Monetary Policy Report
Summer 2021

Czech National Bank —— Monetary Policy Report —— Summer 2021

CNB CZECH NATIONAL BANK

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This Monetary Policy Report was approved by the CNB Bank Board on 12 August 2021 and (with some exceptions) contains the information available as of 23 July 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.

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— 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,

With a bit of exaggeration, this summer can be regarded as a favourable backdrop for a gradual return to normal. As the number of vaccinated people has risen – and the protection of the population against a severe course of the disease has thus grown – the uncertainties that were still exceptionally high at the start of the year have decreased markedly. We have not quite won the war yet, as new strains of the virus may lead to a partial re-tightening of anti-epidemic measures, but our economy now seems to be on the path to a sound and sustainable recovery.

The coronavirus crisis has had several features not seen in previous crises. One of them is the far-reaching disruption of global production and supply chains, which has hampered the smooth renewal of the supply of many commodities, semi-finished products and electronic components. Supplies have also been disrupted by bottlenecks in international transport. No one remembers such an unsettled situation in global trade and few dare to guess how long it will last.

The overloading of production chains amid swiftly recovering demand has caused unexpectedly fast growth in prices of many materials and tradables, growth which is now often in double or even triple figures. Producer price inflation has therefore been rising for several months, and central banks (the CNB and others) are faced with the question of when and to what extent the inflation pressures from the production sector will start to pass through to consumer prices. With growth prospects improving around the world and in the domestic economy, inflation has recently been revised upwards very quickly.

Although there are good reasons why many cost pressures may weaken or even disappear over the next few quarters, there are growing concerns and signals that in some cases (for instance electricity and items whose prices reflect environmental protection factors) the price drift could be long-term in nature. Moreover, if wage growth in the Czech economy starts to accelerate to the levels observed before the pandemic, supply and demand pressures may start to reinforce each other and generate an undesired inflation spiral.

The central bank's task is to reliably predict any surge in inflation and face it in good time, for example with a robust monetary policy tightening if that is what is needed to keep inflation expectations firmly anchored and maintain future inflation close to the target. The road to interest rate normalisation on which the CNB embarked in June may thus be faster than we thought only recently.

I am convinced that we have indeed "woken from the Covid nightmare" and entered a period when – fortunately – we will again conduct conventional monetary policy with all its usual uncertainties and dilemmas. I hope that reading our summer Report helps you return to the world as we knew it before the crisis.

On behalf of the Czech National Bank

Jiří Rusnok

Governor

The decision, and the current outlook and its risks

At its August meeting, the Bank Board increased the two-week repo rate to 0.75%. The decision is based on the CNB's new macroeconomic forecast. The forecast expects inflation to rise well above the upper boundary of the tolerance band around the CNB's target in the next few quarters, driven by stronger inflation pressures from the domestic and foreign economies. Consistent with the forecast is a rise in market interest rates from the middle of this year onwards. The increase in rates will cause inflation to fall close to the 2% target at the end of 2022. Lengthier overloading of global supply chains, which could result in even stronger inflation pressures than forecasted, is a risk to this outlook. Conversely, possible faster appreciation of the koruna due to larger-than-expected capital inflows may pose an anti-inflationary risk. The risk of a larger rise in cases due to new strains of the coronavirus could lead to anti-epidemic measures being retightened. However, increasing herd immunity and the economy's ability to adapt to the coronavirus mean that any restrictions should not have a tangible effect on the economy.

A retreat of the pandemic led to an easing of government anti-epidemic measures in spring and early summer. A reopening of retail and services helped the Czech economy to return to growth in Q2. Its year-on-year pace reached a historical high due to base effects. Besides a surge in household consumption, the economy was supported by a recovery in fixed investment and buoyant export growth. Czech export-oriented industry is still facing disrupted supplies of some commodities, materials and components, owing mainly to overloaded global production and supply chains.

A renewed gradual rise in confirmed cases may lead to an episode of tightened measures during the summer. However, this will not have a tangible economic impact. The anti-epidemic measures will be scaled down from autumn onwards as the population becomes sufficiently vaccinated. According to the forecast assumptions, only epidemiological recommendations and educational and information campaigns with no major impact on the functioning of society and the economy will persist into 2022.

The Czech labour market, which was cooling in previous quarters due to the pandemic, is gradually stabilising. Fundamental wage growth (i.e. wage growth adjusted for statistical and one-off effects) in market sectors slowed only slightly in 2021 Q1. In addition, the decline in total employment has moderated and the share of unemployed persons has even started falling in recent months.

Inflation was close to the upper boundary of the tolerance band around the CNB's target in 2021 Q2, amid persisting strong core inflation. Prices of services and goods within core inflation are rising apace. Domestic inflation is still being affected by continued cost pressures from the domestic and foreign economies, showing up mainly as elevated growth in industrial producer prices. On the other hand, food price inflation has slowed markedly further. Administered prices are flat, with cheaper gas and electricity for households being offset by rising prices of other items (e.g. water supply and sewerage charges, and health care). By contrast, prices at filling stations are rising rapidly year on year in reaction to the recent sharp growth in oil prices.

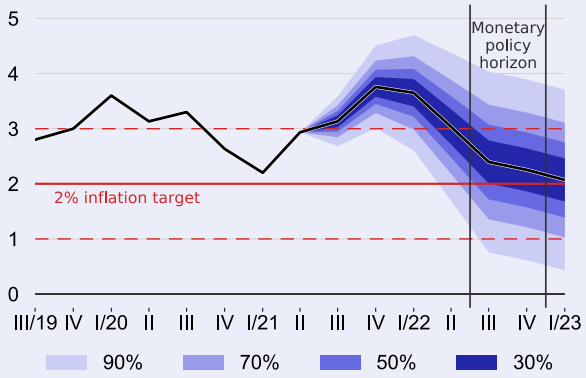
The Czech economy will grow at a pace of around 4% on average in the second half of this year. It will benefit from renewed strong growth in household consumption, which will be supported – in addition to the return to normal life – by the spending of part of forced savings. The solid income situation and improved sentiment of households are due to the good shape of the Czech labour market and generous fiscal policy. The general unemployment rate will fall slightly in the second half of this year on the back of the reopening of the economy, which will cause the labour market to overheat again. Year-on-year growth in the average wage in market sectors will be volatile until mid-2022 due to statistical effects and extraordinary bonuses in health care. Year-on-year wage growth adjusted for these effects will start to accelerate in early 2022, aided by a further marked rise in the minimum wage.

Government financial support for pandemic-hit sectors, coupled with a rise in social expenditure and public investment and a reduction in taxes, is leading to continued fiscal expansion this year. Next year, however, fiscal policy will turn restrictive due to the discontinuation of government support measures, despite the announcement of another higher-than-usual increase in pensions. Fiscal policy will have a neutral effect on GDP growth in 2023.

The current problems in industry and international trade will subside gradually, temporarily supporting growth in Czech exports in late 2021 and early 2022. Its pace will stabilise close to 5% thereafter.

Inflation will initially rise well above the upper boundary of the tolerance band 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.

Following a drop last year, the domestic economy will return to growth this year and pick up slightly further next year

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

	2021	2022	2023
Headline inflation (%)	**3.0**	**2.8**	**2.1**
	(0.3)	(0.4)	-
GDP	**3.5**	**4.1**	**3.0**
	(2.3)	(-0.1)	-
Average nominal wage	**5.4**	**4.2**	**4.6**
	(0.6)	(0.5)	-
3M PRIBOR (in %)	**0.9**	**1.9**	**2.2**
	(0.2)	(0.3)	-
Exchange rate (CZK/EUR)	**25.6**	**24.5**	**24.2**
	(-0.1)	(-0.6)	-

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.

Investment activity will recover significantly amid a continued rise in government investment and renewed growth in private fixed investment. Total gross capital formation growth will be temporarily slowed in late 2021 and early 2022 by a sharp drop in additions to inventories as currently unfinished cars are completed and forced stocks of other products are exported.

The domestic economy will grow by 3.5% overall this year. Next year, its growth will increase further to above 4% and the economy will return to the pre-pandemic level. The currently slightly negative output gap will close gradually. In 2023, economic activity will grow at its steady-state pace of 3%.

Inflation will rise well above the upper boundary of the tolerance band around the CNB's target in the quarters ahead. This will be due to renewed growth in administered prices and faster growth in food prices amid still elevated core inflation. The latter will continue to reflect growth in foreign producer prices coupled with still solid domestic demand, rapid growth in imputed rent and a gradually improving labour market situation. In the summer, core inflation will also be buoyed temporarily by the immediate price effects of the reopening of the economy. A surge in consumer demand after the anti-epidemic measures are lifted will cause prices to go up, especially in services. By raising prices, service providers will try to improve their profit margins to make up at least partly for the low or zero sales they recorded during the shutdowns of the economy. Rising labour efficiency after the reopening of the economy will dampen the inflation pressures to only a limited extent. Until the end of this year, consumer price inflation will be supported by continued high year-on-year growth in fuel prices due to higher oil prices. A recovery in food price inflation, reflecting the recent increase in global commodity prices, will act in the same direction.

The gradual return of inflation to the 2% target in the course of next year will be aided by a decline in core inflation as the supply and demand situation gradually gets back to normal. A fall in the currently high year-on-year growth in fuel prices will have the same effect. Monetary policy-relevant inflation, i.e. inflation adjusted for the first-round effects of changes to indirect taxes, will be slightly below headline inflation over the entire forecast horizon owing to an increase in excise duty on cigarettes. The decline in monetary policy-relevant inflation towards the target at the end of next year and its subsequent stabilisation will also be supported by a tightening of both the exchange rate and interest rate components of the monetary conditions.

The recovery in aggregate demand, the fade-out of the temporary problems in domestic industry and improved sentiment will foster continued firming of the exchange rate. The appreciating koruna will also significantly reflect growth in the differential between domestic and euro area interest rates, as domestic monetary policy can be expected to foster a rise in interest rates in the second half of this year. This reflects a need to react to the increased price pressures from the domestic and foreign economies. The commensurate increase in domestic interest rates will cause inflation to decline close to the 2% target in the course of 2022. Interest rates will continue to rise – albeit more slowly – next year, when economic activity will return to the pre-pandemic level.

I. ECONOMIC DEVELOPMENTS ABROAD

A reopening of economies following the spring wave of the pandemic sparked a recovery in the Czech Republic's main trading partner countries. GDP growth will remain solid, amid rising vaccination coverage and limited anti-epidemic measures in the second half of this year. Besides the return to normal life, consumer demand will be boosted by the release of forced savings created during lockdowns. The overloading of global production and supply chains is expected to abate gradually. The start of drawdown of funds under national recovery and resilience plans will stimulate investment activity next year. Along with a surge in prices of oil and other commodities, the recovery abroad is being reflected in currently high inflation pressures in the production sector. However, these will gradually subside as commodity prices correct and demand switches partially back to services. The ECB's monetary policy will remain very accommodative.

Growth in world prices is accelerating against the backdrop of a recovery in global economic activity

Economic growth will be very mixed across the main economic areas of the global economy (see Table I.1). While vaccination coverage is relatively high in most advanced countries, poorer nations are lagging well behind (see Chart I.1). Their economies will therefore reopen more slowly, especially in the services sector, as confirmed by the PMI leading indicators in recent months. By contrast, growth in advanced countries will be driven by services, supported by long-deferred consumer demand. Cross-border travel will be the exception; it can be expected to remain depressed by persisting high uncertainty regarding future anti-pandemic measures in individual countries.

World trade will record growth of roughly 10% this year, slowing to 5% next year. Trade in goods rose particularly strongly in Q1. Its outlook remains encouraging, although consumer spending is expected to shift from goods to services as economies reopen. The US fiscal package, a large part of which is to be implemented this year, will continue to provide an indirect boost to global trade. US–EU trade relations are also being gradually repaired (for instance, the long-running Boeing–Airbus dispute[1] has been brought to an end). The next step in the interest of both parties is to lift the measures taken after tariffs on aluminium and steel exports from the EU to the USA were imposed under the Trump administration.

Table I.1

All the main economic areas will grow at an above-average pace as they make up for pandemic-related drops in economic activity

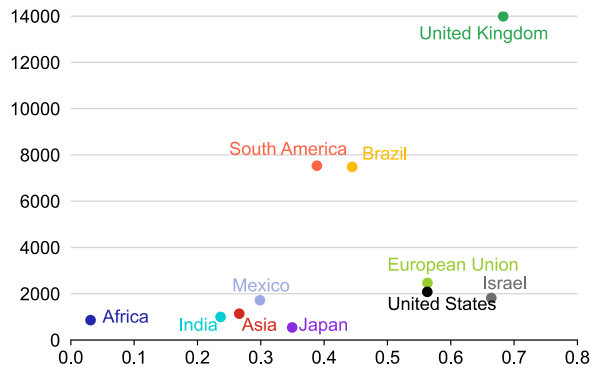
real GDP; y-o-y changes in %; source Refinitiv, CF and EIU

	2019	2020	2020 Q4	2021 Q1	2021	2022	2023
Euro area	1.3	-6.7	-4.7	-1.3	4.4	4.4	2.6
USA	2.2	-3.5	-2.4	0.4	6.7	4.1	2.2
China	6.1	2.3	6.5	18.3	8.9	5.6	5.1
United Kingdom	1.4	-9.8	-7.3	6.1	6.6	5.3	1.6

Chart I.1

Significant differences in the course of the pandemic and vaccination persist internationally

x-axis: share of population with at least one dose of vaccine; y-axis: number of new cases per million inhabitants; data for 7/2021; source Our World in Data, CNB calculation



1 This dispute began in 2004. At its core were mutual accusations of breaches of the World Trade Organisation's rules on subsidies. It resulted in duties being imposed on a whole range of imported products on both sides of the Atlantic.

COMPARISON WITH THE PREVIOUS FORECAST: Economic developments abroad

		2021	2022	2023	
GDP (in the effective EA)	y-o-y changes in %	**4.0**	**4.4**	**2.2**	The upward shift of the GDP forecast is due to earlier and faster reopening of economies in the spring and to investment under approved national recovery and resilience plans.
	pp	(1.0)	(0.6)	-	
Consumer prices (in the effective EA)	y-o-y changes in %	**2.2**	**1.7**	**1.8**	The consumer price inflation outlook is slightly higher, mainly because of higher expected energy prices.
	pp	(0.2)	(0.3)	-	
Producer prices (in the effective EA)	y-o-y changes in %	**6.3**	**2.0**	**1.7**	The appreciably higher PPI in the new forecast reflects more robust demand for miscellaneous manufactured articles and a bigger rise in prices of commodities, especially oil.
	pp	(2.8)	(0.9)	-	
Brent crude oil price	USD/barrel	**67.9**	**66.7**	**63.3**	Brent crude oil prices have shifted higher in expectation of a robust recovery after the pandemic.
		(6.1)	(7.6)	-	
3M EURIBOR	%	**-0.5**	**-0.5**	**-0.4**	The 3M EURIBOR outlook is unchanged for this year and the next. The outlook for the shadow interest rate has shifted slightly higher.
	pp	(0.0)	(0.0)	-	
Exchange rate	USD/EUR	**1.20**	**1.20**	**1.21**	The euro-dollar exchange rate forecast is little changed and does not stray far from the current level over the next two years.
		(-0.01)	(-0.02)	-	

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

Prices globally will keep rising briskly, but their growth will slow next year. Besides rising prices of inputs such as commodities and transport, the inflation pressures reflect robust demand supported by deferred consumption. However, prices of commodities and transport should start to correct in Q3 (see Chart I.2). This will foster a slowdown in industrial producer price inflation and, in turn, consumer price inflation.

The recovery in the Czech Republic's trading partner countries will be driven by a reopening of services supported by spending of part of the forced savings created during lockdowns; the overloading of production and supply chains will abate gradually

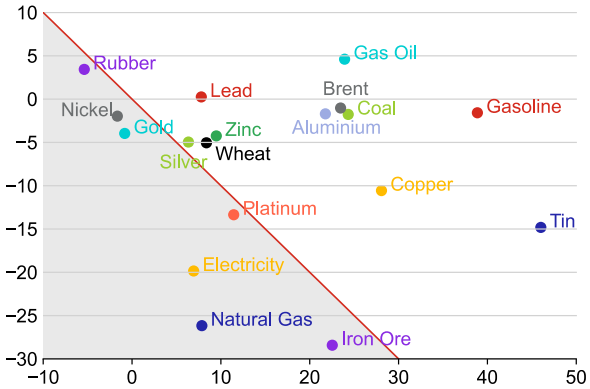
The winter wave of the pandemic led to subdued economic activity in the effective euro area in 2021 Q1. This was reflected in a further quarter-on-quarter decrease in GDP, sharper than that seen at the end of last year. The German and Slovak economies recorded the largest declines among our main trading partners, mainly as a result of government closures of parts of retail and many services. However, the output of industry was also hit significantly. This was because the whole of Europe faced problems with delayed supplies of materials and components for industrial production and final goods. This disrupted production in industry and supplies to the consumer market.

According to the available indicators, production and supply chains remained highly overloaded in Q2, but

Chart I.2

Market contracts imply a fall in the main commodity prices, with mixed degrees of correction

x-axis: increase in prices in 1/21–5/21 in %; y-axis: expected price change in 5/21–5/22 in %; source Bloomberg, CNB calculation; grey area contains commodities whose prices are expected to correct to end-2020 level at 12-month horizon



the effective euro area nonetheless recorded a sharp recovery, as economies reopened relatively early and quickly after the spring wave of the pandemic. Spain and Italy recorded the highest quarter-on-quarter GDP growth rates.[2] According to the forecast, economic activity in the effective euro area was more than 11% higher year on year due to last spring's low base (see Chart I.3).

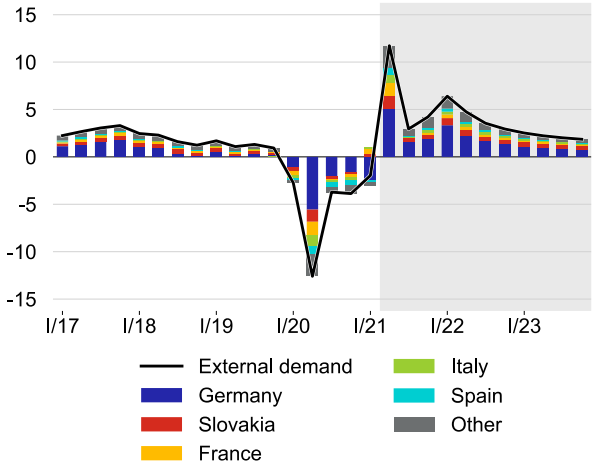
Following the easing of anti-epidemic restrictions, growth is being driven by a gradual rise in demand and production in the services sector amid rising vaccination coverage, as confirmed by a whole range of leading indicators. The German services PMI reached its highest level since March 2011. The PMI is in the expansion band for all the Czech Republic's major trading partners. According to the European Commission, consumer confidence has also improved sharply. This had a favourable effect on retail sales in May. The outlook for growth in consumer spending remains positive in the months ahead, as households can also finance their purchases from the forced savings created during lockdowns, especially in reopened services sectors. In addition, drawdown of funds under national recovery and resilience plans (Next Generation European Union, NGEU) will start in summer and autumn. The plans of all the Czech Republic's biggest trading partners (see Chart I.4) have been approved and the payment of the first advance of 13% is under preparation. While German projects will focus primarily on digitalisation and further "greening" of the economy, a large part of the funds in other countries will also be invested in education and health care. The biggest overall amounts will be drawn by southern countries, but on a per capita basis the funds will also be significant for Slovakia.

In addition to an improving situation in services, the pressures arising from overloaded production and supply chains in industry should ease as consumer spending becomes spread more evenly across sectors. Growth will also be aided by continued global expansion and still very accommodative financial conditions. Growth in the effective euro area will reach 4% this year. It will accelerate further in 2022 as the effects of investment under national recovery and resilience plans and the release of forced household savings are felt in full. The European economy will thus return to the pre-pandemic level. Together with fast GDP growth, the negative output gap will gradually close during next year. Risks of a worse course of the pandemic persist, especially as regards the spread of new strains of the coronavirus, but its economic impacts would not be significant.

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

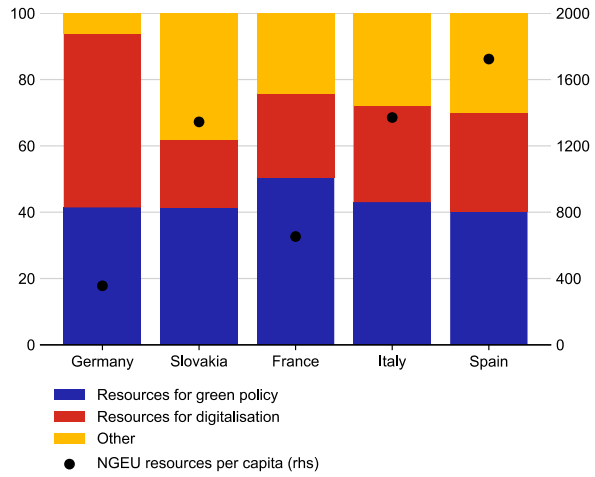


*The Czech Republic's second-largest **trading partner** (behind Germany) is Slovakia. It has a weight of around 11% in the effective euro area indicators of GDP, inflation and industrial producer prices. This equals its share in total Czech exports to the euro area. The weights of other large euro area countries (France, Italy and Spain) are below 10%. The effective euro area indicators thus differ from the commonly used indicators for the euro area proper.*

Chart I.4

The recovery in the Czech Republic's trading partner countries will be supported by funds from national recovery and resilience plans

structure of funds in national recovery and resilience plans by purpose in %; NGEU resources per capita; source European Commission and Bruegel think tank



2 According to Eurostat's flash estimate, GDP in the effective euro area rose by 2% quarter on quarter in 2021 Q2. This figure is not included in the forecast, as it was released after the closing date of the latter.

Possible lengthier supply chain issues also pose a significant risk.

The surge in producer prices, reflecting strong demand in industry as well as commodity price growth, will gradually subside in the second half of this year

The price pressures in industrial production are exceptionally strong at the moment. Besides growth in prices of crude oil and other commodities, stronger demand for industrial goods is having an effect. This is being reflected in core producer price inflation. The key effect of fundamentals on inflation abroad is confirmed by Box 1 at the end of this section. The inflation pressures will start to dissipate in the second half of this year (see Chart I.5) as the effects of the pandemic recede. The announced increase in oil production by OPEC+ countries from August onwards led to an only slight downward correction of oil prices. According to market contracts, oil prices will continue to edge down for the next two years. The same goes for some other commodities. Annual industrial producer price inflation in the effective euro area will thus slow gradually towards 1% by the end of 2022.

Consumer price inflation in the effective euro area will exceed 2% this year. One-off inflationary factors (a change in the VAT rate and the price impact of taxation of carbon dioxide emissions in Germany) will dissipate gradually, and the pressures stemming from rising energy prices and the inflationary effect of lockdowns will also decrease. Inflation will therefore fall below the ECB's 2% target next year.

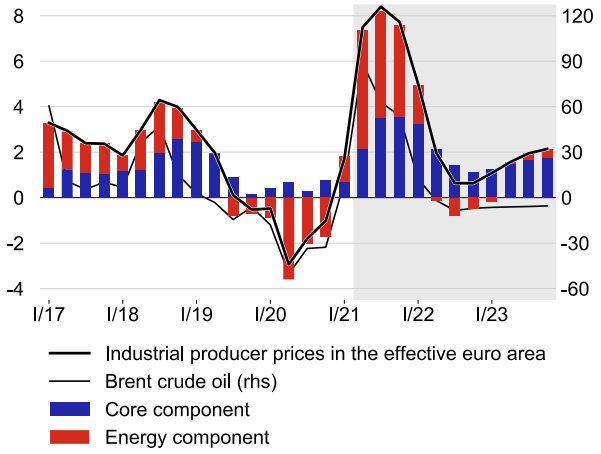
The ECB's communication at the most recent policy meeting confirmed its very accommodative monetary policy stance

The 3M EURIBOR outlook remains negative (see Chart I.6). Asset purchases under ECB programmes are expected to be tapered. This will be reflected in a slight rise in the shadow interest rate. The euro-dollar exchange rate will appreciate only marginally from its current weakened levels reflecting the Fed's recent communications. The Fed has said it is ready to raise policy rates earlier in response to the higher inflation outlook. In early July, the ECB published the conclusions of its monetary policy strategy review. The inflation target has been redefined; it is now symmetric, fixed at 2%. The ECB will also monitor owner-occupied housing prices and set out an ambitious asset purchase plan taking bond issuers' attitude to the climate into account. At its July monetary policy meeting, the ECB said that rates would remain at their present or lower levels until the inflation target is reached and that it was willing to tolerate higher inflation for a transitory period. Given the medium-term inflation outlook for the euro area, this statement suggests that the ECB will not tighten any time soon.

Chart I.5

Both main components will contribute to a sharp rise in foreign producer prices this year

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

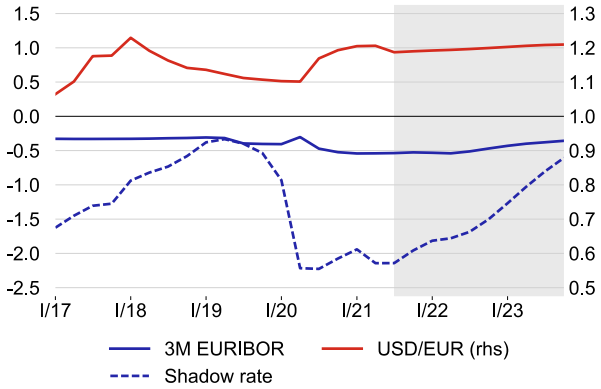


*Outlooks derived from the market futures curve are used as an assumption regarding the future evolution of **crude oil prices**. The curve is relatively smooth and its slope indicates how market participants view current supply and demand. A negative slope (backwardation) indicates insufficient demand, whereas a positive slope (contango) signals an excess of oil on the market. These price outlooks turn out to be a more accurate source of predictions than the average expectations of Consensus Forecasts analysts and the outlooks of the Energy Information Administration, which are modelled on the basis of expected oil demand and supply and market sentiment. See the Focus section of the March 2021 issue of Global Economic Outlook for more details.*

Chart I.6

ECB monetary policy will remain highly accommodative

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



BOX 1 What is driving the strong growth in industrial producer prices?

The surge in industrial producer price inflation seen both at home and abroad is a result of three factors. The first is strong demand for industrial (intermediate) goods and the recovery in this sector in 2020 H2 caused by demand switching partially from services to goods due to the pandemic. Related to this is the second factor driving prices upward: persisting problems in global production and supply chains. The final piece of the price pressure puzzle stems from a sharp rise in commodity prices,[1] which partly reflects recovering demand. Some of these price pressures are temporary and can be expected to correct after the current shortages and problems in production chains abate. However, part of the recent increase in inflation pressures is grounded in fundamentals and will affect prices for some time to come.

This box analyses prices in manufacturing both abroad and at home and assesses to what extent they are being driven by non-fundamental (i.e. temporary) or fundamental factors.

Evaluating the ratio of temporary to fundamental price pressures is crucial for configuring monetary policy appropriately. If the price growth was being driven mostly by temporary effects, the current inflation pressures would be only a transitory, short-term episode, one which monetary policy would not need to respond to significantly. By contrast, a timely monetary policy response is desirable in the event of substantial fundamental inflation pressures.

Chart 1

Firms' selling price expectations are highest in sectors facing input availability problems

%; European Commission euro area survey; data for 2021 Q2

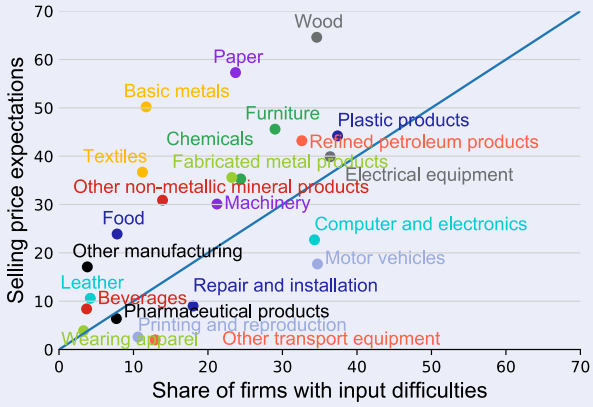
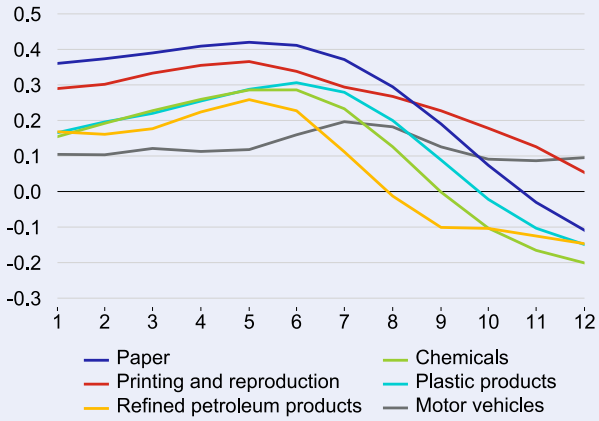


Chart 2

Firms' expectations about growth in their selling prices are reflected most strongly in actual industrial producer prices six months ahead

x-axis: lag in months; y-axis: correlation coefficient between change in expected growth in selling prices in three months and annual industrial producer price inflation



The temporary price pressures in producer prices reflect supply chain disruptions and shortages of materials and components. According to a European Commission survey, the latter are at record highs and have been spilling over into firms' expectations regarding the selling prices of their products in recent months. Supply issues have been reported by a whole range of industries, most notably chemicals and petrochemicals. Firms are also being affected by disruptions to supplies of plastics, computer chips and wood. Generally, the sectors reporting the biggest supply issues also have the highest share of firms expecting prices to rise (see Chart 1). This share is over 50% for firms in the hardest-hit industries (wood, paper and metals). However, it is only 20% for companies in the motor vehicles sector, despite major problems with supplies of inputs. The price effect of overloaded supply chains thus seems to depend also on the sector's position in the production vertical. According to CNB analyses, the price pressure will fade relatively quickly once the problems with equipment supplies disappear.[2] Firms' expectations regarding growth in their own selling prices affect actual industrial producer price inflation (PPI) for some time (see Chart 2). However, the trends are again very mixed across sectors. The pass-through of price expectations to prices in industry is stronger and faster in sectors where commodities have a dominant effect, while it is shifted (lagged) by three months in the motor vehicles sector compared to other industries. The effect will peak after six months and then gradually fade out in both the euro area and the Czech Republic.

We construct a statistical filter to break down the growth in producer prices in individual manufacturing industries into long-term and temporary factors. Besides producer price inflation, the filter uses data on industrial production and selected commodity prices. It also allows us to identify very positive shocks with low persistence, which we interpret as a temporary, quickly subsiding non-fundamental factor. The effect of commodities identified by the filter is also assessed as temporary. After adjusting for residuals and the effect of commodities, we obtain a synthetic producer price series containing a trend component and a cyclical component. Unlike the previous short-term factors, they are long-term in nature and there is no risk of them correcting suddenly. Given the aforementioned diverse nature of manufacturing industries, we apply the filter to each industry separately and then aggregate the effect on the overall manufacturing PPI from the individual components.

Chart 3

Adjusted for temporary factors, industrial producer prices in the euro area would be only slightly lower

index; 1/15 = 100

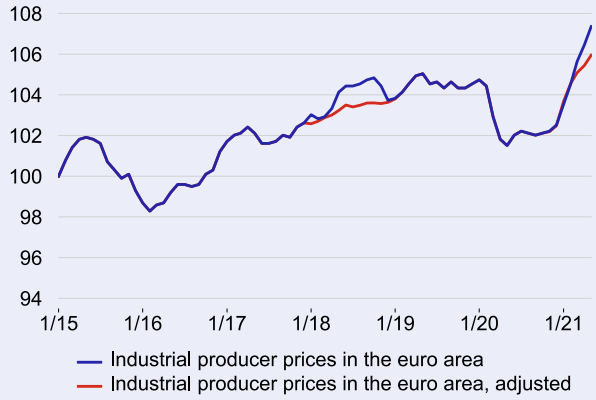
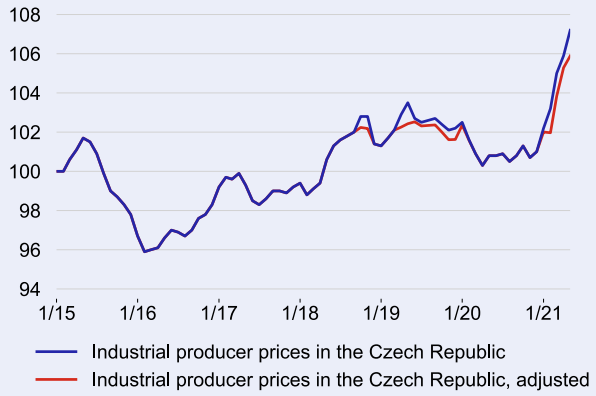


Chart 4

A similarly small difference between the actual and adjusted PPI series as in the euro area can be identified for the Czech Republic

index; 1/15 = 100



Note: The filter uses machine-learning methods which – unlike the usual Kalman filter – allow us to assume that these shocks are only temporary, i.e. there have been few of them in history. The filter identifies episodes where these shocks affect the producer price time series. In addition to the present year, which is the focus of the analysis, these shocks are identified for the euro area in 2018 and the Czech Republic in 2019. These were periods when some sectors also reported shortages of materials.

Adjusted for factors that might subside quickly, the synthetic level of PPI prices in the euro area is only 1.4% lower than the actual figure (see Chart 3). As a result, any price correction should not be extremely strong. We should emphasise that this is an upper estimate of the possible effect, as commodity prices themselves are affected by global industrial production, so the demand for commodities and the growth in their prices at least partly reflect cyclical factors as well. A similar conclusion applies for the Czech data. Again, the difference between the actual figure and the adjusted series is currently around 1.4% (see Chart 4). So, a marked correction cannot be expected in this case either. This result for both territories can also be explained by the lag with which material and equipment shortages pass through to prices. For the near future, the current overloading of production and supply chains is an inflationary factor (as the effect on producer prices is yet to peak) rather than constituting an anti-inflationary risk of a rapid producer price correction.

The pass-through of the temporary factors identified above to consumer prices is not dramatic. The industries in which we identify price growth above and beyond fundamental factors affect the retail prices of around 60 consumer basket items. Their total weight is around 15% of the consumer basket, and the vast majority of them are core inflation items. To identify those items, we used Eurostat's correspondence tables, which make it possible to link various statistical classifications.[3] They can be used to identify which consumer basket items are affected by production in a given (in our case industrial) sector. Given the elasticity between consumer prices of tradable commodities and the manufacturing PPI, the effect of an increase in producer prices caused by temporary factors on consumer prices can be estimated at around 0.14 pp.

To sum up, the price growth observed in most manufacturing industries in the euro area and the Czech Republic is consistent with recovering demand and output and is largely fundamental in nature. However, some sectors are experiencing high growth in commodity prices and issues in production chains. These short-term effects may fade quickly, and the currently strong price growth in these sectors is thus partly temporary. This effect can also be observed in the manufacturing price index as a whole, but it is not dramatic. The analysis also shows that if the problems with overloaded production chains and commodity prices persist, we can expect additional price growth in

the industries concerned and, in turn, an increase in the retail prices of the relevant consumer basket items. It would thus be premature to discount to any great extent the current inflation pressures from the production sector for monetary policy and to expect producer prices to decline rapidly and domestic core inflation to slow soon as a result. The conclusions of the analysis are thus part of the CNB's summer forecast. It expects buoyant growth in producer prices both at home and abroad for the rest of the year, followed by a gradual decline to close to steady-state growth. The decline in domestic core inflation, which has recently been the largest driver of consumer price inflation, will therefore be only gradual.

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1 The pressures stemming from commodity price growth and overloaded production chains were discussed in a box in MPR – Spring 2021.

2 The effect of problems with equipment supplies on firms' price expectations will be discussed in detail in the Focus section of the August issue of Global Economic Outlook.

3 For details, see, for example, http://ec.europa.eu/eurostat/ramon/documents/COICOP_2018-CPA_2_1/COICOP_2018-CPA_2_1.zip

II. THE REAL ECONOMY AND THE LABOUR MARKET

A retreat of the pandemic led to most of the restrictions in wholesale, retail and services being lifted at the end of spring. The reopened businesses were thus able to catch their breath again. Although their operations may still be affected by a partial tightening of anti-epidemic measures due to a rise in new cases in the summer, it will no longer have tangible economic effects. This will be due to increasing vaccination coverage and effective new forms of medication, and also to the fact that the economy has learned to cope better with the coronavirus. Renewed economic growth will be driven by strongly recovering household consumption, aided, among other things, by spending of the forced savings created during lockdowns. The labour market situation will also start to improve gradually, boosting consumer sentiment further. However, the current overloading of production and supply chains, which is hindering the production and export performance of Czech industry, will persist this year. Overall, GDP will increase quite significantly this year and pick up even further next year. The economy will grow at its steady-state rate of growth in 2023.

The lifting of anti-epidemic measures led to an appreciable recovery of domestic economic activity in spring and early summer

The tapering of government pandemic restrictions reduced the negative impacts on gross value added in sectors closely linked to household consumption (see Chart II.1). Wholesale and retail, transport and hospitality therefore recorded a brisk recovery in sales, while demand for other services improved rather more gradually. Industry and related sectors were left almost unaffected directly by the pandemic measures. Although the Stringency Index was higher in 2021 H1 than last year (see Chart II.2), the estimated economic impacts of government measures were visibly smaller than last year. The domestic economy is thus becoming increasingly resilient to the pandemic.

We expect the number of positive coronavirus tests to edge up again during the summer and the government to respond by reintroducing some restrictions. We assume that they will be focused solely on regulating the movement of persons lacking proof of vaccination, a negative test or recovery. These measures will continue to hinder the restart of tourism (especially cross-border). Apart from that, this summer episode should have no major impacts on the consumption of households, which are now able to adjust to most measures. Moreover, these restrictions will motivate even the hesitant to get vaccinated. The level of restrictions will be reduced further in the autumn due to effective new forms of medication,[3]

Chart II.1

The impacts of government anti-epidemic measures on wholesale, retail and services are gradually fading out

impact of pandemic on gross value added index; contributions in pp; February 2020 = 100

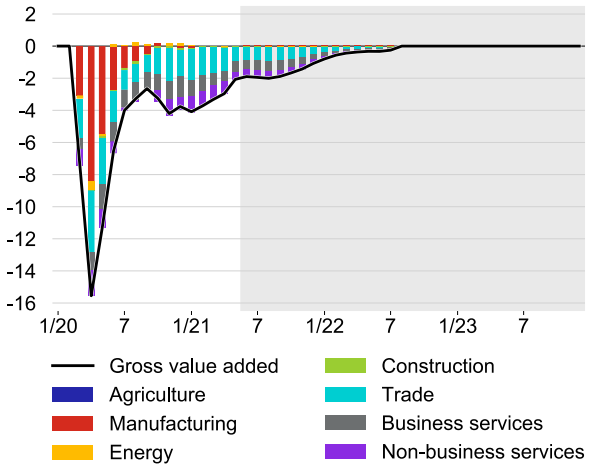
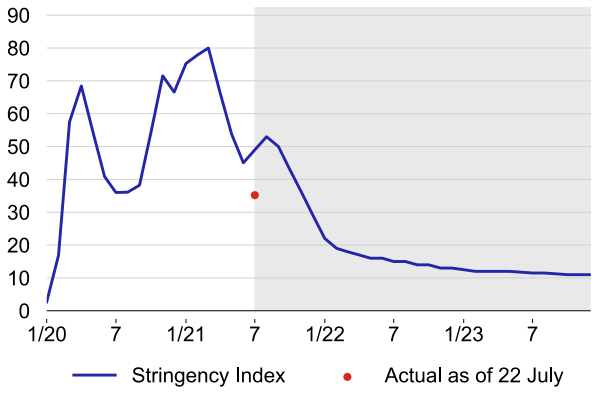


Chart II.2

After an upward summer episode, the Stringency Index will fall rapidly again in the coming months

average monthly values of daily index
https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-response-tracker



3 In its Strategy on COVID-19 Therapeutics, the European Commission maps out a number of actions to identify candidate therapeutics. The Commission has committed under the strategy to establish a list of five promising candidates by June 2021. Some products are in an advanced

rising vaccination coverage and ensuing herd immunity. Next year, the Stringency Index will be at levels that will not have tangible effects on the domestic economy.

Household consumption recovered after the spring easing and will contribute significantly to GDP growth in the second half of this year

Annual GDP growth will remain highly volatile. Owing to the reopening of the economy in Q2,[4] growth will briefly leap to 9% according to the forecast. This is due mostly to the low base of last year, when a record plunge was recorded during the first wave of the pandemic (see Chart II.3). In whole-year terms, the Czech economy will grow by 3.5%.

The reopening of the economy due to the fade-out of the pandemic will support growth in household consumption in the second half of the year (see Chart II.4). Household consumption will therefore become the main driver of the domestic economic recovery. It will be aided by spending of part of the forced savings created during lockdowns (deferred consumption) in an environment of positive consumer sentiment and a gradually improving labour market situation (see Chart II.5). The termination of numerous fiscal support measures will have the opposite effect. Overall, however, household consumption will grow by just 1.3% on average this year due to a pronounced decrease at the start of the year. Next year, household consumption growth will pick up to more than 6%. Household consumption will reach its pre-pandemic level at the end of 2022, despite a rapid rise in interest rates from mid-2021 onwards.

Chart II.3

GDP will increase visibly and record very volatile growth this year; the economy will grow at a more stable and higher rate overall in 2022

annual percentage changes; seasonally adjusted; confidence interval

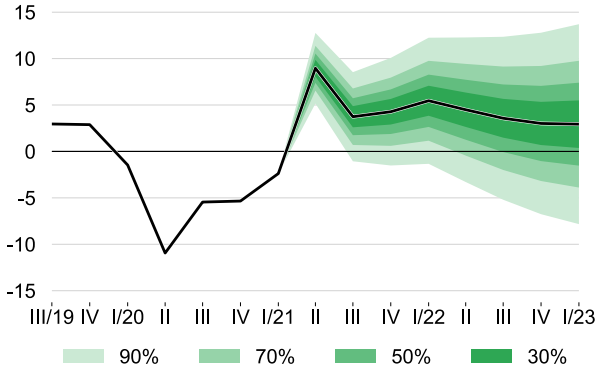


Chart II.4

Household consumption will start to rise quickly again this year; growth in government consumption will conversely slow

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

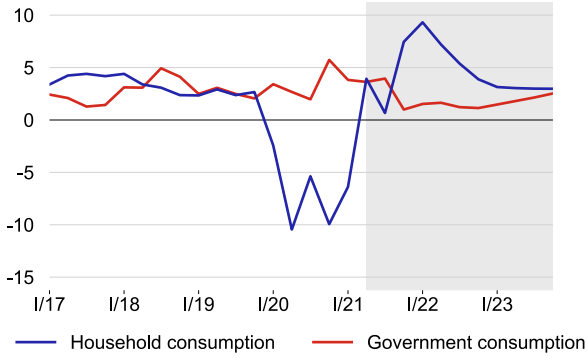
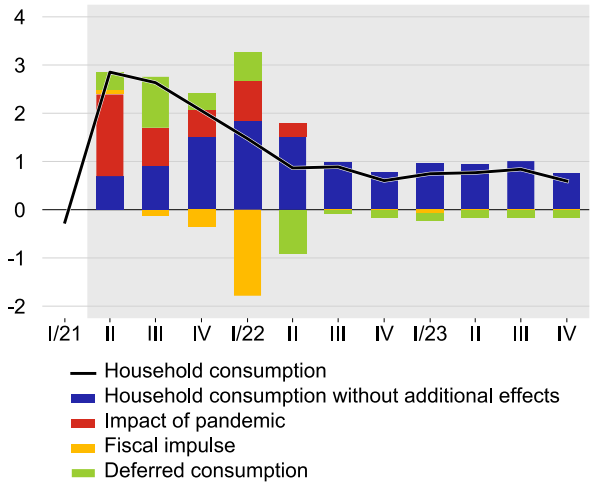


Chart II.5

In addition to the lifting of pandemic measures, the recovery in household consumption growth will be due to the release of part of forced savings

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



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stage of development, and there is a high likelihood that three will receive an authorisation by October 2021 if the final data demonstrate their safety, quality and efficacy – see https://ec.europa.eu/commission/presscorner/detail/en/QANDA_21_3301.

4 According to a preliminary CZSO estimate, Czech GDP increased by 7.8% year on year in 2021 Q2. This is 1.2 pp below the CNB forecast. This figure was published on 30 July 2021 and is not part of the forecast due to the earlier closing date of the latter. As usual, the supply and demand component structure of GDP is not available for the preliminary estimate.

Investment activity is recovering as the economy reopens, despite the issues in production and supply chains, but its growth will be only moderate overall for the time being

The quarter-on-quarter surge in fixed investment growth in 2021 Q2 was due mainly to the reopening of sectors previously constrained by shutdowns. Growth in investment activity is also being fostered by improving business sentiment, which is now above the pre-pandemic level. However, production and supply chain disruptions remain noticeable, partly limiting investment activity. Overall, fixed investment will 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.6).

Growth in gross capital formation will additionally be supported this year by continued high additions to inventories in industry (see Chart II.7). Inventories are building up because of overloaded production and supply chains. In retail, by contrast, we assume that the temporarily high additions to inventories seen at the start of this year were a result of firms stockpiling ahead of the spring reopening of the economy and will diminish as demand rises.

In 2022, gross fixed capital formation will be fostered by an improved situation in investment-intensive manufacturing and its growth will pick up to almost 6%. Change in inventories will have the opposite effect, owing to the high 2021 level. This will lead to broad stagnation of total investment.

Shortages of parts and forced stockpiling of unfinished production will initially be reflected in slower export growth, which, however, will later accelerate slightly

The production and export sectors of the Czech economy (manufacturing in particular) continue to face problems with supplies of materials and components. These issues are linked with the continued overloading of global supply chains. In the domestic economy, they are primarily affecting the automotive industry and related sectors. This is causing high forced additions to inventories (unfinished cars, for example) and partial drops in production and is also having a temporary effect on export performance, which will remain lacklustre during the summer months (see Chart II.8). Exports of services will also remain subdued, owing to persisting uncertainty about the pandemic situation, especially in tourism.

We expect a large part of the supply chain issues to fade out in Q4. This will lead to fast finalisation of unfinished production and a temporary increase in quarterly export growth. Despite the above issues, overall export growth will be in double figures this

Chart II.6

Inventories will contribute to strong growth in total investment this year but will dampen growth in gross capital formation next year

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

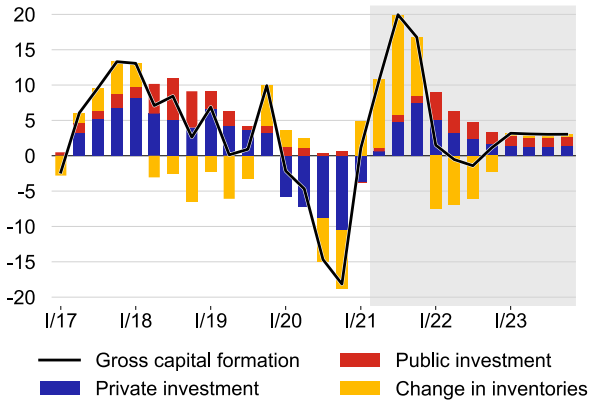


Chart II.7

Overloaded production and supply chains will lead to high additions to inventories in industry

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

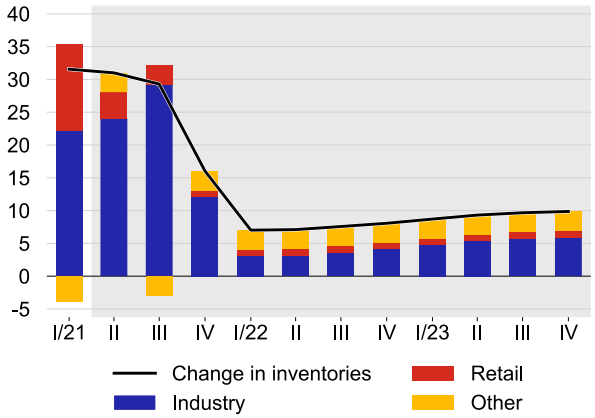
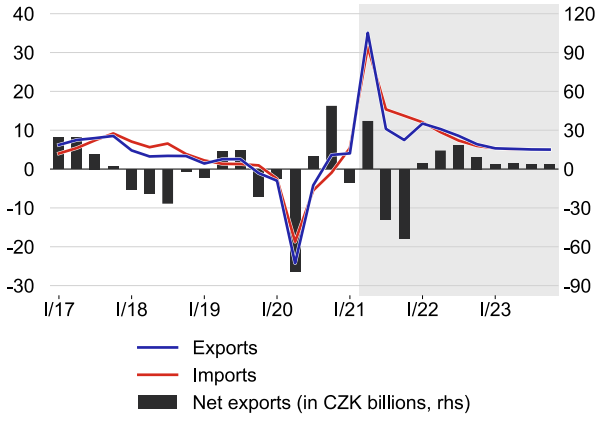


Chart II.8

Exports will reflect the growth and subsequent release of inventories this year, while import growth will also be driven by the easing of domestic shutdowns

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



year, due mainly to base effects. Exports will maintain a solid pace of growth next year, when the remaining restrictions will be lifted both at home and abroad. Among other things, this will help gradually restore international tourism, which has been hit hard by the pandemic. Exports will grow despite an appreciating koruna.

Import growth will outpace export growth this year (see Chart II.8). This is due mainly to a recovery in import-intensive household consumption and private investment, and temporarily also to growth in inventories caused by disruptions to supplies of some components. As a result, the contribution of net exports to GDP growth will be negative this year. Next year, it will be positive due a recovery in exports.

Fiscal policy, which is continuing to boost domestic economic activity this year, is still playing an important role

Government consumption will rise this year, albeit more slowly than before due to last year's high expenditure (see Chart II.4). Its nominal non-wage component will be strengthened by extraordinary vaccination and testing-related health care spending. In real terms, growth in government consumption will be partially dampened by continued growth in its deflator fostered by extraordinary bonuses paid to health, social services and security services workers.

The fiscal impulse will also stay strongly positive this year, due to measures taken to support household income and consumption in 2021 H1 (see Chart II.9). The fiscal impulse will begin to weaken gradually in the second half of this year, with most support measures (e.g. the attendance allowance, the Antivirus programme and the compensation bonus) tapering off at the close of this year. Fiscal policy will slow GDP growth in 2022. Its restrictive effect stemming from the phasing out of support measures will be softened by an extraordinary increase in pensions.

Nominal gross disposable income grew at a brisk pace in 2021 H1, due in part to the continued government support mentioned above. Despite a recovery in wage growth, the expected phasing out of support will cause nominal gross disposable income growth to slow (see Chart II.10). A gradual decrease is also expected for the saving rate, which reached a historical high at the start of 2021. In Q2, the saving rate started to decline (and consumption growth overtook disposable income growth) as the economy reopened. Despite falling, though, the saving rate will not return to its pre-pandemic level even by the end of 2023. This reflects a cautious return to pre-Covid consumer behaviour.

Chart II.9

Fiscal policy is increasing GDP growth this year mainly via support for household income and consumption; the fiscal impulse will be negative in 2022

fiscal impulse; contributions to GDP growth in pp

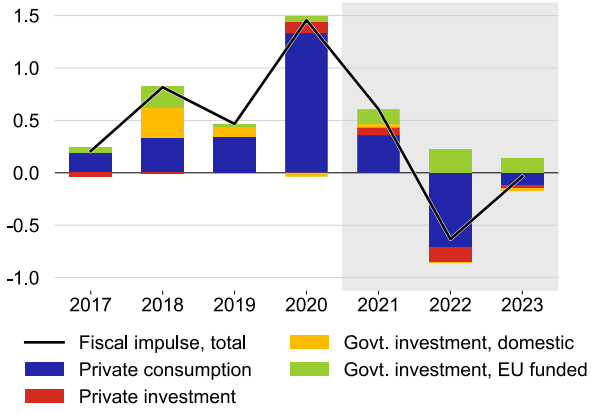
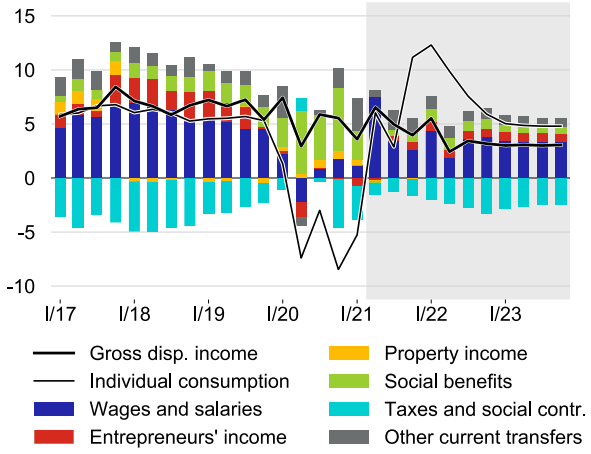


Chart II.10

Disposable income will grow further this year but will lag well behind household consumption growth from 2021 H2 onwards

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



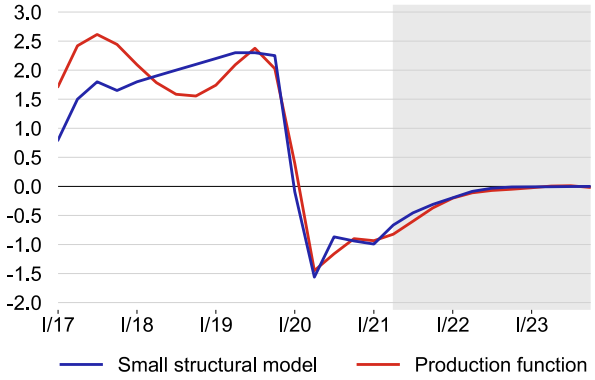
The lifting of anti-epidemic measures will lead to a recovery in growth of the potential of the economy; the negative output gap will close next year

The growth rate of potential output accelerated sharply after the shutdowns in wholesale, retail and services ended in the spring. Household and corporate sentiment are also improving, and demand and economic activity are picking up quickly. The negative output gap has thus started to close (see Chart II.11). This will continue until the start of 2022, when the output gap will close fully.

Chart II.11

The economy is slightly below its potential; the negative output gap will close next year

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	**3.5** (2.3)	**4.1** (-0.1)	**3.0** -	The GDP forecast for 2021 has been revised significantly upwards due to earlier and more pronounced lifting of shutdowns and higher total investment. The change for 2022 is small.
Household consumption	y-o-y changes in % pp	**1.3** (1.1)	**6.4** (0.0)	**3.0** -	Growth in household cons. is higher this year than in the spring forecast. This reflects both the earlier reopening of wholesale, retail and services and better labour market developments.
Government consumption	y-o-y changes in % pp	**3.1** (0.7)	**1.4** (0.0)	**2.0** -	Compared to the previous forecast, growth in government consumption is slightly higher this year, due mostly to higher observations in Q1.
Gross fixed capital formation	y-o-y changes in % pp	**2.8** (3.8)	**5.8** (1.8)	**2.6** -	The forecast for fixed investment has increased due to higher private investment activity as a result of a faster fade-out of the pandemic and better economic sentiment.
Net exports	contr. to GDP growth pp	**-0.9** (-0.9)	**0.9** (0.9)	**0.3** -	A stronger recovery in final domestic demand coupled with temporarily subdued exports will turn the contr. of net exports to GDP negative in 2021. The opposite will be true in 2022.
Employment	y-o-y changes in % pp	**-0.4** (0.5)	**0.9** (0.4)	**0.6** -	Demand for labour will resume more quickly owing to an earlier and stronger economic recovery.
Unemployment (ILO)	% pp	**3.3** (-0.2)	**3.1** (-0.4)	**3.0** -	A more moderate cooling of the labour market will be reflected in a lower unemployment rate this year and the next compared to the spring forecast.
Average monthly nominal wage	y-o-y changes in % pp	**5.4** (0.6)	**4.2** (0.5)	**4.6** -	A better labour market situation and an expected increase in the minimum wage at the start of 2022 are reflected in higher wage growth.

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

The labour market has stabilised after cooling partially in previous quarters, but will gradually overheat again

The overall labour market situation has stabilised following the reopening of the economy. From the long-term perspective, the pandemic did not lead to a total cooling of the labour market, so the latter remains inflationary. This 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 moderately again next year as the labour market and wage growth recover.

Fundamental wage growth in market sectors will start to accelerate at the end of this year, while overall wage growth will be volatile until mid-2022

Wage growth in market sectors continues to be affected by a number of one-off factors going beyond the fundamental trend.[5] In terms of the economic interpretation of wage growth, it thus still makes more sense to monitor estimated fundamental wage growth (see Chart II.13).

Fundamental market wage growth will start to rise gradually at the end of this year after the pandemic's negative effects on the labour market fade away. This will occur as a result of rapidly recovering growth in demand for labour. Given expected caution on the part of employers and the usual substantial labour market inertia, fundamental wage growth will gradually approach its steady-state level of 5% in 2022. This will be aided by a further expected increase in the minimum wage.[6] Market wages will rise at a similar pace in 2023.

In non-market sectors, the high wage growth observed in previous years will subside this year. As in market sectors, wage growth in non-market sectors will be very volatile.

Growth in wages and salaries will also be very volatile over the entire horizon due to the effect of extraordinary factors on average wage growth. In addition, growth in wages and salaries will be fostered mainly by renewed growth in the converted number of

Chart II.12

From the perspective of the LUCI, the labour market will reach a cyclical trough this year and then overheat again as a result of a significant economic recovery

LUCI; vertical axis shows standard deviations

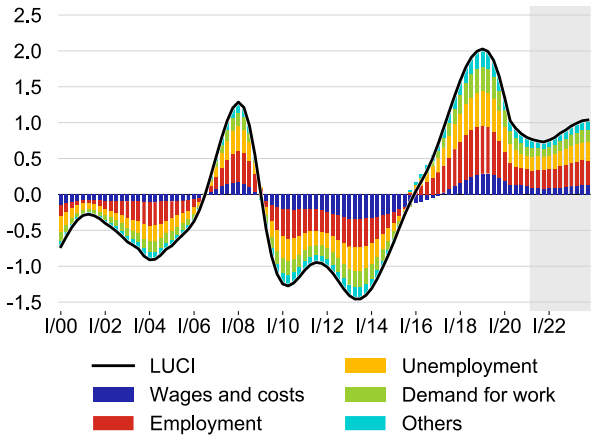
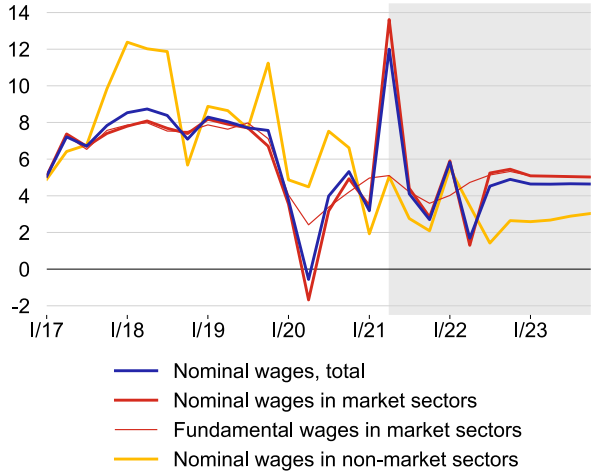


Chart II.13

Fundamental wage growth will recover at the start of 2022, while wage growth in non-market sectors will slow noticeably 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.*

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5 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.

6 The forecast assumes a CZK 1,000 increase in the minimum wage to CZK 16,200 in January 2022.

employees in the second half of this year. In real terms, growth in wages and salaries (see Chart II.14) will be dampened until mid-2022 by significantly elevated price growth. Even so, the real volume of wages and salaries will increase by more than 2.5% both this year and the next. This will contribute to a recovery in growth in household consumption.

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

The pandemic-related economic downturn was reflected in shorter working hours rather than lay-offs. This caused hours worked per employee to decrease sharply. As demand for labour starts to grow again due to the reopening of the economy, growth in average hours worked will recover somewhat earlier than recruitment of new employees, as in previous economic cycles.

The decline in employment will halt, or employment will start to grow, at the end of this year. This will be associated in particular with a continued recovery in growth of the labour force, which fell noticeably last year. However, a drop in the jobless total will also contribute partially to employment growth. Growth in overall employment will be driven mainly by a rising number of employees. However, the number of entrepreneurs will also increase gradually, after having recorded a sizeable decrease at the start of this year.

The general unemployment rate will fall slightly for the rest of this year on the back of the reopening of the economy. This will occur in an environment of renewed labour demand and hence despite the end of a substantial part of the government's Antivirus employment support programme at the end of May 2021 (see Chart II.15). This can be seen in a still high number of job vacancies and robust creation of new jobs, and in recruitment[7] by employers across sectors. Other high-frequency indicators do not indicate a worsening of the situation in the coming months either.[8] We expect the share of unemployed persons to follow a similar trend as the general unemployment rate.

Chart II.14

Growth in wages and salaries will remain solid and thus contribute to a recovery in household consumption growth

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

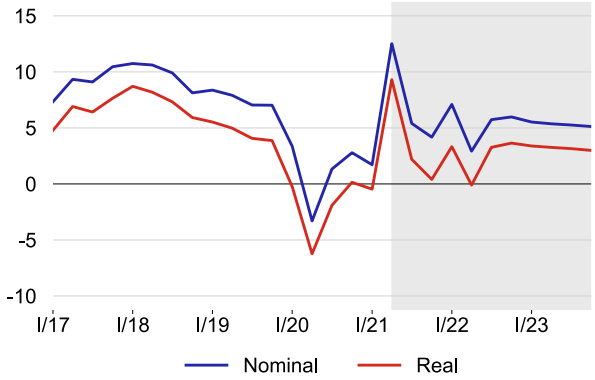
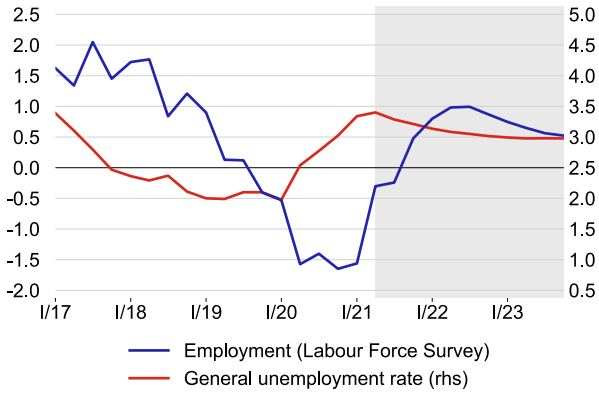


Chart II.15

The labour market will see a turnaround in the second half of this year

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



7 This is illustrated, for example, by the results of the European Commission's business survey and by the Manpower Labour Market Index, according to which employment will increase in the second half of this year.

8 The Google Trends scores for "unemployment" and "unemployment benefit" are very low.

BOX 2 The Rushin economic activity index

The COVID-19 pandemic presented fundamental challenges for macroeconomic forecasters and monetary policymakers. Its unprecedented nature meant that the econometric models they normally use had difficulty assessing the depth of the downturn and identifying turning points in the cycle in a timely way. Traditional indicators come with a delay. They were also subject to significant data uncertainty during the pandemic. Forecasters internationally and in the Czech Republic therefore started to make greater use of alternative indicators of economic activity. This opened the way for new approaches to monitoring domestic economic activity almost in real time.[1]

The Rushin, a weekly index of economic activity, is one of the new instruments that help us refine our knowledge of GDP in the current quarter.[2] Its basic building block consists of high-frequency indicators (daily or weekly), complemented by routinely used monthly indicators. The index contains information from the most important sectors of the Czech economy. This ensures that it is comprehensive, robust and unbiased. The first step in creating the index was to align the time series (by interpolating the monthly data) to a common weekly frequency and to create 13-week moving averages and subsequently their quarter-on-quarter changes so that the index corresponded to the published quarterly GDP growth.

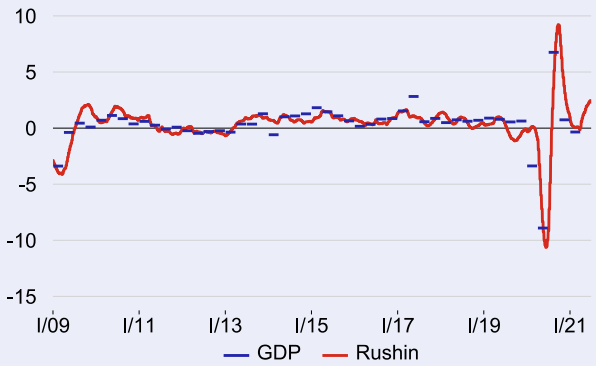
*The **Rushin** is named in honour of Alois Rašín, a prominent economist and politician from the period of the establishment of the independent Czechoslovakia. The modified name is a phonetic pun on Mr Rašín's surname, while also capturing the timeliness (rush-) of the index (-in).*

The resulting index is made up of ten variables, chosen on the basis of the following criteria: economic relevance, correlation with domestic GDP, lags in data availability, and correlation with other indicators. Developments in manufacturing, which are so important for the Czech economy, are captured by high-frequency electricity consumption indicators and the monthly industrial production index. The frequency of internet searches for the term "benefit" (meaning unemployment benefit) from Google Trends monitors the equally important labour market developments. Household consumption, which accounts for about half of GDP, is represented by monthly sales in services and retail. Data on freight transport on Czech and German motorways and the ifo Business Climate Index capture international trade and external demand. The OECD Composite Leading Indicator and the Prague Stock Exchange index add a forward-looking dimension.

Chart 1

The Rushin estimates mostly match the historical GDP growth

GDP – observed q-o-q changes in %; Rushin – weekly moving q-o-q changes in %

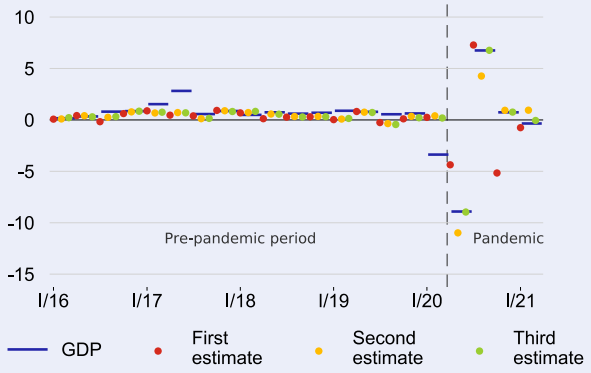


The Rushin very accurately captures historical GDP growth (see Chart 1). The periods of turbulent economic change seen during the Global Financial Crisis and the current coronavirus pandemic are particularly worth mentioning. In both these periods, the weekly index of economic activity managed to capture the ongoing downturn of the domestic economy and estimate its depth with a high level of accuracy. Its GDP estimate for the shallow recession that hit the domestic economy in 2011 and 2012 was also good.

Chart 2

The Rushin provides good GDP estimates even during the pandemic

real q-o-q changes in GDP in % in individual quarters; GDP estimates using Rushin at end of each month



The Rushin's ability to capture ongoing economic output was also tested by conducting an exercise in pseudo real time. An estimate of the index was

calculated for each week from 2016 to the present using only the data that were available at the time.[3] They were used to estimate GDP growth in the given quarter at the end of each month (see Chart 2) by applying the "bridge equations" approach, which converts data from monthly to quarterly frequency and has been assessed in the academic literature as being very successful for short-term forecasting.[4] This generated three quarterly GDP growth estimates for each quarter. Chart 2 shows how they compare with the GDP figures published by the CZSO. The volatility and estimates of economic growth were low in the pre-pandemic period, but the situation changed with the start of the pandemic. The Rushin nonetheless dealt with this challenge well, and in most cases, as the dataset expanded during the quarter, the index converged towards the GDP growth estimates published several weeks later by the CZSO. It now ranks among the instruments used to help create short-term GDP forecasts at the CNB.

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1 The first estimate of the impacts of the pandemic on the Czech economy, based on electricity consumption data, was published by T. Adam and A. Michl in April 2020 – see https://www.cnb.cz/cs/o_cnb/cnblog/Prvni-odhad-dopadu-pandemie-COVID-19-na-ekonomiku-CR-zverejneno-8.-4.-2020/ (in Czech only).

2 A preliminary version of the Rushin is introduced in the blog article: https://www.cnb.cz/en/about_cnb/cnblog/The-Rushin-An-Index-of-Czech-Economic-Activity/.

3 The analysis does not take into account potential changes in the variables entering the index, although in view of the constantly evolving structure of the economy such ongoing potential adjustments are relevant. On the other hand, structural economic changes are only gradual and are of little significance for the period length chosen.

4 This analysis will form part of a forthcoming CNB working paper – The Rushin Index: A Weekly Indicator of Czech Economic Activity (Adam, T., Michálek, O., Michl, A., Slezáková, E., 2021).

III. INFLATION

Inflation will rise well above the upper boundary of the tolerance band around the 2% target in the quarters ahead. This will be due to an upswing in food price inflation coupled with continued high core inflation and strong fuel price inflation. These components will later be joined by renewed administered price inflation. Core inflation will reflect significant domestic demand pressures and strong producer price inflation at home and abroad. The overall inflation pressures will start to ease gradually at the end of this year as the currently rapid growth in import prices slows. Conversely, the contribution of domestic price pressures to overall costs will rise slightly for some time yet. This will stem mainly from increased consumer demand and a gradual pick-up in wage growth, supported by a further increase in the minimum wage. Next year, inflation will start to return to the target, aided by this year's significant tightening of monetary conditions. Headline inflation will be slightly above monetary policy-relevant inflation owing to a rise in excise duties.

The currently strong overall inflation pressures will ease at the end of the year as the high growth in import prices fades away

Growth of total costs in the consumer sector accelerated in the first half of this year due to markedly inflationary import prices (see Chart III.1). Higher oil prices, coupled with increased global demand for tradables and related problems in production and supply chains, were reflected in distinctly positive contributions of the energy and core components of import prices to growth in total costs. Their rise in 2021 Q2 was also driven by the domestic economy, reflecting a recovery in its output following the relaxing of anti-epidemic measures.

Despite the anti-inflationary effect of a significantly appreciating koruna, import prices will continue to foster growth in total costs in the summer. In addition to higher energy prices, this will reflect continued overheating of foreign industry, which will not fade out until the end of the year. Next year, further appreciation of the koruna, coupled with now slower growth in foreign producer prices, will lead to both the core and energy components of import prices turning markedly anti-inflationary. The currently elevated overall inflation pressures will therefore ease.

Domestic cost pressures will strengthen temporarily in the quarters ahead owing to increased consumer demand and a recovery in wage growth

Growth in domestic costs fluctuated by its steady-state level in the first half of this year. This was due to a continued solid contribution of fundamental wages, which reflected the stabilising labour market situation (see Chart III.2). In addition, the contribution of the price of capital rose sharply in Q2, reflecting renewed growth in economic activity after the spring easing of anti-epidemic measures. However, this was

Chart III.1

The currently strong overall inflation pressures will weaken at the end of the year as import prices switch from inflationary to anti-inflationary

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

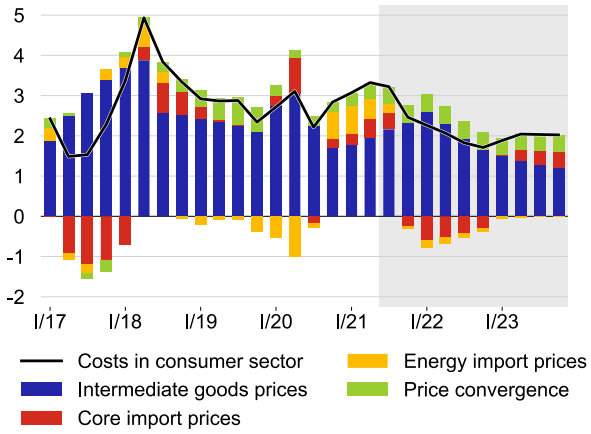
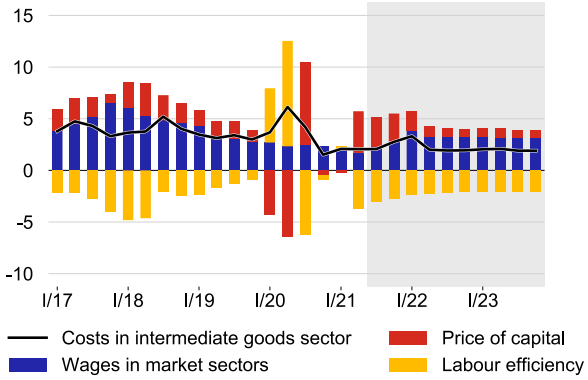


Chart III.2

Growth in domestic costs will temporarily pick up due to faster fundamental wage growth supported by a further increase in the minimum wage

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



simultaneously offset by an increase in labour efficiency as people returned to their workplaces after the shutdowns in services and retail ended.

Growth in domestic costs will increase in the quarters ahead on the back of gradually rising quarter-on-quarter growth in fundamental wages. This will be joined at the start of 2022 by a further expected marked increase in the minimum wage. The growth in costs will be supported by recovering consumer demand following the reopening of the economy, which will also reflect the partial release of savings created during previous lockdowns. This will be mirrored in a positive contribution of the price of capital. However, it will be offset by a continued improvement in labour efficiency. After a temporary rise, growth in domestic costs will stabilise close to its steady-state level next year. Pricing from the perspective of the g3+ model is discussed in Box 3 at the end of this section.

Inflation will rise well above the upper boundary of the tolerance band in the second half of the year and slow towards the target next year

Headline inflation will accelerate (see Chart III.3) in the second half of this year due to a pick-up in food price inflation and later also renewed administered price inflation. In addition, core inflation will remain strong and fuel prices will continue to rise apace (see Chart III.4). The rapid growth in prices at filling stations reflects both last year's low base and the recent sharp rise in oil prices. Next year, fuel price inflation will slow due to a renewed gradual decline in oil prices and a gradually strengthening koruna. Fuel prices will start to decline roughly in mid-2022.

Growth in core inflation is being driven largely by fundamentals

Core inflation remained high in 2021 Q2 due to rapid growth in prices of goods and services. Core inflation will rise slightly further in Q3 (see Chart III.4). In addition to cost pressures, this will be due to strong domestic demand, which will allow goods retailers and service providers to raise their prices in order to maintain or increase their profit margins and make up for the drop in revenues they recorded during the shutdowns of the economy. Overall, however, profit margins will be under pressure this year owing to higher costs stemming from the rapid growth in import prices.

A growing contribution of imputed rent will be an increasingly important item of core inflation. It reflects continued sharp growth in property prices combined with strengthening growth in construction work prices and construction product input prices (see Chart III.5). Growth in construction work prices, which had mostly been slowing since the start of last year, started to gather pace again during 2021 Q2 and exceeded 4%

Chart III.3

Inflation will initially rise well above the upper boundary of the tolerance band and will decrease close to 2% over the monetary policy horizon

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

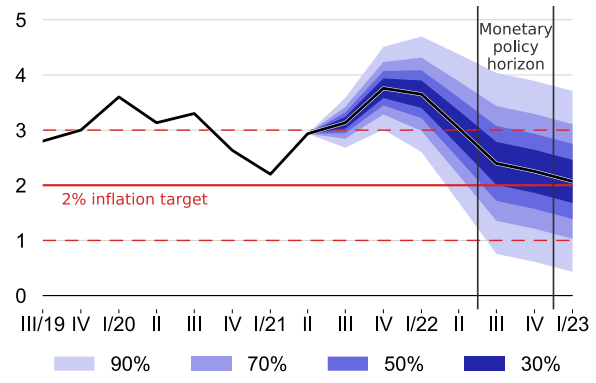


Chart III.4

Inflation will continue to be dominated by core inflation; the temporarily subdued contributions of food and administered prices will soon intensify again

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

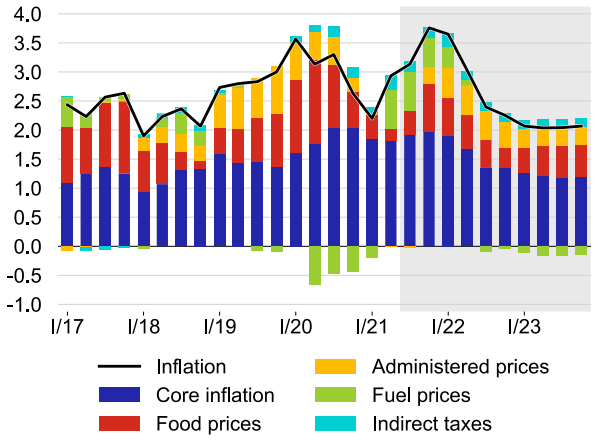
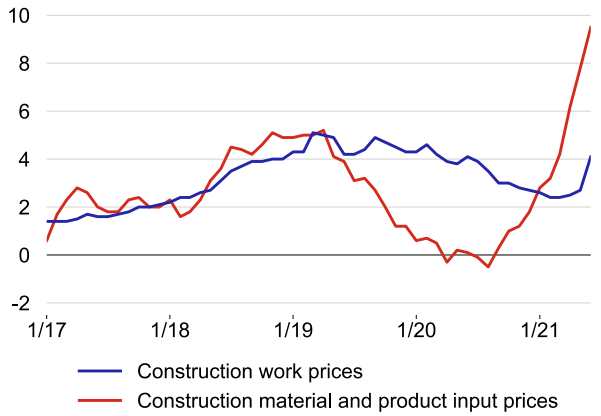


Chart III.5

Growth in construction prices has surged this year

y-o-y changes in %



in June. Besides steady growth in wages in construction, this is due in large part to production and supply chain issues, which are being reflected in shortages of some building materials (e.g. polystyrene and construction steel). Growth in construction material and product input prices even neared 10% in June. 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 (12% in 2021 Q1). Together with strong inflation pressures from the domestic economy, these effects will keep core inflation high in 2021 H2.

Strong growth in industrial producer prices abroad will have the same effect. This is spilling over appreciably into domestic industrial and consumer prices despite the dampening effect of the strengthening koruna. The price pressures from the production sector are largely fundamental (i.e. longer term) in nature (see Box 1 in section I). These cost factors and stronger domestic demand pressures lie behind the upward revision of the outlook for domestic core inflation compared with the spring forecast. Core inflation will stabilise close to 2% in the course of 2023 as the aforementioned inflationary effects subside, due partly to a considerable tightening of monetary conditions this year and the next.

Food price inflation is fluctuating; it will start to rise from its currently subdued levels and peak at the end of this year

Food price inflation, which was temporarily subdued in the first half of this year, will pick up gradually in the second half of the year (see Chart III.4). In addition to appreciable domestic demand pressures, this will be due to the pass-through of the recent growth in global agricultural commodity prices. High global demand is being reflected mainly in rising prices of crop products, particularly cereals. This is also fostering growth in domestic agricultural and food producer prices. The surging food price inflation will peak at the end of 2021, due in part to base effects. Food price inflation will temporarily drop below 1.5% owing an expected correction of world agricultural commodity prices next year.

The temporarily muted growth in administered prices will start to rise sharply at the end of the year due to growing energy prices

The recent rise in exchange prices of electricity and natural gas reflected record-high prices of emission allowances. This growth will feed into consumer prices after price lists for the new heating season are adjusted. The current decline in energy prices will thus soon halt. Administered price inflation will strengthen further in late 2021 and early 2022 (see Chart III.6) on the back of further growth in prices of energy, including heat. Overall, administered price

Chart III.6

Administered price inflation will be only temporarily muted; prices will start to go up again in the autumn and increase further in 2022

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

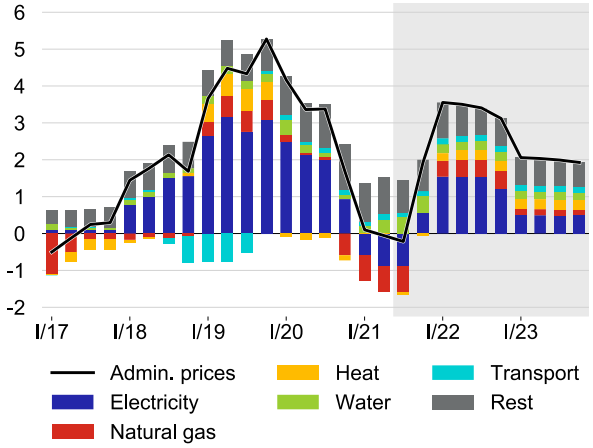
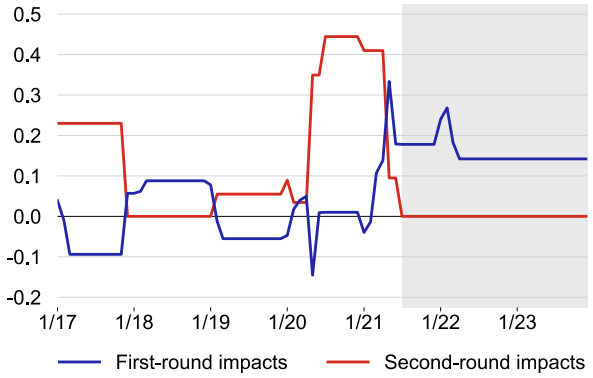


Chart III.7

The first-round effects of changes to indirect taxes will reflect an increase in excise duty on tobacco; the second-round effects of last year's VAT changes will soon fade out

first-round and second-round effects of tax changes; y-o-y changes in %; contributions in pp; including taxes



*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 thus rise above 3% at the start of next year. In 2023, it will slow to 2% as the growth in energy prices slows.

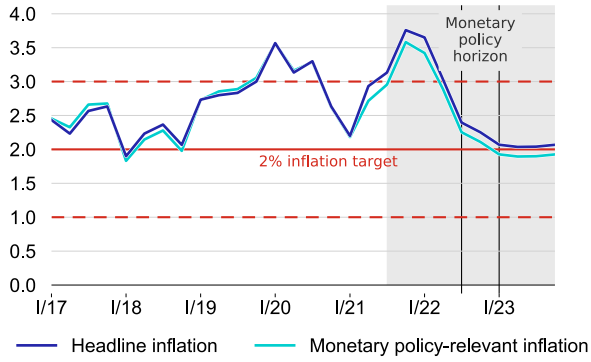
Changes to excise duties will contribute to headline inflation being slightly above the target at the monetary policy horizon

The forecast expects no further changes to indirect taxes in 2021 H2. For the rest of this year, headline inflation will thus be affected only by changes made to indirect taxes in January–April. Excise duty on cigarettes will go up by 5% at the beginning of next year. According to the forecast, this will pass through fully to cigarette prices. We estimate the overall effect of this change on inflation in 2022 at around 0.1 pp (see Chart III.7). These changes do not affect monetary policy-relevant inflation, so monetary policy 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 unless they have significant 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). This will be supported by a tightening of the previously highly accommodative monetary policy.

Chart III.8

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

headline and monetary policy-relevant inflation; in %



COMPARISON WITH THE PREVIOUS FORECAST: Prices

		2021	2022	2023	
Consumer prices	y-o-y changes in % pp	**3.0** (0.3)	**2.8** (0.4)	**2.1** -	The upward revision of the inflation forecast this year is due to all its components except food prices.
Administered prices	y-o-y changes in % pp	**0.4** (0.1)	**3.4** (0.6)	**2.2** -	The higher administered price inflation reflects higher growth in energy prices due to surprisingly strong growth in prices of emission allowances.
Core inflation	% pp	**3.4** (0.6)	**2.8** (0.8)	**2.2** -	A more substantial recovery in inflation abroad and stronger domestic demand have moved the core inflation outlook upwards.
Food prices (incl. alc. bev. and tobacco)	y-o-y changes in % pp	**1.8** (-0.4)	**1.9** (-0.6)	**1.9** -	The food price outlook has been revised down slightly compared with the spring forecast, as the lower observed data outweigh the increase in the agricult. producer price outlook.

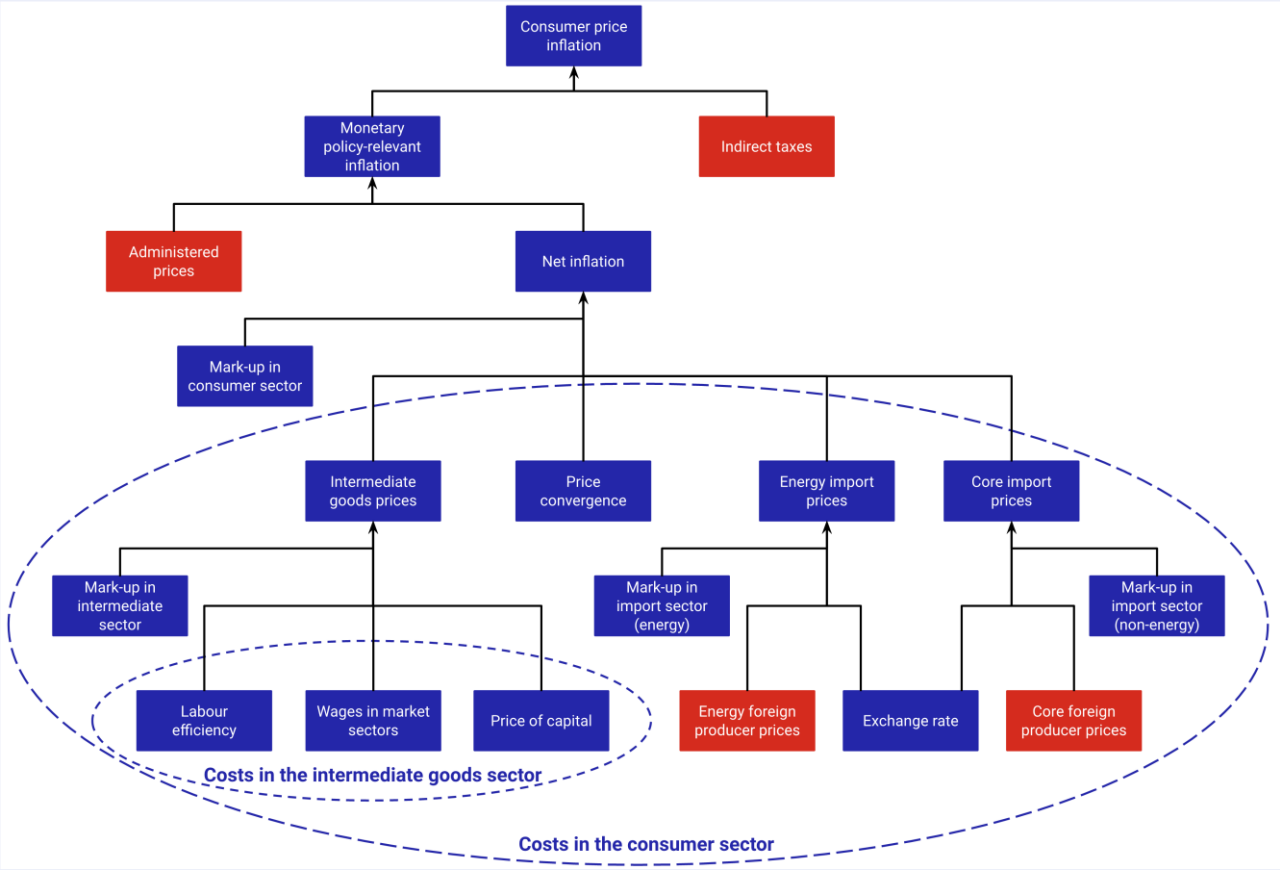
Note: Changes compared to the previous forecast in brackets (a green label indicates an increase in value and a red label a decrease)

BOX 3 Pricing and its importance for monetary policy from the perspective of the g3+ model

Inflation is affected by demand and cost factors, which are reflected in consumer prices with different lags. Knowledge of the time profile of the pass-through of these factors to end prices helps the central bank respond in time and thus fulfil its price stability mandate in the form of the 2% inflation target at the monetary policy horizon. The CNB's monetary policy settings are based primarily on a macroeconomic forecast prepared using the g3+ core forecasting model, which captures inflation in the Czech economy on the basis of a price vertical (see Chart 1).[1]

Chart 1

Price vertical of the g3+ core forecasting model



Note: Red indicates variables which enter the g3+ model as exogenous assumptions

Consumer price inflation is determined by net inflation, administered prices and changes to indirect taxes. The central bank sets its interest rates in the g3+ model on the basis of monetary policy-relevant inflation, i.e. consumer price inflation adjusted for the first-round effects of changes to indirect taxes, as these effects are beyond the central bank's control and have only a short-term effect on inflation in themselves. Moreover, suppressing them could adversely affect the economy.

Administered prices consist of items with price ceilings or prices regulated on a cost-plus basis[2] and administratively fixed fees (e.g. prices of electricity and heat for households).

The key variable in the g3+ model is net inflation,[3] which reflects cost pressures both from the domestic economy and from abroad. Besides costs, net inflation includes producers' margins,[4] which capture demand pressures in the economy.[5] If costs increase, producers can choose whether to reflect the higher input prices in higher end prices or to cut their margins. If demand is sufficient, they usually raise their prices and maintain their margins.

Net inflation depends predominantly on growth in prices of domestic inputs, which is driven mainly by domestic cost factors – wages in market sectors and the price of capital, reflecting the performance of the domestic economy. By contrast, technological progress – captured in the model as rising labour efficiency – depresses growth in costs and prices, as rising labour efficiency enables firms to make products using less labour and capital.

Domestic inflation is also significantly affected by import prices, which we divide into two components in the g3+ model.[6] First, we use energy import prices, which are determined primarily by foreign energy and commodity prices. They consist of not only the price of crude oil, but also prices of other energy sources and prices in segments closely linked with their processing.

By contrast, core import prices are driven by core foreign industrial producer prices and mainly reflect fundamental macroeconomic developments abroad (in our case the effective euro area). A rise in energy prices represents a purely inflationary cost pressure for the domestic economy, while a rise in core foreign industrial producer prices leads, all other things being equal, to an improvement in domestic exporters' price competitiveness. This fosters appreciation of the nominal koruna exchange rate, which dampens the cost effect of higher core import prices. Both import price components are simultaneously affected by the exchange rate of the koruna against the euro. Depreciation of the koruna fosters higher import prices, leading to an increase in the domestic price level.

The price convergence that accompanies the real convergence of the performance of the export sector and the Czech economy as a whole towards euro area countries also feeds into net inflation. We use the concept of the Balassa-Samuelson effect to incorporate the impact of price convergence into growth in costs.[7] According to this concept, price convergence can be proxied by the difference between growth in non-tradables and tradables prices in the domestic economy.

The strength of the effect of the aforementioned factors on the price vertical differs, and their transmission channels vary as well. Charts 2 and 3 show the impacts of changes to selected factors on inflation and interest rates as impulse responses[8] of the g3+ model. For example, an unexpected increase in retailers' margins is immediately reflected in prices, so the room for monetary policy response is limited. By contrast, a change in prices of cost factors feeds into final consumer prices gradually and with a lag due to price rigidities in various parts of the domestic production chain. This gives the central bank room to respond actively to the movement of costs by changing interest rates and thus avoid undesirable large deviations of future inflation from the target.

Chart 2

Producers' margins pass through to prices immediately and most strongly, while cost factors do so with a lag

responses, in pp, of annual monetary policy-relevant inflation to unexpected 1 pp changes in selected factors (q-o-q; annualised) in Q1; x-axis shows quarters

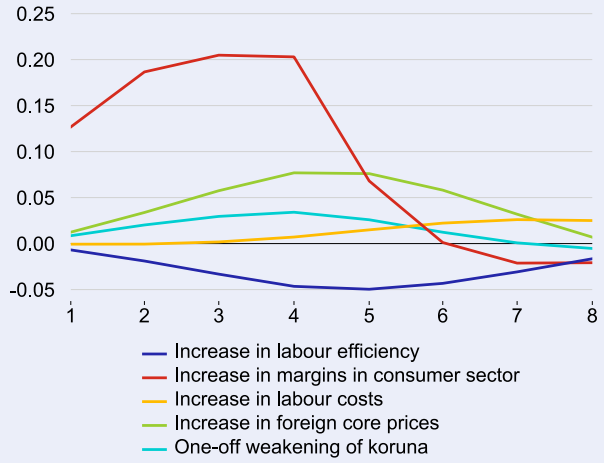
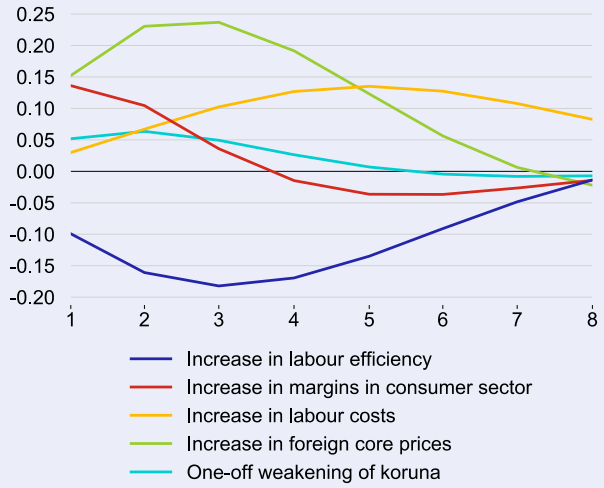


Chart 3

Market interest rates go up in response mainly to an increase in foreign core prices; higher labour efficiency has the opposite effect

responses, in pp, of market interest rates to unexpected 1 pp changes in selected factors (q-o-q; annualised) in Q1; x-axis shows quarters



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1 The main features of the g3+ model are presented in a CNB blog article. A more detailed description of the model is given in the working paper Brázdik et al. (2020). The price vertical in the previous g3 prediction model was described in a box in IR IV/2008.

2 Items whose prices may only reflect economically justified costs and a reasonable profit.

3 Net inflation is consumer price inflation net of administered prices and adjusted for the first-round effects of changes to indirect taxes. It thus represents prices which are determined freely by the market. It is therefore sometimes referred to as market price inflation.

4 The g3+ model assumes that firms operate in an environment of monopolistic competition. In such economic conditions, each firm has some market power (given, for example, by a type of product that is specific to some extent), allowing it to set prices by adding a margin on top of its costs and hence generate profits.

5 In addition to the margins of final producers, the g3+ model includes the margins of domestic producers and importers. However, their effect on the resulting path of inflation is weaker than the effect of producers' margins.

6 The division of foreign producer prices into their core and energy components is discussed in more detail in a box in IR III/2019 describing the changeover to the g3+ model.

7 The Balassa-Samuelson effect, as captured in the CNB's forecasting system, is discussed in more detail in a box in IR III/2016.

8 An impulse response is the response of a selected variable to a change in the effect of a certain factor.

IV. MONETARY POLICY

At its August monetary policy meeting, the CNB Bank Board increased the two-week repo rate by 0.25 pp to 0.75%. At the same time, it increased the Lombard rate to 1.75% and kept the discount rate unchanged at 0.05%. The Bank Board assessed the uncertainties and risks of the new forecast as being slightly anti-inflationary overall. Greater or lengthier overloading of global supply chains, which could result in even stronger growth in producer prices, is an inflationary risk to the forecast. Conversely, possible faster-than-forecasted appreciation of the koruna due to larger capital inflows may pose a slight anti-inflationary risk. The uncertainty associated with the evolution of domestic economic activity is acting in the same direction.

Consistent with the forecast is a rise in market interest rates from the middle of this year onwards

The Czech economy is facing increased price pressures from the foreign and domestic economies. In particular, recovering domestic demand due to the continuing reopening of the economy, strengthening wage growth and buoyant growth in foreign producer prices will have an inflationary effect this year.[9]

The fulfilment of the inflation target at the monetary policy horizon thus requires a rapid monetary policy tightening and a gradual return of market interest rates to pre-pandemic levels. The initial sharp response of domestic interest rates (see Chart IV.1) will cause inflation to decline close to the 2% target in the course of 2022. The current easy interest rate component of the monetary conditions will gradually turn neutral. It will continue to tighten next year, when economic activity will return to the pre-crisis level amid stabilisation of inflation close to the target.

A monetary policy response is needed in view of the robust price pressures from the domestic economy and abroad

The domestic inflation pressures are fundamental and persistent. Inflation is being fostered by the better than previously expected condition of the domestic economy, which reflects the earlier easing of anti-epidemic measures and the escape of the economy from its direct negative correlation with the pandemic. The structure of core inflation includes rapid growth in imputed rent, reflecting double-digit growth in property prices, which tends to be persistent. The Czech labour market also remains under quite substantial pressure. According to the forecast, the Czech economy will continue to recover in 2021 H2. The

Chart IV.1

The rise in interest rates from the middle of this year onwards reflects the need to respond to the strong price pressures

3M PRIBOR in %; confidence interval

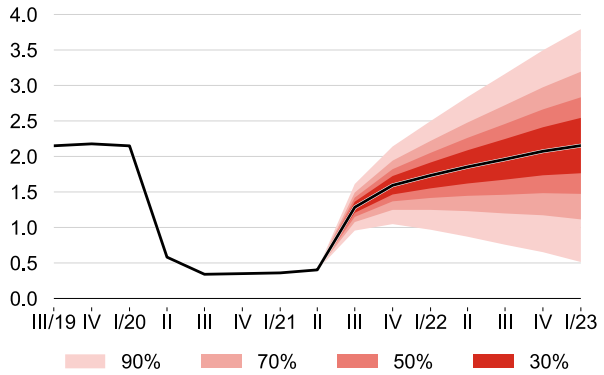
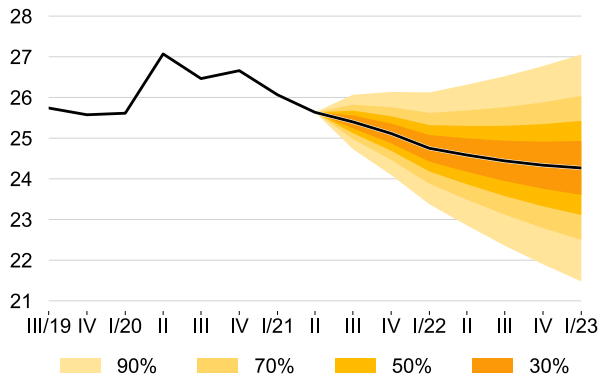


Chart IV.2

The koruna will appreciate further, strengthening beyond CZK 25 to the euro in late 2021 and early 2022

CZK/EUR exchange rate; confidence interval



9 The pass-through of cost factors to final consumer prices, along with the appropriate monetary policy response from the perspective of the g3+ core forecasting model, is detailed in Box 3 in section III.

foreign inflation pressures will also subside only slowly.

The koruna will appreciate further

The koruna continued to appreciate until about mid-May, later stabilising around CZK 25.4 to the euro. The appreciation of the koruna at the start of Q2 was accelerated by an inflow of foreign short-term capital. Bank Board members' communications on the possibility of starting to raise interest rates soon also contributed to interest in koruna assets. The increase in monetary policy rates in June was thus predominantly expected by the markets and was not reflected in the exchange rate of the koruna. In the first half of July, the koruna depreciated slightly amid concerns of the possible arrival of the Delta variant. The exchange rate averaged CZK 25.6 to the euro in Q2. This was also true for July. In year-on-year terms, the koruna was about 5.2% stronger against the euro on average in Q2. Its year-on-year appreciation against the dollar was even more pronounced.

We expect the exchange rate to average CZK 25.4 to the euro in Q3. This reflects both an improvement in economic fundamentals and positive sentiment in global markets due to continuing vaccination. A recovery in aggregate demand, the export of as yet unfinished products, and an inflow of foreign capital due to improved sentiment will lead to continued appreciation of the koruna over the forecast horizon (see Chart IV.2). Last but not least, this will also be strongly fostered by a widening interest rate differential vis-à-vis the euro area due to a rise in domestic market rates. The exchange rate will thus appreciate towards CZK 24 to the euro by the end of 2023.

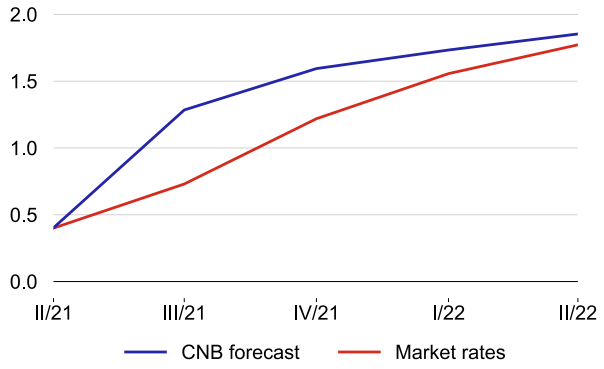
The market interest rate outlook is lower than the CNB forecast; the exchange rate path expected by analysts is close to the central bank's forecast

The market outlook for short-term FRA rates moved higher. The market thus responded to the interest rate path published in the CNB's spring macroeconomic forecast, the subsequent increase in the 2W repo rate in June and the related communication by the Bank Board. The market currently expects a gradual rise in the 3M PRIBOR at the one-year horizon (see Chart IV.3). However, the market rate outlook remains lower than the CNB forecast. This is in line with analysts' expectations in the FMIE and FECF surveys, which mostly expect an increase in the 2W repo rate of 0.25 pp to 0.75% at the August monetary policy meeting. All of the analysts expect the CNB's key rate to be raised further at the one-year horizon, most often to 1.25% or 1.50%. The outlooks for a gradual increase in key interest rates are reflected in the outlook for the koruna's exchange rate in the FMIE and FECF surveys. As in the CNB forecast, the

Chart IV.3

The market rate outlook is lower than the CNB forecast

3M PRIBOR, FRA in %



Note: Market rates represent for 2021 Q2 and 2021 Q3 the 3M PRIBOR and for 2021 Q4–2022 Q2 the average values of the FRA 3*6, 6*9 and 9*12 rates for the last 10 trading days as of 30 July 2021.

*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 slightly over time and has stood at about 0.2 pp in recent months.*

Table IV.1

Inflation expected by analysts is close to the inflation target at both the one-year and three-year horizons

1Y horizon; annual percentage changes unless otherwise indicated

	3/21	4/21	5/21	6/21	7/21
FMIE:					
CPI	2.1	2.0	2.2	2.2	2.2
CPI, 3Y horizon	2.0	2.1	2.1	2.1	2.1
Real GDP in 2021	3.3	3.2	3.5	3.6	3.6
Real GDP in 2022	4.4	4.4	4.5	4.3	4.5
Nominal wages in 2021	3.4	3.5	3.8	3.7	3.7
Nominal wages in 2022	4.4	4.2	4.3	4.4	4.5
CZK/EUR exchange rate (level)	25.3	25.3	25.2	24.9	24.9
2W repo rate (%)	0.6	0.7	0.9	1.2	1.4
1Y PRIBOR (%)	1.0	1.1	1.3	1.7	1.9
Corporations:					
CPI	2.3			2.8	
CPI, 3Y horizon	2.8			3.2	
CF:					
Real GDP in 2021	3.4	3.3	3.4	3.6	3.7
Real GDP in 2022	4.7	4.6	4.7	4.6	4.7
Nominal wages in 2021	3.0	3.5	3.8	3.8	4.0
Nominal wages in 2022	4.0	4.1	4.3	4.5	4.4
CZK/EUR exchange rate (level)	25.4	25.6	25.5	25.0	25.0
3M PRIBOR (%)	0.7	0.8	1.1	1.3	1.6

analysts expect the koruna to appreciate slightly on average (see Table IV.1). According to the analysts, this will be fostered by a decrease in pandemic-related uncertainty, an increasing interest rate differential, the current relatively low level of hedging by exporters against a stronger koruna and, from the longer-term perspective, real convergence of the Czech economy. The relatively wide spread of the estimates has recently narrowed. The difference between the minimum and maximum expected rates against the euro at the one-year horizon is about CZK 1.

The Bank Board members' communications suggested increasing rates

The Bank Board members' communications in the weeks leading up to the August monetary policy meeting were indicating a need to raise the CNB's key interest rates at this meeting. According to some Bank Board members, it is desirable – given the clear signals that the pandemic is receding – to exit the current highly accommodative monetary policy so as to ensure that inflation does not diverge from the inflation target for a lengthy period.

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

Chart IV.4

The interest rate path has shifted higher

decomposition of changes in 3M PRIBOR forecast in pp

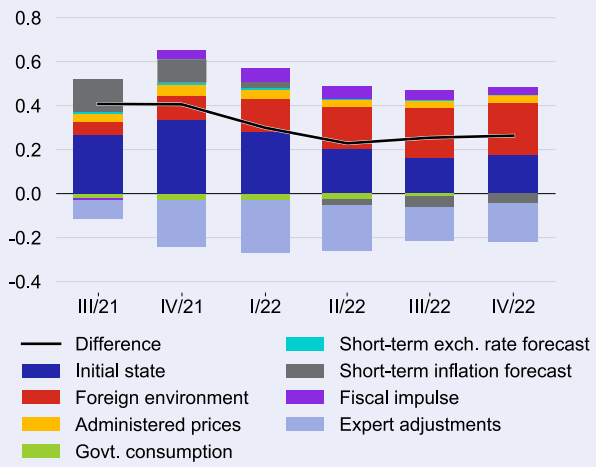
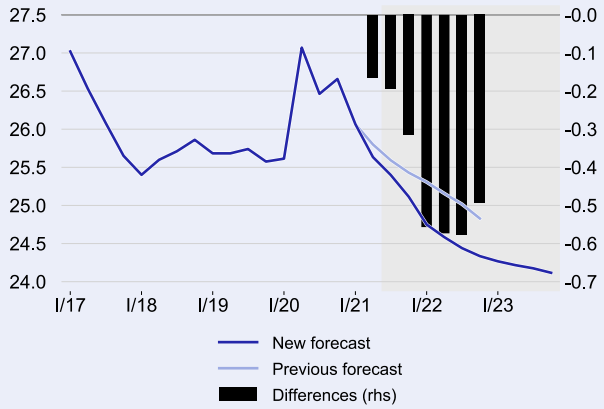


Chart IV.5

The outlook for the koruna exchange rate is stronger than in the spring forecast

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



- The new forecast contains **a higher interest rate path** over the entire horizon
- The better performance of the domestic economy, coupled with stronger foreign price pressures in the first half of this year, fosters an increase in rates in the **initial state** category
- **The short-term forecast for domestic inflation** also fosters slightly higher rates in the next few quarters
- **The foreign outlook**, especially faster growth of foreign prices, somewhat less accommodative ECB monetary policy and a weaker euro against the dollar, also foster higher domestic rates
- The slightly higher interest rate path is also due to **the fiscal impulse in 2022**, which has become less restrictive since the previous forecast, mainly reflecting an extraordinary increase in pensions next year
- By contrast, **expert adjustments** foster lower interest rates; these mainly reflect the one-off nature of this summer's inflationary effects (one-off increases in prices in services and retail after the reopening of the economy and a temporary rise in summer holiday prices), which will not be repeated in the quarters ahead

- The new forecast contains a stronger path of the exchange rate
- In the near term, the slightly firmer koruna reflects its stronger exchange rate in Q2
- The faster appreciation of the currency in the quarters ahead is also fostered by greater competitiveness of domestic exporters due to higher foreign producer price inflation compared with the previous forecast
- Finally, the stronger koruna compared with the spring forecast is also due to a more strongly widening interest rate differential vis-à-vis the euro area over the forecast horizon

The recent increase in market interest rates is gradually passing through to client rates

Money market interest rates moved to a higher level after the June increase in key interest rates. Rates with longer maturities started to increase at the end of last year. This initially reflected the CNB's communications regarding future monetary policy

normalisation, but developments on foreign financial markets later prevailed (see Chart IV.6). During the spring and summer months, market interest rates were affected by positive sentiment on the one hand and concerns about new strains of the coronavirus and their impacts on the global economic recovery on the other. Domestic IRS rates and government bond yields at some maturities (from about 5Y up) were at their pre-pandemic levels at the end of July 2021.[10]

The interest rate on loans for house purchase increased slightly to 2.2% in Q2 in response to the growth in market interest rates with longer maturities recorded in the previous two quarters. The interest rate on loans to corporations has recently dropped slightly and is just below 1.5%. This has probably been fostered by an improvement in outlooks after the reopening of the economy, which has led to a decrease in banks' average interest margins and margins on riskier loans. Ex ante real interest rates are negative both in the said loan segments and for deposits.

Compared with the spring forecast, the baseline scenario of the summer forecast has shifted towards a higher interest rate path

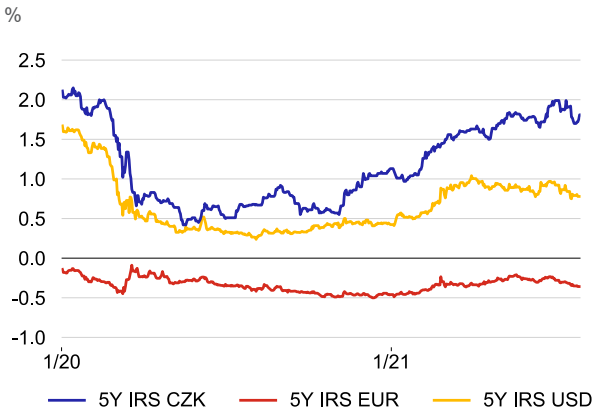
The baseline scenario of the spring forecast had already implied a significant increase in rates in the second half of this year. The urgency to increase interest rates from roughly the middle of this year onwards was further strengthened by the assessment of the balance of risks of the spring forecast conducted in preparation for the June monetary policy meeting.

The uncertainties and risks of the forecast are seen as broadly balanced

The uncertainties and risks of the forecast are not tilted in either direction and thus overall support the need for a strong tightening of both the exchange rate and interest rate components of the monetary conditions implied by the current forecast. The new outlook thus bolsters the message of the spring forecast.

Chart IV.6

Domestic interest rates with longer maturities increased over the previous two quarters



Monetary policy in the g3+ model *sets interest rates taking into account the deviation of the 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.*

10 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 rose by as much as 1 pp in the first half of this year. T-bills and government bonds with various maturities totalling CZK 346 billion (more than half of the planned borrowing requirement for this year, which has already been increased twice) were issued on the primary market in the same period.

A new wave of the pandemic may lead to anti-epidemic measures being retightened, but the impacts of this on the economy are likely to be limited due to a weakening of the correlation between the pandemic and economic activity

A larger rise in cases due to new strains of the virus could lead to anti-epidemic measures being retightened both at home and abroad. However, the measures should have only limited impacts on economy activity, due to gradually increasing herd immunity to the coronavirus and to adjustment mechanisms in the economy. Moreover, in light of knowledge of the recent economic impacts of the pandemic, another wave would probably push costs and prices up again.

The correlation between the pandemic and economic activity has weakened. The impacts of the domestic anti-epidemic measures on industry are close to zero and household consumption is also decoupling from the pandemic situation. This is because both the economy and society as a whole have adapted to the pandemic.

Moreover, any worsening of the pandemic situation will not necessarily lead to the reintroduction of across-the-board lockdowns with strong economic impacts. The availability of vaccines and large-scale testing will ensure that these strict measures will no longer be needed even if the pandemic worsens. This will be due, among other things, to (i) high vaccination coverage of at-risk groups, which reduces the pressure on the health service; (ii) a growing incentive to get vaccinated because of potential restrictions on the use of services for unvaccinated people; (iii) effective new forms of medication; and (iv) the high cost of further across-the-board lockdowns for the state.

In addition, the recent experience with the epidemic in the UK suggests that the Delta variant, which might spread further in the Czech Republic in the autumn, will not put the Czech health care system under great pressure either. An analysis of UK data reveals that the load on the health system in the UK remains low thanks to vaccination, despite a sharp rise in new cases.[11]

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11 Those infected with the coronavirus were mainly young people in educational institutions, while deaths were recorded only in the oldest age group. In addition, UK data indicate that the number of reinfections is small. The analysis thus demonstrates that young people infected by the virus recover and become immune without any major consequences, whereas older people are sufficiently protected by vaccination or have had the disease. On the other hand, an uncontrolled spread of the virus increases the risk of a new strain emerging. Such a situation could change the rules of the game again if, for example, the new strain turns out to be vaccine-resistant. However, the current data bear out the assumptions of the summer forecast, which

Monetary policy is now thus no longer facing the threat of low inflation and the need to support the economy but is pursuing its primary objective of maintaining price stability, all in an environment of increased inflation and with inflation expectations threatening to diverge from the target. The June interest rate hike was the first step, but more must follow.

Potential greater or lengthier overloading of global supply chains is an inflationary risk to the forecast

Greater or lengthier overloading of global supply chains could result in higher tradables price inflation than expected by the forecast.

The price growth observed in most manufacturing industries in the euro area and the Czech Republic is consistent with increased demand for miscellaneous manufactured articles and is largely fundamental in nature.[12] If the problems with overloaded production chains and commodity prices persist into 2022, we can expect additional price growth in the industrial sectors concerned and, in turn, an increase in the retail prices of the relevant consumer basket items. It is thus risky to discount to any great extent the current inflation pressures from the production sector for monetary policy and to expect producer prices to decline and domestic core inflation to slow as a result.

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

The current high inflation levels, which the forecast expects to increase further until the start of 2022, may affect the formation of inflation expectations. The anchoring of non-financial corporations' inflation expectations at the 2% target at the one-year horizon can be seen to be weakening slightly (they expect inflation of 3.2% at the three-year horizon). Analysts' inflation expectations have increased slightly in recent months but remain close to the inflation target and are broadly in line with the CNB's forecast (see Table IV.1). Indicators of the longer-term inflation expectations of firms, inflation expected by households, and public concerns about rising prices have also increased slightly (see below for more details).

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expects the level of restrictions to start to decrease in the autumn as vaccination coverage increases, and the Stringency Index to be close to levels with no material economic impacts from 2022.

12 Box 1 in section I analyses prices in manufacturing industries both abroad and at home and assesses to what extent they are being driven by non-fundamental (i.e. temporary) or fundamental factors.

Maintaining confidence in the central bank's active approach and its ability to return inflation to the target is crucial for future inflation

The central bank may decide not to tighten monetary policy as fast as is consistent with its forecast, due, for example, to concerns about temporary excessive market volatility in response to a sharp monetary policy tightening. To illustrate this slower tightening of monetary conditions, we prepared two monetary policy simulations of more gradual growth in rates, differing in the public's confidence in the central bank's ability to achieve the inflation target (see *Simulations of slower rate growth with inflation expectations anchored to different degrees*). In these simulations, the central bank raises interest rates by 0.25 pp at each monetary policy meeting in the second half of this year.

The simulations show that slower-than-forecasted rate growth will not have strong inflationary effects if and only if the central bank systematically communicates that it will ultimately deliver a sufficient tightening and follows through on that, and if inflation expectations stay anchored. A not-too-large lag behind the interest rate path in the forecast and active communication will help the central bank maintain its credibility, and its 2% target will remain an anchor for inflation expectations. Inflation will then rise only slightly.

However, signs of growing inflation expectations are accumulating in the Czech economy

The recent trend in inflation expectations suggests a risk of them rising further if the central bank continues to lag behind the forecast-consistent response. 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 at the one-year horizon (see Chart IV.7). The CZSO's business survey illustrates that consumers are beginning to see concerns about rising prices (see Chart IV.8) as a possible factor jeopardising the overall economic situation, including their own financial situation.[13] Expectations of growth in prices are also rising on the supply side of the economy. 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.

Chart IV.7

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

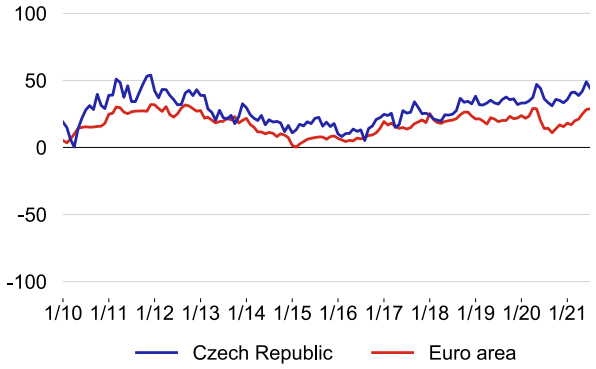
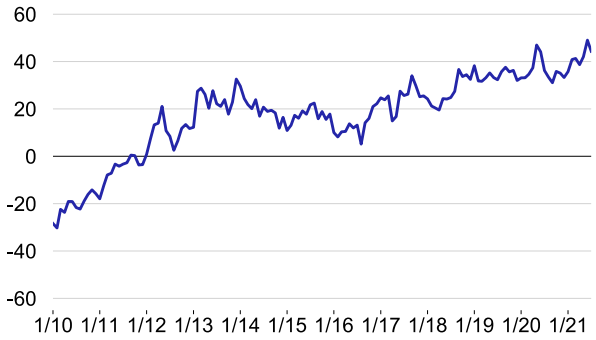


Chart IV.8

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

balance of answers; source: CZSO



13 Purchases of anti-inflationary government retail bonds, which rose quarter on quarter to higher-than-usual levels in Q2, may be a signal of inflation concerns among households.

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

However, an unanchoring of inflation expectations due, for example, to a sustained overshooting of the inflation target and a persisting lag of the central bank behind its forecast, leading to a gradual loss of credibility of the inflation target, would have significant inflationary effects. Gradually rising inflation pressures would be reflected in continued strong growth in consumer prices (a year-on-year rise of 4% at the start of next year in the simulation). The central bank would thus have to respond by tightening sharply at the beginning of next year and would not get inflation under control until much later (in 2023 in the simulation).

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

These two monetary policy simulations illustrate the situation of slower rate growth, with the central bank increasing interest rates by 0.25 pp at each monetary policy meeting in the second half of this year.[14]

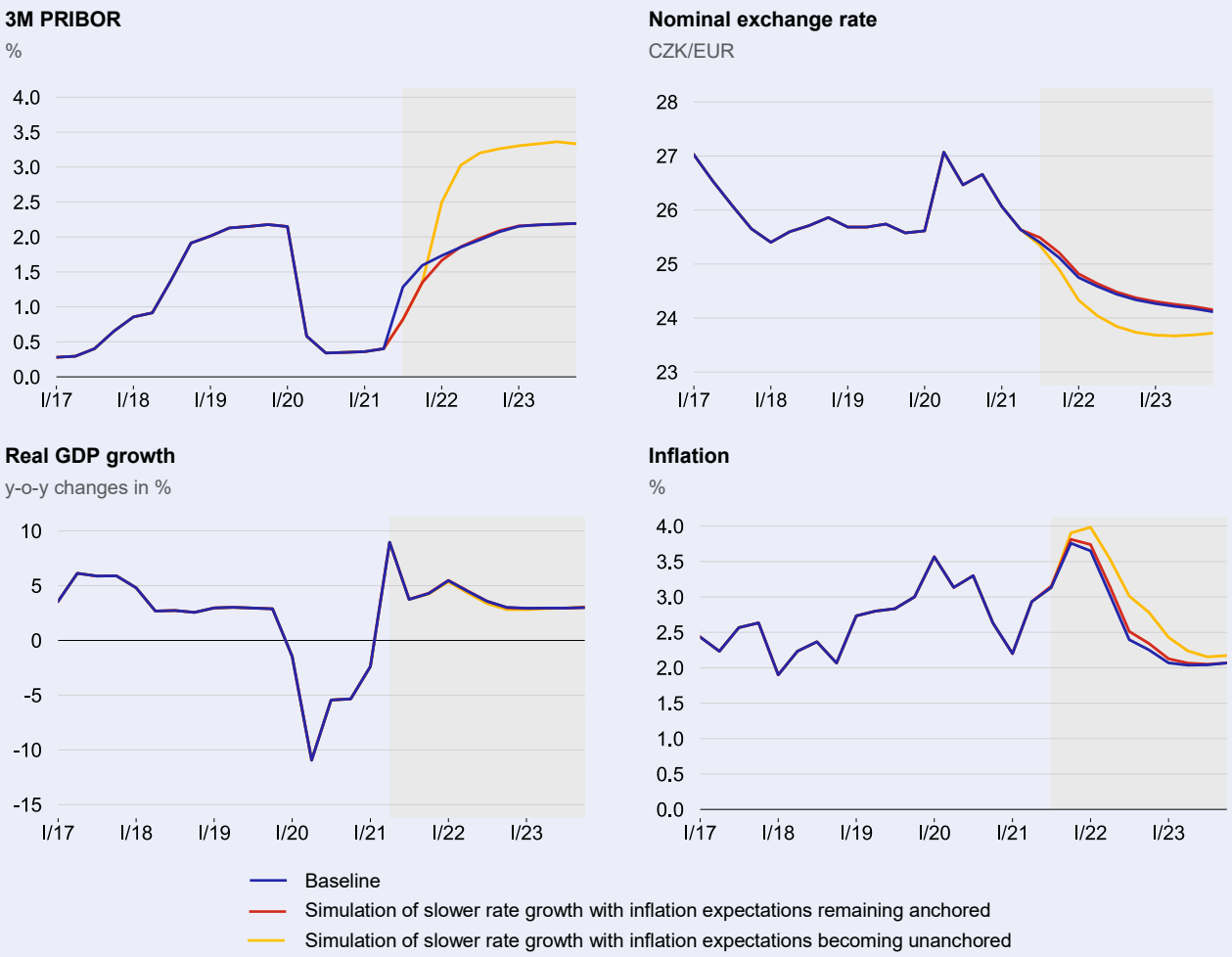
The first simulation (the red line in the charts) describes the situation where the central bank's lag behind the implied rate path will not jeopardise its credibility as regards its ability to fulfil the inflation target. In this simulation, inflation expectations remain anchored by the target even though the Bank Board actively communicates its intention to raise rates in line with the said scheme and move away from the path described in the baseline scenario of the forecast. Owing to a less wide interest rate differential vis-à-vis the euro area, the expected lower interest rate path results in slightly weaker levels of the koruna from Q3. The lower rates and slightly weaker exchange rate than in the baseline result in slightly higher inflation over the entire forecast horizon (see Chart IV.9). This is due both to the Bank Board's commitment to increase rates at each monetary policy meeting, which leads to a gradual tightening of the interest rate component of the monetary conditions, and to inflation expectations being anchored at 2%.

The relatively limited impact of this monetary policy stance compared with the baseline scenario is due to the only temporary deviation of the interest rate path from the baseline scenario, in an environment of firmly anchored inflation expectations, which creates no room for a subsequent significant rise in inflation.

Chart IV.9

With slower rate growth in 2021 H2 and with inflation expectations staying anchored, inflation will be only slightly higher at the monetary policy horizon than in the baseline scenario; if inflation expectations become unanchored, inflation will significantly overshoot the target at the monetary policy horizon

comparison of baseline scenario with simulations of slower rate growth



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

The second simulation (the yellow line in the charts) also assumes slower rate growth in the second half of the year than in the baseline. Unlike in the previous simulation, though, the central bank's target loses credibility. This is reflected in households' inflation expectations rising above the CNB's 2% target. Owing to a lengthier overshooting of the target and a persisting lag of the central bank behind the response in the forecast, inflation expectations in the economy gradually diverge from the CNB's target (which remains at 2%) during the first year, reaching 3% next year.

The deviation of the perceived inflation target from 2% creates gradually mounting additional price pressures in the economy (i.e. upward pressure on all nominal variables). This is reflected in higher annual consumer price inflation, which will reach 4% in 2022 Q1. Monetary policy responds appropriately to this situation only at the start of next year, when it faces a need to increase rates rapidly. Market interest rates thus move above, and stay above, their long-term equilibrium level of 3% next year (see Chart IV.9). This notwithstanding, inflation remains elevated during 2022 and is not brought under control by the central bank's active monetary policy until 2023, when the central bank's 2% target regains credibility. Since the future response of the central bank to the additional inflation pressures is expected from the start of the forecast, the exchange rate appreciates rather more strongly than in the baseline scenario. However, the pace of appreciation rises most strongly next year, when rates go up quickly. The impacts on GDP are only minor; the differences relative to the baseline scenario are reflected predominantly in nominal variables.

An appreciating koruna and growth in rates will help tighten the monetary conditions but will not steer inflation all the way back to the target at the monetary policy horizon

The summer forecast expects the koruna to appreciate to CZK 25.4 to the euro in Q3 and strengthen further to CZK 24 to the euro before the end of 2023. Despite the appreciating exchange rate and sharp growth in interest rates, however, the baseline scenario of the forecast implies growth in inflation of almost 0.9 pp to close to 4% by the end of this year. The inflation target will not be achieved fully and permanently until beyond the monetary policy horizon (i.e. until 2023).

A stronger exchange rate in the coming quarters compared with the summer forecast would be consistent with more gradual growth in interest rates

The need for exchange rates to rise might be rather smaller in the event of greater appreciation pressure on the koruna due to excess supply of foreign currency as a result of balance of payments developments in the coming months compared with the summer forecast. The implications of such a situation for monetary policy deliberations is illustrated by a simulation of a stronger exchange rate. In this simulation, growth in domestic interest rates in an environment of positive financial market sentiment compared with the baseline scenario causes a greater inflow of foreign capital into the Czech Republic, leading to stronger appreciation of the koruna at the end of this year.

In the event of such pressure on the exchange rate, i.e. a tendency towards a more significant tightening of the exchange rate component of the monetary conditions, slower growth in interest rates than in the baseline scenario would be consistent with stabilisation of inflation close to the target at the monetary policy horizon.

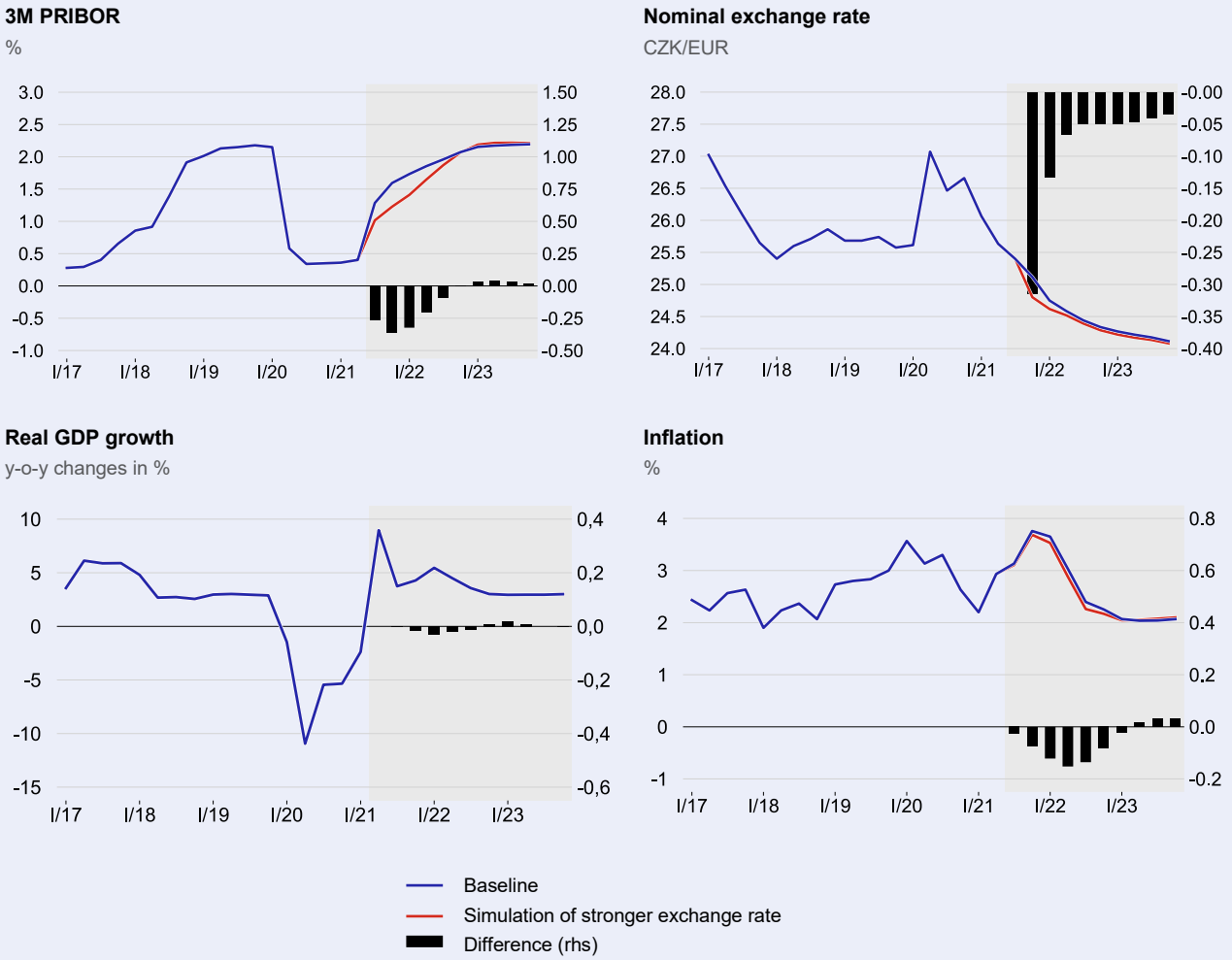
Simulation of a stronger koruna

The simulation of a stronger koruna assumes that the koruna appreciates more strongly in Q4 than in the baseline scenario due to a larger inflow of capital onto the financial account resulting from a marked improvement in financial market sentiment. The expected stronger appreciation causes lower growth in import prices, which leads to somewhat lower inflation than in the baseline until the end of 2022. Given the tighter monetary conditions in the exchange rate component, slower growth in interest rates than in the baseline is consistent with stabilisation of inflation close to the target at the monetary policy horizon. The impacts on real economic activity are minimal – the lower net exports due to the stronger koruna are broadly offset by higher household consumption and investment (see Chart IV.10).

Chart IV.10

Slower growth in interest rates and slightly lower inflation until the end of next year are consistent with stronger appreciation of the koruna

comparison of baseline scenario with simulation of stronger exchange rate



A rapid increase in interest rates is justified

A sharp increase in the 3M PRIBOR from the current level of 0.7% to an average of 1.3% in 2021 Q3 and 1.6% in 2021 Q4 is consistent with the baseline scenario of the summer forecast. This is commensurate with an increase in the 2W repo rate of 0.5–0.75 pp at the monetary policy meeting in August.

The monetary policy response is not only forward-looking, but also forward-guiding

The fact that monetary policy cannot affect current or immediate future inflation because the current rate increase feeds through with a lag given by the length of monetary policy transmission cannot be used as an argument against sharply increasing interest rates at the August meeting. The forward-guiding effect of monetary policy must be taken into account. The central bank's response expresses, among other things, that it is aware of the ongoing economic turnaround, that it has confidence in the ability of the economy to adjust to the pandemic situation, and that its decisive steps towards normalising monetary policy send out a stabilising signal to all economic agents.

Abbreviations

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

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**	**5174.5**	**5387.6**	**5547.2**
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**	**6075.3**	**6428.2**	**6733.8**
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	**3.5**	**4.1**	**3.0**
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	**1.3**	**6.4**	**3.0**
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	**3.1**	**1.4**	**2.0**
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	**11.8**	**0.2**	**3.1**
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	**2.8**	**5.8**	**2.6**
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	**13.0**	**9.2**	**5.2**
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	**15.8**	**8.6**	**5.1**
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	**244.3**	**290.5**	**305.6**
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	**3.0**	**2.8**	**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	**0.4**	**3.4**	**2.2**
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	**1.8**	**1.9**	**1.9**
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	**3.4**	**2.8**	**2.2**
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	**12.6**	**2.4**	**-4.4**
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	**2.9**	**2.7**	**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	**5.1**	**2.4**	**1.4**
Agricultural prices (%, y-o-y, average)	3.3	-12.1	4.7	-6.2	-6.0	7.4	-0.2	5.7	-3.2	**6.0**	**0.7**	**-1.4**
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	**5.4**	**4.2**	**4.6**
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	**6.0**	**4.4**	**5.1**
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	**2.4**	**1.4**	**2.6**
Unit labour costs (%, y-o-y)	3.6	0.9	1.6	-0.4	3.1	3.9	6.2	4.7	6.3	**1.3**	**1.5**	**2.3**
Aggregate labour productivity (%, y-o-y)	-1.2	-0.4	1.7	3.9	0.9	3.6	1.8	2.8	-4.2	**3.9**	**3.1**	**2.3**
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	**3.3**	**3.1**	**3.0**
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	**3.9**	**3.6**	**3.6**
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**	**0.9**	**0.6**
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**	**1.2**	**0.6**
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	-348.0	**-455.7**	**-339.9**	**-345.8**
Government budget balance/GDP** (%, nominal terms)	-3.9	-1.3	-2.1	-0.6	0.7	1.5	0.9	0.3	-6.1	**-7.5**	**-5.3**	**-5.1**
Government debt (ESA2010) (CZK bn, current prices)	1805.3	1840.2	1818.9	1836.0	1754.7	1749.7	1734.6	1739.9	2153.0	**2586.8**	**2917.1**	**3244.3**
Government debt/GDP** (%, nominal terms)	44.2	44.4	41.9	39.7	36.6	34.2	32.1	30.0	37.8	**42.6**	**45.4**	**48.2**
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	**264.5**	**287.3**	**296.2**
Trade balance/GDP (%, nominal terms)	3.0	4.0	5.1	4.1	5.4	5.1	3.7	4.1	5.0	**4.4**	**4.5**	**4.4**
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	**95.8**	**115.0**	**114.0**
Current account (CZK bn, current prices)	-63.3	-21.8	7.9	20.7	85.2	79.1	24.1	19.2	203.5	**104.7**	**33.6**	**41.9**
Current account/GDP (%, nominal terms)	-1.5	-0.5	0.2	0.4	1.8	1.5	0.4	0.3	3.6	**1.7**	**0.5**	**0.6**
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	**-70.0**	**-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**	**20.5**	**20.1**
CZK/EUR (average)	25.1	26.0	27.5	27.3	27.0	26.3	25.6	25.7	26.5	**25.6**	**24.5**	**24.2**
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	**10.4**	**8.0**	**8.0**
2W repo rate (%, average)	0.05	0.05	0.05	0.05	0.05	0.50	1.75	2.00	0.25	**0.78**	**1.74**	**2.02**
3M PRIBOR (%, average)	1.0	0.5	0.4	0.3	0.3	0.4	1.3	2.1	0.9	**0.9**	**1.9**	**2.2**
EXTERNAL ASSUMPTIONS												
Foreign GDP (%, y-o-y, seas. adjusted, effective)	0.3	0.2	1.9	1.9	2.0	2.8	1.9	1.3	-5.7	**4.0**	**4.4**	**2.2**
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	**2.2**	**1.7**	**1.8**
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	**6.3**	**2.0**	**1.7**
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	**67.9**	**66.7**	**63.3**
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**	**-0.4**
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)	1263.1	**1284.3**	**1305.3**	**1321.8**	**1332.1**	**1342.0**	**1352.0**	**1361.6**	**1371.2**	**1381.6**	**1391.9**	**1402.5**
GDP (CZK bn, current p., seas. adjusted)	1470.6	**1516.8**	**1530.4**	**1557.5**	**1580.4**	**1598.4**	**1615.7**	**1633.7**	**1651.2**	**1671.2**	**1694.0**	**1717.4**
GDP (%, y-o-y, real terms, seas. adjusted)	-2.4	**9.0**	**3.7**	**4.3**	**5.5**	**4.5**	**3.6**	**3.0**	**2.9**	**3.0**	**3.0**	**3.0**
GDP (%, q-o-q, real terms, seas. adjusted)	-0.3	**1.7**	**1.6**	**1.3**	**0.8**	**0.7**	**0.7**	**0.7**	**0.7**	**0.8**	**0.7**	**0.8**
Household consumption (%, y-o-y, real terms, seas. adjusted)	-6.4	**3.9**	**0.7**	**7.5**	**9.3**	**7.2**	**5.4**	**3.9**	**3.1**	**3.0**	**3.0**	**3.0**
Government consumption (%, y-o-y, real terms, seas. adjusted)	3.8	**3.6**	**4.0**	**1.0**	**1.5**	**1.6**	**1.2**	**1.1**	**1.5**	**1.8**	**2.1**	**2.5**
Gross capital formation (%, y-o-y, real terms, seas. adjusted)	1.1	**10.8**	**20.0**	**16.8**	**1.5**	**-0.5**	**-1.4**	**1.1**	**3.2**	**3.1**	**3.0**	**3.0**
Gross fixed capital formation (%, y-o-y, real terms, seas. adjusted)	-3.8	**1.1**	**5.8**	**8.6**	**9.0**	**6.4**	**4.6**	**3.4**	**2.8**	**2.5**	**2.5**	**2.6**
Exports of goods and services (%, y-o-y, real terms, seas. adjusted)	4.1	**35.1**	**10.3**	**7.5**	**11.7**	**10.3**	**8.6**	**6.4**	**5.3**	**5.2**	**5.1**	**5.0**
Imports of goods and services (%, y-o-y, real terms, seas. adjusted)	5.4	**31.4**	**15.4**	**13.7**	**12.1**	**9.5**	**7.4**	**6.0**	**5.3**	**5.2**	**5.1**	**5.1**
Net exports (CZK bn, constant p. of 2015, seas. adjusted)	66.7	**57.5**	**55.0**	**65.2**	**71.0**	**71.9**	**73.1**	**74.5**	**74.8**	**76.0**	**76.9**	**77.9**
PRICES												
Main price indicators												
Consumer Price Index (%, y-o-y, average)	2.2	2.9	**3.1**	**3.8**	**3.7**	**3.0**	**2.4**	**2.3**	**2.1**	**2.0**	**2.0**	**2.1**
Administered prices (14.58%)* (%, y-o-y, average)	0.1	-0.1	**-0.2**	**1.9**	**3.5**	**3.5**	**3.4**	**3.1**	**2.3**	**2.2**	**2.2**	**2.1**
Food prices (incl. alcoholic beverages and tobacco) (26.41%)* (%, y-o-y, average)	1.6	1.0	**1.7**	**3.1**	**2.4**	**2.2**	**1.8**	**1.3**	**1.6**	**1.9**	**2.1**	**2.1**
Core inflation (55.61%)* (%, y-o-y, average)	3.3	3.3	**3.5**	**3.6**	**3.4**	**3.0**	**2.4**	**2.4**	**2.3**	**2.2**	**2.1**	**2.1**
Fuel prices (3.40%)* (%, y-o-y, average)	-5.8	21.0	**20.3**	**15.0**	**10.6**	**2.9**	**-2.7**	**-1.2**	**-3.3**	**-5.0**	**-4.8**	**-4.5**
Monetary policy-relevant inflation (%, y-o-y, average)	2.2	2.7	**3.0**	**3.6**	**3.4**	**2.9**	**2.3**	**2.1**	**1.9**	**1.9**	**1.9**	**1.9**
Partial price indicators												
Industrial producer prices (%, y-o-y, average)	1.5	5.3	**6.9**	**6.8**	**5.5**	**2.4**	**0.9**	**0.8**	**0.9**	**1.3**	**1.6**	**1.9**
Agricultural prices (%, y-o-y, average)	-1.3	3.8	**10.2**	**13.2**	**8.3**	**1.7**	**-3.1**	**-4.7**	**-4.1**	**-3.0**	**-0.2**	**2.4**
LABOUR MARKET												
Average monthly wage (%, y-o-y, nominal terms)	3.2	**12.0**	**4.1**	**2.7**	**5.8**	**1.7**	**4.5**	**4.9**	**4.6**	**4.6**	**4.7**	**4.6**
Average monthly wage in market sectors (%, y-o-y, nominal terms)	3.5	**13.6**	**4.4**	**2.8**	**5.9**	**1.3**	**5.2**	**5.5**	**5.1**	**5.1**	**5.0**	**5.0**
Average monthly wage (%, y-o-y, real terms)	1.0	**9.1**	**1.0**	**-1.1**	**2.2**	**-1.3**	**2.1**	**2.6**	**2.6**	**2.6**	**2.6**	**2.6**
Unit labour costs (%, y-o-y)	0.5	**6.1**	**-0.7**	**-0.4**	**2.1**	**-1.0**	**2.1**	**2.9**	**2.5**	**2.3**	**2.2**	**2.1**
Aggregate labour productivity (%, y-o-y)	-1.0	**9.3**	**3.9**	**3.5**	**4.6**	**3.4**	**2.5**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**
ILO general unemployment rate (%, average, age 15–64, seas. adjusted)	3.3	**3.4**	**3.3**	**3.2**	**3.1**	**3.1**	**3.1**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**
Share of unemployed persons (MLSA) (%, average, seas. adjusted)	4.0	**4.1**	**3.8**	**3.7**	**3.6**	**3.6**	**3.6**	**3.6**	**3.6**	**3.6**	**3.6**	**3.6**
Employment (ILO) (%, y-o-y)	-1.6	**-0.3**	**-0.2**	**0.5**	**0.8**	**1.0**	**1.0**	**0.9**	**0.7**	**0.6**	**0.6**	**0.5**
Full-time employment (%, y-o-y)	-1.4	**0.5**	**1.2**	**1.4**	**1.2**	**1.2**	**1.2**	**1.0**	**0.8**	**0.7**	**0.6**	**0.5**
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)	92.7	**73.2**	**48.1**	**50.4**	**94.5**	**86.6**	**53.8**	**52.4**	**97.2**	**89.3**	**55.5**	**54.2**
Trade balance/GDP (%, nominal terms)	6.7	**4.8**	**3.1**	**3.1**	**6.4**	**5.4**	**3.3**	**3.1**	**6.3**	**5.3**	**3.2**	**3.0**
Balance of services (CZK bn, current prices)	27.0	**20.7**	**21.0**	**27.0**	**30.0**	**36.0**	**27.0**	**22.0**	**32.0**	**33.0**	**30.0**	**19.0**
Current account (CZK bn, current prices)	80.2	**53.8**	**-29.7**	**0.5**	**84.3**	**25.5**	**-41.0**	**-35.1**	**91.3**	**18.4**	**-36.0**	**-31.8**
Current account/GDP (%, nominal terms)	5.8	**3.5**	**-1.9**	**0.0**	**5.7**	**1.6**	**-2.5**	**-2.1**	**5.9**	**1.1**	**-2.1**	**-1.8**
Foreign direct investment												
Direct investment (CZK bn, current prices)	26.1	**-32.1**	**-32.0**	**-32.0**	**-17.5**	**-17.5**	**-17.5**	**-17.5**	**-17.5**	**-17.5**	**-17.5**	**-17.5**
Exchange rates												
CZK/USD (average)	21.6	21.3	**21.4**	**21.1**	**20.8**	**20.6**	**20.4**	**20.3**	**20.2**	**20.1**	**20.0**	**19.9**
CZK/EUR (average)	26.1	25.6	**25.4**	**25.1**	**24.7**	**24.6**	**24.4**	**24.3**	**24.3**	**24.2**	**24.2**	**24.1**
MONEY AND INTEREST RATES												
M3 (%, y-o-y, average)	10.8	**10.8**	**10.2**	**9.6**	**8.4**	**7.9**	**7.5**	**7.7**	**7.8**	**7.9**	**8.1**	**8.3**
2W repo rate (%, average)	0.25	0.31	**1.12**	**1.43**	**1.57**	**1.69**	**1.80**	**1.91**	**1.99**	**2.01**	**2.02**	**2.03**
3M PRIBOR (%, average)	0.4	0.4	**1.3**	**1.6**	**1.7**	**1.9**	**2.0**	**2.1**	**2.2**	**2.2**	**2.2**	**2.2**
EXTERNAL ASSUMPTIONS												
Foreign GDP (%, y-o-y, seas. adjusted, effective)	-2.0	**11.7**	**2.9**	**4.2**	**6.4**	**4.7**	**3.6**	**2.9**	**2.5**	**2.2**	**2.0**	**1.9**
Foreign GDP (%, q-o-q, seas. adjusted, effective)	-1.1	**2.4**	**1.8**	**1.2**	**0.9**	**0.8**	**0.6**	**0.6**	**0.5**	**0.5**	**0.4**	**0.4**
Foreign HICP (%, y-o-y, seas. adjusted, effective)	1.3	**2.1**	**2.5**	**2.8**	**1.7**	**1.7**	**1.7**	**1.7**	**1.7**	**1.8**	**1.8**	**1.8**
Foreign PPI (%, y-o-y, seas. adjusted, effective)	1.7	**7.5**	**8.4**	**7.7**	**5.0**	**2.0**	**0.6**	**0.6**	**1.1**	**1.6**	**1.9**	**2.1**
Brent crude oil (in USD/barrel) (average)	61.3	69.1	**71.7**	**69.5**	**68.2**	**67.1**	**66.2**	**65.2**	**64.4**	**63.6**	**62.9**	**62.2**
3M EURIBOR (%, average)	-0.5	-0.5	**-0.5**	**-0.5**	**-0.5**	**-0.5**	**-0.5**	**-0.5**	**-0.4**	**-0.4**	**-0.4**	**-0.4**
USD/EUR (average)	1.2	1.2	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**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

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