: MNB and market forecasts for 2015 inflation



Note: The band shows the range of economic experts' forecasts surveyed by Reuters.

Source: Reuters, HCSO, MNB

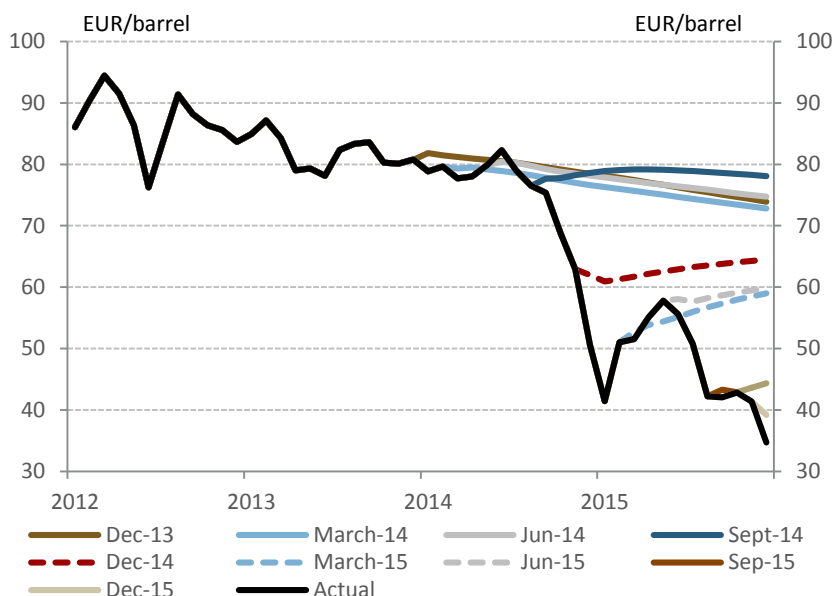
The downward revision reflected in the extremely large, almost 50 per cent fall in oil prices in 2014 Q4, which was followed – after a minor rebound – by another fall of 25 per cent in 2015 H2 (Chart 6-2). Persistently extreme low oil prices result both from demand and supply factors. Higher supply negatively impacted world oil prices stemming from the increasing production pursued for market protection purposes by the OPEC countries, and from the record high shale-oil production in the USA. At the same time, demand-side processes namely the deceleration in the growth of the larger importer countries also resulted in lower oil prices. Moderate food prices also contributed to keep inflation below the target.

Accordingly, the main reasons for the revision of our forecast at the end of 2014 and early 2015 were as follows:

- cost effects pointing to lower inflation, primarily in the world price of crude oil and on the food market;
- as a result of the abolition of the EU milk quota system, the prices of processed food dropped significantly due to higher supply;
- the persistently low global inflationary environment resulted in low imported inflation from the euro area (Chart 6-3);
- a continuous decrease in the households' inflation expectations since the end of 2012 contributed to the restrained inflation processes.

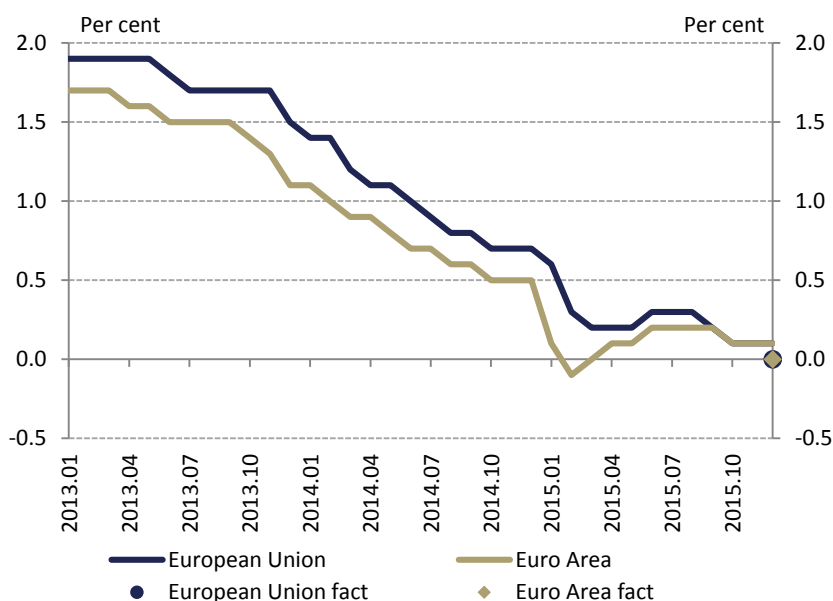
No substantial revision in the forecast was conducted during the remaining part of the year, and thus on the whole, starting from the beginning of 2015 we projected close-to-zero inflation.

Chart 6-2: Changes in oil price assumptions



Source: Bloomberg, Chicago Board of Trade (CBOT)

Chart 6-3: Market forecast for 2015 inflation of the European Union and euro area



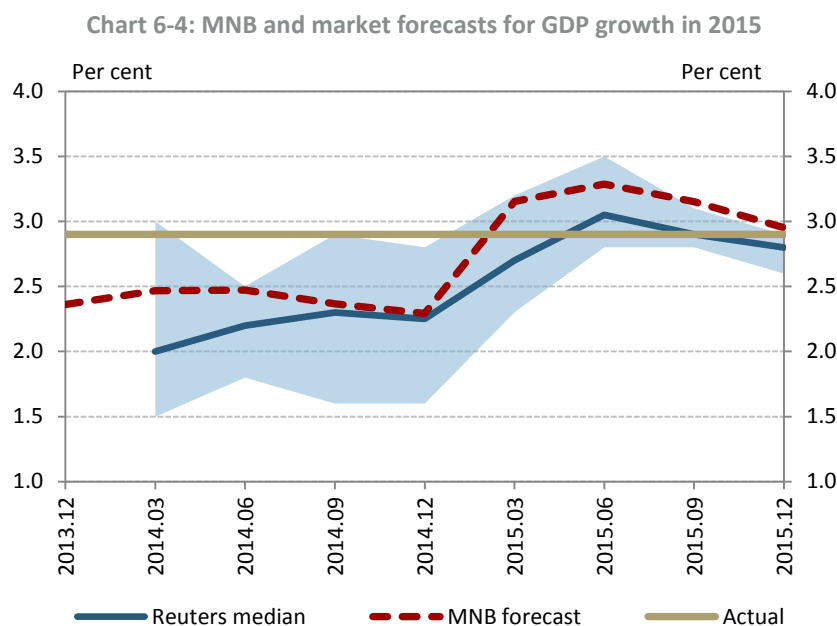
Source: Eurostat, Consensus Economics

With regards to core inflation without indirect tax effects, the 2015 actual figure came in lower compared to our forecasts, which may be due to subdued demand, the gradual decline in inflation expectations, and moderate imported inflation. Substantially lower-than-expected oil and food prices contributed strongly to the larger deviation in overall inflation.

**On the whole, our inflation projection for 2015 made between the end of 2013 and the end of 2014 was in line with the median of the market analysts participating in the Reuters survey, while from the end of 2014 it was at the bottom of the analysts' band.** The central bank's inflation forecast continuously deviated less relative to the actual data compared to the market projections (Chart 6-3).

### 6.1.2. Economic growth

Economic growth in 2015 was higher than forecast by the central bank in 2014 and lower than the 2015 forecast, while the market forecasts consistently underestimated the growth rate. The MNB's forecasting error for the entire horizon was smaller than the forecast error in the market analysts' median (Chart 6-4).



Note: The band shows the range of economic experts' forecasts surveyed by Reuters.

Source: Reuters, HCSO, MNB

In 2014, we expected balanced growth in the domestic economy for 2015, driven by the substantial increase in real wages, the gradual increase in domestic demand and the pick-up in external demand.

In early 2015, we made a substantial upward revision to our growth forecast. This was warranted by several factors:

- the higher-than-expected investment effect of the absorption of EU funds,
- higher credit path as a result of launching FGS+,
- and the consumption boosting effect of lower oil prices on real income.

Actual GDP growth fell short of our forecast, due to the processes that were less favourable than expected in our 2015 projection:

- underlying lending developments fell short of the previous forecast due to the slower easing of the credit standards, hence the lower credit path contributed significantly to the moderate development of private investments;
- after record crop yields in 2014, agricultural output in 2015 was more moderate than expected due to the unfavourable weather conditions, which restrained economic growth;
- the precautionary motives of households relaxed only to a lesser extent than forecast, which reinforced the maintenance of the savings rate, thereby reducing the expected effect of consumption growth;
- international cyclical developments were less favourable than forecast suggested, due to the substantial deceleration of the emerging markets.

**On the whole, the central bank's real economy forecasts were usually higher than the median of the market expectations, and were closer to the actual data released later.**

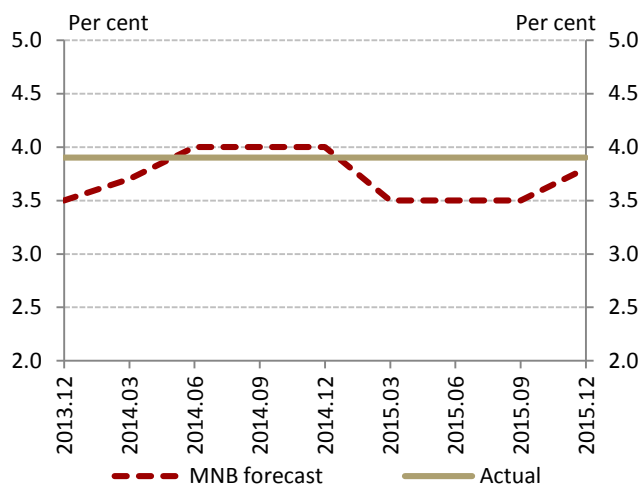
### 6.1.3. Labour market

The MNB forecast of labour market variables corresponded to the actual data in terms of the wages, while fell short of the actual data in terms of the number of employees.

As a result of the increasing corporate profitability attributable to the upswing in business activity and the decreasing tax burdens of the private sector, we expected strengthening wage dynamics at the end of 2013 and in 2014. In 2015, we projected slightly lower wages and the final figure corresponded to our expectations on the whole. In early 2015, we revised our wage forecast downward in line with the decrease in inflation. The higher-than-expected year-end wage data pointed to an upward revision of our forecast, which roughly corresponded to the actual data (Chart 6-5). The change in wage dynamics was supported to a large degree by the tightening labour market.

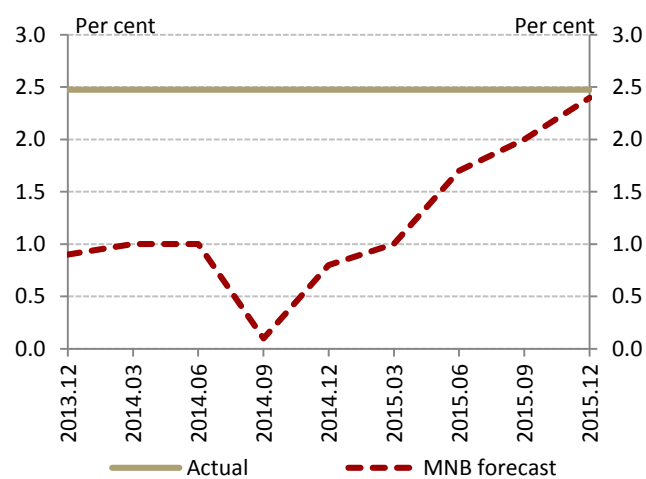
Until the beginning of 2015 we have significantly underestimated the growth of private sector employment. Contrary to our expectations, the dynamic catch-up in 2014 continued in 2015 as well. Output growth resulted in both the industrial and service sectors a higher-than-expected employment growth. Altogether we underestimated employment growth in private sector, and from 2014, in parallel with the increase in the growth prospects, we enforced it in our employment forecast as well.

**Chart 6-5: MNB and market forecasts for 2015 private sector gross average earnings**



Source: HCSO, MNB

**Chart 6-6: MNB and market forecasts for 2015 private sector employment**



Source: HCSO, MNB

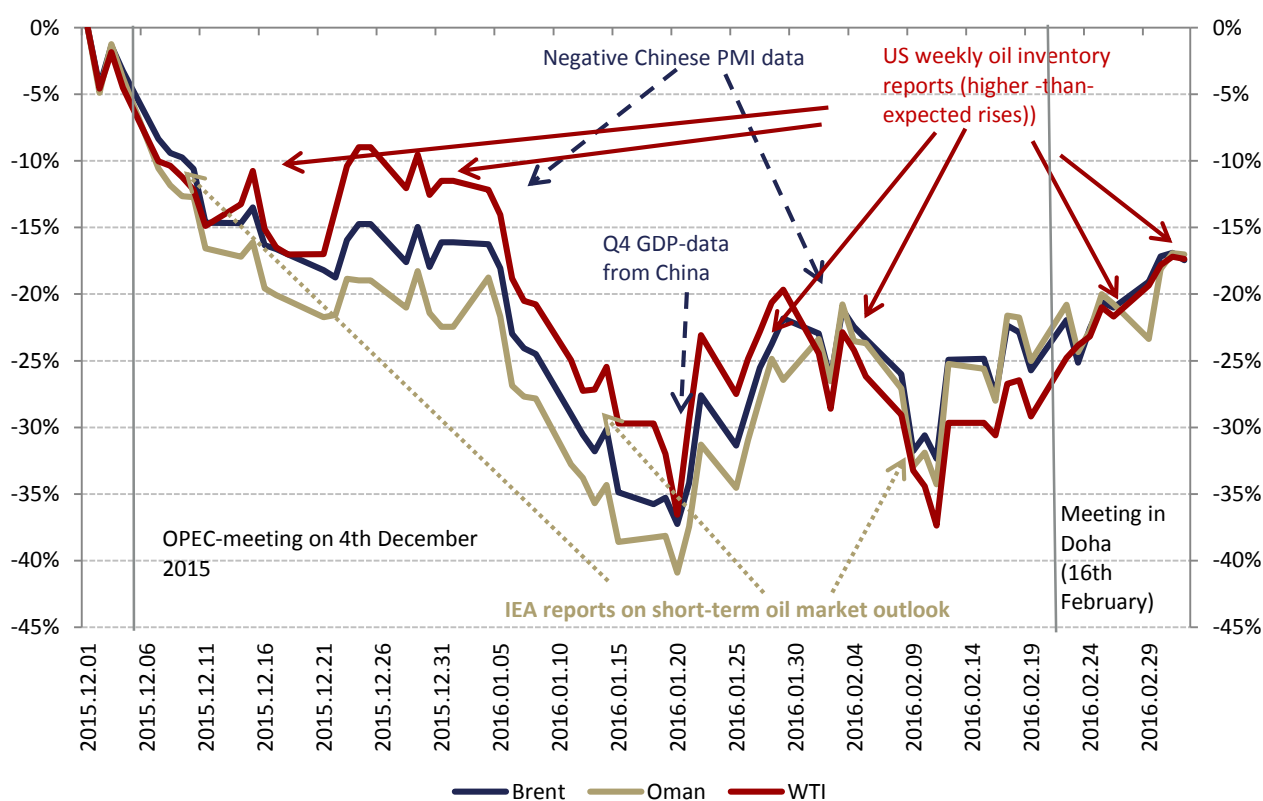
## 6.2. Expected oil price developments and their macroeconomic effects

The 30-35 per cent fall in oil prices last year was followed by an additional drop of 18-20 per cent in early 2016 compared to the beginning of 2015; thus, benchmark oil prices fell to a 12-year low in mid-January. After extremely volatile trading, a distinct increase in oil prices was observed by the end of February. However, oil price developments are still surrounded by major uncertainties. The falling oil and commodity prices also exert substantial influence on inflation and real economy processes. In the euro area, Hungary's key export market, economists expect the second-round effects of the lower oil price to appear. The strengthening of the indirect effects may entail higher growth and lower inflation in Hungary.

### 6.2.1. Oil price falls to 12-year low in early 2016

The world price of oil started a substantial decline in mid-2014, which continued practically throughout 2015, and dropped to another historic low in January 2016. Then the price of both the European Brent and the US WTI fell to USD 25-30, which is even lower than the price during the 2008-2009 financial crisis. Oil market volatility increased close to 80 per cent in February 2016, a level not seen since 2009.

Chart 6-7: Developments in benchmark oil prices in the last months



Source: Bloomberg

In 2015, the fall in oil prices (and generally in commodity prices) was primarily driven by the global growth concerns (mainly focusing on the emerging economies) and the risk aversion in investor sentiment, which strengthened on several occasions. The decline in oil prices seen in recent months was substantially attributable to the news and data dissemination related to oil supply and demand. For example, the OPEC meeting held in the beginning of December 2015 – where OPEC essentially gave up its previous production cap of 30 million barrel per day, and thus in January OPEC production reached a record high of over 33 million barrels – generated substantial selling pressure in the market. The news about the negotiations between the OPEC and non-OPEC countries – aimed at freezing the production levels – as well as the data reports on globally high crude oil reserves, also generated substantial volatility in the market. Oil prices also responded with a drop to the reduced demand effect of the mild winter in the Northern Hemisphere, the disappointing Chinese industrial production figures and to the concerns regarding the deceleration in growth. The weakening global growth expectations simultaneously deteriorated the assessment of the risky financial assets and the oil market prospects through the expected fall in oil demand.

## 6.2.2. Causes of the oil price decrease

Excess supply and poor demand both pointed to decrease in oil price.

**The most recent oil price plunge was driven by poor demand and the stronger-than-expected growth in supply.** Although in 2015, according to the data of the International Energy Agency (IEA), the daily demand of 94.5 million barrels was an increase compared to the previous year, it was insufficient to absorb the spectacular increase in supply, and thus a daily surplus of almost 2 million barrels developed on average in 2015.

The demand side was affected primarily by concerns about the growth risks of the emerging countries, predominantly that of China, but – among others – the recessions in Brazil and Russia, and the deceleration of other oil exporters as well gave rise to anxiety. As a result, several international institutions (e.g. IMF, OECD), also consistently reduced their global growth forecasts. In China, concerns about deceleration may have been exacerbated by the stock exchange turbulence in 2015 and the depreciation of the yuan, which also significantly boosted global risk aversion.

The structural changes led to the realignment of the oil market and to a downward drift in prices.

**The decrease in oil prices reflected both demand and supply side structural factors, which became even more determinant in the last 18 months.** On the demand side, in addition to the fading growth prospects in the Asian region, as one of the largest export markets, the fall in US oil imports (substituted by soaring domestic production), the decline in the population of the oil importing developed countries, the technological development aimed at energy efficiency and the spread of alternative energy resources were all factors which contributed to the lower demand for oil. Supplies, being well over demand, are increased by the spread of new oil extraction methods (shale oil, sand oil) and the decreasing costs of production facilitated by innovation. On the other hand, the former strategy of OPEC – which primarily focused on the oil price and resulting revenues – has also changed; at its meeting at the end of 2014 it decided to respond to the plunge in oil prices by increasing its market share by maintaining or increasing rather than restraining production. Since the production cost of traditional oil wells is well below that of the shale oil wells, the OPEC strategy seemed to be realistic; however, the decrease in the production of the non-OPEC countries was much slower than expected. The former market observation, according to which low oil prices entail a fast decline in non-traditional production, no longer seemed valid in 2015-2016. Although the number of US oil rigs declined drastically last year, the decrease in the volume of production – as a result of the substantial cost-cutting and efficiency-improving measures of the respective companies – was much slower. The aggregate crude oil production of the USA still fluctuated around 9 million barrels per day in February 2016, although signs of production decrease in shale oil extraction already started to appear. Moreover, in February 2016, the US oil reserves reached a peak of several decades, which reinforced concerns about the oversupply.

**Meanwhile, the tensions generated by the OPEC strategy already started to take shape at the end of 2015 and in the beginning of 2016 among the OPEC member states:** countries that are dependent primarily on their oil revenues (Venezuela, Nigeria, Algeria) and have no financial buffer to maintain their budget balance, were keen on breaking the strategy presented by Saudi Arabia, and urged the concerted restraining of the production level. According to IEA estimates, the oil revenues of OPEC in US dollar terms dropped from the peak of USD 1,200 billion in 2012 to USD 500 billion by 2015, and under the present price levels it will fall to USD 320 billion. The lifting of sanctions on Iran in the beginning of 2016 further increased tensions: according to the communication of Iranian leaders the country intends to increase its production by 1 million barrels per day in 2016, while the IEA estimates an increase of 600,000 barrels in production in the first half 2016 compared to former levels. This may make Iran the third largest producer in OPEC in the coming years. The conditional agreement on freezing production at the January level, concluded between Russia and a few OPEC member states in February 2016, did not bring the desired result: a few days after the meeting in Doha, the oil ministers of the individual countries seemed to back out of the agreement; moreover, it was obvious that it is not in the interest of Iran to freeze its production at the current low level. **The conflicts of interest between OPEC members may generate a further increase in production in 2016, which could only be offset by the decline in the production of non-OPEC countries.**

Speculations also contributed to oil market volatility.

**The speculative activity appearing in the financial products related to oil prices may have also increased the volatility of the underlying product's price developments and contributed to the extreme price fluctuations.** In February 2016, the volume of short positions speculating on further decreases in the oil price reached a record high, which clearly reflected the market uncertainty with regard to future prices.

While expectations point to slightly increasing oil prices, this may have encouraged some oil market participants to accumulate as high as possible inventories at the cheap spot price, capitalising on the higher forward oil prices, to sell it later at higher price ("contango" phenomenon). This may have also contributed to the record high of the volume of oil stored in the North American and OECD countries in the beginning of 2016. At the same time, paradoxically, it is the huge accumulated inventories that may delay the stabilisation of oil prices and point to further price decrease in 2016.

6.2.3. Expectations signal a slightly ascending oil price path; however downside risks and chances of major price fluctuations are still considerable.

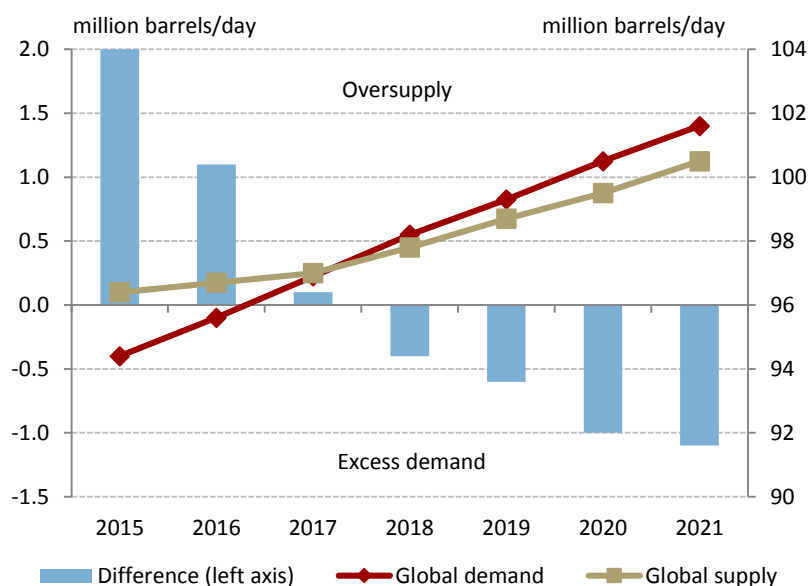
Most of the international forecast institutions and the investment banks adjusted their oil price forecasts substantially lower in recent months, and they also seem to agree that in the *short run* prices may be very volatile and fall even below the current level. *In the medium term* oil price developments depend on the Chinese growth risks, the potential modification of the present OPEC strategy, the conflicts of interest within OPEC and the trends in the production of non-OPEC countries.

**In the last couple of months, the Bloomberg consensus forecast reflected a gradual downward shift in average oil prices in 2016 and 2017.** While at the end of December the experts expected the average oil price of 2016 to be around USD 54, at the end of February this value was only around USD 40, while expectations for 2017 similarly dropped to USD 54.5. The futures oil prices also project slightly increasing oil prices for the coming years; based on this, prices at the end of 2017 may be around USD 40-45. Risks pointing to an increase are also more dominant based on the shift in the distribution calculated from the option prices, while the chances of extreme shifts is unusually high in both directions. On the whole, market expectations project a modestly increasing oil price path under substantial upside and downside risks and increasing volatility.

**On the other hand, in its February 2016 medium-term oil market report<sup>6</sup> the IEA expects oil market demand and supply to level off, and oil prices to thus stabilise only by 2017. According to their estimates, oil market demand will outstrip supply from 2018,** and the global excess demand may be as high as 1 million barrels per day. At the same time, they also warn that the surprising resilience of North American shale oil production to low oil prices may give rise, after a temporary decline in production, to a fast recovery of the industry in periods of price increase. In addition, another important consequence of the oil price fall should be also considered, which **may give rise to an opposite risk (i.e. rapid price increase); namely, the considerable decline in oil industry investments** during 2015-2016. At about the end of the decade, when production cannot keep pace with increased demand – due to the absence of investments – may lead to market volatility and soaring prices. **Accordingly, uncertainties around the expected path of oil prices are outstanding in both directions.**

<sup>6</sup> International Energy Agency: Medium-term Oil Market Report, 22 February 2016

Chart 6-8: Forecast of oil market equilibrium



Source: International Energy Agency, MTOMR, 22 February 2016

In short: **global oil production, which stabilised at a high level despite the weaker-than-expected global growth and the geopolitical tensions**, the slower-than-expected reduction in the production levels of the United States, the lifting of sanctions against Iran, **increase the risk of oversupply and low oil prices in the short run. On the other hand, the adjustment of supply may start from the end of 2016 or from 2017, which may point to a slight increase in prices.** Through the stronger positive effect of low oil prices on the growth of oil importing countries, the increase in world demand may also stabilise the oil market.

#### 6.2.4. Domestic macroeconomic effects of the decline in oil prices

**The declining oil prices have significant effect on the inflation and growth processes** through several channels (Chart 6-9). On the one hand, the impact of lower oil prices immediately appears through the fuel prices in the overall price level, and on the other hand, it also reduces inflation through indirect channels, being integrated in the product and service prices. The impact exerted by oil prices on the price level also depends on the level of inflation.

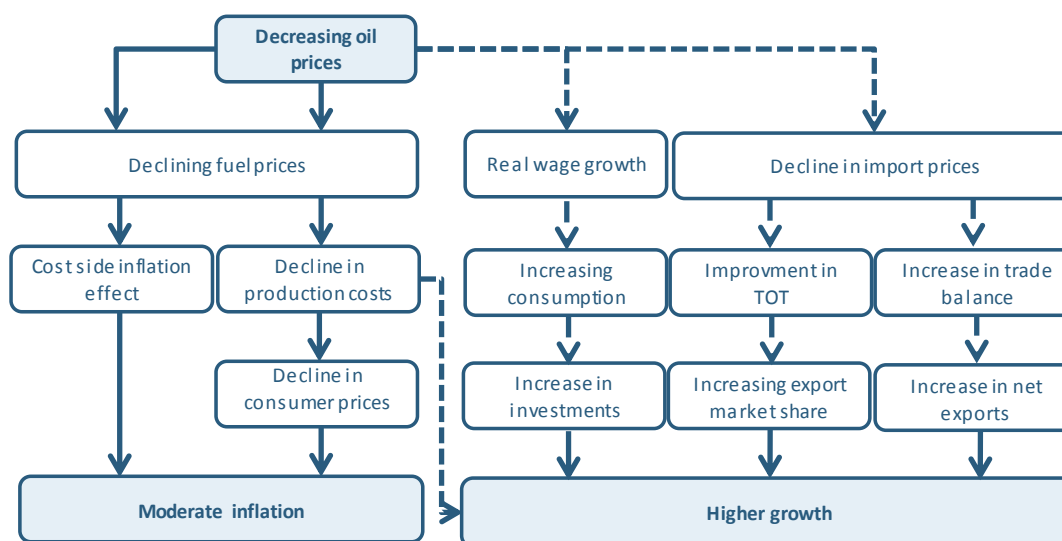
**The decrease in oil prices reduces the production costs of enterprises, which improve their profitability.** The companies enforce part of the decrease in costs in the consumer prices as well, which restrains inflation. In addition, as a result of the lower production costs, enterprises have more room for manoeuvre in wage setting as well: with stable pricing they may increase nominal wages to a larger degree without compromising their profitability.

**As a result of lower inflation, oil price reduction increases the purchasing power of the household disposable income.** The degree of the growth effect of real income increase resulting from this depends on the ratio of the households' consuming their surplus income. (If they expect that oil prices will remain low level over the long term, they spend a larger portion of their surplus income on consumption). **Increasing demand on the whole also boost investments, capacity expansions lead to higher output.** However, investments aimed at the improvement of energy efficiency may decline due to the lesser cost side pressure.

**Decreasing oil prices also improve the profitability of the exporting companies.** As a result of the fall in import prices terms of trade improve, which – due to the increase in export shares – also has a positive effect on output. However, the impact on export essentially depends, in parallel with the fall in oil prices, on the growth developments in Hungary's export markets.

Decreasing oil prices have a positive effect on the balance of trade as well, through the decrease in import value. **The improved external trade balance – ceteris paribus – results higher gross output.**

Chart 6-9: Effects of decreasing oil prices on growth



Source: MNB

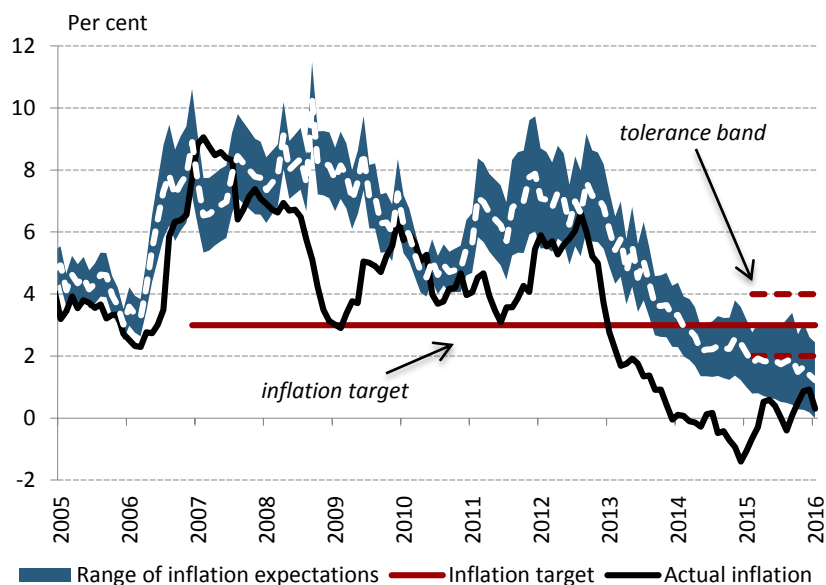
Empirical estimates suggest that the **demand-related erosion of oil prices boosts net energy-importing economies, (including the euro area and Hungary), while it restrains the performance of energy exporters.** The outcome of the two opposite impacts positive on the growth of global economy. On the other hand, if the fall in oil prices is attributable to the weakening of the global economy activity, the economic performance of both the energy importers and exporters deteriorates. For Hungary, the real economy processes of the euro area, as its most important trading partner, are the key factor.

**In the euro area, the price change in market services reflect the pass-through of the effect of decreasing oil prices.** In addition to inflation, the growth in wages is also more moderate compared to previous periods, **which may be attributable to the decline in inflation expectations.** As regards the price developments, domestic inflation expectations were stable last year and decreased in recent months (Chart 6-10). In the euro area, the purchasing power of household incomes increased due to the low oil prices; in addition, the profitability of enterprises also improved, which led – through higher consumption – to increased investments and higher output.

Hungarian macroeconomic effects are materially influenced by the pass-through of the phenomena in its export markets. According to our estimates, **a 10 per cent decrease in forint-denominated oil prices – by actual oil prices –, ceteris paribus, reduce domestic inflation on a horizon of one year by 0.3-0.4 percentage point, and increase the performance of real economy by 0.1-0.2 percentage point.** On the other hand, the accurate degree of the effective macroeconomic impact is also materially influenced by the aforementioned factors.

**The recent major fall in oil prices also reflected the decline in world demand, thus – due to the more moderate growth of Hungary's export markets – the effect on business activity may be subdued.** The forecasts of the IMF and the central bank have not changed significantly in respect of the growth prospect of the euro area and the USA in 2016 and 2017, while the IMF revised its forecast for China and the global economy as a whole downward. Further deceleration of the emerging countries and China has a negative impact on Hungary as well through its export markets.

Chart 6-10: Households' inflation expectations



Source: HCSO, MNB calculations based on European Commission data

#### 6.2.5. Summary

On the whole, the forward oil price quotes for this year and next year project a slightly increasing, but moderate path. Inflation is expected to remain restrained in the short run due to the low oil prices. Since both supply and demand factors contribute to the fall in oil prices, the growth effect may be moderate. However, the expected development of crude oil prices is surrounded by upside and downside risks. On the one hand, upon the adjustment of the supply side oil prices may be subject to correction. On the other hand, steadily low commodity prices (or even further declining oil prices) reinforce the second-round effects appearing through inflation expectations.

### 6.3. The new monetary policy forecast model

The **2007-2008 financial crisis essentially took economists by surprise**. Although during the pre-crisis period there was a minority which warned about the risks inherent in modern financial system,<sup>7</sup> the majority ignored these warnings.

This majority approach resulted from the fact that the main research area of mainstream macroeconomics was the analysis of 2–8 year business cycles, mostly explained by technological and preference shocks. **Hence, this narrow focus prevented most macroeconomists from noticing a relatively new phenomenon, namely financial cycles. In fact, financial cycles strengthened after the deregulation wave of the 1980s. These are longer and have greater amplitude than the normal business cycles.** They are characterised by excessive credit supply in periods of upswing, in the course of which such risks build up in an endogenous manner – e.g. equity market or asset price bubbles appear – which lead to systemic financial crises followed by long recessions.<sup>8</sup>

After the 2007-2008 crisis, **the key challenge for macroeconomic modelling was to make the models capable of capturing not only the normal business cycles, but financial cycles as well.** On the one hand, this requires **that the financial intermediary system, as well as the financing decisions of households and enterprises appear in the models explicitly.** On the other hand, some economists believe that **methodological changes must also be applied to the models. The hypothesis of rational expectations should be modified, changes in risk aversion during financial cycles should be captured in the model, and the latest results of behavioural economics must be used.**<sup>9</sup>

On the other hand, it must be also emphasised that at present no such model exists that is capable of integrating the financial and normal business cycles in full or capturing all aspects of financial cycles. Instead, **models are being developed that explain single elements of the financial cycles, e.g. the build-up of bubbles, the outbreak of the crisis or the post-crisis recession.** It is expected that these sub-models will be fine-tuned in the coming years and it is unlikely to have such model in the near future that is able to describe the entire financial cycle.

**Naturally, the MNB also had to respond to these challenges.** The development of several models has commenced, such as – for example – the building of the early warning and other macroprudential models, and **the inflation forecast model of the MNB was also reworked.** In the following, we explain the development of the latter.

Naturally, the horizon of an inflation forecast model is aligned with the horizon of the inflation targeting system, which is much shorter than the financial cycle. However, this does not mean that **financing and debt constraints of the economic agents** should be ignored in the inflation projection model. **Quite the contrary: since these constraints have an impact already on the forecasting horizon, the inclusion of these constraints in the model is a top priority.**

<sup>7</sup> See, for example, the work of Claudio Borio in BIS, Krugman (1999) *The Return of Depression Economics*, WW Norton, or Rajan, R. G. (2005): *Has Financial Development Made the World Riskier?* NBER Working Paper 11728.

<sup>8</sup> For more on financial cycles see: Drehmann, M. – Borio, C. – Tsatsaronis, K. (2012) *Characterising the Financial Cycle: Don't Lose Sight of the Medium Term!* BIS Working Paper 380.

<sup>9</sup> On the need for methodological changes see: Borio, C. (2012) *The Financial Cycle and Macroeconomics: What Have We Learnt?* BIS Working Paper 395. A good example of behavioural economics is: De Grauwe, P. (2012) *Lectures on Behavioural Macroeconomics*, Princeton University Press.

Table 6-1: Changes in macroeconomic modelling

	Before crises	After crises
<i>Focus</i>	Normal business cycles	Financial cycles
<i>Financial sector</i>	Not included	Included
<i>Risk aversion</i>	Exogenous, constant	Intend to endogenise risk aversion
<i>Expectations</i>	Rational expectations	Learning, bounded rationality in some models
<i>Economic policy implications</i>	Inflation targeting, doubt towards fiscal policy	Importance of macroprudential policy, importance of fiscal policy in recession

Source: MNB

The innovations introduced compared to the previous inflation forecast model of the MNB may be assigned to three groups:

**1. Presentation of financial constraints**

- Modelling the debt constraints and heterogeneity of households
- Modelling the financing constraint of enterprises

**2. Methodological innovations**

- Abandoning the exclusive role of rational expectations
- Considering non-linearities

**3. Other innovations**

- Multi-sector model
- Relatively flat Phillips curve suggested by the latest empirical evidence

The new model is **medium-sized, closest to the philosophy of the dynamic stochastic general equilibrium (DSGE) model, but departs from this in several points.** It is a small open economy model, hence it treats most foreign factors as exogenous conditions, and the foreign block is small. Having performed comprehensive testing of the new model starting from this forecast round, **the forecast in the current Inflation Report has already been prepared with this model.**

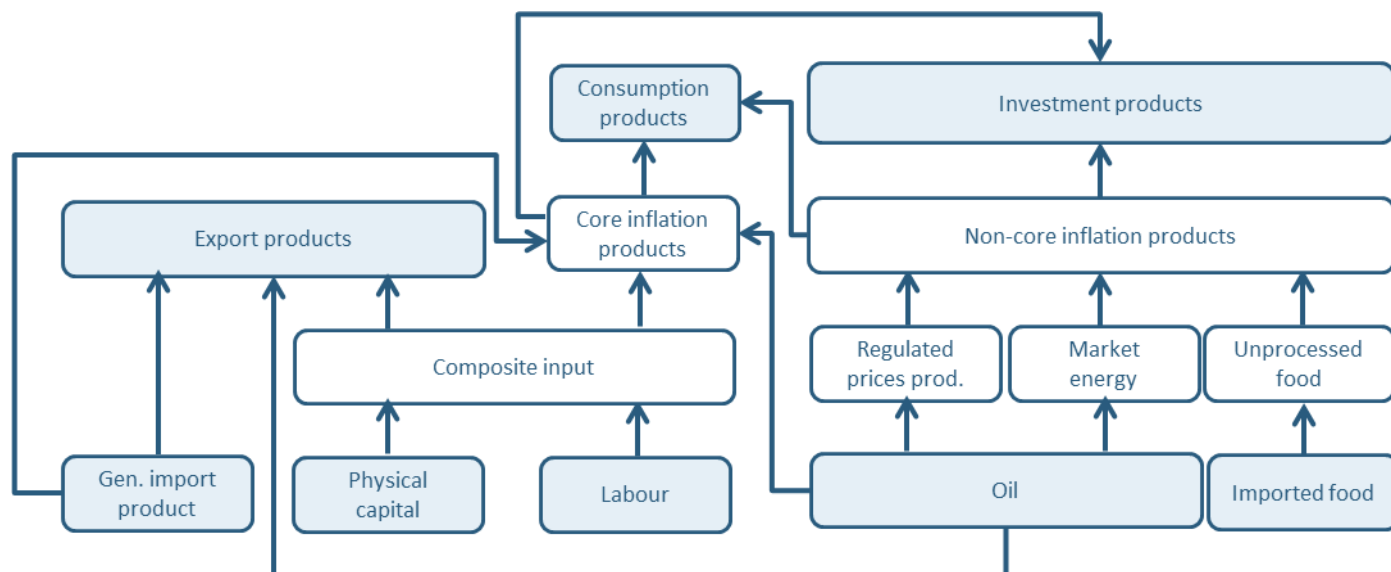
**The model differentiates three sectors: core inflation products sector, non-core products sector and the export sector.** The non-core sector can be divided into **three subsectors: regulated price products sector, market energy sector and unprocessed food sector.**

The export sector manufactures for the **external market.** The other sectors manufacture for the **domestic market:** they produce consumption and investment products.

The individual sectors use – to different degree – the following final **inputs: labour, physical capital, general import products, imported energy (oil), imported food.** General import products, labour and physical capital are used by core inflation products sector and the export sector. The production of the export sector is import-intensive, which is a typical feature of the Hungarian economy.

Oil is used by all three manufacturing sectors, while imported food appears only in the production of the non-core sector.

Chart 6-11: Sectors in the model and their input structure



Source: MNB

The development of a **realistic household block** was one of the key priorities in developing the new model. On the one hand, it was necessary to take the impact of the **households' indebtedness** on consumption into consideration in an explicit way. On the other hand, we also wanted to present the **heterogeneity of households** in the model, contrary to the mainstream modelling practices, which present the entire household sector through a single representative household.

**The household block of the new model is based on the researches and models of Carroll (2001).<sup>10</sup> In these models, the precautionary motives of the households play a key role.** Households' consumption decisions are strongly determined by the accumulation of a **buffer stock** of wealth, which depends on the level of uncertainty and the degree of their risk aversion. **If their wealth falls short of this target level, they increase their savings to come closer to the target, while if their wealth exceeds that, they reduce their savings.**

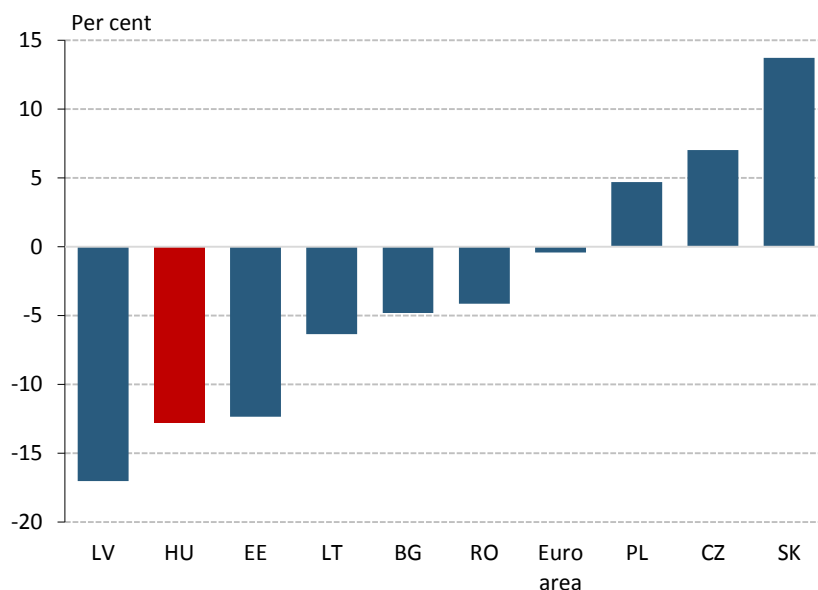
In the model, the consumption of households is determined by their wealth, current and future income, as well as by the current and expected interest rates. **In the model, more wealthy and poorer households react to the changes in income and interest rates differently.** In accordance with empirical research, wealthy households' marginal propensity to consume is lower and they also react to the changes in interest rates differently.

One of the consequences of this is that the new model eliminates the previous forecasting model's shortcoming, insofar as the dynamics of the model were only effected by the flow (income-type) variables. **In the new model, in a more realistic manner, the adjustment and dynamics of the model variables are also affected by stock variables, such as – for example – the households' wealth.**

The model differentiates **two** groups of households: **indebted households and households with positive net worth.** Both aggregated household balance sheets and cross-sectional data were used for the calibration of the two groups' parameters.

<sup>10</sup> Carrol, Ch. (2011): *A Theory of the Consumption Function, With and Without Liquidity Constraints*, Johns Hopkins University, Baltimore.

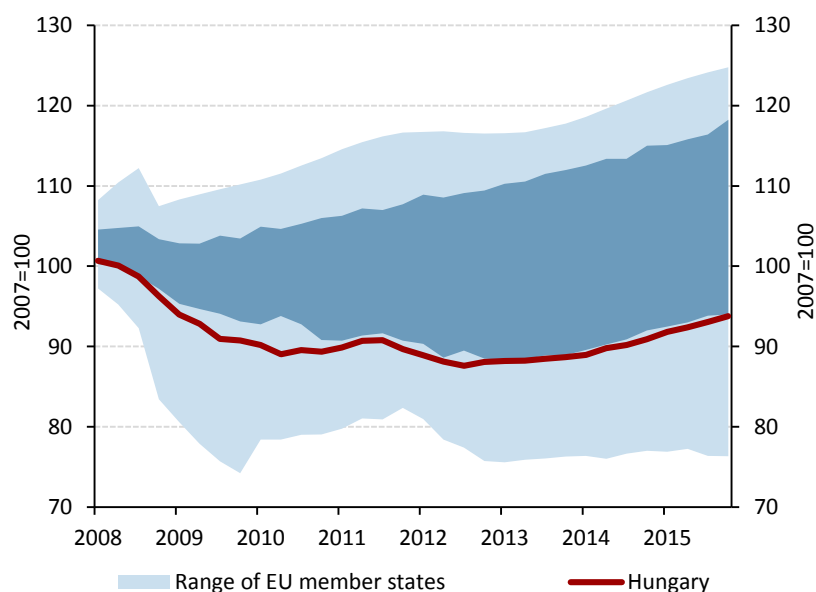
Chart 6-12: Change in debt of households compared to 2008 as a percentage of GDP



Source: Eurostat

The targeted buffer stock and the corresponding consumption level may be regarded in the model as long-run equilibrium consumption. As a result of this, the consumption gap, i.e. the departure of consumption from the long-term level, is interpreted differently in the new model than in the old one. Until now only the income trends were considered for the purpose of calculating the consumption gap. In the new model wealth trends also influence the consumption gap. Since some households still have substantial – albeit decreasing – outstanding debt, it must be taken into account that the consumption of these households still considerably lags behind their long-term consumption level. **Consequently, the new model projects a lower consumption gap than the one used by the old model.** On the other hand, due to the future wealth adjustment of indebted households there is still considerable room for growth in consumption.

Chart 6-13: Households' consumption compared to the level before the crisis



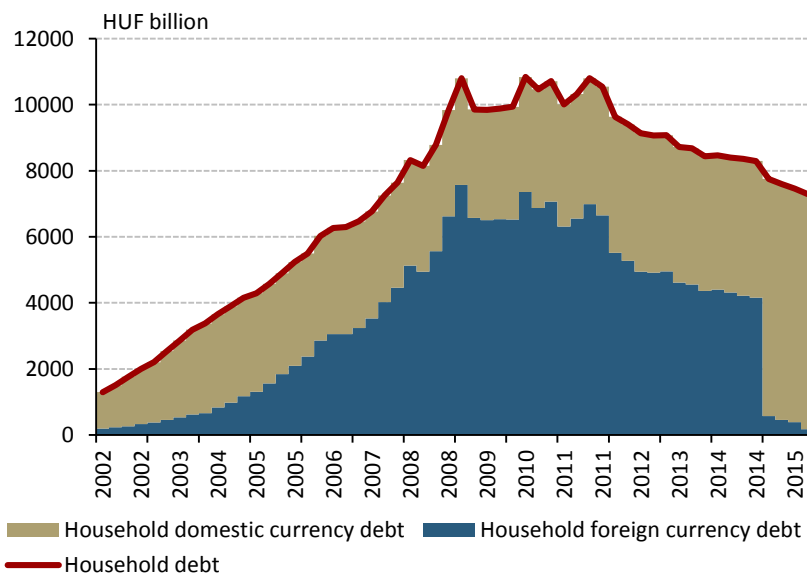
Note: Darker band displays the range between the upper and lower percentile

Sources: Eurostat

Since the effect of the households' budget constraints may be taken into account explicitly, **the new model can be also used for examining taxation and transfer issues. The model is able to capture the impact of the change in households' risk perception, as well as whether they regard the change in incomes to be temporary or long term.** One important

feature of the model is that it is able to take into consideration the **impact of the conversion into forint on monetary policy transmission**. Before the conversion into forint the easing of monetary conditions increased households' debts through the exchange rate channel, thereby reducing their consumption. However, in the current situation the easing of the monetary stance no longer negatively impacts households' debt and consumption.

Chart 6-14: Decomposition of households' debt



Source: MNB

In order to capture the effects of the financing frictions of enterprises, we integrated in the model the **Bernanke, Gertler and Gilchrist (BGG 1999)<sup>11</sup> financial accelerator approach**. The BGG model examines the macroeconomic consequences of the information asymmetries. The consequence of the information asymmetry is that **the risk premium paid by the borrower depends on the leverage, i.e. of the firm's debt to equity ratio**. The higher the leverage is, the higher premium the borrower is required to pay. **This phenomenon amplifies business cycles.**

**Mainstream economic modelling uses rational expectations almost exclusively. The concept of rational expectations undoubtedly has some useful elements, as some economic agents formulate their expectations not mechanically, by simply projecting past events.** On the other hand, it is also obvious that it would be an exaggeration to take the rational expectations seriously in full, partly because human decision-making always has irrational elements as well, and also because accurate economic forecasts can only be prepared using a large volume of resources, which are not available for economic agents such as households or small enterprises.

**The 2007-08 crisis made it obvious that – in real life – economic agents' expectations significantly differ from the ideal rational expectations,** and it no longer can be regarded as a useful modelling assumption. Hence, **we abandon the assumption that upon making their consumption, savings and job supply decisions households rely on rational forecasts.** In the new model, their expectations are essentially **adaptive**.

**We also no longer assume of the business actors that their expectations are fully rational.** In the models, we approach these expectations pragmatically, assuming that **their projections are partly comprised of forward-looking and partly of adaptive and backward-looking elements.**

**The forecast in the Inflation Report – in accordance with the former practice –is still the combined result of the experts' forecast and the model forecast.** On the other hand, when developing the new model we attempted to consider **expert experience as much as possible, and to include it in the model endogenously.** This simplifies the process, in the course of which the two approaches are reconciled.

<sup>11</sup> Bernanke, B.S. – M. Gertler – Gilchrist, S. (1999). *The Financial Accelerator in a Quantitative Business Cycle Framework*, Taylor, J. B. – Woodford, M. (editor), *Handbook of Macroeconomics*, Vol. 1, Elsevier.

## 7. BREAKDOWN OF THE AVERAGE CONSUMER PRICE INDEX FOR 2016

Table 7-1: Decomposition of inflation to carry-over and incoming effect

	Effect on CPI in 2016		
	Carry-over effect	Incoming effect	Yearly index
Administered prices	0.0	0.0	0.0
Market prices	-0.4	0.8	0.4
Indirect taxes and government measures	0.0	-0.1	-0.1
<b>CPI</b>	<b>-0.4</b>	<b>0.7</b>	<b>0.3</b>

Note: The tables show the decomposition of the yearly average change of the consumer price index. The yearly change is the sum of the so-called carry-over and incoming effects. The carry-over effect is the part of the yearly index, which can be explained by the preceding year's price changes, while the incoming effect reflects the changes in the recent year. We decomposed these indices to the sub-aggregates of the consumer price index and calculated the inflationary effects of changes in the indirect taxes, administered prices, and market prices (not administered prices excluding indirect tax effects). The subgroups may not sum to the aggregate figure due to rounding.

Source: MNB

Table 7-2: Detailed decomposition of our inflation forecast to carry over and incoming effects

	2016				
	Average carry-over effect	Carry-over indirect tax effect	Average incoming effect	Incoming indirect tax effect	Yearly index
Food	-0.6	0.0	2.0	0.0	1.4
non-processed	-0.7	0.0	6.0	-3.2	2.1
processed	-0.5	0.0	1.6	0.0	1.1
Traded goods	0.6	0.0	0.7	0.0	1.3
durables	0.7	0.0	0.6	0.0	1.3
non-durables	0.6	0.0	0.6	0.0	1.2
Market services	0.5	0.0	1.8	0.0	2.3
Market energy	0.3	0.0	-0.4	0.0	-0.1
Alcohol and Tobacco	0.3	0.4	0.6	0.6	1.9
Fuel	-6.4	0.0	-4.1	0.0	-10.5
Administered prices	0.0	0.0	0.0	0.0	0.0
<b>Inflation</b>	<b>-0.4</b>	<b>0.0</b>	<b>0.8</b>	<b>-0.1</b>	<b>0.3</b>
<b>Core inflation</b>	<b>0.3</b>	<b>0.1</b>	<b>1.2</b>	<b>0.1</b>	<b>1.7</b>

Note: The tables show the decomposition of the yearly average change of the consumer price index. The yearly change is the sum of the so-called carry-over and incoming effects. The carry-over effect is the part of the yearly index, which can be explained by the preceding year's price changes, while the incoming effect reflects the changes in the recent year. We decomposed these indices to the sub-aggregates of the consumer price index and calculated the inflationary effects of changes in the indirect taxes, administered prices, and market prices (not administered prices excluding indirect tax effects). The subgroups may not sum to the aggregate figure due to rounding.

Source: MNB

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# Mátyás Hunyadi

(23 February 1443 – 6 April 1490)

He ruled from 1458 to 1490 as King of Hungary, and had been Czech king from 1469 and Prince of Austria from 1486. Hungarian tradition regards him as one of the greatest Hungarian kings whose memory is preserved in many folk tales and legends. He is also known as Matthias Corvinus, King Matthias the Just or officially as Matthias I, but commonly he is simply denoted as King Matthias.

His father, János Hunyadi, the regent of Hungary, was one of the most outstanding military leaders and strategists in the country's medieval history who triumphed at the Battle of Nándorfehérvár in 1456. Matthias' mother was Erzsébet Szilágyi, and he had an elder brother, László Hunyadi. The future king was brought up by his mother and nurse until the age of six, and was subsequently placed under the supervision of his tutors. János Hunyadi did not have a chivalrous education in mind for his son: first, it was a Polish humanist, Gergely Szánoki who introduced him to the realm of knowledge, then this task was assigned to János Vitéz. Mátyás was brought up and educated in a humanistic spirit to become a versatile and curious-minded person who had been taught canon and constitutional law, arts and Latin. In addition to Hungarian, he also spoke German and Czech.

After the death of László V, his uncle, Mihály Szilágyi, and the armed forces supporting Hunyadi exercised pressure to have Matthias crowned as King of Hungary on 24 January 1458. Even in the early years of his reign Matthias had troubles both with the magnates of the country and Emperor Frederick III of the Holy Roman Empire. As the king was still a minor, parliament appointed Mihály Szilágyi to act as regent on his behalf. However, Matthias did not tolerate any guardianship and pushed his uncle to the background who devised a plot against the king in response. Returning from battle with the Turks, the king had the rebels captured and he imprisoned his uncle in the castle of Világos.

Upon his ascension to the throne the annual income of the treasury hardly exceeded 110 to 120 thousand forints. During his rule spanning thirty-two years the king managed to multiple revenues from taxes. Considering the average of the taxes levied, less the revenues from the Czech and Austrian provinces, this yearly amount approximated 628,000 forints and may as well reached 900,000 gold forints in the most prosperous years. This was still much less than the annual revenue of the western powers of the age. In order to raise the low income of the treasury, reform-like and comprehensive financial actions were needed. Matthias recognised that a centralised, nationwide financial system was the only solution to the problem, and that the royal revenues had to be directed to a single person, the treasurer. The reforms of Matthias were adopted by parliament and his decrees were promulgated on 25 March 1467.

We can get a glimpse of the cultural life in the royal court, which represented the elite of European civilisation at the time, at the partly reconstructed Royal Palace in Visegrád. The most distinguished pieces of the cultural legacy of Matthias are the Corvinian books, richly illustrated volumes of the former royal library.

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