

Monetary Policy Report

Autumn 2021



Czech National Bank — Monetary Policy Report — Autumn 2021

This Monetary Policy Report was approved by the CNB Bank Board on 11 November 2021 and (with some exceptions) contains the information available as of 22 October 2021. By means of this document, the CNB fulfils its statutory duty to regularly inform constitutional officials and the public about monetary developments. Unless stated otherwise, the sources of the data are the CZSO or the CNB. All the reports published to date, along with the underlying data, are available on our [website](#). A large part of the data we evaluate in our monetary policy decision-making can be found in the Chartbook, which is a parallel publication to the Monetary Policy Report.

Contents

GOVERNOR'S FOREWORD	5
THE DECISION, AND THE CURRENT OUTLOOK AND ITS RISKS	6
I. ECONOMIC DEVELOPMENTS ABROAD	8
BOX 1 Inflation expectations in the euro area	12
II. THE REAL ECONOMY AND THE LABOUR MARKET	14
III. INFLATION	21
BOX 2 To what extent are the domestic demand environment and the labour market contributing to the current growth in consumer prices?	25
BOX 3 Differences in the measurement of consumer price inflation from the point of view of the national consumer price index (CPI) versus the EU harmonised index (HICP)	27
IV. MONETARY POLICY	29
Scenario of longer-lasting disruptions to global production chains	35
Simulations of slower rate growth with inflation expectations anchored to different degrees	40
Scenario of fiscal restriction in 2023	42
BOX 4 Monetary policy transmission in the Czech economy	43
ABBREVIATIONS	47
KEY MACROECONOMIC INDICATORS	48



2%

— We maintain price stability

Under the Constitution of the Czech Republic and in accordance with primary EU law, the primary objective of the Czech National Bank is to maintain price stability. The central bank contributes to sustainable economic growth by maintaining a low-inflation environment. We have been pursuing price stability in an inflation targeting regime since 1998.

— We are transparent

Our monetary policy is based on a publicly announced inflation target of 2% and open communication with the public. We believe that by being transparent and predictable, the central bank assists households and companies in their economic decision-making.

— We look to the future

A decision made by the CNB Bank Board today will affect inflation 12–18 months ahead. The CNB's forecast describes the most likely future path of the economy as seen by our Monetary Department's economists. The forecast is produced four times a year and, along with a discussion of related risks and uncertainties, is the key, but not the only, input to the CNB Bank Board's monetary policy decisions.

— We decide on rates

The CNB's main monetary policy instrument is the two-week repo rate. The decision on the level of this rate sends an impulse through the financial market to the whole economy, ultimately affecting inflation in such a way as to keep it close to the target. The Bank Board meets eight times a year to discuss monetary policy issues. When making rate decisions, the members of the Bank Board discuss the current forecast and assess the newly available information and the risks and uncertainties of the forecast.

Governor's foreword



Dear Readers,

The coronavirus crisis is increasingly resembling the Hydra: as soon we chop off one of its heads, it regrows two new ones. Each head is different and creates a need for new lines of defence. The economy was hit by a strong negative demand shock as a result of the shutdowns of many sectors after the onset of the pandemic. Fiscal policy in particular responded to this shock using targeted support measures to prevent uncontrollable knock-on disruptions. Substantial monetary policy easing played a supporting role at the time.

The second line of defence – this time an anti-epidemic one – was large-scale vaccination this year. Together with immunity acquired through infection, this aided a rapid economic recovery this summer. Although great hopes were initially pinned on this recovery, it turned out to be too fast for the relatively inelastic aggregate supply to keep up. Excess demand, numerous disruptions to markets in commodities, production components and energy, and bottlenecks in global cargo transport caused an adverse cost shock that is leading to sharp and concurrent growth in many prices. Monetary policy therefore began to play an increasing role in the summer and is now becoming the main line of defence against the accelerating inflation. The higher the share of inflation pressures originating in the domestic environment, especially the persistently overheated labour market, the more essential the role of monetary policy.

Only recently it seemed that the overall uncertainty had receded with the start of the recovery. Yet the uncertainties due to overloaded global supply chains are now mostly growing again and the return to normal economic function is at best being put off constantly. The high growth in new coronavirus cases in the Czech Republic and neighbouring countries also raises doubts whether the pandemic will be kept under reasonable control.

Even at this time of high inflation pressures and many economic uncertainties, the CNB will fulfil its statutory mandate to maintain price stability. It began raising interest rates in late June and will continue to do so until it is convinced that inflation will return to the inflation target in a sustainable manner over the monetary policy horizon, i.e. 12 to 18 months ahead. Our task will be to stop the still solidly anchored inflation expectations from becoming untethered, to prevent second-round inflation pressures from spreading and to avert a wage-price spiral. Inflation will keep rising in the next few months but will slow markedly again next year. I believe that “chopping off the inflationary head” will go hand in hand with the definitive end of the pandemic.

On behalf of the Czech National Bank

A handwritten signature in black ink, appearing to read 'J. Rusnok'.

Jiří Rusnok

Governor

The decision, and the current outlook and its risks

At its November meeting, the Bank Board increased the two-week repo rate to 2.75%. The decision is based on the CNB's autumn macroeconomic forecast. The forecast expects inflation to rise significantly further and approach 7% at the start of next year. Consistent with the forecast is a sharp rise in market interest rates at the end of this year and the start of 2022. Coupled with the rise in interest rates, a fade-out of the current exceptionally strong inflation pressures in the domestic and foreign economies will cause inflation to start slowing next year. In late 2022 and early 2023, i.e. over the monetary policy horizon, inflation will fall close to the 2% target. Lengthier overloading of global supply chains, which, together with a weaker exchange rate and higher growth in energy prices and imputed rent, could result in even higher inflation than forecasted, is a risk to this outlook. Fiscal restriction in 2023 is a slight risk in the opposite direction if public finances undergo consolidation.

The recovery that began when the economy reopened in the spring continued into the summer. However, the year-on-year growth of the economy slackened considerably due to base effects. Besides a continued recovery in household consumption, the economy was supported by robust growth in private and public fixed investment and government consumption. By contrast, the previously solid export growth slowed significantly due to escalating problems with supplies to the export-oriented Czech industry, which could not produce the quantities demanded and had to store part of its unfinished output. Persisting overloading of global production and supply chains and ensuing problems with supplies to domestic industry will continue to weigh on the Czech economy's production and export performance at the end of this year. By contrast, epidemiological measures, which may be imposed in the autumn due to a resurgence of coronavirus cases, will have no tangible economic impacts.

With significant fiscal support, the domestic labour market has coped relatively well with the effects of the pandemic and is getting increasingly overheated again. Fundamental wage growth (i.e. wage growth adjusted for statistical and one-off effects) in market sectors slowed in 2021 Q2 but accelerated again in the summer. In addition, the decline in total employment has halted and the share of unemployed persons is falling markedly again. Firms are reporting large numbers of vacancies, and the reopened services sector in particular is facing labour shortages.

Inflation rose well above the upper boundary of the tolerance band around the CNB's target in 2021 Q3, amid rising core inflation. Within this component, the contribution of the cost of owner-occupied housing (imputed rent), which has a relatively high weight in the domestic consumer price index, increased dramatically. This reflects the current high growth in prices of construction work and materials, and long-running rapid growth in property prices. The marked pick-up in headline inflation also reflects a surge in

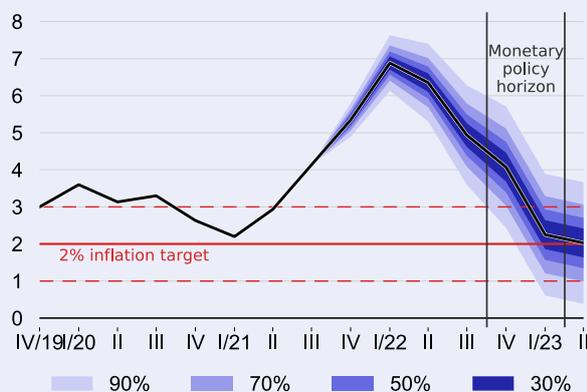
consumer demand following the lifting of anti-epidemic measures in both the services and goods sectors. By raising their prices, firms are making up partly for the low or zero sales they recorded during the shutdowns and for growth in their costs. The latter stems both from the domestic economy and from abroad, where industrial producer prices are rising apace due to supply chain disruptions. This is being accompanied by a significant rise in prices of energy, commodities and materials. Domestic food price inflation also picked up at the end of the summer. In addition, administered price inflation can be expected to rise sharply at the start of next year on the back of a surge in electricity and natural gas prices on commodity exchanges. Its acceleration will be only slightly postponed by a temporary waiver of VAT on electricity and gas for households at the end of this year. Fuel prices also continue to record significant year-on-year growth due to global oil prices and base effects.

At the close of the year, the Czech economy is facing problems with supplies of components from abroad, which are leading to production constraints and plant shutdowns, especially in the automotive industry. However, this will have no major negative impacts on the rest of the economy, thanks partly to immediate fiscal support. Moreover, these complications will fade out in the first half of 2022. This will be reflected in a recovery in exports and a subsequent relatively swift renewal of economic growth.

Following an increase in GDP of around 2% this year, the Czech economy will grow by almost 4% in the next two years. Economic activity will thus return to the pre-pandemic level at the end of 2022. Besides the effect of recovering exports, the economy will be supported by steady growth in private and government investment. It will also benefit from a continued rise in household consumption, supported (especially to begin with) by spending of previously created forced savings.

Inflation will rise well above the upper boundary of the tolerance band in late 2021 and early 2022 and decline close to 2% over the monetary policy horizon

headline inflation; y-o-y in %; confidence intervals in colours



The monetary policy horizon is 12–18 months ahead. This is the period when the Bank Board's current decision has the greatest impact on inflation.

Despite a wobble at the year-end, domestic economic activity will rise by around 2% this year and accelerate in the next two years

y-o-y changes in % (unless otherwise indicated); changes in pp compared to previous forecast in brackets

	2021	2022	2023
Headline inflation (%)	3.7 (0.6)	5.6 (2.7)	2.1 (0.0)
GDP	1.9 (-1.7)	3.5 (-0.6)	3.8 (0.8)
Average nominal wage	5.6 (0.2)	5.7 (1.5)	5.0 (0.2)
3M PRIBOR (%)	1.2 (0.3)	3.3 (1.4)	2.8 (0.6)
Exchange rate (CZK/EUR)	25.6 (-0.1)	24.2 (-0.3)	23.9 (-0.3)

Green indicates a shift of the forecast to higher levels, or to a weaker koruna exchange rate, compared with the previous forecast. Red indicates a shift in the opposite direction.

The solid income situation and consumer appetite of households will continue to stem mainly from the still very good shape of the domestic labour market. Unemployment will continue to decline. Adjusted wage growth will temporarily accelerate further in early 2022, aided by a further marked rise in the minimum wage.

The previously expansionary fiscal policy will turn restrictive next year due to the discontinuation of government support measures, despite another higher-than-usual increase in pensions. In 2023, fiscal policy will have a neutral effect on GDP growth given the measures approved so far on both the revenue and expenditure sides of public budgets.

Inflation will rise further in the months ahead, moving well away from the upper boundary of the tolerance band around the CNB's target. This will be due to a combination of several strong inflationary factors. Food price inflation will increase further as a result of growth in agricultural commodity prices. Core inflation will also rise further, driven by fading rapid growth in foreign producer prices, which is interacting with solid domestic demand. The contribution of imputed rent to core inflation will remain significant as well. The rise in prices of electricity and natural gas will cause administered price inflation to surge at the start of 2022. Inflation will also be supported by continued high year-on-year growth in prices at filling stations due to high oil prices.

The desired inflation turnaround will occur in the course of next year. Foreign producer price inflation will ease substantially as the disruptions to global supply chains abate. The high growth in fuel prices will also fade as global oil prices stabilise. Appreciation of the koruna against the euro will support these two foreign factors in putting downward pressure on domestic inflation.

The domestic sources of the current exceptionally high inflation will also start to dissipate gradually. The profit margins of goods sellers and service providers will fall over time as households and firms gradually take the growth in real interest rates into account in their decisions. This will reduce their consumption appetite and willingness to accept rapid price growth. Growth in domestic costs will also slow over time as the anti-inflationary effect of rising labour efficiency resumes and wage growth gradually stabilises.

Owing to the tightening monetary conditions and the fade-out of this year's price growth, headline inflation will fall relatively quickly in the second half of next year. It will decline close to the CNB's 2% target over the monetary policy horizon, i.e. in late 2022 and early 2023. Monetary policy-relevant inflation will be slightly below headline inflation over almost the entire horizon, due mainly to an increase in excise duty on cigarettes.

Continued exchange rate appreciation will be fostered by a widening positive interest rate differential vis-à-vis the euro area, amid a gradual fade-out of the current problems in industry during 2022. Domestic interest rates can be expected to rise sharply at the end of this year and the start of 2022. This reflects a need to react to the combination of exceptionally strong price pressures in the domestic and foreign economies and prevent them from passing through to inflation in the longer term. The CNB's response will also help anchor inflation expectations. During 2022, a gradual decline in interest rates towards the 3% long-run neutral level will become possible, as inflation will have started to decrease towards the target thanks to the forceful monetary policy tightening.

I. ECONOMIC DEVELOPMENTS ABROAD

Economic growth in the Czech Republic's main trading partner countries will gradually weaken in the second half of this year, owing mainly to persisting overloading of global production and supply chains and related problems with supplies of materials and components. Strong demand is thus coming up against production constraints. This is greatly increasing the price pressures, which are being exacerbated by rising prices of oil and other energy commodities. Markets are therefore increasingly expecting the ECB to tighten monetary policy gradually. The overloading of global production chains will abate around mid-2022. This will be reflected on the one hand in rising economic growth and on the other in falling price pressures, which will also be eased by an energy price correction.

The global economy continues to face the impacts of the coronavirus pandemic

Economic performance increased in 2021 Q2, especially in advanced countries, and continued growth is expected next year (see Table I.1). However, the world economy is facing many constraints, in particular unexpectedly long-lasting problems in production and supply chains. This has now been joined by shortages of energy commodities, prices of which are attacking historical highs (see Chart I.1). In addition, consumer price inflation in advanced countries and China is being fuelled by unprecedented government stimuli as well as spending of savings stemming from deferred consumption during the pandemic. The growing inflation pressures and related expectations of monetary tightening pose a threat to the governments of countries that saw a dangerous rise in debt due to the pandemic.

According to leading indicators, global manufacturing growth stabilised in September after having slowed for several months. Europe and the USA are recording the strongest growth in industry, while the figures for most Asian economies and Russia are weaker. In many countries, industrial firms are facing shortages of skilled workers. The automotive industry saw a sharp decline in global production in September. China and other countries are short of sea transport capacity. Year-on-year growth in international trade has peaked (see Chart I.2).

Amid low vaccination coverage in some countries, the course of the pandemic poses a risk to global growth. This may exacerbate the problems with shortages of energy commodities and some components in manufacturing. The current extreme rise in their high prices is leading to strong growth in industrial producer prices (see the *Scenario of longer-lasting disruptions to global production chains* in section IV).

Table I.1

Economic growth increased in advanced countries but weakened in China in Q2

real GDP; y-o-y changes in %; source Refinitiv, CF, EIU

	2019	2020	2021	2021	2021	2022	2023
			Q1	Q2			
Euro area	1.5	-6.5	-1.2	14.3	5.1	4.4	2.2
USA	2.3	-3.4	0.5	12.2	5.7	4.1	2.5
China	6.0	2.4	17.7	7.3	8.2	5.5	5.0
United Kingdom	1.7	-9.7	-5.8	23.6	6.9	5.1	2.0

Chart I.1

According to market expectations, the unusually high energy prices will fall at the end of the coming winter but will remain elevated until early 2023

energy commodity prices; index: January 2017 = 100; source Bloomberg, CNB calculation

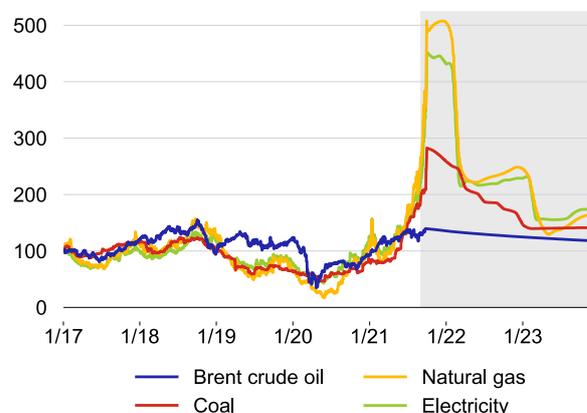
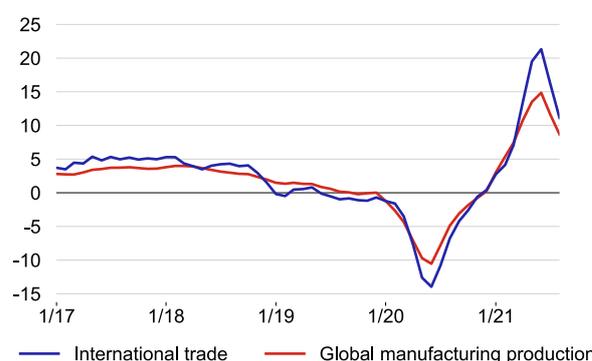


Chart I.2

Problems with renewed spread of the pandemic, especially in Asia, have slowed growth in global industrial production and trade

y-o-y growth in global manufacturing production and trade in %; three-month moving averages; source World Trade Monitor, CNB



COMPARISON WITH THE PREVIOUS FORECAST: Economic developments abroad

		2021	2022	2023	
GDP (in the effective EA)	y-o-y changes in % pp	3.4 (-0.6)	4.0 (-0.4)	3.0 (0.8)	Greater overloading of global supply chains and bigger shortfalls in industrial supplies are reflected in lower GDP growth in 2021 and 2022 than in the prev. forecast; growth in 2023 will be higher.
Consumer prices (in the effective EA)	y-o-y changes in % pp	2.8 (0.6)	2.5 (0.8)	1.6 (-0.2)	The consumer price inflation outlook is higher for this year and the next, mainly because of stronger growth in energy prices and stress on the final goods market.
Producer prices (in the effective EA)	y-o-y changes in % pp	9.0 (2.6)	6.0 (4.0)	1.0 (-0.7)	Persisting problems in supply chains amid solid demand, coupled with growth in energy commodity prices, are reflected in a sizeable upward revision of the producer price outlook.
Brent crude oil price	USD/barrel	70.8 (3.0)	75.3 (8.6)	69.7 (6.4)	The Brent crude oil price outlook has shifted distinctly higher due to reduced oil production, faster growth in demand for oil and high prices of alternative fuels (natural gas and coal).
3M EURIBOR	% pp	-0.5 (0.0)	-0.5 (0.0)	-0.3 (0.1)	The slightly higher 3M EURIBOR outlook for 2023 reflects higher market expectations regarding future inflation and hence a slightly stronger reaction to them by the ECB.
Exchange rate	USD/EUR	1.19 (0.00)	1.19 (-0.01)	1.20 (-0.01)	The euro-dollar exchange rate forecast is almost unchanged and does not stray from the current level over the next two years.

Note: Changes compared to the previous forecast in brackets (a green label indicates an increase in value and a red label a decrease)

As a result of the persisting problems in global supply chains, economic growth in the euro area will slow gradually in the second half of this year, while inflation will stay high

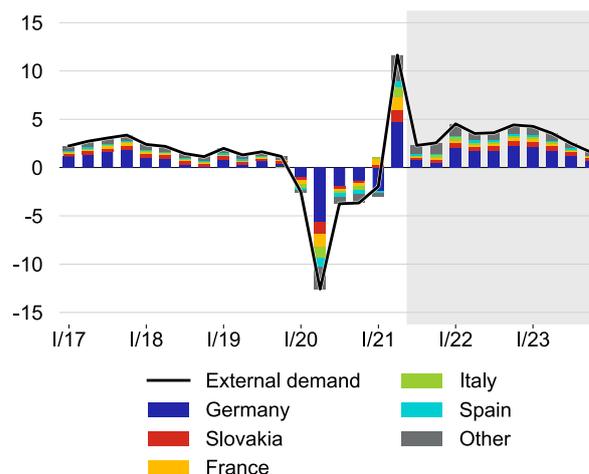
The lifting of government shutdowns sparked buoyant growth in effective euro area GDP in 2021 Q2 (see Chart I.3). Higher household consumption had a positive impact on retail and wholesale trade and in services, which became the main engine of the economic recovery. Government consumption also made a positive contribution to GDP growth. However, net exports were adversely affected by the overloading of global supply chains, which constrained industrial production and export performance. Industrial production and supplies to the consumer market were disrupted by delayed deliveries of materials and components for industry, as well as final goods, throughout Europe.

The overloading of production and supply chains worsened further in Q3 due to renewed spread of the pandemic and ensuing production and transport constraints in South-East Asia (see Chart I.4). The situation was the most severe in Germany, especially in high-value-added sectors (automotive, machinery, etc.). Chip supplies were hit particularly hard, to an extent that caused car production in Germany to drop by one-third year on year in August. The month-on-month fall in euro area industrial output in August is in line with that. In Germany alone, the fall was even more pronounced. All the signs are that Germany and especially Slovakia recorded lower quarter-on-quarter GDP growth in 2021 Q3. By contrast, the southern euro

Chart I.3

After last year's contraction, the economies of all the key euro area countries will recover this year

annual GDP growth in % in effective euro area; contributions in pp; seasonally adjusted



area countries (Spain, Italy and France) benefited from a rather favourable summer tourist season and will record relatively faster growth.¹ According to the forecast, economic activity in the effective euro area will be 2.3% higher year on year in Q3.

Quarterly economic growth in the euro area will slow further in 2021 Q4. Economies with large automotive sectors, which face the most acute supply chain problems, will be hit hardest. Strong demand for final goods will thus continue to come up against insufficient production. Given the persisting problems in industry, growth will be driven mainly by services. According to the European Commission, consumer confidence improved further and overall economic sentiment remained high. However, the autumn pandemic wave may dampen the general optimism somewhat. On the other hand, across-the-board shutdowns will no longer be imposed given the high vaccination coverage and immunity from previous infection of the European population. That said, some caution can be expected in consumption, as customers may be put off by higher prices, limited choice and shortages of goods. At the start of the heating season, moreover, the euro area was hit by an extreme rise in natural gas and electricity prices on commodity exchanges. Sooner or later, this will adversely affect both households and firms. Overall, GDP growth in the effective euro area will reach 3.4% this year.

The economic situation next year will continue to be characterised by a lack of smoothness in supplies of materials and components, which will disrupt activity in some sectors. The stress in supply chains will ease around mid-2022. This will be reflected in a pick-up in economic growth in the effective euro area. The recovery will be broad-based across all the Czech Republic's main trading partners. Continued drawdown of funds from national recovery and resilience plans (under NextGenerationEU) will also make a positive contribution to economic performance. In 2022 as a whole, GDP growth in the effective euro area will thus accelerate and the European economy will return to its pre-pandemic level. Together with rapid GDP growth, the negative output gap will gradually close next year.

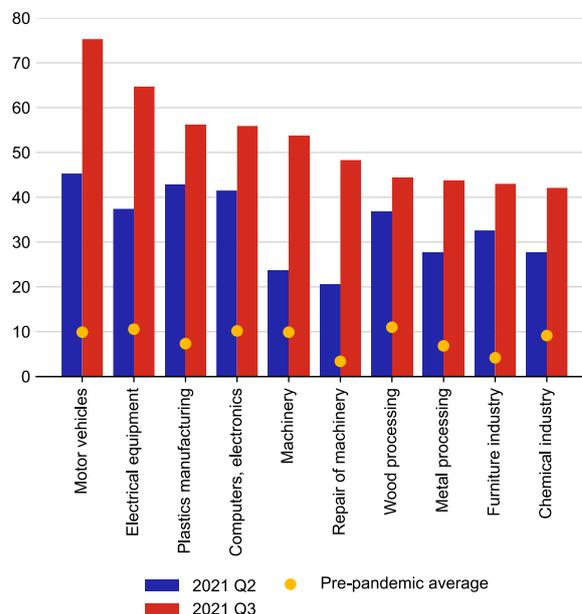
The inflation pressures in the production sector rose markedly in the summer months and will increase further until the end of this year

The inflation pressures in industrial production are exceptionally strong at the moment (see Chart I.5). Besides growth in prices of crude oil and other energy commodities, especially natural gas and electricity,²

Chart I.4

Shortage of material and/or equipment is the main factor increasingly limiting the production of many industries in the euro area

balance of answers to question of whether shortage of material is limiting production (euro area by industry); source European Commission Business and Consumer Survey



Wholesale prices of natural gas and electricity in Europe reached all-time highs in early October. In the past, the gas price outlook was derived from expected oil price movements for the purposes of the forecast. However, this no longer makes sense, as the amount of long-term contracts for gas imported into Europe with price indexation based on oil prices has fallen dramatically in recent years. Long-term contracts accounted for over 90% of the total import volume in 2005 and 60% in 2012, but less than 20% in 2020. Therefore, the natural gas price outlook is currently derived from the market futures curve, as in the case of oil and electricity prices.

¹ According to Eurostat's flash estimate, GDP in the effective euro area rose by 1.9% quarter on quarter in 2021 Q3. This figure is not included in the forecast, as it was released after the closing date of the latter.

² There is open talk of an energy crisis in this regard.

high demand for industrial goods is still having an inflationary effect. This is being reflected in core producer price inflation. The inflation pressures will start to ease at the start of next year as the stress in supply chains abates.³ An expected decrease in the Brent crude oil price will also reduce the inflation pressures. According to market contracts, oil prices will edge down in the next two years. Prices of natural gas and electricity should continue to rise until the start of 2022 but are also expected to correct thereafter. Conversely, prices of industrial metals and food commodities will remain elevated until the end of the forecast horizon. Following this year's record-high growth, annual industrial producer price inflation in the effective euro area will thus slow to 6% on average in 2022. A further slowdown is expected in 2023.

Owing to the elevated price pressures, consumer price inflation in the effective euro area will near 5% at the end of this year. However, besides a gradual dissipation of one-off inflationary factors (a temporary change in the VAT rate and the price impact of a change in taxation of carbon dioxide emissions in Germany), the pressures stemming from rising energy prices and problems with goods supplies will also decrease next year. Inflation will thus remain elevated until mid-2022 but then drop below the ECB's 2% target again.

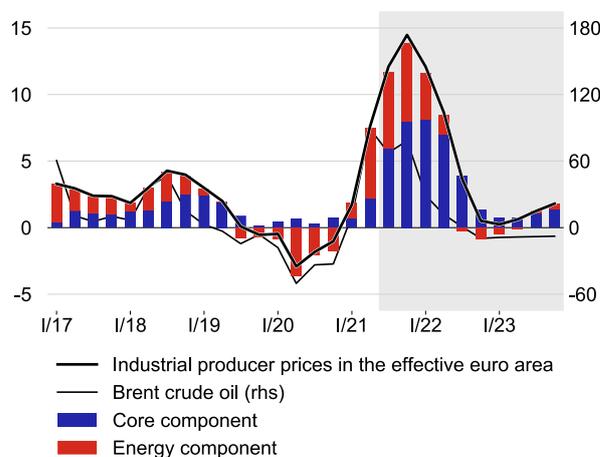
The growth in inflation and a gradual change in the ECB's rhetoric have been reflected on financial markets, which are starting to bet on a tightening in the foreseeable future

The 3M EURIBOR outlook remains negative (see Chart I.6) but will rise slightly in the longer term. The ECB has so far attributed the current inflation to temporary and short-term price pressures. It has therefore kept monetary policy highly accommodative to avoid stifling the post-pandemic recovery. At its September meeting, though, it said it would reduce asset purchases under its pandemic programme (PEPP) as from 2021 Q4.⁴ However, some leading ECB representatives are becoming increasingly hawkish, calling for a more forceful decrease in the pace of asset purchases in view of the persisting inflation pressures and partly rising inflation expectations (see Box 1 at the end of this section). The financial market has responded with a modest rise in government bond yields and interest rate swaps. The euro is expected to appreciate only slightly against the dollar.

Chart I.5

The current substantial price growth abroad will be replaced by a gradual fall in inflation next year

annual industrial producer price inflation in effective euro area in %; contributions in pp; y-o-y changes in Brent crude oil price in %

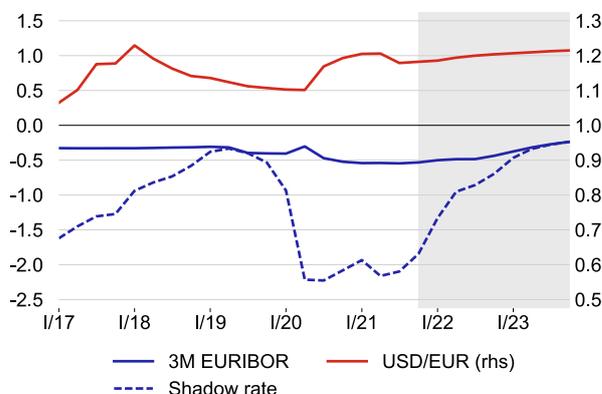


The ECB's monetary policy stance is expressed using the **short-term euro interbank rate (3M EURIBOR)**. Its outlook is based on market data on interest rate swaps. As this rate has been negative for several years now and the ECB is using unconventional monetary policy instruments, a "shadow rate" enters the CNB forecast. This rate is based on the market outlook for the 3M EURIBOR and additionally reflects the expected amount of net asset purchases by the ECB on financial markets.

Chart I.6

The foreign interest rate outlook expects the ECB to start tentatively tightening monetary policy; the euro-dollar exchange rate remains stable

3M EURIBOR and shadow interest rate in %; USD/EUR nominal exchange rate



³ Despite increased congestion in global ports, the start of a turnaround in sea transport prices was observed in October.

⁴ The October meeting showed that the ECB expects the PEPP programme to end in March 2022 and its full volume (EUR 1.85 trillion) may not be used.

BOX 1 Inflation expectations in the euro area

Inflation expectations provide information about how economic agents view future inflation. They simultaneously have a significant effect on actual inflation. Firms change their prices based on their expectations. In collective bargaining, growth in wages and salaries adjusts to the expectations of firms and trade unions. This in turn is reflected in costs and, coupled with households' inflation expectations, in prices of goods and services. Expectations of higher prices thus often become a self-fulfilling prophecy. The anchoring of inflation expectations at the central bank's target is meanwhile an important measure of the success of its monetary policy. This box examines how inflation expectations in the euro area are formed against the background of the current rapid price growth and the so far tentative approach of the ECB.

The euro area has been experiencing a sharp rise in inflation since the start of this year. Observed consumer price inflation has been strongly affected by the coronavirus pandemic. The behaviour of households has changed and the share of goods in consumption has risen at the expense of services hit by government shutdowns. Demand has been supported by an easing of ECB monetary policy in the form of the Pandemic Emergency Purchase Programme (PEPP) and by strong government fiscal stimuli (especially in Germany).¹ The usual pattern of inflation has also been disrupted by an absence of seasonal sales. Moreover, growth in headline inflation has been supported by a surge in energy prices since March 2021. Euro area inflation rose further in September as energy price inflation went up considerably on the eve of the heating season. The ECB has so far adopted a wait-and-see response to the elevated inflation, regarding it as being driven mainly by one-off and temporary factors.² Despite a slight retreat from the asset purchase programme in September, the ECB's monetary policy stance remains highly accommodative, owing mainly to interest rates, the outlook for which has long remained close to zero.

Short-term inflation expectations in the euro area are increasing due to the current high inflation. The European Commission survey (see Chart 1) indicates that an increasing share of European households expect inflation to be the same or higher than now in one year's time. Short-term inflation expectations are affected mainly by current changes in prices of the most frequently purchased goods, which include energy and processed food.

Among the selected countries, Germany and Slovakia have the highest shares of consumers with elevated inflation expectations, but a sharp jump in inflation expectations has also recently occurred in Spain and Italy. The European Commission survey shows that the growth in prices has also hit retail trade in Germany and to a lesser extent in Slovakia and Spain. The share of firms expecting prices to go up is also rising, especially in industry and construction. By contrast, no marked price growth in services is expected in Italy and France.

Chart 1

Owing to the current sharp rise in prices, consumers are expecting higher inflation one year ahead in all euro area countries

households' expectations regarding inflation in next 12 months; balance of answers; seasonally adjusted; source European Commission Business and Consumer Survey

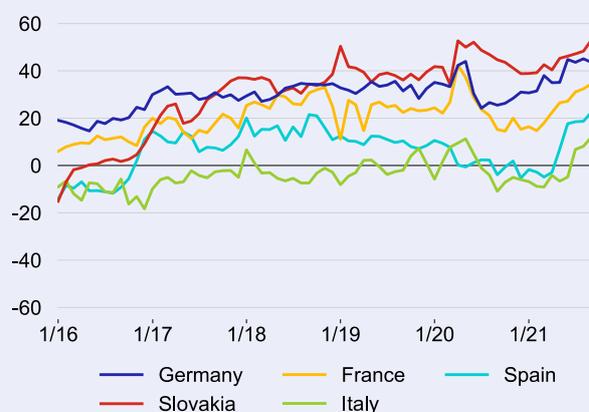
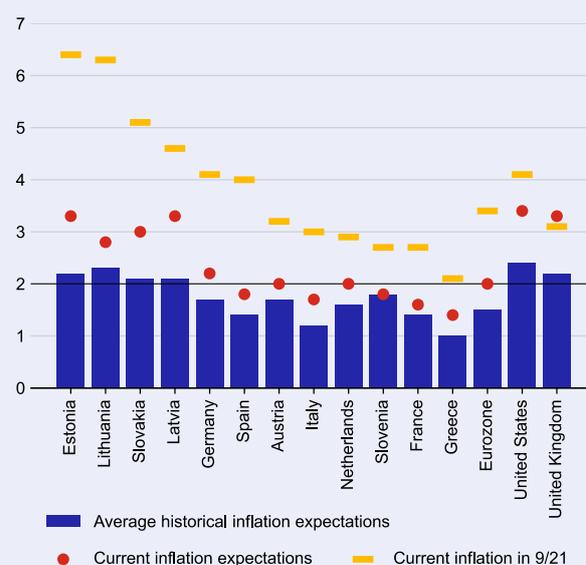


Chart 2

Analysts' inflation expectations for next year have risen above the inflation target in only some euro area countries

%; source Consensus Forecasts



Note: The average of the historical inflation expectations for 2022 is calculated for the period 1/2018–9/2021. Current inflation expectations for 2022 are from October 2021.

An alternative view based on the expectations of the Consensus Forecasts analysts (see Chart 2) points to a rise in inflation expectations next year in only some euro area countries. According to their outlooks for 2022, unanchoring from the target is mainly visible in the Baltic States and Slovakia, i.e. in converging euro area member states, where current inflation has markedly overshoot the inflation target. In Germany, inflation expectations for next year are now just above the 2% target. We can see relatively stable inflation expectations in Spain, Austria, France and Greece. By comparison with other major world economies, such as the USA and the UK, the analysts' expectations for the euro area are more stable with respect to the central bank's target.

Long-term inflation expectations in the euro area are well anchored. Over the past 16 years, the regular survey of the Consensus Forecasts analysts has shown good anchoring of expected inflation five or more years ahead (see Chart 3).³ The recent change in the definition of the ECB's inflation target has changed nothing about that. Financial market expectations as represented by five-year inflation-linked swaps are more volatile. Despite having risen recently, however, they are still well below the ECB's inflation target and lower than before 2015.

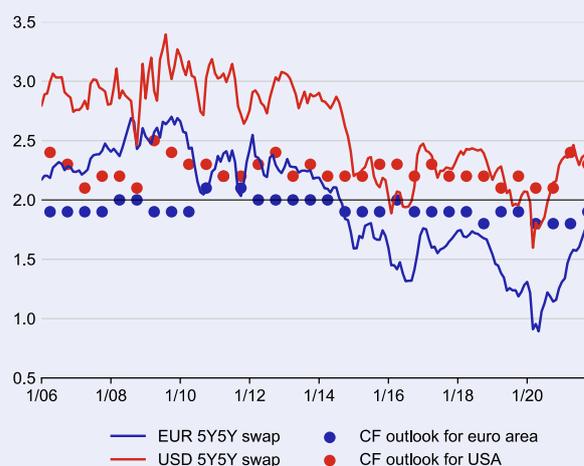
Inflation expected in the long term is higher in the USA than in the euro area. This has also often been the case in the more distant past. It may be due to multiple factors, among other things the Fed explicitly adopting the 2% inflation target as late as 2012 and its mandate not being focused solely on price stability. However, the analysts' recent expectations for the USA may point to an alternative view of the currently elevated global inflation pressures.

The current surge in inflation in advanced countries – caused largely by the negative supply impacts of the coronavirus pandemic and by economic policy demand stimuli – has been reflected in an increase in short-term inflation expectations in the euro area. However, long-term inflation expectations remain well anchored so far.

Chart 3

Long-term inflation expectations in the euro area remain well anchored

%; five-year inflation-linked swaps and outlooks of CF analysts regarding inflation 6–10 years ahead; source Bloomberg and Consensus Forecasts



- 1 Moreover, prices in Germany recorded a sharp jump in January 2021 as VAT rates returned to their original levels following a temporary decrease (the tax was lowered between July and December 2020 to support pandemic-hit households) and taxation of carbon dioxide emissions increased.
- 2 However, the account of the latest monetary policy meeting suggests that two camps are emerging in the ECB, as voices calling for a more pronounced reduction in asset purchases are gaining strength.
- 3 However, we should bear in mind that analysts generally stick to their outlooks for a long time before a real impulse to change them occurs. This inertia is intensified by the general rule that it is better to be wrong with the crowd than to leave the consensus and risk being the only one to contribute an erroneous outlook.

II. THE REAL ECONOMY AND THE LABOUR MARKET

The favourable pandemic situation allowed trade and services to operate almost without constraints in the summer months and the Czech economy thus continued on the path of recovery that started in the spring. The ongoing partial tightening of anti-epidemic measures will have no tangible economic impacts. Renewed economic growth will continue to be fostered by increasing household consumption, benefiting among other things from spending of forced savings and renewed growing overheating of the labour market. Recovering external demand and labour shortages will boost firms' investment activity, and government investment will also rise. Conversely, the performance of the Czech economy will be slowed until mid-2022 by a negative contribution of net exports as a result of overloaded global production and supply chains. Economic activity will return to the pre-pandemic level at the end of 2022. The Czech economy will expand by around 2% overall this year and gain pace over the next two years on the back of a recovery in exports. Unemployment will continue to decline next year. Year-on-year fundamental wage growth will pick up further next year.

The economic recovery will be hindered by persisting problems in global production and supply chains until the middle of next year, while the anti-epidemic measures will have no major economic impacts

The number of new cases started to surge in October, but it is clear in year-on-year comparison that the worsening of the pandemic situation is far smaller in scale than last autumn. It is more important to look at the number of hospitalisations, which is several times lower than last year (see Chart II.1). This is due mainly to more than 70% vaccination coverage in the most-at-risk population categories, i.e. the 60+ age group. Although the herd immunity threshold has still not been reached, the percentage of the domestic population with antibodies is higher than indicated by the ratio of vaccinated people, given the high number of people who have had the disease.⁵ Based on the above facts, the forecast therefore assumes that any tightening of anti-epidemic measures in the coming cold months will have minimal economic impacts.

The persisting problems in global production and supply chains remain a severe constraint on the global economy. These are being felt particularly strongly in the highly industrial Czech Republic (compared to economies where the tertiary sector has a larger share). To a small extent, tensions were already visible on the domestic supply side before the pandemic broke out in 2019 (see Chart II.2). With the onset of the pandemic, shortages of some materials and components rose sharply as demand spilled over significantly from services to goods and major

⁵ Besides this, there is research in the area of medication which will further increase the resilience of the population to a severe course of the disease and thus reduce the pressure to shut down retail and wholesale trade and services.

Chart II.1

Despite faster growth in new cases in October, the number of hospitalisations remains well below the levels seen last autumn

number of hospitalisations due to Covid-19 in 2020 H2 and 2021 H2; thousands of persons; seven-day moving average; as of 29 October 2021

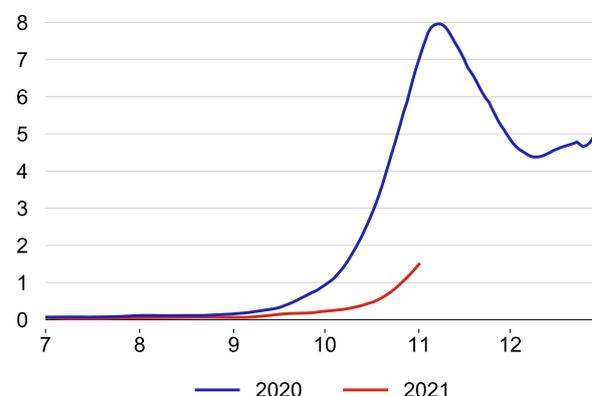
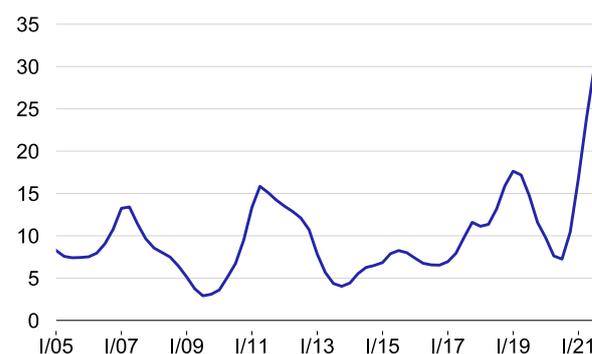


Chart II.2

Material and component shortages are limiting domestic industrial production the most in history

share of domestic industrial firms in % reporting shortages of materials or equipment as factor limiting production; smoothed by HP filter (lambda = 1); source: CZSO business survey



problems emerged in global transport. The forecast assumes that these problems will limit domestic economic performance until mid-2022.

The impacts of the pandemic will continue to cause visible volatility in annual GDP growth (see Chart II.3). It will slow to 2.1% in 2021 Q3⁶ and remain close to 2% in 2021 as a whole. GDP growth will accelerate to 3.5% next year and stay at a similar level in 2023.

Industrial shutdowns, component shortages and growth in inventories due to unfinished production will be reflected in falling exports

The export-oriented domestic economy and especially its automotive industry will face temporary production shutdowns in the coming quarters. The largest Czech car maker Škoda Auto announced it would significantly cut or completely stop production from 18 October to the year-end. An outage of this size will greatly limit exports, which will thus record a sharp year-on-year fall in Q4 (see Chart II.4) despite the opposite effect of completion and export of previously unfinished cars. Exports of services will also remain subdued due to only gradually recovering tourism.

Even after car production resumes at the start of 2022, this sector and the whole of industry will remain limited by component shortages for much of the first half of the year. Exports will therefore stagnate and will only recover fully after the supply-side issues are resolved in the second half of next year, when export growth will also be fostered by restarting international tourism. Exports will thus grow despite an appreciating koruna.

Import growth will outpace export growth but will also slow visibly (see Chart II.4). It will be boosted mainly by a recovery in import-intensive household consumption and private investment. As a result, the contribution of net exports to GDP growth will be negative until mid-2022 and then positive due to a recovery in exports.

The goods and services surplus will fall sharply and the current account balance will fall to negative levels (of around -0.5% of GDP) this year and the next as the export performance of the Czech economy drops temporarily. The decline in exports is combined with a negative trend in the terms of trade caused mainly by rising prices of imported commodities. The current account will record a surplus again in 2023, at 0.5% of GDP, thanks to a recovery in the export performance of the Czech economy.

⁶ According to a preliminary CZSO estimate, Czech GDP increased by 2.8% year on year in 2021 Q3. This is 0.7 pp above the CNB forecast. This figure was published on 29 October 2021 and is not part of the forecast due to the earlier closing date of the latter. The published data confirm the message of the CNB forecast that domestic demand and the services sector will be the drivers of economic growth in 2021 H2, while exports and manufacturing will decline markedly. Whole-year GDP growth could thus be slightly higher than predicted by the forecast this year.

Chart II.3

GDP growth will remain visibly volatile due to the effects of the pandemic and persisting problems in industry

y-o-y changes in %; seasonally adjusted; confidence interval

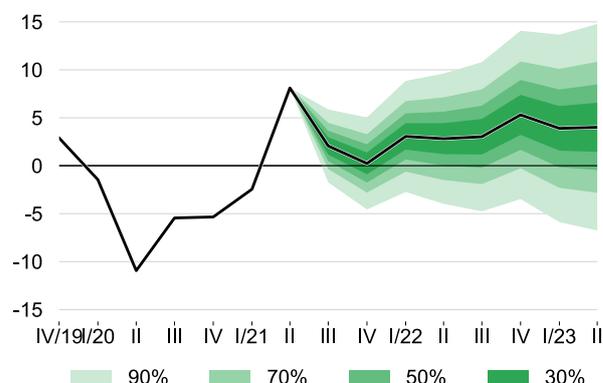


Chart II.4

The drop in exports in 2021 H2 reflects a decline in the production of Czech industry; the related impact on imports will be dampened by robust growth in domestic demand

real exports and imports; y-o-y changes in % and CZK billions; seasonally adjusted

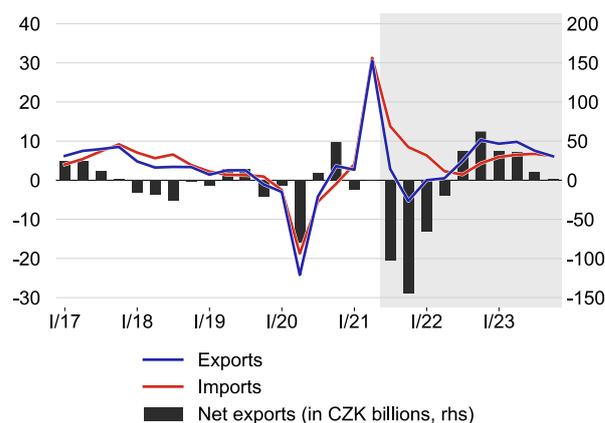
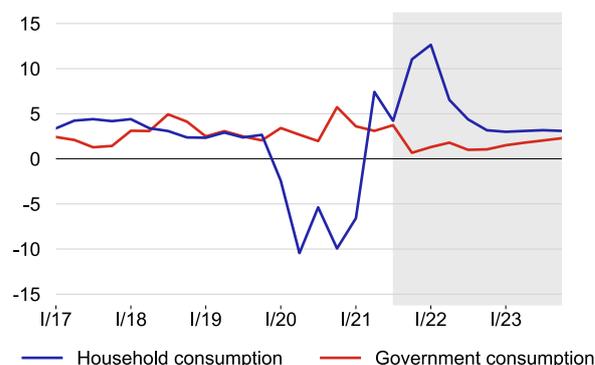


Chart II.5

Household consumption will rise rapidly, while growth in government consumption will slow

household and government consumption; y-o-y changes in %; constant prices; seasonally adjusted



Household consumption will remain a driver of growth in the coming quarters despite a slight deterioration in consumer sentiment

Household consumption growth will reach double figures at the year-end (see Chart II.5). Its recovery will be driven mainly by a renewed improvement in the labour market situation and solid growth in disposable income in the coming quarters. Spending of part of the forced savings created in the past on deferred consumption will also have an effect (see Chart II.6). The termination of numerous fiscal support measures and persisting problems in supply chains will have the opposite effect. These will be reflected in shortages of some goods, increased uncertainty about the possible impacts of this situation on the labour market and a related slight deterioration in consumer sentiment. Consumer sentiment and demand will also be negatively affected by high growth in energy prices. Even so, household consumption will reach its pre-pandemic level by the end of this year, despite a rapid rise in market interest rates in the second half of the year. In whole-year terms, household consumption will grow by almost 4% this year.

The supply-side constraints will fade in the second half of next year. This will boost consumer sentiment, which will be improving again by then. Growth in household consumption will thus exceed 6% next year amid renewed overheating of the labour market, and slow roughly to its steady-state level of 3% in 2023.

The rising household consumption will be financed by growth in disposable income and the release of forced savings created in the past

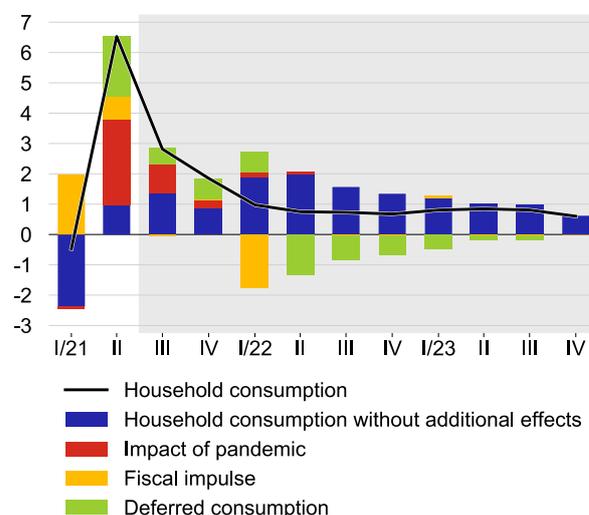
The growth rate of nominal gross disposable income will slow slightly in H2 due to the phasing out of government support. However, it will remain substantial, fostering solid growth in household consumption. Renewed growth in wages and salaries will still be the main driver of disposable income growth (see Chart II.7). The saving rate, which reached a historical high at the end of 2020, is expected to decrease gradually further. It started to decline (and consumption growth overtook disposable income growth) at the start of the year due to improved consumer sentiment. The spending of part of the forced savings created during the pandemic will have the same effect. However, the saving rate will not return to its pre-pandemic level until the end of 2023. This reflects a fairly cautious return to pre-pandemic consumer behaviour and also the stabilising role of monetary policy, which is fostering a gradual rise in real interest rates.

Investment activity will remain solid due to recovering external demand and increasing labour market tightness, despite persisting issues in production and supply chains

Chart II.6

Household consumption growth will be supported by a renewed improvement in the labour market situation and the release of part of forced savings

household consumption; q-o-q changes in %; contributions in pp; constant prices; seasonally adjusted

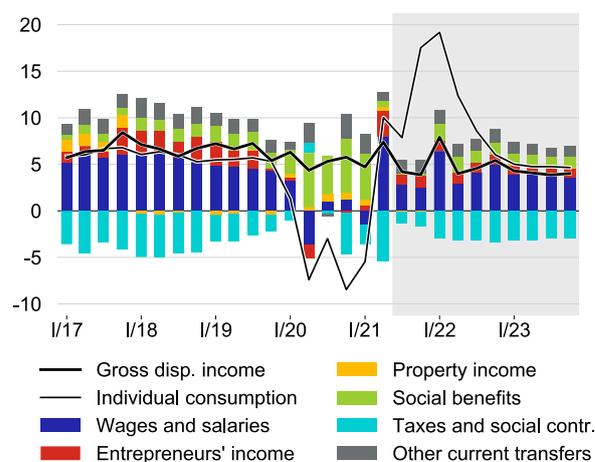


Note: "Impact of pandemic" embodies the effect of shutdowns and the subsequent reopening of the economy and the return to normal consumer behaviour, for example in terms of how often people go to the cinema, eat out and so on.

Chart II.7

Disposable income will grow further this year but will lag well behind household consumption growth until the end of 2022 due to the release of past forced savings

household consumption and gross disposable income; y-o-y changes in %; contributions in pp; current prices; seasonally unadjusted



Private investment activity will be spurred this year by labour shortages – exacerbated by the economic recovery abroad – in addition to the reopening of the economy. Firms will try to substitute relatively expensive and scarce labour with capital in an effort to automate production. Conversely, the investment boom will be dampened by continued production and supply chain disruptions until mid-2022. Overall, fixed investment will therefore increase only slightly this year despite last year's low base, amid recovering year-on-year growth in private investment and continued growth in government investment (see Chart II.8). In addition, growth in total gross capital will be substantially boosted by continued high additions to inventories, predominantly in industry (see Chart II.9). Their forced build-up is still being caused by shortages of some components due to overloaded international production and supply chains.

Additions to inventories will remain high until mid-2022, amid continued bottlenecks on the supply side of the economy. The subsequent fading of supply disruptions will allow firms to complete and release inventories in progress. An improved situation in investment-intensive manufacturing will boost gross fixed capital formation at the same time. Supported significantly by drawdown of EU funds, its growth will pick up to almost 7% in 2022 as a whole. Continued growth in gross capital formation will also be fostered by a planned purchase of army helicopters in 2023.⁷

Fiscal support for economic activity will decrease this year; fiscal policy will dampen GDP growth slightly next year

Government consumption is rising this year, but its growth is slowing due to base effects (see Chart II.5). The nominal non-wage component of government consumption has been strengthened this year by extraordinary vaccination and testing-related health care spending. In real terms, growth in government consumption is being partially dampened by continued growth in its deflator fostered by extraordinary bonuses paid to health, social services and security services workers. Growth in government consumption will slow further next year due to the fade-out of the extraordinary spending in health care and on remuneration.

The fiscal impulse remains positive this year, but its contribution to GDP growth is significantly lower than last year owing to the gradual phase-out of many support measures (see Chart II.10). Its pro-growth effect is concentrated predominantly in the first half of this year. Fiscal policy will slow GDP growth in 2022. However, the restrictive effect stemming from the phasing out of support measures will be softened by a further increase in the personal income tax deductible

⁷ The outlay will be CZK 14 billion, spread evenly across 2023.

Chart II.8

Growth in total investment will be volatile due mainly to inventories; private and government fixed investment will increase

investment activity; y-o-y changes in %; contributions in pp; constant prices; seasonally adjusted

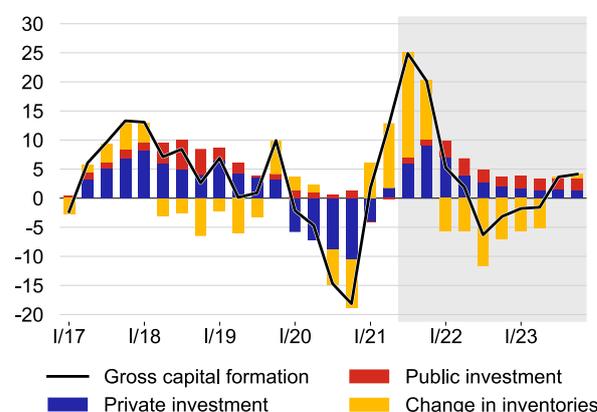


Chart II.9

The easing of the problems in industry in mid-2022 will lead to a sudden release of inventories

change in inventories; CZK billions; constant prices; seasonally adjusted

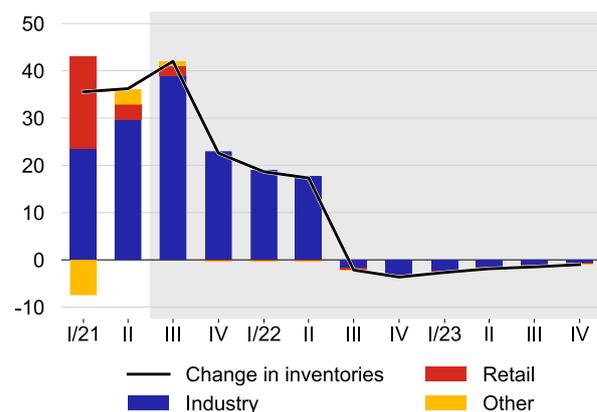
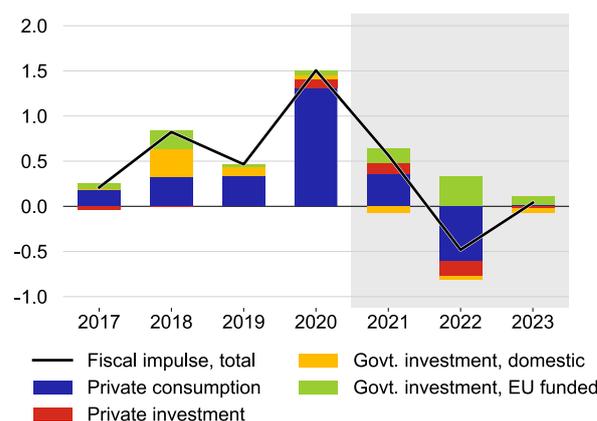


Chart II.10

Fiscal policy is increasing GDP growth this year by supporting household income and consumption; the fiscal impulse will be negative in 2022 due to the phase-out of most support measures

fiscal impulse; contributions to GDP growth in pp



bonus, an extraordinary increase in pensions, an increase in subsidies for renewable resources and faster drawdown of investment from EU funds.

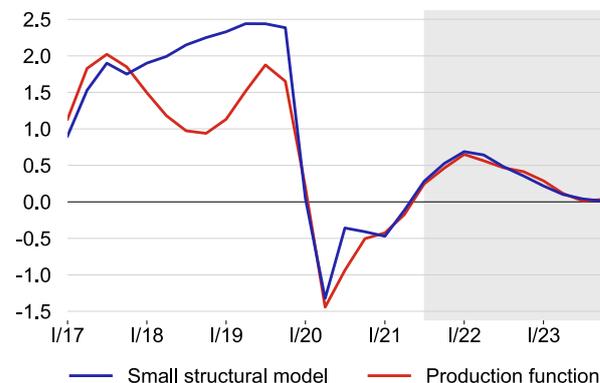
The Czech economy is starting to operate above its potential output level again

The growing labour market tightness, robust consumer demand and high inflation signal a re-emerging overheating of the economy. In addition to strong domestic demand pressures, the opening of the output gap will be fostered by supply constraints, which are slowing potential output growth and contributing to the overheating of the economy. The output gap will thus open further into positive figures in the coming quarters (see Chart II.11). The positive output gap will start to close again as the problems in global supply chains disappear and industrial production gets up and running in an environment of buoyant potential output growth. Continued tightening of monetary policy will also help stabilise the economy close to its potential.

Chart II.11

The economy is starting to exceed its potential, which it will return to from above in 2023

output gap in % of potential output



COMPARISON WITH THE PREVIOUS FORECAST: The real economy and the labour market

		2021	2022	2023	
GDP	y-o-y changes in % pp	1.9 (-1.7)	3.5 (-0.6)	3.8 (0.8)	The GDP forecast for 2021 and 2022 has been revised downwards due to longer and more severe supply chain disruptions. By contrast, the GDP forecast for 2023 is higher.
Household consumption	y-o-y changes in % pp	3.8 (2.6)	6.5 (0.1)	3.1 (0.1)	Growth in household consumption is higher this year than in the summer forecast. It reflects greater release of forced savings and higher observed data for Q2.
Government consumption	y-o-y changes in % pp	2.8 (-0.3)	1.3 (-0.1)	1.9 (-0.1)	Compared to the previous forecast, growth in government consumption is slightly lower this year, due mostly to weaker data observed in Q2.
Gross fixed capital formation	y-o-y changes in % pp	3.4 (0.5)	6.9 (1.1)	3.6 (1.0)	The forecast for total investment has increased in the private inv. activity area, due mostly to a tighter labour market. In subsequent years, higher drawdown of EU funds will also have an effect.
Net exports	contr. to GDP growth pp	-4.3 (-3.4)	0.3 (-0.6)	1.6 (1.3)	The contribution of net exports to GDP will be significantly lower this year and the next due to weaker export performance of Czech industry linked to production shutdowns in the car industry.
Employment	y-o-y changes in % pp	-0.4 (0.0)	0.8 (-0.1)	0.6 (0.0)	The employment dynamics remain similar as in the summer forecast.
Unemployment (ILO)	% pp	3.1 (-0.2)	2.8 (-0.3)	2.7 (-0.3)	Greater overheating of the labour market will be reflected in a slightly lower unemployment rate in subsequent years.
Average monthly nominal wage	y-o-y changes in % pp	5.6 (0.2)	5.7 (1.5)	5.0 (0.2)	Nominal wage growth will increase next year due to a higher inflation outlook and greater labour market tightness. It will be also pushed higher by an expected rise in the minimum wage.

Note: Changes compared to the previous forecast in brackets (a green label indicates an increase in value and a red label a decrease)

The tightness in the labour market will increase again after the previous partial cooling

The persisting inflationary effect of the labour market is confirmed by the Labour Utilisation Composite Index (LUCI), which is still above its steady-state level (see Chart II.12). The LUCI will increase slightly again over the forecast horizon as the labour market and wage growth continue to recover. This will imply renewed growth in tightness.

Fundamental wage growth in market sectors will accelerate markedly next year as a result of the renewed growth in labour market tightness and rapid price growth

Wage developments in market sectors will continue to be affected by one-off factors, including base effects,⁸ which will make year-on-year wage growth highly volatile until mid-2022. Estimated fundamental wage growth thus provides a more meaningful economic interpretation of wage growth (see Chart II.13).

Fundamental market wage growth will rise in early 2022 as demand for labour gradually recovers further. It will be also supported by a further increase in the minimum wage⁹ and the partial pass-through of the escalating inflation to growth of labour costs. The upward pressure on wages will conversely be hindered by subdued labour productivity growth as a result of persisting problems in global supply chains. These effects are assumed to last until mid-2022 in the forecast. In whole-year terms, fundamental market wages will grow by 6.5% in 2022.

Wages in non-market sectors will grow at a slower pace in the years ahead than they did before the pandemic. According to the latest version of the draft state budget, public sector wages will increase across the board by CZK 1,400 at the start of next year. In addition, teachers' pay is to rise by 3.5% on average. As in market sectors, wage growth in non-market sectors will be very volatile.

In light of the above, growth in wages and salaries will also be very volatile over the entire horizon. It will also be fostered by continued growth in the converted number of employees. In real terms, growth in wages and salaries will be lacklustre until mid-2022 due to

⁸ These include in particular the statistical effects of a drop in the wages of employees drawing attendance allowance or wage compensation in the event of quarantine. Employees who did not work as a result of pandemic-related obstacles to work also saw a partial drop in wages, and some of them received only partial wage compensation. In addition, extraordinary "Covid" bonuses were paid in the health care sector in the spring (as at the end of last year). These effects were visible mainly in 2021 Q2, when year-on-year wage growth in market sectors as recorded in the official statistics surged due to the unwinding of last year's negative statistical effects combined with the payment of the aforementioned extraordinary bonuses in health care.

⁹ The forecast assumes a CZK 1,300 increase in the minimum wage to CZK 16,500 in January 2022.

Chart II.12

From the perspective of the LUCI, the labour market remains tight and will become increasingly overheated again

LUCI; vertical axis shows deviations from steady state

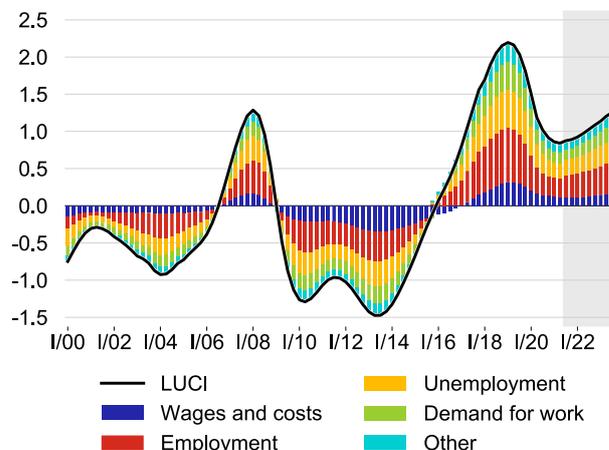
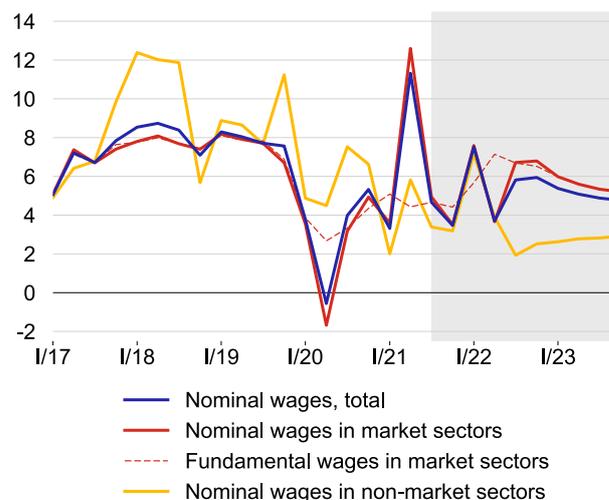


Chart II.13

Fundamental wage growth will pick up significantly at the start of 2022, while wage growth in non-market sectors will slow visibly in the coming years

nominal wages; y-o-y changes in %



The fundamental market wage is obtained from the officially reported wage adjusted for certain one-off pandemic-linked statistical effects (attendance allowance, quarantine and partial wage compensation) and for extraordinary bonuses in health care and social services.

rapid price growth (see Chart II.14). It will then accelerate noticeably as inflation slows and the supply chain problems disappear. This will foster growth in household consumption.

The decline in employment will subside at the end of the year, while the jobless total will keep falling slightly

A continued strong recovery in growth of the labour force, which fell noticeably last year, will cover the growing labour demand. This will be associated with growth in employment, which will also be due partly to a drop in the jobless total (see Chart II.15). As regards structure, growth in overall employment will be driven mainly by a rising number of employees. However, the number of entrepreneurs, which fell sharply at the start of this year, will also gradually increase. Quarter-on-quarter growth in employment will be subdued until mid-2022 due to supply chain problems. As a result of expected recruitment by employers and a high number of job vacancies, however, employment growth will not halt completely. It will also be supported by government measures to protect jobs in the automotive industry.¹⁰ Other high-frequency indicators do not indicate a worsening of the situation in the coming months either.¹¹

The general unemployment rate fell sharply in 2021 H1 after the economy reopened. However, its further decline until mid-2022, caused mainly by a downturn in industry, will only be slight (see Chart II.15). As industry restarts, the unemployment rate will decrease slightly further due to recovering demand for labour. The share of unemployed persons is expected to follow a similar trend as the general unemployment rate. However, the scope for it to decrease further is limited, as the Czech Republic already has one of the lowest unemployment rates in the EU.

Chart II.14

Growth in the real volume of wages and salaries will initially be subdued due to higher inflation and will not return to growth until 2022 H2

volume of wages and salaries; y-o-y changes in %

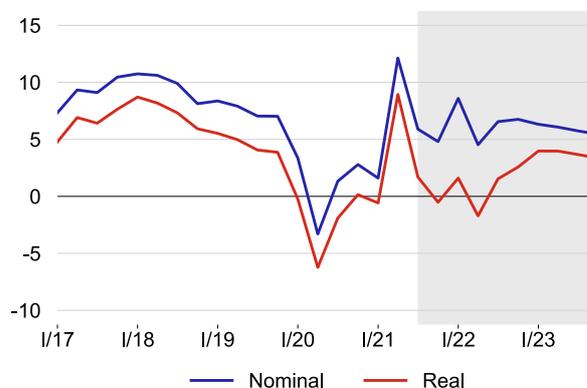
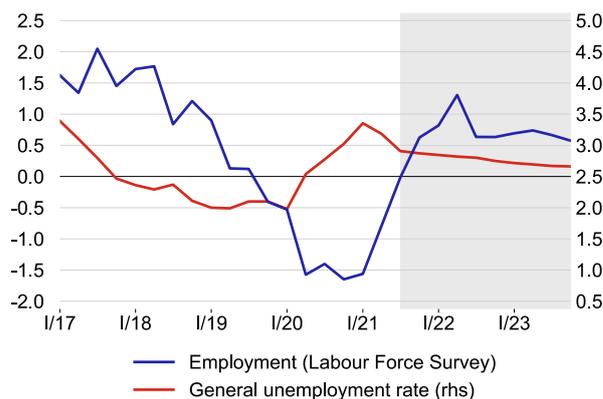


Chart II.15

Employment will start to rise again in 2021 H2 as the labour market recovers after the pandemic; the unemployment rate will fall gradually

employment, y-o-y changes in %; general unemployment rate in %; seasonally adjusted



¹⁰ The Czech government has preliminarily agreed to reactivate the Antivirus B programme for the automotive industry (CZ-NACE 29). This is reflected in the labour market forecast.

¹¹ The Google Trends scores for “unemployment” and “unemployment benefit” are low.

III. INFLATION

Inflation will rise significantly further at the end of this year and approach 7% during the winter, with all its components contributing to the increase. Core inflation will reflect significant domestic price pressures and strong producer price inflation domestically and abroad. Administered prices and food prices will rise on the back of growth in energy prices and agricultural commodity prices, respectively, on world markets. The currently strong overall inflation pressures will peak at the end of this year due to a strengthening effect of domestic costs, reflecting rising fundamental wage growth. The overall inflation pressures will subsequently start to ease as growth in import prices fades rapidly. Inflation will thus gradually fall in the course of next year, aided by a prior significant tightening of both components of the monetary conditions. Headline inflation will be mostly slightly above monetary policy-relevant inflation owing to a rise in excise duties.

The currently strong overall cost pressures will peak at the end of this year and then start to ease, due mainly to a rapid fade-out of growth in import prices

Growth of total costs in the consumer sector rose significantly further in 2021 Q3. The rise was driven by the domestic economy and import prices (see Chart III.1). The strong inflationary effect of core import prices was due mainly to a marked pick-up in growth of the core component of foreign industrial prices. This reflected persisting problems in global production and supply chains and a surge in electricity and natural gas prices on international exchanges. Inflation was also fostered by further growth in oil prices, reflected in a positive contribution of energy import prices.

The sharp growth in total costs will accelerate further at the year-end and then start to slow, as the easing and subsequent fade-out of supply chain disruptions will be reflected in subdued quarter-on-quarter growth in foreign core prices. Together with a strengthening koruna and a slight drop in oil prices, this will cause import prices to turn anti-inflationary in the course of next year. The contribution of the domestic economy will remain elevated throughout 2022 but will start to shrink gradually in the second half of the year.

Domestic cost pressures will strengthen further in the quarters ahead, owing mainly to rising fundamental wage growth

Growth in domestic costs went up this summer. This was primarily due to brisk growth in fundamental wages, reflecting the good shape of the labour market (see Chart III.2). However, the contribution of the price of capital was also strongly positive, reflecting the reopening of retail and services and the release of part of the household savings built up during the pandemic. The overall inflationary effect of wages and capital was offset by an increase in labour efficiency as people continued to return to their workplaces.

Chart III.1

The strong overall cost pressures will keep growing in the short term on the back of a strengthening effect of the domestic economy, but will ease in the course of next year

costs in consumer sector; q-o-q changes in %; contributions in pp; current prices; annualised

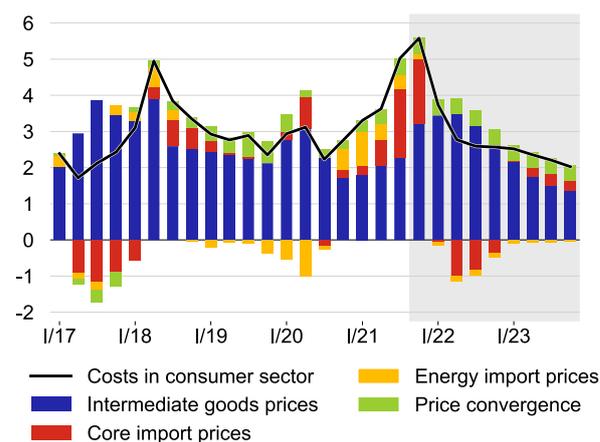
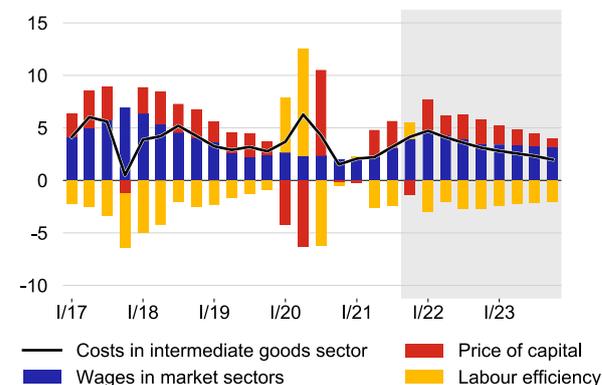


Chart III.2

Growth in domestic costs will go up temporarily, mainly due to an upswing in fundamental wages

costs in intermediate consumption sector; q-o-q changes in %; contributions in pp; current prices; annualised



Growth in domestic costs will increase further in the coming quarters, mainly on the back of rising fundamental wage growth. The latter will be supported by a further marked increase in the minimum wage at the start of next year. By contrast, the contribution of the price of capital to growth in domestic costs will briefly turn negative at the end of this year as a result of restricted production and plant shutdowns in industry. These shutdowns will be reflected in a temporarily inflationary effect of falling labour efficiency. A gradual fade-out of the difficulties in industry and a recovery in the export performance of the domestic economy will result in a renewed strongly positive effect of the contribution of the price of capital from the start of 2022. The traditional growth in labour efficiency will also resume and start to reduce the cost pressures again. After peaking in late 2021 and early 2022, growth in domestic costs will gradually fall back to its steady-state level in the following quarters as wage growth slows.

Inflation will rise noticeably further at the turn of the year and stay high for most of next year

Besides further growth in core inflation, food and fuel price inflation will foster growth in headline inflation (see Chart III.3) at the end of this year. Administered price inflation will rise sharply in early 2022 following a temporary drop in Q4.¹² This will result in headline inflation rising to almost 7%. Fuel price inflation will also remain high (see Chart III.4), reflecting both last year’s low base and the recent sharp rise in oil prices. Next year, fuel price inflation will initially slow due to a renewed gradual decline in oil prices and a slowly strengthening koruna. Later on, at the end of 2022, prices at filling stations will start to decline.

Rising growth in imputed rent is contributing significantly to the growth in core inflation in an environment of robust domestic demand

Core inflation rose sharply in Q3 due to strengthening growth in prices of goods and services. Besides the temporary effect of the reopening of the economy and strong cost pressures from abroad, this was due largely to a robust domestic demand environment and sustained tightness in the labour market (see Box 2 at the end of this section). Consumers are currently willing to accept rising prices of goods and services. This is allowing firms to increase their profit margins and make up for their previous losses. Core inflation will continue to rise apace in Q4 (see Chart III.4), as the current factors pushing core inflation upwards will be joined by the impacts of growth in energy prices on other price categories.

¹² The Czech government decided to waive VAT on electricity and gas in November and December this year. According to the assumptions of the forecast, this will be reflected in a short-term drop in prices of these regulated items.

Chart III.3

Inflation will climb well above the upper boundary of the tolerance band in late 2021 and early 2022 and decline close to 2% over the monetary policy horizon

headline inflation; y-o-y in %; confidence interval

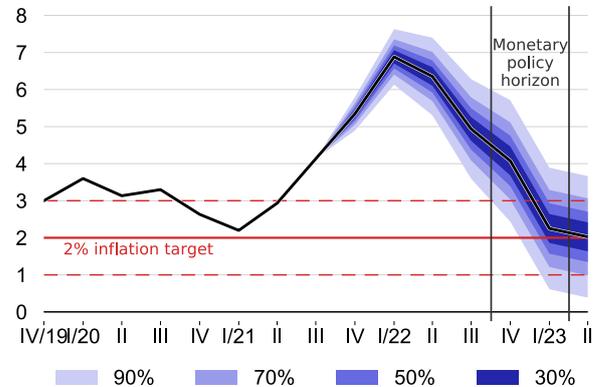


Chart III.4

Inflation will continue to be dominated by core inflation, but the contribution of food price inflation, and also administered price inflation from the start of next year, will be significant too

structure of inflation; y-o-y changes in %; contributions in pp

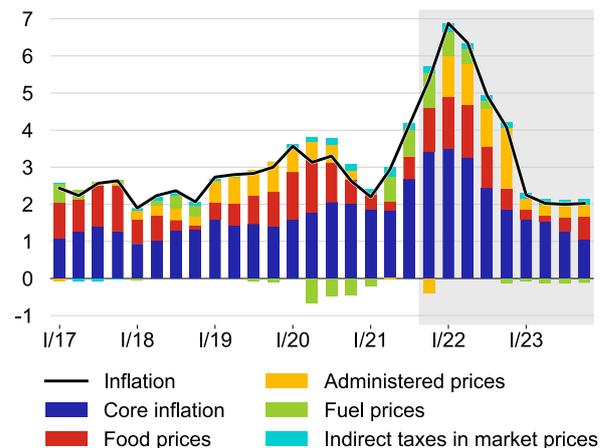
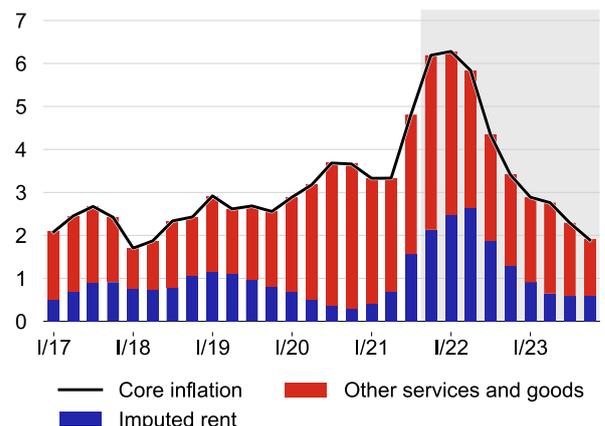


Chart III.5

The already high contribution of imputed rent will increase further in the quarters ahead

y-o-y changes in %; contributions in pp



The growing contribution of imputed rent (see Chart III.5), which plays a significant role in the national consumer price index, is an important item of core inflation (see Box 3 at the end of this section). The growth in imputed rent reflects continued sharp growth in property prices combined with strengthening growth in construction work and construction product input prices. Growth in construction work prices gathered pace during the summer, reaching almost 7% in September. Besides steady growth in wages in construction, this is due in large part to the global chain difficulties, which are being reflected in shortages of some building materials. Growth in construction material and product input prices even reached 16.5% in September. According to the latest available data, these cost pressures, combined with strong demand for construction output, led to double-digit growth in the house price index (almost 15% in 2021 Q2). Together with strong inflation pressures in the domestic economy, reflecting growing labour shortages, these effects will keep core inflation high for the rest of this year and in 2022 H1.

Strong growth in industrial producer prices abroad, which is spilling over noticeably into domestic industrial and consumer prices, will act in the same direction. Core inflation will begin to decline more markedly in 2022 H2 and return to 2% in 2023 as the aforementioned inflationary effects subside and the considerable tightening of monetary conditions this year and the next starts to take effect.

Food price inflation rose during the summer and will continue to go up

Besides appreciable domestic demand pressures, growth in global agricultural commodity prices is contributing to rising food prices. Strong global demand, along with supply-side constraints, is being reflected mainly in high prices of crop products, particularly cereals and oilseed. This is also fostering growth in domestic agricultural and food producer prices. The surging food price inflation will peak in the first half of next year (see Chart III.4). Domestic food price inflation will temporarily drop below 1% at the start of 2023 owing to an expected decline in global agricultural commodity prices.

Administered prices will fall temporarily in Q4 owing to tax changes and begin to rise sharply at the start of 2022 due to the surge in energy prices

The growth in energy prices at the end of this year will not be reflected in consumer prices, as it will be outweighed by the temporary waiver of VAT on electricity and natural gas. Administered prices will rise sharply at the start of next year (see Chart III.6) as high exchange prices of energy lead to a substantial increase in the corresponding consumer prices, including heat prices. Overall, administered price

Chart III.6

The currently subdued administered price inflation will rise sharply next year

administered prices; y-o-y changes in %; contributions in pp; including taxes

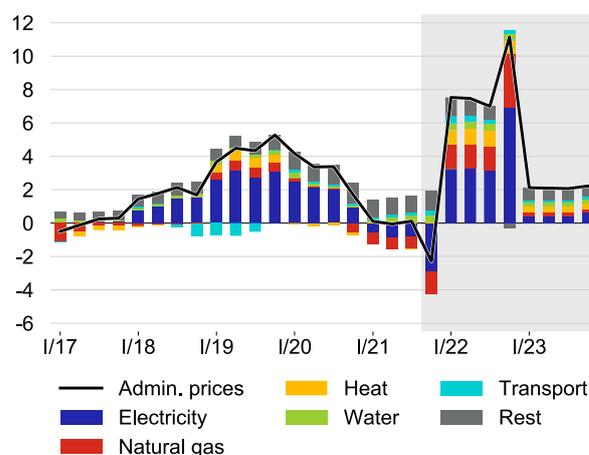
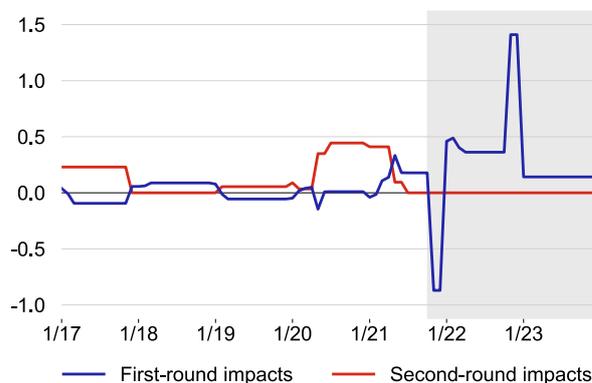


Chart III.7

The volatility of the first-round effects of changes to indirect taxes will reflect the year-end waiver of VAT on energy, which the forecast assumes will pass through fully to prices

first-round and second-round effects of tax changes; contributions to annual inflation in pp



We distinguish two types of price effects in relation to **changes to indirect taxes** – first-round and second-round. The first-round effects are the calculated price changes due to the indirect tax changes implied by full (accounting) pass-through of the tax changes to prices of the relevant items of the consumer basket. The second-round effects capture the price changes due to indirect tax changes going beyond their first-round effects. The second-round effects may be positive or negative. In the case of an indirect tax increase (decrease), they are positive if the prices of the items concerned rise (fall) more (less) than implied by mechanistic pass-through of the tax changes. Conversely, they are negative if prices rise (fall) less (more) than the tax increase (decrease) would imply. The CNB applies escape clauses to the first-round effects of indirect tax changes.

inflation will rise above 7% at the start of next year. Exchange prices indicate an easing of the currently elevated energy price pressures in subsequent years, and administered price inflation will slow to 2%.

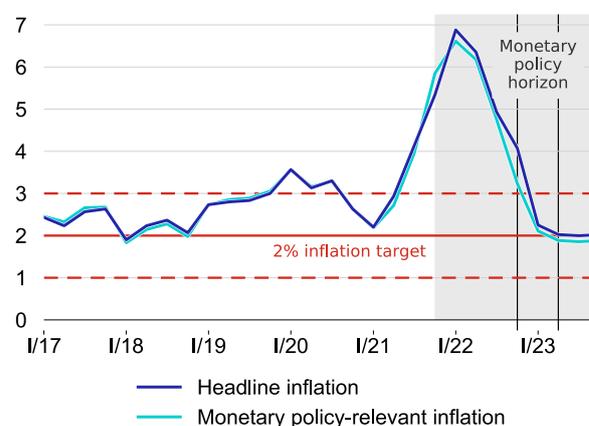
Monetary policy-relevant inflation will be lower than headline inflation, except at the end of 2021

Tax changes will mostly lead to a slight increase in consumer price inflation, the exception being the temporary waiver of VAT on electricity and gas at the end of this year. Assuming that this waiver passes through fully to end prices for customers, it will lead to a sizeable year-on-year drop in gas and electricity prices, with an impact exceeding 1 pp. However, this measure will end at the beginning of next year when, in addition, excise duty on cigarettes will go up by 5%. According to the forecast, this increase will pass through fully to cigarette prices. The forecast estimates that this change will have an overall impact of around 0.1 pp on inflation in 2022 (see Chart III.7). Excise duty on tobacco will increase to the same extent again at the start of 2023. These changes do not affect monetary policy-relevant inflation, so the central bank does not respond to them. This is because they are one-off changes in the price level caused by the corresponding pass-through of changes to indirect taxes, which the central bank usually ignores, especially if, as in this case, they do not have clear long-term second-round effects on inflation. Monetary policy-relevant inflation will fall close to the inflation target over the monetary policy horizon (see Chart III.8).

Chart III.8

Monetary policy-relevant inflation will decrease towards the 2% target over the monetary policy horizon; headline inflation will be slightly higher over practically the entire horizon due to changes in excise duties

headline and monetary policy-relevant inflation; in %



COMPARISON WITH THE PREVIOUS FORECAST: Price developments

		2021	2022	2023	
Consumer prices	y-o-y changes in % pp	3.7 (0.6)	5.6 (2.7)	2.1 (0.0)	The upward shift of the inflation forecast this year is due to all its components except administered prices; the even larger revision of the outlook for 2022 involves all components.
Administered prices	y-o-y changes in % pp	-0.5 (-1.0)	8.3 (4.9)	2.1 (-0.1)	The decrease in the administered price inflation forecast for 2021 is due to the year-end waiver of VAT on energy; the sharp rise in energy prices will thus not be felt until 2022.
Core inflation	% pp	4.4 (1.0)	5.0 (2.1)	2.5 (0.3)	Much faster growth in inflation abroad and stronger domestic demand have moved the core inflation outlook upwards considerably.
Food prices (incl. alc. bev. and tobacco)	y-o-y changes in % pp	2.3 (0.5)	4.3 (2.3)	1.3 (-0.6)	The food price outlook has been revised up for this year and the next, due mainly to faster growth in agricultural commodity prices.

Note: Changes compared to the previous forecast in brackets (a green label indicates an increase in value and a red label a decrease)

BOX 2 To what extent are the domestic demand environment and the labour market contributing to the current growth in consumer prices?

Domestic inflation rose dramatically at the end of the summer, reaching its highest levels in more than a decade. Besides the often discussed cost effects (mostly from abroad), a strongly inflationary domestic environment is contributing greatly to the current rapid growth in consumer prices. The coronavirus pandemic dampened consumer appetite and cooled the labour market only temporarily and to a limited extent. In addition, this happened in the context of a significant easing of fiscal, monetary and macroprudential policy. This box analyses the extent to which domestic demand factors are contributing to the current strong growth in prices.

The labour market is playing an important role in the domestic inflation pressures, which are closely linked to the overall demand environment. The Labour Utilisation Composite Index (LUCI)¹ was thus used to estimate the inflation pressures in the domestic economy. The correlation of the categories of items in the consumer basket² with the LUCI was calculated based on the data for 2005–2021. This correlation, indicating the effect of the domestic economy and demand environment on inflation in each category, ranges from significantly positive to slightly negative (see Chart 1). This means that the consumer basket contains goods whose inflation has a significant cyclical demand character, while for other categories the impact of the demand environment is negligible.

The growth in prices this summer was particularly strong for items whose inflation is significantly positively correlated with the LUCI, which includes the recently rapidly growing contribution of imputed rent. This points to a significant role of the domestic demand environment in the current inflation episode and not to the dominance of external cost factors.

The categories of the consumer basket were first divided into five routinely monitored analytical groups (food, fuels, goods, market services and non-market services). Based on their positive correlations with the LUCI, the share of demand factors in inflation in each category in 2021 Q3 was then estimated. Demand factors had the strongest impact on growth in market services prices, with demand explaining more than 70% of the price rise (see Chart 2). In other categories – non-market services, goods and food – strong demand caused about one-third of the price growth during this period; in the case of fuel prices, the effect of the domestic demand environment and the labour market was negligible, in line with intuition. Compared with market services, the above categories were affected much more strongly by cost and similar factors. Overall, the domestic demand environment and the labour market accounted for almost half of the rise in consumer prices this summer according to the empirical results. This indicates that the current inflation episode has a significant demand element.

An alternative measure of core inflation called “supercycle” inflation³ was constructed on the basis of the correlation with the LUCI. In its calculation, the initial statistical weights of the consumer basket categories are re-weighted according to their sensitivity to changes in the demand environment: items positively correlated with the LUCI have

Chart 1

The sharp rise in energy prices was particularly significant for consumer basket items strongly correlated with the LUCI

x-axis: correlation; y-axis: annualised q-o-q price growth in % in 2021 Q3; colour of bubble corresponds to inclusion in analytical group; size of bubble corresponds to weight of category

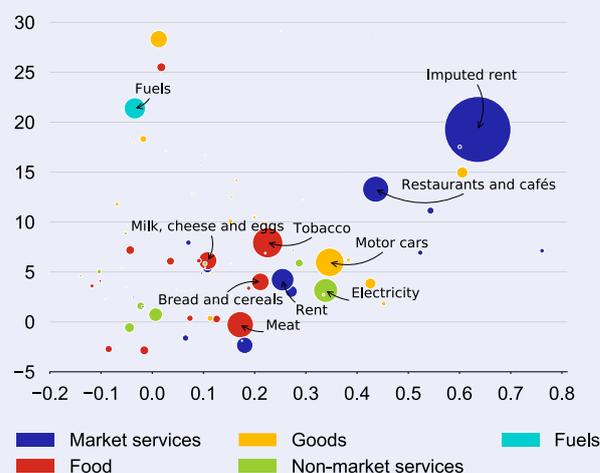
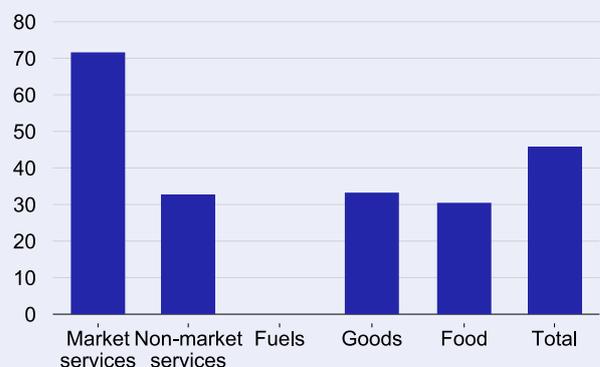


Chart 2

The demand environment and labour market situation are affecting services price inflation most strongly

estimated share of demand environment on quarterly consumer price inflation in % in 2021 Q3



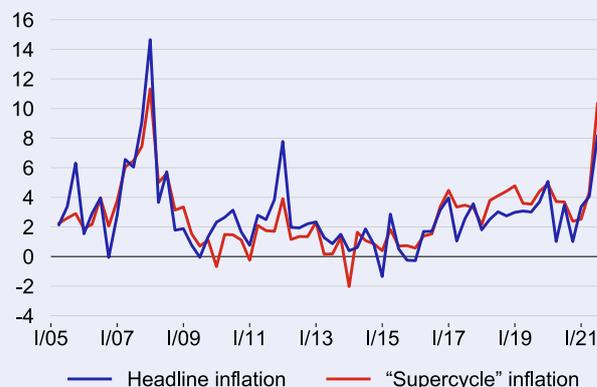
a higher weight, the higher is their correlation with the LUCI, while items with zero or negative correlation have zero weight. The resulting “supercycle” inflation index yields information on cyclical (demand-conditional) inflation. Such inflation cannot be expected to fade quickly, as may be the case for inflation caused by external cost factors. After the financial crisis, “supercycle” inflation in the Czech Republic was below headline inflation for quite a long time (see Chart 3). This indicates that inflation was driven mostly by cost factors at the time (especially in 2012). After they diminished rapidly, the Czech economy experienced a long period of very low inflation consistent with the cyclical downturn and high unemployment rate. Several years later, by contrast, a labour market recovery combined with strong wage growth led to a rise in demand. This was reflected in an increase in “supercycle” inflation, which has stayed above headline inflation ever since. The coronavirus pandemic partly dampened demand and cooled the labour market. The lifting of anti-epidemic restrictions this summer and the related recovery in economic activity and the labour market have led to renewed consumer appetite and related upward pressure on prices.

In addition to sizeable cost pressures, the current rapid growth in consumer prices thus reflects a strong effect of the domestic demand environment and labour market, both of which are reflected in household consumption. These factors accounted for almost half of the inflation recorded during the summer. “Supercycle” inflation, based on an alternative calculation of consumer basket weights, also indicates strong demand-driven (cyclical) inflation. The latter plays an important role in monetary policy decision-making.

Chart 3

Demand-pull inflation is documented by “supercycle” inflation, which is currently higher than the usually followed headline inflation

q-o-q growth rates in %; annualised



1 This regularly published index aggregates information from numerous labour market time series. For details, see the box in IR IV/2019.

2 The analysis involved 105 categories of goods and services together covering the entire consumer basket.

3 “Supercycle inflation” is similar to the supercore inflation measure tracked by the European Central Bank. For details, see https://www.ecb.europa.eu/pub/economic-bulletin/articles/2018/html/ecb.ebart201804_03.en.html#toc5.

BOX 3 Differences in the measurement of consumer price inflation from the point of view of the national consumer price index (CPI) versus the EU harmonised index (HICP)

The gap between annual domestic CPI and HICP inflation has widened to as much as 1 pp in recent months (see Chart 1). According to the CPI, growth in the domestic price level rose to 4.9% in September, whereas the domestic HICP inflation rate was 4.0% in the same period. This box examines the methodological differences explaining the current record gaps between these two measures of consumer price inflation.

The main difference between the CPI and HICP stems from their different approaches to imputed rent.¹ While the national CPI attaches a relatively high weight to imputed rent (more than 10% of the consumer basket), the HICP does not take this item into account at all. Given the currently high and rising growth in imputed rent in the Czech Republic, the exclusion of this item from the HICP led to the HICP inflation rate being 0.7 pp lower than the CPI inflation rate in September. The omission of this item, which has a relatively large weight, also leads to slightly different weighting schemes² in the consumer baskets of these indices (see Chart 2). This in turn further affects the difference in their levels.³

Imputed rent in the CPI takes into account the prices of several items related to the purchase or ownership of property. The purchase of new properties has a weight of almost one-half (46.1%) in the structure of imputed rent (see Table 1). This, combined with the renovation of family houses and residential buildings, causes the weight of the “increasing the housing stock” item to exceed three-quarters. Another major component is expenditure related to the maintenance and renovation of owner-occupied housing.

The high and currently rising growth in imputed rent reflects a combination of high growth in property prices and strong growth in construction prices. According to the latest CZSO house price data (House Price Index), growth in prices of new properties including land amounted to almost 15% in 2021 Q2. High demand and continuing problems on the supply side have simultaneously led to strengthening growth in construction work prices (to 6.8% in September) and in particular construction materials prices (to 16.5% in September; see Chart 3). All these items are therefore contributing to the currently observed upswing in growth in imputed rent, which exceeded 10% in September and thus contributed significantly to consumer price inflation.

The fact that the CPI includes imputed rent as defined above ensures, in principle, that – alongside price stability factors – financial stability aspects enter monetary policy decision-making in a desirable way

Chart 1

The gap between CPI and HICP inflation has increased in recent months due to growth in imputed rent

difference between CPI and HICP in pp; y-o-y growth of imputed rent in %

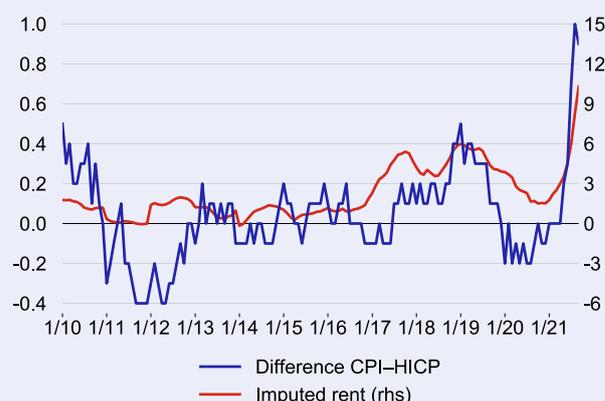


Chart 2

The weights of the CPI and HICP consumer baskets differ mainly in housing and food-related categories

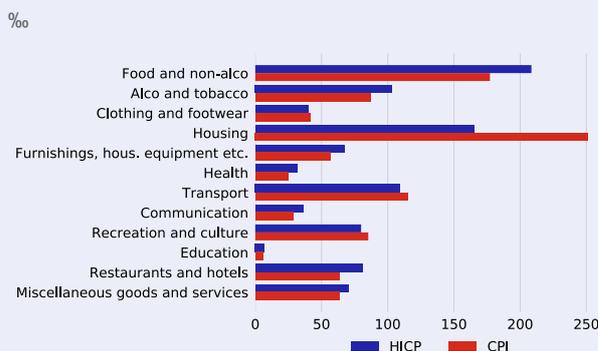


Table 1

The purchase of new properties accounts for almost half of imputed rent

Increasing the owners' housing stock (76.7% in total)	market prices of new flats and family houses, sold as a final product, i.e. no self-build houses, excluding land prices	18.3%
	individual construction (all types of self-build) of new family houses	27.8%
	renovation and rebuilding of family houses	19.8%
	renovation of residential buildings (indirectly measured through payments of repair funds in owners' associations)	10.8%
Maintaining the owners' housing stock	reconstruction and maintenance of dwellings and family houses	20.1%
Related services and taxes paid by households	payment for real estate brokerage and taxes	3.2%

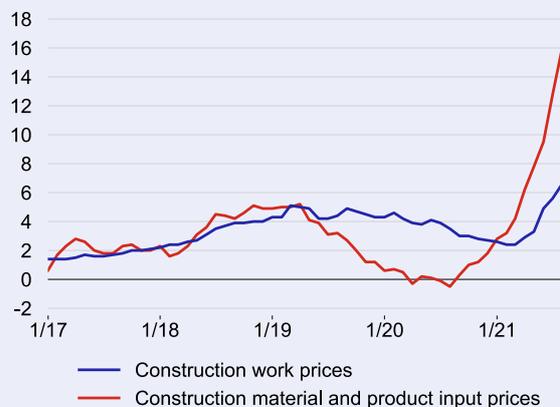
through the targeting of consumer price inflation defined in this way.

The gap between the national and European harmonised measures of consumer price inflation is expected to narrow in the future. This convergence is linked to a change in the position of the ECB, which, in a recent review of its monetary policy framework, supported the inclusion of the cost of owner-occupied housing in the HICP. Eurostat and EU national statistical authorities have already started work on expanding the index.

Chart 3

Prices in construction have accelerated significantly this year, as reflected, among other things, in growth in imputed rent

y-o-y growth in %



- 1 The Czech Statistical Office defines imputed rent as the hypothetical rent that homeowners would receive if they rented out their homes instead of living there, or the rent these households would pay if they did not own their homes but rented them.
- 2 For example, food and non-alcoholic beverages, which currently have lower price growth, have a higher weight in the HICP.
- 3 Another difference, albeit one with a relatively small impact, is a different approach to the monetary consumption expenditure of non-residents in the Czech Republic. This is reflected in the HICP but not in the national CPI.

IV. MONETARY POLICY

At its November monetary policy meeting, the CNB Bank Board increased the two-week repo rate by 1.25 pp to 2.75%. At the same time, it increased the discount rate to 1.75% and the Lombard rate to 3.75%. The Bank Board assessed the uncertainties and risks to the new forecast as being significant but not calling into question the message of the forecast overall. The duration of the global production and supply chain disruptions is the main inflationary risk to the forecast. Lengthier disruptions could generate additional price pressures in the global and domestic economies, with a weaker koruna also having an inflationary effect. The exchange rate may in itself be an additional upside risk to inflation given its recent developments. Increased inflation expectations could pose a risk in the same direction. A sharper-than-expected increase in energy prices and imputed rent is also an upside risk to inflation. By contrast, a more substantial consolidation of public budgets by the new government is a slight anti-inflationary risk.

Consistent with the forecast is a sharp rise in market interest rates at the end of this year and the start of 2022

The sharp rise in rates reflects a need to react to the combination of strong price pressures in the domestic and foreign economies. In particular, strong domestic demand, strengthening wage growth, low unemployment (see Box 2) and record-high growth in foreign producer prices will have an inflationary effect this year. The current exceptionally strong inflation pressures will gradually pass through to inflation. The initial sharp rise in domestic interest rates (see Chart IV.1) will limit the impact of the current inflation pressures on inflation in the longer term, ensuring the return of inflation towards the target at the monetary policy horizon, i.e. in late 2022 and early 2023. The monetary policy response will also help anchor inflation expectations. During 2022, interest rates will start to decline gradually to their monetary policy neutral level of 3%, as inflation will start returning towards the target thanks to the previous monetary policy tightening. This will be aided by the fade-out of the inflation pressures that have accumulated this year.

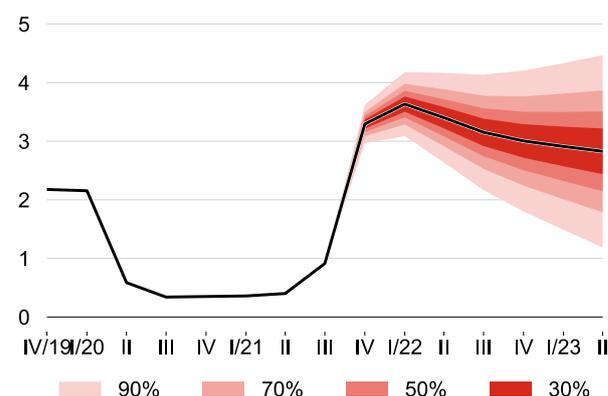
The koruna will initially firm markedly in response to the sharp rise in interest rates, but the pace of appreciation will slow in 2022

The average exchange rate of the koruna in 2021 Q3 was CZK 25.5 to the euro. This represented a year-on-year appreciation of 4.7%. In Q3, the currency initially depreciated but later reversed this weakening. The weaker koruna was fostered by worse perceptions of the global epidemic situation and the Czech Republic's worse export performance. As a result of the monetary policy response, in particular the higher-than-expected interest rate increase in September and the related communications, the koruna then appreciated gradually to CZK 25.4–25.5 to the euro. Probably on account of the shortfalls in industrial production and exports due to disrupted supplies of materials and

Chart IV.1

The sharp rise in interest rates is a reaction to the combination of strong domestic and foreign inflation pressures

3M PRIBOR in %; confidence interval



The 3M PRIBOR market interest rate is a money market reference rate with a maturity of three months which is closely linked to the CNB's monetary policy rates. The CNB's key rate is the two-week (2W) repo rate, paid on commercial banks' excess liquidity as absorbed by the CNB in two-week repo operations. The difference between the 3M PRIBOR and the 2W repo rate fluctuates over time and reflects, among other things, expectations regarding the future path of monetary policy interest rates. It has ranged from 0.2 pp to 0.6 pp over the last year.

components, the exchange rate weakened to CZK 25.7 to the euro in the second half of October.

We expect the koruna to strengthen to CZK 25 to the euro on average in Q4. This will mainly reflect a rapidly widening positive interest rate differential vis-à-vis the euro area. The koruna will continue to firm next year, due among other factors to renewed export growth, which will reflect the fade-out of the previous problems in domestic industry and the completion and export of previously unfinished products. A gradual tightening of ECB monetary policy will have a modest opposite effect. The pace of appreciation will thus ease a little next year, and the koruna will be close to CZK 24 to the euro at the end of 2023 (see Chart IV.2).

The market interest rate outlook for the coming quarters is lower than the CNB forecast; the exchange rate path expected by analysts is weaker than the central bank's forecast

The market outlook for short-term FRA rates has moved significantly higher in recent weeks. The market has thus responded to the increase in the 2W repo rate in September, the related communication by the CNB Bank Board and the published data on inflation for August and September. The market currently expects a rapid rise in the 3M PRIBOR at the one-year horizon (see Chart IV.3). This outlook is rather less steep than the CNB forecast. This is in line with analysts' short-term expectations in the FMIE and FECF surveys, which mostly expect an increase in the 2W repo rate of 0.50 pp to 2% at the November monetary policy meeting. All of the analysts expect a further increase in the CNB's key rate at the one-year horizon, in a quite wide range of 2%–3.25%.

The outlooks for an increase in key interest rates are reflected in the outlook for the koruna's exchange rate in the FMIE and FECF surveys. Similarly to the CNB forecast, the analysts expect the koruna to appreciate gradually on average (see Table IV.1). According to the analysts, the koruna will strengthen rather more slowly on average than the central bank expects. The factors that they feel will foster a stronger koruna include a widening positive interest rate differential, improved global sentiment and continued convergence of the Czech economy towards Western European countries. A worsening pandemic situation poses a risk of a weaker koruna and, according to the analysts, a risk of a more gradual increase in rates. The range of the estimates of the koruna's future exchange rate, which has been quite narrow in recent months, has widened. The difference between the minimum and maximum expected rates against the euro at the one-year horizon is almost CZK 2.

The Bank Board members' communications indicated a further increase in rates

The Bank Board members' communications in the weeks leading up to the November monetary policy

Chart IV.2

The koruna will appreciate over the entire forecast horizon

CZK/EUR exchange rate; confidence interval

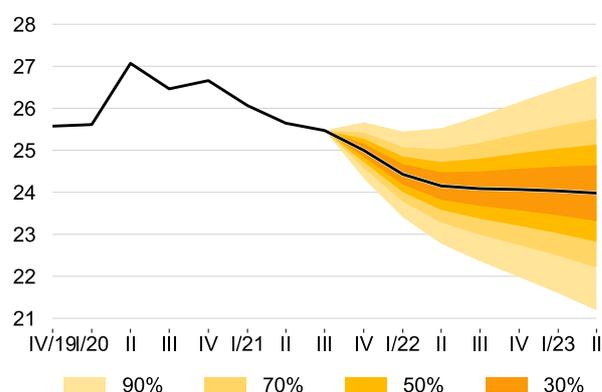
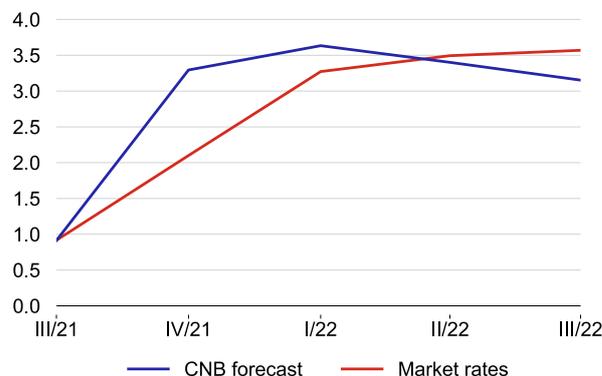


Chart IV.3

The market rate outlook is lower than the CNB forecast until mid-2022

3M PRIBOR; FRA in %



Note: Market rates represent for 2021 Q3 and 2021 Q4 the 3M PRIBOR and for 2022 Q1–2022 Q3 the average values of the FRA 3*6, 6*9 and 9*12 rates for the last 10 trading days as of 29 October 2021.

meeting were indicating a need to raise the CNB's key interest rates further at this meeting. According to a majority of the members, the central bank's task is to prevent the mostly temporary cost shocks from causing sustained growth in inflation in an environment of strong demand and elevated inflation expectations. The interest rate increase is intended to support the return of inflation towards the target at the monetary policy horizon and to help anchor firms' and households' inflation expectations.

The baseline scenario of the autumn forecast contains a much steeper rise in interest rates in the coming quarters than the summer forecast

The baseline scenario of the summer forecast had already implied a relatively rapid increase in rates in the second half of this year. Much higher-than-expected inflation pressures in the domestic economy and abroad led to a marked upward revision of the interest rate path in the autumn forecast. A steeper increase in rates than in the previous forecast is thus consistent with the return of inflation to the 2% target. Due to the initial rapid growth, interest rates will soon temporarily exceed their long-run monetary policy-neutral levels in an environment of exceptionally strong inflation pressures and an economy operating above its potential output level. In real terms, however, interest rates will remain strongly negative for several quarters.

Table IV.1

Inflation expectations at the three-year horizon are slightly above the inflation target in the case of analysts and well above it in the case of firms

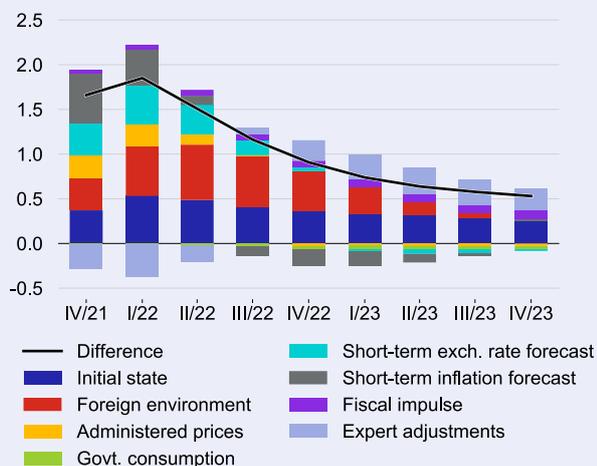
1Y horizon; y-o-y changes in % unless otherwise indicated

	6/21	7/21	8/21	9/21	10/21
FMIE:					
CPI	2.2	2.2	2.4	2.6	2.9
CPI, 3Y horizon	2.1	2.1	2.1	2.1	2.2
Real GDP in 2021	3.6	3.6	3.4	3.5	3.3
Real GDP in 2022	4.3	4.5	4.7	4.7	4.7
Nominal wages in 2021	3.7	3.7	4.0	4.8	5.0
Nominal wages in 2022	4.4	4.5	4.6	4.8	5.0
CZK/EUR exchange rate (level)	24.9	24.9	24.8	24.8	24.7
2W repo rate (%)	1.2	1.4	1.8	2.2	2.7
1Y PRIBOR (%)	1.7	1.9	2.1	2.5	3.1
Corporations:					
CPI	2.8			3.4	
CPI, 3Y horizon	3.2			3.6	
CF:					
Real GDP in 2021	3.6	3.7	3.6	3.6	3.3
Real GDP in 2022	4.6	4.7	4.9	4.9	4.8
Nominal wages in 2021	3.8	4.0	4.1	5.4	6.1
Nominal wages in 2022	4.5	4.4	4.6	5.0	5.3
CZK/EUR exchange rate (level)	25.0	25.0	25.0	25.0	25.0
3M PRIBOR (%)	1.3	1.6	2.0	2.2	2.7

COMPARISON WITH THE PREVIOUS FORECAST: Interest rates and the exchange rate

Chart IV.4
The interest rate path has shifted markedly higher

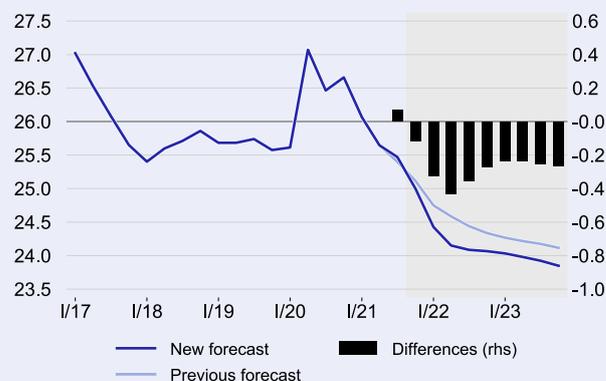
decomposition of changes in 3M PRIBOR forecast in pp



- **The initial state**, whose effect stems mainly from faster inflation this summer both at home and abroad, fosters higher rates
- **The foreign outlook** – primarily reflecting much higher producer price inflation in the coming quarters and rather less accommodative ECB monetary policy – has the same effect
- The higher rates are also due to **the short-term inflation and koruna exchange rate forecasts** and to brisker growth in **administered prices** than in the previous forecast
- **Expert adjustments** reflect initially greater and longer-lasting problems in domestic industry and then a faster restart; greater labour market tightness also has an inflationary effect

Chart IV.5
The koruna is stronger than in the summer forecast over the entire outlook

change in CZK/EUR exchange rate forecast; differences in CZK – right-hand scale



- In the near term, the firmer koruna mainly reflects a more rapidly widening positive interest rate differential vis-à-vis the euro area
- In the longer run, the pace of appreciation of the koruna is broadly in line with the previous forecast but with a stronger final level

The increase in monetary policy interest rates passed through to domestic market rates

Money market interest rates moved to a higher level in response to the increase in key interest rates (see Chart IV.6). Domestic interest rates with longer maturities also went up,¹³ more so at the shorter end of the curve. The domestic government bond yield curve is thus almost flat (see Chart IV.7) and slightly inverted for IRS rates. Interest rates on foreign markets increased slightly overall, but less so than those on the domestic market. They were affected by the energy market stress and the related uncertainty regarding inflation pressures. These started to be globally assessed as broader-based and longer-lasting than originally expected. Growth in expectations of a faster increase in key interest rates is apparent in the market. The announcement of slower asset purchases by the ECB and the tapering hinted at by the Fed have had little effect on foreign market rates so far.

The growth in market rates is now feeding through gradually to client rates; credit activity remains robust

The increase in market interest rates is gradually passing through to client interest rates on loans. The rate on loans to corporations increased close to 2% in Q3. It can be expected to rise further in the period ahead due to the sharp increase in monetary policy and market rates. The rate on housing loans also increased further, to 2.5%. Banks thus responded to the previous growth in market rates with longer maturities. In real terms, interest rates are negative both in the said loan segments and on deposits. Growth in loans to corporations picked up as economic activity recovered. Demand for financing of operating needs and to a lesser extent fixed investment increased. Growth in loans for house purchase remains strong. However, households' demand for loans slackened in Q3 for the first time since mid-2020. It started to reflect the increase in client rates on housing loans.

The uncertainties and risks of the forecast are seen as significant and inflationary overall

The uncertainties and risks of the forecast are significant and we assess them as being inflationary overall. The most significant risk is the duration of global production chain disruptions and related even

Chart IV.6
Domestic interest rates with longer maturities continued to increase

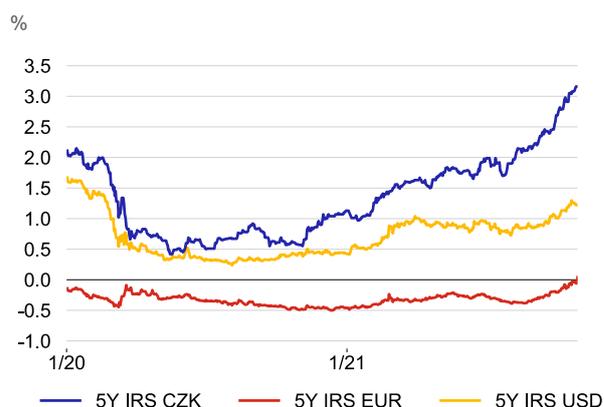
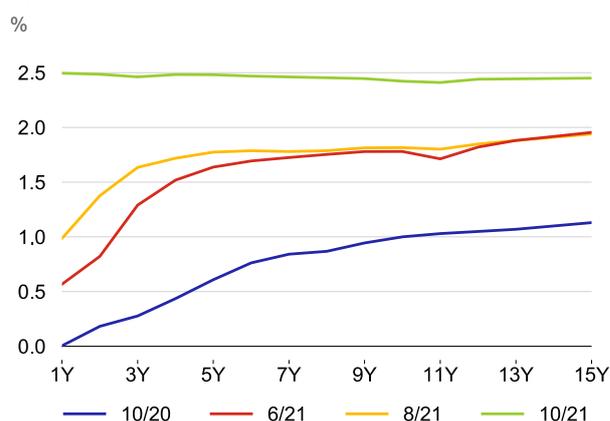


Chart IV.7
The Czech government bond yield curve shifted upwards and is now almost flat



¹³ This was also reflected in primary auctions of government bonds, which the Czech Ministry of Finance issued to enable the government to finance the fiscal stabilisation measures it has adopted. Bond yields have risen by as much as 2.5 pp since the start of this year. T-bills and government bonds with various maturities totalling CZK 385 billion (two-thirds of the planned borrowing requirement for this year, which has already been increased twice) were issued on the primary market in the same period. In addition to koruna bonds, the government for the first time in a long time subscribed to a euro-denominated issue of EUR 200 million with an average yield of -0.18%.

stronger inflation pressures globally and domestically, including a weaker koruna. The exchange rate may in itself be an additional upside risk to inflation given its recent developments. Increased inflation expectations are an additional potential inflationary risk. Finally, there are considerable uncertainties regarding inflation in the short run stemming from the current energy market issues and the cost of owner-occupied housing. These uncertainties are also tilted to the upside. Conversely, if the new government were to take tangible consolidation measures in the state budget area in 2023, it would represent a slightly anti-inflationary risk to the forecast in the long run.

Longer-lasting disruptions to global production chains would foster higher inflation

The overloading of global production and supply chains is putting upward pressure on prices of commodities and other inputs, as well as final products. Lengthier disruptions to supplies would result in longer-lasting cost-push inflation pressures due to limited supply and sharply rising prices of production inputs. Barriers to international trade may increase, causing persistent upward price pressures and a temporary drop in the potential of individual economies.

Such developments are described in the *Scenario of longer-lasting disruptions to global production chains*. Unlike the baseline scenario, this scenario assumes that these problems will persist throughout 2022 and that the situation will not return to normal until the start of 2023. The ECB responds to the higher growth in production and consumer prices in the euro area that would ensue in such a scenario with tighter monetary policy. This results in more subdued production and lower foreign trade. The Czech economy grows more slowly due to lower external demand and lower exports caused by a greater decrease in domestic industrial production. The domestic economy will also suffer from much higher inflation pressures than in the baseline scenario, as a weaker koruna against the euro also has an inflationary effect. These factors lead to a need for a larger increase in domestic market rates than in the baseline scenario of the forecast. The scenario is described in detail in the following text.

Scenario of longer-lasting disruptions to global production chains

In the foreign assumptions of the scenario of longer-lasting disruptions to global production and supply chains, we consider stronger global cost-push inflation pressures – stemming from sharply rising prices and limited supply of production inputs – than in the baseline scenario from the start of next year. There will also be growth in barriers to international trade and division of labour, caused by disruptions to, and strategic shortening of, supply chains, among other things. These changes in the global economic environment will also lead to a drop in factor productivity in 2022, as reflected in a temporary decline in the potential of individual economies. The supply-side shortages disappear at the start of 2023 as supply chains begin to operate smoothly again, resulting in growth in international trade.

The scenario assumes a sharp increase in both producer and consumer prices in the euro area, including the price of oil, compared to the baseline scenario (see Chart IV.8). Starting in 2022 Q2, the ECB will respond to the strong inflation pressures by first ending its asset purchase programmes and then raising interest rates. The tighter monetary conditions in the euro area, coupled with a temporary drop in production and a decline in foreign trade, will result in a downswing in economic activity in 2022. Continued solid demand in a situation of strongly limited supply will make the euro area economy temporarily overheated. The subsequent easing of barriers to production and rapid restoration of global production capacity in 2023 will be reflected in faster growth of euro area GDP.

Chart IV.8

The ECB responds to the negative supply shock with tighter monetary policy, which, coupled with a drop in production, leads to lower foreign economic activity

comparison of baseline scenario with scenario of longer-lasting disruptions to global production chains – foreign variables

GDP in the effective euro area

y-o-y changes in %



PPI in the effective euro area

y-o-y changes in %



GDP potential in the effective euro area

index



3M EURIBOR

%



- Baseline
- Longer-lasting supply chain disruption scenario
- - - Shadow foreign interest rate – baseline
- - - Shadow foreign interest rate – longer-lasting supply chain disruption scenario
- Difference (rhs)

The domestic economy will grow more slowly than in the baseline scenario as a result of the longer-lasting issues in global production and supply chains (see Chart IV.9). Moreover, exports will be hit harder than the decline in foreign economic activity would imply, as the share of industry that suffers the most from supply shortages is higher in the domestic economy than in our main trading partners. Domestic economic performance will recover significantly at the start of 2023 after the problems in chains abate.

The overall inflation pressures in the domestic economy will be slightly higher than in the baseline scenario. They will be pushed upwards mainly by core import prices, which will have a more inflationary effect than in the baseline scenario due to higher growth in foreign producer prices next year. In addition, lower foreign demand for Czech exports and more subdued domestic industrial production foster a weaker koruna than in the baseline scenario, which will also support growth in import prices and costs. The higher inflation pressures, less accommodative foreign monetary policy and weaker koruna against the euro together lead to a need for a higher increase in domestic market interest rates than in the forecast.

Chart IV.9

Domestic interest rates are markedly higher than in the baseline scenario due to higher global and domestic inflation pressures supported by a weaker koruna, amid slightly higher domestic inflation and lower GDP growth

comparison of baseline scenario with scenario of longer-lasting disruptions to global production chains – domestic variables

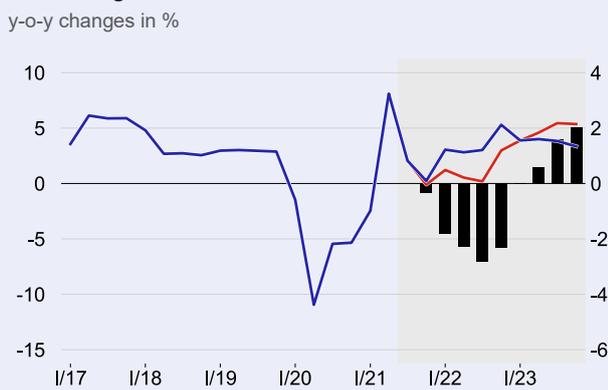
3M PRIBOR



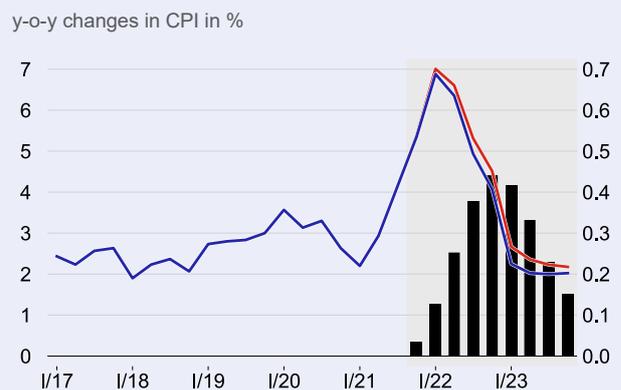
Nominal exchange rate



Real GDP growth



Inflation



— Baseline
 — Longer-lasting supply chain disruption scenario
 ■ Difference (rhs)

The current exchange rate of the koruna is an upside risk to inflation

The koruna has been significantly weaker against the euro so far in Q4. It has averaged CZK 25.5 to the euro, whereas the baseline scenario assumes an average of CZK 25 to the euro, i.e. 1.8% stronger. On the one hand, this may merely reflect a brief deterioration in financial market sentiment towards emerging economy currencies. On the other, it may reflect heightened risk perceptions among investors as regards the Czech Republic's macroeconomic situation in the longer term. The koruna's prospects are meanwhile clouded by the threat of longer-lasting disruptions to global value chains, to which the local small, open and highly export and industry-oriented economy is closely linked and hence sensitive. After a potential surprisingly sharp rate increase for the market at the November monetary meeting, however, the exchange rate can reasonably be expected to strengthen and thus move closer to the short-term outlook than it is now. Conversely, if the exchange rate were to stay at its current weakened level at the end of this year, it would further increase the overall inflation pressures and foster a need for higher interest rates than in the baseline scenario.

The observed surge in the number of coronavirus cases in the Czech Republic may lead to a tightening of domestic anti-epidemic measures, but their impacts on the economy will be limited

The rise in cases in the autumn and the related tightening of some anti-epidemic measures is not likely to have a major impact on the global economy. This is due to relatively high vaccination coverage in advanced countries and governments' ability to respond to a worsening epidemic situation other than with shutdowns. The same goes for the domestic economy, where the observed large rise in cases in the autumn will thus have no tangible economic impacts.

Signs of growing inflation expectations are accumulating further in the Czech economy

The current high inflation rate, which the forecast expects to increase further in late 2021 and early 2022, may affect inflation expectations. The anchoring of inflation expectations is visibly weakening among non-financial corporations, which, according to the survey conducted by the Confederation of Industry of the Czech Republic and the CNB, expect inflation at 3.6% at the three-year horizon. Business surveys show that the share of firms expecting the prices of their products and services to rise in the near term is growing in industry, construction, retail and services.

Analysts' inflation expectations have also been edging up in recent months. At the three-year horizon, they are close to the upper boundary of the tolerance band around the target, broadly in line with the CNB forecast.

Monetary policy in the g3+ model sets interest rates taking into account the deviation of expected monetary policy-relevant inflation from the 2% target at the one-year horizon. The inflation outlook takes on board the forecasts for all relevant macroeconomic variables. The emphasis on the monetary policy horizon reflects the gradual transmission of interest rates to future economic developments and in turn to inflation. By concentrating on inflation at this horizon, the central bank simultaneously abstracts from short-term inflation shocks. Their impact can be controlled by monetary policy to only a minimal extent. In addition, any efforts to mitigate them quickly would cause high interest rate volatility, which would destabilise the economy. Too abrupt changes in rates are also prevented by intentional rate smoothing by the central bank. Nonetheless, active monetary policy stabilises inflation at the target in the medium run. This is usually accompanied by gradual movement of interest rates towards their neutral long-run level (3%).

The monetary policy horizon is the future time period which the CNB focuses on when making its monetary policy decisions and which reflects the lag in the transmission of monetary policy. This time period is roughly 12–18 months ahead.

Their deviation from the inflation target has also grown slightly at the three-year horizon (see Table IV.1).

Households' concerns about rising prices have also been growing fairly clearly. The indicator of inflation perceived by households in the European Commission survey has risen sharply since the start of this year, as have households' expectations regarding inflation one year ahead (see Chart IV.10). According to the CZSO, the number of respondents fearing a further rise in inflation was at its highest level since records began in October (see Chart IV.11). Consumers remain pessimistic about the future economic situation. Most of all, they perceive a current surge in the price level. As many as half of them expect it to go up further in the coming months.¹⁴

There are also considerable uncertainties regarding inflation in the short run stemming from the current energy market issues and the cost of owner-occupied housing

Higher growth in prices of electricity and gas linked with the rapid rise on commodity exchanges is an upside risk to inflation. The surge in energy prices, which is affecting households and firms, may be contributing to the above growth in inflation expectations. In addition, there is uncertainty surrounding the capture of the dramatic price growth on the energy market by the CZSO's price indices. Last but not least, a longer-lasting significant contribution of imputed rent to core inflation is also an upside risk to inflation.

Inflation levels staying well above the target for long could spill over into inflation expectations and subsequently into prices and other nominal variables

The observed growth in the measures of inflation expectations suggests that the current elevated inflation levels are now affecting the formation of those expectations. The increased inflation expectations might spill over into prices and other nominal variables and result in a later return of inflation to the 2% target than is usual in normal times. If inflation rises well above the upper boundary of the tolerance band, a sufficient and timely response by the central bank is therefore key to preventing a larger deviation of inflation expectations from the CNB's target.

A rapid increase in interest rates is justified

A sharp increase in the 3M PRIBOR from the current level of 2.1% to an average of 3.3% in 2021 Q4 and 3.6% in 2022 Q1 is consistent with the baseline scenario of the autumn forecast. This is commensurate with an increase in the 2W repo rate of at least 1 pp at the monetary policy meeting in November. Moreover,

¹⁴ Purchases of anti-inflationary government retail bonds, which rose again in Q3 to higher-than-usual levels, may also be a signal of inflation concerns among households.

Chart IV.10

Inflation expectations of Czech and euro area households have been rising since the start of this year

households' inflation expectations for next 12 months according to European Commission Business and Consumer Survey; balance of answers

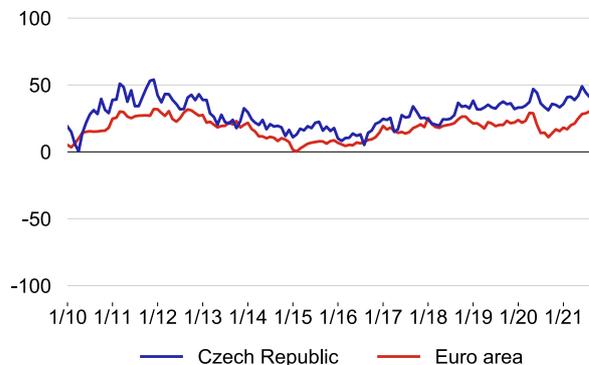
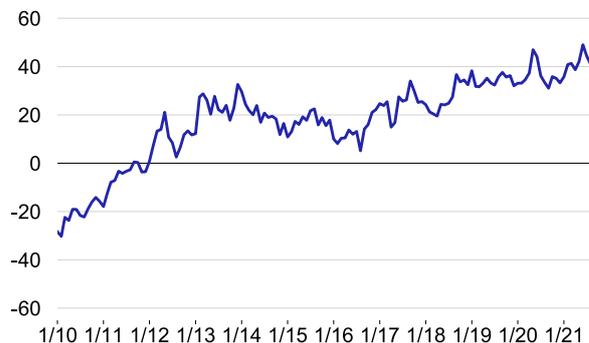


Chart IV.11

Households' concerns about rising prices have been growing in recent months

balance of answers; source CZSO



the risks to the forecast are assessed as being significant and inflationary overall.

Slower-than-forecasted interest rate growth would lead to the target being significantly overshoot if inflation expectations became unanchored

Simulations show that a slower-than-forecasted rate increase has a potential very negative impact on inflation, as the public may assess the central bank's actions as insufficient and start to expect much higher inflation. An unanchoring of inflation expectations, for example due to a lack of market confidence in the central bank's ability to achieve the inflation target in a stable manner, leads to a loss of its credibility. This has significant inflationary effects. A gradual rise in inflation expectations to 3% would be reflected in continued strong growth in consumer prices. The taming of such increased inflation expectations then leads to a need to tighten monetary policy even more than required in the baseline scenario.

The central bank would thus have to respond in the spring with substantially higher interest rates (exceeding 4%) and would not get inflation under control until much later (in 2023 in the simulation). The impacts of this risk are similar to those in the similar simulations carried out in the summer forecast.

An additional simulation depicts the situation – rather less probable – where inflation expectations remain anchored close to the 2% target despite a suboptimal, i.e. substantially weaker, monetary policy response (thanks, for example, to credible and convincing communication by the central bank that the inflation pressures are only temporary or that it will ultimately “somehow” ensure that inflation returns to the target). This assumption may not be realistic, i.e. consistent with actual inflation expectations, which are showing signs of diverging from the CNB's 2% target.

Simulations of slower rate growth with inflation expectations anchored to different degrees

These two versions of the monetary policy simulation illustrate the situation where interest rates go up more slowly until the end of 2022 Q1 than assumed in the baseline scenario of the forecast. Specifically, the central bank raises interest rates by 0.50 pp at the November and December 2021 meetings and by 0.25 pp in February 2022.¹⁵

The first version of the simulation (the red line in the charts) describes the situation where the central bank’s lag behind the implied rate path will not jeopardise its credibility as regards its ability to fulfil the inflation target. In this simulation, inflation expectations remain anchored by the 2% target even though the central bank actively communicates its intention to move significantly downwards from the path described in the baseline scenario of the forecast. In this simulation, the expected lower rate path results in more gradual appreciation of the koruna due to a smaller widening of the positive interest rate differential vis-à-vis the euro area. The lower interest rates and slightly weaker exchange rate than in the baseline result in slightly higher inflation over the entire forecast horizon (see Chart IV.12).

Chart IV.12

With slower interest rate growth in late 2021 and early 2022 and with inflation expectations staying anchored, inflation will be only slightly higher than in the baseline scenario; in the opposite case, however, it will overshoot the target more significantly, despite a subsequent sharp correction of the initial muted monetary policy response

comparison of baseline scenario with slower rate growth simulations



¹⁵ These simulations should be seen as just an illustration of possible future situations.

The second version of the simulation (the yellow line in the charts) also assumes slower rate growth in late 2021 and early 2022 than in the baseline. At the same time, though, the central bank's monetary policy gradually loses credibility. This is reflected in households' inflation expectations rising above the CNB's target. Owing to a long-running overshooting of the target, inflation expectations in the economy gradually diverge from the CNB's target (which remains at 2%) during the first year of the simulation, reaching 3% next year.

The deviation of the perceived inflation target from the central bank's target creates gradually mounting additional inflation pressures in the economy (i.e. upward pressure on all nominal variables). This is reflected in higher consumer price inflation. The central bank starts to respond to this situation in spring 2022, when the initial muted monetary policy response must be corrected with a further sharp increase in interest rates. Market interest rates thus move above, and stay above, 4% next year. This notwithstanding, inflation remains elevated and is not brought under control by the central bank's active monetary policy until the end of 2023, when the 2% target regains credibility. Nonetheless, since the future response of the central bank to the additional inflation pressures is expected from the start of the forecast (the markets know that monetary policy has not been optimal), the exchange rate appreciates rather more strongly than in the baseline scenario. The impacts on GDP are slight, fostering lower economic activity; the differences relative to the baseline scenario are reflected predominantly in nominal variables.

There is uncertainty regarding the effect of fiscal policy related to the possible future consolidation of the state budget

Given the current political situation and the pace of growth of the Czech Republic's debt, the future government can be expected to launch some form of fiscal consolidation. For procedural and institutional reasons, a more substantial consolidation of public budgets, which would be reflected in different fiscal and macroeconomic developments than assumed in the baseline scenario of the forecast, cannot be expected before 2023. The *Scenario of fiscal restriction in 2023* shows the impact of a public finance consolidation of 1% of GDP on key macroeconomic variables.¹⁶ The fiscal scenario is therefore intended not to anticipate the specific form and size of the fiscal consolidation, but to indicate the approximate sensitivity of key macroeconomic variables to hypothetically more restrictive fiscal policy in the future.

A hypothetical fiscal restriction of 1% of GDP in 2023 would result in slightly lower GDP growth than in the baseline scenario. This would be reflected in marginally lower inflation pressures and slightly easier monetary conditions. The lower interest rate path would be reflected in a rather weaker exchange rate of the koruna.

¹⁶ We assume a combination of expenditure- and revenue-side measures in the simulation. Their final form and extent are highly uncertain at the moment.

Scenario of fiscal restriction in 2023

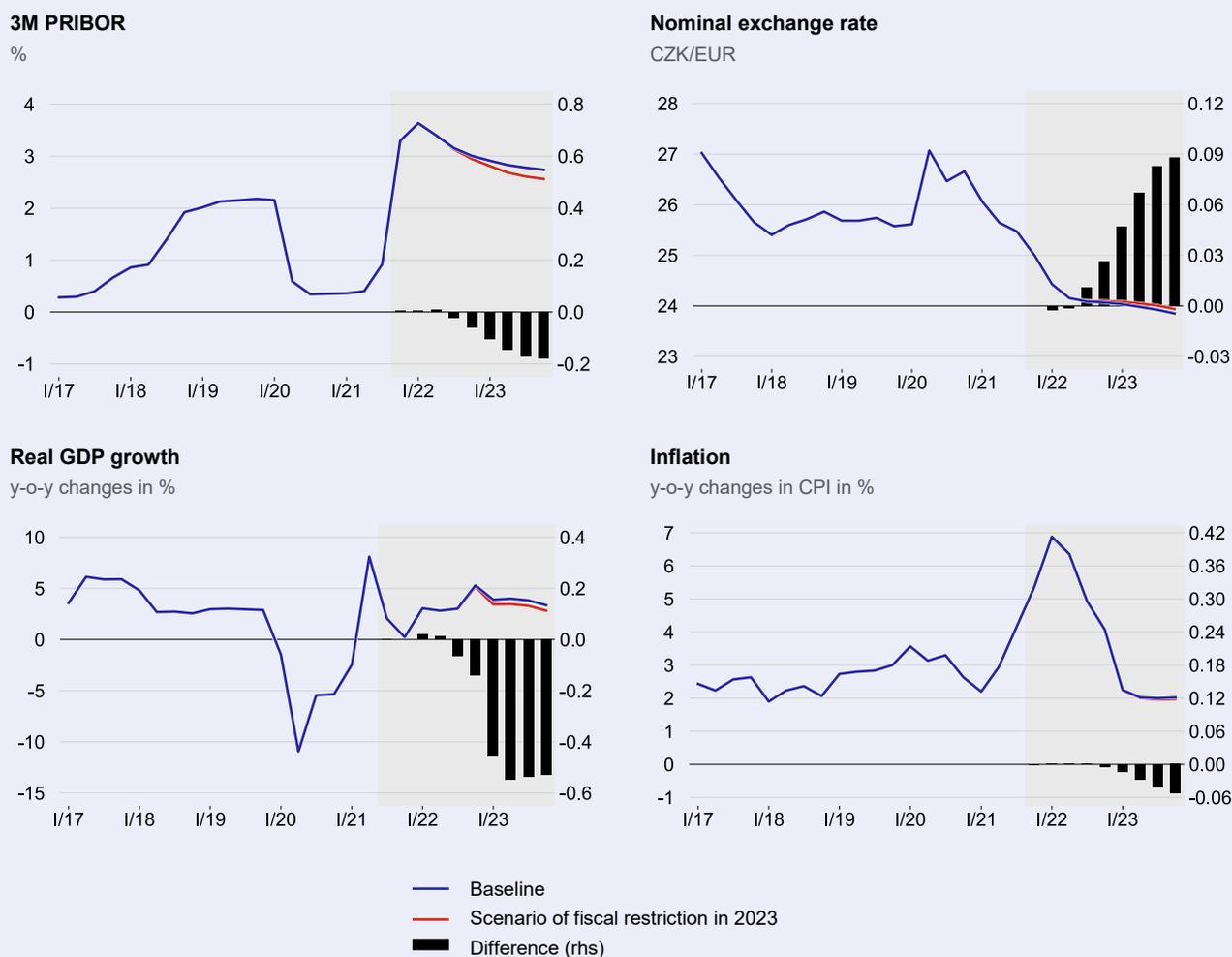
Unlike the baseline scenario of the forecast, the fiscal scenario assumes a public finance consolidation of 1% of GDP in 2023. To simulate its impacts, a hypothetical combination of measures on both the general government expenditure and revenue sides was considered. Cuts in current expenditure and subsidies, stagnation of salaries of government sector employees and lower growth in government investment from national sources are considered on the government expenditure side. A hypothetical VAT increase and the introduction of a digital tax are incorporated on the revenue side. The fiscal scenario is intended not to anticipate the specific form and size of the fiscal consolidation, but to indicate the approximate sensitivity of key macroeconomic variables to hypothetically more restrictive fiscal policy in the future. The fiscal consolidation is primarily reflected in lower government consumption than in the baseline scenario, accompanied by a smaller fiscal impulse to household consumption and reduced government investment. The scenario also assumes that the fiscal restriction in 2023 will be partly expected by households, so the economic impacts are felt to a limited extent already in mid-2022.

The generally weaker domestic demand due to the more pronounced consolidation of the state budget results in lower GDP growth than in the baseline scenario, especially in 2023, when the hypothetical government actions are felt most strongly (see Chart IV.13). The lower domestic demand is reflected in more muted inflation pressures. The central bank responds to these developments with easier monetary policy than in the baseline scenario of the forecast. The slightly lower interest rate path is reflected in a rather weaker exchange rate of the koruna. All of this combined will ensure that inflation will be almost imperceptibly below the forecast in the baseline scenario in 2023.

Chart IV.13

Lower GDP growth, marginally lower interest rates at the longer end, and a slightly weaker exchange rate from 2022 H2 onwards are consistent with fiscal restriction in 2023

comparison of baseline scenario with fiscal restriction scenario

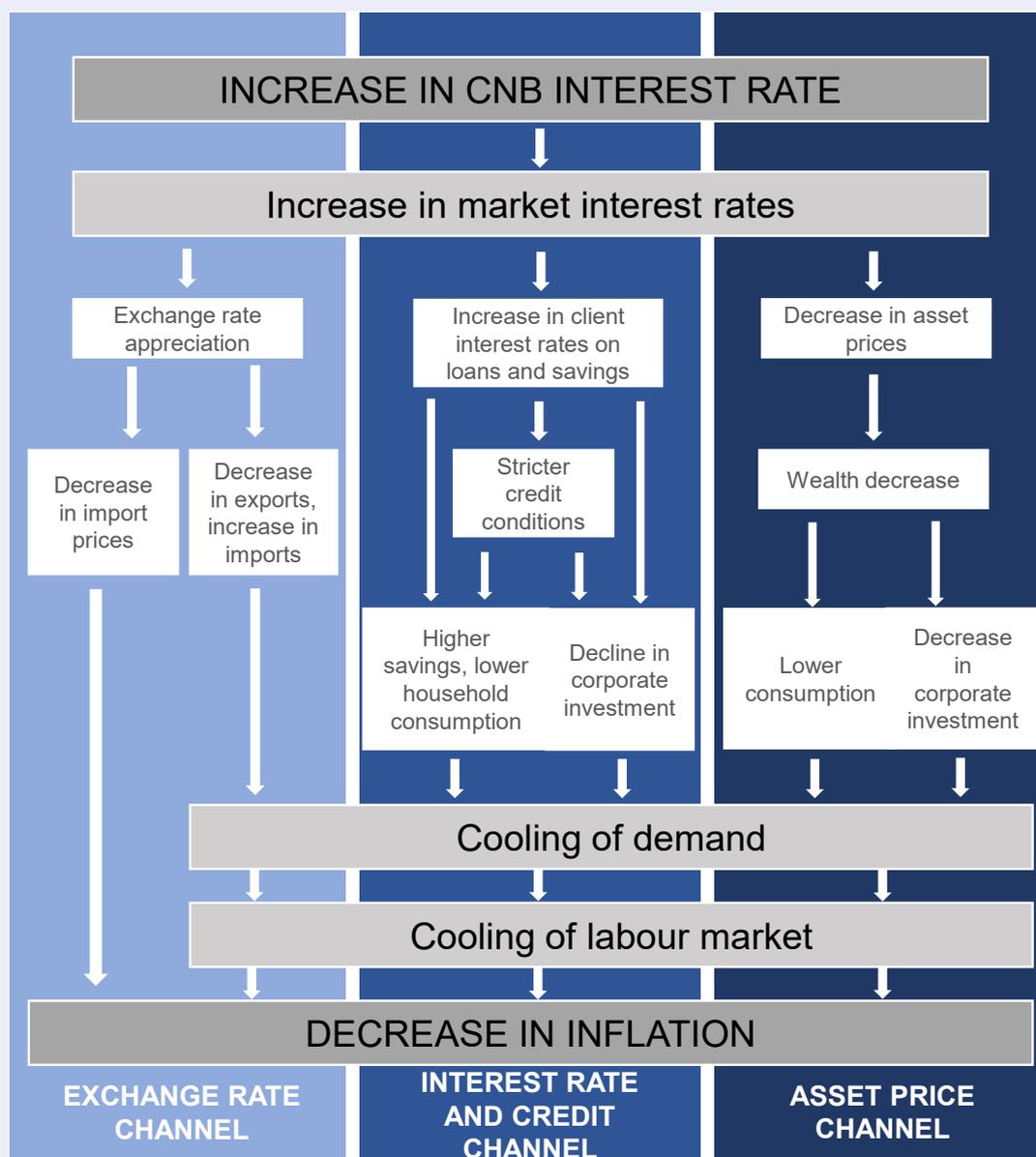


BOX 4 Monetary policy transmission in the Czech economy

The Czech National Bank seeks to maintain price stability, i.e. low and predictable inflation, by setting short-term monetary policy interest rates.¹ How future inflation is influenced by the making of changes to interest rates is described by the “transmission mechanism”. This is a complex process whereby changes in interest rates lead – with a time lag – to effects on the economy and inflation. To better understand the central bank’s influence on inflation, we provide a scheme of the different ways in which changes to monetary policy interest rates pass through to prices. We call them the transmission channels of monetary policy. The following text explains how the most important transmission channels work and, using simulations of macroeconomic models, shows how fast and powerful the effect of raising interest rates is in terms of taming inflation.

Three transmission channels play an important role in the Czech economy: the exchange rate channel, the interest rate and credit channel and the asset price channel. In all these channels, a change in interest rates affects inflation in the same direction: other things being equal, a rate hike reduces future inflation and a rate cut increases it. [Chart 1](#) shows how the different channels work.

Chart 1
Monetary policy transmission channels



As its name suggests, the exchange rate channel works both directly and indirectly via the exchange rate. An increase in interest rates results in a higher demand for assets denominated in the Czech currency, which is reflected in higher demand for the koruna and its appreciation against other currencies. The appreciation leads to lower prices of imported goods intended for consumption and subsequent production. This slows growth in domestic consumer prices. Along with this direct price effect, domestic and external demand for domestic products declines in favour of foreign products due to an increase in the price of the former relative to the latter (“intra-temporal substitution”). This leads to lower growth in domestic economic activity and a cooling of the labour market, which also acts in the desired anti-inflationary direction. In a small open economy such as the Czech Republic, both the direct and indirect exchange rate channels play an important role in the transmission mechanism.

The interest rate and credit channel works owing to the interconnectedness of the CNB’s monetary policy rates and market and client interest rates via the central bank’s monetary policy operations, which affect the interbank money market. A rise in CNB monetary policy rates increases the price of money in the economy, which generally leads to a preference for future consumption over current consumption (“inter-temporal substitution”). In practice, this means, among other things, that growth in monetary policy interest rates will be reflected in higher bank client rates on loans and deposits. In such conditions, firms revise their investment plans due to a decline in the profitability of the most risky and financially controversial projects. Their debt management costs will also rise. Thus, there is a decrease in corporate demand for investment and investment-financing loans. This will be reflected in lower production by domestic producers of capital goods. When the cost of money (i.e. client interest rates on deposits) increases, households start to favour saving over immediate consumption. At the same time, consumer credit becomes more expensive, which also results in lower demand for debt-financed consumption of goods and services. This further dampens economic activity and leads to a slowdown in wage growth and the taming of inflation.

The asset price channel acts through changes in the pricing of financial and non-financial assets such as securities and property. Other things being equal, a rise in interest rates causes asset prices to fall, because the higher interest rates reduce the expected rate of return. Assets therefore become less attractive than better remunerated bank deposits. The fall in current market asset prices represents a decline in households’ perceived wealth, which will be reflected in a reduction in their consumption. Firms engage in more prudent investment activity. Overall, this leads to slower growth in economic activity due to lower demand and thus again to a slowing of excessive inflation.

Besides the three channels described above, monetary policy affects future inflation via the inflation expectations of households and firms. Through its actions and communications, a credible central bank consistently shows that despite temporary fluctuations, inflation will return to the target. Steering households’ and firms’ expectations in this way is essential for successful monetary policy in the long term. For the central bank to maintain its credibility, in the event of a significant threat of deviation of inflation from the target it must not delay and must use the tools available to it to fulfil its mandate, return inflation to the inflation target and keep inflation expectations anchored.

The overall effect of interest rate changes on inflation is the sum of the individual effects of the above transmission channels. In the economic literature, simulations of macroeconomic models are usually used to quantify the extent and timing of the effects of interest rate changes on economic and price developments. One of them is the CNB’s core forecasting model, g3+.² The structure and parameters of g3+ were chosen (calibrated) to ensure that the model is capable of accurately describing the behaviour of the Czech economy and inflation in an environment where the CNB conducts inflation targeting monetary policy. The CNB’s forward-looking monetary policy in the g3+ model is described by a monetary policy rule whereby the short-term interest rate is a function of the deviation of predicted inflation from the inflation target. The impulse responses to an unexpected shock to the monetary policy rule reveal that the exchange rate channel is also the fastest transmission channel in the g3+ model, due to an immediate widening of the interest rate differential vis-à-vis the rest of the world.³ The transmission of a monetary policy shock via the interest rate and credit channel is delayed due to inertia in households’ consumer habits and firms’ demand for labour and capital. Households and firms thus adapt at a slower pace. The resulting impact on inflation therefore peaks with a lag, in contrast to the immediate response of the exchange rate.

To test the calibration of g3+, its properties are confronted with those of structural econometric models estimated on data. For the purposes of this box, the estimate of the impact of interest rate changes on inflation was quantified using a structural VAR (SVAR) model for the Czech economy estimated using the Bayesian approach.⁴ The SVAR model uses the monthly seasonally adjusted industrial production series, the deviations of inflation from the inflation target, 3M PRIBOR interest rates and the CZK/EUR exchange rate. The model also includes the 3M EURIBOR and a foreign energy price index as exogenous variables to capture the impact of the rest of the world on the Czech economy. The estimate is performed for the period January 2000–August 2021.

Chart 2 depicts the median impulse responses of the SVAR model over a 36-month period (the blue line in the charts) along with their 68% and 95% confidence intervals (the red and yellow dashed lines in the charts respectively). The impulse responses show the extent and speed of the changes which occur in the economy in response to a monetary

policy shock in the form of an unexpected rise in interest rates (restrictive monetary policy). This will be reflected initially in rapid appreciation of the exchange rate, followed by a fall in industrial production and a decline in inflation. According to this empirical model, an increase in interest rates of 1 pp leads to a decline in inflation of about 0.4 pp. The impact peaks in 20–24 months. This is slightly longer than the standard monetary policy horizon.

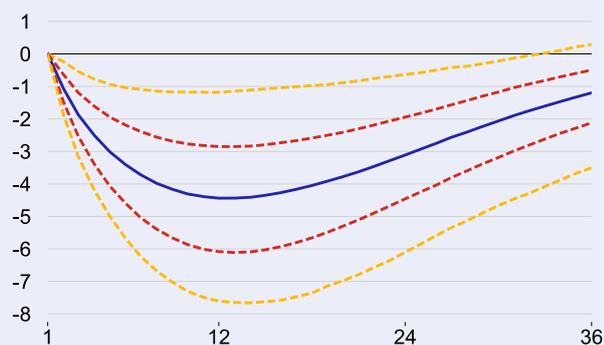
Chart 2

An increase in interest rates of 1 pp leads to a decline in inflation of about 0.4 pp

impulse responses to interest rate increase of 1 pp; x-axis shows months

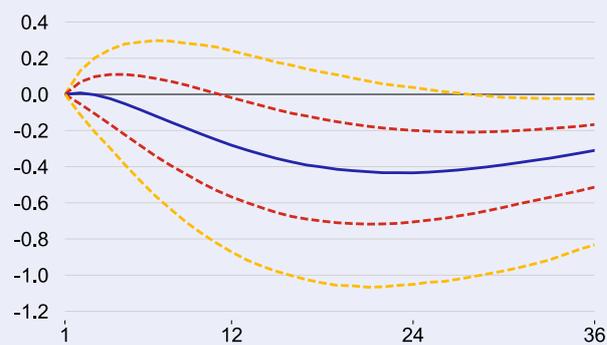
Industrial production

index; deviation in %



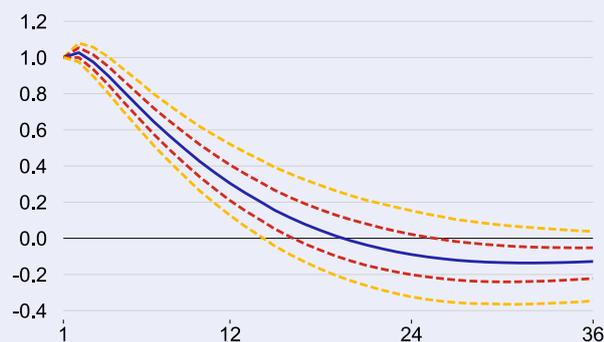
Inflation

headline inflation; y-o-y; deviation in pp



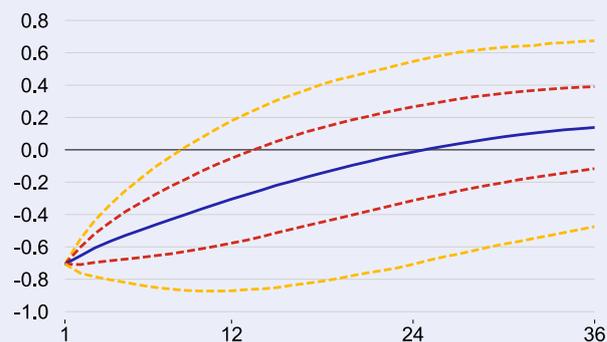
3M PRIBOR

% p.a.; deviation in pp



Nominal exchange rate

CZK/EUR



— Median
 - - - 68% confidence interval
 - - - 95% confidence interval

According to the g3+ model, the impact of an unexpected rise in interest rates will peak about four quarters after the materialisation of this monetary policy shock. In the SVAR model, the peak is reached around the seventh quarter. Both models are thus consistent with the definition of the CNB's monetary policy horizon. Due to the lower persistence of g3+ compared to the SVAR model, a one-quarter shorter period for the return of inflation to the target as its steady-state value is also observed.

The two models identify almost the same initial magnitude of the impact of a rise in interest rates on the exchange rate. In both cases, the initial strengthening of the exchange rate is followed by a correction. In g3+, however, the initial impact dissipates faster, in fact about one quarter earlier than in the SVAR model. The profile of the return of industrial production to equilibrium corresponds to the duration of the impacts of restrictive monetary policy on growth in economic activity in g3+, where the peak impact fades after about one year. The peak impacts are achieved more quickly in g3+ due to its explicit forward-looking nature, in contrast to the SVAR model, and to a faster return of interest rates to equilibrium (as measured by the response of 3M PRIBOR rates).

The empirical estimate based on the SVAR model confirms that the CNB's monetary policy based on the g3+ forecasting model can rely on an increase in interest rates truly leading to the desired decline in inflation, with the peak impact occurring about two years ahead. In the current period of exceptionally high price pressures, a decisive and immediate response by the CNB in the form of an increase in interest rates will also ensure that its monetary

policy remains credible and that inflation expectations remain anchored to the inflation target and do not contribute to higher inflation in the long term.

- 1 The CNB uses three monetary policy rates: the 2W repo rate, the discount rate and the Lombard rate. More information about these rates is available on the CNB website: <https://www.cnb.cz/en/monetary-policy/instruments/>.
- 2 The g3+ model and the motivation for its introduction into the CNB's forecasting process in 2019 are presented in a July 2019 blog article "The CNB's prediction model gets a new plus": https://www.cnb.cz/en/about_cnb/cnblog/The-CNBs-projection-model-gets-a-new-plus/. The structure and properties of the core forecasting model are described in detail in F. Brázdík, T. Hlédík, Z. Humplová, I. Martonosi, K. Musil, J. Ryšánek, T. Šestorád, J. Tonner, S. Tvrz and J. Žáček: "The g3+ Model: An Upgrade of the Czech National Bank's Core Forecasting Framework", WP 7/2020; see <https://www.cnb.cz/en/economic-research/research-publications/cnb-working-paper-series/The-g3-Model-An-Upgrade-of-the-Czech-National-Banks-Core-Forecasting-Framework-00001/>. The forecasting experience and the functioning of the model during the Covid-19 pandemic are presented in a September 2020 blog article "Model g3+ boduje"; see https://www.cnb.cz/cs/o_cnb/cnblog/Model-g3-boduje/ (available in Czech only).
- 3 See CNB WP 7/2020, p. 58, Figure E7a. Further details on transmission can also be found in this research paper.
- 4 A more detailed description of transmission and other related estimates is available, for example, in CNB Research and Policy Note 1/2013. Babecká Kucharčuková, O., Franta, M., Hájková, D., Král, P., Kubicová, I., Podpiera, A., and Saxa, B. (2013): What We Know About Monetary Policy Transmission in the Czech Republic: Collection of Empirical Results.

Abbreviations

AEIS	Average Earnings Information System	ICT	information and communications technology
BoE	Bank of England	IEA	International Energy Agency
BoJ	Bank of Japan	Ifo	index of economic confidence in Germany
CF	Consensus Forecasts	ILO	International Labour Organization
CNB	Czech National Bank	IMF	International Monetary Fund
CPI	consumer price index	IR	Inflation Report
CPIH	experimental consumer price index incorporating prices of older properties	IRI	Institute for Regional Information
CZK	Czech koruna	IRS	interest rate swap
CZSO	Czech Statistical Office	JPY	Japanese yen
DSTI	debt service-to-income	LFS	Labour Force Survey
DTI	debt-to-income	LIBOR	London Interbank Offered Rate
ECB	European Central Bank	LTV	loan-to-value
EEA	European Economic Area	LUCI	Labour Utilisation Composite Index
EIA	US Energy Information Administration	M1, M3	monetary aggregates
EIA	Environmental Impact Assessment	MFI	monetary financial institutions
EIU	Economist Intelligence Unit	MLSA	Ministry of Labour and Social Affairs
ESA	European System of Accounts	m-o-m	month-on-month
ESCB	European System of Central Banks	MPR	Monetary Policy Report
ESI	Economic Sentiment Indicator	NAIRU	non-accelerating inflation rate of unemployment
ESR	electronic sales registration	NBS	National Bank of Slovakia
EU	European Union	OECD	Organisation for Economic Co-operation and Development
EUR	euro	OPEC+	The OPEC member countries and another ten oil-exporting countries (the most important being Russia, Mexico and Kazakhstan)
EURIBOR	Euro Interbank Offered Rate	PMI	Purchasing Managers Index
FDI	foreign direct investment	pp	percentage points
FECF	Foreign Exchange Consensus Forecasts	PPI	producer price index
Fed	US central bank	PRIBOR	Prague Interbank Offered Rate
FMIE	Financial Market Inflation Expectations	q-o-q	quarter-on-quarter
FOMC	Federal Open Market Committee	repo rate	repurchase agreement rate
FRA	forward rate agreement	rhs	right-hand scale
GDP	gross domestic product	USD	US dollar
GNP	gross national product	VAT	value added tax
GVA	gross value added	WTI	West Texas Intermediate
HICP	Harmonised Index of Consumer Prices	y-o-y	year-on-year
HP filter	Hodrick-Prescott filter		
HPI	house price index		

Key macroeconomic indicators

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
DEMAND AND SUPPLY												
Gross domestic product												
GDP (CZK bn, constant p. of 2015, seas. adjusted)	4292.5	4290.6	4387.6	4627.6	4740.5	4995.2	5154.1	5306.4	4998.3	5091.0	5271.5	5470.3
GDP (CZK bn, current p., seas. adjusted)	4087.7	4141.7	4344.5	4627.6	4794.6	5117.9	5416.2	5793.1	5696.8	6005.1	6456.0	6848.9
GDP (% y-o-y, real terms, seas. adjusted)	-0.7	0.0	2.3	5.5	2.4	5.4	3.2	3.0	-5.8	1.9	3.5	3.8
GDP (% q-o-q, real terms, seas. adjusted)	-	-	-	-	-	-	-	-	-	-	-	-
Household consumption (% y-o-y, real terms, seas. adjusted)	-1.1	0.9	1.4	3.9	3.7	4.1	3.3	2.6	-7.1	3.8	6.5	3.1
Government consumption (% y-o-y, real terms, seas. adjusted)	-1.9	2.4	1.0	1.8	2.5	1.8	3.8	2.5	3.4	2.8	1.3	1.9
Gross capital formation (% y-o-y, real terms, seas. adjusted)	-4.1	-4.2	7.2	13.1	-4.0	6.6	7.6	4.4	-10.1	14.4	-0.7	1.1
Gross fixed capital formation (% y-o-y, real terms, seas. adjusted)	-3.3	-2.2	3.3	9.8	-3.1	5.1	10.0	5.9	-7.2	3.4	6.9	3.6
Exports of goods and services (% y-o-y, real terms, seas. adjusted)	4.4	0.3	8.7	6.2	4.1	7.6	3.7	1.4	-7.0	6.3	3.9	8.2
Imports of goods and services (% y-o-y, real terms, seas. adjusted)	2.7	0.1	10.0	6.9	2.7	6.5	5.8	1.5	-6.9	13.6	3.6	6.3
Net exports (CZK bn, constant p. of 2015, seas. adjusted)	289.2	295.8	283.2	276.2	337.3	400.3	336.9	337.8	310.0	51.3	66.7	153.3
PRICES												
Main price indicators												
Consumer Price Index (% y-o-y, average)	3.3	1.4	0.4	0.3	0.7	2.5	2.1	2.8	3.2	3.7	5.6	2.1
Administered prices (14.58%)* (% y-o-y, average)	8.6	2.2	-3.0	0.0	0.2	0.0	1.8	4.4	3.1	-0.5	8.3	2.1
Food prices (incl. alcoholic beverages and tobacco) (26.41%)* (% y-o-y, average)	2.9	3.1	1.8	0.1	0.2	3.6	1.6	2.6	4.2	2.3	4.3	1.3
Core inflation (55.61%)* (% y-o-y, average)	-0.3	-0.5	0.5	1.2	1.2	2.4	2.1	2.7	3.4	4.4	5.0	2.5
Fuel prices (3.40%)* (% y-o-y, average)	6.0	-2.1	0.2	-13.5	-8.5	6.7	6.3	-0.4	-11.4	16.2	8.6	-3.1
Monetary policy-relevant inflation (% y-o-y, average)	2.1	0.6	0.2	0.2	0.5	2.5	2.1	2.9	3.2	3.7	5.2	1.9
Partial price indicators												
Industrial producer prices (% y-o-y, average)	2.1	0.8	-0.8	-3.2	-3.3	1.8	2.0	2.6	0.1	6.8	6.0	0.9
Agricultural prices (% y-o-y, average)	3.3	-12.1	4.7	-6.2	-6.0	7.4	-0.2	5.7	-3.2	5.6	7.5	-2.0
LABOUR MARKET												
Average monthly wage (% y-o-y, nominal terms)	2.5	-0.1	2.9	3.2	4.4	6.7	8.2	7.9	3.2	5.6	5.7	5.0
Average monthly wage in market sectors (% y-o-y, nominal terms)	2.6	-0.3	3.0	3.2	4.3	6.7	7.7	7.6	2.5	6.1	6.2	5.5
Average monthly wage (% y-o-y, real terms)	-0.8	-1.6	2.6	2.8	3.8	4.3	6.0	5.0	0.0	2.0	0.2	2.9
Unit labour costs (% y-o-y)	3.6	0.9	1.6	-0.4	3.1	3.9	6.2	4.7	6.3	2.9	3.7	2.0
Aggregate labour productivity (% y-o-y)	-1.2	-0.4	1.7	3.9	0.9	3.6	1.8	2.8	-4.2	1.6	2.4	3.1
ILO general unemployment rate (% average, age 15–64, seas. adjusted)	7.0	7.0	6.2	5.1	4.0	2.9	2.3	2.0	2.6	3.1	2.8	2.7
Share of unemployed persons (MLSA) (% average, seas. adjusted)	6.8	7.7	7.7	6.5	5.5	4.2	3.2	2.8	3.6	3.8	3.6	3.4
Employment (ILO) (% y-o-y)	0.4	1.0	0.8	1.4	1.9	1.6	1.4	0.2	-1.3	-0.4	0.8	0.7
Full-time employment (% y-o-y)	0.0	-1.0	1.1	2.1	1.8	2.2	1.5	-0.3	-2.0	0.4	0.8	0.8
PUBLIC FINANCE												
Government budget balance (ESA2010) (CZK bn, current prices)	-159.3	-53.2	-90.2	-29.8	34.1	76.7	49.4	17.9	-318.0	-412.3	-281.8	-289.0
Government budget balance/GDP** (% nominal terms)	-3.9	-1.3	-2.1	-0.6	0.7	1.5	0.9	0.3	-5.6	-6.9	-4.4	-4.2
Government debt (ESA2010) (CZK bn, current prices)	1805.3	1840.2	1818.9	1836.0	1754.7	1749.7	1734.6	1739.9	2149.4	2575.1	2836.8	3107.2
Government debt/GDP** (% nominal terms)	44.2	44.4	41.9	39.7	36.6	34.2	32.1	30.0	37.7	42.8	43.9	45.3
EXTERNAL RELATIONS												
Current account												
Trade balance (CZK bn, current prices)	123.8	167.0	220.0	187.7	258.5	259.3	200.9	239.8	285.2	108.9	139.4	218.6
Trade balance/GDP (% nominal terms)	3.0	4.0	5.1	4.1	5.4	5.1	3.7	4.1	5.0	1.8	2.2	3.2
Balance of services (CZK bn, current prices)	77.6	70.4	55.7	86.6	106.6	124.6	120.0	106.0	104.6	89.5	109.3	123.0
Current account (CZK bn, current prices)	-63.3	-21.8	7.9	20.7	85.2	79.1	24.1	19.2	203.5	-30.3	-27.5	32.5
Current account/GDP (% nominal terms)	-1.5	-0.5	0.2	0.4	1.8	1.5	0.4	0.3	3.6	-0.5	-0.4	0.5
Foreign direct investment												
Direct investment (CZK bn, current prices)	-121.3	7.4	-80.4	49.7	-186.5	-45.9	-51.0	-137.1	-73.1	-50.0	-70.0	-70.0
Exchange rates												
CZK/USD (average)	19.6	19.6	20.8	24.6	24.4	23.4	21.7	22.9	23.2	21.4	20.3	20.0
CZK/EUR (average)	25.1	26.0	27.5	27.3	27.0	26.3	25.6	25.7	26.5	25.6	24.2	23.9
MONEY AND INTEREST RATES												
M3 (% y-o-y, average)	5.1	5.1	5.1	7.3	9.1	11.7	6.6	6.3	9.0	10.0	6.4	3.1
2W repo rate (% average)	0.05	0.05	0.05	0.05	0.05	0.50	1.75	2.00	0.25	1.03	2.97	2.51
3M PRIBOR (% average)	1.0	0.5	0.4	0.3	0.3	0.4	1.3	2.1	0.9	1.2	3.3	2.8
EXTERNAL ASSUMPTIONS												
Foreign GDP (% y-o-y, seas. adjusted, effective)	0.3	0.3	1.9	1.9	2.0	2.8	1.8	1.5	-5.6	3.4	4.0	3.0
Foreign GDP (% q-o-q, seas. adjusted, effective)	-	-	-	-	-	-	-	-	-	-	-	-
Foreign HICP (% y-o-y, seas. adjusted, effective)	2.6	1.6	0.6	0.4	0.3	1.6	2.0	1.5	0.6	2.8	2.5	1.6
Foreign PPI (% y-o-y, seas. adjusted, effective)	2.1	-0.1	-1.6	-2.5	-2.3	2.7	3.3	1.1	-1.6	9.0	6.0	1.0
Brent crude oil (in USD/barrel) (average)	111.7	108.8	99.5	53.6	45.0	54.8	71.5	64.2	43.2	70.8	75.3	69.7
3M EURIBOR (% average)	0.6	0.2	0.2	0.0	-0.3	-0.3	-0.3	-0.4	-0.4	-0.5	-0.5	-0.3
USD/EUR (average)	1.3	1.3	1.3	1.1	1.1	1.1	1.2	1.1	1.1	1.2	1.2	1.2

* figures in brackets are constant weights in current consumer basket

** CNB calculation

- data not available/forecasted/released

data in bold = CNB forecast

	2021				2022				2023			
	QI	QII	QIII	QIV	QI	QII	QIII	QIV	QI	QII	QIII	QIV
DEMAND AND SUPPLY												
Gross domestic product												
GDP (CZK bn, constant p. of 2015, seas. adjusted)	1262.2	1274.2	1284.2	1270.5	1300.7	1310.1	1322.9	1337.8	1351.3	1362.6	1373.7	1382.7
GDP (CZK bn, current p., seas. adjusted)	1472.2	1508.5	1511.7	1512.7	1569.2	1598.3	1630.0	1658.4	1681.6	1702.6	1723.2	1741.5
GDP (% y-o-y, real terms, seas. adjusted)	-2.5	8.1	2.1	0.2	3.1	2.8	3.0	5.3	3.9	4.0	3.8	3.4
GDP (% q-o-q, real terms, seas. adjusted)	-0.4	1.0	0.8	-1.1	2.4	0.7	1.0	1.1	1.0	0.8	0.8	0.7
Household consumption (% y-o-y, real terms, seas. adjusted)	-6.6	7.4	4.2	11.0	12.6	6.5	4.4	3.2	3.0	3.1	3.2	3.1
Government consumption (% y-o-y, real terms, seas. adjusted)	3.6	3.1	3.7	0.7	1.3	1.8	1.0	1.1	1.5	1.8	2.0	2.3
Gross capital formation (% y-o-y, real terms, seas. adjusted)	1.8	12.7	24.9	20.1	5.3	1.9	-6.3	-3.1	-1.8	-1.6	3.7	4.1
Gross fixed capital formation (% y-o-y, real terms, seas. adjusted)	-4.3	1.5	6.7	9.8	10.9	7.6	5.4	3.9	3.9	3.5	3.5	3.4
Exports of goods and services (% y-o-y, real terms, seas. adjusted)	2.7	30.6	2.9	-5.3	0.0	0.5	4.9	10.3	9.3	9.8	7.5	6.1
Imports of goods and services (% y-o-y, real terms, seas. adjusted)	4.1	31.3	13.8	8.5	6.4	2.3	1.4	4.3	5.9	6.5	6.7	6.2
Net exports (CZK bn, constant p. of 2015, seas. adjusted)	65.0	20.8	-8.9	-25.6	-0.2	1.5	28.7	36.8	36.9	37.9	39.7	38.7
PRICES												
Main price indicators												
Consumer Price Index (% y-o-y, average)	2.2	2.9	4.1	5.3	6.9	6.4	4.9	4.1	2.3	2.0	2.0	2.0
Administered prices (14.58%)* (% y-o-y, average)	0.1	-0.1	0.1	-2.3	7.5	7.5	7.0	11.2	2.1	2.1	2.1	2.2
Food prices (incl. alcoholic beverages and tobacco) (26.41%)* (% y-o-y, average)	1.6	1.0	2.3	4.5	5.3	5.4	4.2	2.1	0.9	0.6	1.5	2.3
Core inflation (55.61%)* (% y-o-y, average)	3.3	3.3	4.8	6.2	6.3	5.8	4.3	3.4	2.9	2.8	2.3	1.9
Fuel prices (3.40%)* (% y-o-y, average)	-5.8	21.0	20.8	29.0	19.7	12.0	5.8	-3.2	-1.8	-3.6	-3.5	-3.5
Monetary policy-relevant inflation (% y-o-y, average)	2.2	2.7	4.0	5.8	6.6	6.2	4.8	3.2	2.1	1.9	1.9	1.9
Partial price indicators												
Industrial producer prices (% y-o-y, average)	1.5	5.3	9.0	11.2	11.0	7.8	4.0	1.6	0.3	0.6	1.1	1.5
Agricultural prices (% y-o-y, average)	-1.3	3.8	7.1	14.8	15.3	8.6	6.0	-0.4	-4.6	-3.8	-0.8	2.3
LABOUR MARKET												
Average monthly wage (% y-o-y, nominal terms)	3.3	11.3	4.7	3.5	7.5	3.7	5.8	5.9	5.4	5.1	4.9	4.8
Average monthly wage in market sectors (% y-o-y, nominal terms)	3.6	12.6	4.9	3.5	7.6	3.7	6.7	6.8	6.0	5.6	5.3	5.2
Average monthly wage (% y-o-y, real terms)	1.1	8.2	0.5	-1.9	0.6	-2.7	0.9	1.9	3.1	3.1	2.9	2.7
Unit labour costs (% y-o-y)	0.9	4.4	2.4	3.8	7.2	1.8	3.4	2.4	2.3	2.0	1.8	2.0
Aggregate labour productivity (% y-o-y)	-1.1	8.5	1.0	-1.6	1.1	1.5	2.4	4.6	3.2	3.2	3.1	2.8
ILO general unemployment rate (% average, age 15–64, seas. adjusted)	3.4	3.2	2.9	2.9	2.8	2.8	2.8	2.7	2.7	2.7	2.7	2.7
Share of unemployed persons (MLSA) (% average, seas. adjusted)	4.0	4.0	3.7	3.6	3.6	3.6	3.6	3.5	3.4	3.4	3.4	3.4
Employment (ILO) (% y-o-y)	-1.6	-0.8	0.0	0.6	0.8	1.3	0.6	0.6	0.7	0.7	0.7	0.6
Full-time employment (% y-o-y)	-1.7	0.7	1.2	1.3	1.0	0.8	0.7	0.8	0.9	0.9	0.8	0.6
PUBLIC FINANCE												
Government budget balance (ESA2010) (CZK bn, current prices)	-	-	-	-	-	-	-	-	-	-	-	-
Government budget balance/GDP** (% nominal terms)	-	-	-	-	-	-	-	-	-	-	-	-
Government debt (ESA2010) (CZK bn, current prices)	-	-	-	-	-	-	-	-	-	-	-	-
Government debt/GDP** (% nominal terms)	-	-	-	-	-	-	-	-	-	-	-	-
EXTERNAL RELATIONS												
Current account												
Trade balance (CZK bn, current prices)	94.6	45.5	-13.6	-17.6	64.3	45.9	14.1	15.2	69.3	63.9	34.7	50.7
Trade balance/GDP (% nominal terms)	6.8	3.0	-0.9	-1.1	4.4	2.8	0.9	0.9	4.4	3.7	2.0	2.8
Balance of services (CZK bn, current prices)	23.7	31.8	21.8	12.2	29.9	29.4	27.0	23.0	33.0	34.0	31.0	25.0
Current account (CZK bn, current prices)	71.2	27.6	-69.0	-70.0	78.8	-7.0	-61.6	-37.7	88.6	-9.0	-52.6	5.5
Current account/GDP (% nominal terms)	5.1	1.8	-3.9	-4.5	5.3	-0.4	-3.7	-2.2	5.6	-0.5	-3.0	0.3
Foreign direct investment												
Direct investment (CZK bn, current prices)	33.8	-33.1	-25.4	-25.4	-17.5							
Exchange rates												
CZK/USD (average)	21.6	21.3	21.6	21.1	20.6	20.3	20.3	20.2	20.1	20.0	19.9	19.8
CZK/EUR (average)	26.1	25.6	25.5	25.0	24.4	24.2	24.1	24.1	24.0	24.0	23.9	23.8
MONEY AND INTEREST RATES												
M3 (% y-o-y, average)	10.8	10.7	9.3	9.2	8.5	7.0	5.7	4.4	2.8	2.9	3.1	3.4
2W repo rate (% average)	0.25	0.31	0.75	2.79	3.23	3.10	2.85	2.70	2.61	2.53	2.48	2.44
3M PRIBOR (% average)	0.4	0.4	0.9	3.3	3.6	3.4	3.2	3.0	2.9	2.8	2.8	2.7
EXTERNAL ASSUMPTIONS												
Foreign GDP (% y-o-y, seas. adjusted, effective)	-2.0	11.6	2.3	2.6	4.5	3.5	3.6	4.4	4.3	3.6	2.5	1.6
Foreign GDP (% q-o-q, seas. adjusted, effective)	-1.1	2.0	1.2	0.4	0.8	1.1	1.3	1.2	0.7	0.4	0.3	0.3
Foreign HICP (% y-o-y, seas. adjusted, effective)	1.3	2.1	3.2	4.6	3.4	3.1	2.3	1.2	1.3	1.5	1.7	1.9
Foreign PPI (% y-o-y, seas. adjusted, effective)	1.7	7.6	12.1	14.5	12.1	8.7	3.7	0.5	0.2	0.6	1.2	1.8
Brent crude oil (in USD/barrel) (average)	61.3	69.1	73.2	80.0	77.9	76.1	74.4	72.8	71.5	70.2	69.1	68.0
3M EURIBOR (% average)	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2
USD/EUR (average)	1.2	1.2	1.2	1.2								

* figures in brackets are constant weights in current consumer basket

** CNB calculation

- data not available/forecasted/released

data in bold = CNB forecast

Issued by:
CZECH NATIONAL BANK
Na Příkopě 28
115 03 Praha 1
Czech Republic

Contact:
COMMUNICATIONS DIVISION
GENERAL SECRETARIAT
Tel.: 224 413 112
www.cnb.cz

ISSN 2695-1177 (Print)
ISSN 2695-1185 (Online)