INFLATION REPORT

SEPTEMBER

2017

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

Miklós Zrínyi: The Life of Matthias Corvinus

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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 percent 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 for Monetary Policy and Economic Analysis. 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 14 September 2017.

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In the Council's assessment, Hungarian economic growth picks up over the forecast horizon. Some degree of unused capacity has remained in the economy, but this is likely to be gradually absorbed as output grows dynamically. In the September projection, the inflation target is expected to be achieved in a sustainable manner one additional quarter later, i.e. by the middle of 2019, following a delay of half a year indicated in the June projection.

Global economic growth continued in recent months. The rise in global inflation observed at the beginning of the year came to a halt; the consumer price index declined again in some regions. Inflation rates were below the price stability targets in the case of the majority of central banks. Although international money market sentiment deteriorated slightly, investors' assessment of the Central and Eastern European region improved in general.

Global and euro area output growth continued in the second quarter of 2017. Differences in growth across euro area economies declined as a result of a considerable upswing in periphery countries. Looking ahead, European economic activity is expected to strengthen further. The increase in inflation observed since the end of last year came to a halt in the past months, and the price index decreased again in some regions. In line with the moderate inflation expectations, in the case of the majority of the world's leading central banks a persistently loose monetary policy environment may remain in place. Dynamic growth continued in the Central European region, resulting in a general improvement in its assessment by investors. With the exception of the Czech Republic, inflation rates in the countries of the region were below central bank targets. The decision-makers of the Czech central bank decided to raise the base rate, while other central banks in the region maintained their loose monetary policy stances.

In the past quarter, while trading was calm, international money market sentiment deteriorated slightly. Market developments were affected by strengthening geopolitical risks as well as central bank decisions and statements, the negotiations related to the Brexit and country specific developments concerning certain emerging markets. The ECB made a downward revision of its inflation forecast. As a result of the tension in Korea, risk indicators rose significantly at first, before adjusting. The main risk indicators deteriorated slightly. In the bond markets of developed countries, yields of US government securities declined slightly while the government securities yields of euro area countries increased. Divergence was seen across stock exchange price indices as well: US indices continued to increase moderately, while slight decline was observed in European stock exchanges. The euro appreciated further against the currencies of other developed countries in the past quarter.

Inflation is expected to reach in a sustainable manner the 3 per cent level that is consistent with price stability by the middle of 2019, i.e. one additional quarter later following the delay of half a year indicated in the June forecast.

Inflation had been around 2 per cent in the past months, before rising to above 2.5 per cent at the end of the summer in line with the projection in the June Inflation Report. Core inflation increased, which is explained by processed food price increases and the raising of the excise tax on tobacco products. In line with the Bank's expectations measures of underlying inflation were around 2 percent, significantly below the level of core inflation. The expansion in domestic employment, the tight labour market as well as increases in the minimum wage and the guaranteed minimum wage have led to a general, dynamic rise in whole-economy wages. In line with the Bank's expectations, there has not yet been any significant upward pressure on inflation from wages. Households' inflation expectations continue to be at historically low levels. The considerable appreciation of the euro in Europe generally results in a decline in imported inflation. According to ECB's expectations, the inflation rate of the euro area will not reach the close to 2 per cent target in 2019 either. In line with this, external inflation environment is expected to be more subdued than earlier in the case of the Hungarian economy as well.

According to our current forecast, inflation may remain lower than the June projection in the next year. The consumer price index is likely to decline again from its current level to the bottom of the tolerance band by the end of 2017. The temporary rise in core inflation will continue in the coming months, which – similarly to the previous period – is attributable to the price increases of tobacco and dairy products. With the fading of the temporary effects, core inflation will decline in the second half of next year. Over the forecast horizon, the cost increasing effect of the dynamic growth in wages will be attenuated by the reduction of the employer's contribution at the beginning of this year and the decline in the corporate profit tax. In addition to the moderate imported inflation and the historically low inflation expectations, the VAT rate cuts announced for next year will also decelerate the rise in the domestic price level. In the June forecast, the sustainable

achievement of the inflation target was delayed by half a year, to the beginning of 2019. Compared to that, based on the forecast in the September Inflation Report, the price stability target is expected to be achieved one additional quarter later. Accordingly, in a sustainable manner, inflation will reach the 3 per cent level consistent with price stability, by the middle of 2019.

The increase in domestic demand will play a central role in economic growth, driven mainly by the general and dynamic increase in investment and the continued expansion in households' consumption.

Economic growth is expected to be 3.6 per cent in 2017 and between 3 to 4 per cent in the coming years. In parallel with that, the unemployment rate will decline further and investment will continue to expand. Investment will become a determinant factor of economic growth. In addition to one-off large investment projects, strengthening in underlying corporate investment developments, pick-up in the housing market and an upturn in the absorption of EU funds will contribute to investment growth. The dynamic rise in wages will incite companies to implement efficiency increasing investment. The increase in corporate loans outstanding and housing market developments will also contribute to investment growth. The expansion in SME lending has been between 5–10 per cent on annual basis since end-2015, which is in line with the measure of sustainable credit growth. Corporate lending as a whole is expected to continue to rise, which is already supported by the second phase of the Market-based Lending Scheme as well this year. In addition to rising employment, the dynamic real wage increase and the historically high consumer confidence support the permanent expansion in household consumption. In addition, the previously accumulated net financial wealth and the pick-up in lending to households as well as the second-round effects of the upturn in the housing market contribute to the expansion in consumption. On the whole, the budget has a demand stimulating effect over the forecast horizon.

We expect more dynamic growth in Hungary's key export markets and a marked upturn in external demand. Starting from 2018, the development of new capacities in the vehicle industry will also contribute to export growth, resulting in a further rise in Hungary's export market share. According to our forecast, the growth stimulating programmes of the MNB and the Government will result in stable annual growth of 3 to 4 per cent over the coming years. With the gradual closing of the output gap, from the aspect of dynamic economic growth the improvement of productivity and competitiveness will play an increasingly important role.

In parallel with higher absorption of EU funds and a pick-up in domestic demand, the external financing capacity of the Hungarian economy will fall short of the values observed in previous years, but will still remain high, contributing to the decrease in the external vulnerability of the country.

The decline in the external financing capacity of the economy that had lasted since end-2016 continued in the first quarter of 2017 as well. This was related to the low absorption of EU transfers and the decline in the trade balance. Looking ahead, in parallel with an expansion in the absorption of EU funds, the transfer balance is expected to increase, while the current account surplus will decline as a result of higher household consumption and investment. As a consequence of these two effects, the external financing capacity will be below 5 per cent of GDP in 2017 and 2018, before rising again at the end of the forecast horizon. The favourable external balance position will continue to contribute to the decrease in the external vulnerability of the economy. Based on the developments in the first half of 2017, this year the general government deficit may be lower than planned. We expect the deficit to be in line with the target set in the Budget Act in 2018. The decline in debt supported by economic growth and the low general government deficit will continue, complying with the provisions of the Fundamental Law and EU legislation.

Domestic money market developments were mainly determined by the improvement in investors' assessment of the Central and Eastern European region. Hungary's favourable assessment was also supported by the improvement in the outlook by the credit rating agency S&P. The forint appreciated; interbank and government securities market yields over one year continued to decline slightly.

Although the BUBOR fixings and the pricing of interest rate swaps remained almost unchanged, forward money market interest rate quotations shifted moderately downwards. The forint yield curve calculated from FX swap market quotes also shifted downwards, which is attributable to the MNB's FX swap tenders as well. Demand was adequate at the government securities auctions. Similarly to secondary market trends, yields at longer maturities declined, while issuance exceeding the plan also took place in the case of longer-term securities. In the period as a whole, the exchange rate of the forint

appreciated against the euro, which was primarily attributable to investors' improving assessment of the region and to the favourable fundamentals. Based on market expectations, euro-area monetary conditions – the key determinants of domestic monetary policy – are expected to remain steadily accommodative.

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

In addition to the baseline projection in the September Inflation Report, the Monetary Council perceived downside risks to inflation and upside risks to growth. The alternative scenarios that assume more moderate external inflation and further improvement in investors' assessment of the Central and Eastern European region show a lower inflation path than the baseline scenario, and they do not affect economic growth significantly. In the Monetary Council's assessment, the stronger investment activity compared to the assumption of the baseline scenario poses an upside risk to growth, resulting in faster economic growth, while its effect in terms of inflation is moderate. In addition to the key risk scenarios, among possible further risks the Monetary Council discussed alternative scenarios that assume faster wage growth and a more dynamic increase in consumption as well as stronger external demand.

In the Council's assessment, some degree of unused capacity has remained in the economy, but this is likely to be absorbed gradually as output grows dynamically. The inflation target is expected to be achieved in a sustainable manner one additional quarter later, i.e. by the middle of 2019, following a delay of half a year indicated in the June projection. The Council considers that the external environment continues to pose a downside risk to inflation. In the Council's assessment, maintaining the base rate and loose monetary conditions for an extended period are necessary to achieve the inflation target in a sustainable manner.

SUMMARY TABLE OF THE BASELINE SCENARIO

(Forecast based on endogenous monetary policy)

	2016	2017	2018	2019
	Actual		Projection	
Inflation (annual average)				
Core inflation	1.4	2.4	2.7	2.8
Core inflation excluding indirect tax effects	1.3	2.2	2.7	2.8
Inflation	0.4	2.4	2.5	2.9
Economic growth				
Household consumption expenditure	4.9	4.6	3.8	3.0
Government final consumption expenditure	0.6	-0.1	0.8	0.8
Gross fixed capital formation[5]	-12.6 (-15.5)	16.2	11.1	4.3
Domestic absorption[5]	1.8 (1.5)	4.8	4.5	2.8
Exports	5.8	6.5	7.7	7.3
Imports[5]	5.8 (5.7)	8.2	8.8	7.2
GDP[5]	2.2 (2.0)	3.6	3.7	3.2
Labour productivity[6]	-0.1 (-0.3)	1.5	2.9	2.9
External balance[1]				
Current account balance	5.5	3.5	2.5	3.1
External financing capacity	5.5	5.0	4.8	6.2
Government balance[1,4]				
ESA balance	-1.8	(-1.6) – (-1.8)	(-2.2) – (-2.4)	(-1.8) – (-2.0)
Labour market				
Whole-economy gross average earnings[2]	6.2	12.0	9.5	6.5
Whole-economy employment	3.4	1.7	0.8	0.3
Private sector gross average earnings[2]	5.4	11.5	8.7	6.9
Private sector employment	3.4	2.2	1.6	0.6
Unemployment rate	5.1	4.2	3.9	3.9
Unit labour costs in the private sector	5.3	5.6	3.8	3.9
Household real income[3]	4.2	5.2	4.1	2.5

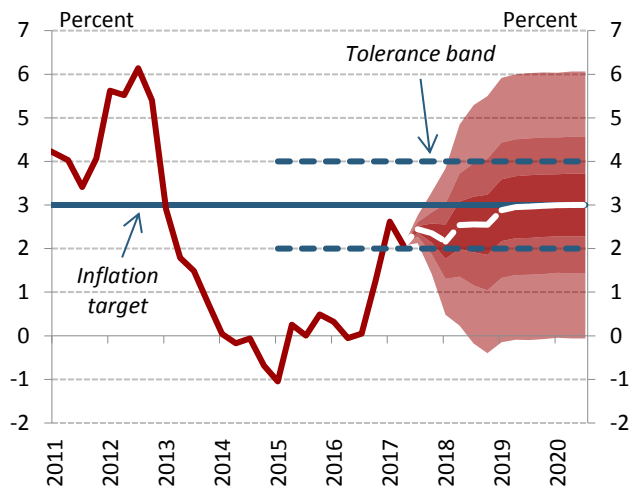
[1] As a percentage of GDP.
[2] According to the original HCSO data for full-time employees.
[3] MNB estimate.
[4] The lower value of the forecast band shows the ESA balance if the Country Protection Fund is used, while the higher value shows the ESA balance if the Country Protection Fund is not used.
[5] Actual figures related to 2016 take into account the expected routine revisions (excluding the effect of methodological changes). The values in parentheses show official data published in September 2017 by HCSO.
[6] Total economy, based on national accounts data.

1. INFLATION AND REAL ECONOMY OUTLOOK

1.1. Inflation forecast

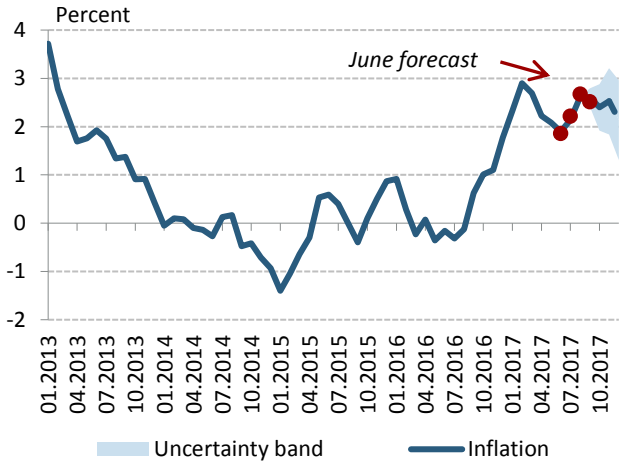
Compared to our previous forecast, the inflation target is expected to be met one quarter later; inflation is projected to reach the 3 percent level consistent with price stability in a sustainable manner in the second quarter of 2019. According to our expectations, our short-term forecast has not changed significantly compared to our June forecast, and thus inflation in the coming months will be around 2.5 percent and then subsequently decelerate to nearly 2 percent, once again moving away from the central bank's target by the end of 2017. Looking to the medium term, we anticipate a lower inflation path than projected in June, owing to more moderate imported inflation. Due to temporary effects such as tax changes and rising milk prices, core inflation will rise until mid-2018, followed by a decline as these effects wear off. As a result of the dynamic growth in household consumption, core inflation excluding indirect taxes gradually increases in our forecast.

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: HCSO, MNB

In our forecast, we expect inflation to develop more moderately than projected in June in 2018 and 2019. The change in the forecast is primarily attributable to lower imported inflation compared to our previous expectations, stemming from a more subdued external inflationary environment, and the slow pass-through of this summer's appreciation of the forint into prices. Inflation will reach **the central bank's inflation target of 3 percent** in a sustainable manner in the second quarter of 2019 (Chart 1-1). Hence, compared to our previous projection, the target will be achieved **one quarter later**.

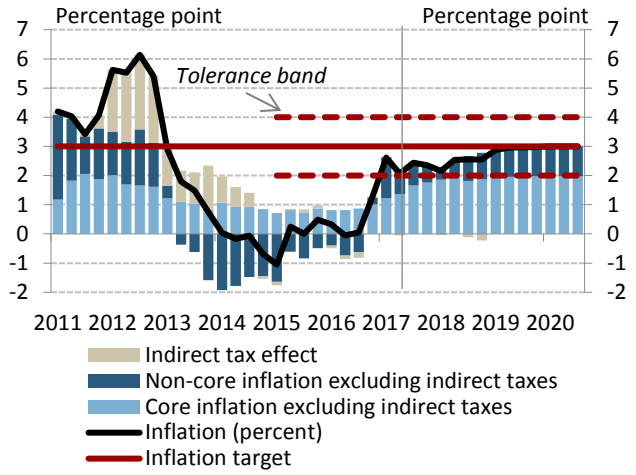
Based on our short-term forecast, in the coming months inflation will temporarily hover around 2.5 percent and then by the end of 2017 – as a result of the base effect resulting from the rise in fuel prices observed at the end of last year – **it will once again decelerate to nearly 2 percent, moving away from the central bank's target** (Chart 1-2).

Over the forecast horizon, **inflation in the euro area will remain moderate**, with the index falling short of the ECB's inflation target even in 2019. Based on the ECB's latest forecast, expectations moderated compared to the June round, which is essentially explained by the appreciation of the euro against the US dollar in the past period.

In the coming months, the **temporary rise in core inflation will continue, caused by the increase in tobacco and dairy product prices**, as in the previous months. With the one-off effects wearing off, core inflation will decrease in the second half of next year (trends in core inflation are discussed in greater detail in Box 1-1).

Over the forecast horizon, we expect that the core inflation excluding indirect taxes will continue to rise (Chart 1-3). According to our expectations, household consumption, which is expanding as a result of the dynamic wage increases, will increase enterprises' pricing power. On the other hand, based on Hungarian and international experience since the crisis, the inflation effect of the pick-up in consumption remains moderate. As a result of

Chart 1-3: Decomposition of the inflation forecast



Source: HCSO, MNB

Table 1-1: Details of the inflation forecast

		2017	2018	2019
Core inflation		2.4	2.7	2.8
Contribution to inflation		*1.7*	*1.9*	*2.0*
Non-core inflation	Unprocessed food	0.7	3.9	6.1
	Fuel and market energy	6.6	2.4	3.8
	Regulated prices	0.5	0.9	1.7
	Total	2.3	1.9	3.2
Contribution to inflation		*0.7*	*0.6*	*0.9*
Inflation		**2.4**	**2.5**	**2.9**

Note: The sum of contributions may differ from the aggregated value because of the rounding.

Source: MNB

administrative wage increases and tight labour market conditions, gross average wages in the private sector rose more significantly than seen in previous years. **However, the inflationary effect from the labour market may remain moderate.** The upward pressure on costs from wage increases is offset by the decline in the social contribution tax and the corporate income tax, progress in combatting the shadow economy and the weakened relation between labour costs and prices in the post-crisis period. The moderate inflationary effect from the labour market is supported by the fact that there has been no observable general price increase **in market services** this year so far. The wage increase was reflected only in the pricing of certain labour intensive services of lower weight, such as catering and accommodation. Next year, the inflationary effect of higher wage dynamics on the cost side **will also be mitigated by the additional decrease in social contributions**. All in all, **the inflationary effect of wage growth remains moderate.**

In the case of non-core products, a moderate price increase is expected (Table 1-1). In the case of the oil price, as a fundamental determinant of developments in the price of this product group, a moderate rise is expected based on the futures quotes. With regard to unprocessed food, based on futures quotes, we expect a gradual price increase. In our forecast, regulated energy prices are not expected to change until the end of the forecast horizon.

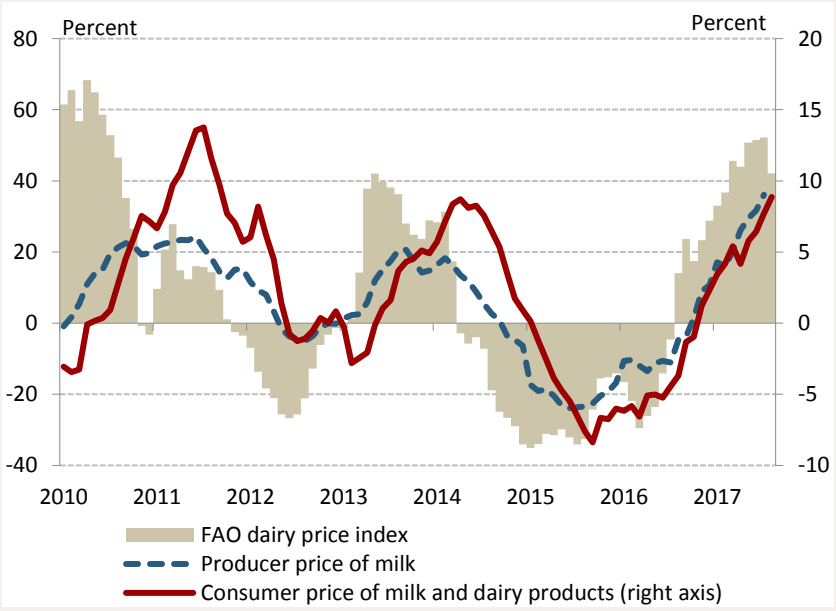
All in all, the effects of indirect tax changes will offset each other out in 2017, while in 2018 they point to a slight decrease in inflation. The inflationary impact of the changes in excise duty affecting tobacco products in January and July 2017 – implemented as a result of the legal harmonisation of the EU – is offset by the VAT decreases effective from January and also by the decline in the excise duty on fuels from April to the level of last September. In January 2018, the VAT cuts (internet, restaurant services, fish, pork offal) point to a decline in prices.

Box 1-1: Reasons for the increase in core inflation

Core inflation is the main indicator used in the analysis of underlying inflation trends, and thus **it is important to examine the factors behind the rise of core inflation. A gradual rise in core inflation has been observed** since August 2016, with the rate increasing from 1.2 percent to 2.8 percent over the span of one year. **According to our current forecast, a further rise is expected in the short run.** At the same time, **other underlying inflation indicators** (inflation of demand-sensitive products and inflation of sticky-price products) are still below the core inflation, around 2 percent. This box text **analyses the reasons for the increase in core inflation and discusses how durable the individual factors may be.**

A considerable part of the rise in core inflation in the past period was explained by changes in processed food prices. The acceleration in food prices is related to a clearly identifiable group of products, i.e. to **price rises for milk and dairy products**, which is fundamentally attributable to the increase in producer prices seen since September of last year. **The producer price of milk has increased by more than 30 percent since mid-2016, in line with the rise in the global price of milk** (Chart 1-4). Following the termination of the producers' milk quota in the EU in 2015, as a result of the ensuing oversupply, the market price and the purchase price of milk declined considerably, prompting producers to reduce their livestock and cut milk production. All of this resulted in an increase in milk prices, and this was further strengthened in Hungary by the fact that purchase prices in Hungary are much lower than abroad. Looking ahead, as a consequence of the price increases, production may grow, leading to a decline in the rate of price increases, as a result of market stabilisation. Accordingly, **our forecast suggests that the contribution of milk and dairy products to core inflation will shrink from 2018 H2**, and then develop around the long-term historical average (Chart 1-5).

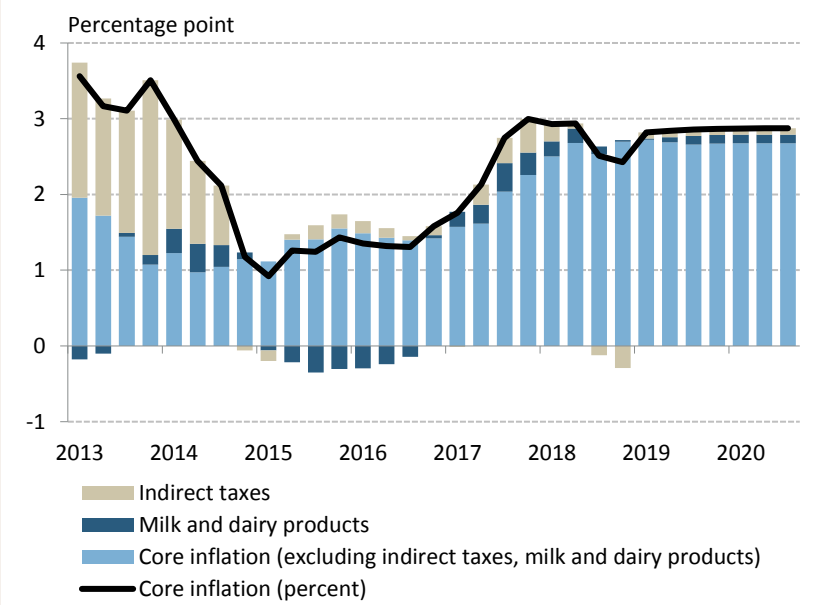
Chart 1-4: Annual change of the producer and consumer prices of milk



Source: HCSO, FAO

In addition, the **change in the prices of tobacco products stemming from the excise duty increase** also plays an important role in the recent rise in core inflation. As a result of harmonisation with EU legislation, the excise duty on tobacco products increased in several steps in September 2016 as well as in January and July 2017. Based on previous experience, the impact of the change in the excise duty is perceived not only in the month when it enters into effect, but materialises fully in tobacco product prices in a protracted manner, over the course of a couple of months. **Raising the excise duty will result in a gradual increase in core inflation** during the remainder of the year. **Nevertheless, it can be considered a temporary effect, and following the pass-through of the effects of the change in the excise duty, the tax content of core inflation will gradually become lower starting from the beginning of 2018.** From 2018 H2, the changes in the tax content will already point to a decline in core inflation; from then on, the effect of the January 2018 VAT cuts (internet, restaurant services) will already exceed the gradually declining effect stemming from the excise duty increases.

Chart 1-5: Decomposition of core inflation



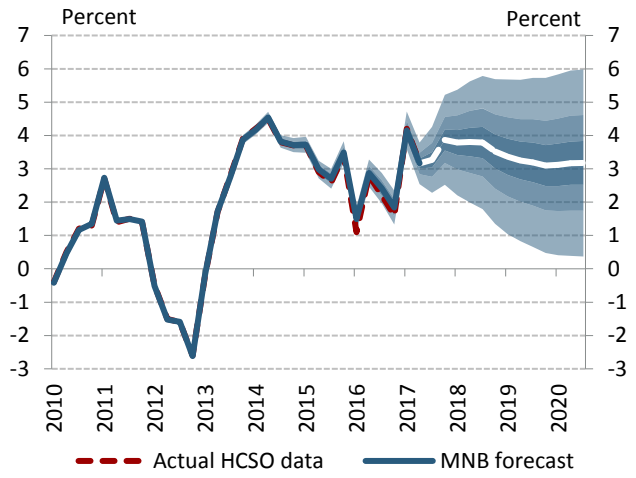
Source: HCSO, MNB

Disregarding the temporary effects, core inflation excluding tax changes is expected to gradually increase. Tradables inflation is at a subdued level, which is primarily attributable to the moderate international inflation environment. **In respect of market services, price dynamics are following a pattern similar to previous years**: the impact of the dynamic wage increase typical of the first half of the year was reflected only in the pricing of certain lower-weight services (catering and accommodation services), and cannot be considered general. On the whole, **core inflation is expected to rise until mid-2018. Then, with the fading of the temporary effects** (tax change, increase in milk prices), **it will decline.**

1.2. Real economy forecast

We project economic growth of 3.6 percent in 2017, 3.7 percent in 2018 and 3.2 percent in 2019. According to our forecast, in the second half of this year the economic growth rate will gradually accelerate, while in the remaining part of the year the technical effects (working-day effect, foreseeable adjustment of agricultural output, vehicle industry stoppages) will reduce GDP growth. Stronger domestic demand will continue to play a major role in economic growth, with the increase in investments and household consumption as key factors. Looking ahead, we expect dynamic growth in investments over the course of several years. In addition to the individual, large-scale investments which have been announced, the underlying investment trends in the corporate sector are expected to improve further, also stimulated by the central bank schemes and robust growth in SME loans. The expansion of household investments is supported by the favourable income and lending developments, while the growth in public investments is facilitated by projects implemented both from EU funds and own resources. The growth in household consumption is supported by the dynamic increase in real wages, the high net financial worth, the increase in retail lending and the second-round effects of the upturn on the housing market. Consumption growth is also fostered by household confidence, which is stabilising at a historically high level. The demand stimulating effect of the fiscal impulse also fuels domestic growth. The improvement in external demand may temporarily be accompanied by a slowdown in the domestic export performance during the rest of the year, attributable to the production stoppages linked with model changes at car manufacturers. From 2018, when the new capacities are fully running, we expect a more dynamic increase in exports and a rise in Hungary's export market share. With the pick-up in the import-intensive internal demand items (investments, consumption), net exports will reduce economic growth this year and next year as well.

Chart 1-6: Fan chart of the GDP forecast



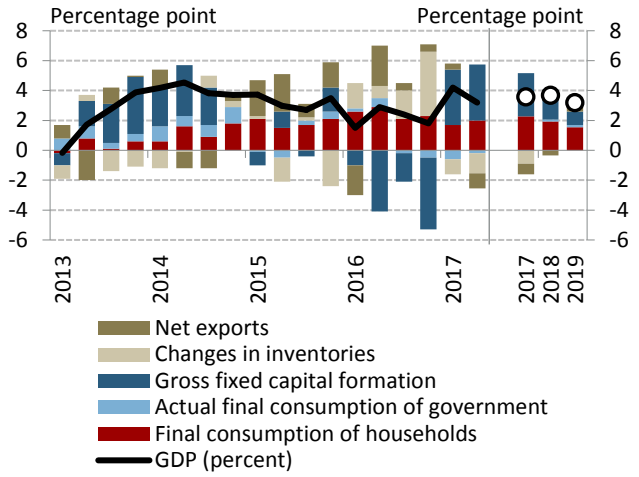
Note: The baseline forecast is based on backcast and nowcast adjusted by anticipated revisions.
Source: HCSO, MNB

According to our forecast, **the economic growth** in the coming years can be **between 3 and 4 percent.** We project economic growth of 3.6 percent in 2017, 3.7 percent in 2018 and 3.2 percent in 2019 (Chart 1-6). **Over the short run, the strengthening of domestic demand will continue to play a major role** in GDP growth, with the increase in private investment and household consumption as key factors (Chart 1-7).

In our projection, **we anticipate wide-spread, buoyant growth in investments**, in line with the concomitant acceleration of the investment activity of the private and public sectors. After the significant rise recorded in the first half of the year, the expansion in whole-economy investments will continue in the coming years as well. In the years to come, **the whole-economy investment ratio may rise and remain steadily above 20 percent** (Chart 1-8).

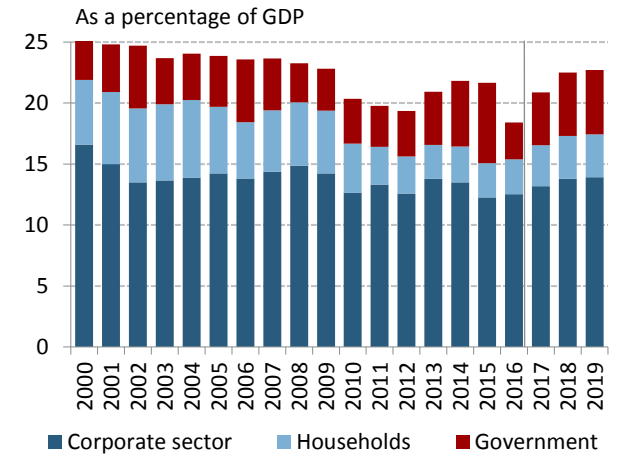
Underlying investment trends in the corporate sector are expected to improve further, in line with the expansion in domestic demand, the low interest environment, the central bank's measures designed to stimulate market-based lending (such as Phase 2 of the Market-based Lending Scheme), the gradual phase-out of the bank levy and substantial growth in SME loans (Chart 1-9). According to our forecast, the increase in SME loans will be within the sustainable range of 5-10 percent. In addition to the previously announced expansion of automobile manufacturing capacities, MOL is about to implement its largest organic investment in its history in the coming years. These **major investments not only directly support**

Chart 1-7: Contributions to annual changes in GDP



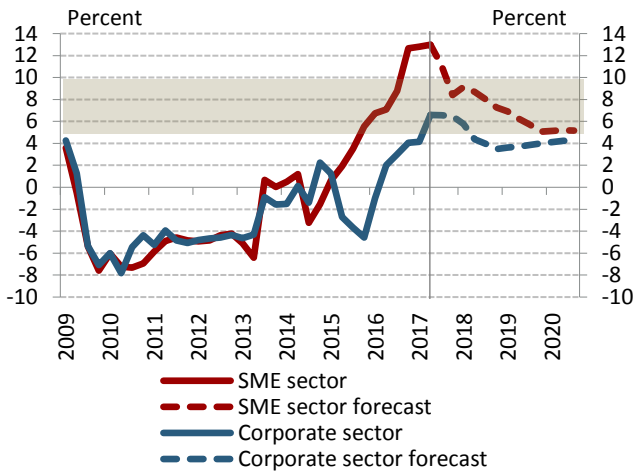
Note: The baseline forecast is based on backcast and nowcast adjusted by anticipated revisions. Source: HCSO, MNB

Chart 1-8: Evolution of investment rate by sectors



Note: Expected routine revisions taken into consideration. Source: HCSO, MNB

Chart 1-9: Annual changes in lending to non-financial corporates and SMEs



Note: Transaction-based, year-on-year data. Source: MNB

Hungarian GDP growth, they are also beneficial due to the second-round spillover effects.

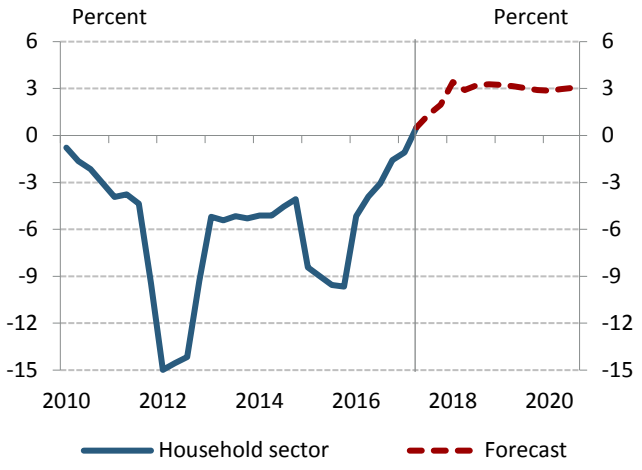
In our forecast, we project an increase in public investments implemented from EU and own funds. In addition to the significant improvement in public investment performance, the 2014-2020 EU budget cycle also has a stimulating effect on corporate investments, as direct economic development is emphasised more in the new cycle. The first works on the major investment at Paks commence in 2018, although the substantial increase in investments will affect only the subsequent years.

The rise in households' investment activity is fostered by stable labour market prospects, improving income trends, the demand-stimulating effect of the home creation programme and consumer-friendly housing loans. In the past period, the substantial growth in construction permits, utilisation of the family home purchase subsidy scheme and the surge in retail lending point to a rise in households' investment activity (Chart 1-10). The significant growth reserves in the Hungarian housing market support the expected continuation of the upswing on the housing market. We expect to see a durable increase in the investment rate of households in the coming years.

In our forecast, we anticipate further growth in household consumption. Rising consumption is supported by the favourable income trends linked to the buoyant wage dynamics and the continued expansion in employment, and additionally, the previously accumulated high net financial worth, as well as the pick-up in retail lending are both contributing to household consumption growth. The rise in household consumption is also bolstered by **the historically high level of confidence**. Looking ahead, we expect steady, sound growth in lending to the household sector implemented in a healthy structure, since the risk of over-lending is limited by the central bank's debt cap rules: the payment-to-income ratio and the loan-to-value ratio keep the risks of lending for housing in a sustainable channel. The second-round effects of the upturn on the housing market also contribute to the steady increase in consumption. The potential of correction for consumption postponed during and after the crisis also suggests an increase in consumption, which is also supported by the moderate consumption rate in historical terms and the low level of consumer durables purchases in a regional comparison.

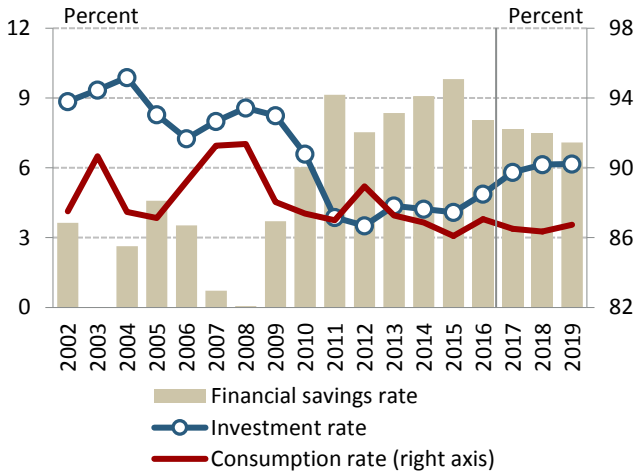
According to our expectations, **looking ahead the substantial increase in wages will be reflected not only in consumption, but also in households' investment and saving decisions**. According to our assumptions, as a result

Chart 1-10: Forecast for household lending



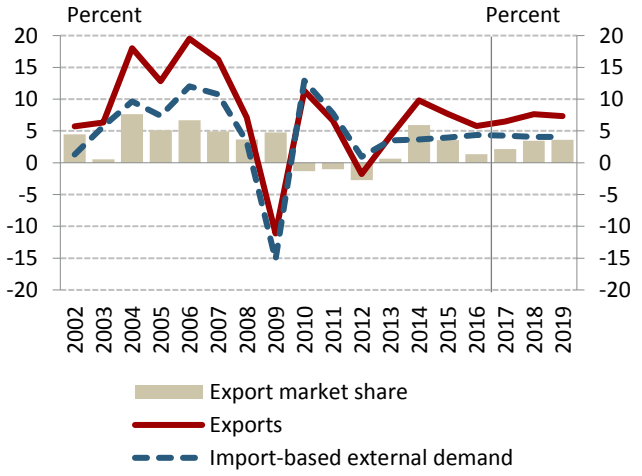
Source: MNB

Chart 1-11: Evolution of households' consumption, investment and financial savings rates as a percentage of disposable income



Source: HCSO, MNB

Chart 1-12: Changes in export market share



Note: Annual change.

Source: MNB

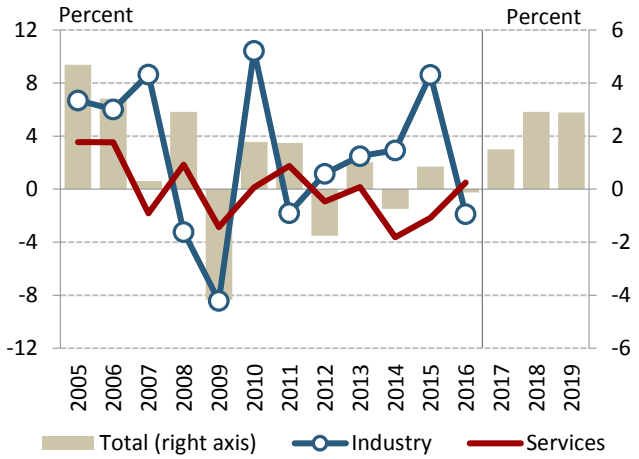
of the favourable income trends, households will accumulate higher savings, thereby facilitating future house purchases. According to our current projection, compared to the previous forecast, the savings rate will be higher, but looking ahead it will continue to decrease from its present high level. The rise in the investment ratio will continue in parallel with the upturn in the housing market cycle, while consumption will increase in proportion to earnings (Chart 1-11).

On the whole, global economic forecasts were adjusted upwards in the past period, **and they point to strengthening economic activity in Europe.** Looking ahead, **the dynamic economic performance of the CEE region** will also support European growth. On the whole, thanks to the favourable outlook for economic activity, **we expect slightly higher growth in external demand** compared to our June assumptions, while the **more positive growth in Hungary's key export markets is primarily linked to domestic demand components**, which is less favourable for the Hungarian export structure. The improvement in external demand may **temporarily** be accompanied by a **slowdown** in domestic export performance during the rest of the year, **attributable to the production stoppages linked to the model changes by the large automobile manufacturers, which is supperted by the moderate industrial productial in July.** From 2018, when the new capacities are running at full speed, we expect a more dynamic increase in exports and a further rise in Hungary's export market share (Chart 1-12). We expect a continued increase in services trade, which is less dependent on business cycles and external finance, and will thus make a positive contribution to the balance of trade. The dynamic expansion in factors of domestic demand (consumption, investment) will significantly boost import dynamics, as a result of which **net exports will make a negative contribution to economic growth both this year and next year.**

According to our expectations, after last year's outstanding agricultural performance, the sector may experience a sizable setback this year. While detailed data on this year's agricultural crop yields are not yet available, based on the preliminary data and crope estimations the volume of maize, wheat and other key arable crops may fall well short of last year's historically high level. Our forecast indicates that the sector's value added may decline substantially and thus **lower 2017 economic growth by almost 0.5 percentage points**.

Potential growth will pick up over the forecast horizon, primarily due to the expansion in private sector investment and the trend growth in labour market activity. The

Chart 1-13: Annual change in labour productivity



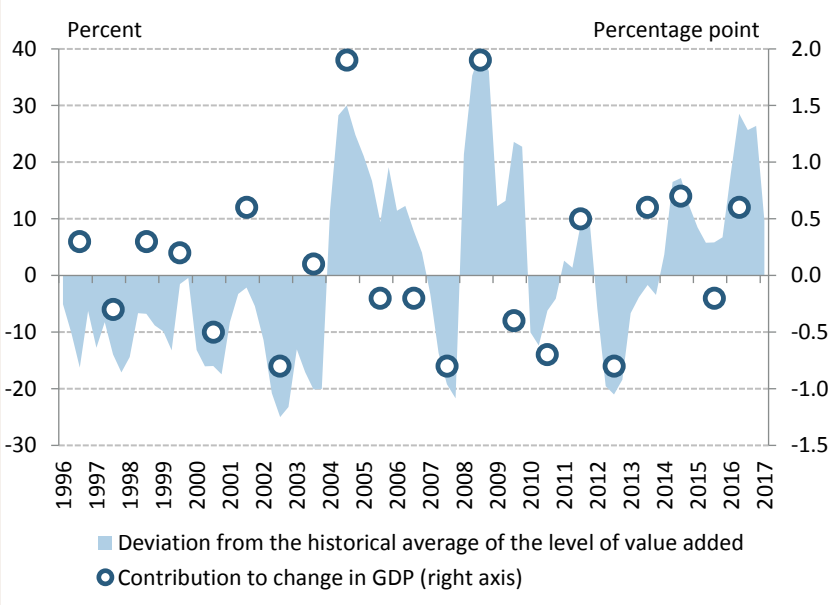
Note: Employment for production of GDP, national accounts data.
Source: HCSO, MNB

dynamic growth in corporate investments to increase the capital stock and expand capacities is facilitated by the Growth Supporting Programme, the decline in the bank levy and the EU funding available to enterprises. **Our forecast points to an improvement in labour productivity** (Chart 1-13). The recovering private investments increase productivity not only through the deployment of advanced equipment and the construction of modern industrial facilities, but also through the adoption of the know-how necessary for the production of higher value added. The announced large-scale investments and the capacity expansion of the supplier network generate positive feedback in the market services of higher value added.

Box 1-2: Significant correction is expected in the performance of agriculture this year

Last year, the performance of agriculture was favourable in a historical comparision as well; the harvested quantities of the main crops were close to historical peaks in several cases. The value added of the sector expanded by 16.8 percent, resulting in a strong contribution of 0.6 percentage point to GDP growth (Chart 1-14). However, based on historical experience as well as the currently available data, a **correction is expected in the performance of the sector this year.** In the first half of this year, the value added of agriculture declined by 10.1 percent compared to the same period of the previous year.

Chart 1-14: Changes in agricultural performance



Note: Seasonally and calendar effects adjusted and reconciled data.
Source: HCSO

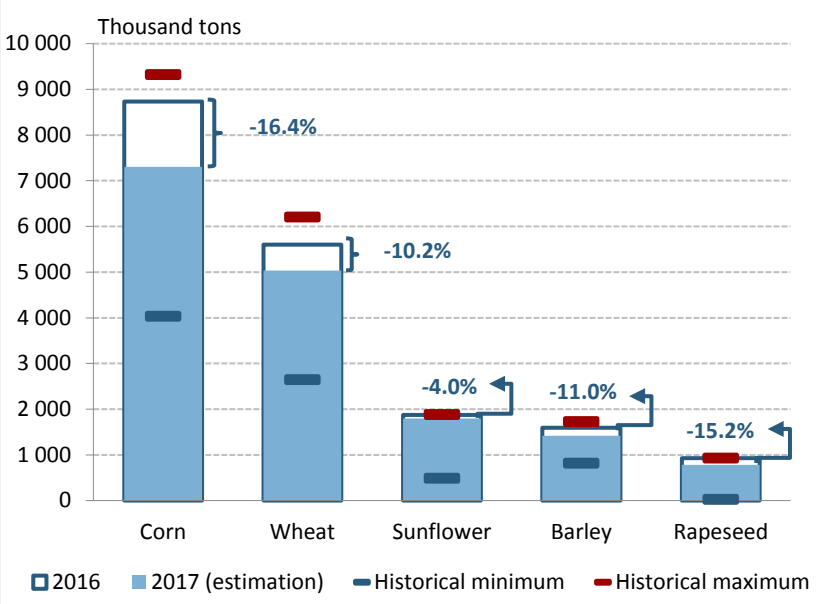
Even compared to the member countries of the European Union, the Hungarian agricultural output shows significant fluctuations, and thus forecasting its performance is especially difficult. However, **according to historical experience, favourable periods were usually followed by more subdued years**. Between 1996 and 2015, there were six years when

the contribution of the sector to growth was significant, i.e. reaching or exceeding 0.5 percentage point. In five out of the six cases, the sector hampered GDP growth in the following year. Similarly to last year, agricultural performance was extremely positive in 2004 and 2008, and in both cases, agricultural performance was weaker in the subsequent years.

The considerable volatility of this sector's value added is primarily attributable to the relatively high weight of cultivation, which is directly exposed to weather conditions; the value added of animal husbandry was typically stable in the past decade. Accordingly, conclusions concerning agricultural performance can primarily be drawn based on the expected changes in grain crop yields, which have a high weight within output.

Based on previous years' experience and harvest results available to date, grain crop yields may fall short of last year's historically high level in 2017 (Chart 1-15). The smaller size of the total harvested area compared to last year as well as unfavourable weather (frost early in the year, little rain in the summer) in certain parts of the country may have had a significant impact on the lower harvest. Crop quality and yields vary significantly across the country.

Chart 1-15: Production of main crops grown on arable land



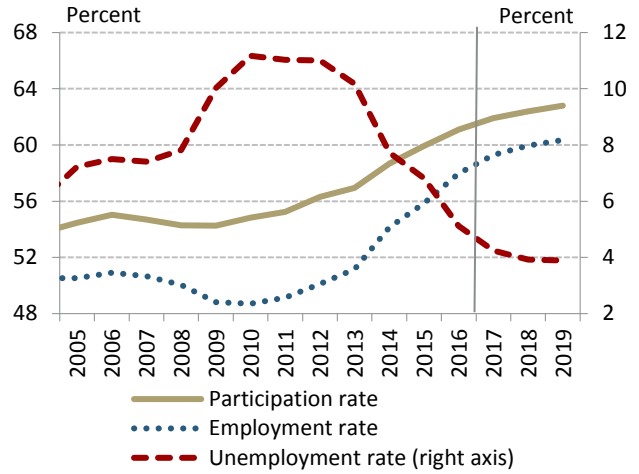
Source: HCSO, Research Institute of Agricultural Economics

The presumably weaker performance of cultivation in 2017 may be offset only partly by animal husbandry. On the one hand, the weight of animal husbandry in the structure of the Hungarian agriculture is lower than that of cultivation, while on the other hand, its performance is typically more stable.

1.3. Labour market forecast

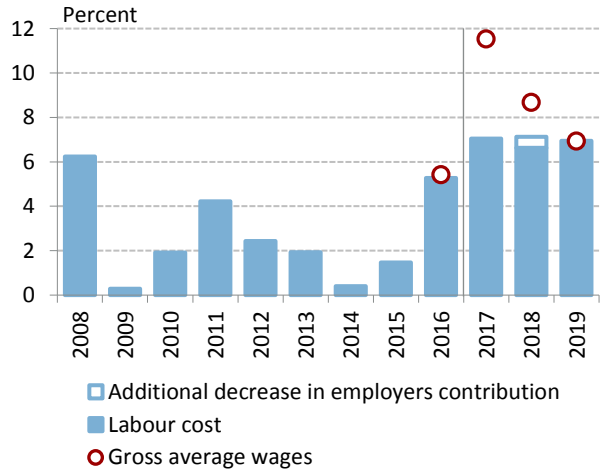
Over the forecast horizon, employment of the national economy and the private sector will continue to rise at a slower rate, and the unemployment rate – which is already at a historical low level – will continue to decline. The high labour demand of the private sector and the tightening of available labour capacities will result in stronger wage growth, with the significant increases in the minimum wage and guaranteed wage minimum at the beginning of this year also making a contribution in this regard. The combined effect of the tight labour market and the wage agreement results in higher nominal wage growth in the private sector compared to past years.

Chart 1-16: Employment, participation and unemployment rate in the national economy



Source: HCSO, MNB

Chart 1-17: Annual changes in labour cost and gross average wage in the private sector



Source: HCSO, MNB

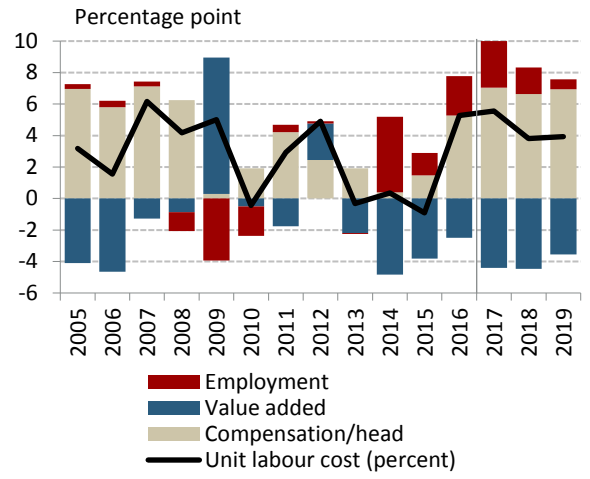
We expect labour supply to continue growing in the years ahead, but the increase may be more moderate than observed in past years. The increase in the participation is accompanied by rising employment and a further decrease in unemployment. The inflow of inactive people marginally attached to the labour force is contributing to the increase in the number of active people, but looking ahead, demographic developments will tend to act as a more significant constraint to the expansion in labour supply (Chart 1-16).

Owing to **government measures restricting public employment programmes** coming into effect in 2018 and the decrease in the budget limit planned for 2018, the number of public workers will fall by 30,000 in the forecast period. Some of those exiting the programme may gradually flow back into the primary labour market. As a result of the substantial wage growth, we expect that the emigration of skilled labour force may slow down. Furthermore, the widening gap between the wages in the public employment schemes and the ones achievable in the private sector may represent a stronger stimulus for public workers to appear in market-based employment.

Over the forecast horizon, labour demand in the private sector will increase further, in parallel with continued economic growth. At the same time, due to bottlenecks, the number of people employed in the private sector will **continue to rise at a slower rate** compared to the robust increase observed in recent years. As employment continues to rise, **unemployment, which is already at a historical low level, will continue to decrease**.

Administrative measures taken early this year will strongly influence wage-setting developments in 2017-2018. The **raise in the minimum wage and the guaranteed wage minimum** directly affect a large portion of employees, and due to efforts to prevent wage compression, we also anticipate **significant spill-over effect** in higher wage cathegories. As a result of the contraction of the available labour force, increasing wage competition can be observed between the economic sectors and companies in order to replace and retain labour force.

Chart 1-18: Decomposition of nominal unit labour cost growth in the private sector



Source: HCSO, MNB

We forecast that wage growth will exceed our June projection. According to the estimates, from January to September 2017 year-on-year nominal wage growth in the private sector will **exceed 11 percent**, which – pursuant to the wage agreement – **will result in a decrease in the employer's contribution by a further one-half percentage point**, in addition to the originally agreed two percentage points. The additional cut in the contribution rate may encourage companies to postpone bonus payments planned for the end of this year to the beginning of 2018. The impact of the dynamic wage growth will be mitigated in 2018 by the additional cut in the employer's social contribution, and thus **labour costs will increase at a slower pace than the gross average wages** (Chart 1-17).

In the subsequent years, unit labour cost in the private sector will also increase at a more moderate rate, in line with the improvement in economic performance and the slower growth in the number of employees (Chart 1-18).

Box 1-3: Assumptions applied in our forecast

Hungary is a small, open economy, and as such our forecasts for the most important macroeconomic variables are fundamentally influenced by developments in external factors and changes in the assumptions related to them. The purpose of this brief presentation of the changes in the external assumptions is to make our forecasts more transparent (Table 1-2).

Table 1-2: Main external assumptions of our forecast

Technical Assumptions	2017		2018		2019		Change		
	June	Actual	June	Actual	June	Actual	2017	2018	2019
EUR/USD	1.10	1.13	1.12	1.20	1.12	1.20	2.7%	7.1%	7.1%
Oil (USD/barrel)	51.9	52.3	52.1	53.9	52.1	54.4	0.8%	3.5%	4.4%
Food prices									
Wheat (USD/bushel)	4.40	4.42	5.04	5.01	5.42	5.41	0.5%	-0.6%	-0.2%
Maize (USD/bushel)	3.73	3.64	4.02	3.89	4.13	4.14	-2.4%	-3.2%	0.2%
Euro area inflation (%)	1.5	1.5	1.3	1.2	1.6	1.5	0.0 pp.	-0.1 pp.	-0.1 pp.
GDP growth of Hungary's main trading partners*(%)	2.2	2.3	2.3	2.4	2.4	2.5	0.1 pp.	0.1 pp.	0.1 pp.

Note: Annual average in the case of oil prices. * Growth rate of Hungary's 21 most important export partners, weighted by share in exports.

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

During the past period, the price per barrel of Brent crude oil fluctuated in the range of USD 45–55, with significant volatility. At present, after the rise seen during the past weeks, oil prices are in the upper part of the band, which is also attributable to the temporary price increase caused by the hurricanes that hit the southern United States. Aside from the temporary impacts, the upward drift in prices also stems from the decreasing crude oil stocks resulting from the shortfall in production compared to demand. Despite the falling stocks, according to current forecasts, the oversupply observed in the market will remain even in 2018, and it is **unlikely that the market will become balanced before 2019**. Future price developments still involve major uncertainties. The recent rise in geopolitical risks (conflict with North Korea, the internal crisis in Venezuela, potential reintroduction of sanctions against Iran) may generate a price increase. By contrast, significant downside risks can be also identified, as the declining compliance with the production cap agreement of the OPEC member states and the growth in output may curb oil price rise. **On the whole, based on futures quotes, oil prices expressed in US dollars exceed our June assumption and looking ahead they point to a slowly rising path.**

In the past period, both EUR and USD-specific factors pointed to appreciation of the euro (for a more detailed explanation of the factors behind the EUR/USD exchange rate changes, see Box 3.1). In line with this, based on our current assumption with regard to the **euro/US dollar** cross rate, **we expect a slightly higher path than in our June assumption.** The appreciation of the euro against the US dollar has offset the impact of the higher oil prices, and thus on the whole the **assumptions with regard to oil prices measured in euro became more moderate compared to June**.

In its latest forecast, the European Central Bank reduced its expectation with regard to inflation in the euro area compared to its June forecast. The reason for the lower inflation is primarily the appreciation of the euro against the US dollar in the past period. **Inflation in the euro area will remain below the target** in the coming years. Over the forecast horizon, euro-area inflation will fall substantially in 2018 to 1.2 percent from the 1.5 percent rate projected for 2017, as a result of the base effect linked to oil price developments, which is not expected to wear off before 2019. Thereafter, mostly as a result of the recovery in economic activity and the rise in expenditure side effects generated by the increasingly tight labour market (rising nominal wage dynamics), inflation will advance to 1.5 percent.

As a result of the favourable European outlook for economic activity, we expect a slightly faster increase in our external demand compared to our June assumptions. On the whole, global economic forecasts were adjusted upwards in the past period and suggest strengthening economic activity in Europe. Looking ahead, the dynamic economic performance of the CEE region will also support European growth. On the whole, thanks to the favourable prospects for economic activity, we expect a slightly more rapid increase in external demand compared to our June assumptions.

Based on futures quotes, wheat and maize prices are expected to rise gradually, at a rate which essentially corresponds to the assumption in the June Inflation Report.

Our information and assumptions regarding fiscal developments have not changed significantly compared to the June Inflation Report. No new measures with a major fiscal impact have been announced. The fact that a government decree raised the expenditure appropriation facilitates the payment of EU transfers. On the other hand, our assumption related to the additional 0.5 percent decrease in the social contribution tax rate due in 2018 has changed. **According to our expectations, in the first nine months of the year the rise in the gross average wage in the private sector will exceed 11 percent, and thus our forecast contains the rate cut entering into force in 2018 as a result of this.**

Actual data suggest that tax revenues will exceed our previous expectations, while the effective absorption of EU transfers may fall slightly short of the estimates. The stronger-than-expected increase in the wage bill may be the main reason that personal income tax and contribution revenues slightly exceeded our June expectations in recent months. The wage increase, which is assumed to be a lasting factor in the macro path, boosts tax revenues over the entire forecast horizon. The cash payment of EU transfers received from the Cohesion and Structural Funds is proceeding at a fast rate, but the effective absorption of the transfers has not reached our expectations yet, and thus we made a minor downward adjustment to effective absorption in 2017 and an upward adjustment of a similar degree in 2019.

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

	2016	2017		2018		2019	
	Actual	Projection					
		June	Current	June	Current	June	Current
Inflation (annual average)							
Core inflation	1.4	2.3	2.4	2.8	2.7	2.9	2.8
Core inflation excluding indirect tax effects	1.3	2.1	2.2	2.8	2.7	2.9	2.8
Inflation	0.4	2.4	2.4	2.8	2.5	3.0	2.9
Economic growth							
Household consumer expenditure	4.9	4.4	4.6	3.7	3.8	3.0	3.0
Government final consumption expenditure	0.6	0.5	-0.1	1.0	0.8	1.0	0.8
Gross fixed capital formation[5]	-12.6 (-15.5)	15.8	16.2	11.1	11.1	4.3	4.3
Domestic absorption[5]	1.8 (1.5)	5.1	4.8	4.6	4.5	2.9	2.8
Exports	5.8	7.2	6.5	7.4	7.7	7.0	7.3
Imports[5]	5.8 (5.7)	9.3	8.2	8.6	8.8	6.9	7.2
GDP[5]	2.2 (2.0)	3.6	3.6	3.7	3.7	3.2	3.2
Labour productivity[6]	-0.1 (-0.3)	1.3	1.5	2.9	2.9	2.9	2.9
External balance[1]							
Current account balance	5.5	3.1	3.5	1.8	2.5	2.2	3.1
External financing capacity	5.5	5.1	5.0	4.2	4.8	4.8	6.2
Government balance[1,4]							
ESA balance	-1.8	(-1.8) – (-2.1)	(-1.6) – (-1.8)	(-2.4) – (-2.6)	(-2.2) – (-2.4)	(-2.0) – (-2.2)	(-1.8) – (-2.0)
Labour market							
Whole-economy gross average earnings[2]	6.2	10.0	12.0	8.9	9.5	6.6	6.5
Whole-economy employment	3.4	1.9	1.7	0.8	0.8	0.3	0.3
Private sector gross average earnings[2]	5.4	10.0	11.5	7.5	8.7	6.9	6.9
Private sector employment	3.4	2.3	2.2	1.6	1.6	0.5	0.6
Unemployment rate	5.1	4.2	4.2	3.8	3.9	3.8	3.9
Private sector unit labour cost	5.3	4.8	5.6	3.6	3.8	3.9	3.9
Household real income[3]	4.2	4.7	5.2	3.8	4.1	2.5	2.5

[1] As a percentage of GDP.
[2] According to the HCSO data for full-time employees.
[3] MNB estimate.
[4] The lower value of the forecast band shows the ESA balance if the Country Protection Fund is used, while the higher value shows the ESA balance if the Country Protection Fund is not used.
[5] Actual figures related to 2016 take into account the expected routine revision (excluding the effect of methodological changes). The values in parentheses show official data published in September 2017 by the HCSO.
[6] Total economy, based on national accounts data.

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

	2017	2018	2019
Consumer Price Index (annual average growth rate, %)			
MNB (September 2017)	2.4	2.5	2.9
Consensus Economics (August 2017)[1]	2.2 – 2.4 – 2.9	1.7 – 2.9 – 3.8	
European Commission (May 2017)	2.9	3.2	
IMF (April 2017)	2.5	3.3	3.0
OECD (June 2017)	3.0	3.0	
Reuters survey (September 2017)[1]	2.3 – 2.4 – 2.5	1.9 – 2.8 – 3.8	2.1 – 3.0 – 3.9
GDP (annual growth rate, %)			
MNB (September 2017)	3.6	3.7	3.2
Consensus Economics (August 2017)[1]	3.0 – 3.7 – 4.0	2.5 – 3.3 – 4.2	
European Commission (May 2017)	3.6	3.5	
IMF (April 2017)	2.9	3.0	2.6
OECD (June 2017)	3.8	3.4	
Reuters survey (September 2017)[1]	3.5 – 3.8 – 4.0	2.5 – 3.5 – 4.2	
Current account balance[3]			
MNB (September 2017)	3.5	2.5	3.1
European Commission (May 2017)	3.5	2.8	
IMF (April 2017)	3.7	3.0	2.2
OECD (June 2017)	3.6	2.1	
Budget balance (ESA 2010 method)[3,4]			
MNB (September 2017)	(-1.6) – (-1.8)	(-2.2) – (-2.4)	(-1.8) – (-2.0)
Consensus Economics (August 2017)[1]	(-0.4) – (-2.3) – (-3.0)	(-0.3) – (-2.4) – (-3.0)	
European Commission (May 2017)	-2.3	-2.4	
IMF (April 2017)	-2.9	-2.8	-2.7
OECD (June 2017)	-2.6	-2.7	
Reuters survey (September 2017)[1]	(-1.7) – (-2.3) – (-3.0)	(-2.3) – (-2.4) – (-2.8)	
Forecasts on the size of Hungary's export markets (annual growth rate, %)			
MNB (September 2017)	4.2	4.1	4.0
European Commission (May 2017)[2]	4.9	5.0	
IMF (April 2017)[2]	4.5	4.4	4.6
OECD (June 2017)[2]	4.8	4.4	
Forecasts on the GDP growth rate of Hungary's trade partners (annual growth rate, %)			
MNB (September 2017)	2.3	2.4	2.5
Consensus Economics (August 2017)[2]	2.4	2.3	
European Commission (May 2017)[2]	2.2	2.3	
IMF (July 2017)[2]	2.3	2.1	2.1
OECD (June 2017)[2]	2.3	2.2	

[1] 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.
[2] 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 forecasts for all partner countries.
[3] As a percentage of GDP.
[4] The lower value of the forecast band shows the ESA balance if the Country Protection Fund is used, while the higher value shows the ESA balance if the Country Protection Fund is not used.
Source: Consensus Economics, European Commission, IMF, OECD, Reuters poll

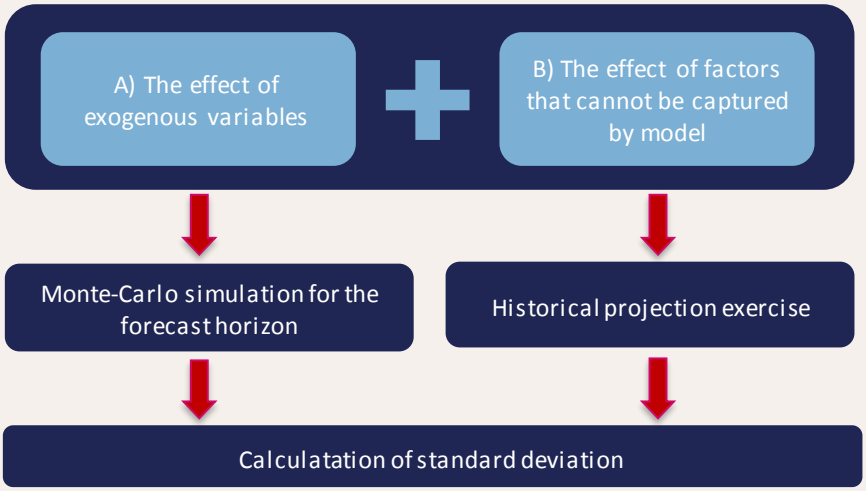
Box 1-4: Application of the model-based fan chart

Usually, the uncertainty of the forecast included in the central bank's projections is illustrated by fan charts (Chart 1-1 presents the baseline inflation forecast and its uncertainty, while Chart 1-6 shows the GDP forecast). The fan chart is to be interpreted in a way that it presents realisations in respect of the given macroeconomic variable under a certain probability. **Essentially, the previous practice was only able to illustrate the overall uncertainty, without indicating any specific components thereof. The fan chart used now is symmetric as a result of the forecast methodology.[1] In this box text, we briefly describe the steps of the enhanced fan chart methodology, which is also suitable for the quantification of individual components.**

The basis of the fan charts is formed by the deviations calculated from the differences between the forecasts and the actual data subsequently realised. This practice, merely by virtue of its simplicity, is one of the most commonly used methods, and due to its nature it is perfectly suitable for capturing the uncertainty surrounding the forecast. On the other hand – also due to its simplicity – unfortunately, it cannot on its own be used for much more than this. The method also raises the issue that when it is implemented using Hungarian data, we may blur the differences between the two types of forecast methodology. Prior to 2011, the forecasts were made under constant interest and exchange rate assumptions, while later on they were prepared with endogenous interest and exchange rate paths. However, there is no large volume of observations (as data are only available for just six years) for the present forecasting practice to calculate robust standard errors for the compilation of fan charts.

Essentially, a model-based macroeconomic forecast can deviate from the actual figures subsequently observed due to two factors. On the hand, **A) the exogenous factors for the model differ from those used in the assumptions,** and on the other hand **B) due to the effects of other factors that cannot be captured by the model.** Bearing this in mind, we **prepare the fan charts based on a new methodology.** In practice, we divide the forecast differences into these two factors, and the total deviation is obtained by aggregating those (Chart 1-19).

Chart 1-19: Steps of the method



Source: MNB

Exogenous variables are usually difficult-to-forecast variables, or factors that are not modelled directly in the central model. These include, for example, developments in world oil prices, and changes in the world market price of other commodities or in Hungary's external demand, etc. For the quantification of uncertainty, we applied the following practice:

- We calculate average deviations between the past assumptions related to the exogenous variables and the subsequent actual data for each quarter.
- Looking ahead, using these standard deviations, we generate random numbers of normal distribution for each exogenous variable for the entire forecast horizon, around the baseline projection.

[1] Looking ahead, the potential asymmetry of the real processes and the currently perceived relevant risks is discussed in Chapter 2 "Effects of alternative scenarios on our forecast", in which the Monetary Council discusses certain key risks separately.

- With these new exogenous paths, we prepare a new forecast with the model, which results in a new macro path differing from the baseline projection due to the random development of exogenous variables.

We perform this exercise in an extremely high volume, generating exogenous variables with high number of iterations, thus obtaining several hundred thousand inflation and GDP growth forecast paths. We can use the simulations for both inflation and GDP growth to see how they scatter around the central projection on average. The deviations derived in this way are referred to as deviations attributable to exogenous variables.

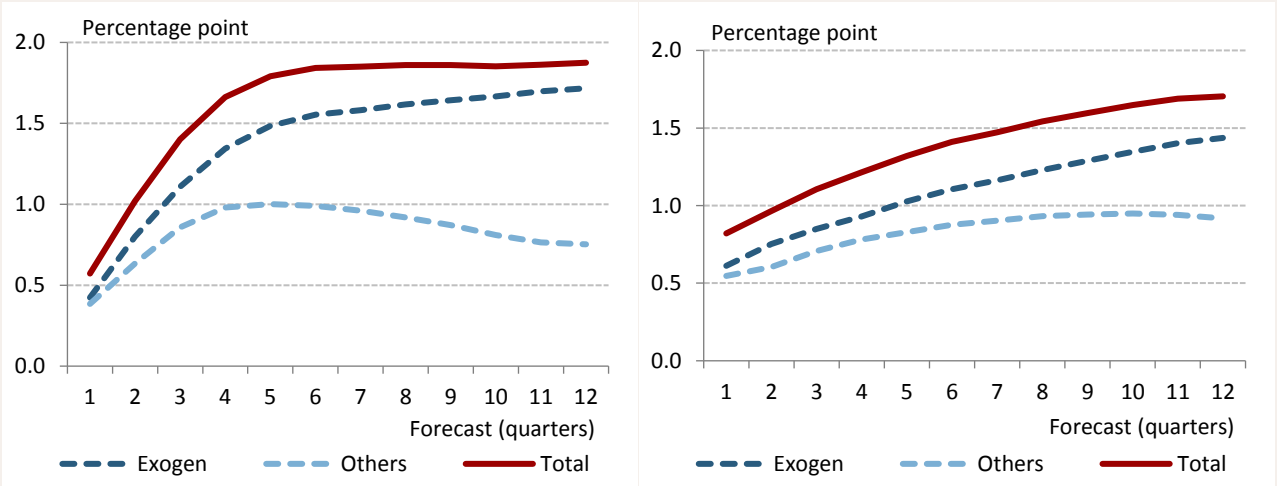
Above and beyond the exogenous variables, other factors include all other effects that may influence the forecast accuracy, such as:

- Unsystematic changes in the Hungarian variables
- Uncertainty upon determining the initial values
- Looking ahead the parameters may change
- Estimation uncertainties related to unobservable variables
- Deviations resulting from random components

In order to quantify the uncertainty represented by other effects, we applied the historical forecast analysis. The essence of this exercise is that we prepare historical forecasts with the model and examine the deviations between the forecasts of the endogenous variables by the model (in our case, inflation and GDP growth) and the actual figures over the relevant forecast horizon. We prepare the simulations for the past in such a way that we fix all exogenous variables for the model at the factual figure, thereby eliminating the forecast deviations caused by the exogenous variables (as those have already been defined by method A) mentioned above) and thus we can specifically quantify the other deviations.

The full forecast deviations for the various quarters can be calculated from the above two factors, assuming that the two factors are independent of each other, using the following formula: $\sigma_{F,t} = \sqrt{\sigma_{A,t}^2 + \sigma_{B,t}^2}$, where $\sigma_{A,t}^2$ is the variances resulting from the exogenous variables, $\sigma_{B,t}^2$ shows the variances resulting from other factors, while $\sigma_{F,t}$ shows the full average deviation of the forecast for the individual t quarters.

Chart 1-20: Variance of the forecast deviations in the case of inflation (left panel) and GDP growth (right panel)



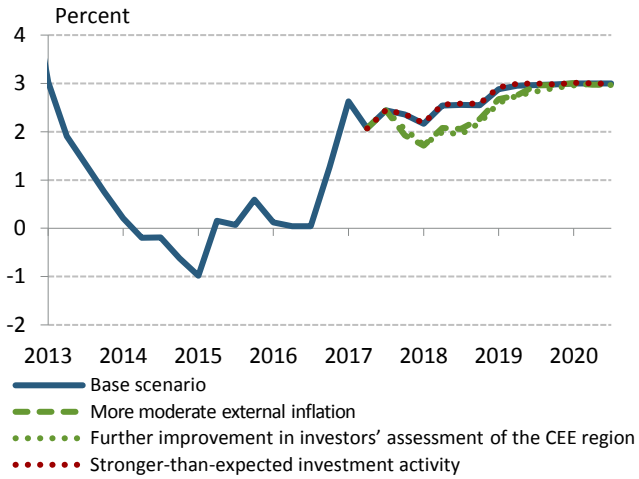
Source: MNB

The forecast uncertainty of both the inflation and the GDP growth projections is mostly attributable to the exogenous factors (Chart 1-20). Essentially, this is also intuitive, as Hungary is a small, open economy and developments in external factors have a major impact on Hungarian macroeconomic developments. The forecast errors resulting from other factors even decline to a small degree in the case of inflation, while in the case of GDP growth there is no material change in them from the fourth quarter.

2. EFFECTS OF ALTERNATIVE SCENARIOS ON OUR FORECAST

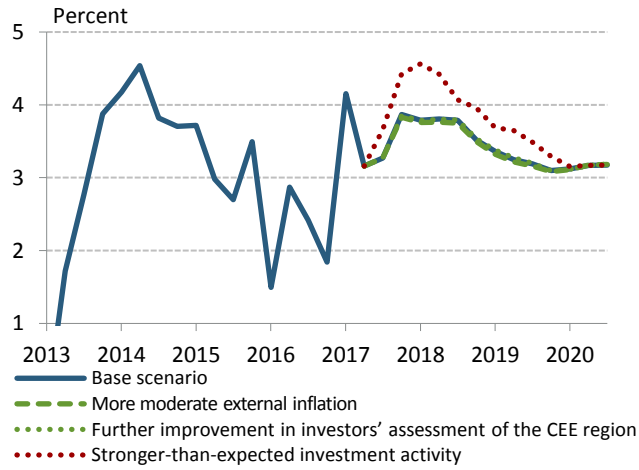
In addition to the baseline projection in the September Inflation Report, the Monetary Council highlighted three alternative scenarios. Taken together, relative to the baseline scenario, they represent a downward deviation in inflation and an upward deviation in domestic economic growth. The alternative scenarios that assume more moderate external inflation and further improvement in investors' assessment of the Central and Eastern European region yield a lower inflation path than the baseline scenario, without having a major impact on GDP growth. The scenario which assumes stronger-than-expected investment activity has a moderate effect on inflation, while domestic economic growth is higher than the forecast in the baseline scenario. In addition to the key scenarios, in terms of other possible risks the Monetary Council discussed scenarios which assume faster wage growth and a more dynamic increase in consumption as well as stronger external demand.

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



Source: MNB

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



Note: The baseline forecast is based on backcast and nowcast adjusted by anticipated revisions.
Source: MNB

More moderate external inflation

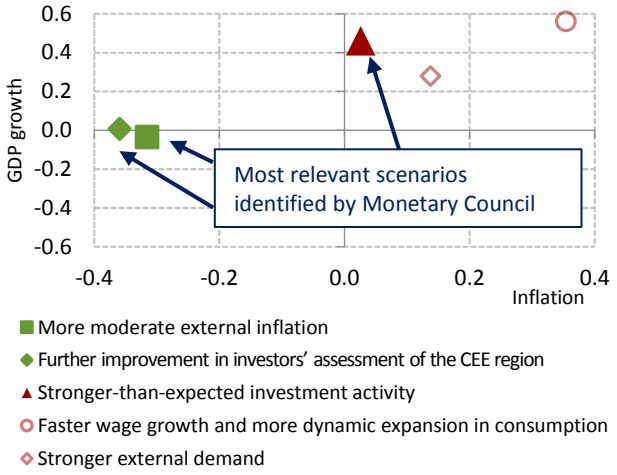
Strengthening co-movement among the price indices of the countries in the European Union has recently been observed. Together with the integration into global developments (the role of global value chains), globalisation has amplified the impact of international business cycles on inflation, facilitating the convergence of inflation rates. Since 2012, **the role of global factors has become increasingly important in domestic inflation developments as well**. External factors affect domestic price dynamics through the external output gap and changes in the external macroeconomic environment. Looking ahead, euro area inflation will fall short of the European Central Bank's target of around 2 percent; thus, the external inflation environment will remain subdued. The external inflationary environment's effect on domestic inflation can be more significant due to the increasing role of external factors.

According to the assumptions in the alternative scenario, global factors may restrain the rise in domestic inflation to a greater degree than in the baseline scenario (Charts 2-1, 2-2 and 2-3), owing to the impact of the external output gap on domestic inflation as well as the level of external inflation. We assume that with a lower level of imported inflation a looser monetary policy will ensure achievement of the inflation target.

Further improvement in investors' assessment of the Central and Eastern European region

As a result of the outstanding economic growth in the Central and Eastern European region and the positive outlook, investors' assessment of the region may continue to improve. Capital inflows into the region rose significantly in the past period. In the past period, as a result of favourable regional macroeconomic fundamentals and improving risk assessment, regional stock exchange price indices rose to a greater degree than developed market indices. Declining risks are reflected in this year's credit

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 monetary policy horizon. The red marker means tighter and the green markers mean looser monetary policy than the baseline forecast.

Source: MNB

rating decisions as well. The positive credit rating path continued in Hungary in August this year, when S&P changed the earlier stable outlook to positive. Credit rating steps were typically positive in the other countries in the region as well.

US stock indices were continuously at historical highs in the past half year. At the same time, some investors, due to fears of an adjustment and further depretiation of the US dollar, may have started to reweight their portfolios towards European and other stock markets. Similar outflows may have started from securities in the US bond markets.

According to the assumptions in the alternative scenario, as a result of the favourable macroeconomic fundamentals and the improving investor assessment of the Central and East European region, the domestic risk premium may decline further. **As a result of the increase in domestic asset prices, the consumer price index may be lower than the baseline scenario** (Charts 2-1, 2-2 and 2-3), **and thus, on the whole, achieving the inflation target is ensured by looser monetary conditions.**

Stronger-than-expected investment activity

In parallel with the improvement in economic prospects, companies' assessment of the situation has also improved considerably. This is also corroborated by confidence indicators, which are ranging close to historical highs. In addition, funds received from the European Union also support investment dynamics. Due to their size and implementation over several years, high-volume vehicle industry development projects will continue to play a defining role in investment in the coming years. Accordingly, demand for capacity expansions has increased in the supplier network of the vehicle industry as well. The investment activity of a number of sectors may increase further, primarily in sectors involving plastic production and use (construction, furniture and car manufacturing). In addition to the announced investment projects and their second-round effects, the significant rise in SME loans also strengthens the investment activity of the private sector.

According to the assumptions in the alternative scenario, one-off investment projects will result in a stronger-than-expected expansion in the development of the supplier network and will concern a wider range of sectors. As a result of a more significant improvement in underlying trends, investment activity may be stronger compared to the baseline forecast. Over the forecast horizon, the increase in investment will result in faster growth. However, it will have a moderate impact on inflation

(Charts 2-1, 2-2 and 2-3), and thus, **on the whole, monetary conditions will not be much different from those assumed in the baseline scenario**.

Other alternative scenarios

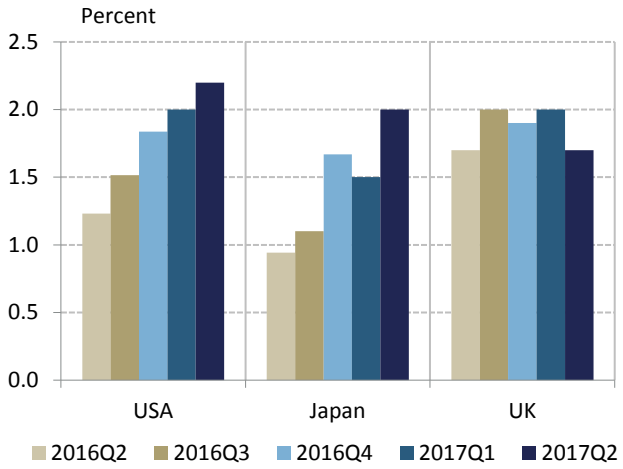
Along with the key alternative scenarios, the Monetary Council also considered two additional scenarios. The alternative scenario assuming faster wage growth and more dynamic expansion in consumption points to faster growth and higher inflation. In the case of higher demand in Hungary's export markets, stronger growth is expected compared to the baseline scenario.

3. MACROECONOMIC OVERVIEW

3.1. Evaluation of international macroeconomic developments

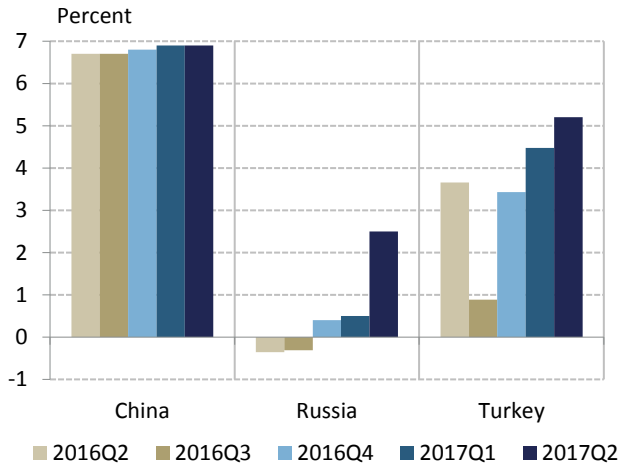
Global economic growth continued in 2017 Q2. European growth patterns, which had previously been heterogeneous, converged and suggest strengthening European economic activity. The Central and Eastern European region continued to show dynamic expansion. Global inflation came to a halt or declined again in certain regions following an increase late last year and early this year. Meanwhile, in line with the improving economic outlook, core inflation, which had been mostly below the main inflation figure, rose to a certain extent in some countries. At the same time, the ECB made a downward revision of its inflation forecast. The divergence in monetary policy between the world's leading central banks may remain in place during the year. Large central banks continue to show more tolerance for higher inflation compared to the previous periods, and in line with this, they may maintain loose monetary conditions for a longer time.

Chart 3-1: Annual changes in GDP in certain key global economies



Note: Seasonally adjusted series.
Source: OECD

Chart 3-2: Annual changes in GDP in some emerging economies



Note: In the case of China and Turkey seasonally adjusted series.
Source: OECD, Trading Economics

3.1.1. Developments in key global economies

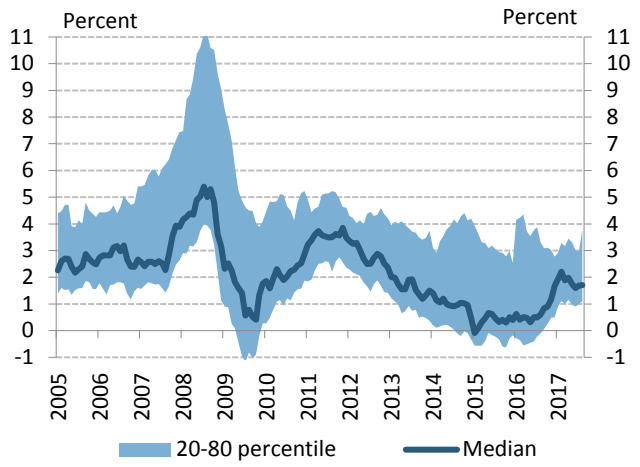
GDP continued to expand in the United States in 2017 Q2. Rising household consumption and government expenditures offset the slowdown in exports, although expectations concerning US economic growth declined, due to the failure to implement the previously announced fiscal stimulus. **Quarterly growth in the United Kingdom was supported by rising consumption and investment**. Brexit and its unclear circumstances continue to significantly impair medium-term growth prospects. **The performance of the Japanese economy picked up compared to the previous quarter.** Growth was primarily driven by consumption, although the contributions of investment and government expenditures were also positive (Chart 3-1).

Of the major emerging countries, the Chinese economy recorded 6.9 percent year-on-year growth in 2017 Q2. Growth was supported by services and industrial production. According to Q2 data, the medium-term prospects for the Chinese economy improved, but decelerating growth and risks surrounding the economy continue to fuel doubts about the stability of global economic activity. Economic growth in Russia accelerated significantly versus the previous quarter, while the rise in output in Turkey fell slightly short of analysts' expectations (Chart 3-2).

Global inflation came to a halt or declined again in certain regions following an increase late last year and early this year (Chart 3-3). In the past months, inflation was below the central bank targets in the majority of the examined countries (Chart 3-4). Meanwhile, in line with the improving economic outlook, core inflation – which had been mostly below the main inflation figure – rose to a certain extent in some countries.

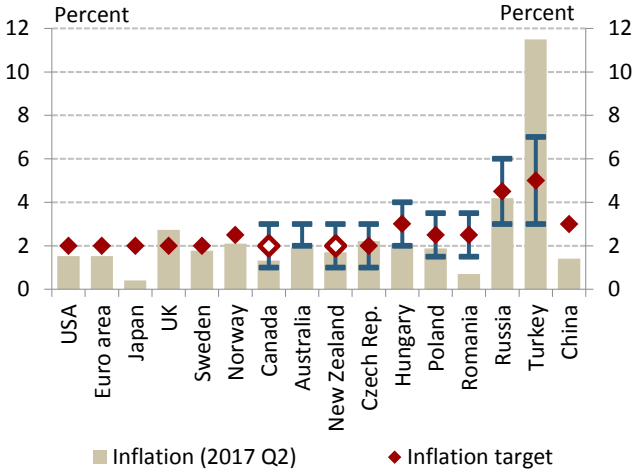
At the July meeting, the decision-makers of the Fed unanimously kept the policy rate in the 1.00–1.25 percent band. The FOMC considers the short-term risks affecting economic prospects to be balanced. It was emphasised that

Chart 3-3: Global inflation developments



Note: Percentage change on the same period of the previous year, based on data from 43 developed and emerging countries.
Source: OECD

Chart 3-4: Inflation targets of 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 accentual, which is marked by empty diamond.
Source: OECD, FRED, National Institute of Statistics Romania

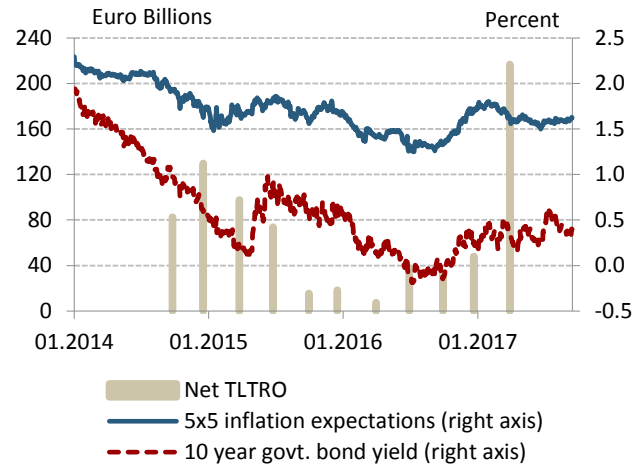
monetary policy continues to provide a supportive environment for further improvement in the labour market and also for inflation to permanently return to the 2 percent target. The paragraph of the announcement regarding the monetary policy stance did not change. The FOMC will examine the developments in inflation compared to the symmetrically interpreted inflation target. They continue to be of the opinion that economic developments will justify a gradual increase in interest rates. For the time being, the FOMC has not changed the reinvestment policy. Decision-makers' believe that if economic developments are in line with expectations, balance sheet normalisation will start relatively soon, as described in the relevant June announcement. According to market expectations, the Fed may continue to increase interest rates in March 2018.

In the past quarter, the Bank of Japan did not change monetary conditions, still adjusting its Quantitative and Qualitative Easing Programme to the 0 percent long-term yields. The central bank maintained its annual purchase rate target amounting to a total JPY 80,000 billion necessary for reaching the yield target, and continues to pay minus 0.1 percent interest on commercial banks' excess reserves. **The commitment to overshoot the inflation target has remained a part of the central bank communication**. As a result of the asset purchases, the balance sheet total of the Bank of Japan is continuing to increase, and may already exceed 95 percent of the Japanese GDP in 2017.

The decision-makers of the Bank of England left monetary conditions unchanged in the past quarter. At their September meeting, they decided to keep the Bank Rate unchanged and continue the measures announced in August 2016 in an unchanged form. In the decision-makers' assessment, monetary policy may not prevent the necessary adjustment of the British economy following Brexit or the weaker increase in real incomes expected for the coming years. **In the event that the economy follows the expected path, some withdrawal of monetary stimulus is likely to be appropriate over the coming months, in order to return inflation sustainably to the target.** All members agreed that any increases in the Bank rate would be gradual. Inflation is still likely to overshoot the 2 percent target over the next three years.

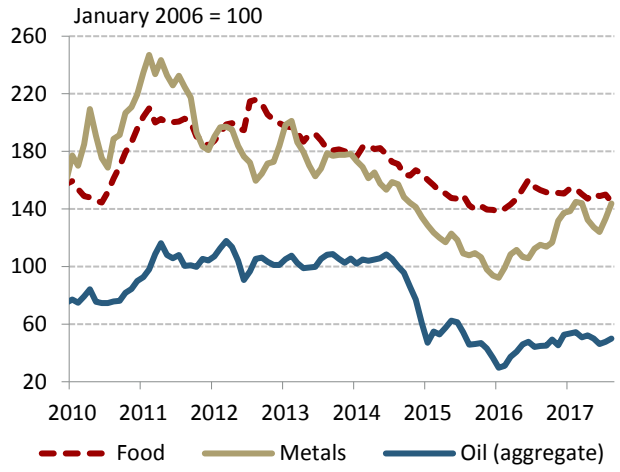
At its September meeting, **the Executive Board of Sweden's Riksbank decided to replace the inflation target variable**, and in accordance with this, they adopted the 2 percent inflation target measured in terms of the CPIF (the consumer price index with a fixed interest rate), instead of the previously used CPI. **The Riksbank will also use a variation band of ±1 percent** to illustrate uncertainty and that a small

Chart 3-5: Inflation expectations and long-term yields in the euro area



Source: Bloomberg

Chart 3-6: Major commodity price indices



Note: Calculated from prices in USD.
Source: World Bank

amount of deviation from the point target can be tolerated. The Governor of the Riksbank, Stefan Ingves, emphasised that these changes will not affect the monetary policy conducted. In practice, the CPIF has been the Riksbank's operational target variable for several years. Formally adopting the CPIF as target variable only confirms this practice.

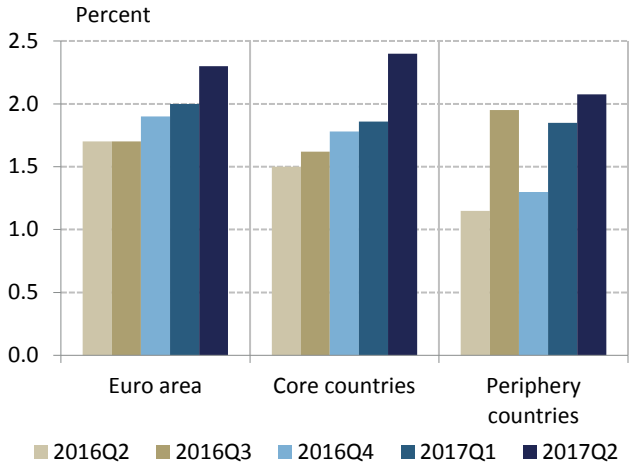
In the past quarter, while trading was calm, sentiment deteriorated slightly in international money markets. Market developments were affected by mounting geopolitical risks as well as statements by central bankers and negotiations related to Brexit and also by country specific developments related to certain emerging markets. As a result of the North Korean conflict, risk indicators rose significantly at first, before adjusting. The main risk indicators showed a slight deterioration: the VIX index rose by roughly 2 percentage points, and bond market risk indicators were also slightly up. In the developed bond markets, US yields declined slightly, while euro-area government securities yields increased (Chart 3-5). Divergence was seen in the case of stock indices as well: US indices continued to increase to a small extent, while a correction was observed for European equities.

Of the leading central banks, **in the case of the ECB, analysts expect the first interest rate hike to take place only well after the deceleration of the asset purchase programme, in 2019**, somewhat later compared to June. Interest rate expectations declined similarly **in the case of the Fed as well: markets are pricing in the next hike for next year**. In the past quarter, the euro continued to strengthen against the other developed currencies. Changes in the exchanges rates of the euro and the US dollar are discussed in more detail in Box 3-1. The currencies of the region appreciated compared to the euro as well, while the movements of other emerging market currencies against the US dollar varied. Oil prices closed the period with a rise, which is mainly attributable to an increase in US consumption and Nigeria's joining the production cap agreement (Chart 3-6).

3.1.2. Developments in the euro area

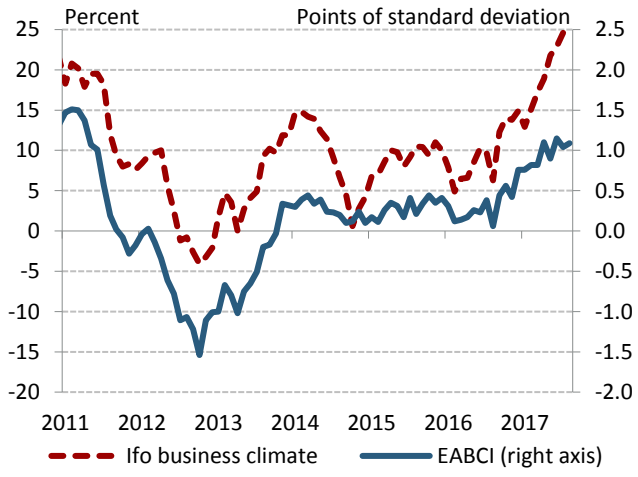
In 2017 Q2, economic growth in the euro area continued (Chart 3-7). The economy of Germany, which is Hungary's most important trading partner, was supported by stronger household consumption as well as an increase in investment and government expenditures. Faster growth in the euro-area core countries was primarily supported by the dynamic expansion of the Dutch and Austrian economies. The growth in the Netherlands, which exceeded analysts' expectations, was primarily explained by the positive development of household consumption and export performance. Euro-area

Chart 3-7: Annual changes in euro-area GDP



Note: Seasonally and calendar adjusted series. Periphery countries (Portugal, Italy, Greece, Spain), Core countries (Belgium, Germany, France, Netherlands, Austria).
Source: Eurostat

Chart 3-8: Business climate indices for Germany and the euro area



Source: European Commission, Ifo

growth continues to be surrounded by risks, which are related to, inter alia, the United Kingdom's exiting the EU and global factors.

Economic growth in the periphery countries picked up significantly in the second quarter. Growth in the periphery countries was primarily determined by domestic demand factors in the past period.

Forward-looking indicators of economic activity increased further in the past period (Chart 3-8). The business confidence index capturing the prospects of the euro area (EABCI) was at levels similar to those in previous months, while expectations for the German economy (Ifo) strengthened. In a historical comparison, both indicators are at high levels.

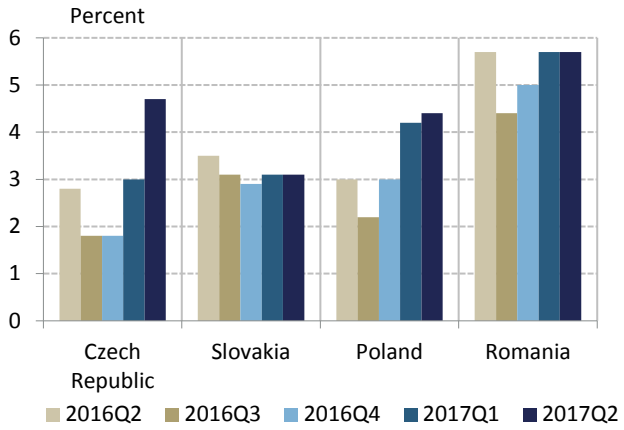
Similarly to global trends, inflation slightly declined in the euro area in the past quarter. In most of the Member States, inflation is below the central bank target. The 5-year inflation expectations 5 years forward did not change significantly in the euro area and ranged around 1.5 percent. Inflation expectations remain below the ECB's inflation target (Chart 3-4).

At its September meeting, the Governing Council of the ECB decided to leave interest rates unchanged. At the same time, it slightly lowered its inflation forecast and revised its growth forecast upwards. The Governing Council confirms that the net asset purchases, at the current monthly pace of €60 billion, are intended to run until the end of December 2017, or beyond, if necessary, and in any case until the Governing Council sees a sustained adjustment in the path of inflation consistent with its inflation aim. If the outlook becomes less favourable, the Governing Council stands ready to increase the programme in terms of size and/or duration. At the press conference following the decisions, President of the ECB, Mario Draghi said that the Governing Council did not discuss a reduction in the monthly pace of QE and reiterated that there would be no interest rate hikes before the exit of QE.

3.1.3. Developments in the CEE region

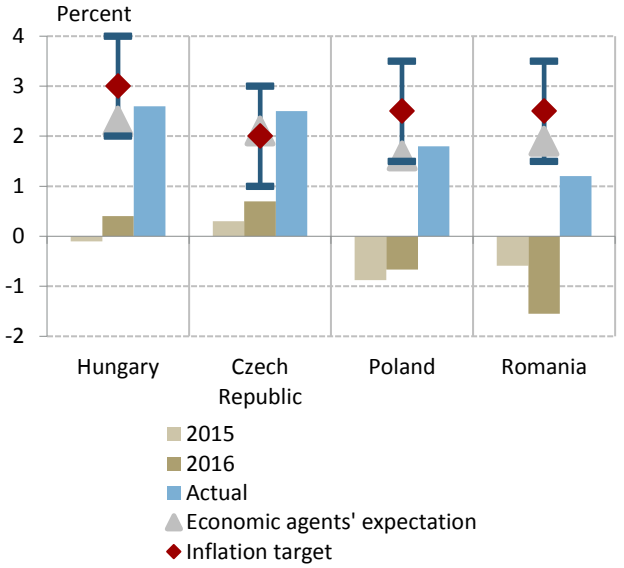
The Central and Eastern European region continued to be the European Union's growth center, with the GDP growth rate accelerating compared to the previous period (Chart 3-9). In Poland and Romania, a pick-up in household consumption contributed to the buoyant economic performance. In the Czech Republic, the growth rate was up considerably, supported primarily by strengthening household consumption and increasing corporate investment. Growth was mostly facilitated by stronger consumption in Slovakia as well.

Chart 3-9: Annual changes in GDP in CEE countries



Note: Seasonally and calendar adjusted series. In the case of Slovakia, only seasonal adjustment.
Source: Eurostat

Chart 3-10: Inflation targets of central banks, inflation, and economic agents' expectations



Note: Analyst's expectations relate to the end of 2017.
Source: OECD, National Institute of Statistics Romania, Consensus Economics

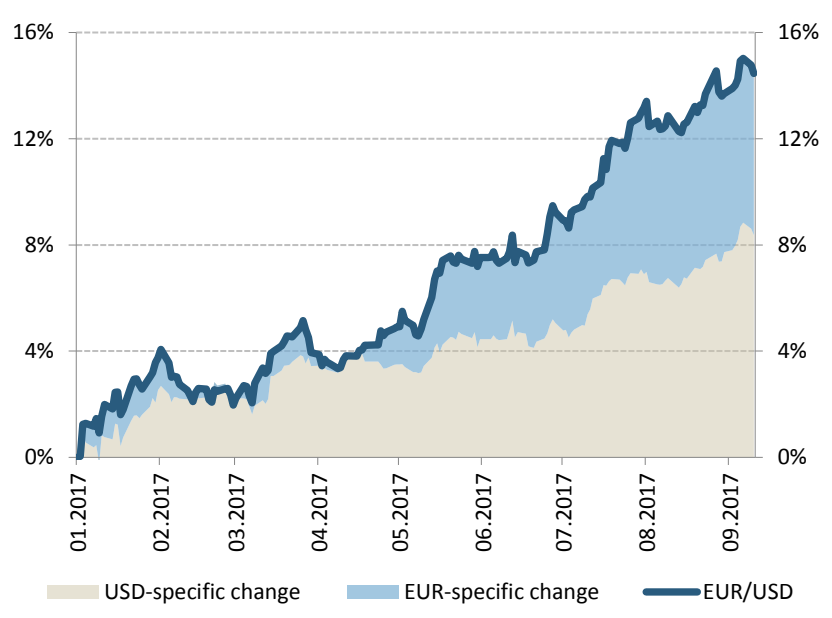
Inflation is mostly below the central bank targets in the region as well (Chart 3-10). **Core inflation** is below the target in Romania and Poland, close to the target in Slovakia, and exceeds it in the Czech Republic.

Of the central banks of the Central and East European region, the decision-makers of the Czech central bank decided to raise the base rate, while the central banks of the other countries of the region maintained the loose monetary conditions. In August, the decision-makers of the **Czech** central bank unanimously increased the policy rate by 20 basis points to 0.25 percent. According to the central bank's forecast, a further rate increase is expected in the next two years. The decision was based on the latest macroeconomic forecast. Based on the forecast for the inflation outlook, inflation will remain in the upper part of the tolerance band until the end of the year and is expected to return to the 2 percent target at the beginning of next year. According to the forecast, the koruna will continue to appreciate against the euro, mainly as a result of the real convergence of the Czech economy, its positive interest rate spread vis-à-vis the euro area and the ECB's asset purchase programme. According to the decision-makers of the **Polish** central bank, the rate of price increases is subdued, and core inflation is rising gradually, although it is still low. In their opinion, inflation will remain subdued in the next quarters. In the medium term, the risk of a permanent overshooting of the inflation target is low. Based on the data received and the forecast, the current level of the base rate will contribute to the sustainable growth of the economy and to the macroeconomic balance. The decision-makers of the **Romanian** central bank did not change the monetary conditions in the past period. In their opinion, inflation will gradually rise over the forecast horizon, and may somewhat exceed the May forecast. The risks surrounding the forecast stem from both domestic and external factors.

Box 3-1 Factors explaining the changes in the EUR/USD exchange rate

This year, the euro has appreciated by more than 14 percent against the US dollar. This strengthening can be considered continuous, apart from some minor, temporary adjustments. Based on the movements in the nominal effective exchange rates of the euro and the US dollar (weighted average of the export partners' foreign-exchange rates), **both EUR and USD-specific factors resulted in the appreciation of the euro during the past period** (Chart 3-11). However, the strengthening of the euro may have been attributable to different reasons during the first and the second quarter: **in the first months of the year it was mainly the general global weakening of the dollar** that was in the background, while **in the second quarter developments in the euro area** also pointed increasingly strongly to appreciation of the euro. Looking at the developments in the United States and the euro area, basically **the following factors can be identified behind the** EUR/USD **exchange rate movements** observed since the beginning of the year: **economic policy and geopolitical developments, trends observed in the macroeconomic environment and inflation** as well as **the communication of the Fed and the ECB and the** developments in market **expectations concerning their respective monetary policies.**

Chart 3-11: Decomposition of the changes in the EUR/USD exchange rate into EUR and USD-specific parts

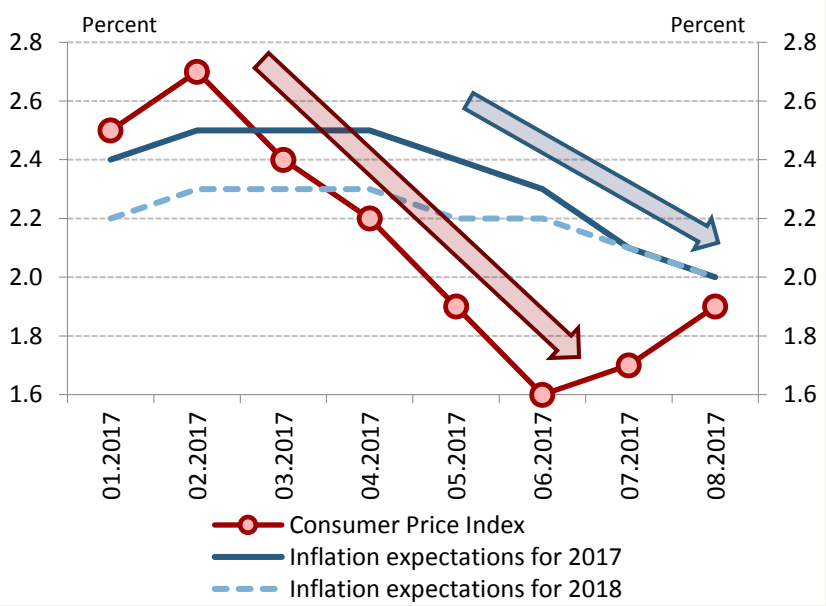


Note: A rise means appreciation of the euro against the US dollar. The decomposition was prepared on the basis of the nominal effective exchange rates of the euro and the US dollar (weighted average of export partners' foreign exchange rates). Accordingly, We considered USD-specific euro strengthening that did not take place against other currencies (i.e. the US dollar weakened against every other currency). In the case of EUR-specific euro strengthening, the euro appreciated against all other currencies (i.e. the exchange rate of the US dollar against other currencies remained unchanged).
Source: Bloomberg

In terms of economic policy and geopolitical factors, in the **United States** no consensus was reached in the legislature on several important issues (e.g. health reform), and for the time being **the earlier announced steps aiming at fiscal expansion** also fell short of market expectations. In addition, **geopolitical risks** affecting the United States **also increased** during the period, which, on the whole, also resulted in a weaker USD, due to the increase in market uncertainty. By contrast, **political risks perceived in connection with the euro area have declined: the risks priced with regard to the collapse of the euro area have decreased considerably** since the beginning of the year, and market concerns according to which Brexit may have a significant negative impact on the euro area and the EU also eased.

Looking at the developments in the macroeconomic environment, **macro data released in the past period suggest that the growth prospects of the USA deteriorated.** The worsening of the picture of economic activity was also reflected in downward revisions of market surveys and the IMF forecasts. In addition, **inflation data were also typically below market expectations** in the United States. In parallel with the continuously declining inflation, inflation expectations also fell in the past period (Chart 3-12).

Chart 3-12: Inflation and inflation expectations in the United States

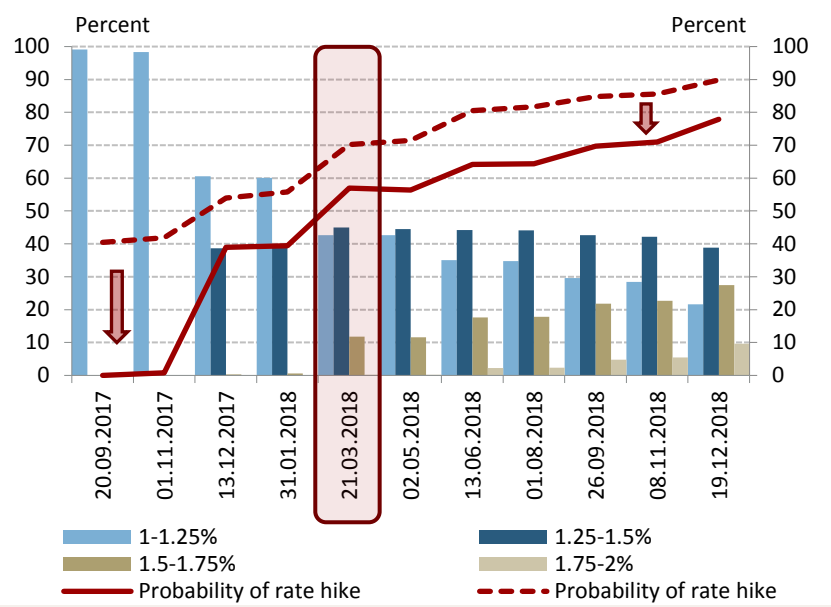


Source: Consensus Economics, Bureau of Labor Statistics

By contrast, prospects for euro-area growth improved in the past months. As opposed to the indicators of the USA, euro area data releases have tended to bring upward surprises for the market recently. In addition, both the ECB and international organisations carried out an upward revision of the growth projections for the euro area. **Although inflation also declined** in the euro area in the past months, **the decline was typically not as significant as expected by market participants.** Changes in inflation expectations show a mixed picture: while they declined slightly for this year, expectations concerning annual inflation for next year increased somewhat.

In line with macroeconomic developments, on the whole, **the communication of the Fed and the ECB** as well as **market expectations concerning future developments in their respective monetary policies resulted in the strengthening of the euro against the US dollar.** According to the June economic projections, the FOMC expects one additional 25-basis point hike for this year, which may be followed by three interest rate hikes in 2018 and 2019 each. However, **market expectations of interest rate hikes are much lower than the path communicated by the central bank** (Chart 3-13). Based on market pricing, in the past months the December interest rate hike was postponed to March 2018. Moreover, except for this, market participants do not expect any more interest rate hikes from the Fed next year. Nevertheless, the picture is nuanced by the fact that references in **the Fed's communication to the start of balance sheet normalisation changed in the opposite direction:** previously the term 'this year' was used, but the July statement already said 'relatively soon'. In several analysts' opinion it may refer to the September meeting.

Chart 3-13: Market expectations of rate increases by the Fed



Note: The broken line indicates the interest rate hike probabilities expected by the market earlier (on 11 May 2017), while the continuous line represents the current market expectations (of 13 September 2017).

Source: Bloomberg

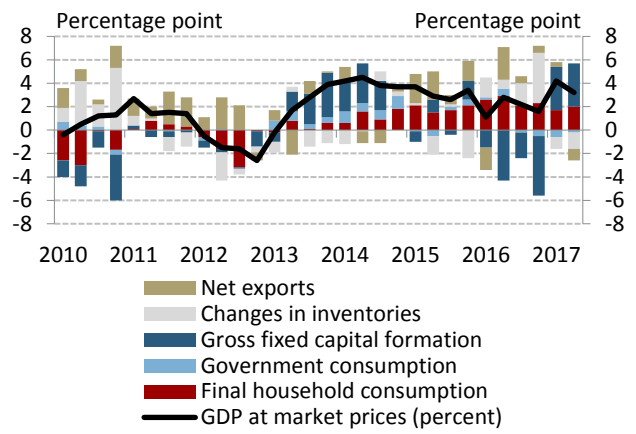
In the case of the **ECB,** the central bank **communication** in the past period (primarily Mario Draghi's speech in Sintra) **was interpreted** by the market in a way **that the central bank might** gradually **start the preparations for phasing out the asset purchases,** which also **resulted in euro appreciation.** Regarding the base rate, the Governing Council still expects that the key ECB interest rates will persistently remain at the current levels. As for unconventional monetary policy measures, the central bank will continue the asset purchase programme at the pace of EUR 60 billion per month until end-December 2017 or, if necessary, until the Governing Council experiences a sustained adjustment in the path of inflation towards the inflation target. However, **one change in the communication is that** since the June announcement **there has been no reference to any further possible interest rate cut. In his speech in Sintra** at the end of June, ECB President **Mario Draghi stated that deflation risks had disappeared** in the economy. Following his speech, **market expectations of an interest rate hike increased** perceptibly, but adjustment was observed later.

On the whole, **the EUR/USD exchange rate movements experienced in the past period may have been attributable to a number of factors,** of which the ones mentioned above may have been relevant ones. Accordingly, both EUR and USD-specific aspects played a role in the strengthening of the euro against the US dollar.

3.2. Analysis of the production and expenditure side of GDP

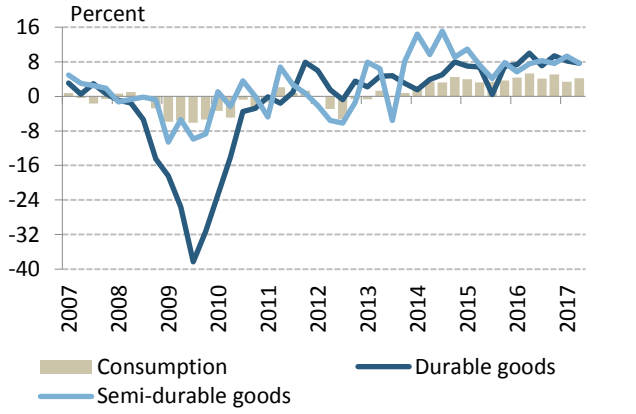
In 2017 Q2, in accordance with the expectations of MNB, gross domestic product expanded at a rate of 3.2 percent year on year, while compared to the previous quarter the volume of GDP was up by 0.9 percent. Economic expansion continued to be supported mainly by domestic demand, and the lower growth rate compared to Q1 was primarily attributable to the negative working day effect. It was mainly investment and consumption that contributed to GDP growth on the expenditure side, while services, construction and industrial performance contributed on the production side.

Chart 3-14: Contribution to annual changes in GDP



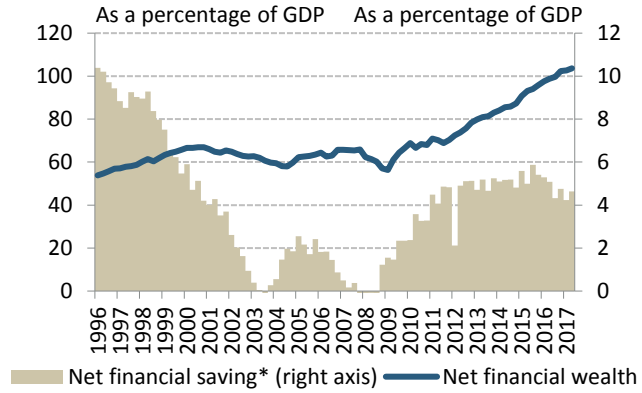
Source: HCSO

Chart 3-15: Development of consumption components, annual changes



Source: HCSO

Chart 3-16: Household savings and assets



Note: *Seasonally adjusted and corrected data. Source: MNB

According to the HCSO, in 2017 Q2, gross domestic product increased by 3.2 percent year on year, and expanded by 0.9 percent compared to the previous quarter. As before, economic growth was primarily supported by domestic demand through a considerable expansion in investment and the continued rise in consumption. Net exports made a negative contribution to growth (Chart 3-14).

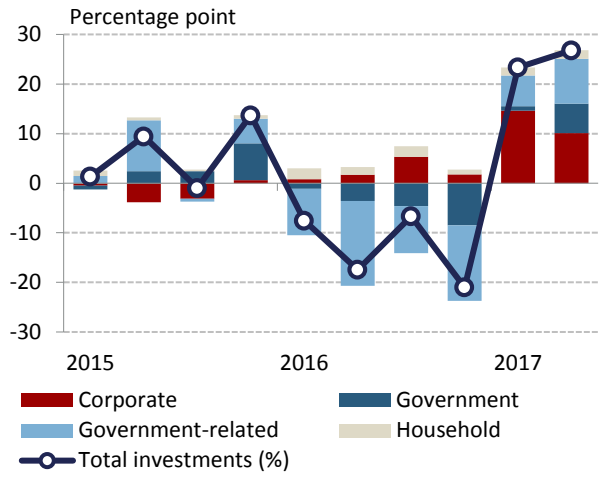
The increase in household consumption, which had started several years earlier, continued in 2017 Q2 at a faster pace than in Q1. The rise in expenditures on purchasing durable and semi-durable goods, which have a high recovery potential, continued to exceed the expansion in consumption (Chart 3-15). The increase in households' consumption expenditure was supported by the dynamic underlying real income trends improving as a result of wage rises, by the strengthening in household confidence and the historically high level of net financial wealth. The continued increase in consumption is also corroborated by the rise in retail sales, with a year-on-year growth of 4.1 percent observed in July.

Households' net financial savings and assets at current price also increased in 2017 Q2 (Chart 3-16). The **net financial assets of households currently amount to around 100 percent of GDP**, which significantly exceeds the average of regional countries.

In 2017 Q2, household lending increased to an extent not seen since the crisis, as the value of loan transactions amounted to HUF 86 billion. **The annual average growth in the volume of new loans was 46 percent, with contributions from both new housing loans (35 percent) and new personal loans (51 percent).** The pick-up in the underlying trends of lending to households was supported by both the low interest rate environment and the improvement in consumer confidence. The family home creation allowance also contributed to the increase in demand, as 16 percent of the volume of new housing loans was related to the scheme in Q2.

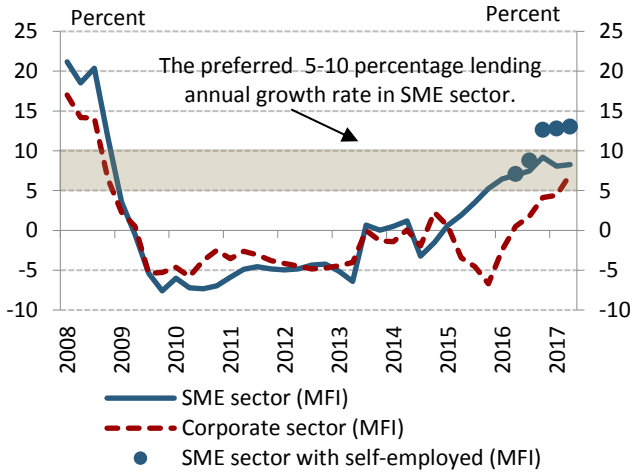
In line with the expansion in domestic demand, market services contributed significantly to economic growth in Q2 as well. Value added increased in each of the market services sectors, while government-related services declined slightly compared to the same period of last year.

Chart 3-17: Decomposition of the annual change of investments



Source: HCSO

Chart 3-18: Annual changes in 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 Q4 2013.
Source: MNB

Along with trade, accommodation services and catering, administrative services made the strongest growth contribution, but the contribution of the IT and communications sector was also significant. In July, **the number of guest nights increased by 1.5 percent year on year**, which was mainly attributable to the increase in number of guest nights spent by foreigners. In addition, domestic tourism demand also grew in relation to households' improving income position.

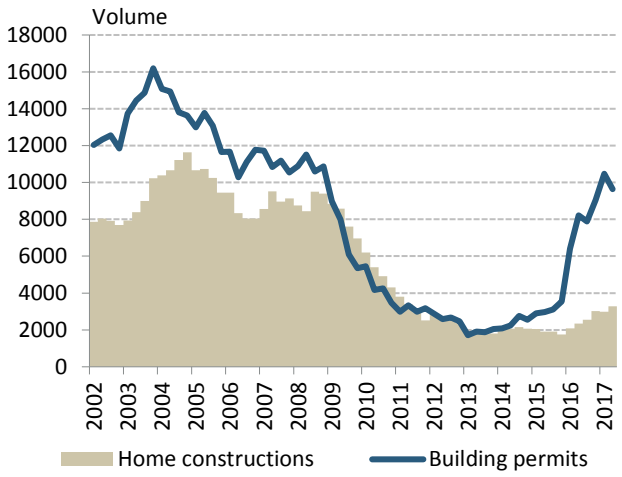
Similarly to Q1, public consumption and in-kind social benefits received from the government continued to decline.

In 2017 Q2, whole-economy investment expanded by 26.8 percent, with contributions from a wide range of sectors (Chart 3-17). Corporate investment activity increased considerably. In the case of companies producing goods and providing services for the domestic market, the main contribution to expansion came primarily from stronger investment in the trade and vehicle repair sector which had already been expanding for one and a half years. The growing investments by companies producing for external markets was mainly attributable to the major increase in the investment activity of manufacturing, which has a high weight. Investment in the public sector (healthcare, administration, education) and sectors closely related to the public sector (energy, water supply, transportation) also expanded considerably, with contributions from the upswing in projects implemented from the 2014–2020 EU cycle as well as investment implemented from own funds. In conjunction with the buoyant investment activity, the strong improvement in construction output continued in Q2.

In 2017 Q2, corporate lending expanded by nearly 7 percent year on year. As a result of disbursements and repayments, non-financial corporations' loans outstanding expanded by HUF 152 billion during the quarter, while the year-on-year increase amounted to HUF 460 billion on a transaction basis. Outstanding loans of the SME sector in a narrow sense were up by 8.3 percent year on year, and by 13 percent taking the self-employed into account. In line with the pick-up in construction and industrial production, corporate lending continued to grow in Q2 (Chart 3-18).

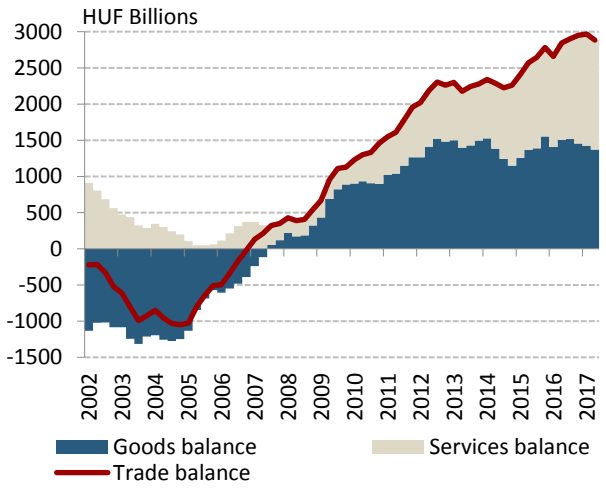
Households' investment activity increased further in Q2. In line with favourable demand conditions, dynamic growth was also observed in the construction of new homes in 2017 Q2. In line with the building permits issued earlier, the number of home completions increased sharply, with a year-on-year expansion of more than 45 percent recorded

Chart 3-19: Evolution of home constructions and building permits



Note: Seasonally adjusted data.
Source: HCSO

Chart 3-20: Evolution of the trade balance



Note: Seasonally adjusted, 4-quarter cumulated values, in 2005 prices.
Source: HCSO

in Q2 as well. In parallel with that, the number of building permits issued also increased further, although with lower dynamics due to last year's strong base (Chart 3-19). **The dynamics of the continued rise in housing prices resulting from the robust demand are being reduced by the gradual adjustment of the supply side.** The markets of both pre-owned and new homes made positive contributions to the increase in housing prices.

Net exports reduced the growth of the Hungarian economy in Q2. In line with the developments in industrial production, goods exports expanded slower than in Q1 compared to the same period of last year (Chart 3-20). Services exports declined year on year, while services imports continued to grow in Q2. **Annual export dynamics was exceeded by import growth**, supported by the expansion of import needs related to domestic demand (household consumption, investment). In 2017 Q2, the terms of trade stopped deteriorating compared to the same period of last year, which is mainly explained by the change in the relative price of machinery and means of transport.

There are no detailed data available related to harvest, but based on preliminary information harvested wheat was around 5 tonnes, which is more than 10 percent below last year's high base. The amount of corn and other arable plants may fall well below the historic high levels registered last year. In accordance with last year's outstanding agricultural performance, **we expect a correction in agricultural output this year**.

In line with agricultural performance lagging behind last year and the high base from the previous year, the change in inventories reduced economic growth in Q2.

Box 3-2: Further improvement in underlying investment developments

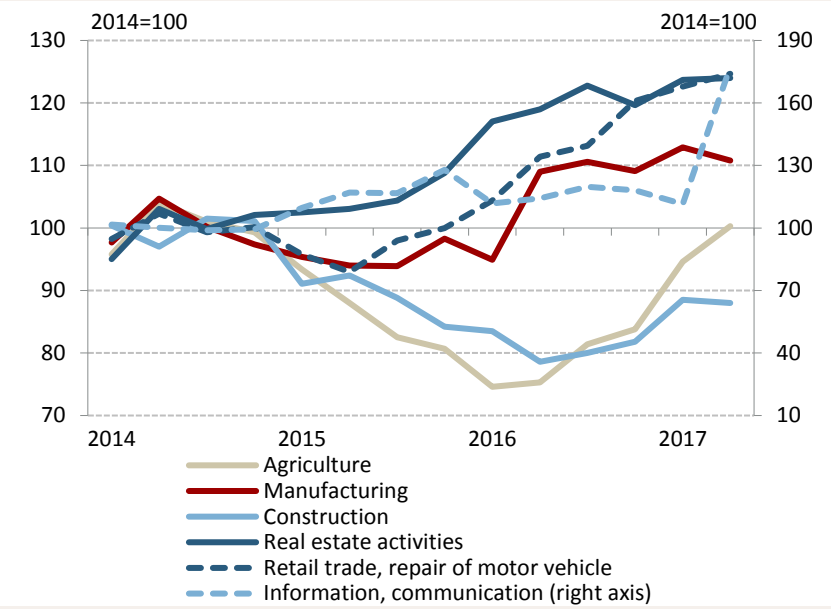
According to data for 2017 H1, all three economic sectors (companies, households, state) made a positive contribution to the developments in whole-economy investment, which may provide important support to economic growth this year. The expansion that started last year is not only supported by large investment projects, the broad-based pick-up observed indicates **a major improvement in the underlying trend of whole-economy investments.** The box below presents the developments of Hungarian investments, with an emphasis on the analysis of strengthening underlying investment trends.

The upswing in corporate investment, which accounts for a considerable portion of investments in Hungary, already started in 2016. The large **capacity expansions announced last year in the vehicle industry** in Hungary (Mercedes, Samsung, Dana, BYD) **are important pillars of the dynamic growth in investments.** Several announcements were recently made by small and medium-sized players of the vehicle industry about various investment projects, mainly related to capacity expansions.

MOL announced one of the largest organic investment projects of its history this year, which, similarly to the vehicle industry, may result in improvements in the supplier network in the chemical and other connected industries, further strengthening corporate investments.

Improvement in the underlying trend of investments is indicated by the fact that the upturn in investments is not concentrated on a few sectors, as the pick-up in investment is being observed in several industries (Chart 3-21). Parallel to the improvements in economic outlook companies' economic assessment strenghtened significantly, also corroborated by confidence indicators reaching historic heights. The decrease in financing costs resulting from the central bank programmes lead to a dynamic growth in SME lending. Looking forward, the further strenghtening of corporate (and SME) lending can be expected. Decreasing corporate and banking taxes may also support investment decision. Furthermore, workforce bottlenecks might also lead to companies implementing workforce replacing investments.

Chart 3-21: Year-on-year developments in investment in the sectors related to the private sector



Source: HCSO, MNB

Both the household and the public sectors are contributing significantly to the pick-up in whole-economy investments. The expansion in housing loans and the growth of disposable income both contribute to increasing household investment activity, which is also shown by improving housing market developments. Government's investment activity is expected to increase in line with an acceleration in the drawdown of the funds provided by the 2014–2020 EU budget cycle and with investments implemented from own funds.

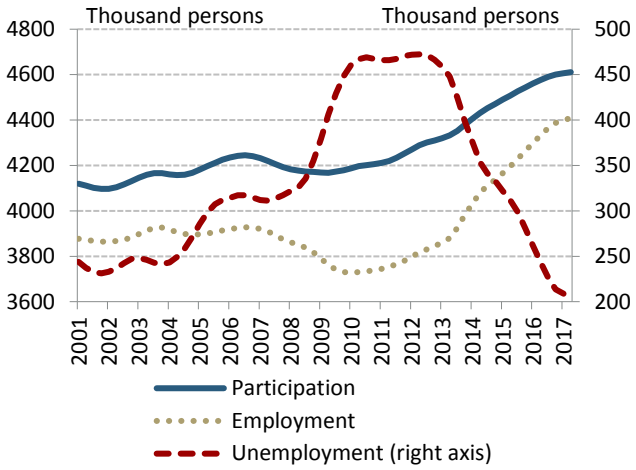
Looking ahead, the absorption of EU funds may further strengthen underlying corporate investment developments**. Based on its commitment, the government is planning to spend approximately 60 percent of the funds available in the 2014–2020 EU budget cycle on direct economic development** (representing a much higher proportion compared to the previous cycle). Within the framework of the operational programmes, the SME sector will be also able to raise funds independently of the banking sector for various purposes, presumably for funding their investments as well.

Overall, a broad-based pick-up in investments is expected over the course of several years, as a result of which **the investment rate may increase significantly**. **Looking ahead, the sound structure of growth in the investment rate may not only support economic growth, but may also contribute to the increase in domestic productivity and the acceleration of economic convergence.**

3.3. Labour market

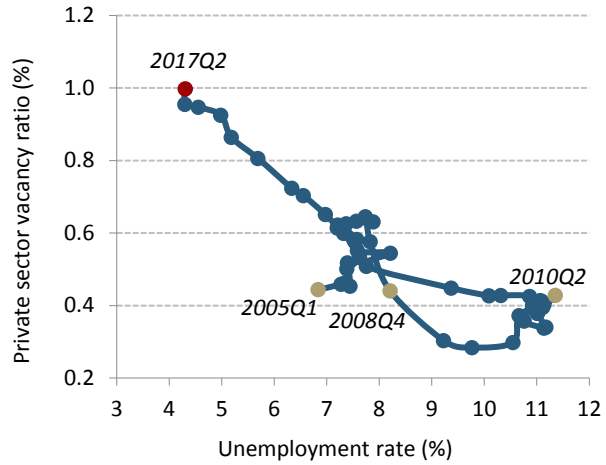
Employment in the private sector continued to increase in 2017 Q2. Manufacturing and construction were the main contributors to the increase in employment within the sector. In line with the continued rise in participation, the seasonally adjusted unemployment rate stood at 4.3 percent in Q2.

Chart 3-22: Participation, employment and unemployment in the total economy



Note: Seasonal moving averages.
Source: HCSO

Chart 3-23: Development of the Beveridge curve



Note: The private sector vacancy ratio indicates the ratio of private sector vacancies to active workers in the quarter.
Source: HCSO, MNB

In 2017 Q2, the number of economically active people increased (Chart 3-22). The activity rate of the 15–74 age group stood at 61.8 percent, while in the population aged 15–64 years the proportion of active people exceeded 71 percent.

Whole-economy employment continued to grow, primarily thanks to the contribution of the private sector, while the number of employees in the public sector declined slightly. The lower headcount in the public sector was attributable to the declining number of people engaged in public work programmes.

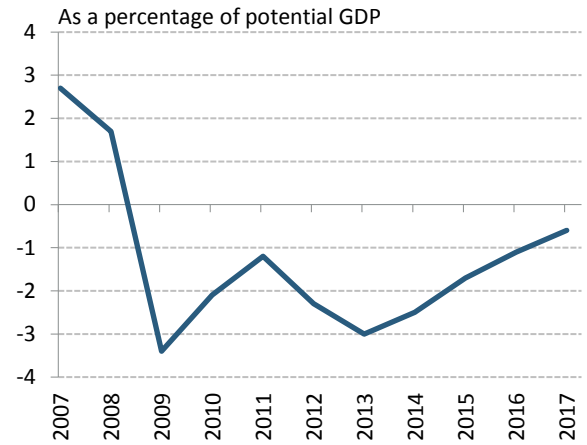
Within the private sector, the employment increase was significant in manufacturing and construction, and the number of employees also rose in the market services sector as well. The number of people working abroad remained practically unchanged. With bottlenecks existing, companies are characterised by intensive side adjustment as well: both the number of hours worked and the number of overtime hours increased. On the whole, the full-time equivalent number of employees increased slightly faster than private sector employment in Q2 again.

Similarly to the other countries in the region, **unemployment is historically low, as the seasonally adjusted unemployment rate stood at 4.3 percent** in 2017 Q2. Based on the increasing number of vacancies, corporate labour demand grew both in manufacturing and the market services sector. According to the Beveridge curve, **labour market tightness was at a historical high** (Chart 3-23).

3.4. The cyclical position of the economy

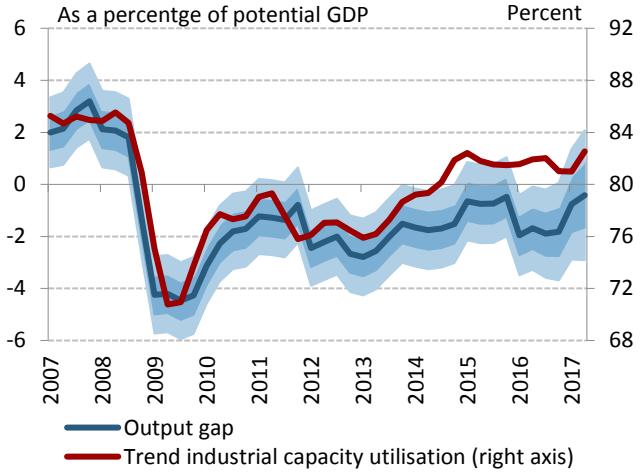
According to our estimate, the output gap remained in negative territory in 2017 Q2 again, but in line with the expansion in domestic demand and employment, the output gap closed. The evolution of the domestic output gap was determined by the open cyclical position of Hungary's foreign markets and rising capacity utilisation at domestic production units.

Chart 3-24: Evolution of the euro area output gap



Source: European Commission

Chart 3-25: Uncertainty band of the output gap



Note: The edge of the uncertainty band shows one standard deviation.

Source: MNB, ESI survey

According to our estimates, the output gap remained in negative territory in 2017 Q2, and the performance of the economy fell short of its potential level. The level and evolution of the domestic output gap is also influenced by the cyclical position of Hungary's key trading partner. **The output gap of the euro area is still in negative territory, although only slightly** (Chart 3-24).

Most surveys capturing business sentiment and capacity utilisation **continued to increase similarly to the previous period**, implying gradual closure of the output gap. According to the responding companies, the workforce **was a limiting factor** in the past quarters. In case of the industrial sector, the rate of companies marking workforce as a limiting factor of production reached a historically high level in 2017Q3. The historically low unemployment rate also implies that the **utilisation of the labour factor increased considerably in the past period and it is also high in a historical comparison**. The significant increase in employment and, in parallel with that, the decline in unemployment rate contributed to stronger capacity utilisation in the past years (Chart 3-25).

Box 3-3: Uncertainty surrounding the estimation of the output gap

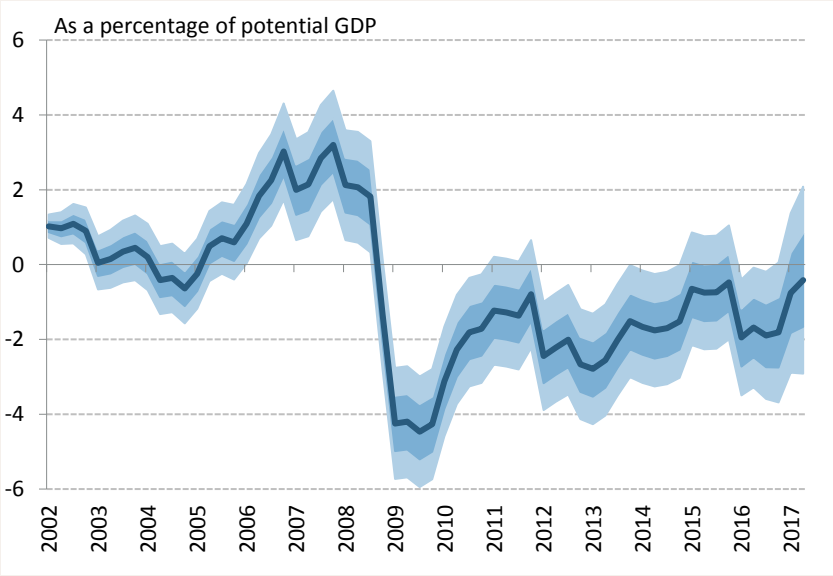
Business cycles stem from fluctuations in economic performance over time. **The cyclical position of the economy depicts the short-term fluctuations around the long-term potential level of GDP. Evaluation of the cyclical position of the economy is essential for economic policy.** The picture formed of the cyclical situation is of primary importance in terms of the assessment of the demand side inflationary pressure and the cyclically adjusted budget balance.

Potential GDP indicates the level of economic performance at which the economy is able to grow in a sustainable manner in the long run as well, without major changes in underlying inflation developments. The cyclical position of the economy can be captured with the **estimation of the output gap**, which represents the difference between actual and potential economic performance. The sign and degree of the **output gap** are particularly important for central banks, as they allow the establishment of **what impacts may affect inflation from the real economy.** A persistently positive output gap indicates a higher-than-sustainable utilisation of production capacities and thus may result in additional inflation, while in the case of a negative output gap subdued demand has a disinflationary effect on the economy.

Output gap and potential GDP are macroeconomic variables that cannot be observed directly, but various methods are available for their estimation, which take into account statistical and economic considerations. **The Hodrick–Prescott filter** (HP filter for short) can be considered as one of **the simplest statistical methodologies.** The disadvantage of the method is the **significant endpoint uncertainty**, i.e. that the inclusion of new information may result in significant backwards changes as well in the results of the estimation. Consequently, this method is difficult to use for the real-time assessment of the cyclical situation. A more widespread method is the use of the **Kálmán filter**, which has significant advantage that **by using economic correlations it is able to provide an estimate for the cyclical position much more effectively and with lower endpoint uncertainty**.

The Magyar Nemzeti Bank provides estimates for the level of the output gap using a multivariate Kálmán filter relying on structural bases. For the quantification of the cyclical position of the economy, our methodology utilises the economic correlations between inflation and the real economy (Phillips curve), unemployment and the real economy (Okun's law) as well as wages and unemployment (wage Phillips curve). Hungary is a small, open economy, and thus the economic performance of its main trading partners also significantly affects its cyclical position. **In the assessment of the output gap, our model also takes account of the economic situation in Hungary's export markets and imported inflation.** Although in terms of endpoint uncertainty the Kálmán filter performs especially well, the method involves **estimation uncertainty** due to the estimation of the economic correlations. **The output gap is a variable produced through estimation. Accordingly, upon the evaluation of its position – and upon economic policy decision-making – it is worth taking into account of the uncertainty band as well around the variable** (Chart 3-26).

Chart 3-26: Uncertainty band around the output gap

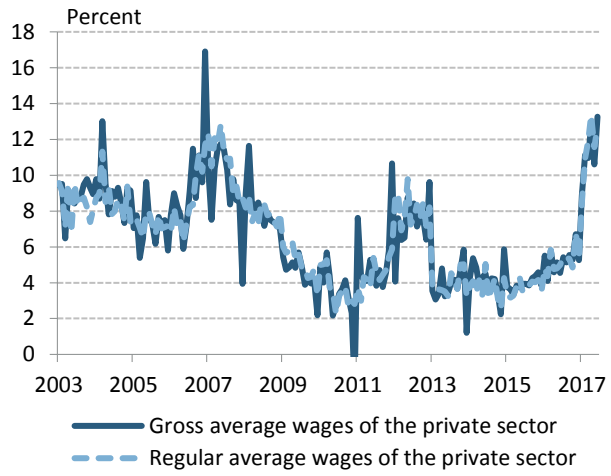


Note: The edge of the uncertainty band shows the error corresponding to one standard deviation. Source: MNB

3.5. Costs and inflation

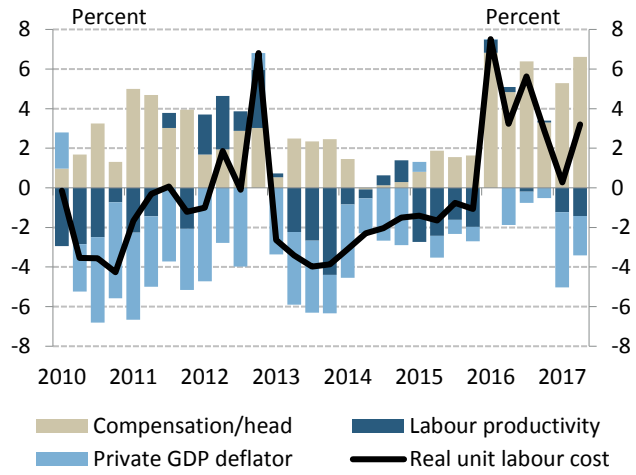
In the past months, inflation was around 2 percent in line with our expectations, before rising to above 2.5 percent as a result of base effects by the end of the summer. Core inflation increased, due to temporary effects. While underlying inflation indicators, which capture longer-term inflationary trends, are still significantly lower than core inflation. The rise in core inflation is explained by milk price increases and the rise in excise duty on tobacco products. As a result of tight labour market conditions and the wage agreement, gross average earnings rose 12.2 percent in the private sector in Q2.

Chart 3-27: Annual change in gross average wages in the private sector



Note: Seasonally adjusted data.
Source: HCSO, MNB

Chart 3-28: Decomposition of annual change of real unit labour cost in the private sector



Note: Seasonally adjusted data from national accounts.
Source: HCSO, MNB

3.5.1. Wages

In 2017 Q2, gross average earnings increased by 12.2 percent in the private sector (Chart 3-27). The significant increases in the minimum wage and the guaranteed wage minimum at the beginning of the year may have caused a permanently strong spillover. **In a historically tight labour market environment, along with the decline in the social contribution tax and the corporate tax, companies may have implemented significant pay rises in higher wage categories as well.** Increases in earnings at state-owned companies also contributed to the double-digit growth in wages. Bonus payments were rather volatile in recent months. On the whole, in H1 companies slightly reduced the ratio of bonuses compared to the same period of last year. As a result of administrative wage increases, the whitening of the labour incomes that had been in the grey economy in the previous year makes the assessment of the underlying wage trends difficult; the growth recorded in the statistics may be an overestimation of the actual rise in earnings.

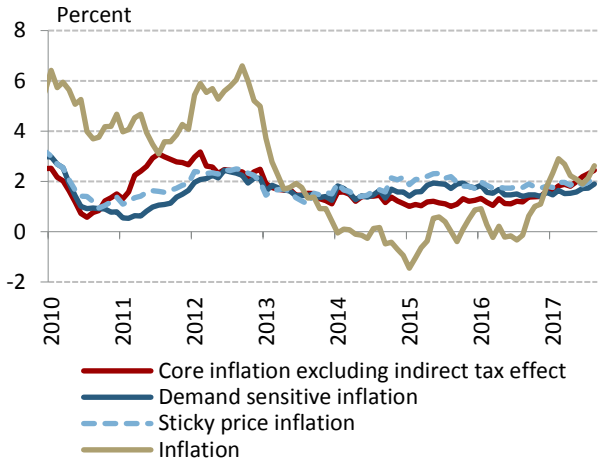
Growth in real unit labour cost still does not exceed the rate observed last year. The increasing dynamics of the labour cost per employee was partly offset by the rise in labour productivity and the GDP deflator in Q2 (Chart 3-28).

3.5.2. Producer prices

In 2017 Q2, agricultural producer prices increased slightly in year-on-year terms, which is still attributable to the rise in the prices of milk and pork. The significant, more than 30 percent increase in the producer price of milk compared to last year is explained by the rise in world market prices. On the whole, the prices of seasonal products declined; the lower prices of fresh vegetables and potatoes were only partly offset by price increases for fruits due to unfavourable harvest results. The producer price of grain increased slightly.

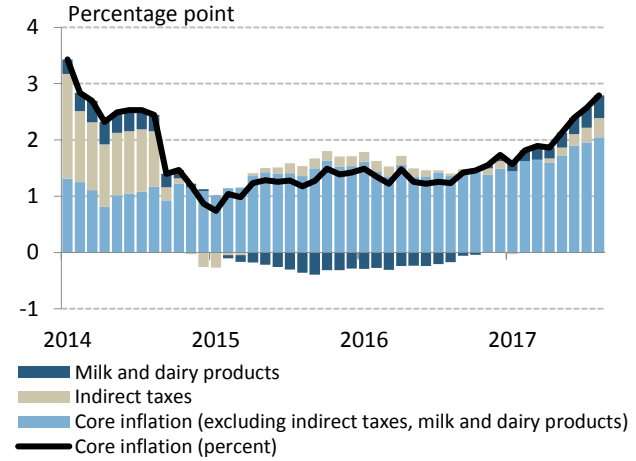
Domestic industrial sales prices and the prices of consumer goods rose year on year.

Chart 3-29: Inflation and underlying inflation indicators



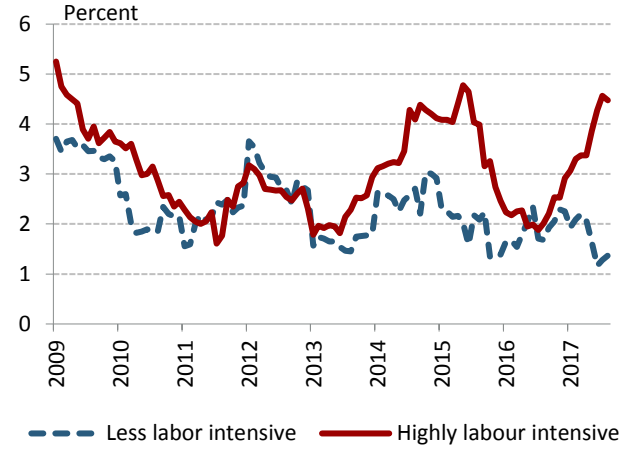
Source: HCSO, MNB

Chart 3-30: Decomposition of core inflation



Source: HCSO, MNB

Chart 3-31: Inflation of market services



Note: Highly labour intensive market services consist of accommodation, catering, education, healthcare and personal care services.

Source: HCSO, MNB

3.5.3. Consumer prices

In the past months, inflation was around 2 percent in line with our expectations, before rising to more than 2.5 percent by the end of the summer as a result of the base effect of the fuel price decline in August of last year (Chart 3-29)**. Core inflation has increased gradually since the beginning of the year** (Chart 3-30), which is primarily attributable to the price increases of processed food and the rise in excise duty on tobacco products in January and July (see Box 1-1).

Indicators capturing longer-term inflation trends (inflation of demand-sensitive and sticky-price products) **was around 2 percent**, significantly lower than the core inflation.

Price increases of industrial goods were restrained in the past months. Within the product group, (seasonally adjusted) prices of durables declined, while prices of non-durable goods rose slightly. Prices of industrial goods continue to be influenced by the mutually contrasting effects of moderate import prices and the steady pick-up in domestic demand.

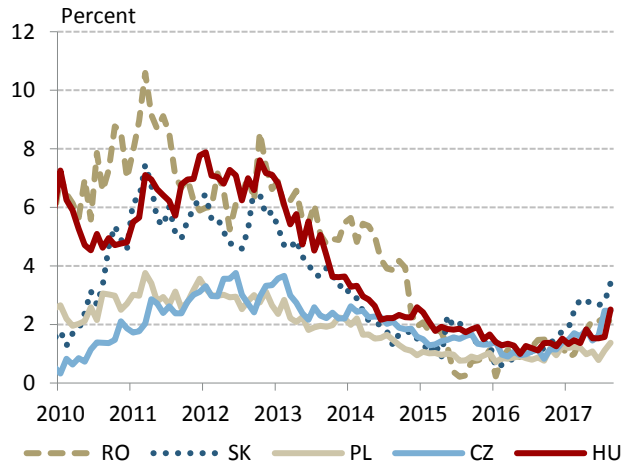
Market services inflation remained practically unchanged at around 2.5 percent. The price changes of the product group observed to date during the year are basically in line with the experience from past years. The effects of substantial wage increases in H1 was only observable in some lower-weight labour intensive services (catering and accommodation services) and cannot be considered general in the scope of services (Chart 3-31).

In the case of food, after seasonal adjustment and excluding indirect taxes, **the prices of processed food rose in the past months**, which were primarily **caused by the increase in the consumer prices of milk and dairy products in parallel with rising producer prices**. The prices of unprocessed foods increased slightly.

The price level of fuels declined in the summer months as a result of a decrease in oil prices expressed in HUFs. **Nevertheless, the annual inflation of this product group was volatile in the past period**, in line with the base effects stemming from last year's price decline. **There were no major price changes in the case of regulated-price products** in the past months.

In the summer months, both inflation and core inflation were practically identical to our June forecast.

Chart 3-32: Inflation expectations in the region



Source: MNB calculations based on data of the European Commission

3.5.4. Inflation expectations

Hungarian households' inflation expectations are still at moderate levels. Changes in household expectations in the past period suggest that expectations have become more anchored in recent quarters. Expectations in Hungary were in line with the expectations observed in the countries of the region that were characterised by steadily low inflation in the past as well (Chart 3-32).

The price expectations of the retail sector were at a similar level as they were at the beginning of the year.

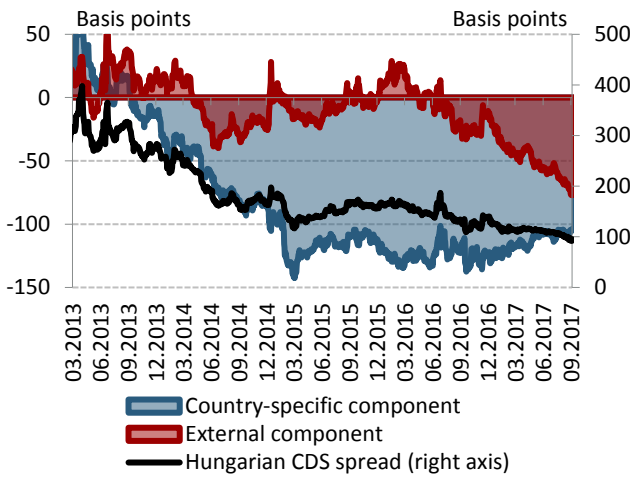
4. FINANCIAL MARKETS AND INTERES RATES

4.1. Domestic financial market developments

In the past quarter, while trading was calm, sentiment deteriorated slightly on international money markets, in particular due to mounting geopolitical risks at the end of the period. Accordingly, risk indicators rose significantly at first, before then subsiding. In the developed bond markets, US yields declined slightly, while yields on euro-area government securities increased. In the past quarter, the euro continued to strengthen against the other developed currencies, which was mostly attributable to the favourable macro data released in the euro area.

Domestic money market developments were determined by positive expectations regarding the region, with country-specific support from the improvement in the outlook by the credit rating agency S&P. Against the background of balanced trading, the forint appreciated slightly. Interbank and government securities market yields over one year continued to decline moderately. In line with central bank communication, money market conditions eased further slightly: although short-term interbank yields did not change much, forward money market interest rate quotations shifted moderately downwards. The forint yield curve calculated from FX swap quotes also shifted downwards, which is attributable to the MNB's FX swap tenders as well. Demand was adequate at the government securities auctions; similarly to secondary market trends, the yields declined for longer maturities.

Chart 4-1: Components of the 5-year Hungarian CDS spread



Note: The decomposition method used can be found in the MNB Bulletin: Variance decomposition of sovereign CDS spreads, Kocsis–Nagy (2011). Source: Bloomberg

4.1.1. Hungary's risk perception

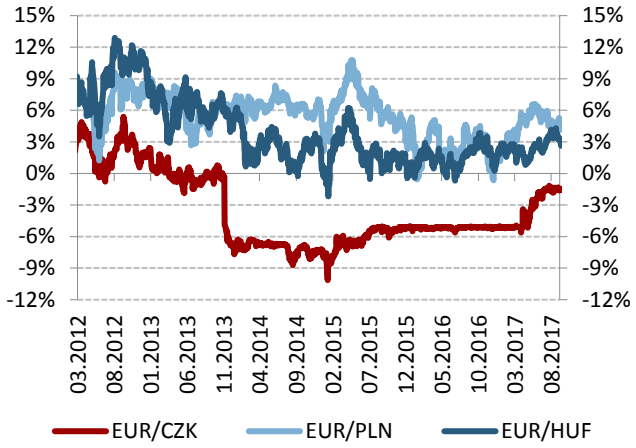
Compared to mid-June, Hungary's risk indicators improved considerably (Chart 4-1). The Hungarian 5-year sovereign CDS spread declined steadily during the period under review, closing at 94 basis points, which is a low level in a historical comparison as well. The Hungarian CDS spread was down as a result of international factors, including the improvement in risk perception of the region, while the domestic component remained practically unchanged in the period. Adjustment to the international trend is well illustrated by the fact that – similarly to the Hungarian CDS spread – regional spreads were also characterised by low volatility.

In contrast to the increase observed in the euro area and the region, market yields on long-term securities declined slightly. Long-term yields were up slightly in the countries in the region, especially in Romania. While the increase in yields in the region is in line with the rise in the German yields, changes in the Hungarian yield were primarily driven by domestic factors, such as investors' more favourable opinion and the looser monetary policy environment expected by the market.

4.1.2. FX market developments

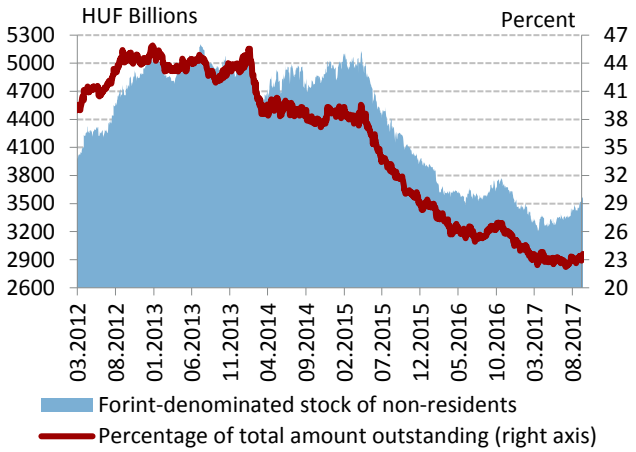
In the period under review, the exchange rate of the forint against the euro showed an overall appreciation of some 0.3 percent, similarly to the strengthening of the Czech koruna, while the Polish zloty weakened to a similar extent (Chart 4-2). The exchange rate of the forint fluctuated in a range of 303–310. For most of the period, until the end of August, the forint appreciated slightly, preceding some moderate weakening at the end of the period.

Chart 4-2: Exchange rates in the region



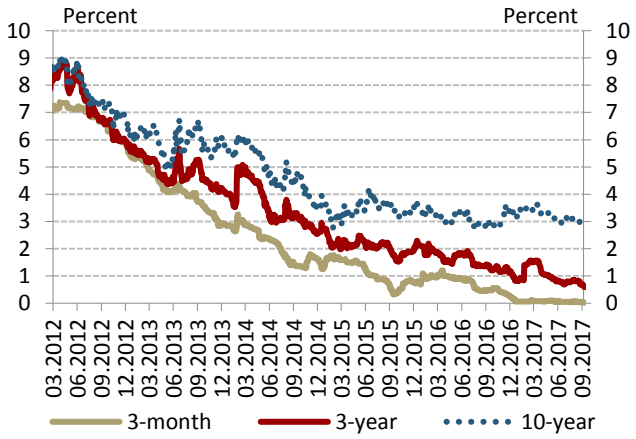
Note: Changes compared to beginning of 2012. Positive values mean an appreciation of the currency.
Source: Bloomberg

Chart 4-3: Hungarian 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 4-4: Yields of benchmark government securities



Source: Government Debt Management Agency (ÁKK)

Contrasting regional monetary policy and economic policy factors continue to cause diverging developments in exchange rates, indicating portfolio reallocation and the opening of positions. In addition to the stable and favourable macro fundamentals, the unexpected improvement in the outlook by the credit rating agency S&P can be emphasised among the domestic factors behind the strengthening of the forint; as an international factor, the increase in the uncertainty related to the phase-out of the ECB's asset purchase programme can be mentioned.

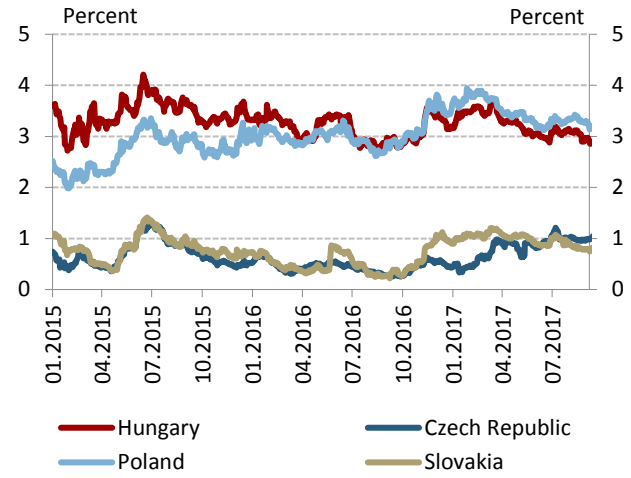
4.1.3. Government securities market and changes in yields

Non-residents' HUF-denominated government securities holdings increased further in the past quarter (Chart 4-3). After a steady decline from 2015, non-residents' HUF-denominated government securities holdings stabilised in mid-2016, followed by a decline again from October 2016 until February 2017. In the past 3 months, however, holdings grew by some HUF 200 billion. As a result, non-residents' ownership ratio increased to 23 percent.

Demand was adequate in the primary market of government securities, and issues exceeding the planned level took place in the case of longer-term securities. Short-term treasury bill yields declined somewhat further, as a result of which even negative average auction yields occurred.

The steepness of the government securities secondary market yield curve remained practically unchanged during the past quarter. At the same time, a major yield decline was observed in the case of 3–5-year maturities (Chart 4-4). In line with auction yields, short-term secondary market yields decreased only slightly, while the over-1-year section of the yield curve shifted downwards by 15-20 basis points. At the same time, the 10-year yield also declined by approximately 10 basis point. At shorter maturities, yields remained low as a result of the liquidity-increasing effects due to the restructuring of central bank instruments, while at long maturities the yield decline was less effective in line with international trends. At the end of the period the 10-year yield fluctuated around 2.88 percent, while the 3-month and 1-year yields stood at 3 and 2 basis points, respectively. Divergence was typical in the region in terms of long-term yields as well. While 10-year forint yields declined by a minimal extent, Polish, Romanian and Czech 10-year yields rose slightly (Chart 4-5). The Romanian long-term yield increased considerably, rising by nearly 20 basis points, while the Polish yield was up by 3 basis points, compared to the 5-basis point fall in the Hungarian 10-year yield.

Chart 4-5: 10-year government benchmark yields in CEE countries



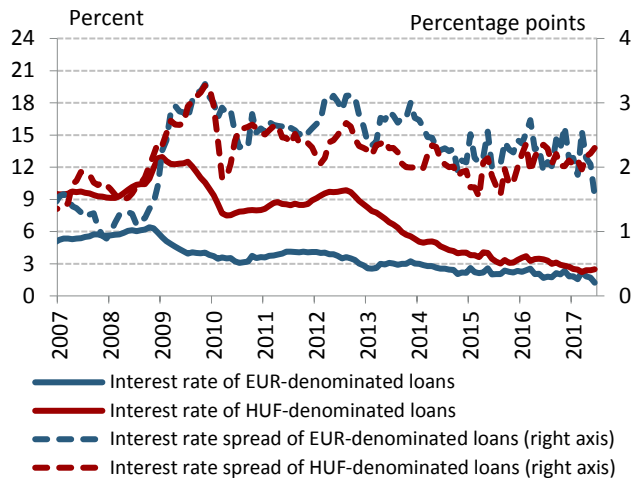
Source: Bloomberg

As a result of the further reduction of the 3-month central bank deposit limit, short-term interbank yields were stagnant, while in the longer segment a further minor decline was observed, resulting in a flatter interbank yield curve. At the same time, a significant decline of 10–15 basis points was observed in the forward quotations, especially at longer maturities. In the past quarter, the forint yields calculated from FX swaps also continued to decline slightly, which is attributable to the impact of the central bank swap facilities as well.

4.2. Credit conditions of the financial intermediary system

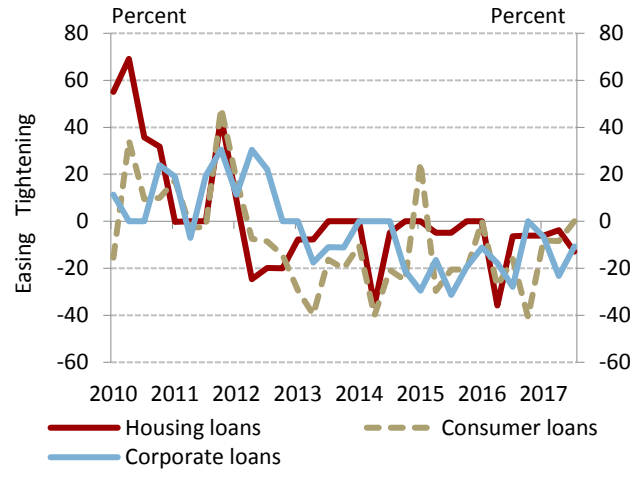
In 2017 Q2, corporate credit conditions eased in all company size categories, while there was no major change in conditions regarding the household lending segments. The financing cost of corporate loans varied across currencies, and the average interest rate spread on housing and consumer loans declined in the period under review. The 1-year forward-looking real interest rate increased slightly during the quarter.

Chart 4-6: Smoothed interest rates and spreads on corporate loans by denomination



Note: Interest rates smoothed by the 3-month moving average. The spread is the 3-month moving average of spreads on the 3-month BUBOR and EURIBOR, respectively. Loans with floating interest rates or with up to 1-year initial rate fixation. Since January 2015, money market transactions are excluded.
Source: MNB

Chart 4-7: 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 2nd half of 2017. Source: MNB based on banks' responses

4.2.1. Corporate credit conditions

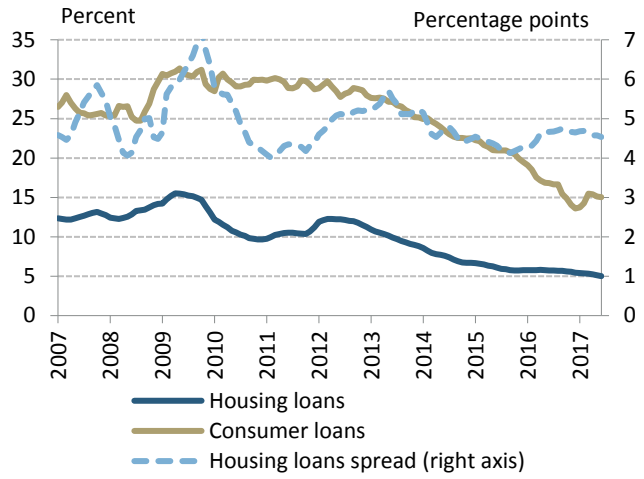
The financing cost of small-amount corporate forint loans decreased further in 2017 Q2. Excluding money market transactions, the average interest rate on new HUF loans with floating interest rates or with up to 1-year initial rate fixation[2] rose by 0.2 percentage point to 2.5 percent in Q2 (Chart 4-6). The interest rates on high-amount loans increased by 0.2 percentage point on average, while those on low-amount loans declined by 0.1 percentage point. The spreads were also heterogeneous in relation to the size of loans: the spread on loans exceeding EUR 1 million rose, while the average spread on loans below this amount basically remained unchanged. As a result, the average spread on corporate forint loans increased by 0.3 percentage point in the period under review. Both the interest rate and spread on euro loans declined by 1 percentage point on average, and thus the level of smoothed interest rates amounted to 1.2 percent, while that of spreads stood at 1.6 percentage points at end-June. Interest rates on both high-amount and low-amount loans declined, although to a greater degree in the case of high-amount loans, which is partly attributable to the disbursements of loans with preferential interest rates to some major clients.

Corporate credit conditions continued to ease, and further easing is expected for the second half of the year. Based on the responses to the Lending Survey, in net terms,[3] one quarter of the banks eased conditions of corporate loans, and this affected the conditions of loans to large companies and SMEs as well as of loans for commercial real estate (Chart 4-7). Banks justified the easing with an improvement in economic prospects and a further increase in market competition. The easing was mostly reflected in interest rate spreads, the fees charged for lending and in longer original maturities. Looking ahead, in net terms, 11 percent of the banks indicated further easing, mainly in the spreads and to a greater degree in the loans to small and micro enterprises.

[2] 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.

[3] The net ratio is the difference between the banks reporting tightening and those reporting easing, weighted by market share.

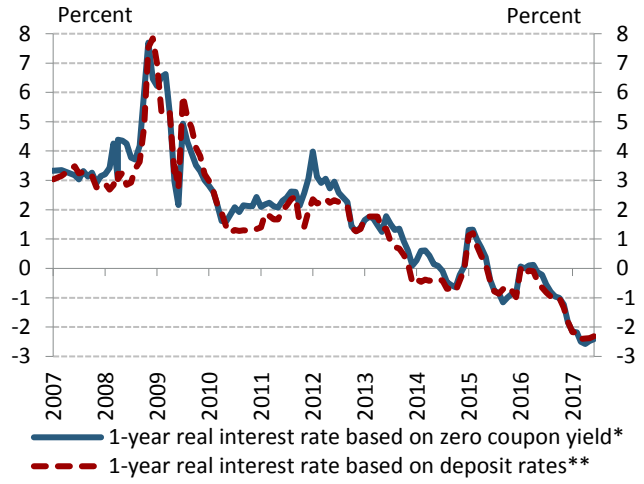
Chart 4-8: Smoothed annual percentage rate of charge (APRC) and spreads of housing and consumer loans



Note: For housing loans with floating or up to 1-year interest rate fixation the reference rate is the 3-month interbank rate, for over 1-year fixation the 3-year IRS.

Source: MNB

Chart 4-9: Forward-looking real interest rates



Note: * Based on the 1-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 1-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

4.2.2. Household credit conditions

The average spread on housing loans declined during the quarter. The APR on newly granted housing loans declined by 0.2 percentage point to 5.1 percent in the period under review (Chart 4-8). In terms of interest conditions, the APR level of both fixed-rate and variable-rate loans decreased. The average level of spreads was down by 0.1 percentage point, standing at 4.5 percentage points at end-June. According to collateralisation, interest rates of consumer loans varied: the average lending rate and interest rate spread of home equity loans increased, while those of unsecured consumer loans declined.

The conditions of both housing and consumer loans remained practically unchanged. In net terms, 4 percent of the banks responding to the Lending Survey eased their housing loan conditions (Chart 4-7). However, regarding partial conditions, a considerable portion of institutions indicated changes: participants in the survey reported cuts in spreads, longer maturities and tightening of the payment-to-income ratio. 13 percent of the banks plan to ease their credit conditions in H2, which is justified by market share targets, housing market developments and abundant liquidity. In net terms, 8 percent of the banks eased their consumer loan conditions, which was primarily reflected in the decline in spreads. However, banks did not indicate any further change in this loan segment for the next half year.

4.2.3. Changes in real interest rates

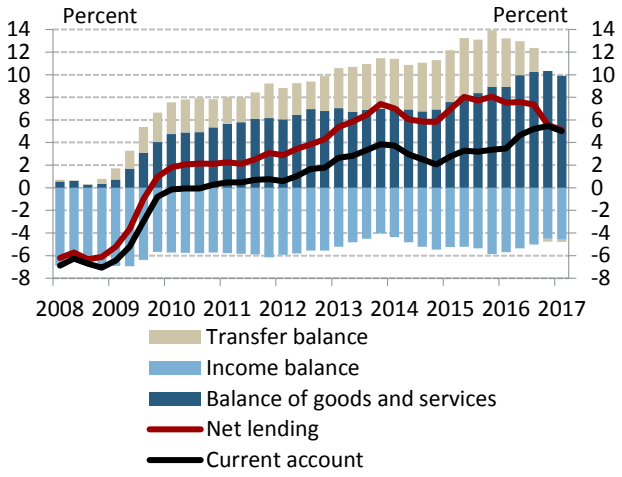
The one-year forward-looking real interest rate increased slightly in Q2. In 2017 Q2, on the basis of government bond yields, the real interest rate reduced by inflation expectations rose by 0.9 percentage point compared to the previous quarter, and thus stood at –2.4 percent at the end of the period. The real interest rate calculated on the basis of the deposit interest rates increased to the same extent, thus standing at the level of -2.3 percent at end-June (Chart 4-9). Hence, this rise in real interest rates was explained by the decline in inflation expectations in the period under review.

5. THE BALANCE POSITION OF THE ECONOMY

5.1. External balance and financing

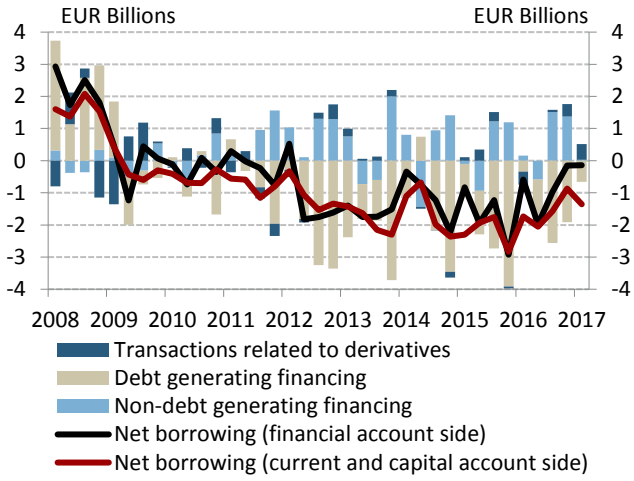
In 2017 Q1, the external balance position of the Hungarian economy declined to 5 percent of GDP, which is primarily attributable to a slight decrease in the trade surplus. The import-increasing effect of the pick-up in investment and consumption as well as the deterioration in the terms of trade contributed to the decline in the balance of goods. In addition, the transfer balance slightly reduced the net lending of the economy, while the deficit on the income balance remained moderate. In terms of the financing side, net FDI inflows continued, while debt liabilities declined to a greater extent. Net debt outflows were related to the consolidated general government including the MNB and to non-financial corporations, while the net external debt of the banking sector grew due to an increase in deposits placed by non-residents. The improvement in debt indicators continued in 2017 Q1 as well: net external debt declined to 18.4 percent of GDP, while gross external debt decreased to 69 percent. Based on preliminary monthly data, in Q2, in parallel with growth in EU transfers, the external balance position improved considerably, while on the financing side debt liabilities continued to decline.

Chart 5-1: Changes in net lending and its components



Note: Cumulated four-quarter values, as a percentage of GDP.
Source: MNB

Chart 5-2: Structure of net lending



Note: The financing requirement calculated using a bottom-up method corresponds to the total of the external financing requirement and the BOP balance of statistical errors and residuals.
Source: MNB

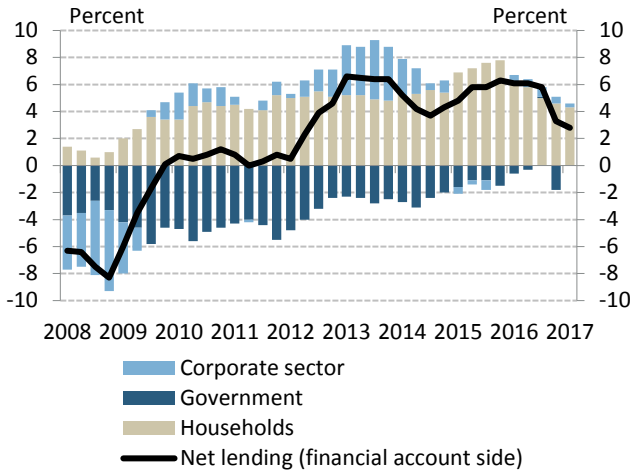
5.1.1. Developments in Hungary's external balance position

In 2017 Q1, both the four-quarter net lending and the current account balance of the Hungarian economy declined to 5 percent of GDP, which is mainly attributable to the slight decrease in the trade surplus (Chart 5-1). The fall in the **trade balance** from the historical high seen at end-2016 stemmed from the decline in the goods balance, which was influenced by a deterioration in the terms of trade, in addition to the import-increasing effect of the vigorous growth in investment and consumption. At the same time, improving industrial performance resulted in stronger export growth, and thus the contribution of net exports to economic growth remained positive in spite of the significant domestic demand. In parallel with subdued EU fund inflows, the **transfer balance** slightly reduced net lending in 2017 Q1 as well, while the deficit on the **income balance** became stable as a result of a decline in the income of those employed abroad and an improvement in the interest balance. Based on preliminary monthly data, net lending increased considerably in Q2, mainly supported by an increase in the transfer balance attributable to EU fund inflows.

5.1.2. Developments in financing

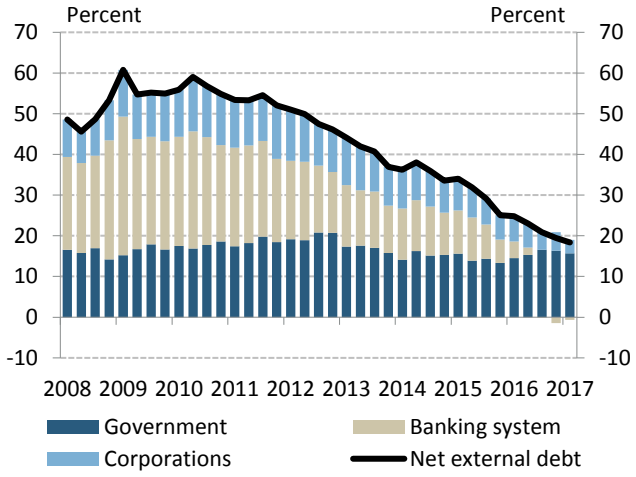
According to the financing side developments, the decline in debt exceeding net FDI inflows continued. At the same time, the external balance position was below the figure calculated on the basis of the real economy approach in 2017 Q1 again. Based on the financial account, the continued small fund outflows took place in parallel with a decline of EUR 0.7 billion in debt, which exceeded the net FDI inflows of EUR 0.3 billion (Chart 5-2). The outflow of debt liabilities decelerated, as usual in the first quarters, and its sectoral distribution changed. The net external debt of the consolidated general government including the MNB

Chart 5-3: Decomposition of net lending by sectors



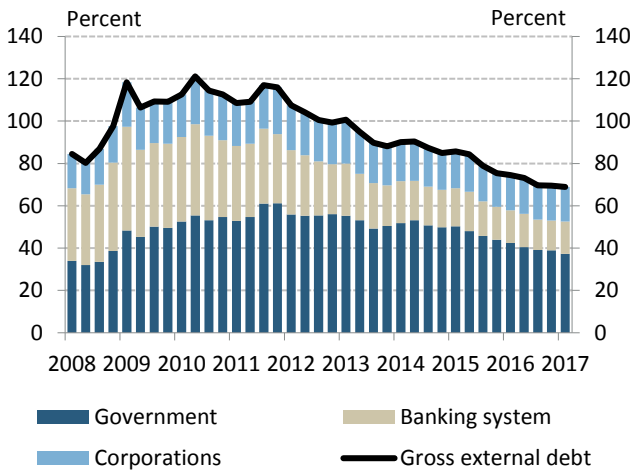
Note: Four-quarter cumulation, as a percentage of GDP.
Source: MNB

Chart 5-4: Development of net external debt



Note: Excluding intercompany loans, as a percentage of GDP.
Source: MNB

Chart 5-5: Development of gross external debt



Note: Excluding intercompany loans, as a percentage of GDP.
Source: MNB

declined primarily in connection with non-residents' government securities sales, and the decrease in non-financial corporations' debt also continued. Nevertheless, following the decline typical in the previous year, which was partly related to the conversion into forints, the external debt of the banking sector increased in early 2017, which was attributable to a considerable rise in non-residents' deposits. Based on preliminary monthly data, debt liabilities decreased in Q2. The decline in net external debt was also supported by the increase in the general government's claims with the EU, related to the absorption of EU funds.

In 2017 Q1, net lending according to the savings of sectors declined slightly, primarily owing to the drop in the financial savings of the private sector (Chart 5-3). The net borrowing of the general government declined to below 2 percent of GDP in Q1. The favourable fiscal developments are explained by the increase in tax revenues related to the expansion in consumption and higher employment as well as by declining interest expenditures. Households' net financial savings continued to fall in Q1, which is attributable to a pick-up in credit demand and expanding consumption. In addition, the net lending of the corporate sector also decreased further, which is related to a slight decline in incomes and an increase in investment and inventory accumulation.

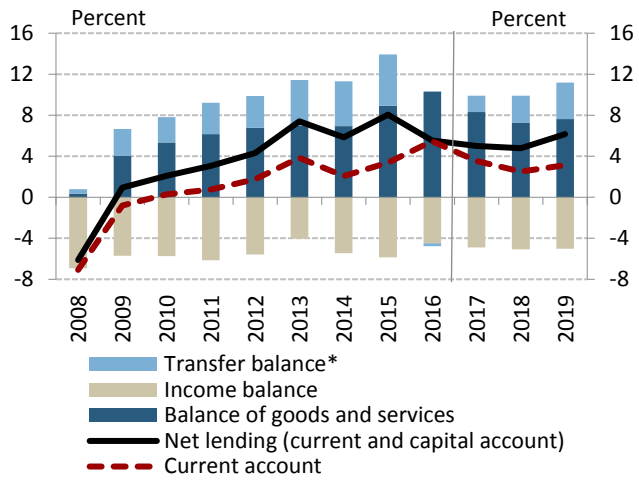
In 2017 Q1, the net external debt of the country declined to 18.4 percent of GDP (Chart 5-4). In addition to the more moderate outflow of debt liabilities, the decline in net external debt was also supported by the growth in GDP and revaluation effects. According to preliminary monthly data, the decline in net external debt as a result of transactions continued in Q2, which was also supported by a rise in the external assets of the general government and a decline in the external liabilities of companies, while the external debt of banks increased slightly.

At the end of Q1, the gross external debt of the economy amounted to 69 percent of GDP (Chart 5-5). The decline in gross external debt as a proportion of GDP observed in 2017 Q1 took place along with an increase in the stock as a result of transactions, which was offset by the effect of the growth in GDP and appreciation of the forint exchange rate against the euro. Of the sectors, the gross external debt of the general government declined, while that of the private sector – in relation to the banking sector – increased slightly.

5.2. Forecast for Hungary's net lending position

Looking ahead, as a result of the declining trade surplus and the increasing transfer balance, the net lending of the economy will decrease to below 5 percent of GDP in 2017 and 2018 and will then rise again at the end of the forecast horizon, in parallel with the gradually increasing absorption of EU transfers. The trade balance will decline mainly as a result of an increase in imports due to expanding consumption and investment, but will also continue to play an important role in the evolution of the high net lending. The rise in foreign-owned companies' profits adds to the deficit on the income balance, which also contributes to the decline in the current account surplus. Its impact is reduced by the gradual increase in the absorption of EU transfers expected as of 2017, resulting in higher net lending. In 2019, owing to the expansion in production capacity and a deceleration in domestic absorption, the trade surplus will grow again, which may also result in an improvement in the current account balance at the end of the forecast horizon. Looking at the savings of sectors, in parallel with a pick-up in lending, households' net financial savings are expected to decline slowly. With an increase in tax revenues and decline in interest expenditures, the net borrowing of the general government will remain steadily low, while companies' net lending will continue to expand against the background of improving profitability and the expanding absorption of EU funds. Declining as a result of the favourable external balance position, external debt indicators will continue to contribute to the decrease in the external vulnerability of the economy.

Chart 5-6: Evolution of net lending



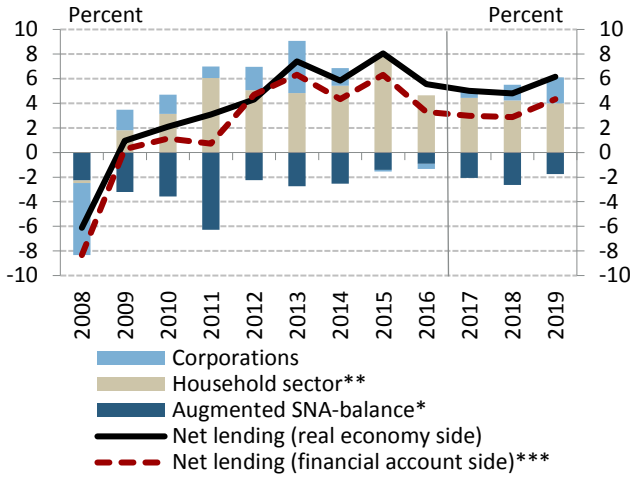
Note: As a percentage of GDP* The sum of the balance of the current transfers and the capital account balance.

Source: MNB

The net lending of the economy will temporarily decline to below 5 percent of GDP and will then increase again in 2019, with an expansion in the current account balance (Chart 5-6). The external balance position, which will decline slightly at the beginning of the forecast horizon but remain favourable, will evolve as a result of a decrease in the trade surplus and an expansion in the transfer balance. The decline in net exports is attributable to higher imports resulting from an expansion in domestic demand as well as to a deterioration in the terms of trade. In line with an increase in new vehicle industry capacities, export growth is expected to pick-up, resulting in a further increase in export market share. As a joint effect of the deceleration in domestic demand by 2019 and export expansion, the trade balance will rise again at the end of the forecast horizon. Accordingly, in 2019 the improvement in the external balance position of the economy will already be supported by a rise in the current account surplus, in addition to the expansion in the transfer balance resulting from the absorption of EU funds. As a result of the economic growth and the reduction of the corporate tax, the profits of foreign-owned companies are expected to increase in 2017 and 2018, which will temporarily add to the deficit of the income balance, while this effect will be partly offset by the decline in interest expenditures due to the fall in external debt.

The financial savings of the private sector will reach a stable and high level in parallel with a rise in companies' net lending and a decline in households' net lending, while the net borrowing of the state will temporarily rise (Chart 5-7). The substantial increase in household consumption as a result of improving income developments due to favourable labour market circumstances and dynamic wage increase as well as the

Chart 5-7: Changes in the savings of sectors



Note: As a percentage of GDP. * 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

pick-up in lending point to a slight decline in households' net financial savings from a high level. According to the underlying trends, households' net lending is expected to decline over the forecast horizon. As a result of an improvement in profitability attributable to the decline in the corporate tax and an increase in EU transfers, the net lending of the corporate sector is expected to grow. In 2017, the ESA deficit of the general government may be similar to that in 2016, but its net borrowing will increase as a result of the advance payments for the cohesion and structural funds of the European Union. In addition, the revenues of the state will be increased by the tax revenues, which are rising in connection with the significant wage growth, which will be offset on the expenditure side by the acceleration in the investment activity. In 2018, in line with the government's intention, the increase in government investment, continued tax cuts and expansion of the absorption of EU transfers will temporarily result in a slight rise in the deficit and net borrowing.

External debt indicators will decline as a result of the favourable external balance position, thus contributing to the decrease in the external vulnerability of the economy. Over the forecast horizon, the net lending of the economy will fall short of the high value observed in the previous years, but will still remain favourable, resulting in a decline in net external debt. In addition, the expected decline in the ratio of foreign currency within government debt will also contribute to the reduction of the country's external vulnerability.

5.3. Fiscal developments

According to our forecast, the budget deficit may remain low in the coming years, which – together with dynamic economic growth – will result in a steady decline in the government debt-to-GDP ratio. Our projection suggests that the ESA deficit will be between 1.6 and 1.8 percent in 2017, while the budget deficit may be 2.4 percent in 2018 if the Country Protection Fund is used up. Fiscal policy will increase aggregate demand in both years as a result of tax cuts, higher investment expenditures, the continuation of the career path models and implementation of the wage agreement. According to our projection, the downward trend in the Maastricht government debt indicator will continue, and thus the debt-to-GDP ratio will decline to 72.5 percent this year, and will be below 70 percent by the end of the time horizon. The Hungarian budget will comply with the international and EU fiscal rules concerning the ESA balance of the general government and the debt ratio over the forecast horizon.

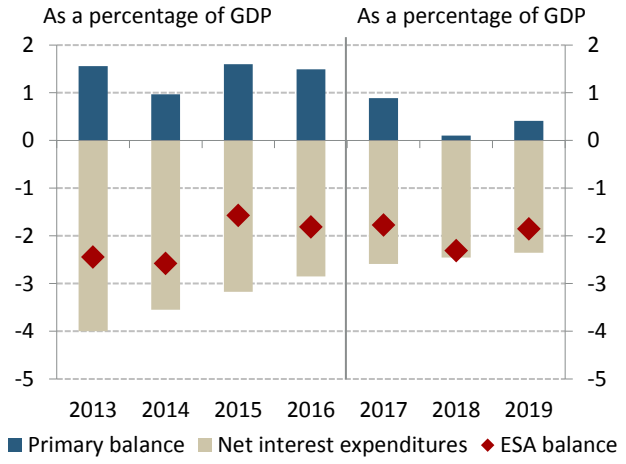
Table 5-1: General government balance indicators

	2017	2018	2019
ESA deficit	(-1.6) – (-1.8)	(-2.2) – (-2.4)	(-1.8) – (-2.0)
Primary ESA-balance	0.9 – 1.1	0.0– 0.2	0.3 – 0.5
Fiscal impulse*	1.2 – 1.4	0.4 – 0.6	(-0.5) – (-0.7)

Note: As a percentage of GDP. The lower value of the forecast band shows the ESA balance if the Country Protection Fund is used, while the higher value shows the ESA balance if the Country Protection Fund is not used. *Change in the augmented (SNA) primary balance.

Source: HCSO, MNB

Chart 5-8: Changes in the fiscal balance and interest expenditures



Note: The forecast values are located in the middle of the forecast range in 2017 and 2019, while for 2018 the calculation was made assuming cancellation of the Country Protection Fund. The figures do not include the imputed interest expenditures from 2012 related to the reform of the pension system.

Source: Eurostat, MNB

5.3.1. Main balance indicators and the fiscal demand effect

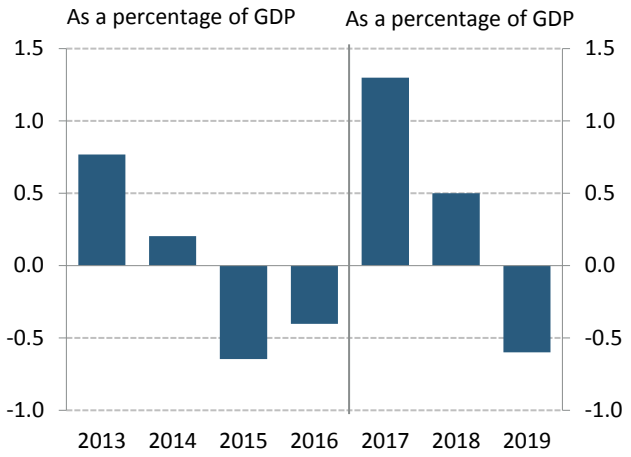
According to our projection, the ESA deficit as a proportion of GDP will be between 1.6–1.8 percent in 2017 and will be in line with the 2.4 percent deficit target in 2018, if the Country Protection Fund is used up (Table 5-1). Based on our technical projection, the budget deficit will be 1.8–2.0 percent in 2019, i.e. in the case of the cancellation of the Country Protection Fund it will be possible to reach the deficit target set in the Convergence Programme. The decline in interest expenditures that took place in the past years will offset the lower primary surplus, so the deficit of the government sector may become stable around two percent in the next two years (Chart 5-8). The impact of the cyclical position of the economy on the budget balance may be neutral in the years to come.

Fiscal policy will increase aggregate demand both in 2017 and 2018 (Chart 5-9). The reduction of the social contribution tax rate in two steps, the targeted VAT cuts as well as the lowering of the corporate tax and the bank levy will all boost aggregate demand. Households' disposable income will be increased in year-on-year terms by the extension of the family tax base allowance and, in addition to the fiscal channels, the wage agreement concluded last year. On the expenditure side, the government career path models will be expanded, and the effect of raising the minimum wage will also be felt. The increase in investment from the government's own sources will also generate a pick-up in demand. Gradual utilisation of the budgetary support paid out at end-2016 will also contribute to the 2017–2018 impulse.

5.3.2. Budget balance in 2017

According to our forecast, in 2017 the ESA deficit of the general government will be 1.6–1.8 percent of GDP, i.e. slightly lower than our June projection (Table 5-2). Developments in revenues are determined by the upturn in the labour market, resulting in higher tax revenues than

Chart 5-9: Fiscal demand effect



Note: As a percentage of GDP. The fiscal demand effect corresponds to the change in the augmented (SNA) primary balance. The fiscal impulse contains the effect of EU funds only to the extent of the cofinancing. A positive prefix indicates demand expansion, while a negative prefix implies demand restraint.
Source: MNB

Table 5-2: Decomposition of the change in the 2017 ESA balance forecast (compared to the June Inflation Report)

	Economic developments	Measures and other
I. Central government revenues	0.2	0.0
Labour taxes	0.2	
Taxes on consumption	0.1	
II. Central government expenditures	0.0	-0.1
Investments from own resources		-0.1
Excess expenditure of special reserves (wage-related measures)		-0.1
Utilisation of EU transfers		0.1
III. Other effects	0.0	0.1
Other		0.1
Total (I.+II.+III.)	0.2	0.0

Note: As a percentage of GDP. The positive and negative prefixes indicate deficit-reducing and deficit-increasing effects, respectively. The sum of partial data may differ from the aggregated value due to rounding.
Source: MNB

in our June forecast, and these higher revenues will offset the expenditure-increasing measures of the amendment to the Budget Act adopted in June. Higher-than-expected national wage growth primarily boosted tax revenues related to labour, but also had an impact on consumption taxes.

On the expenditure side, the increase in the wage cost of the budget and in investment from own sources has resulted in the change to our projection. According to the latest investment statistics, the investment activity of the general government accelerated tangibly in Q2.

Our deficit projection is 0.6–0.8 percentage point lower than the deficit target of 2.4 percent of GDP (Table 5-3). The deviation in budgetary organisations' expenditures is fundamentally related to the differing projections for the absorption of EU funds. Based on the first eight months of the year, we expect moderate utilisation and thus a lower level of co-financing than the appropriations. In the case of the START public work scheme, in view of the tightness of the labour market we still expect fewer participants in the programme than assumed by the budget. Our forecast for VAT is lower than the appropriation, mainly owing to lower public investment due to more moderate absorption of EU funds as well as the different assessment of the effect of efforts to combat the shadow economy. Compared to June, no major change is perceived in payments by economic units.

On the basis of the preliminary data release of the financial accounts, the ESA balance of the government sector showed a surplus in H1. This was related to a faster-than-expected increase in tax revenues, lower-than-planned absorption of EU funds and the large surplus registered for local governments in H1.

The cash-based deficit of the central government developed much differently than the ESA balance. The main factors behind this were that the rate of advance payments is high within EU fund disbursements, which – in the case of recipients within the government sector – does not affect the ESA deficit, along with the high H1 surplus of local governments and companies classified into the government sector and the accrual-based adjustment of taxes and interest payments. In terms of the accrual-based and overall developments in the general government, the net lending of the general government is the relevant indicator, which points to a lower-than-planned deficit.

Table 5-3: Differences between our forecast and the appropriations set out in the 2017 Budget Act

	Difference from appropriation
I. Central government revenues	-0.3
Payment by economic units	-0.2
Taxes on consumption	-0.2
Labour taxes	0.1
II. Central government expenditures	0.7
Expenditures related to EU subsidies	0.5
START public work scheme	0.2
III. Other effects	0.2 – 0.4
Cancellation of Country Protection Fund	0.0 – 0.2
Balance of local governments	0.2
Total (I.+II.+III.)	0.6 – 0.8

Note: As a percentage of GDP. The positive and negative prefixes indicate deficit-reducing and deficit-increasing effects, respectively. The sum of partial data may differ from the aggregated value due to rounding.
Source: MNB

Table 5-4: Differences between our forecast and the appropriations set out in the 2018 Budget Act

	Difference from appropriation
I. Central government revenues	-0.6
Payment by economic units	-0.1
Taxes on consumption	-0.5
Labour taxes	-0.1
II. Central government expenditures	0.6
Expenditures of budgetary organisations	0.4
Pension expenditures	0.2
III. Other effects	0.0 – 0.2
Cancellation of Country Protection Fund	0.0 – 0.2
Total (I.+II.+III.)	0.0 – 0.2

Note: As a percentage of GDP. The positive and negative prefixes indicate deficit-reducing and deficit-increasing effects, respectively. The sum of partial data may differ from the aggregated value due to rounding.
Source: MNB

5.3.3. 2018 and 2019 fiscal balance

The 2018 Budget Act sets the ESA deficit of the general government at 2.4 percent of GDP. Fiscal developments expected for 2017 constitute an adequate starting point for meeting next year's deficit target; the planned increase in expenditure and the tax cut will be offset by dynamic increases in tax revenues.

Our forecast indicates that it will be possible to achieve the 2.4 percent deficit target set in the bill (Table 5-4). Compared to the bill, we expect lower revenues from consumption taxes, with some of the difference stemming from the different 2017 base. In the case of other types of taxes, we expect slightly lower revenues than the appropriations, which is justified by some minor differences in the macroeconomic paths. According to our forecast, recent developments in private sector wage growth indicate that the precondition for the further 0.5 percentage point reduction of the social contribution tax set out in the wage agreement – which may become effective as of January 2018 – will be fulfilled; which is taken into account in our forecast.

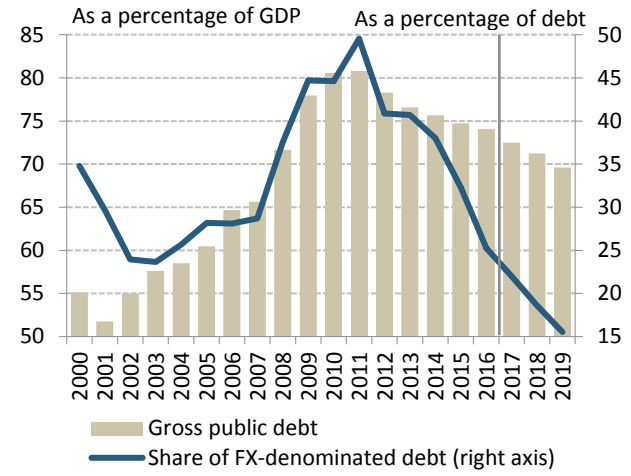
In the case of expenditures, we expect savings in two cases. According to our expectations, the absorption of EU funding may be lower than the statutory appropriation in 2018 again, also including the implementation of EU programmes for which advances had previously been received. In the case of pension expenditures, the main reason for the difference is that the budget is based on a higher economic growth compared to the MNB's projection, and thus incorporates a higher pension premium payment.

According to our technical projection, compared to 2018 the budget deficit may decline by 0.4 percentage point in 2019. Accordingly, the deficit target set out in the Convergence Programme may be reached with the cancellation of the Country Protection Fund. As a result of the persistently low yield environment and debt repricing, the value of net interest expenditures as a percentage of GDP may continue to decrease.

5.3.4. Risks surrounding the baseline scenario

The absorption and disbursement of EU funding continue to cause the greatest uncertainty in our projection. Our forecast assumes advance payments of several hundred billion forints in 2017 and 2018. Accordingly, there is a significant difference between cash-based payments and the amount of effective absorption of EU funds. If the expected ratio of advance payments and payments based on invoices deviates from our current projection, the

Chart 5-10: Gross public debt forecast – using an unchanged (end-2016) exchange rate over the forecast horizon



Source: MNB

savings we expect to see in budgetary organisations' expenditures may increase or decrease, depending on the direction of the deviation (Table 5-4). In our baseline scenario, disbursement on a cash basis will be the highest in 2017. Nevertheless, absorption of the disbursements may be concentrated in 2018 and 2019. Faster absorption of funds compared to our projection would raise expenditures, due to the increase in co-financing. However, it would also add to revenues by stimulating the economy.

5.3.5. Expected developments in public debt

According to the MNB's preliminary financial account data, at the end of 2017 Q2 the government debt-to-GDP ratio amounted to 74.0 percent. Compared to the same period of last year, the ratio declined by 1 percentage point, i.e. it decreased to below its value observed at the end of last year. Net issuance added to the amount of debt in Q2, while the revaluation of foreign currency debt reduced the figure. During the first half of the year, the Government Debt Management Agency issued more government securities than the financing need, resulted in a rise in the total liquid deposits of the state.

According to our forecast, assuming a constant end-2016 forint exchange rate, the government debt ratio may continue to decline until end-2019, complying with the debt rule set out in the Fundamental Law. Based on our projections, in the coming years the debt ratio is expected to decline annually by around 1.5 percentage points, thanks to dynamic economic growth in parallel with a low financing need.

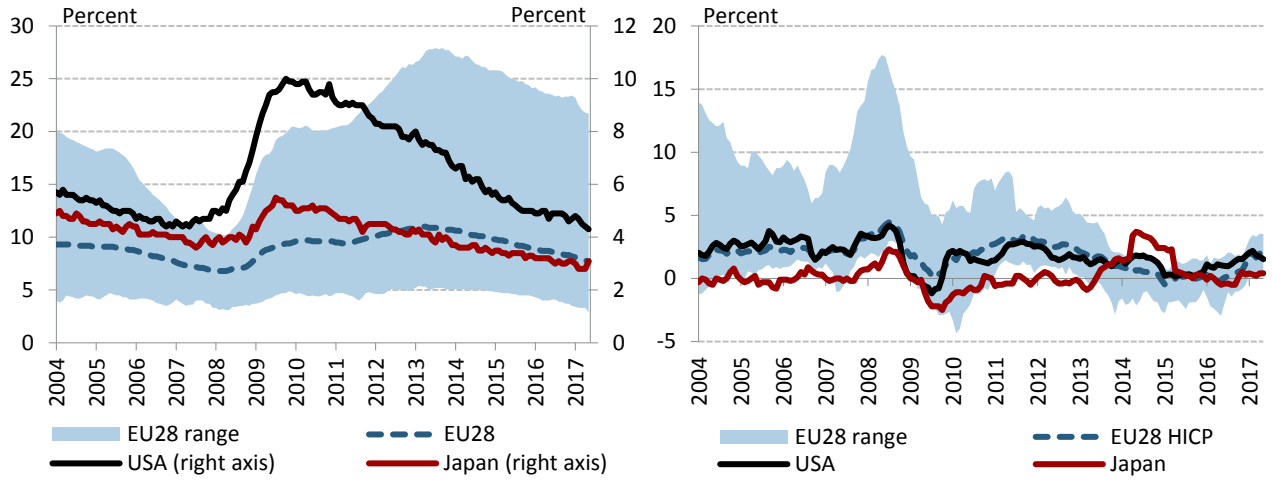
According to our forecast, by end-2017, the ratio will decline to 72.5 percent of GDP, while in 2018 it will be around 71.2 percent, decreasing to below 70.0 percent by the end of the forecast period (Chart 5-10).

6. SPECIAL TOPIC

6.1. The role of global factors in the development of inflation in Hungary

Subdued global economic activity, declining energy and commodity prices, the appearance of new technological innovations and inflation expectations anchored at historically low levels around the world were all factors that have tended to result in declining inflation rates at the global level since 2013. Global inflation trends started to head higher again at end-2016, in line with rising commodity prices, which stood at low levels. As a result, inflation rates moved away from the close-to-zero levels, but still tended to fall short of central bank targets. **Economic performance has varied from region to region** since the crisis, which is also corroborated by the significantly different levels of unemployment (Chart 6-1, left panel). However, in spite of the different patterns in business activity, **no divergence is observed in inflation**, and inflation rates tended to remain **at generally low levels** (Chart 6-1, right panel). In connection with that, the question arises: what role might global common factors play in these developments?

Chart 6-1: Unemployment rates (left panel) and inflation rates (right panel) in the EU and some developed countries



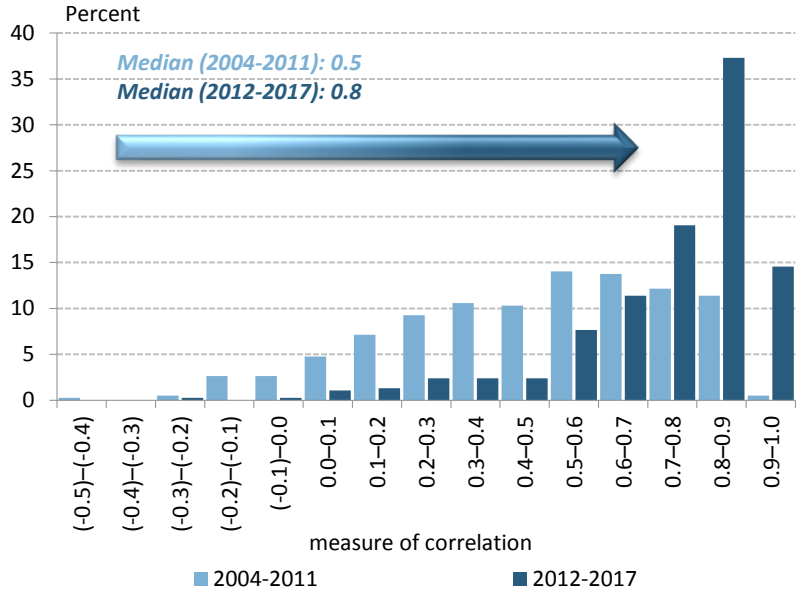
Note: Seasonally adjusted data. The band indicates the range of unemployment rates.
Source: Eurostat

Note: Annual change. The band indicates the range of inflation rates. In the case of the USA, the PCE indicator, which measures consumption expenditures, corresponds to inflation.
Source: Eurostat, OECD, St. Louis Fed

The strengthening correlation between inflation rates may be explained **by globalisation and – together with that factor – by integration into global production processes** (the role of global value chains), which **may have amplified the impact of international business cycles on inflation**. The effect of globalisation is perceived through various channels. Increased trade openness, higher competition as a result of economic integration, the global division of labour and the appearance of new low-cost labour in the production chains all result in more restrained price dynamics and increased co-movement of national inflation rates.

In the case of Hungary, the European Union represents the narrower global environment, as approximately 80 percent of Hungary's foreign trade is with the EU. Therefore, it is worth examining historical developments in EU inflation rates. **Correlation among the price indices of the EU countries has increased considerably in the past years** (Chart 6-2). While a medium level of correlation had been observed before 2012, the correlation coefficient rose to above 0.8 after 2012.

Chart 6-2: Distribution of correlations by pair between the inflation rates of the countries of the European Union



Note: Relative frequency. The chart shows the distribution of pairwise correlations between the countries. For example the 0.8–0.9 correlation has to be interpreted in a way that while between 2004-2011 11 percent of the pairings were characterised by a correlation between 0.8 and 0.9, this ratio rose to 37 percent after 2012.

Source: Eurostat, MNB

The role of global factors may have become increasingly important in domestic inflation developments as well. We examined the impact of global factors on inflation in Hungary with principal component analysis, which decomposes the variance of domestic inflation into global, regional and country-specific effects. Global factors capture the impact of EU member countries' inflation rates on the domestic price index and comprise the effect of the changes in oil prices as well. For the decomposition, we used the methodology developed by Krusper (2012) based on Stock–Watson (2002).[4] The equation stated with estimated global and common factors for domestic inflation:

$$\pi_t = \beta_1 global_t + \beta_2 regional_t + \varepsilon_t$$

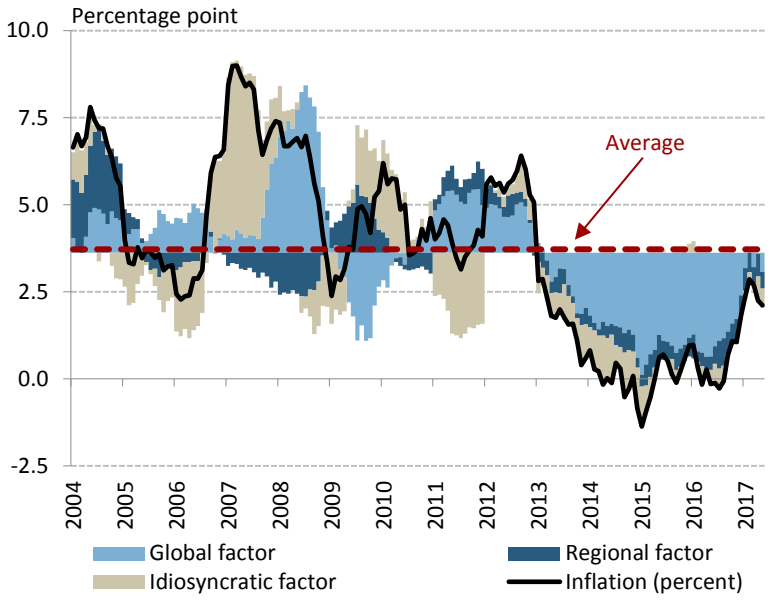
where π_t is actual domestic inflation (HICP), and ε_t indicates the country-specific factor. This methodology is a useful tool to separate the contributions of individual factors to inflation. At the same time, it does not provide a structural explanation for developments in inflation, as it analyses the correlation between various inflation time series.

The deviation of inflation from its long-term average was primarily explained by global effects in the past years; the significance of country-specific and regional factors is much lower. The impact of regional factors was perceived to a greater extent in the period of joining the EU. **The contribution of country-specific factors is mainly explained by the changes in taxes and regulated prices, although their effect declined significantly in the past years. Since 2012, domestic inflation developments have mainly (up to 70–80 percent) been determined by the global factor, in line with the stronger co-movement of international inflation rates** (Chart 6-3).

[4] Krusper, B. (2012) "The role of external and country-specific factors in Hungarian inflation developments", MNB Working Papers 2012/5., Magyar Nemzeti Bank.

Stock, J. H. and Watson, M. W. (2002) "Macroeconomic Forecasting Using Diffusion Indexes", Journal of Business & Economic Statistics, Vol. 20 (2), April, 2002. pp. 147-162.

Chart 6-3: Decomposition of inflation according to global, regional and idiosyncratic factors



Note: Annual change. The factors explain the deviation of actual inflation (HICP) from its average between 2004–2017.

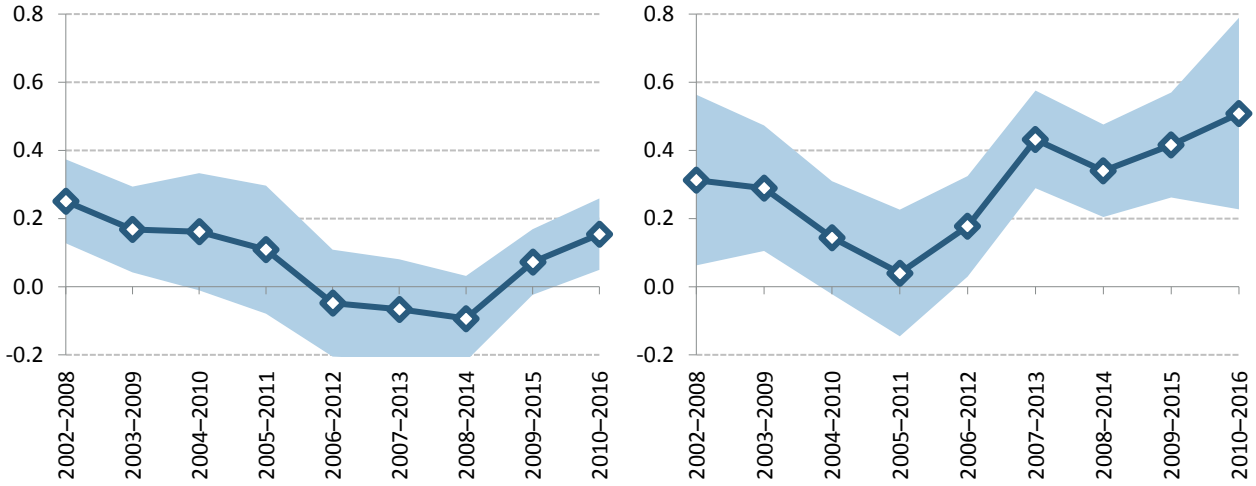
Source: Eurostat, MNB

The strengthening of the role of external factors is also confirmed by the changes in the coefficients of the Phillips curve estimation complemented with global variables (Chart 6-4). As total inflation contains many volatile components, in the estimation **we examined core inflation** without indirect tax effects. A result that proved to be stable was provided by a Phillips curve in which both domestic and global factors are represented by variables related to the cyclical position of the economy and which also contains the inflation expectations of the market services sector:

$$core\ inflation_t = \beta_1 inflation\ target + \beta_2 core\ inflation_{t-1} + \beta_3 consumption\ gap_{t-1} + \beta_4 eu\ output\ gap_{t-2} + \beta_5 eurhuf_{t-2} + \beta_6 corporate\ inflation\ expectations_t + u_t$$

where u_t indicates the error term. **The coefficient belonging to the domestic consumption gap is not significant in most of the cases**, which indicates that country-specific effects are losing their importance in the development of core inflation. This is in line with the flattening of the Phillips curve estimated using Hungarian data for the period following the crisis. **For the whole sample, the coefficient belonging to the output gap of the European Union capturing global effects is significantly stronger than the coefficient of the domestic consumption gap**, i.e. domestic inflation is more sensitive to developments in the global factor. Based on the estimate, **if the output gap of the European Union increases by 1 percentage point, core inflation without tax effects rises by 0.1–0.2 percentage point**. In order to examine the robustness of the results, various specifications were estimated, which resulted in similar coefficients concerning the role of external factors.

Chart 6-4: Changes in the coefficients of the domestic consumption gap (left panel) and the EU output gap (right panel) estimated for domestic core inflation



Note: The seven-year moving window regression was estimated on annualised quarterly data. The uncertainty of the estimation indicates one unit of standard deviation.

Source: European Commission, Eurostat, HCSO, MNB

On the whole, the role of external factors in domestic inflation developments strengthened in the past period, and after 2012, the changes in inflation in Hungary were mainly influenced by global effects. The external factors influence domestic price dynamics through two main channels: through the effect of the global output gap and through the evolution of the external macroeconomic environment, and the second one is the evolution of the external macroeconomic environment. The effect of the global output gap was primarily influenced by globalisation and the increase in the intensity of international trade. In addition, the level of external inflation was also subdued.

7. BREAKDOWN OF THE AVERAGE CONSUMER PRICE INDEX FOR 2017 AND 2018

Table 7-1: Decomposition of inflation to carry-over and incoming effect (percentage points and percent respectively)

	Effect on CPI in 2017			Effect on CPI in 2018		
	Carry-over effect	Incoming effect	Yearly index	Carry-over effect	Incoming effect	Yearly index
Administered prices	0.0	0.1	0.1	0.0	0.1	0.1
Market prices	0.8	1.5	2.3	0.7	1.7	2.4
Indirect taxes and government measures	0.2	-0.2	0.0	0.2	-0.2	0.0
CPI	**1.0**	**1.4**	**2.4**	**0.9**	**1.6**	**2.5**

Note: The tables show the decomposition of the yearly average change of the consumer price index. The yearly change is the sum of 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 (non-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 into carry-over and incoming effects (percentage points and percent respectively)

	2017					2018				
	Average carry-over effect	Carry-over indirect tax effect	Average incoming effect	Incoming indirect tax effect	Yearly index	Average carry-over effect	Carry-over indirect tax effect	Average incoming effect	Incoming indirect tax effect	Yearly index
Food	0.2	0.0	3.5	-1.1	2.6	0.7	0.0	3.2	-0.1	3.8
non-processed	-1.6	0.0	4.8	-2.5	0.7	-1.7	0.0	6.0	-0.4	3.9
processed	1.0	0.0	3.1	-0.5	3.6	1.8	0.0	2.0	0.0	3.8
Traded goods	0.2	0.0	0.5	0.0	0.7	0.3	0.0	0.8	0.0	1.1
durables	-0.4	0.0	0.2	0.0	-0.2	-0.1	0.0	0.3	0.0	0.2
non-durables	0.4	0.0	0.6	0.0	1.0	0.4	0.0	1.1	0.0	1.5
Market services	1.0	0.0	1.7	-0.2	2.5	1.3	0.0	2.2	-0.9	2.6
Market energy	1.0	0.0	3.0	0.0	4.0	0.4	0.0	2.3	0.0	2.7
Alcohol and tobacco	0.3	0.6	2.2	1.7	4.8	1.2	1.9	1.7	0.0	4.8
Fuel	5.9	1.7	0.8	-1.5	6.9	0.6	-0.5	2.3	0.0	2.4
Administered prices	0.2	0.0	0.3	0.0	0.5	0.0	0.0	0.9	0.0	0.9
Inflation	**0.8**	**0.2**	**1.6**	**-0.2**	**2.4**	**0.6**	**0.2**	**1.9**	**-0.2**	**2.5**
Core inflation	0.6	0.1	1.6	0.1	2.4	1.0	0.3	1.7	-0.3	2.7

Note: The tables show the decomposition of the yearly average change of the consumer price index. The yearly change is the sum of 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 their inflationary 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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