INFLATION REPORT / IV

2017

CNB CZECH NATIONAL BANK

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This Inflation Report was approved by the CNB Bank Board on 9 November 2017 and – with some exceptions – contains the information available as of 20 October 2017. Unless stated otherwise, the sources of the data contained in this Inflation Report are the CZSO or the CNB. All the Inflation Reports published to date are available on our website. Underlying data for the tables and charts presented in the text of this Inflation Report, minutes of Bank Board meetings, and time series of selected economic and monetary indicators (available in the ARAD database) are also published there.

Dear Readers,

The Inflation Report is our key monetary policy publication. We have been publishing it since 1998. Over the years we have gradually developed it. The form as you see it here has been in place since spring 2017. Section I of the Report presents the message of our new quarterly forecast and the reasons behind the monetary policy decision adopted by the CNB Bank Board. In section II you will find a detailed description of the new forecast and its risks. Section III contains our assessment of past economic and monetary developments.

According to the Czech Constitution and the Act on the CNB, our primary objective is to maintain price stability. In addition, we maintain financial stability and see to the sound and smooth operation of the financial system in the Czech Republic. Without prejudice to our primary objective, we also aim to support the general economic policies of the Government leading to sustainable economic growth. By maintaining price stability, we assist Czech firms and households in their decision-making and planning, which ultimately results in greater stability of the entire Czech economy. Our independence is a necessary condition for successful implementation of monetary policy focused on price stability. For that reason, we are not allowed to seek or take instructions from the President of the Republic, from the Government, from Parliament, from administrative authorities or from any other body.

We have been maintaining price stability in the inflation targeting regime since 1998. The main features of this regime are a publicly announced inflation target, a focus on forecasts of the future path of inflation, and open communication with the public. We set the inflation target as year-on-year growth in consumer prices of 2% starting from 2010. We endeavour to ensure that actual inflation does not differ from this target by more than one percentage point on either side. Most advanced economies have similar inflation targets. There are several reasons why we define price stability as slight growth in prices rather than zero inflation. Inflation measures tend to be distorted upward because of imperfect adjustment for the impacts of changes in the quality of goods and services, where growth in quality is sometimes statistically captured as growth in prices. This distortion is also due to an assumption of constant weights in the consumer basket, whereas in reality people have a natural tendency to move away from goods and services whose prices are rising faster to those which are recording below-average growth or even falling. Last but not least, if we were to target an inflation rate that was too low or even zero, there would often be a threat of deflation, which has very harmful consequences for society as a whole. In such situations, moreover, the central bank would repeatedly hit the zero lower bound on interest rates and would often have to use other, less conventional instruments.

Changes in the monetary policy settings manifest themselves in the economy with a lag. Therefore, it is the future evolution of the Czech economy, rather than its current situation, that is of prime importance for the CNB Bank Board's decisions. The forecast for inflation at the "monetary policy horizon" (about 12–18 months ahead) is of greatest relevance to our decision-making. Our forecast tells us the most likely future course of the economy. It is drawn up by experts from the Monetary Department using the "g3" structural macroeconomic model. The core model captures the basic characteristics of the Czech economy as described by key variables such as prices, wages, GDP components in both nominal and real terms, the koruna exchange rate and nominal interest rates. Given the openness of the Czech economy, foreign trade and the koruna-euro exchange rate play an important role in the model. The structural linkages in the model provide a comprehensive and consistent view of the relationships between nominal variables and the real economy. From the viewpoint of economic theory, g3 is a dynamic stochastic general equilibrium (DSGE) model. Forward-looking expectations and their interaction with monetary policy, which reacts to economic shocks through changes in interest rates in an effort to stabilise inflation close to 2% at the monetary policy horizon, are important features of the model. The main forecasting inputs are an assessment of the current state of the economy (the initial state), projected developments abroad, and the outlook for administered prices and domestic fiscal policy. Based on this input information, and using the model and additional detailed analyses drawn up by economists from the Monetary Department, a forecast of the most likely course of the Czech economy is then compiled. In addition to the baseline scenario of the forecast, alternative or sensitivity scenarios are prepared as needed using the core prediction model.

The forecast is the key, but not the only, input to our monetary policy decision-making. Unless the economic situation requires an extraordinary monetary policy meeting, the Bank Board meets eight times a year to discuss monetary policy issues. At four of the meetings (in February, May, August and November) we discuss a new forecast, while at the other four (in March, June, September and December) we discuss the risks and uncertainties of the most recent forecast in the light of newly available information on domestic and foreign economic developments. Due to the arrival of new information since the forecast was drawn up and to the possibility of the Bank Board members assessing its risks differently, the decision we adopt may not fully correspond to the message of the forecast prepared by our experts.

The CNB's main monetary policy instrument is the two-week repo rate. We also set the discount rate and the Lombard rate. By changing these monetary policy rates, we influence financial market interest rates from which commercial banks derive their loan and deposit rates for their customers. A rate increase leads – via the "transmission mechanism" – to slower demand growth in the economy, which, in turn, causes inflation to go down. Lowering the repo rate has the opposite effect. If the forecast indicates growing inflation pressures which might cause inflation to exceed the 2% target, this is a signal that our monetary policy should be more restrictive, i.e. that interest rates should be raised. The opposite applies, of course, if inflationary tendencies decrease, as monetary policy in the (future) inflation-targeting regime is symmetrical in both directions. The exception is a situation where inflation is affected by extraordinary supply-side shocks which we cannot influence and which will cause it to deviate from the target only temporarily. Changes to indirect taxes and sharp swings in oil prices are typical examples of such shocks. Attempts to keep inflation on target despite such shocks would lead to unnecessary volatility in economic growth and employment. We therefore usually look past the first-round effects of such factors in our decision-making and tolerate a temporary deviation of inflation from the target due to such price shocks. Inflation then returns to the target after the shocks fade away.

We have a whole range of other instruments besides the monetary policy rates described above. These we can use in situations where the use of interest rates is not enough to reach the inflation target. One such situation was the adoption of the exchange rate commitment in autumn 2013, which we did after monetary policy rates had been lowered to "technical zero" in November 2012 and the situation called for a further easing of the monetary conditions. This instrument was used until 6 April 2017, when the Bank Board decided to discontinue the exchange rate commitment. In the standard managed float exchange rate regime to which we have returned, we can moreover respond to potential excessive fluctuations of the koruna exchange rate by intervening in the foreign exchange market. We use these instruments primarily to deliver price stability; to maintain financial stability we use a separate set of instruments called macroprudential tools. However, monetary policy and macroprudential policy affect one another, as monetary policy decisions have an impact on the financial sector and, conversely, macroprudential policy decisions influence the economy and inflation. We therefore take the interactions between the two policies into account.

We are proud of the fact that the CNB is one of the most transparent central banks in the world according to renowned international analyses. We publish our forecast and its risks – and subsequently also an explanation of the reasons for the Bank Board's decision – in order to make our monetary policy as transparent, comprehensible, predictable and therefore credible as possible. We are convinced that credible monetary policy effectively anchors inflation expectations and thereby significantly helps to maintain price stability and overall macroeconomic stability in the Czech Republic.

On behalf of the Czech National Bank

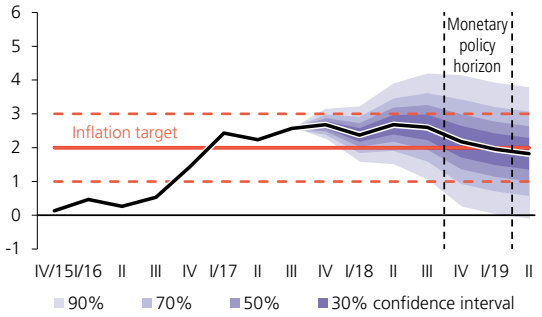
Jiří Rusnok
Governor

I. SUMMARY

CHART I.1

HEADLINE INFLATION FORECAST

Headline inflation will stay above the 2% target for most of 2018 and will be close to it over the monetary policy horizon
(year on year in %)

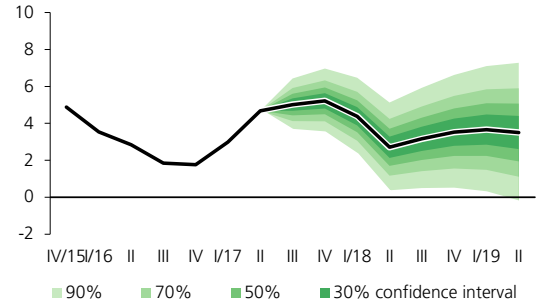


Note: The confidence intervals of the headline inflation forecast reflect the predictive power of past forecasts. They are symmetric and widening only for the first five quarters and then stay constant. This is consistent with both the past predictive power and the stabilising role of monetary policy.

CHART I.2

GDP GROWTH FORECAST

The growth of the Czech economy will slow from this year's high pace to just above 3% on average in the next two years
(annual percentage changes; seasonally adjusted)



Note: The confidence intervals of the GDP growth forecast reflect the predictive power of past forecasts and the CZSO's revisions of the national accounts. They are symmetric and linearly widening.

Inflation will stay above the 2% target for most of 2018 and return to it at the monetary policy horizon. The overall inflation pressures are currently peaking, reflecting accelerating wage growth amid robust growth of the domestic economy. Growth in domestic costs will record a further short-term increase owing to labour market tightness. Domestic costs will then moderate, aided by a stabilising effect of monetary policy, but will continue to outweigh the anti-inflationary effect of import prices. Import prices will reflect a strengthening koruna amid a temporary weakening of foreign producer price inflation. At the same time, the one-off factors that increased inflation at the start of this year will subside. Inflation will thus return to the CNB's 2% target from above over the monetary policy horizon, i.e. in late 2018 and early 2019 (see Chart I.1). As regards the structure of inflation, core inflation will fall slightly next year, owing mainly to a decline in import prices. The current relatively high food price inflation will temporarily rise slightly further and then go down as growth in world agricultural commodity prices subsides. Administered prices will be unchanged overall this year and will rise over the next two years on account of renewed growth in electricity and gas prices. The marked year-on-year growth in fuel prices observed early this year has subsided. These prices will mostly decline slightly over the next two years owing to appreciation of the koruna against the dollar amid broadly stable dollar prices of oil.

The growth of the Czech economy will reach 4.5% this year and will slow in the following two years (see Chart I.2). The economy will remain above its potential output level. The increase in domestic economic activity will be driven mainly by robust growth in household consumption, reflecting optimism of consumers in an environment of high growth in their income. Investment will recover, especially in the government sector as a result of higher drawdown of EU funds. To a lesser extent, fiscal policy will contribute to domestic demand growth via a significant rise in public sector pay and increasing pensions and social benefits. The economy will continue to benefit from stable demand growth in the Czech Republic's main trading partner countries. However, the positive contribution of net exports to GDP growth will disappear gradually as a result of appreciation of the koruna and an acceleration in import-intensive domestic demand. A tightening of both the exchange rate and interest rate components of monetary policy will act against further overheating of the domestic economy. The robust economic growth is reflected in a very tight labour market. The unemployment rate is still the lowest in the EU and there is little room for it to decrease further. This will lead to slower employment growth and a further acceleration of wage growth, which is already high.

According to the forecast, the koruna will appreciate further, owing mainly to monetary policy being tightened sooner in the Czech Republic than in the euro area. The exchange rate forecast for 2017 Q4 takes into account the current situation in the foreign exchange market, which is being influenced by market overboughtness. This is due

to the large koruna positions of financial investors together with exchange rate risk hedging by exporters before the exit from the CNB's exchange rate commitment. According to the forecast assumptions, market overboughtness will continue to slow the pace of appreciation in 2018 Q1. After that, the koruna will firm further. A positive interest rate differential vis-à-vis the euro area and continuing asset purchases by the ECB will act in this direction. The koruna will also appreciate due to continued real convergence of the Czech economy to the euro area countries.

The return of inflation to the target will be fostered by further growth in interest rates in addition to appreciation of the koruna (see Chart I.3). Interest rates will gradually return to their assumed long-run neutral level. Until mid-2018, growth in interest rates will be slowed by continuing quantitative easing by the ECB, which will put appreciation pressure on the koruna.[1]

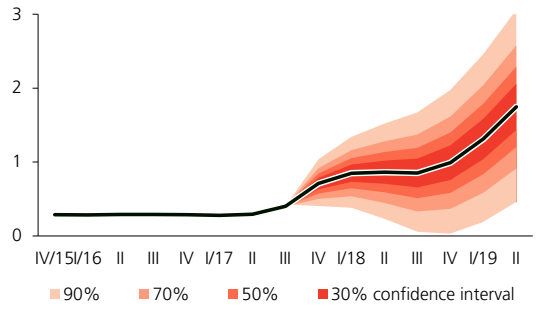
At its monetary policy meeting in November, the CNB Bank Board decided unanimously to increase the two-week repo rate by 25 basis points to 0.50%. At the same time, it increased the Lombard rate by 50 basis points to 1.00% and kept the discount rate unchanged at 0.05%.

A majority of the Bank Board assessed the risks to the inflation forecast at the monetary policy horizon as being slightly inflationary. A risk in this direction may arise from the exchange rate path. In the quarters ahead, the exchange rate may appreciate at a slower rate than forecasted due to overboughtness of the koruna market. The strength, composition and persistence of fundamental inflation pressures from the domestic economy are also an inflationary risk to the forecast. The timing of further steps in raising interest rates will be conditional on the evolution of all key macroeconomic variables, including the exchange rate of the koruna.

CHART I.3

INTEREST RATE FORECAST

Consistent with the forecast is a continuing rise in domestic market interest rates
(3M PRIBOR in %)



Note: The confidence intervals of the 3M PRIBOR forecast reflect the predictive power of past forecasts. They are symmetric, linearly widening and limited below by the zero lower bound.

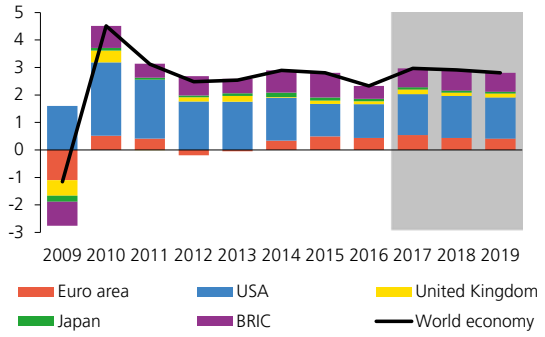
1 The ECB's decision of 26 October 2017 to reduce its asset purchases from EUR 60 billion to EUR 30 billion a month from January 2018 and to extend this programme by at least nine months was not known at the time the forecast was prepared. Compared to the assumptions of the forecast, this decision can be assessed as implying marginally more accommodative monetary policy of the ECB overall.

CHART II.1.1

WORLD ECONOMY GROWTH OUTLOOK

The world economy will grow mainly on the back of strengthening performance of emerging economies and the USA amid solid growth in the euro area

(annual percentage changes in real GDP; contributions in percentage points; source: EIU, CF, CNB calculation)



Note: World economy growth is proxied by the growth of the eight largest economies, which account for around 75% of global GDP. The weights of the individual economies are calculated on the basis of nominal GDP in USD over the period 2010–2015; the BRIC group consists of Brazil, Russia, India and China.

CHART II.1.2

STRUCTURE OF ANNUAL GDP GROWTH IN THE EURO AREA

GDP growth accelerated further in Q2 and was again driven by domestic demand and fixed investment

(annual percentage changes; contributions in percentage points; seasonally adjusted; source: Datastream, CNB calculation)

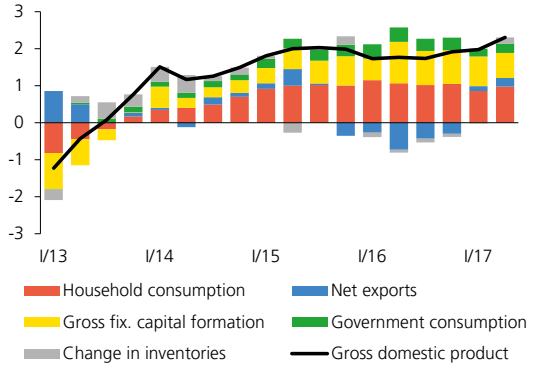
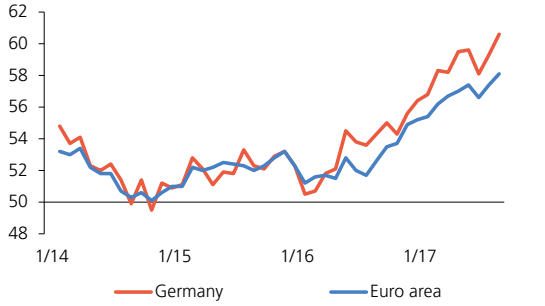


CHART II.1.3

PMI IN MANUFACTURING

The PMI is still rising, signalling continued solid growth in industrial production

(Purchasing Managers' Index; source: Bloomberg)



II. THE FORECAST, ITS CHANGES AND RISKS

II.1 DEVELOPMENTS ABROAD AND EXTERNAL ASSUMPTIONS OF THE FORECAST

Following a slowdown last year, the growth of the world economy is rising this year and will maintain a faster pace in the next two years. This is also true of economic growth in the effective euro area.[2] Growth in industrial producer prices will weaken further over the rest of this year owing to the fading effect of the previous rise in prices of energy and industrial commodities. However, it will gradually resume thereafter. Consumer price inflation in the euro area will follow a similar pattern, falling initially and then approaching the ECB's definition of price stability only gradually from below. 3M EURIBOR market rates are negative over almost the entire outlook on account of the ECB's still easy monetary policy. The euro's negative short-term interest rate differential vis-à-vis the dollar rate will widen further and will not start to narrow again until 2019. Despite this, the euro-dollar rate is expected to be broadly stable.

II.1.1 Economic developments abroad

The growth of the world economy will accelerate this year and maintain higher momentum over the entire outlook.[3] This will be driven mainly by developments in emerging economies and the USA. The USA recorded a marked increase in GDP growth in the first half of the year. A slowdown is expected in the rest of the year owing to the strongest-ever hurricane season, but it should be only temporary. Growth is also accelerating in Japan, where very low unemployment is fostering higher wages and rising domestic demand. With the exception of India,[4] GDP growth will also rise in the BRIC countries this year. After Russia, Brazil has also now emerged from recession. Both economies are expected to attain much higher growth rates than in previous years. Growth in China is also likely to exceed last year's level. Together with higher growth in the euro area, this will increase global economic growth by more than 0.5 percentage point (see Chart II.1.1). Firmer global growth is also signalled by leading indicators such as the global composite PMI, which hit a two and a half year high in September.

2 For the purposes of the forecast, external real and price developments are proxied by effective euro area indicators (see also the Glossary). In these indicators, the Czech Republic's major trading partners (especially Germany and Slovakia) have larger weights (50% and 14% respectively) than their shares in the euro area proper (the weights used in the calculation are equal to the shares of the euro area countries in total Czech exports to the euro area). The outlooks for GDP, PPI and CPI in the individual euro area countries are based on the October Consensus Forecasts (CF). The outlooks for government bond yields, the euro-dollar exchange rate and the NEER are constructed on the same basis. The scenarios for the future paths of the 3M EURIBOR and 3M USD LIBOR and the Brent crude oil price are derived from prices of market contracts as of 9 October 2017. The outlook is indicated by the grey areas in the charts. This convention is used throughout this Report.

3 A more detailed description of expected developments abroad, updated every month, is available in Global Economic Outlook.

4 India's economic growth continues to be adversely affected by last year's unsuccessful demonetisation and newly also by the recent implementation of a major tax reform.

The euro area economy is growing for the fifth consecutive year, owing mainly to household consumption and fixed investment. GDP growth rose to 2.3% year on year in Q2, with positive contributions coming from all demand components including net exports and change in inventories (see Chart II.1.2). Most euro area economies are now seeing solid growth rates. They have recently been joined by France, which was lagging behind until recently.[5] Quarterly GDP growth in the euro area rose slightly to 0.6%.

The solid economic growth in the euro area probably continued into 2017 Q3. Industrial production rose in both July and August, bolstered by domestic demand and the global recovery. In year-on-year terms, industrial production growth was just below 4%. The PMI in manufacturing rose to 58.1 in September, signalling continued strong growth in production in the months ahead (see Chart II.1.3). On the demand side, consumption growth is being aided by continuing favourable labour market developments. Unemployment edged down again (to 9.1% in August), wage growth rose to 2% year on year in Q2[6] and consumer confidence is still rising. Nevertheless, growth in retail sales unexpectedly slowed in August (to 1.2% year on year).

GDP in the effective euro area will grow by more than 2% over the forecast horizon (see Chart II.1.4). The growth will be strongest in the second half of this year, reaching 2.5%. It will then return towards 2% from above. The slowdown in growth in effective terms will be more moderate than that in the euro area proper, due among other things to still solid growth in Germany, which has a higher weight in the effective indicator. The euro area economy will continue to be supported by monetary accommodation, an improving labour market situation and strong economic confidence. Exports will benefit from faster global economic growth and a stable euro exchange rate.

II.1.2 Price developments abroad

The oil market is showing clear signs of stabilisation, and the Brent crude oil price should therefore stay close to USD 55 a barrel (see Chart II.1.5). Limited production by OPEC and other large producers combined with still strong demand is reflected in a decrease in – still high – global stocks of oil and, in particular, refined products. Demand is currently accelerating due to rising consumption of diesel connected with the recovery in world trade. Low stocks of diesel and fuel oil guarantee that demand for oil from refineries will remain high in the months ahead, especially if the forecast for a colder winter in the northern hemisphere materialises. A slight excess of current demand over output of oil is also evidenced by the slope of the futures curve, which implies an average Brent crude oil price of USD 55.5 a barrel for the rest of this year and

5 French annual GDP growth went up to 1.8% in Q2. Below-average economic growth persists in Italy, Belgium (1.5% in both countries) and Greece (0.8%).

6 However, wage growth was very mixed across the euro area countries. The Baltic states and Slovakia recorded the fastest growth (over 8% and 6.7% respectively). Wage growth reached 2.9% in Germany and 1.9% in France. In Italy and Spain it is still below 1%.

CHART II.1.4

EURO AREA GDP GROWTH OUTLOOK

Growth in economic activity in the effective euro area is peaking at its highest rates in five years and will then return towards 2%

(annual percentage changes; seasonally adjusted)

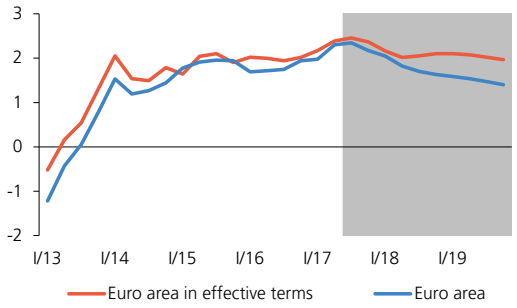


CHART II.1.5

PRICES OF CRUDE OIL AND OTHER COMMODITIES

The market curve for crude oil prices has a slight negative slope, whereas modest growth is expected for natural gas and food commodity prices

(oil in USD/barrel; other commodities: index [January 2013 = 100]; natural gas [Russian in Germany]; source: Bloomberg, IMF, CNB calculation)

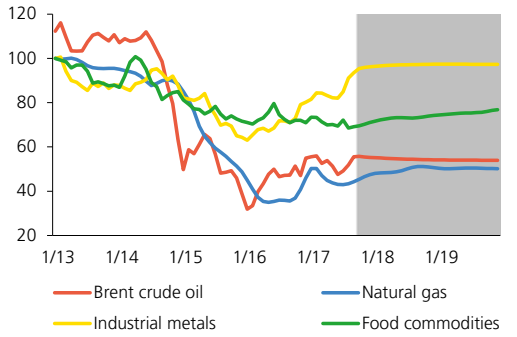
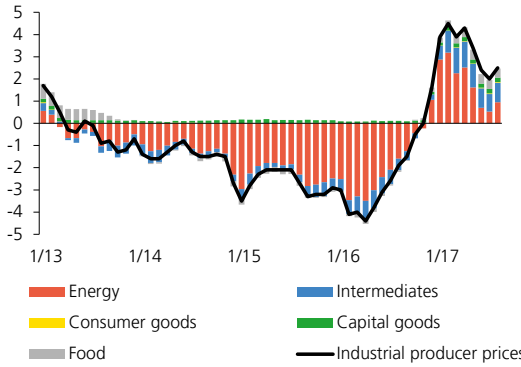


CHART II.1.6

INDUSTRIAL PRODUCER PRICES IN THE EURO AREA

Industrial producer price inflation went up slightly in August owing chiefly to the contributions of energy and intermediate goods prices

(annual percentage changes; contributions in percentage points; source: Eurostat, CNB calculation)



Note: Food prices including alcoholic beverages and tobacco; consumer goods excluding food.

CHART II.1.7

PPI IN THE EURO AREA

Growth in industrial producer prices will slow to zero by the start of 2018 and then rebound and accelerate above 2%
(year on year in %; seasonally adjusted)

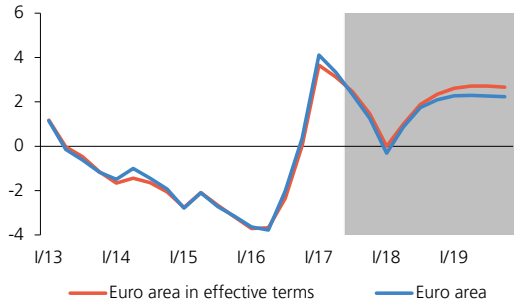
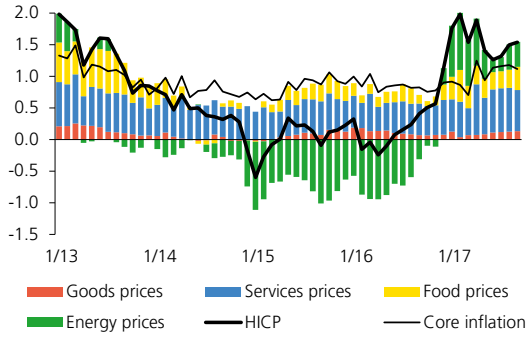


CHART II.1.8

INFLATION IN THE EURO AREA

Inflation has been driven in recent months by services prices amid a distinctly smaller contribution of energy prices
(annual percentage changes; contributions in percentage points; source: Eurostat, CNB calculation)

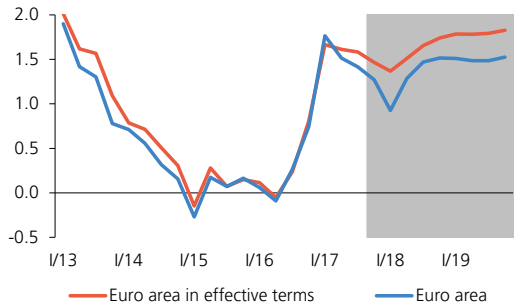


Note: Core inflation is calculated on the basis of the HICP excluding prices of energy, food, alcohol and tobacco.

CHART II.1.9

CONSUMER PRICE INFLATION OUTLOOK IN THE EURO AREA

Inflation will converge towards 2% over the forecast horizon, but will not have reached that level by the end of 2019
(HICP; year on year in %; seasonally adjusted)



slightly below that level next year. The market optimism is underpinned by signals that OPEC and other major producers are willing to extend their agreement to cut output until the end of 2018 or reduce production even more. At a WTI crude oil price of above USD 50 a barrel, however, US output can be expected to accelerate again. This creates a safeguard against more marked oil price growth.

The aggregate non-energy commodity price index has been rising since July, mainly because of a rise in the industrial metals price index. Prices of basic metals continue to be supported by favourable prospects for industrial activity (the J.P.Morgan Global Manufacturing PMI is at a 75-month high of 53.1) and the weaker dollar. However, the market outlook foresees no further strong increase in metal prices. By contrast, the food commodity price sub-index remains close to its lowest levels in many years (see Chart II.1.5). Although the weaker dollar is supporting higher demand in importing countries, high global stocks of most crops are preventing a sharper increase in prices. Nonetheless, the outlook for food commodity prices is gradually rising.

Euro area industrial producer price inflation went up in August, owing chiefly to faster growth in prices of energy and intermediate goods. It stood at 2.5% year on year (see Chart II.1.6). Adjusted for energy prices, it remained stable just above 2%. Producer price inflation also went up in the Czech Republic's main trading partner countries – Germany and Slovakia – to 2.4% and 2.8% respectively.

Growth in euro area industrial producer prices will slow to zero by the start of next year and then accelerate again (see Chart II.1.7). Following the recent marked year-on-year increase in oil prices, which was most visible in Q1, a relatively rapid unwinding is expected over the rest of this year. This is confirmed by the most recent observed data. Moreover, the effect of the annual slowdown in dollar prices of energy commodities is intensified by a stronger euro-dollar exchange rate. The average annual growth rate of producer prices in the effective euro area is therefore expected to reach just 1.3% next year and increase to 2.7% in 2019.

Consumer price inflation in the euro area edged up in Q3. It stood at 1.5% in both August and September (see Chart II.1.8), thus staying below the ECB's definition of price stability. The growth in consumer prices was due most of all to services prices, while the contribution of energy prices for households was distinctly smaller than at the start of this year. Core inflation fell slightly to 1.1% in September.

The effective indicator of consumer price inflation in the euro area will converge towards 2% at the end of the forecast horizon (see Chart II.1.9). From the second half of this year, inflation in the Czech Republic's main trading partner countries will be higher than in the rest of the euro area, so the effective inflation indicator will exceed the standard indicator for the euro area proper. According to analysts, the standard indicator will decline at the start of next year and then rise again to about 1.5%, which is still below the ECB's definition of price stability.

II.1.3 Financial developments abroad

According to the market outlook, the 3M EURIBOR interest rate will remain negative almost until the end of 2019 (see Chart II.1.10). The market outlook is in line with the analysts' predictions in the October CF, which expect this rate to be -0.3% at the three-month horizon and -0.2% at the 12-month horizon. According to the CF outlook, ten-year German government bond yields will increase further over the next two years (see Chart II.1.11). There was no change in the ECB's interest rates in the period under review. The ECB is meanwhile continuing its asset purchases at a net monthly pace of EUR 60 billion.[7] At its September meeting, however, the Governing Council discussed the extent and duration of its asset purchase programme. At the following meeting on 26 October 2017, it was announced that from January 2018 the net asset purchases would be reduced to EUR 30 billion a month and that the programme would continue for at least another nine months, i.e. until September 2018.

The rising path of the market outlook for the 3M USD LIBOR reflects expectations of a further tightening of the Fed's monetary policy (see Chart II.1.10). The US central bank left rates unchanged at its September meeting, but the dot plot of the Fed governors' outlooks clearly shows that most of them would support one more rate hike this year. On the back of favourable news from the labour market, the market-implied probability of a rate hike in December rose to 80%. In early October, the Fed initiated a balance-sheet normalisation programme in line with its previously announced plan. Total monthly reinvestments of yields on debt and covered securities before maturity will be reduced by USD 10 billion a month, with this amount being raised by a further USD 10 billion every three months until it reaches USD 50 billion. This was reflected in the expectations of the analysts surveyed in the October CF; the ten-year US government bond yield is expected to rise to 2.9% at the one-year horizon (see Chart II.1.11). The yield differential vis-à-vis German government bonds of the same maturity should thus stay close to 2 percentage points.

The CF outlook expects the euro-dollar rate to stay close to the current levels (see Chart II.1.12). The euro appreciated against the dollar in Q3, reaching its strongest level since January 2015 at the start of September (USD 1.2/EUR). This exchange rate trend reflected faster economic growth in the euro area, while in the USA concerns prevailed in connection with geopolitical tensions, uncertainty regarding an increase in the debt ceiling and the impacts of hurricanes on the US economy. The outlook for the nominal effective exchange rate of the euro against the currencies of the euro area's main trading partner countries is also broadly stable according to the CF forecast.

7 As in previous forecasts, this prediction takes into account the ECB's asset purchase programme through expert adjustments using shadow interest rates. These rates are currently about 1 percentage point lower than market rates. However, the difference gradually narrows over time to almost zero at the end of 2018.

CHART II.1.10

3M EURIBOR AND 3M USD LIBOR

According to market outlooks, a shift towards less negative interest rates in the euro area can be expected from 2018 H2; a further rise in interest rates is expected in the USA
(in %; differences in percentage points)

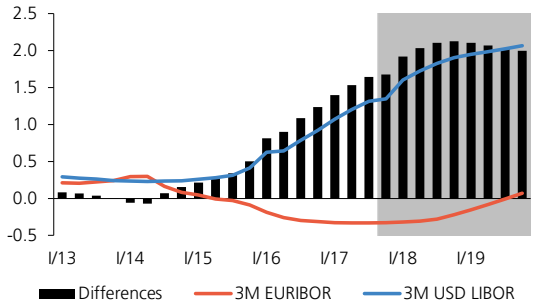


CHART II.1.11

10Y GOVERNMENT BOND YIELDS

The yield differential is expected to fluctuate around two percentage points amid growth in long-term yields in Germany and the USA
(in %; differences in percentage points)

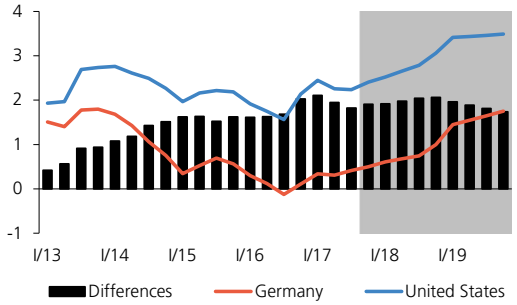
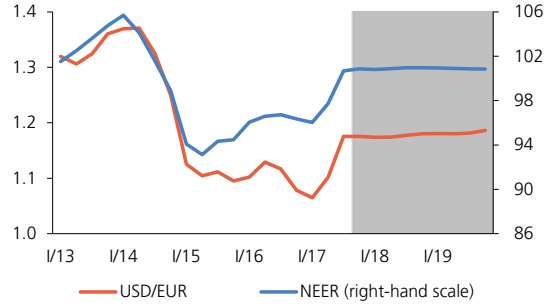


CHART II.1.12

EURO EXCHANGE RATE

The outlook for the euro-dollar exchange rate lies close to the current levels, i.e. just below USD 1.2 to the euro, until the end of 2019
(USD/EUR; NEER of euro against currencies of euro area countries' 18 main partners; 2012 Q1 = 100; right-hand scale)



II.2 THE FORECAST

The currently strong inflation pressures, stemming from faster growth of the domestic economy and wages, will ease gradually owing to a strengthening anti-inflationary effect of import prices. At the same time, the one-off price factors that increased inflation at the start of this year will subside. However, renewed growth in administered prices will help headline inflation stay above the 2% target for most of 2018. Inflation will be close to the target over the monetary policy horizon. The economy will be supported by stable growth in external demand, strong household consumption and a recovery in investment activity. Rising labour demand coupled with an increasingly distinct shortage of available labour will manifest itself in continued rapid wage growth. According to the forecast, the koruna will appreciate further, mainly due to a positive interest rate differential, quantitative easing by the ECB and long-term real convergence. Besides currency appreciation, a further increase in interest rates will help return inflation to the target, according to the forecast.

II.2.1 Inflation and monetary policy

Inflation will stay above the 2% target for most of 2018 and return to it at the monetary policy horizon (see Chart II.2.1). The higher inflation this year is mainly due to core inflation and food prices (see Chart II.2.2). Next year, headline inflation will remain in the upper half of the tolerance band. The currently peaking inflation pressures from the labour market will ease and the anti-inflationary effect of import prices will increase owing to subdued foreign prices and, above all, a strengthening of the koruna. By contrast, renewed growth in administered prices will foster higher inflation. Over the monetary policy horizon, i.e. in late 2018 and early 2019, inflation will slow and be at the 2% target on average. Monetary policy-relevant inflation, i.e. inflation adjusted for the first-round effects of changes to indirect taxes, will be very close to headline inflation.[8]

Core inflation will slow owing to a decline in import prices and an unwinding of one-off factors observed in late 2016 and early 2017. Non-tradables will continue to show rapid price growth. This growth has been increasing since the end of last year owing to inflation pressures from the domestic economy linked with accelerating wage growth. Core inflation will be affected next year by the next phases of the implementation of electronic sales registration (ESR) starting in March and June 2018. Their price impacts on core inflation of 0.2 percentage point will be roughly one-half that of the introduction of ESR in

TABLE II.2.1

FORECASTS OF SELECTED VARIABLES

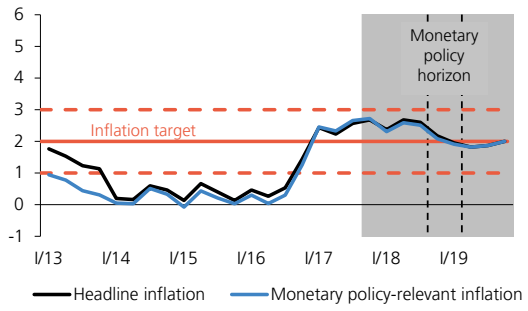
The overall economic outlook is positive
(annual percentage changes unless otherwise indicated)

	2016 actual	2017 forecast	2018 forecast	2019 forecast
Headline inflation	0.7	2.5	2.5	1.9
GDP	2.5	4.5	3.4	3.1
Average nominal wage	3.7	7.2	7.3	4.8
3M PRIBOR (in %)	0.3	0.4	0.9	2.0

CHART II.2.1

HEADLINE INFLATION AND MONETARY POLICY-RELEVANT INFLATION

Inflation will stay above the 2% target for most of next year and be close to it over the monetary policy horizon
(annual percentage changes)



8 The impact of indirect tax changes on headline inflation will be negligible, with increases in excise duty on tobacco products (in both 2017 and 2018) being broadly offset by a reduction in the VAT rate applying to restaurants and other catering facilities from 21% to 15% (effective 1 December 2016) coupled with a decrease in VAT on newspapers and magazines from 15% to 10% (effective 1 March 2017). The forecast assumes no changes to indirect taxes in 2019.

restaurants and cafés in December 2016. The contribution of the currently quickly rising imputed rent will decline owing to an expected slowdown in new apartment prices.[9] Growth in tradables prices within core inflation will be dampened by appreciation of the koruna and a temporary dip in foreign producer price inflation. Annual core inflation will thus be slightly above 2% in 2018 and stay there in 2019 (see Chart II.2.3).

Food price inflation will temporarily rise further but will ease markedly next year as growth in commodity prices subsides. Annual food price inflation will peak at 5% in October 2017 and then start to decline. On account of unwinding high growth rates of agricultural commodity prices, the forecast expects a further gradual decline in food price inflation (to 2%) in 2018 and a continuation of this trend in 2019 (see Chart II.2.3). Appreciation of the koruna will also foster lower price growth.

Fuel prices will decline slightly year on year over almost the entire forecast horizon (see Chart II.2.3). According to available indicators,[10] fuel prices increased only slightly in October 2017 compared to September. Their growth is expected to decrease gradually over the rest of this year, switching to a decline at the very end of the year. This will reflect appreciation of the koruna against the dollar amid broadly stable dollar prices of oil. A similar trend will continue over the next two years.

Administered prices will start rising again next year owing to renewed marked growth in electricity prices. The negative contributions of gas and heat prices to administered prices will weaken gradually and fully disappear in 2018 Q1. The other components of administered prices will rise at the current pace, so administered prices will be unchanged overall in 2017. Faster growth in electricity prices and renewed growth in heat and gas prices, along with continued growth in other prices, will foster an increase in administered prices of 1.8% on average next year (see Table II.2.2). Administered prices will maintain a similar pace of growth in 2019.

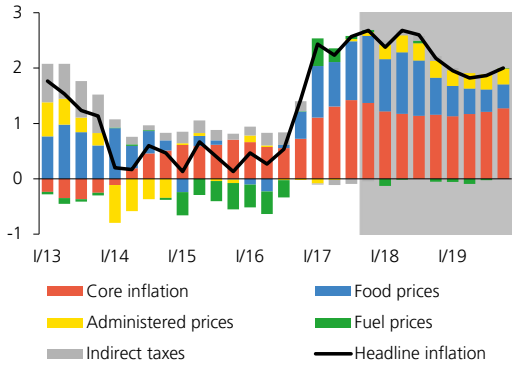
According to the forecast, the koruna will appreciate further, owing mainly to monetary policy being tightened sooner in the Czech Republic than in the euro area. The exchange rate forecast for 2017 Q4 takes into account the current situation in the foreign exchange market, which is being influenced by market overboughtness.[11] According to the forecast assumptions, market overboughtness will

9 This slowdown will be due to macroprudential policy measures leading to a tightening of credit conditions for new mortgages, a gradual increase in interest rates and a recovery in construction of new apartments.
10 CCS payment cards portal data and the CZSO's weekly surveys of fuel prices.
11 The market overboughtness is due to the large koruna positions of financial investors together with exchange rate risk hedging by exporters before the exit from the CNB's exchange rate commitment. Financial investors may close their positions as the koruna appreciates, thereby dampening the appreciation.

CHART II.2.2

STRUCTURE OF INFLATION AND THE INFLATION FORECAST

Core inflation and food prices will remain the main contributors to inflation; next year they will be joined by administered prices
(annual percentage changes; contributions in percentage points)



Note: Food prices also include prices of alcoholic beverages and tobacco. Indirect taxes relate to non-administered prices.

CHART II.2.3

COMPONENTS OF INFLATION

Food price inflation and core inflation will go down, due, among other things, to appreciation of the koruna
(annual percentage changes)

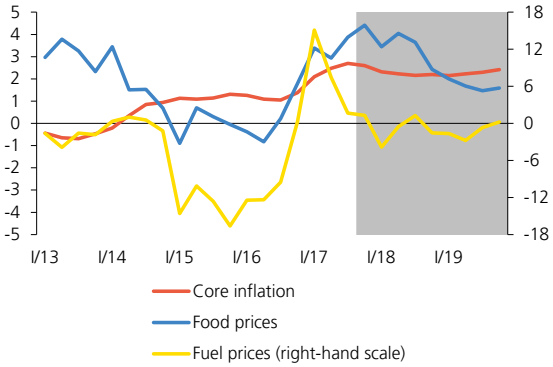


TABLE II.2.2

FORECAST OF ADMINISTRATIVE EFFECTS

Administered prices will be unchanged overall this year and will rise in the years ahead, driven by all components
(annual average percentage changes; contributions to headline inflation in percentage points)

	2016 actual		2017 forecast		2018 forecast		2019 forecast	
ADMINISTERED PRICES[a)]	0.2	0.03	0.0	0.00	1.8	0.30	1.7	0.28
of which (main changes):								
electricity	1.2	0.06	0.3	0.02	2.6	0.12	2.1	0.10
natural gas	-4.7	-0.13	-2.7	-0.08	0.4	0.01	0.3	0.01
heat	1.0	0.02	-1.7	-0.03	0.8	0.02	1.7	0.03
water	1.4	0.01	1.4	0.01	2.0	0.02	1.9	0.02
health care	3.6	0.04	4.7	0.05	4.0	0.04	2.4	0.03

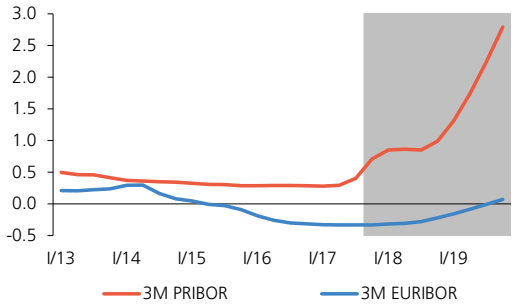
a) Including effects of indirect tax changes

continue to slow the pace of appreciation in 2018 Q1, but continued strengthening of the koruna is predicted for this quarter. The exchange rate will then firm further. This appreciation will be fostered by a positive interest rate differential vis-à-vis the euro area and continuing asset purchases by the ECB this year.[12] The koruna will also appreciate due to continued real convergence of the Czech economy to the euro area countries. However, the exchange rate forecast does not take into account (with the exception of the period up to 2018 Q1) that the appreciation may be significantly dampened even in the longer run by the closing of still massive positions by financial investors.

CHART II.2.4

INTEREST RATE FORECAST

Consistent with the forecast is a continued rise in domestic market interest rates, to 3% at the end of 2019
(percentages)



The return of inflation to the target will be fostered by further growth in interest rates in addition to appreciation of the koruna (see Chart II.2.4). Interest rates will return to their assumed long-run neutral level (i.e. 3% for the 3M PRIBOR) at the end of 2019. According to the forecast, until mid-2018, growth in interest rates will be slowed by continuing quantitative easing by the ECB, which will put appreciation pressure on the koruna. In 2019, by contrast, this return will be accelerated in the forecast by an implicit assumption that the ECB's interest rates will shift to equilibrium at a faster pace that year than suggested by the current market outlook.

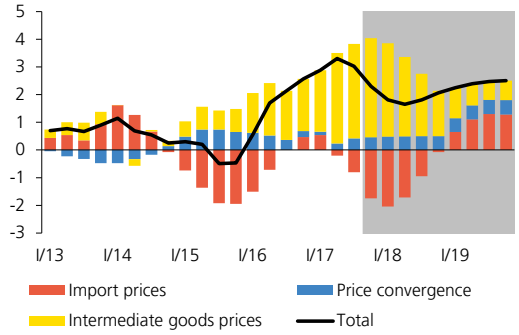
II.2.2 Costs and the labour market

The overall inflation pressures are currently peaking and will subsequently ease owing to a renewed anti-inflationary effect of import prices. Growth in total nominal marginal costs in the consumer goods sector probably reached its cyclical peak in 2017 Q2 (see Chart II.2.5). This was due mainly to strong pressures from the domestic economy. By contrast, import prices had a slight anti-inflationary effect due to appreciation of the koruna coupled with slower growth in foreign producer prices. The anti-inflationary effect of import prices will strengthen in the period ahead. The pressures from the domestic economy will intensify further over the rest of this year, driven by growing labour market tightness and accelerating economic growth. They will then start to decline slightly, but will continue to outweigh the anti-inflationary effect of import prices. The contribution of price convergence will be positive in the long run. As the contribution of import prices turns positive again in early 2019, growth in total nominal marginal costs will pick up pace again and stabilise just above 2%.

CHART II.2.5

COSTS IN THE CONSUMER SECTOR

The currently significant inflation pressures will ease, mainly reflecting anti-inflationary import prices
(nominal quarterly percentage changes; contributions in percentage points; annualised)



The currently strong inflation pressures, reflecting labour market developments and faster economic growth, will ease. Growth in domestic nominal marginal costs in the intermediate goods sector peaked in 2017 Q2, as did growth in total costs. This was due mainly to high nominal wage growth in market sectors and partly also to a rising price of capital, which reflects the evolution of overall economic activity and

12 However, the ECB's decision of 26 October 2017 (see section II.1) was not known at the time the forecast was prepared.

external demand in an upward phase of the cycle. The expected slowdown in domestic cost growth in 2017 Q3 takes into account a modest quarter-on-quarter weakening of wage growth accompanied by an upswing in labour efficiency. A gradual slowdown in wage growth and economic activity towards their long-term equilibrium levels, fostered also by a monetary policy tightening, will subsequently emerge. Cost growth will therefore slow, stabilising below 2% in 2019 (see Chart II.2.6). The risk of stronger and longer-lasting fundamental inflation pressures from the domestic economy, especially from the labour market, is captured in a sensitivity scenario in section II.4.

An increasing shortage of available labour force will cause employment growth to slow. Year-on-year employment growth will gradually decrease as from mid-2017 (see Chart II.2.7). The growing tightness in the labour market[13] connected with the now very low unemployment rate will be reduced only partly by growth in the labour force, which will continue to be fostered by a gradual increase in the statutory retirement age. Growth in economic activity will thus be reflected in employment to only a limited extent. In addition, growth in the number of employees converted into full-time equivalents will gradually slacken. This will be due to gradually slowing growth in the number of employees, which will be only partly offset by a modest cyclical increase in average hours worked. However, this increase will be dampened by the long-running upward trend in the share of part-time work.

The now very low unemployment rate is preventing unemployment from falling significantly further. The general unemployment rate will thus go down only slightly, reaching 2.6% in 2019 (see Chart II.2.7). The forecast also expects a decline in the share of unemployed persons. This will reflect a continued decrease in the number of registered job applicants amid a gradual decline in the population aged 15–64.

The tightness in the labour market will keep wage growth in market sectors at elevated levels. The faster wage growth in market sectors recorded in 2017 H1 was due to several factors, in particular robust growth in economic activity accompanied by an increasing shortage of available labour force and a further increase in the minimum wage at the start of 2017. The effect of these factors will continue, leading to wage growth in market sectors of just below 8% in late 2017 and early 2018 (see Chart II.2.8). At the beginning of 2018, it will be boosted by a further increase in the minimum wage.[14] Wage growth in market sectors will later slow gradually to close to its assumed long-term level, due, among other things, to tightening monetary conditions. At the

13 This topic is discussed in more detail in the box presenting a composite labour market indicator in section III.3.

14 The minimum wage will be increased from CZK 11,000 to CZK 12,200 in January 2018. This will foster an increase in average wage growth in market sectors of around 0.4 percentage point.

CHART II.2.6

COSTS IN THE INTERMEDIATE GOODS SECTOR

Domestic costs will continue to rise, albeit at a slower pace than at present, on the back of wage growth and a rising price of capital amid an upswing in labour efficiency

(nominal quarterly percentage changes; contributions in percentage points; annualised)

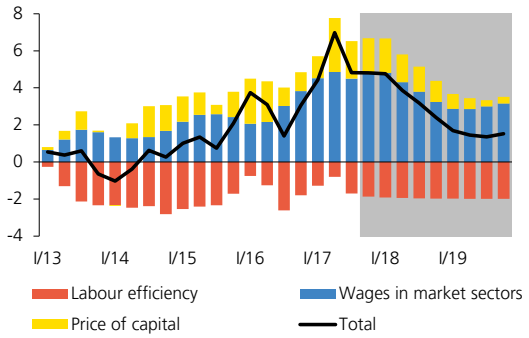


CHART II.2.7

LABOUR MARKET FORECAST

Total employment will continue to rise, although at a substantially slower pace than before, while the decline in the unemployment rate will come to a halt

(annual percentage changes in employment; general unemployment rate in percentages; seasonally adjusted)

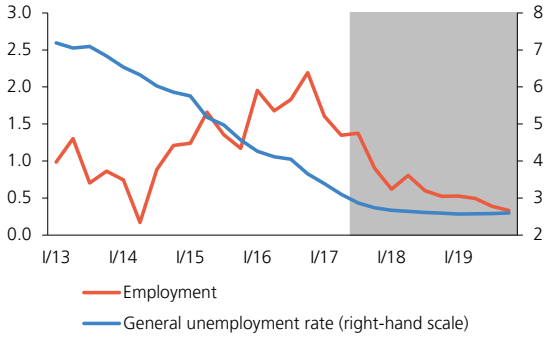


CHART II.2.8

AVERAGE NOMINAL WAGES

Wage growth will pick up further in market and non-market sectors, peaking in early 2018

(annual percentage changes; total wages – source: CZSO; wages in market and non-market sectors – source: CNB calculation)

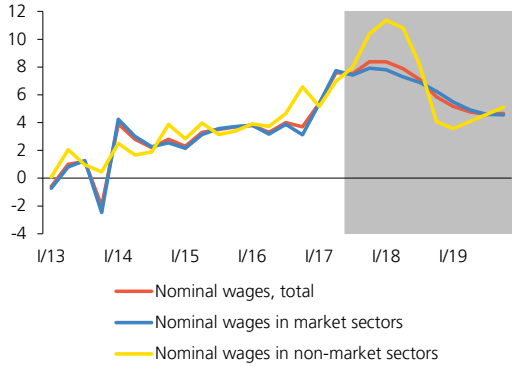


CHART II.2.9

ANNUAL GDP GROWTH STRUCTURE

Household consumption and investment will contribute to GDP growth over the entire forecast horizon; the contribution of net exports will be temporarily negative

(annual percentage changes; contributions in percentage points; seasonally adjusted)

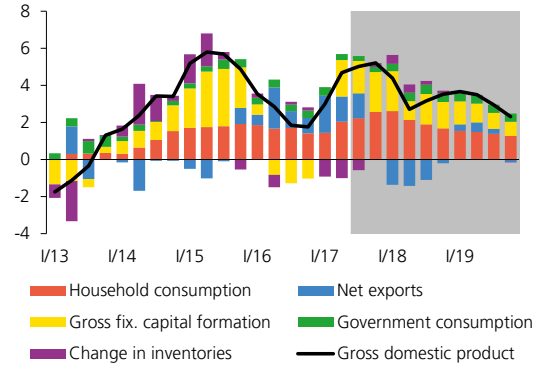


CHART II.2.10

REAL HOUSEHOLD AND GOVERNMENT CONSUMPTION

Household consumption growth will peak in late 2017 and early 2018; real government consumption will increase more gradually

(annual percentage changes; seasonally adjusted)

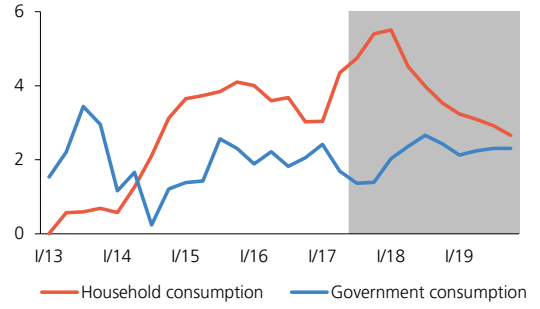
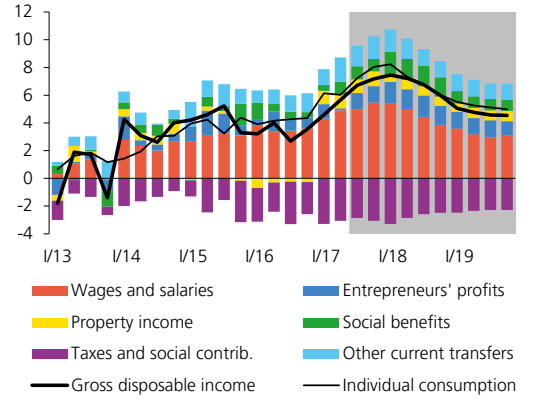


CHART II.2.11

NOMINAL DISPOSABLE INCOME

The high growth in disposable income will be a result of substantial growth in wages and salaries and other income

(annual percentage changes; contributions in percentage points)



Note: Entrepreneurs' profits comprise gross operating surplus and mixed income.

same time, the forecast expects strong wage growth in non-market sectors. This reflects a wage increase in July 2017[15] and another pay rise in November 2017. According to the draft state budget, teachers' pay will rise by 15% and remaining public sector wages by 10%. This will lead to a more than 10% increase in wages in non-market sectors in 2017 Q4. Once this effect fades out in mid-2018, wage growth in this part of the economy will slow significantly, fluctuating mostly below 5%.

II.2.3 Economic activity

GDP growth will rise to 4.5% this year and slow slightly to just above 3% in the following years. The increase in domestic economic activity will be driven mainly by continued robust growth in household consumption, reflecting persisting consumer optimism in an environment of high growth in wages and salaries. It is currently also being fostered by the still low interest rate level, which, however, will gradually increase. Increased drawdown of EU funds and solid growth in private investment will be reflected in growth in gross capital formation. On the other hand, appreciation of the koruna – together with faster growth in domestic demand – will have a downward effect on the contribution of net exports, which will turn negative in 2018 (see Chart II.2.9).

The strong household consumption growth will reflect a continued rise in wages and salaries and other income. Annual household consumption growth will pick up further in the second half of 2017, reaching 5.5% at the start of 2018 (see Chart II.2.10). Household expenditure will be driven by a further increase in disposable income growth connected with rising wages and salaries and increasing income of entrepreneurs (see Chart II.2.11). Pensions and social benefits will also increase. Consumption growth will slow next year and average 3% in 2019. This will reflect gradually slowing growth in wage income amid rising interest rates.

Government consumption will continue to grow, mainly due to wage growth in the government sector. Its pace will accelerate above 2% next year and stay there in 2019 (see Chart II.2.10). Nominal government consumption will be driven mainly by a sizeable increase in compensation of employees in the government sector at the end of this year, but will be reduced significantly in real terms by an increase in the government consumption deflator.

Growth in gross capital formation will accelerate further owing to government investment. The switch of investment to positive growth in 2017 Q2 was fostered mainly by private investment, amid an unwinding of the fall in government investment. The contribution of private investment will decrease modestly in the coming quarters, but will remain solid over the entire forecast horizon (see Chart II.2.12). Its

15 An increase in wages of nurses and members of the security forces and the abolition of the lowest wage levels in cultural and social services.

growth will be boosted by steady growth in external demand. By contrast, interest rates will increase gradually and dampen growth in private investment. However, gross fixed capital formation growth will be affected mainly by government investment. It will pick up significantly in the second half of 2017 and early 2018 due to higher drawdown of EU funds. Total investment will grow at an average rate of 3% in 2017 as a whole and accelerate above 7% in 2018. Government investment growth will not be as high in 2019, so growth in total investment will slow again. The contribution of additions to inventories will be negative overall this year and slightly positive next year.

Growth in exports of goods and services will increase on the back of growth in external demand. According to the forecast, the pick-up in its pace observed in the first half of this year will continue into Q3, mainly reflecting the outlook for external demand. A hampering effect of the appreciating exchange rate on exports will be apparent in late 2017 and early 2018, although it will be reduced and delayed by hedging against exchange rate risk by some exporters. Exports of goods and services will thus grow by 6%–8% this year and in the following two years (see Chart II.2.13).

The upswing in exports and aggregate domestic demand will result in a further increase in import growth. It will be driven mainly by surging investment and exports, which are strongly import-intensive. It will also reflect robust household consumption. Overall, imports of goods and services will grow by 7% in 2017 and pick up slightly further in the following two years (see Chart II.2.13).

Net exports will make a positive contribution to GDP growth this year and a negative one in 2018 due to a recovery in investment and appreciation of the koruna. The positive contribution of net exports has been decreasing this year and will fade out completely at the end of the year according to the forecast. It will turn distinctly negative next year as imports outpace exports. This will be due largely to growth in import-intensive investment activity, especially in the private sector, along with accelerating household consumption. The positive contribution of net exports to annual GDP growth will thus be around 1 percentage point in 2017 as a whole. It will conversely be negative to a similar extent in 2018 and return to slightly positive levels in 2019.

II.2.4 The balance of payments

The current account surplus will fall slightly this year compared to 2016 due to growth in the primary and secondary income deficits. The current account surplus will total CZK 45 billion (see Table II.2.3), or 0.9% of GDP. The trade balance will be virtually unchanged. The services surplus will increase slightly, due mainly to a rise in credits from other services and an improved transportation services balance. Growth in the primary income deficit (a deterioration in the investment income balance) and in particular the secondary income deficit (a combination of a fall in income from EU funds and a rise in other transfers abroad) will have the opposite effect on the current account.

CHART II.2.12

INVESTMENT DECOMPOSITION

Growth in investment will accelerate as a result of renewed drawdown of EU funds in the government sector
(annual percentage changes; contributions in percentage points; constant prices)

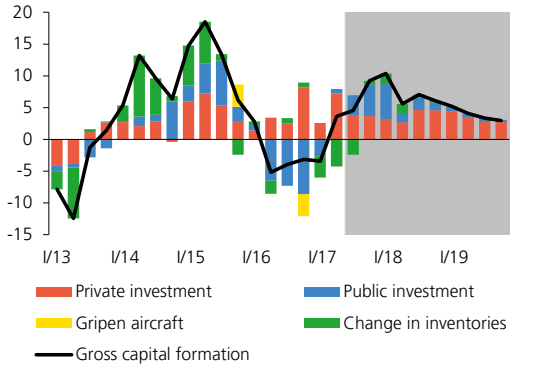


CHART II.2.13

REAL EXPORTS AND IMPORTS

Growth in both exports and imports will rise, reflecting the positive external demand outlook on the one hand and strengthening domestic demand on the other
(annual changes in per cent and CZK billions; seasonally adjusted)

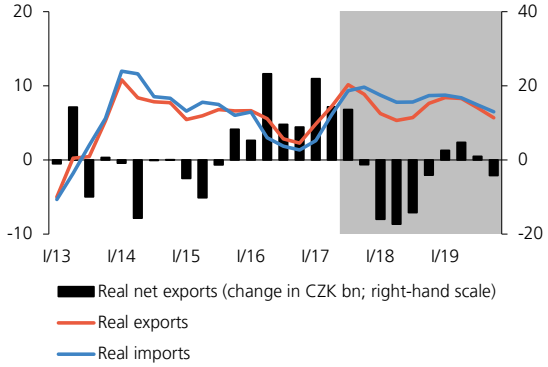


TABLE II.2.3

BALANCE OF PAYMENTS FORECAST

The current account surplus will be roughly at the previous year's level in 2017–2019
(CZK billions)

	2016 actual	2017 forecast	2018 forecast	2019 forecast
A. CURRENT ACCOUNT	52.6	45.0	55.0	50.0
Goods	250.6	250.0	255.0	260.0
Services	101.1	115.0	120.0	125.0
Primary income	-271.8	-280.0	-290.0	-300.0
Secondary income	-27.3	-40.0	-30.0	-35.0
B. CAPITAL ACCOUNT	53.5	25.0	30.0	30.0
C. FINANCIAL ACCOUNT[a)]	117.7	945.0	-60.0	15.0
Direct investment	-141.0	-140.0	-80.0	-75.0
Portfolio investment	-169.4	-290.0	-125.0	-60.0
Financial derivatives	11.3	-	-	-
Other investment	-146.7	75.0	50.0	50.0
Reserve assets	563.5	1300.0	95.0	100.0

a) forecast excluding operations of banking sector and financial derivatives

The forecast expects the current account surplus to increase slightly next year. The surplus will rise to 1% of GDP. The goods surplus will increase modestly as a result of expected positive price effects (an improvement in the terms of trade in the engineering category and a slight decline in oil prices). The services surplus will also rise somewhat, mainly on account of a higher other services surplus. The secondary income deficit will meanwhile decrease due to higher net drawdown of EU funds. The rise in the current account surplus will be moderated by a still increasing primary account deficit. It will result from growth in the direct investment income deficit.

A current account surplus only slightly below the 2018 level is forecasted for 2019. A further improvement in the goods and services balance will be dampened by the previous appreciation of the koruna (amid a fading effect of above-average exchange rate hedging by exporters before the exit from the exchange rate commitment) and continued rapid growth in domestic demand. However, a modest fall in energy commodity prices will slightly outweigh these factors. A lower current account surplus will be fostered by rising direct investment earnings of non-residents and also by a widening of the secondary income deficit due to a rise in in other transfers abroad.

The capital account surplus will continue to be affected mainly by the EU funding cycle. This surplus will fall sharply this year, increase next year with the start of the inflow from the new programme period, and stay at the same level in 2019.

The financial account has been affected this year by the strong inflow of short-term capital observed before the exchange rate commitment was ended. It was channelled mainly into Czech government bonds and koruna bank deposits. Future growth in foreign investors' government bond holdings will be substantially lower given their already large positions and the expected only slight increase in total government debt.

The net inflow of direct investment will stay at last year's high level this year, but its structure will change. The share of reinvested earnings in the total net inflow will rise quite significantly, at the expense of financial operations linked with a net transfer of funds to the Czech Republic. The net inflow of portfolio investment will continue to be affected mainly by a positive koruna-euro interest rate differential, the ECB's quantitative easing and the expected appreciation of the koruna. These factors will dampen residents' interest in investment abroad while maintaining non-residents' interest in domestic debt securities. The forecast also incorporates expected banking sector accounting operations aimed at optimising contributions to the Resolution Fund.[16] Turning to other investment, the net outflow of capital from the corporate sector,

16 These operations are recorded on the other banking sector investment account in the same amount but with the opposite sign.

which reached a record level last year, is expected to slow. The extraordinarily high growth in reserve assets this year is due to the now discontinued foreign exchange interventions under the exchange rate commitment. To a much lesser extent, it is being driven by returns on international reserves and net operations vis-à-vis the EU budget.

The financial account trends over the next two years will be similar to those seen in 2017 H2. The net inflow of direct investment will drop below the reinvested earnings surplus due to an expected decrease in the inflow of capital under credit relationships. The net inflow of portfolio investment will gradually ease considerably, mainly as a result of slower growth in non-residents' government bond holdings. The inflow of debt capital will be supported by a rising positive differential between domestic and euro area interest rates. That differential will also foster a reduction in the net outflow under other investment in the business sector. The forecasted sharp slowdown in growth of reserve assets compared with 2017 is due solely to the discontinuation of interventions; the remaining items, i.e. returns on reserves and net operations vis-à-vis the EU, will rise.

II.2.5 Fiscal developments

The increasing government budget surpluses reflect an increase in tax revenues due to continued economic growth and government measures. The general government surplus will reach 1.4% of GDP this year and will remain at a similar level in the next two years (see Table II.2.4). On the expenditure side, this increase will be aided by a further drop in debt service costs. The general government revenue side is being bolstered by last year's introduction of VAT control statements, the roll-out of ESR and a further rise in excise duty on cigarettes. Faster public sector wage growth, an increase in expenditure on pensions and health care and renewed growth in government investment will have the opposite effect on the government surplus. The tax discounts for "green diesel" and dependent children will also increase. Growth in social spending will rise in 2018 due to the launch of a more generous pension indexation scheme and a package of new social measures.[17] The revenue side will be affected slightly negatively by an increase in the tax discount for dependent children.

The above developments will be reflected in a further increase in the general government structural surplus and a drop in government debt. The general government structural surpluses will amount to around 1% of GDP. The medium-term objective of a structural deficit of 1% of GDP will thus be comfortably met at the forecast horizon. Government debt will gradually decline to just below 30% of GDP in 2019 owing to the general government primary

TABLE II.2.4

FISCAL FORECAST

The government sector balance will remain in surplus; the surplus will rise further this year
(% of nominal GDP)

	2016 actual	2017 forecast	2018 forecast	2019 forecast
Government revenue	40.1	40.7	41.0	40.8
Government expenditure	39.4	39.3	39.5	39.3
of which: interest payments	0.9	0.8	0.7	0.6
GOVERNMENT BUDGET BALANCE	0.7	1.4	1.4	1.5
of which:				
primary balance[a)]	1.7	2.2	2.1	2.1
one-off measures[b)]	0.0	0.1	0.0	0.1
ADJUSTED BUDGET BALANCE[c)]	0.7	1.3	1.4	1.4
Cyclical component (ESCB method)[d)]	0.0	0.4	0.5	0.3
Structural balance (ESCB method)[d)]	0.7	1.0	0.9	1.1
Fiscal stance in pp (ESCB method)[e)]	0.9	0.3	-0.1	0.2
Cyclical component (EC method)[d)]	-0.3	0.1	0.3	0.3
Structural balance (EC method)[d)]	1.0	1.3	1.1	1.1
Fiscal stance in pp (EC method)[e)]	1.2	0.3	-0.1	-0.1
GOVERNMENT DEBT	36.8	33.8	31.5	29.7

a) government budget balance minus interest payments
b) This item consists of expected revenue from sales of emission permits, expenditure on the (New) Green Savings Programme, guarantees, and revenue from the sale of frequency bands to mobile operators.
c) adjusted for one-off measures; CNB estimate
d) CNB estimate
e) year-on-year change in structural balance

17 These include higher sick pay, the introduction of paternity leave and carer's leave, higher child allowances, accelerated parental allowance and higher foster care benefits. The budgetary impact of these measures amounts to 0.25% of GDP.

surpluses, still low interest rates on government debt and relatively buoyant nominal GDP growth.

Fiscal policy will be expansionary this year and the next (see Table II.2.5). This year's distinctly positive fiscal policy contribution to economic activity of 0.4 percentage point is related mainly to a recovery in government investment growth after last year's slump and to a lesser extent to support for household consumption. The forecast expects a positive fiscal impulse at the same level for next year, when fiscal expansion will materialise to a greater extent through household consumption. In addition to continuing buoyant growth in public sector pay, this will be driven by a package of new social measures. The fiscal impulse will be neutral overall in 2019.

TABLE II.2.5

FISCAL IMPULSE

The fiscal impulse will be distinctly positive this year and the next, due to a recovery in government investment and the support of household consumption
(contributions to GDP growth in percentage points)

	2016 actual	2017 forecast	2018 forecast	2019 forecast
FISCAL IMPULSE	-1.1	0.4	0.4	0.0
of which impact through:				
private consumption	0.0	0.1	0.3	0.0
private investment	-0.1	-0.1	0.0	0.0
government investment, domestic	-0.2	0.1	0.1	0.0
government investment, EU funded	-0.8	0.2	0.1	0.0

II.3 COMPARISON WITH THE PREVIOUS FORECAST

The domestic economy will have a more inflationary effect than in the previous forecast. This will be due to much higher growth in economic activity and faster growth in wages. Coupled with a higher outlook for administered prices, this has led to the new inflation forecast shifting upwards. The exchange rate of the koruna against the euro will appreciate rather more smoothly than in the previous forecast, but the final level will be roughly the same. Owing to a greater accumulation of pressures from the domestic economy, the forecast is also leading to higher interest rates in late 2017 and early 2018 compared to the previous forecast.

In the outlook for foreign variables, growth in economic activity in the euro area has been revised upwards. This primarily concerns this year, for which the outlook for GDP in effective terms is 0.4 percentage point higher than in the previous forecast (see Chart II.3.1).[18] This shift takes into account the solid growth in economic activity observed in the euro area in 2017 H1. Leading indicators in manufacturing in the euro area and Germany, which are continuing to improve markedly after a brief slowdown in July, are also indicating higher growth this year. The positive economic sentiment is also reflected in the outlook for the exchange rate of the euro against the US dollar, which is 4% stronger on average over the entire horizon compared to the previous forecast. Coupled with the latest data, this has lowered the outlook for producer prices in the euro area this year by 0.4 percentage point. By contrast, faster growth in producer prices is expected at the end of the forecast period due to a resurgence of fundamental inflation pressures and growth in oil prices, whose market outlook has shifted upwards by USD 3 a barrel on average. The implied 3M EURIBOR path has shifted slightly lower over the entire forecast horizon.

The domestic economic growth forecast for this year has shifted markedly higher (see Chart II.3.2). This revision is due primarily to an upswing in household consumption, which has been increased in line with the observed data and with stronger forecasted growth in wages and salaries. The contribution of gross capital formation will also be higher, especially in the private investment component. The GDP growth forecast for 2018 and 2019 is little changed from the previous forecast, as faster growth in aggregate domestic demand is largely offset by a lower contribution from net exports.

The much faster observed growth in wages compared to the previous forecast will continue (see Chart II.3.3). The stronger wage growth will be driven by more robust economic growth and a higher external demand outlook. Overall, domestic inflation pressures will be

18 The differences in the past are due to a change in the methodology for calculating the effective indicators, a significant revision of German GDP and seasonal adjustment.

CHART II.3.1

EFFECTIVE GDP IN THE EURO AREA

The external demand outlook has shifted upwards due to higher observed levels and positive leading indicators
(annual percentage changes; differences in percentage points – right-hand scale; seasonally adjusted)

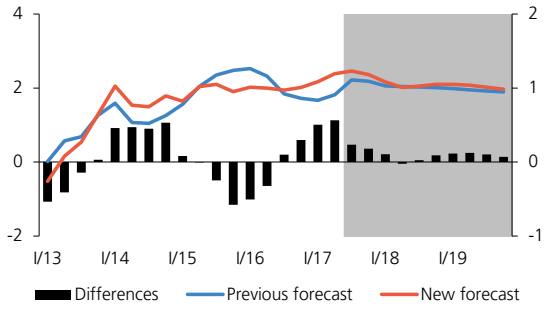


CHART II.3.2

CHANGE IN THE GDP FORECAST

The Czech GDP growth forecast is higher this year and almost unchanged over the longer horizon
(annual percentage changes; differences in pp – right-hand scale; seasonally adjusted)

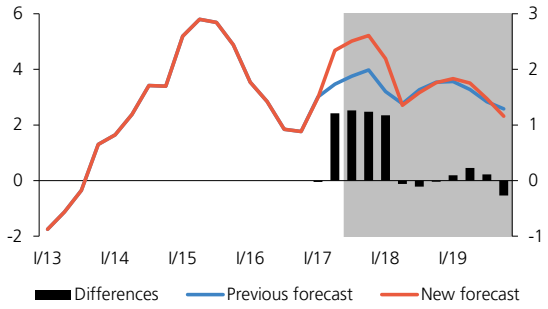
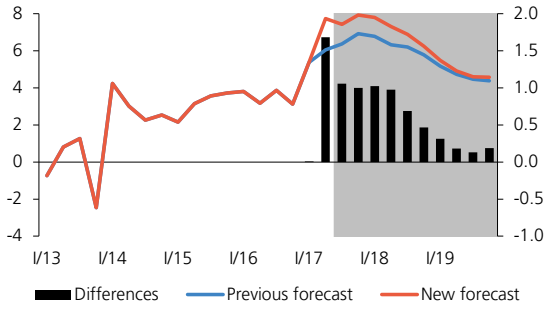


CHART II.3.3

CHANGE IN THE FORECAST FOR NOMINAL WAGES IN MARKET SECTORS

Along with higher GDP growth, unexpectedly fast wage growth in Q2 contributed to an increase in the wage forecast
(annual percentage changes; differences in pp – right-hand scale; seasonally adjusted)



stronger than in the previous forecast both for the rest of this year and throughout next year.

The overall inflation pressures and hence also the inflation forecast have been revised upwards (see Chart II.3.4). The overall inflation pressures reflect currently higher growth in domestic costs, in particular faster nominal wage growth in an environment of more robust economic activity. The stronger inflationary effect of the domestic economy will persist in the short term, but with a slightly stronger anti-inflationary effect of import prices than in the previous forecast. This will be due to more subdued growth in foreign industrial producer prices. This reflects a stronger exchange rate of the euro against the dollar, which outweighs the increase in the oil price outlook. The forecast for administered prices has been revised upwards due mainly to a higher outlook for electricity prices. Coupled with stronger domestic fundamental pressures, this has raised the prediction for headline inflation at the end of this year and in 2018. The headline inflation forecast for 2019 is unchanged. The assumptions regarding indirect tax changes are the same, so the outlook for monetary policy-relevant inflation has been revised to the same extent as that for headline inflation.

The forecasted exchange rate of the koruna appreciates more slowly in the next two quarters and is then roughly at the level of the previous forecast. The revision of the exchange rate outlook in the short term is due mainly to continued overboughtness of the koruna market, which the forecast takes into account in 2017 Q4 and also partly in 2018 Q1. Higher economic activity exerting appreciation pressures on the koruna-euro exchange rate this year acts in the opposite direction.

The path of market interest rates in the coming quarters has shifted upwards compared to the previous forecast (see Chart II.3.5). The faster rise in interest rates in late 2017 and early 2018 compared to the previous forecast is due to a greater accumulation of inflation pressures from the domestic economy, especially from the overheating labour market. The growth in domestic interest rates is therefore smoother despite the same estimate of the dampening effect of the ECB's quantitative easing.

CHART II.3.4

CHANGE IN THE HEADLINE INFLATION FORECAST

The higher forecast for headline inflation next year is due to stronger pressures from the domestic economy, especially wages

(year on year in %; differences in pp – right-hand scale)

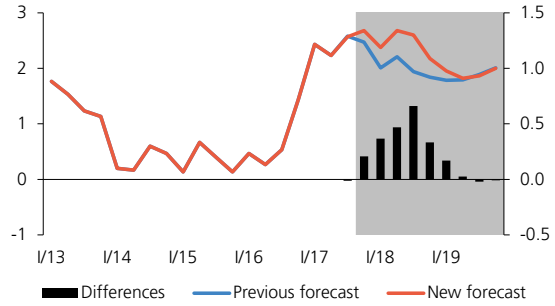
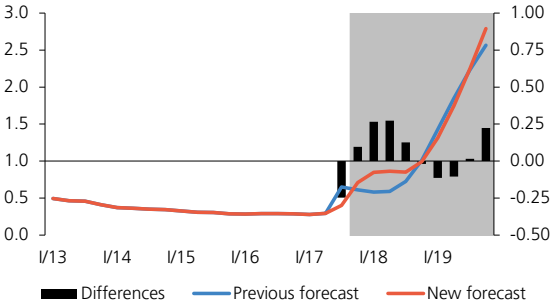


CHART II.3.5

CHANGE IN THE INTEREST RATE PATH

The growth in market interest rates is smoother than in the previous forecast

(3M PRIBOR in %; differences in pp – right-hand scale)



II.4 RISKS AND UNCERTAINTIES OF THE FORECAST

At its November meeting, the Bank Board assessed the risks to the inflation forecast at the monetary policy horizon as being slightly inflationary. Several risks were identified during the preparation of the forecast, risks which the Bank Board subsequently agreed with. The first one is the path of the exchange rate, which may appreciate at a slower rate than forecasted in the next few quarters due to overboughtness of the koruna market. A risk in this regard is also signalled by the outlooks of other entities, which expect a weaker exchange rate than the CNB forecast at the one-year horizon amid slightly higher interest rates and the same inflation outlook. The strength, composition and persistence of fundamental inflation pressures from the domestic economy are also an inflationary risk to the forecast. This risk is described in a sensitivity scenario of higher domestic inflation pressures, manifesting themselves mainly as faster and more persistent wage growth. Moreover, there is uncertainty about real economic activity in 2017 H2 following its unexpectedly rapid growth in Q2, especially in the investment component.

II.4.1 Risks perceived by the CNB

The path of the exchange rate and the strength of domestic fundamental inflation pressures represent significant risks to the forecast. The exchange rate could appreciate more slowly than forecasted in the coming quarters. This is due to the absence of a counterparty for the closing of koruna positions by financial investors in a situation where many domestic exporters hedged against exchange rate risk before the exit, thereby in fact selling their export revenues in advance. A risk regarding the strength and persistence of fundamental inflation pressures from the domestic economy was also identified during the preparation of the forecast. Although the forecast assesses the inflation pressures as strong, a sensitivity scenario prepared by the CNB assumes stronger domestic inflation pressures than the forecast over the entire horizon, especially from the labour market.

Future growth in both private and government investment is another uncertainty of the forecast. In the case of private investment, there is uncertainty associated with its unexpected sharp upswing in 2017 Q2, which was due in large part to adjustments for seasonal and calendar effects. The forecast therefore partly reduces its observed rapid growth over the next few quarters, but the uncertainty about its future evolution (including its impacts on labour productivity and inflation pressures) is higher than usual. As for government investment, there is a risk that it might be deferred.

The sensitivity scenario of higher domestic inflation pressures describes the impacts of stronger and longer-lasting pressures from the labour market. The baseline forecast scenario assesses growth in domestic costs as strong, mainly due to the overall labour market situation and accelerating economic growth. However, the domestic cost pressures soon abate in the forecast, partly due to faster growth in labour

efficiency and later also to gradually slowing wage growth. The sensitivity scenario assumes a stronger increase in labour market tightness, which will result in faster wage growth than in the baseline scenario (above 8% next year). Moreover, the wage growth is not accompanied by a commensurate rise in labour productivity growth in the sensitivity scenario, thus generating stronger cost pressures in the short term than in the baseline scenario. The sensitivity scenario also assumes that the tighter labour market will cool more slowly and foster higher wage growth in the longer run as well. Compared to the baseline scenario, monetary policy thus faces stronger and longer-lasting fundamental domestic cost pressures (part of which, moreover, it cannot – according to the assumption of the scenario – identify in advance).

The monetary conditions in the sensitivity scenario need to be tightened more in both components to ease the overall inflation pressures. The growing cost pressures from the labour market will be reflected in a gradual upswing in inflation, which is higher than in the baseline scenario and thus remains slightly above the target over the monetary policy horizon as well. To prevent growth in market prices from accelerating further, the monetary conditions must be tightened more significantly. Interest rates thus rise distinctly faster than in the baseline scenario. The higher interest rates support faster exchange rate appreciation, which dampens the growth in overall costs via a more anti-inflationary effect of import prices. The stronger exchange rate also curbs growth in exports, and the tighter monetary conditions coupled with subdued labour productivity cause household consumption growth to slow. The slower growth in economic activity subsequently contributes to a gradual calming of the labour market situation. Table II.4.1 shows the impacts on selected domestic variables.

The Bank Board assessed the risks to the inflation forecast at the monetary policy horizon as being slightly inflationary. In line with the view of the Monetary Department, the path of the exchange rate and the strength, composition and persistence of fundamental inflation pressures from the domestic economy were identified as risks to the forecast in this direction. According to the Bank Board, the low-inflation environment abroad represents an anti-inflationary factor for the Czech economy. However, the effect of the external environment is not sufficient to offset the domestic inflationary pressures.

II.4.2 Risks signalled by other entities' forecasts

Analysts' inflation expectations are anchored close to the CNB's 2% target. Inflation forecasted by financial market analysts is currently just above 2% at the one-year horizon and exactly at this level at the three-year horizon. The inflation expectations of business managers at the one-year horizon, which had been below the target for an extended period, returned to the target in September (see Table II.4.2).

The indicator of inflation perceived by households increased slightly further. This indicator was negative for a long time, but has been positive for four consecutive months now. This suggests that

TABLE II.4.1

HIGHER DOMESTIC INFLATION PRESSURES SENSITIVITY SCENARIO

The monetary conditions in the sensitivity scenario need a stronger tightening in both the interest rate and exchange rate components compared to the baseline scenario, but inflation remains higher
(deviations from baseline scenario paths)

	CPI inflation (in pp)	3M PRIBOR (in pp)	Nominal exch. rate (CZK/EUR)	Nominal wages (in pp)
IV/17	0.0	0.3	0.0	0.2
I/18	0.1	0.6	-0.3	0.8
II/18	0.1	0.9	-0.4	1.2
III/18	0.2	1.1	-0.5	1.6
IV/18	0.3	1.2	-0.5	1.6
I/19	0.4	1.2	-0.5	1.2
II/19	0.4	1.3	-0.6	1.1
III/19	0.3	1.3	-0.6	0.9
IV/19	0.3	1.4	-0.5	0.7

TABLE II.4.2

EXPECTED INDICATORS OF FMIE, CF AND CORPORATIONS

The analysts' inflation expectations are close to the CNB's 2% target at both the one-year and three-year horizons; they believe that economic growth will exceed 4% this year and slow next year
(at 1Y; annual percentage changes unless otherwise indicated)

	6/17	7/17	8/17	9/17	10/17
FMIE:					
CPI	2.1	2.1	2.1	2.2	2.2
CPI, 3Y horizon	2.0	2.0	2.0	2.0	2.0
Real GDP in 2017	2.8	2.9	3.3	4.1	4.2
Real GDP in 2018	2.7	2.7	2.9	3.1	3.1
Nominal wages in 2017	4.9	5.1	5.7	6.5	6.6
Nominal wages in 2018	4.6	4.6	5.1	5.9	6.2
CZK/EUR exchange rate (level)	25.8	25.6	25.5	25.4	25.2
2W repo rate (in per cent)	0.40	0.57	0.64	0.87	1.08
1Y PRIBOR (in per cent)	0.9	1.0	1.1	1.3	1.4
Corporations:					
CPI	1.8			2.0	
CPI, 3Y horizon	2.4			2.5	
CF:					
Real GDP in 2017	2.8	2.9	3.0	4.0	4.2
Real GDP in 2018	2.6	2.6	2.7	3.0	3.1
Nominal wages in 2017	5.0	5.2	5.5	6.3	6.8
Nominal wages in 2018	4.8	4.9	5.1	5.8	6.4
CZK/EUR exchange rate (level)	25.9	25.8	25.8	25.7	25.5
3M PRIBOR (in per cent)	0.6	0.7	0.8	1.0	1.1

households overall felt that prices rose, albeit not very strongly, in the last 12 months (see Chart II.4.1). The indicator of expected inflation has long been positive, signalling that the respondents who expect prices to rise more rapidly over the next 12 months slightly outnumber those who expect prices to stay the same or increase more slowly than they did previously.

The analysts expect the Czech economy to show growth of over 4% this year and to slow down next year (see Table II.4.2). The growth of the Czech economy will, they believe, continue to be supported by both domestic and external demand. Nominal wages are expected to rise distinctly above 6% this year and slow only slightly next year. The analysts on average forecast the koruna to appreciate well below CZK 26 to the euro at the one-year horizon.[19] Before the November CNB Bank Board meeting, all the FMIE analysts were expecting the CNB to raise its key interest rates by 0.25 percentage point. Their average estimate of the 2W repo rate at the one-year horizon is 1.1%.

Compared to the CNB, the analysts expect slightly lower GDP growth both this year and the next, with the same inflation at the one-year horizon. The analysts' wage expectations are lower by comparison with the CNB. The analysts' interest rate outlook is slightly higher at the one-year horizon. The exchange rate at the one-year horizon is slightly weaker on average in the analysts' predictions than in the CNB forecast. This is probably because the analysts – unlike the CNB forecast – are taking the market overboughtness factor into account at the longer horizon as well.

The current market outlook for 3M rates, like the CNB forecast, implies a steady increase over the one-year horizon. Consistent with the forecast is an increase in market interest rates in late 2017 and early 2018 and a further rise in rates at the longer end of the forecast horizon. The market outlook at the one-year horizon is thus only slightly above the interest rate level contained in the CNB forecast (see Chart II.4.2).

CHART II.4.1

PERCEIVED AND EXPECTED INFLATION

The indicators of both perceived and expected inflation are slightly positive and showing a gradual upward trend
(balance of answers; source: European Commission Business and Consumer Survey)

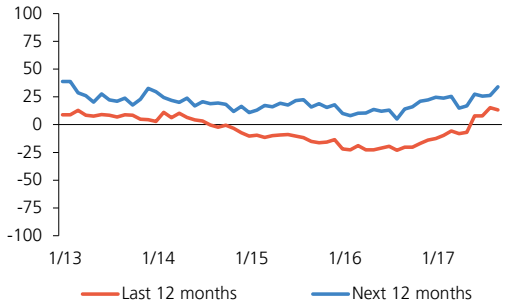
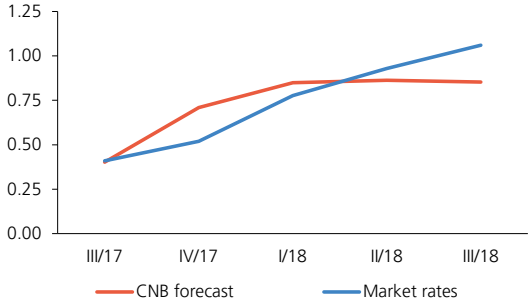


CHART II.4.2

FRA RATES VERSUS THE CNB FORECAST

The paths of market rates and the rates contained in the CNB forecast do not differ much; the market outlook is only slightly higher at the one-year horizon
(percentages)



Note: Market rates represent for 2017 Q3 and 2017 Q4 the 3M PRIBOR and for 2018 Q1–2018 Q3 the average values of the FRA 3*6, 6*9 and 9*12 rates for the last 10 trading days as of 20 October 2017.

19 The expected range is relatively wide: CZK 24.5–25.7/EUR in the FMIE survey and CZK 25.1–25.9/EUR in the CF survey.

III. CURRENT ECONOMIC DEVELOPMENTS

III.1 PRICE DEVELOPMENTS

Inflation averaged 2.6% in 2017 Q3. It thus remained in the upper half of the tolerance band around the CNB's target. Compared with the spring 2016 forecast, a retrospective assessment of which is relevant for evaluating the current fulfilment of the inflation target, inflationary factors from abroad became dominant as time went on. In late 2016 and early 2017, moreover, a more inflationary effect of the domestic economy and some one-off price factors manifested themselves. Overall, this led to an earlier-than-expected increase in inflation above the 2% target. With the benefit of hindsight, and with regard to the exchange rate commitment exit strategy, the CNB's monetary policy in the previous period can therefore be assessed as having been appropriate. Core inflation rose further in 2017 Q3, owing mainly to faster growth in non-tradables prices. Food prices kept rising broadly and briskly on the back of buoyant growth in agricultural producer prices in both livestock and crop production. Administered prices were broadly flat overall. As a result of a decrease in oil price growth and appreciation of the koruna against the dollar, fuel price growth was subdued despite increasing modestly. Owing to appreciation of the koruna and a drop in foreign producer price inflation, import prices declined and producer prices consequently slowed as well. Growth in construction work prices and, in particular, prices of services for the business sector increased further.

III.1.1 Fulfilment of the inflation target

In 2017 Q3, both headline and monetary policy-relevant inflation were above the target and above the forecast published in Inflation Report II/2016 (see Chart III.1.1).[20] This forecast was based on the assumption that the exchange rate would be used as an instrument for easing monetary policy under a CNB exchange rate commitment of CZK 27 to the euro until mid-2017. The forecast expected both headline and monetary policy-relevant inflation to rise and hit the 2% target at the monetary policy horizon and be slightly above it thereafter. Growing economic activity and wages were expected to continue to foster higher costs and hence also higher consumer prices. The strong anti-inflationary effect of import prices at the time – resulting from a decline in euro area producer prices and global oil prices – was expected to subside.

CHART III.1.1

FORECAST VERSUS ACTUAL HEADLINE INFLATION

Inflation in 2017 Q3 was above the CNB's 2% target and above the forecast published in Inflation Report II/2016
(year on year in %)

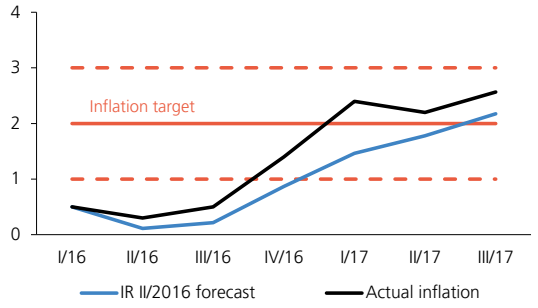


TABLE III.1.1

FULFILMENT OF THE INFLATION FORECAST

Higher-than-forecasted core inflation and food prices were partially offset by lower contributions of administered prices and fuel prices
(annual percentage changes; contributions in percentage points)

	IR II/2016 forecast	2017 Q3 outturn	Contribution to total difference
CONSUMER PRICES	2.2	2.6	0.4
of which:			
administered prices	1.2	0.2	-0.2
first-round impacts of changes to indirect taxes[a)]	0.0	-0.1	0.0
core inflation[b)]	1.9	2.7	0.5
food prices[b)]	3.0	3.9	0.3
fuel prices[b)]	6.5	1.7	-0.2

a) impact on headline inflation except administered prices
b) excluding the first-round effects of changes to indirect taxes

20 This section of the Inflation Report briefly analyses the contribution of the CNB's monetary policy to this situation. In order to assess the effect of monetary policy on the fulfilment of the inflation target one needs to analyse retrospectively the forecasts and the Bank Board's decisions based thereon in the past. To assess the fulfilment of the inflation target in 2017 Q3, we have to examine the period from the start of 2016 to spring 2017, which takes into account the different lengths of transmission of interest rates and the exchange rate. This is because monetary policy passed through to inflation with a substantially shorter lag in the regime where the exchange rate was used as a monetary policy instrument than when interest rates were used. For the sake of clarity, however, the analysis of the fulfilment of the forecasts is limited here to a comparison of Inflation Report II/2016 with subsequent inflation.

Headline inflation in reality was above the forecast over the entire period under review. This difference was 0.4 percentage point in 2017 Q3 (see Table III.1.1). The positive deviation from the forecast was due chiefly to higher core inflation and to a lesser extent to food prices. Lower fuel price and administered price inflation had the opposite effect.

External economic factors fostered higher-than-forecasted domestic inflation as from late 2016. The biggest deviation was recorded by foreign production prices, whose growth rebounded faster than expected at the end of 2016 (see Table III.1.2). This was also fostered by higher-than-expected oil prices. External demand growth deviated upwards from the forecast in early 2017. The forecast that foreign interest rates would stabilise at slightly negative levels[21] materialised. Overall, external developments had a neutral effect on the Czech economy initially and an inflationary effect in 2017.

The duration of the exchange rate commitment was shortened by almost one quarter relative to the assumption of the forecast contained in Inflation Report II/2016. The exchange rate stayed close to the CNB's commitment until early April 2017, when the CNB ended the commitment; the koruna then appreciated slightly. Market interest rates remained stable for almost the entire period, responding only to the CNB's key rate increase in early August 2017 (see Table III.1.3). Compared to the forecast, the monetary conditions were tighter in the exchange rate component at the end of the period under review, while the interest rate component was easier.

In 2017, the domestic economy fostered higher inflation compared to the forecast. More robust growth in household consumption and nominal wages was recorded this year, as the labour market situation was tighter than forecasted.

Overall, the monetary policy pursued by the CNB between January 2016 and June 2017 can be assessed as appropriate. In addition to the forecast, an assessment of the risks associated with the forecast is important for the Bank Board's decisions on monetary policy settings. With the benefit of hindsight, it can be said that some of the external anti-inflationary risks identified (subdued inflation in the euro area and low global prices of food commodities) materialised at first. By contrast, inflationary factors that had not been predicted by previous forecasts started to emerge at the end of 2016. Inflation has thus been above the CNB's target of 2%, though within the tolerance band, since the start of this year. However, this deviation is partly due to one-off factors (the launch of ESR and an increase in the weight of imputed rent in the CPI). Moreover, a slight overshooting of the inflation target, enhancing the robustness of its fulfilment in the future, was a deliberate component of the exit strategy.

21 The observed 3M EURIBOR market rates do not fully reflect the introduction of the ECB's unconventional measures captured by shadow rates, which were more negative.

TABLE III.1.2

FULFILMENT OF THE EXTERNAL ASSUMPTIONS

External factors had an inflationary effect overall in 2017
(annual percentage changes unless otherwise indicated; p – prediction, o – outturn)

		II/16	III/16	IV/16	I/17	II/17	III/17
GDP in euro area[a), b), c)]	p	2.1	2.1	1.9	1.9	1.9	1.9
	o	2.0	1.9	2.0	2.2	2.4	-
PPI in euro area[b), c)]	p	-3.4	-2.1	-0.6	1.6	1.6	1.6
	o	-3.7	-2.3	0.0	3.6	3.1	-
3M EURIBOR (percentages)	p	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3
	o	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
USD/EUR exchange rate (levels)	p	1.12	1.10	1.09	1.09	1.09	1.10
	o	1.13	1.12	1.08	1.06	1.10	1.18
Brent crude oil price (USD/barrel)	p	42.8	44.0	45.0	45.9	46.6	47.2
	o	47.0	47.0	51.1	54.6	50.8	52.2

a) at constant prices
b) seasonally adjusted
c) IR II/2016 outlook for effective indicator

TABLE III.1.3

FULFILMENT OF THE FORECAST FOR KEY VARIABLES

Domestic GDP growth fluctuated around the forecast; nominal wage growth accelerated significantly beyond expectations in 2017
(p – prediction, o – outturn)

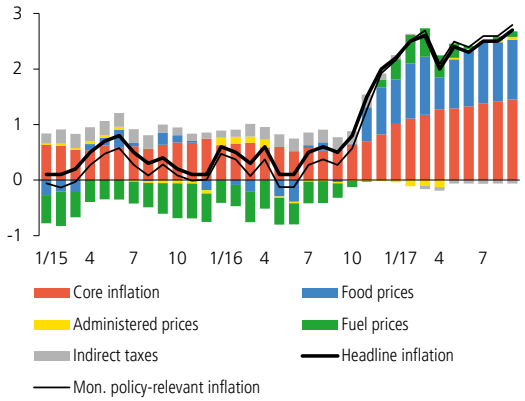
		II/16	III/16	IV/16	I/17	II/17	III/17
Consumer price index (annual perc. changes)	p	0.1	0.2	0.9	1.5	1.8	2.2
	o	0.3	0.5	1.4	2.4	2.2	2.6
3M PRIBOR (percentages)	p	0.3	0.3	0.3	0.3	0.3	1.1
	o	0.3	0.3	0.3	0.3	0.3	0.4
CZK/EUR exchange rate[a)] (levels)	p	27.0	27.0	27.0	27.0	27.0	26.3
	o	27.0	27.0	27.0	27.0	26.5	26.1
Real GDP[b)] (annual perc. changes)	p	1.9	2.0	2.7	3.7	3.9	3.3
	o	2.8	1.8	1.8	3.0	4.7	-
Nominal wages[c)] (annual perc. changes)	p	3.9	3.8	4.4	4.7	5.1	5.4
	o	3.2	3.9	3.1	5.4	7.7	-

a) The forecast assumed that the exchange rate would stay at CZK 27 to the euro until mid-2017.
b) seasonally adjusted
c) in market sectors

CHART III.1.2

STRUCTURE OF INFLATION

The growth in consumer prices was driven by a further increase in core inflation and fast growth in food prices
(annual percentage changes; contributions in percentage points)



Note: Food prices also include prices of alcoholic beverages and tobacco. Indirect taxes relate to non-administered prices.

CHART III.1.3

CORE INFLATION

Core inflation rose owing mainly to faster growth in non-tradables prices
(annual percentage changes)

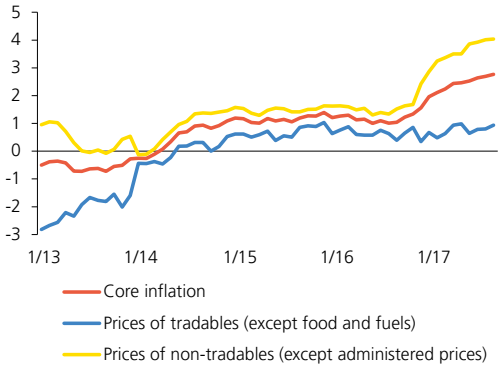


CHART III.1.4

FOOD PRICES, ADMINISTERED PRICES AND FUEL PRICES

Fuel prices and administered prices increased only slightly, whereas food price inflation remained high
(annual percentage changes)

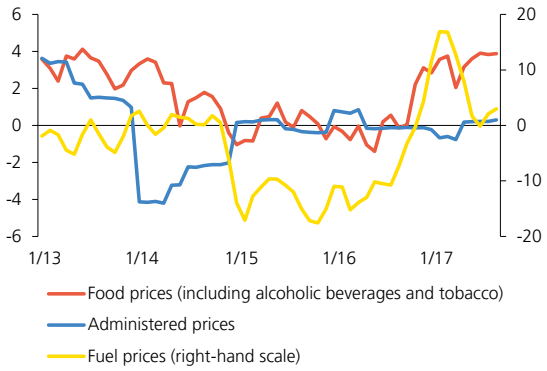
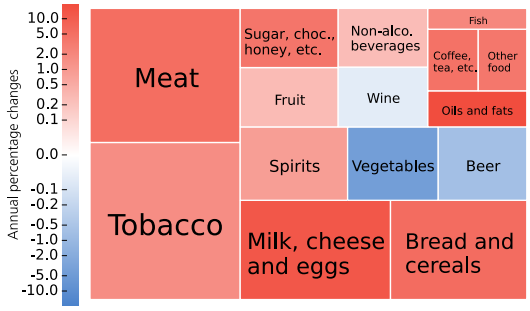


CHART III.1.5

STRUCTURE OF FOOD, ALCOHOL AND TOBACCO PRICE INFLATION IN 2017 Q3

Food prices mostly went up; prices of beer and vegetables went down
(size of tile – relative weight in consumer basket; colour of tile – annual percentage changes)



III.1.2 Consumer prices and property prices

Inflation gradually increased during 2017 Q3, reaching 2.7% in September. The growth in consumer prices was mainly driven by rising core inflation and food prices (see Chart III.1.2). The growth rate of fuel prices was subdued, reflecting oil price growth on world markets. Monetary policy-relevant inflation was 0.1 percentage point above headline inflation on account of a slightly negative first-round contribution of indirect tax changes. This was due mainly to last year's reduction in the VAT rate applying to restaurants and other catering facilities and to a lesser extent to a decrease in VAT on newspapers and magazines (effective from March 2017). Increases in excise duty on cigarettes and tobacco introduced in January 2017 acted in the opposite direction.[22]

Core inflation rose slightly, mainly as a result of a further pick-up in non-tradables prices (see Chart III.1.3).[23] They grew by 4% in September, due mainly to a further upswing in imputed rent linked with growth in prices of new apartments. Prices of accommodation and other housing-related services and prices of recreational and cultural services also rose apace. Prices in restaurants and cafés maintained a high annual growth rate connected with the launch of electronic sales registration in December 2016. Tradables price inflation[24] stayed below 1% in 2017 Q3. This reflected a gradual pass-through of the stronger exchange rate to prices in this segment of the consumer basket, which offset the intensifying inflationary effect of the domestic economy.

Food prices maintained a high growth rate of almost 4% in 2017 Q3 (see Chart III.1.4). This was due to rapid growth in prices of dairy products, eggs, oils and fats. Prices of other foods – specifically bread and cereals, meat, and sugar and confectionery products – recorded more modest year-on-year growth. Prices of tobacco products also increased, although their pace of growth gradually slackened in Q3. Food price inflation was dampened mainly by decreasing prices of vegetables and beer (see Chart III.1.5).

Administered prices rose slightly overall, but their individual components remained mixed. The low growth in administered prices (see Chart III.1.4) was due to declines in prices of heat and gas for households and weak growth in electricity prices. Prices in school catering and education picked up in September after the start of the new school year owing to an increase in costs. Administered prices in health care showed fast growth of almost 5%. Growth in the other components of administered prices remained subdued.

22 The impact of the increase in excise duty on tobacco products was spread over the first three months of the year.
23 Prices of non-tradable commodities primarily comprise non-administered services prices.
24 Prices of tradable commodities comprise prices of goods excluding food and fuels.

Prices of fuels fell slightly in July and recorded weak year-on-year growth in August and September (see Chart III.1.4). The July decline reflected a fast unwinding of the energy commodity price growth observed in early 2017. Fuel prices responded to the change with renewed slight year-on-year growth. Nevertheless, it was dampened by appreciation of the koruna against the dollar.

Price growth on the property market accelerated further (see Chart III.1.6). Transaction prices of older apartments grew at a pace of around 18.5% in both Prague and the rest of the Czech Republic in Q2. According to the internationally comparable HPI indicator, the Czech Republic still has the fastest-growing housing transaction prices in the EU. Growth in asking prices of apartments rose to 12.5% in Q3, driven by high growth in asking prices of apartments in Prague. As in the first half of 2017, asking prices in regions outside Prague rose much more slowly.

The experimental CPIH index slowed somewhat in 2017 Q2, but remains high (see Chart III.1.7). It is thus still significantly higher than CPI inflation. The alternative CPIH index, consisting of prices of both new and older property as well as land (with a relatively large weight – see Box 1 in IR III/2017), recorded growth of 3.7% in 2017 Q2, while official inflation was only slightly above the CNB's 2% target in the same period.

III.1.3 Import prices and producer prices

The appreciation of the koruna coupled with weakening growth in euro area producer prices and oil prices led to a decrease in import prices (see Chart III.1.8). The stronger exchange rate was reflected in a broad-based fall in import price inflation, with all its monitored components slowing. This was most apparent for prices of imported products, which also reflected slower growth in foreign producer prices. Import prices of machinery and transport equipment and industrial and consumer goods went down. Import prices of mineral fuels reflected slower growth in oil prices, which passed through to import prices of mineral fuels without a major lag. Conversely, natural gas prices, which usually follow oil price movements with a lag of approximately six months, continued to grow strongly.

The decline in prices of imported inputs was also reflected in weak industrial producer price inflation. Nevertheless, it accelerated to 1.7% in August and September (see Chart III.1.9). As in the case of import prices, the low producer price inflation was due to a weak – albeit again slightly rising over recent months – contribution of prices related to oil prices, i.e. prices of refined petroleum products and coke. The modest decline in prices of energy and water continued, and prices of transport equipment kept falling. On the other hand, prices of metals and fabricated metal products rose constantly. Growth in producer prices in the food industry suggests still strong upward pressures on consumer prices of food.

CHART III.1.6

TRANSACTION AND ASKING PRICES OF HOUSING

Property prices are continuing to rise apace
(annual percentage changes)

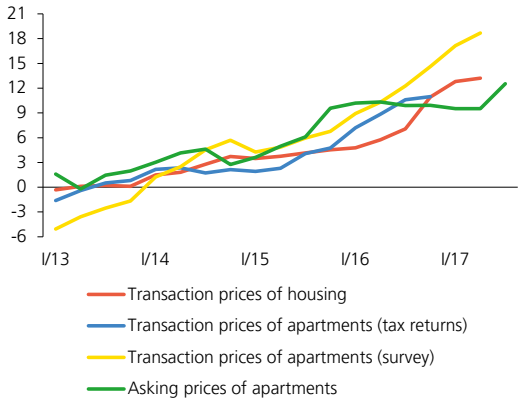


CHART III.1.7

THE EXPERIMENTAL CPIH PRICE INDEX

The experimental CPIH index slowed slightly in 2017 Q2, but is still well above CPI inflation
(annual percentage changes)

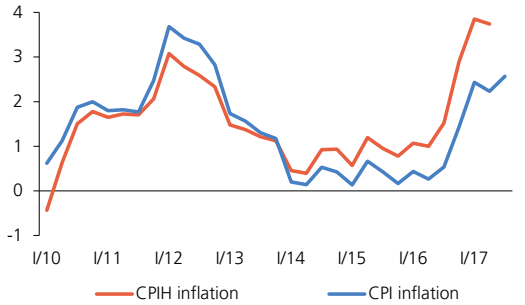
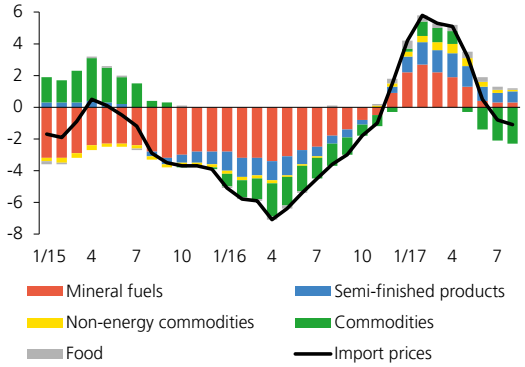


CHART III.1.8

IMPORT PRICES

Import prices switched to a year-on-year decline at the start of 2017 Q3
(annual percentage changes; contributions in percentage points)



Note: Food also includes beverages and tobacco.

CHART III.1.9

INDUSTRIAL PRODUCER PRICES

The downswing in energy prices was reflected in lower industrial producer price inflation
(annual percentage changes; contributions in percentage points)

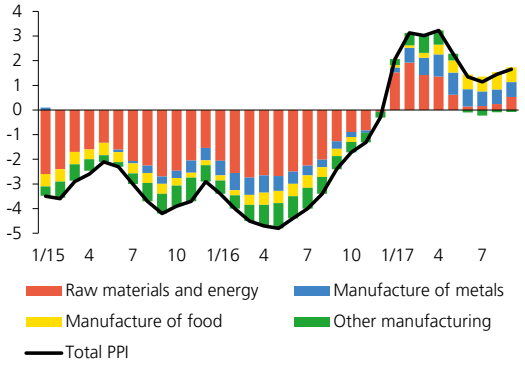


CHART III.1.10

AGRICULTURAL PRODUCER PRICES

Growth in crop and livestock product prices remained high despite going down slightly
(annual percentage changes)

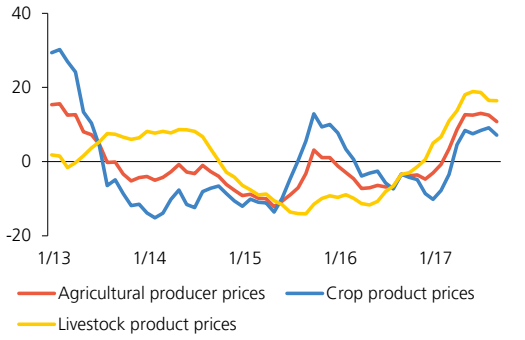
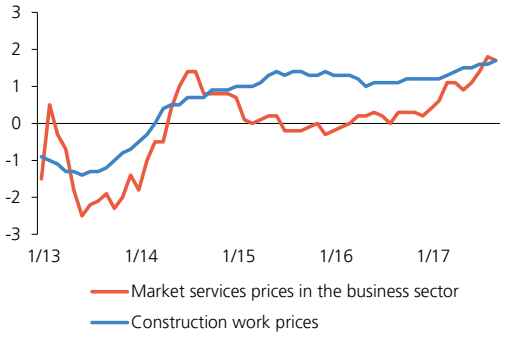


CHART III.1.11

MARKET SERVICES PRICES IN THE BUSINESS SECTOR AND CONSTRUCTION WORK PRICES

Growth in market services prices and construction work prices rose further
(annual percentage changes)



In terms of use, prices of non-durable goods showed the strongest growth. Prices of intermediate goods and energy also rose significantly, while prices of capital goods and durable goods continued to fall slightly.

Agricultural producer prices kept rising sharply, although their growth has slowed slightly over recent months. Following a continuous decline throughout last year, agricultural producer prices switched to year-on-year growth in March. This growth accelerated to 13% (see Chart III.1.10). This was due to a recovery in agricultural commodity prices on global markets, where, in addition to the unwinding of the effects of favourable harvests in previous years and the liberalisation of the EU milk market in 2015, global demand for food commodities increased. Domestic prices, especially those of meat and milk, thus surged. Cereals and oil crops saw renewed price growth. The recent year-on-year slowdown in livestock product prices and the related downswing in overall agricultural producer price inflation were due largely to base effects.

Prices of market services for the business sector and construction work prices continued to show gradually rising growth (see Chart III.1.11). Growth in prices of market services for the business sector amounted to 1.7% in September. Marked price growth was recorded in insurance services, reinsurance and pension financing and also in publishing and advertising services including market research. Conversely, prices of telecommunication services continued to fall moderately. The strong demand on the property market was associated with further growth in construction work prices and prices of materials used in the construction industry.

III.2 ECONOMIC DEVELOPMENTS

The Czech economy is above its potential output level amid accelerating economic growth. Growth in economic activity increased mainly as a result of a significantly faster formation of fixed investment in both the private and government sectors. The strong growth was also fostered by an upswing in household consumption growth, reflecting rapid wage growth and optimistic consumer expectations. Net exports made a positive contribution to economic growth, but their contribution gradually weakened due to accelerating imports. Favourable trends in economic activity can be observed in most sectors. The faster growth in gross value added in Q2 was due mainly to the trade and services sectors. Manufacturing is continuing to fare well. Its contribution to gross value added growth rose slightly. Overall industrial production also picked up thanks to manufacturing. The positive trend in the business sector is confirmed by still high business confidence, although strong wage growth halted the improvement in the financial results of non-financial corporations. Labour shortages remain a growing barrier to growth.

III.2.1 The cyclical position of the economy

The output gap of the Czech economy is positive. According to the small structural model, it was close to 1.5% in 2017 Q2 (see Chart III.2.1). This is qualitatively in line with the observed inflation pressures from the domestic economy. The closure of the previously negative output gap and its switch to positive levels in past years was due to growth in both domestic and external demand. This was fostered by easy monetary policy and, in 2015, drawdown of EU funds. In 2016, conversely, a negative fiscal impulse resulted in a temporary return to the potential output level from above. However, this effect faded out this year and the output gap started to open up again. It also remains positive over the forecast horizon.

Potential output growth is currently estimated at above the 3% level. It reached approximately this level in the previous two years after the repercussions of the economic crisis faded away and economic activity began to rise again (see Chart III.2.2). The labour market improved significantly, with a rising participation rate causing faster growth in equilibrium employment. Investment by non-financial corporations also saw renewed growth, although total fixed investment has been volatile in previous years due to the EU funding cycle. Investment will also have a positive effect this year, when the forecast expects labour productivity growth to pick up further. Potential output growth will gradually return to the 3% level from above in 2019.

III.2.2 The expenditure side of the economy

Annual GDP growth surged to 4.7% in 2017 Q2 (see Chart III.2.3). This sizeable pick-up was due mainly to renewed growth in fixed investment. Private investment and newly also government investment recorded growth. Household consumption also recorded a larger contribution to GDP growth, owing to rising wages and salaries. The

CHART III.2.1

OUTPUT GAP

The output gap is currently positive and remains above zero over the forecast horizon
(% of potential output)

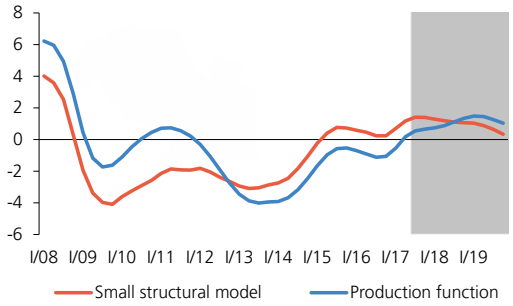


CHART III.2.2

POTENTIAL OUTPUT

The rate of growth of potential output is above 3% according to the small structural model
(annual percentage changes)

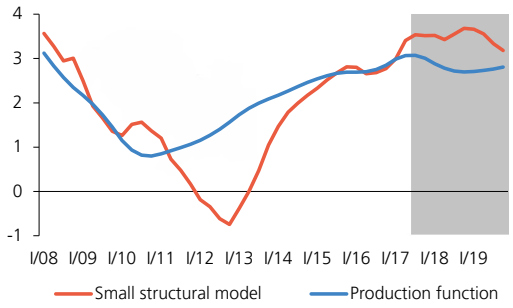


CHART III.2.3

GROSS DOMESTIC PRODUCT

The growth of the Czech economy picked up noticeably further in 2017 Q2
(annual percentage changes; contributions in percentage points; seasonally adjusted)

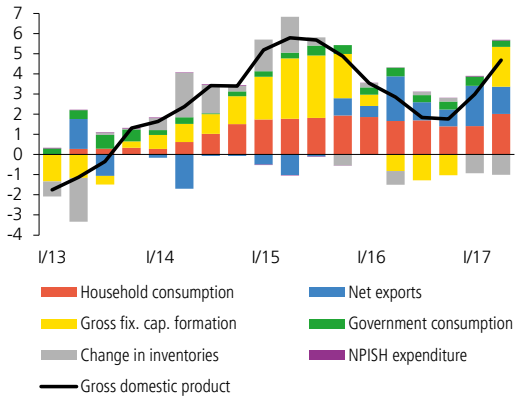
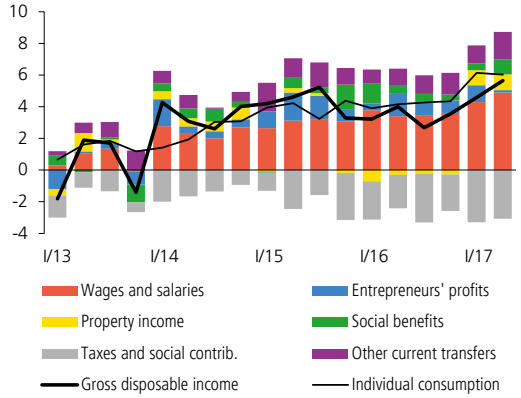


CHART III.2.4

DISPOSABLE INCOME

The biggest contributor to the constant growth in disposable income is sharply rising wages and salaries
(annual percentage changes; contributions in percentage points; current prices; seasonally unadjusted)

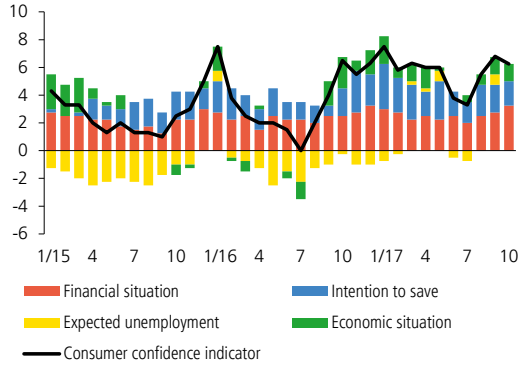


Note: Entrepreneurs' profits comprise gross operating surplus and mixed income.

CHART III.2.5

CONSUMER CONFIDENCE BALANCE

Consumer confidence is strong due to good expectations of the financial situation of households and low unemployment
(balance is difference in per cent between answers expressing improvement and deterioration in expected and ongoing tendencies)

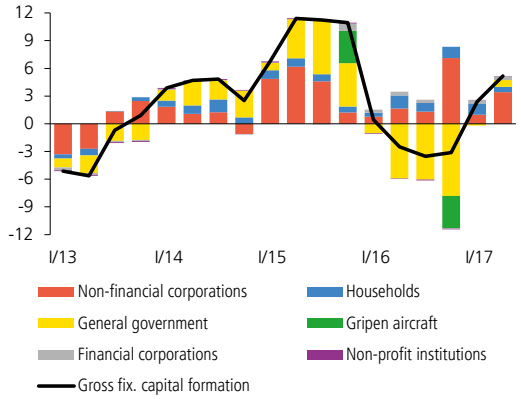


Note: Expectations 12 months ahead.

CHART III.2.6

INVESTMENT BY SECTOR

Investment growth was driven by non-financial corporations, while the decline in government investment faded away
(annual percentage changes; contributions in percentage points; constant prices; seasonally unadjusted)



faster growth in household consumption and import-intensive private investment resulted in a slightly lower contribution of net exports.

Household consumption remains a stable driver of domestic demand, increasing in all its segments. The faster growth in real household consumption was due mainly to expenditure on services, whose contribution is now comparable with that of expenditure on short-term consumption, previously the most important item. The faster growth in real household consumption may also have been due partly to the adjustment for the different number of working days.[25]

The growth in household consumption reflected accelerating growth in gross disposable income in an environment of low interest rates. As in the previous two years, accelerating household income growth was supported most of all by rising wages and salaries (see Chart III.2.4). The further increase in 2017 Q2 was also due to growth in social benefits. By contrast, the contribution of profits of businesses decreased significantly.

Still strong consumer confidence will boost household consumption in the near future as well. The high consumer confidence is being fostered by a positive outlook for the overall economic situation and by expectations of a good financial situation of households themselves (see Chart III.2.5). Concerns regarding unemployment remain low. Growing income is also increasing households' willingness to save. Persisting consumer optimism is also evidenced by continued strong growth in retail sales in both the food and non-food segments.

While real government consumption growth slowed, government investment started to rise in year-on-year terms for the first time in around a year. The slower growth in real government consumption was due mainly to strong growth in the deflator, reflecting higher wage growth in the government sector. The switch of government investment to year-on-year growth was probably connected with an amendment to the Public Procurement Act that entered into force at the end of 2016. This was associated with the bringing-forward of a large amount of government procurements,[26] leading to an increase in assigned public procurements and a rise in government investment this year. The procurements relate mainly to supplies of medical products and equipment and also to office equipment and electronic equipment supplies. The public procurement funding source structure reveals that

25 2017 Q2 had four fewer working days in year-on-year terms.
26 The amendment to the Public Procurement Act introduced a number of formal changes in procurement and tender evaluation on 1 October 2016. One major change is the introduction of evaluation based on the quality-to-price ratio, or "economic benefit". There is also a new statutory duty to publish contractual documentation in a contract register. According to data from the Public Procurement Bulletin, the need to adjust contractors' administrative processes due to these and other changes resulted in a large amount of public procurements being brought forward before the date of effect of the amendment.

the amount of financing from EU funds is still low, but is not falling in year-on-year terms. This is consistent with the current trend in civil engineering, which continues to show a year-on-year decline, but a much more moderate one than in the past. The observed amount of public procurements assigned this year suggests that government investment can be expected to continue accelerating in the period ahead.

The growth in private investment was due predominantly to investment by non-financial corporations (see Chart III.2.6). As regards the material breakdown, investment in buildings and structures surged. Such investment is thus not necessarily linked with the government sector alone. The contribution of investment in machinery and equipment also increased. In addition to rising external demand, this may indicate greater automation of production by firms in an environment of labour shortages and fast growing wages. Like household consumption, total fixed investment was significantly affected by adjustment for seasonal and calendar effects. This resulted in a – probably temporary – jump in adjusted fixed investment growth to much higher levels than growth in external demand. The latest results of the survey conducted by the CNB and the Confederation of Industry suggest continued strong, albeit slightly moderating, growth in private investment in the quarters ahead.

Household investment also continued to grow, albeit at a slower pace. The supply of new apartments remains limited. In an environment of dynamic growth in loans for house purchase, this is putting strong upward pressure on property prices. The number of housing starts has nonetheless increased in recent quarters. The higher supply should provide households with new investment opportunities.

Investment in inventories has declined in recent quarters. Additions to inventories of final goods slowed, possibly reflecting production constraints amid still rising sales. Stocks of materials also made a smaller contribution. Additions to inventories continued to be driven by large manufacturing firms, although some slowdown was recorded even here.

Exports and imports accelerated, while the positive contribution of net exports to GDP growth fell slightly (see Chart III.2.7). Export growth picked up as a result of stronger external demand, which is being reflected in rapid growth in foreign industrial orders. Export growth continued to be fuelled by the automobile industry and the electronics and electrical engineering industry. The strong export growth and rising household consumption led to faster import growth. The contribution of net imports to GDP growth thus fell slightly as a result. It remained driven by the goods balance, although the services balance also made a positive contribution.

III.2.3 The output side of the economy

The second quarter of 2017 saw a further significant increase in gross value added growth, which is now being recorded across-the-board (see Chart III.2.8). Positive contributions were made by all the

CHART III.2.7

EXPORTS AND IMPORTS

Net export growth slowed slightly, while import growth caught up with export growth

(annual changes in per cent and CZK billions; constant prices; seasonally adjusted)

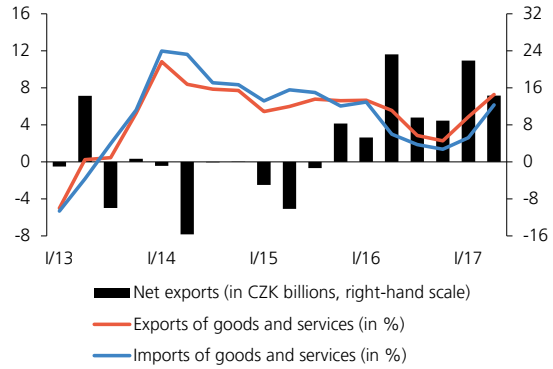
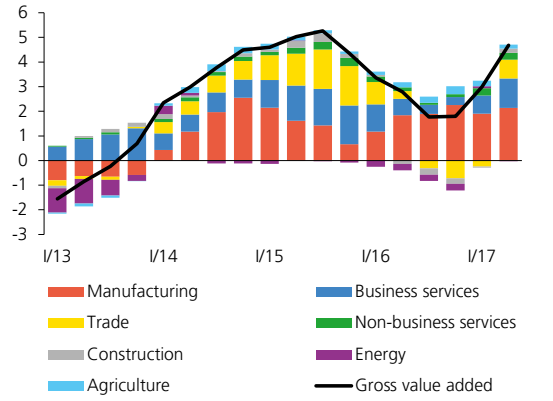


CHART III.2.8

CONTRIBUTIONS OF BRANCHES TO GVA GROWTH

The upswing in gross value added growth in 2017 Q2 was due mainly to market services and trade

(annual percentage changes; contributions in percentage points; constant prices)



Note: Trade also includes hotels and restaurants and transport. Energy also includes mining and quarrying.

CHART III.2.9

INDUSTRIAL PRODUCTION AND CONSTRUCTION OUTPUT

Industrial production continues to rise at a solid pace; growth in construction output also turned positive again for the first time in a long time

(annual percentage changes)

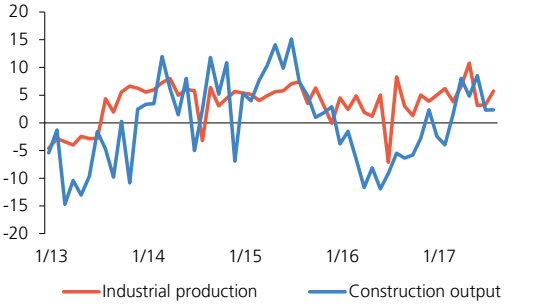


CHART III.2.10

BARRIERS TO GROWTH IN INDUSTRY

According to the most recent survey, labour shortages are the main barrier to growth in industrial production
(percentages)

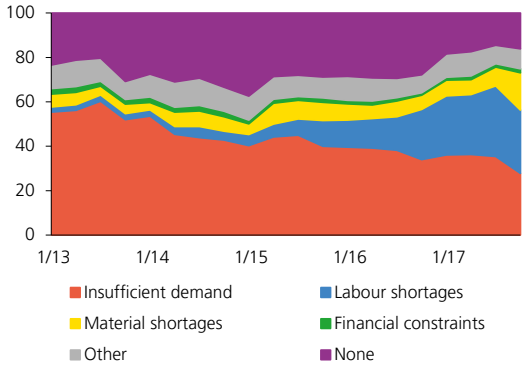


CHART III.2.11

BUSINESS CONFIDENCE BALANCES

With the exception of construction, business confidence remains positive
(balance is difference in per cent between answers expressing improvement and deterioration in expected and ongoing tendencies)

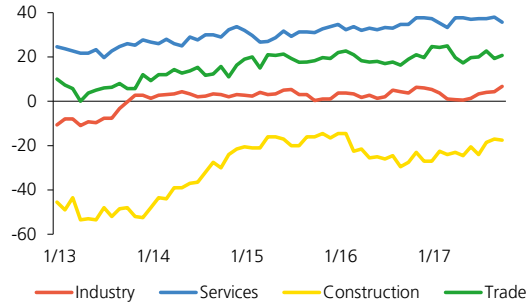
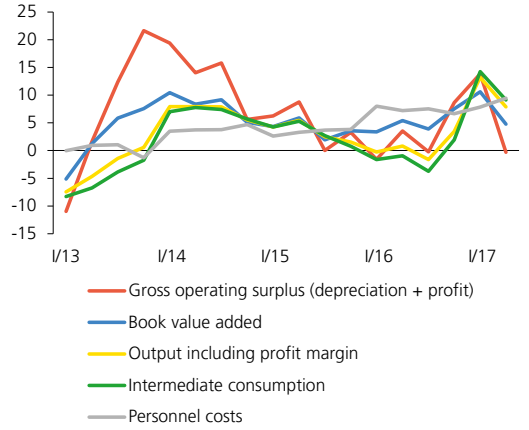


CHART III.2.12

KEY FINANCIAL INDICATORS

Growth in the gross operating surplus decreased sharply as a result of faster growth in personnel costs
(annual percentage changes)



monitored sectors, including trade, transport and hotels and restaurants, which started to record year-on-year growth for the first time in quite a while. The faster growth in gross value added was also due significantly to an increase in the contribution of market services. It almost doubled compared to the previous quarter. However, manufacturing remains the main driver of gross value added; its contribution also increased slightly.

Total industrial production picked up thanks to manufacturing. It rose by 6.7% in Q2 (see Chart III.2.9). Growth in production was recorded solely in manufacturing, where production rose briskly in most major sectors. By contrast, a downturn in mining and quarrying and continuing stoppages in the energy industry hindered industrial production growth. According to the data on new industrial orders, industrial production growth should remain positive in Q3, although the July and August data suggest a slight drop.

Labour shortages are currently the most important constraint on the production potential of industrial corporations. According to the results of the CZSO's October business survey, although the importance of this barrier declined slightly, the importance of the barrier of insufficient demand fell even more significantly (see Chart III.2.10). By contrast, there was an increase in the share of corporations facing material shortages. Capacity utilisation in industry remained at around 84%.

The decline in construction output, which, with the exception of December 2016, has been going on since January last year, halted in March. Construction output growth exceeded 7% in Q2 (see Chart III.2.9), due to rapid growth in building construction output. It outweighed the gradually slowing decline in civil engineering, which continues to be afflicted by low drawdown of EU funds.

Business confidence remains high. A positive assessment of the situation prevails in industry, trade and services (see Chart III.2.11). Moreover, the current recovery in construction production is leading to a gradual decrease of pessimistic sentiment in construction, which long faced falling demand.

The previous fast growth in the output of non-financial corporations slowed slightly, but growth in wage costs continued to accelerate. Although output growth was affected by a lower number of working days in year-on-year terms, its annual growth remains at almost 8% (see Chart III.2.12) both in industry and in the tertiary sector. The personnel cost-output ratio increased in the non-financial corporations sector, especially in the tertiary sector, amid rapid labour cost growth. The already high labour cost growth rose further to 9.4% in the last quarter. This led to a sizeable downturn in year-on-year growth in the gross operating surplus.

III.3 THE LABOUR MARKET

The continued economic growth resulted in a further rise in employment in 2017 Q2, which pushed the unemployment rate to historical lows. Firms are finding it increasingly difficult to fill vacancies, as the growth in the labour force is not sufficient to meet demand for labour. This is intensifying the upward pressure on wages, pressure that was bolstered by an increase in the minimum wage at the start of 2017. Average wage growth in market sectors surged to over 7.5%, overtaking the – likewise strengthening – wage growth in non-market sectors. Growth in whole-economy labour productivity slowed slightly in Q2. Amid stronger growth in the wage bill, this resulted in faster growth in nominal unit labour costs.

III.3.1 Employment and unemployment

The fast growing economic activity is being reflected in rising employment to an ever-decreasing extent. This suggests considerable labour market tightness, reflecting a shortage of available labour force. In terms of structure, the year-on-year employment growth (of 1.3%; see Chart III.3.1) was due mainly to an increase in the number of employees. As regards age structure, half of the growth in employment was due to the 45–59 age group, in which a drop in the number of unemployed people accounted for roughly one-third of the employment growth.

The growth in employment was mostly due to industry (see Chart III.3.2). As in the previous period, the employment growth in industry was driven mainly by manufacturing. By contrast, the previous strong year-on-year growth in the number of employed persons in non-market services slowed. This was linked with the unwinding of last year's rise in employment in education and health care. Employment growth in market services remains subdued. As in the previous quarter, employment in market services rose the most in professional, scientific and technical activities and in transport and storage. On the other hand, it continued to decline in wholesale and retail trade and in accommodation and food service activities.

A surge in the frequency of part-time jobs dampened the increase in the converted number of employees. This notwithstanding, average hours worked increased year on year. This was a result of cyclical upward pressure on hours worked by current employees, stemming from a shortage of available labour in an environment of strong economic growth. Aided by solid growth in the number of employees, the converted number of employees increased by 1.5% year on year in 2017 Q2 (see Chart III.3.3), mainly due to a rise in manufacturing.

A decrease in the number of unemployed persons pushed the general unemployment rate down to historical lows (see Chart III.3.4). The Czech unemployment rate thus remains the lowest in the EU (2.9% in August). This trend was fuelled mainly by a decline in the number of long-term unemployed. The growing labour force coupled

CHART III.3.1

LABOUR MARKET INDICATORS

Wage growth rose sharply in 2017 Q2
(annual percentage changes)

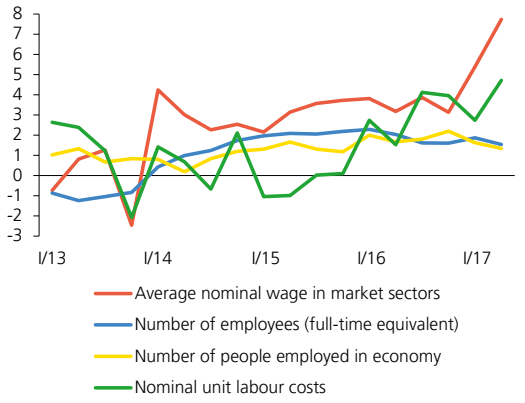


CHART III.3.2

EMPLOYMENT BREAKDOWN BY BRANCHES

The growth in employment was due almost exclusively to industry and non-market services
(contributions in percentage points to annual change; selected branches; source: LFS)

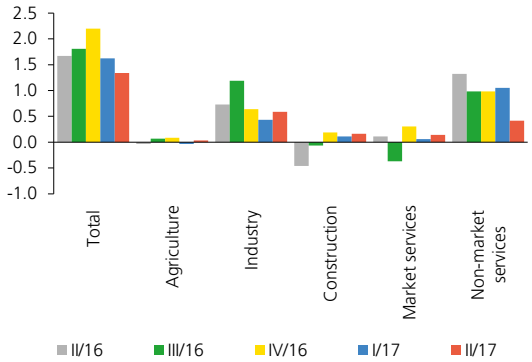


CHART III.3.3

NUMBER OF EMPLOYEES (FULL-TIME EQUIVALENT)

The increase in the number of employees was accompanied by modest growth in average hours worked
(annual percentage changes; contributions in percentage points)

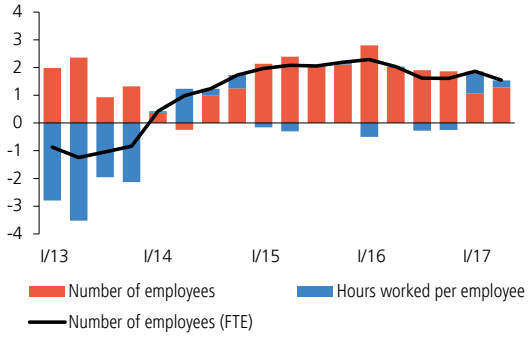


CHART III.3.4

UNEMPLOYMENT INDICATORS

The general unemployment rate is hitting new historical lows and the share of unemployed persons is also continuing to decline

(percentages; seasonally adjusted; source: MLSA, CZSO)

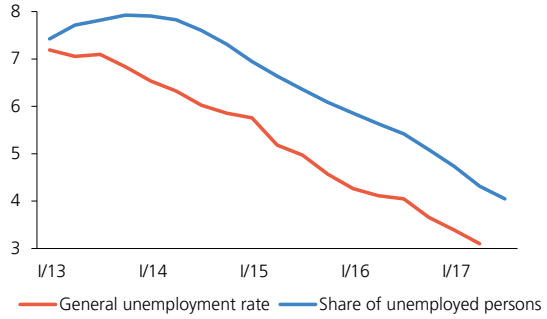


CHART III.3.5

BEVERIDGE CURVE

The number of unemployed persons fell steadily, while the number of vacancies reached record highs

(numbers in thousands; seasonally adjusted; annual percentage changes for core inflation; source: MLSA, CZSO)

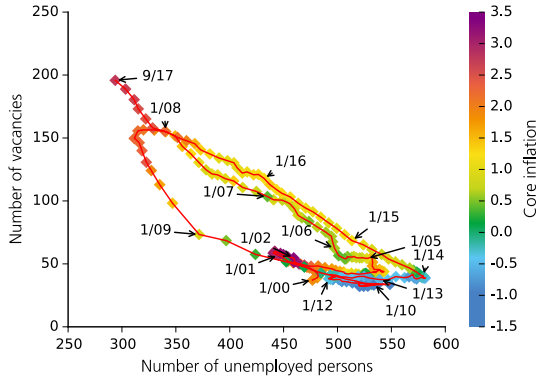
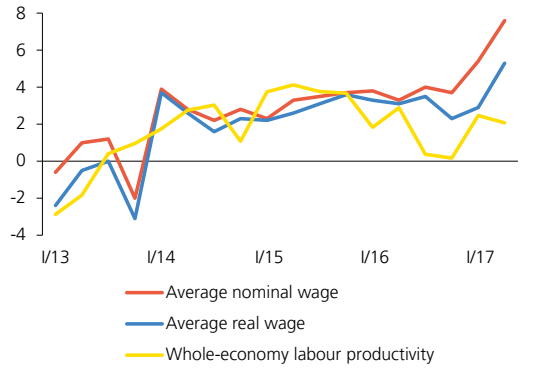


CHART III.3.6

AVERAGE WAGE AND WHOLE-ECONOMY LABOUR PRODUCTIVITY

Labour productivity grew more slowly than wages; its growth has not increased since the start of the year

(annual percentage changes)



with the long-running decline in the population aged 15–64 led to an increase in the rate of economic activity. It exceeded a record 76% in August. The share of unemployed persons fell throughout Q3, to 4%, with the number of available job applicants continuing to decline and the population in the given age group shrinking slightly.

The long-running decline in the number of unemployed people and growth in the number of vacancies continued into 2017 Q3. The number of vacancies offered via labour offices amounted to around 200,000 in September, about a quarter of which were in manufacturing. Wholesale and retail trade and construction offered a further significant proportion of the vacancies. As regards skills structure, firms were mostly seeking craft and related trades workers, plant and machine operators and elementary occupations, which together accounted for more than two-thirds of all vacancies. At the same time, the solid economic growth is leading to a sizeable decline in the number of registered unemployed persons, especially in the category of the long-term unemployed. Their number fell by almost 50,000 year on year to about 105,000 in September. Viewed in terms of the Beveridge curve (see Chart III.3.5), the number of unemployed persons on the labour market is currently the lowest since the start of this century and the number of vacancies is at an all-time high (amid the highest-ever employment rate and labour force level, moreover). This is being reflected, through accelerating wage growth, in gradually rising core inflation, whose growth, however, is also due to one-off factors (such as the launch of ESR).

III.3.2 Wages and productivity

The sharp rise in the average wage is a result of strong tightness in the labour market and partly also reflects an increase in the minimum wage. Both market and non-market sectors recorded strong earnings growth. Nominal wages in market sectors rose by 7.7% year on year in Q2. Wage growth accelerated in all sectors. Owing to an increase in the minimum wage from CZK 9,900 to CZK 11,000 at the start of 2017, wages grew the fastest in accommodation and food service activities and in administrative and supporting services, that is, in sectors where average wages are traditionally low. According to more detailed statistics, wage growth was also affected quite strongly in Q2 by an increase in bonuses. Monthly data from industry indicate that wage growth will slow slightly in Q3. Wage growth in non-market sectors also accelerated, to 7%. This was due to an almost 9% rise in wages in public administration and defence. By contrast, wage growth in education fluctuated around 5%, as in the previous quarter.

Labour productivity growth went down, due to economic growth slowing more than employment growth.[27] Labour productivity rose

27 Total whole-economy productivity is calculated as the ratio of seasonally unadjusted GDP to employment (i.e. including the effect of taxes and subsidies on products). Seasonally unadjusted year-on-year GDP growth slowed in Q2, unlike the adjusted growth, due

by 2.1% year on year in 2017 Q2 (see Chart III.3.6). Unlike in 2016 H2, when it had been very muted, productivity growth improved in all of the sectors monitored except industry. Productivity growth in industry slowed below 3% in Q2. According to the national accounts statistics, this was due to a sharp decline in value added growth coupled with a renewed weak rise in the number of persons employed in this sector (see Chart III.3.7). Nevertheless, productivity growth in industry remained the highest among all the sectors monitored.

Growth in nominal unit labour costs accelerated due to faster growth in the wage bill and slower GDP growth. Nominal unit labour costs increased by 4.7% year on year (see Chart III.3.8), in line with the cost pressures identified in the domestic economy. However, mixed trends were observed across the economy. Labour costs per unit of output rose the fastest in non-market services and industry.[28] By contrast, they grew noticeably slower – at roughly half the rate – in construction.

BOX The LUCI – the Labour Utilisation Composite Index

Information from the labour market has long been calling for a comparison of the current situation with that observed at the peak of the previous cycle in 2008. Some time series describing the labour market (such as employment and the general unemployment rate) have now exceeded their historical highs/lows, while others (such as the converted number of employees and the share of unemployed persons) are still below the levels recorded at the peak of the previous cycle. The question is, then, which data are more important as regards the labour market, and how can we describe the individual pieces of information in aggregated form and thus comprehensively characterise the overall situation.

An aggregate evaluation of the labour market situation can be made using the LUCI[29] – the Labour Utilisation Composite Index (see Chart 1). This index combines the information contained in 20 labour market time series using the principal components method. These time series include the number of unemployed broken down by length of unemployment, the share of unemployed persons, employment broken down by hours worked, the number of vacancies, etc. The first factor estimated in this analysis, which explains more than 50% of the variability of the time series used, is used to calculate the LUCI. The resulting index is then standardised. This means that for each estimate the long-term mean is zero. Positive values signal higher labour market

CHART III.3.7

PRODUCTIVITY BY SECTOR

The growth in whole-economy labour productivity was driven primarily by industry despite a sharp slowdown
(annual percentage changes)

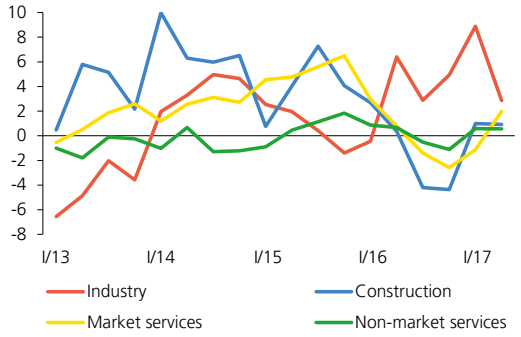


CHART III.3.8

UNIT LABOUR COSTS

The faster nominal unit labour cost growth in 2017 Q2 was fostered primarily by an upswing in growth in the wage bill
(annual percentage changes; contributions in percentage points)

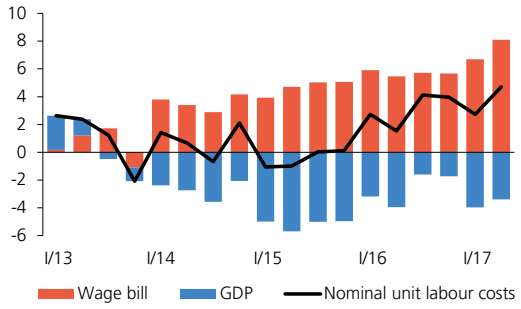
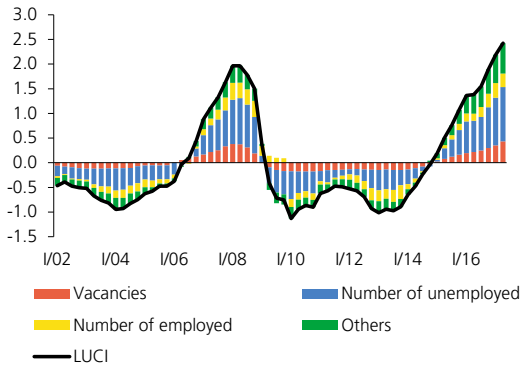


CHART 1 (BOX)

THE LUCI AND ITS BASIC DECOMPOSITION

The current labour market tightness is the highest since 2002
(index; vertical axis shows standard deviations)



mainly to a markedly lower number of working days compared to the same quarter of the previous year. Labour productivity in individual sectors is calculated as the ratio of gross value added to employment (i.e. excluding taxes and subsidies on products).

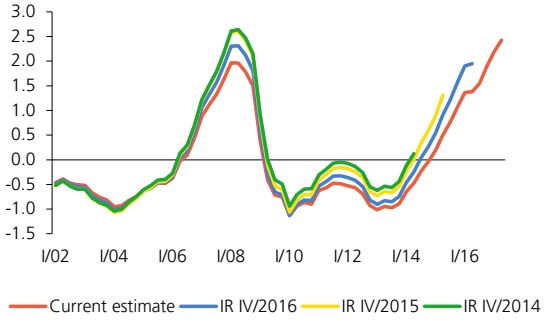
28 The higher growth in nominal unit labour costs in industry was related to a slowdown in value added coupled with stronger growth in the wage bill.

29 The LUCI is an index that aggregates information from individual labour market variables. The calculation of this index was inspired by a similar index used by the central bank of New Zealand – see Jed Armstrong, Gunes Kamber and Ozer Karagedikli (2016), Developing a labour utilisation composite index for New Zealand, No AN2016/04, Reserve Bank of New Zealand Analytical Notes series, Reserve Bank of New Zealand.

CHART 2 (BOX)

HISTORICAL SIMULATION OF THE LUCI

Shortening the time series reveals that the index is stable over time as far as the estimated phase of the cycle is concerned
(index; vertical axis shows standard deviations)



Note: The individual series show how the LUCI estimate would have turned out on the basis of the data available in the given Inflation Reports (IRs).

tightness and negative values lower labour market tightness than the long-term average. The time series are merged into several representative categories for clarity of presentation.

The LUCI has a number of advantages. Labour market data become available after a relatively short time lag and, most importantly, are subject to minimal historical revisions. This may assist in timely identification of the cyclical situation on the labour market, which hardly changes over time as a result of revisions of past data. In addition, the use of multiple time series allows for more precise identification, as the aggregation of information reduces the effect of the noise present in each time series.

Simulations show that the index is stable over time. When the data sample is shortened to the periods available in each past Inflation Report, it can be seen that the revisions almost exclusively affect the heights of the peaks of the cycle (see Chart 2). By contrast, the qualitative assessment of the position of the labour market in the cycle (more or less tight than the long-term average) remains mostly stable.

According to the LUCI, the labour market has been showing significant and increasing tightness for some time now. From the long-term perspective (since 2002), the labour market situation is currently associated with record-high pressure (see Chart 1). All of the component indicators – many of which are also at record highs – are contributing to this pressure.

III.4 FINANCIAL AND MONETARY DEVELOPMENTS

The CNB raised monetary policy interest rates in August and November, thus taking further steps towards gradually normalising monetary policy. Interest rates on the financial market subsequently also increased and the koruna strengthened moderately. Client interest rates, by contrast, remain low. The high growth in loans to the private sector stopped rising, while a gradual tightening of credit conditions by banks slowed the record-high growth in loans for house purchase.

III.4.1 Monetary policy and interest rates

The CNB raised monetary policy interest rates in August and November 2017.[30] These were the first changes in interest rates since November 2012, when the repo rate was cut to technical zero. Additionally, the August decision was the first increase in domestic interest rates since February 2008 and, together with the November rate adjustment, represented a further step – after the exit from the CNB's exchange rate commitment in early April 2017 – towards a gradual return of the overall monetary conditions to normal.[31]

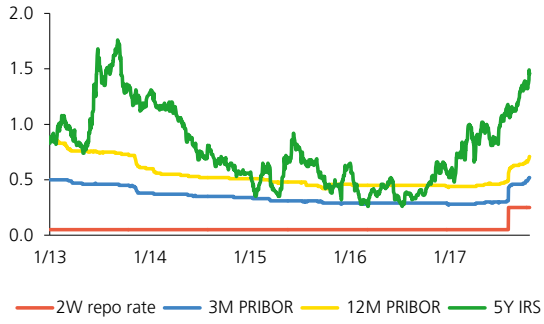
PRIBOR rates responded to the growth in the CNB's key rates by rising from their historical lows (see Chart III.4.1). The yield curve shifted upwards at all maturities to approximately the same extent as the change in the 2W repo rate. The 3M PRIBOR rate thus rose to 0.4% on average in 2017 Q3. The money market premium, as measured by the spread between the 3M PRIBOR and the 2W repo rate, declined negligibly to less than 0.25 percentage point. FRA derivative rates also went up gradually – both before and after the CNB Bank Board's August monetary policy meeting. This was due mainly to strengthening expectations of future growth in the CNB's policy rates. The end-October outlook for FRA rates indicated expectations of smooth growth in the 3M PRIBOR in the year ahead.

Domestic interest rates with longer maturities (IRS) also generally increased. They thus deviated partially from the trend on the main foreign financial markets, where rates were volatile and changed insignificantly overall. Foreign rates reflected nervousness related to the nuclear tests conducted by North Korea, which boosted interest in safe assets and led temporarily to a drop in government bond yields. By contrast, positive global economic developments, leading indicators and expectations that the ECB would announce a tapering of its asset purchase programme pushed yields upwards. Overall, domestic IRS rates have risen by 0.3–0.5 percentage point since the start of July (see

CHART III.4.1

INTEREST RATES

Financial market interest rates responded to the increase in the CNB's policy rates by rising at all maturities
(percentages)



30 The two-week repo rate was set at 0.50% and the Lombard rate at 1% with effect from 3 November 2017. The discount rate was left unchanged at 0.05%. The changes in the CNB's key interest rates (in particular the raising of the 2W repo rate from technical zero) caused the composition of sterilised liquidity to change; the size of the deposit facility decreased in favour of better remunerated repo operations.

31 See Box 1 in Inflation Report II/2017.

CHART III.4.2

GOVERNMENT BOND YIELD CURVE

The yield curve moved to a higher level and was now negative only at its shortest end
(percentages)

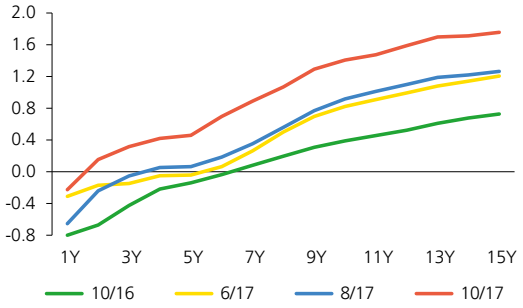


CHART III.4.3

INTEREST RATES ON MORTGAGE LOANS

After a previous modest increase, interest rates on new mortgage loans were essentially unchanged
(new business, including increases; percentages)

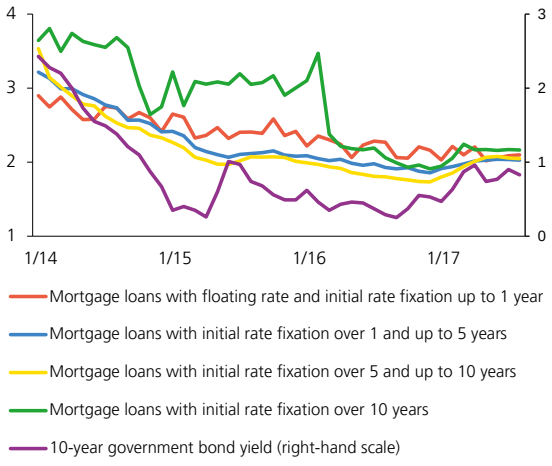


CHART III.4.4

CLIENT INTEREST RATES IN THE CZECH REPUBLIC AND THE EURO AREA

Client interest rates remain low in the Czech Republic, but are slightly higher than those in the euro area
(cost of borrowing indicators; percentages)

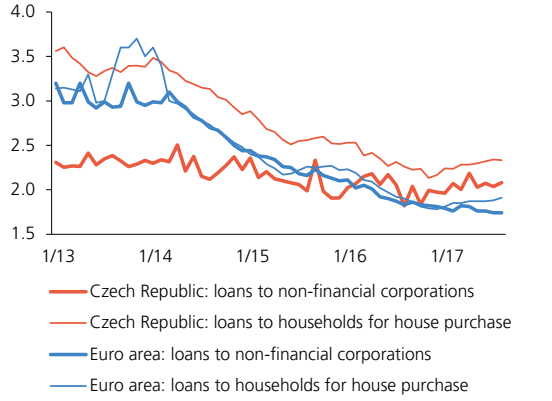


Chart III.4.1). Domestic government bond yields have recorded a similar trend. The government bond yield curve moved upwards, staying negative only at maturities of up to one year (see Chart III.4.2). Non-residents' total holdings of government bonds remain just above CZK 700 billion, i.e. at roughly the same level as when the exchange rate commitment was discontinued.

Issuance activity in the primary market shifted from government bonds to T-bills. Fourteen auctions of bonds with maturities of over one year have been held since the start of July. The amount of bonds issued was CZK 40.5 billion. The average bid-to-cover ratio was 1.7. The yields in the auctions were no longer negative,[32] so the Ministry of Finance concentrated on issuing T-bills with maturities of several weeks, whose yields remained negative, albeit only slightly. The amount of T-bills issued since the start of July reached CZK 170 billion.

Mortgage interest rates remain low despite their previous increase. The rate on mortgages with longer fixation periods rose by 0.2 percentage point on average between November 2016, when it reached a low, and April 2017. This was less than the increase in long-term financial market rates. Given the assumed high sensitivity of demand to the interest rate, banks are cautious about raising mortgage prices. The rate on new mortgage loans was just above 2% in August (see Chart III.4.3). The rate on refixed loans was 2.3%. Unlike the rate on new mortgages, it has been falling since January. The rate on new mortgages with high LTV ratios (80%–90%) rose by 0.3 percentage point to 2.2% as a result of the CNB's macroprudential measures. This was accompanied by a drop in the share of new loans in this category and, conversely, an increase in the share of new loans with an LTV of 70%–80%. Rates in this category went up by 0.1 percentage point to 2%.

Interest rates on corporate loans stayed just above 2% in Q3. The spread between client interest rates on loans in the Czech Republic and the euro area was 0.4 percentage point on average (see Chart III.4.4).[33] Real client rates on loans to corporations and loans to households for house purchase remain negative due to higher inflation, reflecting the persisting accommodativeness of the interest rate component of the monetary conditions.

Bank financing costs increased. The 3M PRIBOR interbank rate edged up to 0.4% on average in Q3. Long-term financial market rates also went up (see Chart III.4.1). On the other hand, interest rates on deposits of households remained at a record low of around 0.2% and those on deposits of non-financial corporations were almost zero.

32 The Ministry of Finance was highly active on the government bond market while the exchange rate commitment was in place, taking advantage of low, and in some cases even negative, yields.

33 Consumer credit, where the difference compared with the euro area was almost 4 percentage points despite a previous drop in interest rates below 10%, remains the exception.

III.4.2 The exchange rate

The appreciation of the koruna that occurred after the exit from the exchange rate commitment was interrupted by relative stability of the exchange rate in Q3. The koruna strengthened to CZK 26 to the euro in early July (see Chart III.4.5) and remained just above this level for most of Q3. The average exchange rate of the koruna in this period was CZK 26.1 to the euro, which represents a year-on-year appreciation of 3.5%. The koruna reacted only very briefly to the increase in the CNB's key interest rates in early August, firming below CZK 26 to the euro but returning above that level the following day after the markets interpreted the governor's remarks at the press conference as dovish. Meanwhile, further appreciation of the koruna continued to be fostered over the entire period by more robust growth of the real economy in the Czech Republic than in the euro area.[34] This, together with inflation lying in the upper half of the tolerance band, led the markets to be increasingly convinced in Q3 that the time had come for a further monetary policy tightening in the Czech Republic.[35] By contrast, the ECB – concerned about persisting low inflation and a sharp appreciation of the euro – cooled down the market optimism stemming from the solid growth of the real euro area economy by postponing the decision to reduce its asset purchase programme to after the end of 2017.

The koruna started to strengthen against the euro again following the CNB meeting in September, at which interest rates were left unchanged by only a narrow majority of the votes. The financial markets expect interest rates to be raised further at the CNB's monetary policy meeting in November and then to continue rising at a faster rate than they previously assumed. The revision of market expectations also reflects comments made by some Bank Board members, who expressed a positive attitude towards a future rate increase. As a result, the koruna strengthened below CZK 25.7 to the euro in October, which represents a year-on-year appreciation of about 5%.

Divergence between the monetary policies of the CNB and the ECB led to a further rise in the short-term koruna-euro interest rate differential. The differential between 3M PRIBOR and 3M EURIBOR money market rates, which hovered around 0.6 percentage point until the CNB's August rate increase, widened to 0.8 percentage point after the hike (see Chart III.4.6). The short-term koruna-dollar interest rate differential also moved upwards to a similar extent. It has been negative for two years now due to the previous divergence between the CNB's

CHART III.4.5

CZK/EUR AND CZK/USD EXCHANGE RATES

The appreciation of the koruna against the euro halted in Q3, but has been continuing again since the end of September

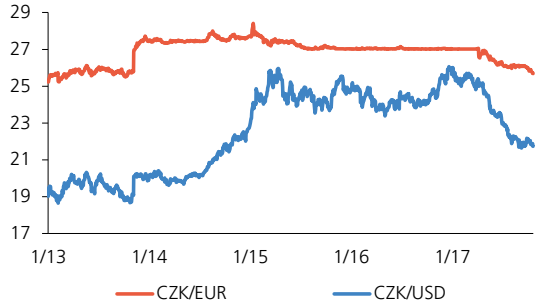
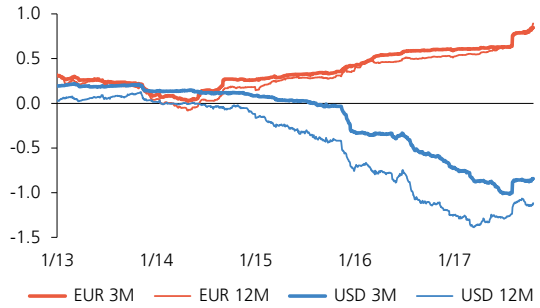


CHART III.4.6

INTEREST RATE DIFFERENTIALS

The positive interest rate differential of the koruna vis-à-vis the euro moved upwards as a result of the CNB's August rate increase, while the negative differential vis-à-vis the dollar narrowed

(percentage points)



34 Despite accelerating economic growth in the euro area, the incoming data from the Czech economy in Q3 were stronger than those from the euro area. The biggest positive surprise was strong growth of Czech GDP and wages.

35 The first increase in rates did not affect the koruna much, as it had been widely anticipated by the markets. The change in expectations about the future interest rate path that occurred after the CNB meeting in September had a stronger effect.

and the Fed's monetary policies. However, it has now narrowed to -0.9 percentage point.

The koruna continued to appreciate against the dollar until the end of August and briefly depreciated slightly after the Fed's September meeting. In July and August, the koruna-dollar exchange rate was determined mainly by the continued weakening of the dollar on global markets. The dollar was weighed down by a persisting decline in confidence in the US economy linked with local political developments. Sentiment was also affected by strong hurricanes in August and by rising uncertainty about the policy rate outlook. The ECB's increasing concerns about persistently low inflation and the strengthening euro helped to halt the dollar's depreciation trend. In addition, the Fed surprised the markets at its September meeting by announcing that its representatives expected rates to go up once more this year and rise at the same pace as before in 2018. The dollar strengthened in response to this news. The average koruna-dollar rate decreased to CZK 22.2 in Q3 as a result of the above developments (see Chart III.4.5). The koruna appreciated by a sizeable 8.3% against the dollar in year-on-year terms. However, the newly acquired optimism about the dollar lasted only until the publication of the minutes of the Fed's September meeting. The minutes reveal a considerable lack of consensus among the FOMC members about the causes of the persisting low inflation pressures in the USA and hence also about the possible scenarios for the future path of the Fed's monetary policy rates. In mid-October, the koruna-dollar rate thus returned to the levels it was at before the US central bank's September meeting (CZK 21.8 to the dollar).

The depreciation of the koruna's nominal effective exchange rate also slowed sharply in Q3 (see Chart III.4.7). It nevertheless amounted to 4.5% year on year in September. Given the weights of the currencies in the index, the key factor was the appreciation of the koruna against the euro (3.5%). The year-on-year appreciation of the koruna against the Chinese renminbi, the British pound and the US dollar (of around 8% in each case) also had a much smaller but visible effect on the effective exchange rate. The koruna appreciated the most against the Japanese yen and the Korean won (by 16.4% and 11.1% respectively). However, their weights in the index are small. The only currency of the NEER basket against which the koruna weakened in the given period was the Russian rouble.

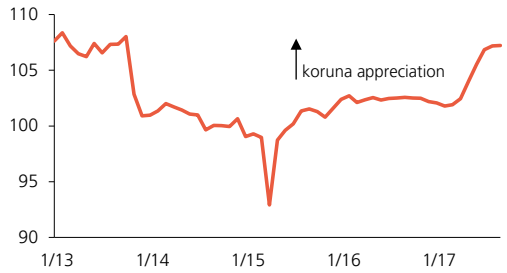
III.4.3 Credit

Growth in loans, supported by low interest rates and economic growth, remains close to 10%. The growth continues to be driven mainly by loans to households. However, their growth has been stagnating recently, as has that of loans to non-financial corporations (see Chart III.4.8). Growth in foreign currency loans to domestic financial investors, linked mainly with balance sheet hedging against exchange rate risk, remained elevated. According to the Bank Lending Survey, banks expect demand for loans to increase moderately in all segments of the credit market in 2017 Q4.

CHART III.4.7

NOMINAL EFFECTIVE KORUNA EXCHANGE RATE

After a previous sharp appreciation, the koruna exchange rate stabilised in effective terms in 2017 Q3
(basic index; year 2015 = 100)

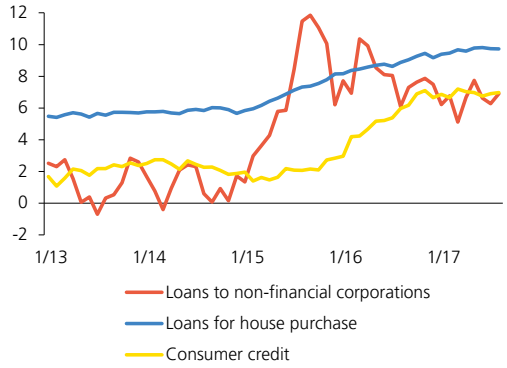


Note: In the calculation of the nominal effective exchange rate of the koruna (NEER), the euro has the largest share in the basket (64.3%). The renminbi, the zloty, the pound, the forint, the dollar and the rouble have smaller, but still significant shares (2.6%–7.8%). The shares of the remaining six currencies range between 0.9% and 1.4%. The calculation method (as applied by the IMF) includes all SITC categories.

CHART III.4.8

LOANS TO THE PRIVATE NON-FINANCIAL SECTOR

Growth in loans remains high, particularly in the loans for house purchase segment
(annual percentage rates of growth)



Banks further tightened the credit standards for loans for house purchase while leaving them broadly unchanged in the other credit market segments (see Chart III.4.9). The tightening of credit standards for house purchase loans was due mainly to continued implementation of the CNB's macroprudential measures in banks' internal regulations. An increase in banks' cost of funds and the risk stemming from expected residential property market developments acted in the same direction. This also manifested itself in a tightening of banks' terms and conditions for approving loans as regards the LTV, DTI and DSTI ratios. Downward pressure on interest margins persisted in all market segments and was strongest for consumer credit.

The gradual tightening of credit conditions helped to slow growth in loans for house purchase (see Chart III.4.8). Demand for house purchase loans as perceived by banks decreased in Q3 for the first time since 2014. This was due to previous frontloading by the market in anticipation of tighter lending conditions, by the CNB's macroprudential measures and by a rise in financial market interest rates, which some banks partly incorporated into their mortgage rates in September. Growth in mortgages thus did not increase further and stood at 10% in August. This was also reflected in total loans to households (see Chart III.4.10). The absolute volumes of new mortgages decreased, but they remain high, driven by net new mortgages.

Consumer credit growth remains buoyant (see Chart III.4.8)**.** The growth in these loans of 7% is being supported by a further easing of banks' credit standards and terms and conditions due to favourable perceptions of clients' creditworthiness. However, there were no major changes in demand in Q3, according to banks. New business was concentrated on consolidation of existing loans, while net new consumer credit fell year on year.

Loans to non-financial corporations are rising at a steady pace, and the growth is broader-based in terms of sectors than in the past. The contribution of loans to manufacturing and other sectors went up gradually, while the contribution of loans for real estate activities decreased (see Chart III.4.11). Corporations took out long-term loans and, to a larger extent than in the past, also short-term ones. The growth in loans was driven by foreign currency loans, linked mainly with hedging against exchange rate risk. The year-on-year rate of growth in foreign currency loans remains high (31%). Banks perceived growth in demand for loans due to financing of fixed investment, working capital, mergers and acquisitions and business and debt restructuring in Q3. The growth in demand was also fuelled by low interest rates. By contrast, demand for loans was reduced by the use of internal funding sources by corporations. Moreover, corporations used alternative funding sources to a larger extent, particularly loans within large multinational companies, loans from non-bank entities and trade credits. Issuance activity via quoted shares also increased.

CHART III.4.9

CREDIT STANDARDS OF BANKS

Credit standards for loans for house purchase continue to tighten

(net percentages of banking market; positive value = tightening, negative value = easing)

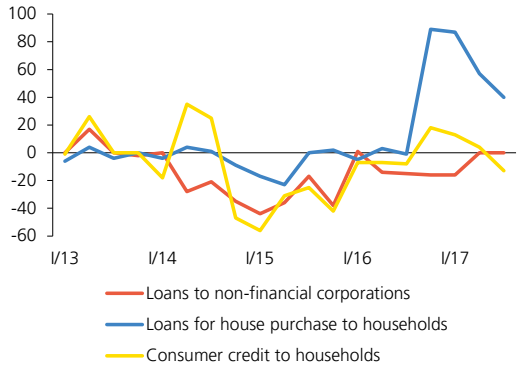


CHART III.4.10

LOANS TO HOUSEHOLDS

The slowdown in the high growth in loans for house purchase was reflected in growth in loans to households as a whole

(annual percentage rates of growth; contributions in percentage points; end-of-quarter data; most recent data are for August 2017)

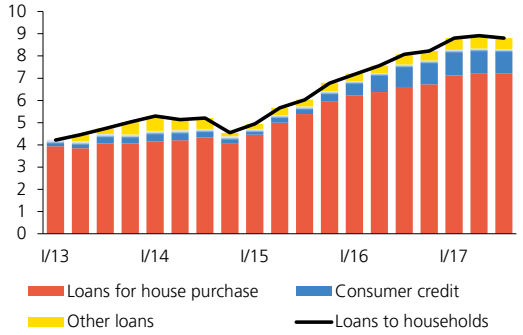
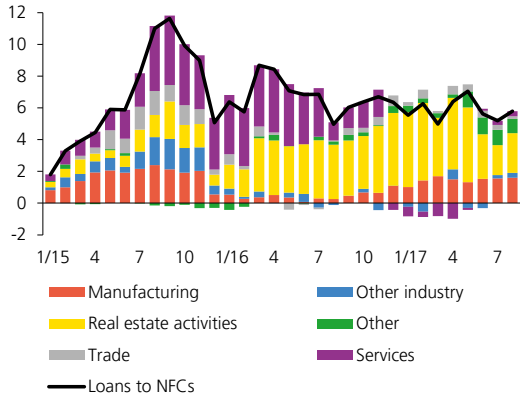


CHART III.4.11

LOANS TO NON-FINANCIAL CORPORATIONS BY SECTOR OF ACTIVITY

Loans to the sectors of real estate activities, manufacturing and transport contributed the most to the growth in corporate loans

(annual percentage changes; contributions in percentage points)

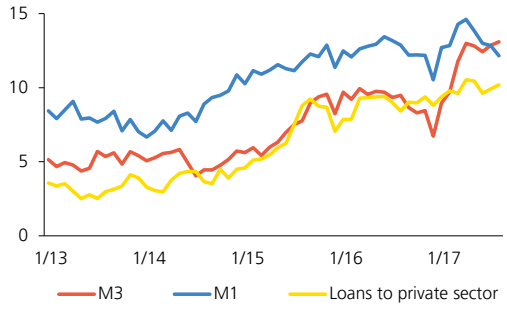


Note: Other comprises construction, agriculture and transport.

CHART III.4.12

MONETARY AGGREGATES AND LOANS

M3 growth remains high
(annual percentage rates of growth)



III.4.4 Money

M3 growth stabilised at a high level after a previous surge (see Chart III.4.12). The M3 growth of close to 13% was driven by economic growth and low interest rates, which motivated households and non-financial corporations to hold overnight deposits included in M1. The high M3 growth is also being significantly affected by specific market conditions related to overboughtness of the koruna market, which is being reflected in increased demand among domestic financial investors for koruna deposits, particularly in repo transactions with domestic banks.

AEIS	Average Earnings Information System
BoE	Bank of England
BoJ	Bank of Japan
CEB	Czech Export Bank
CF	Consensus Forecasts
CNB	Czech National Bank
CPIH	experimental consumer price index incorporating prices of older properties
CPI	consumer price index
CZK	Czech koruna
CZ-ISCO	employment classification (used since 2011)
CZSO	Czech Statistical Office
ECB	European Central Bank
EEA	European Economic Area
EGAP	Export Guarantee and Insurance Company
EIA	Environmental Impact Assessment
EIA	U.S. Energy Information Administration
EIU	Economist Intelligence Unit
ESA	European System of Accounts
ESR	electronic sales registration
ESCB	European System of Central Banks
EU	European Union
EUR	euro
EURIBOR	Euro Interbank Offered Rate
FDI	foreign direct investment
Fed	US central bank
FMIE	Financial Market Inflation Expectations
FRA	forward rate agreement
GBP	pound sterling
GDP	gross domestic product
GNP	gross national product
GVA	gross value added
HICP	harmonised index of consumer prices
HP filter	Hodrick-Prescott filter
HPI	house price index
IEA	International Energy Agency
ILO	International Labour Organization
IMF	International Monetary Fund
IRI	Institute for Regional Information
IRS	interest rate swap
JPY	Japanese yen
KZAM	employment classification (used up to 2011)
LFS	Labour Force Survey
LIBOR	London Interbank Offered Rate
LTV	loan to value
LUCI	Labour Utilisation Composite Index
M1, M3	monetary aggregates
MFIs	monetary financial institutions
MLSA	Ministry of Labour and Social Affairs
NAIRU	non-accelerating inflation rate of unemployment
NBS	National Bank of Slovakia
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
PMI	Purchasing Managers Index
pp	percentage points
PPI	producer price index
PRIBOR	Prague Interbank Offered Rate
1W, 1M, 1Y	one-week, one-month, one-year
repo rate	repurchase agreement rate
USD	US dollar
VAT	value added tax
WTI	West Texas Intermediate

This glossary explains some terms frequently used in the Inflation Report. A more detailed glossary can be found on the CNB website (www.cnb.cz/en/general/glossary/index.html).

Adjusted inflation excluding fuels: The increase in prices of non-food items of the consumer basket excluding items with administered prices, indirect tax changes and fuels.

Administered prices: A sub-category of the consumer basket consisting of items with price ceilings (set at either central or local level), prices regulated on a cost-plus basis (items whose prices may only reflect economically justified costs and a reasonable profit) and administratively fixed fees. The selection of these items is based on the Price Bulletin of the Czech Ministry of Finance.

Balance of payments: Records economic transactions with other countries (i.e. between residents and non-residents) over a particular period. The basic structure of the balance of payments includes the current account, the capital and financial accounts and the change in CNB international reserves.

Bid-to-cover ratio: The ratio of total demand to demand coverage in primary auctions of medium-term and long-term government bonds.

Consensus Forecasts: A regular monthly publication issued by Consensus Economics bringing together the forecasts of hundreds of prominent economists and analytical teams regarding future world developments. The CNB uses these predictions in its macroeconomic forecast when forming assumptions regarding the future development of the external environment.

Core inflation: (Formerly called adjusted inflation excluding fuels.) The increase in prices of non-food items of the consumer basket excluding items with administered prices, indirect tax changes and fuels.

Covered bond: A bond collateralised (backed) by long-term assets, usually mortgage loans or public sector loans. The issuers are mostly banks and the issuance of covered bonds is subject to strict legislative rules. Compared to standard bonds, this type of bond has lower credit risk thanks to higher coverage (known as dual recourse), which gives the covered bond holder a preferential claim on the issuer's receivables underlying the mortgage loans or public sector loans and likewise a claim on the issuer. If the issuer defaults, the holder therefore has a preferential right to the assets backing the covered bond.

Current account: Records exports and imports of goods and services, income from capital, investment and labour and unrequited transfers.

Cyclical component of the general government balance: Expresses the effect of the business cycle on the general government fiscal balance.

Discount rate: A monetary policy rate which as a rule represents the floor for short-term money market interest rates. The CNB applies it to the excess liquidity which banks deposit with the CNB overnight under the deposit facility.

Disinflation: A decline in inflation.

Effective euro area indicators: Proxy for the effect of economic activity (effective GDP) and inflation (effective producer prices and consumer prices) in the euro area on the Czech economy. The weights used in the calculation are equal to the shares of the individual euro area countries in the total exports of the Czech Republic to the euro area.

Effective exchange rate: Shows the appreciation (index > 100) or depreciation (index < 100) of the national currency against a basket of selected currencies for a certain time period relative to a base period. The weights applied in the basket are the shares of major trading partners in foreign trade turnover.

Escape clause: Excuses the central bank from its obligation to hit the inflation target. In the flexible inflation targeting regime, it is applied in the event of large shock changes in exogenous factors (particularly supply-side shocks, e.g. indirect tax changes) that are completely or largely outside the purview of central bank monetary policy.

Euro area: The territory of all Member States of the European Union that have adopted the euro as a single currency pursuant to the Treaty Establishing the European Community.

Financial account: Records transactions connected with the creation, liquidation and change in ownership of the financial assets and liabilities of the government, the banking and corporate sectors and other entities vis-à-vis the rest of the world. It consist of direct investment, portfolio investment, other investment and financial derivatives transactions.

Fiscal impulse: A variable taking into account the effect of fiscal policy on economic activity in the short run.

Fiscal stance: The annual change in the general government structural balance (in percentage points). A positive figure indicates fiscal restriction and a negative figure indicates fiscal expansion.

Food prices: In CNB documents, the term food prices refers to the consolidated category of prices of food and non-alcoholic beverages and prices of alcoholic beverages and tobacco.

General government balance: Revenues minus expenditures of the general government sector. A negative government balance is called a general government deficit and a positive government balance is called a general government surplus.

General government primary balance: The general government balance net of interest payments (i.e. debt service).

General government structural balance: The cyclically adjusted general government balance adjusted for extraordinary one-off operations. It captures the structural configuration of fiscal policy.

General unemployment rate: Covers the 15–64 age group (as measured by the ILO methodology in the LFS). It is the ratio of the number of unemployed persons to the labour force (i.e. the sum of employed and unemployed persons) in the given age group.

Goods and services balance: The sum of the trade balance and the services balance.

Gross domestic product (GDP): The key indicator of economic development. It represents the sum of the value added by all economic sectors. In terms of use it consists of expenditure on final consumption (consumption of households, the government and non-profit institutions), gross capital formation (fixed investment and changes in inventories) and foreign trade (net exports of goods and services).

Gross operating surplus and mixed income of the household sector: Gross operating surplus – as a part of the gross disposable income of households – is the difference between gross value added in the household sector and the sum of compensation of employees and other taxes less other subsidies on production in this sector. Gross mixed income is generated only in the household sector, where remuneration for labour performed by a firm's owner or by family members cannot be distinguished from the entrepreneurial profit of the owner.

Inflation: Commonly, inflation is considered to be recurring growth of most prices in the economy. It means a decrease in the real value (i.e. purchasing power) of a given currency relative to the goods and services which consumers buy – if there is inflation in the economy, consumers need ever more currency units of the given country to buy the same basket of goods and services. In practice, inflation is measured by the increment of the consumer price index.

Inflation pressures: Determined in the CNB's modelling system by real marginal costs in the consumption sector and are divided into domestic (in the intermediate goods sector) and imported (in the import price sector).

Inflation rate: The increase in the average (basic) consumer price index for the last 12 months relative to the average for the previous 12 months.

Inflation target: The level of consumer price inflation that the CNB endeavours to achieve, set publicly and well in advance.

Loan-to-value ratio (LTV): The ratio of the amount of a loan to the value of the property securing the financing.

Lombard rate: A monetary policy interest rate which provides a ceiling for short-term interest rates on the money market. The CNB applies it to the liquidity which it provides to banks overnight under the lending facility.

Monetary aggregates: Represent the amount of money in the economy covered in the monetary survey. According to the national definition, they are calculated from the monetary liabilities of resident monetary financial institutions to other resident sectors in the Czech Republic (households, non-financial corporations and financial institutions excluding the general government). Monetary aggregates differ according to the degree of liquidity of the individual components. The narrow monetary aggregate M1 comprises currency in circulation and overnight deposits. The broad monetary aggregate M2 comprises M1 plus total deposits with agreed maturity and redeemable at notice and repurchase agreements. The broad monetary aggregate M3 (harmonised with EU standards) comprises currency in circulation, overnight deposits, deposits with agreed maturity of up to two years, deposits redeemable at notice of up to three months, repurchase agreements, money market fund shares/units and issued debt securities with maturity of up to two years.

Monetary conditions: Represent the combined effect of interest rates (the interest rate component of the monetary conditions) and the exchange rate (the exchange rate component) on the economy. These are the key variables through which monetary policy can affect economic activity and, through it, inflation. Interest rates and the exchange rate do not necessarily affect the economy in the same direction.

Monetary policy horizon: The time horizon which monetary policy-makers focus on when making decisions and which takes into account the monetary policy transmission lag. This horizon is about 12–18 months ahead.

Monetary policy interest rates: Short-term interest rates associated with monetary policy-making. They comprise the two-week repo rate, the discount rate and the Lombard rate.

Monetary policy-relevant inflation: Inflation to which monetary policy reacts. It is defined as headline inflation adjusted for the first-round effects of changes to indirect taxes.

Money market: The part of the financial markets which is used to obtain short-term loans and where debt instruments maturing in less than one year are traded. T-bills are typical securities traded on this market. Within this market the CNB carries out its repo operations.

Nominal costs in the consumption sector: These comprise output prices in the intermediate goods sector and import sector, as final consumption goods are produced using inputs from these sectors. They also include price convergence, which approximates the productivity differential between the tradables sector and the non-tradables sector and its price effect, known as an analogy to the Balassa-Samuelson effect.

Nominal costs in the intermediate goods sector: Co-determined by prices of production factors, i.e. labour costs in the market sector and the price of capital. In addition to these components, they are determined by labour efficiency. It can be understood as a concept similar to total factor productivity, e.g. in the Cobb-Douglas production function.

Nominal unit labour costs: The labour costs needed to produce a unit of output. Nominal unit labour costs are calculated as the ratio of the nominal volume of wages and salaries to GDP at constant prices.

Price-to-average wage ratio: The ratio of the price of an apartment to the sum of the annual average wage over the last four quarters. Higher values of this indicator usually mean that apartments are overpriced. The index is calculated from property transaction prices; the latest data are estimated from asking prices.

Primary income: An item on the current account of the balance of payments comprising income from labour, capital, financial resources provided and non-produced non-financial assets (wages and salaries, dividends, reinvested earnings, interest, rent as well as taxes and subsidies on production and on imports, which represent a part of the financial flows vis-à-vis the EU budget). In a more detailed breakdown, primary income consists of three balances: compensation of employees, investment income and other primary income.

Property asking prices: Property sale asking prices in estate agencies. Asking prices should be higher than transaction prices. Property asking prices in the Czech Republic are published, for example, by the CZSO and the Institute for Regional Information (IRI).

Property transaction prices: Prices based, on the one hand, on Ministry of Finance statistics from property transfer tax returns and published by the CZSO. These prices are the closest to actual market prices in terms of methodology, but are published with a time delay. The second, alternative source of data on transaction prices is CZSO data from a survey in estate agencies, for which the time lag is considerably shorter.

Repo rate: The CNB's key monetary policy rate, paid on commercial banks' excess liquidity as withdrawn by the CNB in two-week repo tenders.

Secondary income: An item on the current account of the balance of payments covering offsets to real and financial resources provided or acquired without a quid pro quo (subsidies and contributions vis-à-vis the EU budget and EU funds, pensions, foreign assistance, benefits, etc.)

Share of unemployed persons: The ratio of available job applicants aged 15–64 to the population of the same age.

Unemployment rate: The ratio of the number of unemployed persons to the total labour force. We distinguish between the general unemployment rate, as determined by the CZSO according to International Labour Organisation methodology, and the share of unemployed persons, as determined by the Ministry of Labour and Social Affairs.

		years									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
DEMAND AND SUPPLY											
Gross domestic product											
GDP	CZK bn, constant p. of 2010, seas. adjusted	3958.1	4028.6	3999.6	3980.2	4088.2	4308.5	4415.8	**4613.7**	**4772.3**	**4920.4**
GDP	%, y-o-y, real terms, seas. adjusted	2.1	1.8	-0.7	-0.5	2.7	5.4	2.5	**4.5**	**3.4**	**3.1**
Household consumption	%, y-o-y, real terms, seas. adjusted	1.0	0.3	-1.2	0.5	1.8	3.8	3.6	**4.4**	**4.4**	**3.0**
Government consumption	%, y-o-y, real terms, seas. adjusted	0.5	-3.2	-2.0	2.5	1.1	1.9	2.0	**1.7**	**2.4**	**2.2**
Gross capital formation	%, y-o-y, real terms, seas. adjusted	4.0	1.8	-3.8	-5.1	8.5	13.1	-2.4	**3.4**	**7.2**	**3.9**
Gross fixed capital formation	%, y-o-y, real terms, seas. adjusted	1.0	0.9	-2.9	-2.5	3.9	10.4	-2.5	**5.8**	**6.2**	**3.9**
Exports of goods and services	%, y-o-y, real terms, seas. adjusted	14.2	9.2	4.5	0.2	8.7	6.2	4.3	**7.8**	**6.2**	**7.3**
Imports of goods and services	%, y-o-y, real terms, seas. adjusted	14.3	6.7	2.8	0.1	10.1	7.0	3.1	**7.0**	**8.3**	**7.7**
Net exports	CZK bn, constant p. of 2010, seas. adjusted	121.6	193.7	245.8	249.7	233.1	224.9	271.8	**320.4**	**268.8**	**272.9**
Coincidence indicators											
Industrial production	%, y-o-y, real terms	8.6	5.9	-0.8	-0.1	5.0	4.6	3.5	**-**	**-**	**-**
Construction output	%, y-o-y, real terms	-7.4	-3.6	-7.6	-6.7	4.3	7.1	-5.9	**-**	**-**	**-**
Receipts in retail sales	%, y-o-y, real terms	1.5	1.7	-1.1	1.2	5.5	8.1	6.4	**-**	**-**	**-**
PRICES											
Main price indicators											
Inflation rate	%, end-of-period	1.5	1.9	3.3	1.4	0.4	0.3	0.7	**2.5**	**2.5**	**1.9**
Consumer Price Index	%, y-o-y, average	1.5	1.9	3.3	1.4	0.4	0.3	0.7	**2.5**	**2.5**	**1.9**
Regulated prices (18.70%)*	%, y-o-y, average	2.6	4.7	8.6	2.2	-3.0	0.0	0.2	**0.0**	**1.8**	**1.7**
Food prices (including alcoholic beverages and tobacco) (24.58%)*	%, y-o-y, average	0.9	3.9	2.8	3.1	1.8	0.0	0.2	**3.7**	**3.4**	**1.7**
Core inflation (53.32%)*	%, y-o-y, average	-1.2	-0.7	-0.4	-0.6	0.5	1.2	1.2	**2.5**	**2.2**	**2.3**
Fuel prices (3.39%)*	%, y-o-y, average	12.8	9.9	6.0	-2.3	0.2	-13.5	-8.5	**6.4**	**-1.2**	**-1.2**
Monetary policy inflation (excluding tax changes)	%, y-o-y, average	0.4	1.9	2.1	0.6	0.2	0.2	0.5	**2.5**	**2.4**	**1.9**
GDP deflator	%, y-o-y, seas. adjusted	-1.4	0.0	1.5	1.4	2.5	1.2	1.2	**1.4**	**2.7**	**2.0**
Partial price indicators											
Industrial producer prices	%, y-o-y, average	1.2	5.6	2.1	0.8	-0.8	-3.2	-3.3	**1.9**	**0.9**	**2.1**
Agricultural prices	%, y-o-y, average	7.1	22.1	3.3	5.0	4.7	-6.7	-5.1	**7.9**	**3.8**	**1.1**
Construction work prices	%, y-o-y, average	-0.2	-0.5	-0.7	-1.1	0.5	1.2	1.2	-	-	-
Brent crude oil (in USD/barrel)	%, y-o-y, average	28.4	38.2	0.7	-2.6	-8.5	-46.1	-16.0	**18.4**	**2.4**	**-1.0**
LABOUR MARKET											
Average monthly wage	%, y-o-y, nominal terms	2.2	2.5	2.5	-0.1	2.9	3.2	3.7	**7.2**	**7.3**	**4.8**
Average monthly wage	%, y-o-y, real terms	0.7	0.6	-0.8	-1.5	2.5	2.9	3.0	**4.7**	**4.8**	**2.9**
Number of employees	%, y-o-y	-2.2	0.0	-0.1	1.6	0.6	2.2	2.1	**1.1**	**0.6**	**0.3**
Unit labour costs	%, y-o-y	-1.5	0.3	3.4	1.0	0.9	-0.5	3.1	**3.6**	**4.1**	**2.0**
Unit labour costs in industry	%, y-o-y	-6.2	0.7	5.9	5.1	-0.4	1.8	1.0	-	-	-
Aggregate labour productivity	%, y-o-y	3.3	2.1	-1.2	-0.8	2.2	3.8	1.3	**3.1**	**2.8**	**2.6**
ILO general unemployment rate	%, average, age 15–64	7.4	6.8	7.0	7.1	6.2	5.1	4.0	**3.0**	**2.6**	**2.6**
Share of unemployed persons (MLSA)	%, average	7.0	6.7	6.8	7.7	7.7	6.5	5.5	**4.2**	**3.7**	**3.6**
PUBLIC FINANCE											
Government budget balance (ESA2010)	CZK bn, current prices	-166.0	-109.9	-159.6	-51.1	-83.1	-29.0	35.0	**72.0**	**76.5**	**82.1**
Government budget balance / GDP**	%, nominal terms	-4.2	-2.7	-3.9	-1.2	-1.9	-0.6	0.7	**1.4**	**1.4**	**1.5**
Government debt (ESA2010)	CZK bn, current prices	1480.2	1606.5	1805.4	1840.4	1819.1	1836.3	1754.9	**1711.1**	**1691.1**	**1673.6**
Government debt / GDP**	%, nominal terms	37.4	39.8	44.5	44.9	42.2	40.0	36.8	**33.8**	**31.5**	**29.7**
EXTERNAL RELATIONS											
Current account											
Trade balance	CZK bn, current prices	40.4	75.5	123.8	167.0	220.0	188.0	250.6	**250.0**	**255.0**	**260.0**
Trade balance / GDP	%, nominal terms	1.0	1.9	3.0	4.1	5.1	4.1	5.3	**4.9**	**4.8**	**4.6**
Balance of services	CZK bn, current prices	78.5	81.3	77.6	70.4	55.7	78.0	101.1	**115.0**	**120.0**	**125.0**
Current account	CZK bn, current prices	-141.8	-84.8	-63.3	-21.8	7.9	11.3	52.6	**45.0**	**55.0**	**50.0**
Current account / GDP	%, nominal terms	-3.6	-2.1	-1.6	-0.5	0.2	0.2	1.1	**0.9**	**1.0**	**0.9**
Foreign direct investment											
Direct investment	CZK bn, current prices	-95.0	-46.8	-121.3	7.4	-80.4	49.7	-141.0	**-140.0**	**-80.0**	**-75.0**
Exchange rates											
CZK/USD	average	19.1	17.7	19.6	19.6	20.8	24.6	24.4	**-**	**-**	**-**
CZK/EUR	average	25.3	24.6	25.1	26.0	27.5	27.3	27.0	**-**	**-**	**-**
CZK/EUR	%, y-o-y, real (CPI euro area), avg.	-4.4	-2.1	1.4	3.4	6.3	-1.1	-1.2	**-**	**-**	**-**
CZK/EUR	%, y-o-y, real (PPI euro area), avg.	-3.9	-3.0	2.5	2.4	4.9	-0.4	-0.1	**-**	**-**	**-**
Foreign trade prices											
Prices of exports of goods	%, y-o-y, average	-1.0	1.7	2.9	1.2	3.5	-1.7	-3.1	**0.0**	**-2.8**	**1.6**
Prices of imports of goods	%, y-o-y, average	2.0	4.3	4.2	-0.2	1.9	-1.9	4.0	**1.1**	**-3.2**	**1.3**
MONEY AND INTEREST RATES											
M3	%, y-o-y, average	0.2	1.0	5.1	5.1	5.1	7.3	9.1	**12.2**	**8.7**	**7.8**
2W repo rate	%, end-of-period, CNB forecast = average	0.75	0.75	0.05	0.05	0.05	0.05	0.05	**0.20**	**0.69**	**1.82**
3M PRIBOR	%, average	1.3	1.2	1.0	0.5	0.4	0.3	0.3	**0.4**	**0.9**	**2.0**

* figures in brackets are constant weights in current consumer basket
** CNB calculation
- data not available/forecasted/released
data in bold = CNB forecast

2015				2016				2017				2018				2019			
QI	QII	QIII	QIV	QI	QII	QIII	QIV	QI	QII	QIII	QIV	QI	QII	QIII	QIV	QI	QII	QIII	QIV
1057.5	1073.4	1086.0	1091.6	1095.0	1104.0	1106.0	1110.9	1127.7	1155.7	**1161.5**	**1168.8**	**1177.1**	**1186.9**	**1198.2**	**1210.0**	**1220.3**	**1228.5**	**1233.6**	**1238.0**
5.2	5.8	5.7	4.9	3.5	2.8	1.8	1.8	3.0	4.7	**5.0**	**5.2**	**4.4**	**2.7**	**3.2**	**3.5**	**3.7**	**3.5**	**3.0**	**2.3**
3.7	3.7	3.8	4.1	4.0	3.6	3.7	3.0	3.0	4.4	**4.7**	**5.4**	**5.5**	**4.5**	**4.0**	**3.5**	**3.2**	**3.1**	**2.9**	**2.7**
1.4	1.4	2.6	2.3	1.9	2.2	1.8	2.1	2.4	1.7	**1.4**	**1.4**	**2.0**	**2.4**	**2.7**	**2.4**	**2.1**	**2.2**	**2.3**	**2.3**
14.8	18.5	13.4	6.2	2.8	-5.2	-4.0	-3.1	-3.4	3.6	**4.5**	**9.2**	**10.4**	**5.6**	**7.1**	**6.1**	**5.2**	**4.1**	**3.3**	**3.0**
8.4	12.0	12.4	8.6	2.1	-3.1	-4.8	-3.9	-0.1	7.9	**7.0**	**8.6**	**8.7**	**4.0**	**6.6**	**5.8**	**5.1**	**4.1**	**3.5**	**3.1**
5.4	6.0	6.8	6.6	6.7	5.6	2.8	2.3	4.9	7.3	**10.2**	**8.9**	**6.3**	**5.3**	**5.7**	**7.6**	**8.4**	**8.3**	**7.0**	**5.7**
6.6	7.8	7.5	6.0	6.5	3.0	1.9	1.4	2.6	6.2	**9.3**	**9.8**	**8.7**	**7.8**	**7.8**	**8.7**	**8.8**	**8.4**	**7.4**	**6.5**
56.6	45.6	57.6	65.0	61.9	68.8	67.2	73.9	83.8	83.1	**80.8**	**72.7**	**67.8**	**65.8**	**66.6**	**68.6**	**70.4**	**70.5**	**67.5**	**64.4**
5.1	5.6	4.1	3.7	3.5	6.2	0.7	3.3	7.5	3.2	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
9.5	12.3	7.3	1.5	-6.9	-8.9	-6.6	-2.0	-0.3	5.4	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
8.3	8.7	6.2	9.1	7.4	8.9	5.1	4.6	6.8	3.6	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
0.3	0.5	0.4	0.3	0.4	0.3	0.4	0.7	1.2	1.5	2.0	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
0.1	0.7	0.4	0.1	0.5	0.3	0.5	1.4	2.4	2.2	2.6	**2.7**	**2.4**	**2.7**	**2.6**	**2.2**	**2.0**	**1.8**	**1.9**	**2.0**
0.2	0.3	-0.2	-0.4	0.7	0.2	-0.1	-0.1	-0.5	-0.1	0.2	**0.4**	**1.6**	**1.8**	**1.9**	**1.8**	**1.7**	**1.7**	**1.7**	**1.7**
-0.9	0.7	0.3	0.0	-0.4	-0.8	0.2	1.8	3.4	2.9	3.9	**4.4**	**3.4**	**4.0**	**3.6**	**2.4**	**2.0**	**1.7**	**1.5**	**1.6**
1.1	1.1	1.1	1.3	1.3	1.1	1.1	1.4	2.1	2.5	2.7	**2.6**	**2.3**	**2.2**	**2.2**	**2.2**	**2.1**	**2.2**	**2.3**	**2.4**
-14.6	-10.1	-12.6	-16.6	-12.4	-12.4	-9.5	0.2	15.1	7.5	1.7	**1.3**	**-3.8**	**-0.5**	**1.3**	**-1.6**	**-1.7**	**-2.8**	**-0.7**	**0.2**
-0.1	0.4	0.2	0.0	0.3	0.0	0.3	1.3	2.5	2.3	2.7	**2.7**	**2.3**	**2.6**	**2.5**	**2.1**	**1.9**	**1.8**	**1.9**	**2.0**
1.5	1.3	1.0	0.8	1.5	1.1	1.3	1.1	0.5	1.0	**1.4**	**2.7**	**2.8**	**2.7**	**2.9**	**2.3**	**2.4**	**2.2**	**1.8**	**1.6**
-3.3	-2.3	-3.6	-3.5	-4.0	-4.6	-3.3	-1.1	2.7	2.3	1.4	**1.0**	**0.2**	**0.6**	**1.5**	**1.4**	**1.7**	**2.0**	**2.2**	**2.4**
-9.3	-10.9	-6.5	1.8	-2.9	-6.9	-5.7	-4.1	-0.2	11.3	12.1	**8.8**	**8.1**	**3.3**	**2.6**	**1.3**	**0.9**	**0.9**	**1.2**	**1.5**
1.0	1.3	1.4	1.3	1.3	1.1	1.1	1.2	1.2	1.5	1.6	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
-48.9	-42.1	-50.6	-41.6	-36.3	-26.1	-7.6	16.0	57.6	9.1	11.0	**9.0**	**0.7**	**7.7**	**4.6**	**-2.3**	**-1.6**	**-1.2**	**-0.8**	**-0.5**
2.3	3.3	3.5	3.7	3.8	3.3	4.0	3.7	5.4	7.6	**7.5**	**8.4**	**8.4**	**7.9**	**7.1**	**5.9**	**5.2**	**4.8**	**4.6**	**4.7**
2.2	2.6	3.1	3.6	3.3	3.1	3.5	2.3	2.9	5.3	**5.0**	**5.7**	**6.0**	**5.2**	**4.5**	**3.7**	**3.2**	**2.9**	**2.7**	**2.7**
2.1	2.4	2.0	2.1	2.8	2.0	1.9	1.9	1.1	1.3	**1.3**	**1.0**	**0.7**	**0.7**	**0.6**	**0.5**	**0.5**	**0.4**	**0.3**	**0.2**
-1.0	-1.0	0.0	0.1	2.7	1.5	4.1	4.0	2.7	4.7	**3.2**	**3.6**	**4.1**	**5.4**	**4.3**	**2.7**	**1.8**	**1.5**	**1.9**	**2.6**
-0.7	0.4	3.0	4.4	5.3	-1.3	1.5	-1.2	-1.8	5.6	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3.8	4.1	3.8	3.7	1.8	2.9	0.4	0.2	2.5	2.1	**3.6**	**4.3**	**3.7**	**1.9**	**2.6**	**3.0**	**3.1**	**3.0**	**2.5**	**2.0**
6.1	5.0	4.9	4.5	4.4	4.0	4.0	3.6	3.5	3.0	**2.9**	**2.7**	**2.8**	**2.6**	**2.6**	**2.6**	**2.7**	**2.5**	**2.6**	**2.6**
7.5	6.4	6.2	6.0	6.3	5.4	5.3	5.0	5.1	4.2	3.9	**3.8**	**4.1**	**3.6**	**3.6**	**3.6**	**4.0**	**3.5**	**3.5**	**3.6**
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74.4	45.9	33.1	34.6	83.7	81.5	45.5	39.9	90.9	74.6	**42.0**	**42.5**	**86.0**	**80.0**	**44.0**	**45.0**	**87.0**	**82.0**	**45.0**	**46.0**
7.0	4.0	2.8	2.9	7.5	6.7	3.8	3.2	7.8	5.9	**3.3**	**3.2**	**6.9**	**6.0**	**3.2**	**3.2**	**6.6**	**5.8**	**3.1**	**3.1**
19.2	19.4	20.2	19.3	24.5	24.8	27.4	24.4	26.7	30.3	**31.0**	**27.0**	**28.0**	**32.0**	**32.0**	**28.0**	**29.0**	**33.0**	**34.0**	**29.0**
93.4	-48.4	-48.4	14.7	109.9	-11.6	-22.8	-22.8	97.6	-7.6	**-40.0**	**-5.0**	**99.0**	**-4.0**	**-40.0**	**0.0**	**101.0**	**-8.0**	**-43.0**	**0.0**
8.8	-4.2	-4.1	1.2	9.9	-1.0	-1.9	-1.8	8.4	-0.6	**-3.1**	**-0.4**	**8.0**	**-0.3**	**-2.9**	**0.0**	**7.6**	**-0.6**	**-3.0**	**0.0**
3.3	-1.4	20.2	27.6	9.6	-84.2	-51.6	-14.8	-62.7	-29.1	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
24.5	24.8	24.3	24.7	24.5	23.9	24.2	25.1	25.4	24.1	22.2	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
27.6	27.4	27.1	27.1	27.0	27.0	27.0	27.0	27.0	26.6	26.1	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
0.5	-0.7	-2.3	-2.0	-2.4	-1.4	-0.4	-0.7	-0.7	-2.6	-4.4	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1.3	0.0	-1.0	-1.7	-1.8	-0.3	0.8	1.0	0.8	-1.0	-2.5	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
-0.5	-0.5	-2.7	-3.3	-4.2	-4.3	-2.7	-1.3	2.2	1.0	**-1.1**	**-2.0**	**-4.9**	**-3.8**	**-1.6**	**-0.8**	**0.6**	**1.7**	**2.0**	**2.0**
-1.5	0.0	-2.5	-3.8	-5.6	-6.3	-3.7	-0.4	5.1	2.9	**-0.9**	**-2.8**	**-5.8**	**-4.3**	**-1.4**	**-1.0**	**0.3**	**1.4**	**1.7**	**1.7**
5.7	6.4	8.0	9.1	9.6	9.6	9.1	7.9	10.2	12.7	**12.8**	**13.2**	**10.7**	**8.3**	**7.9**	**7.8**	**8.0**	**8.1**	**7.9**	**7.2**
0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.17	**0.51**	**0.65**	**0.66**	**0.65**	**0.79**	**1.11**	**1.55**	**2.05**	**2.59**
0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	**0.7**	**0.8**	**0.9**	**0.9**	**1.0**	**1.3**	**1.7**	**2.2**	**2.8**

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