Monetary Policy Report
Summer 2022

Czech National Bank —— Monetary Policy Report —— Summer 2022

CNB CZECH NATIONAL BANK

www.cnb.cz

This Monetary Policy Report was approved by the CNB Bank Board on 11 August 2022 and (with some exceptions) contains the information available as of 22 July 2022. By means of this document, the CNB fulfils its statutory duty to regularly inform constitutional officials and the public about monetary developments. Unless stated otherwise, the sources of the data are the CZSO or the CNB. All the reports published to date, along with the underlying data, are available on our website. A large part of the data we evaluate in our monetary policy decision-making can be found in the Chartbook, which is a parallel publication to the Monetary Policy Report.

Contents

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 almost two years ahead. The CNB's forecast describes the most likely future path of the economy as seen by our Monetary Department's economists. The Bank Board is also consulted in the forecasting process. 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,

This is the first time I have introduced the Monetary Policy Report to you as Governor of the Czech National Bank. The Report is one of the main inputs to the Bank Board’s decision-making on CNB monetary policy.

At our latest meeting, my Bank Board colleagues and I decided to keep interest rates unchanged. The two-week repo rate is now 7%, the highest level since 1999. This decision was not easy, but we are convinced it was the right one.

We are in a period of extreme uncertainty. The war in Ukraine and the related growth in energy prices may fuel inflation further. It is almost certain that annual inflation will reach around 20% by the end of this year. However, the central bank can no longer influence that now.

Every interest rate change takes time to show up in the economy. The strongest effect is achieved in about a year and a half. So, rather than reacting mechanistically to the latest inflation figures, which are now exceptionally high, we respond to the inflation outlook. The good news is that, according to the CNB’s forecast, inflation should decline to close to 2% in a year and a half. What will cause this turnaround? A drop in people’s real purchasing power will reduce demand and, in turn, inflation. Growth in loans to households and firms – and hence also in the quantity of money in the economy – is slowing as well. The current interest rate level is thus now sufficiently restrictive.

The current inflation is a result of both supply and demand pressures. No central bank can do much about imported cost inflation pressures. Monetary policy can’t make gas or electricity cheaper. However, it can stop their prices spilling over to the domestic economy. In an environment of falling demand, businesses will not be able to raise their prices as quickly as before.

From my point of view, the three key conditions for lowering inflation, in order of importance, are as follows. First, the pace at which our country’s debt is rising has to be reduced. Second, a wage-inflation spiral must be prevented. Wage growth must therefore reflect labour productivity growth, not price growth in the economy. Third, interest rates need to be kept at a higher level that slows the economy.

With regard to the uncertainty awaiting us in the months ahead, today’s decision will let us assess the future course of the economy and the effectiveness of the current interest rate level. I can assure the public on behalf of the Bank Board that the CNB’s actions will be sufficient to restore price stability in accordance with its statutory mandate.

On behalf of the Czech National Bank

Aleš Michl

Governor

The decision, and the current outlook and its risks

At its August meeting, the Bank Board kept the two-week repo rate at 7%. The decision is based on the baseline scenario of the CNB's summer macroeconomic forecast. In that forecast, the central bank – due to extraordinary cost pressures amid greatly increased uncertainty – currently looks at a monetary policy horizon two quarters further ahead than the one used previously in the CNB's forecasting system. Inflation will rise slightly above 20% in the months ahead and remain in double figures for part of next year. This will reflect continued growth in gas and electricity prices for households, a further acceleration in food price inflation and persisting high core inflation. Inflation will decline rapidly below 10% in the course of 2023 owing to an easing of the current exceptional price pressures and to the previous tightening of domestic monetary conditions. During 2024, inflation will fall close to the CNB's 2% target. Consistent with the forecast, in which the central bank sets interest rates in order to achieve the 2% target at a monetary policy horizon 18–24 months ahead, is broad stability of market interest rates initially, followed by a gradual decline next year. The Bank Board assessed the risks and uncertainties of the baseline scenario of the summer macroeconomic forecast as being significant and going in both directions. The escalating inflation pressures are largely due to strong external price shocks lying outside the control of domestic monetary policy. In line with the baseline scenario of the forecast, the Bank Board decided currently to disregard the direct effects of these external price pressures on inflation and not to increase interest rates.

The Czech economy is facing a combination of exceptionally strong inflation pressures causing escalating broad-based price growth. Inflation in the domestic economy continues to hit new long-term highs in rapid succession. Consumer prices are being pushed up by rising costs, reflecting domestic and foreign factors, including higher energy prices, and growth in the margins of domestic producers, retailers and service providers amid a still solid income situation of households.

The surging consumer price inflation was driven in spring and early summer by still rising core inflation. However, prices of food and housing-related energy also rose increasingly quickly. In addition, year-on-year growth in fuel prices stayed exceptionally high. Core inflation will pick up slightly further in the months ahead, reflecting firms' peaking profit margins and growth in costs, including energy prices. The contribution of the still rapidly rising cost of owner-occupied housing (imputed rent) to inflation will remain significant. Growth in food prices will increase further, on the back of rising global prices of agricultural and food commodities. Year-on-year growth in fuel prices will initially remain very high as well, but prices at filling stations will start to fall due to lower oil prices. Further growth in excise duty on tobacco will foster higher headline inflation this year and the next. A waiver of the fee for renewable energy sources within administered prices of electricity will have the opposite effect.

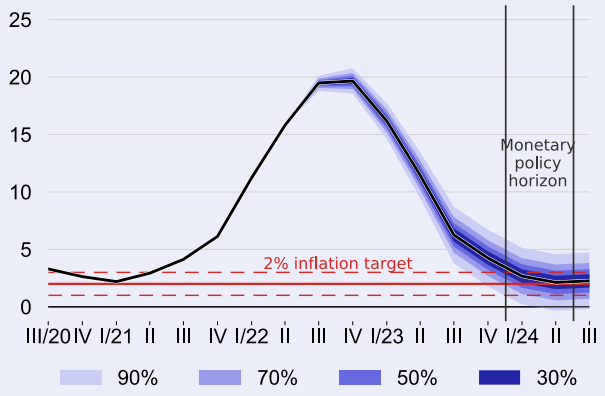
As a result of the above factors, inflation will peak at just over 20% in late summer and early autumn 2022. It will then start to fall as growth in production costs slackens, the purchasing power of households drops and the stabilising effect of monetary policy manifests itself through domestic demand. The downward trend in inflation will gain strength in the course of next year. Inflation will decline close to the CNB's 2% target over the monetary policy horizon, which for this forecast lies in the first half of 2024.

Czech firms continue to face rapid growth in costs, driven largely by import prices. Besides rising foreign industrial producer prices, the growth in import prices is dominated by skyrocketing energy prices. The strong inflationary effect of import prices is now peaking. Their growth will fade, aided by a stabilisation and subsequent slight drop in energy prices and a fall in foreign industrial producer price inflation. A later drop in import prices will start to dampen growth in total costs.

The growth in Czech firms' costs is also due to a large extent to domestic factors, especially persisting slight labour market tightness. The unemployment rate remains very low and firms are facing labour shortages despite the rapid integration of many tens of thousands Ukrainian refugees into the labour force. These factors will be reflected in wage agreements. This will later cause the already relatively buoyant wage growth in market sectors to pick up even further. This process will also be fostered by rising labour

Inflation will exceed 20% in late summer/early autumn and then start to fall rapidly, declining close to 2% over the monetary policy horizon

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



In this forecast, the monetary policy horizon is 18–24 months ahead.

Economic growth will be subdued this year and the next and pick up visibly in 2024

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

	2022	2023	2024
Headline inflation (%)	**16.5**	**9.5**	**2.4**
	(3.4)	(5.4)	-
GDP	**2.3**	**1.1**	**3.8**
	(1.5)	(-2.5)	-
Average nominal wage	**4.5**	**6.2**	**7.5**
	(-0.1)	(1.2)	-
3M PRIBOR (%)	**6.2**	**5.2**	**3.1**
	(-0.8)	(0.1)	-
Exchange rate (CZK/EUR)	**24.8**	**25.7**	**25.5**
	(0.6)	(1.4)	-

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.

productivity and further increases in the minimum wage and the cascade of guaranteed wages above it. Nominal earnings will thus markedly outpace their long-term trend over the next two years. Even so, they will initially lag well behind inflation, so real wages will decline sharply.

The Czech economy will continue to operate amid persisting problems in global logistics and supplies of materials and components for production. Given its significant industrial orientation, these problems will dampen growth in total domestic economic activity until mid-2023. However, their impact on GDP will be smaller than last year and will gradually disappear next year. Despite increasing numbers of Covid-positive cases, the forecast does not expect the government to introduce anti-epidemic measures having a tangible dampening effect on domestic economic activity. Fiscal policy will reduce economic growth slightly this year, as the measures previously adopted to support the economy have been discontinued. Government expenditure to offset the impact of higher energy prices on households and firms and to support refugees will have the opposite effect. The forecast assumes that fiscal policy will have a slightly expansionary effect next year, mainly due to continued provision of energy compensation.

Economic growth will slow this year, despite buoyant investment activity. Still relatively favourable business sentiment, recovering external demand and continuing efforts by firms to automate production will foster growth in corporate investment. Government investment will also rise (with some fluctuations), supported by absorption of EU funds. However, stocks of unfinished products will be highly volatile due to global logistics problems. Household consumption will decline this year. On the one hand, growth in households' nominal income will remain more than solid throughout the year, still supported by buoyant wage growth. Household income will also be boosted by a further reduction in income tax, an increase in pensions, expanded housing benefits and government programmes to mitigate the impact of expensive energy. On the other hand, family budgets will continue to face further rapid, broad-based growth in prices. Spending of households' income and savings due to concerns of a loss of their purchasing power will be dampened by higher interest rates, lower consumer appetite and worse sentiment. Growth in exports and imports of goods and services will also remain subdued this year, owing to persisting logistics global problems. The Czech economy will thus grow by around 2% overall this year. Next year, the decline in household consumption will moderate somewhat due to a gradual decrease in inflation and a rise in nominal wage growth. Swift export growth will resume as the global logistics problems unwind, leading to a significant positive contribution of net exports. However, total investment will drop sharply owing to a sizeable decline in additions to inventories, and growth in fixed investment will slow as well. GDP will thus grow by around 1% next year. Economic growth will rise to 4% in 2024, driven mostly by renewed rapid growth in household consumption and a further visible increase in net exports.

The slowdown of the Czech economy causes the positive output gap to close quickly this year. The persisting supply-side constraints will slow potential growth. The economy will subsequently drop temporarily below its potential, causing the unemployment rate to edge up. This drop will be due to a cooling of the previously strong domestic demand pressures. The latter will be aided by the previous sharp growth in market interest rates, which is limiting

the pass-through of inflation pressures to prices in the longer term and supporting the anchoring of inflation expectations.

In recent months, the koruna has faced depreciation pressure, which the CNB has successfully countered by intervening in the foreign exchange market. The koruna exchange rate will stay close to CZK 24.7 to the euro during the summer and then weaken in the subsequent quarters as a result of an exceptionally wide current account deficit and an expected narrowing of the interest rate differential vis-à-vis the euro area. The koruna will start to appreciate again moderately in late 2023. In a context of receding inflation pressures in the Czech economy, and with the prospect of inflation falling rapidly in 2023 and 2024, the CNB's interest rates will be able to start decreasing in 2023.

A further rise in commodity prices, a threat of inflation expectations becoming unanchored, a related risk of a wage-inflation spiral and easier fiscal policy are upside risks to inflation. By contrast, the growing likelihood of recession abroad and a stronger-than-forecasted downturn in domestic consumer and investment demand are downside risks. The general uncertainties of the outlook include the future course of the war in Ukraine, the availability and prices of energy, the future monetary policy stance abroad and the duration of the disruptions to global supply chains.

I. ECONOMIC DEVELOPMENTS ABROAD

Inflation pressures in the euro area have grown in strength. The ECB changed its monetary policy, ending its asset purchase programmes and raising rates for the first time in eleven years. The price growth in the consumer and production sectors is due primarily to prices of energy, especially electricity and gas. They are still significantly elevated because of the continued Russian aggression in Ukraine and are set to rise even further by the end of this year according to the current outlook. Core inflation is rising as well. The budgets of firms and households are thus coming under pressure, as the savings created during the pandemic are now running out. Economic activity in the effective euro area can be expected to drop noticeably amid weakening global demand in late 2022, with a risk of the economy sliding into recession. The economy will pick up in the second half of next year as supply chain disruptions ease, international trade recovers and the energy market stabilises.

Accelerating inflation and negative sentiment of firms and households due to the war are weakening global demand

Global growth is weakening (see Table I.1) owing to sharply rising prices, which are significantly reducing real wages and household savings. There is a related slowdown in orders in industry and services, where the tightening of monetary conditions is also starting to be felt. However, the loss of growth momentum is also being reflected in global commodity prices. Prices of metals, foodstuffs, container transport and chips – and in recent weeks also oil to a lesser extent – have dropped. This is a source of hope that the accumulated inflationary factors will gradually dissipate. The latest PMI surveys confirm weakening upward pressure on global prices. In these surveys, firms are reporting slowing (but still elevated) growth in input costs and lower-than-expected sales. They are tending to reduce their inventories to achieve savings amid falling demand.

Despite the weakening growth, the USA will keep raising rates forcefully. At the end of July, the Fed raised its benchmark rate by 0.75 pp to a range of between 2.25% and 2.50%. Markets expect the rate to increase to 3.5% by the year-end. The tightening of monetary policy in reaction to surging inflation, which rose further to 9.1% in June, is taking place in a context of a robust labour market. The rate hikes may thus continue despite growing concerns among US households of a looming economic crisis (see Chart I.1). Market inflation expectations have fallen close to 2.5% in recent months because of the monetary policy tightening and slowing demand (see Chart I.2).

China went through draconian lockdowns of several cities in Q2 and continues to pursue a strict zero-tolerance policy on Covid. This is significantly harming its economy and complicating the supply chain situation. A fiscal stimulus of USD 220 billion is expected to support the Chinese economy from the second half of this year onwards. There is also speculation of further monetary policy easing.

Table I.1

Global growth will slow this year and the next

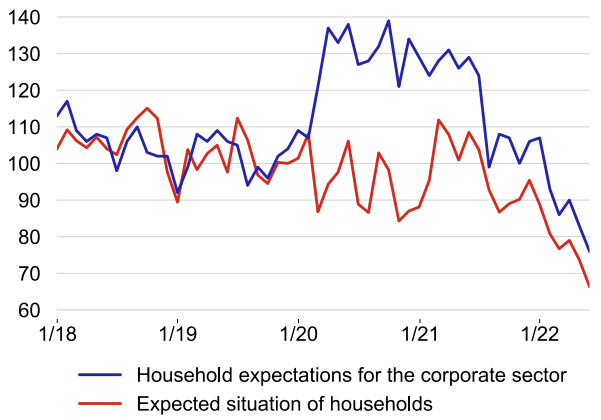
real GDP; y-o-y changes in %; source CF, Oxford Economics

	2021	2021 Q4	2022 Q1	2022	2023	2024
Euro area	5.3	4.7	5.4	2.7	1.4	2.3
USA	5.7	5.5	3.5	2.1	1.0	1.9
China	8.1	4.0	4.8	4.2	5.4	5.2
United Kingdom	7.4	6.6	8.7	3.3	0.5	2.3

Chart I.1

US households' expectations regarding the future situation have declined in recent months

household expectations for corporate sector (index, 100 = neutral level), household expectations regarding own future situation (index, 1985 = 100); source Bloomberg



Nonetheless, the Chinese economy is unlikely to meet its growth target for this year of 5.5%. Inflation in China remains relatively low (2.5% in June).

The prospects of a recovery in the euro area in the next 12 months have worsened due to the high energy prices and depletion of pandemic savings, amid slackening global demand

Annual economic growth in the effective euro area accelerated somewhat in 2022 Q1 (see Chart I.3). Although the onset of the Omicron variant of the coronavirus was rapid, it did not trigger restrictions on economic activity as large as those in the previous waves of the pandemic. Despite none-too-optimistic prospects for 2022 Q2, the euro area withstood the initial shock of the outbreak of the war in Ukraine, recording only a modest quarter-on-quarter contraction.[1] However, the high economic uncertainty is affecting household and business sentiment. German firms in particular are reporting a gradual deterioration in conditions and falling orders from abroad in the PMI survey. On the other hand, German industrial firms' stock of pending orders is very large and those orders are only gradually being satisfied by production (see Chart I.4). The accumulation of orders is due mainly to supply chain disruptions, which will fade only gradually and will partly spill over into 2023. However, optimism in services is also waning, as the effect of making up for deferred consumption after the lockdowns has partially worn off, while economic uncertainty and prices are rising. However, the indicators remain in the expansion band.

Following an optimistic summer, when a record-breaking tourist season and demand for services will support the southern euro area countries in particular, a significant cooling is expected for the autumn. The depletion of pandemic savings and rising energy and food bills will squeeze already tight household budgets. Especially in industry, firms will still benefit from orders placed in previous months. However, this buffer will also be gradually exhausted. The expected trend in global demand is not optimistic either. The gradual introduction of sanctions against Russia is complicating international trade relations. The positive output gap in the euro area will therefore close by the end of 2022.[2] Effective euro area GDP will grow by just above 2% overall this year, slowing markedly in the second half of the year. The economy will recover in the second half of next year as supply chain disruptions ease and international trade recovers. GDP growth will reach 1.5% in 2023 and accelerate to 2.5% in 2024.

Chart I.2

Cooling demand and an expected sizeable increase in Fed rates are keeping US inflation expectations in check

%; expected inflation implied by five-year inflation-linked swap quotations; source Bloomberg

Chart I.3

GDP growth in the effective euro area accelerated somewhat in 2022 Q1 but will subsequently slow due to high inflation and the war in Ukraine

annual GDP growth in %; contributions in pp; seasonally adjusted

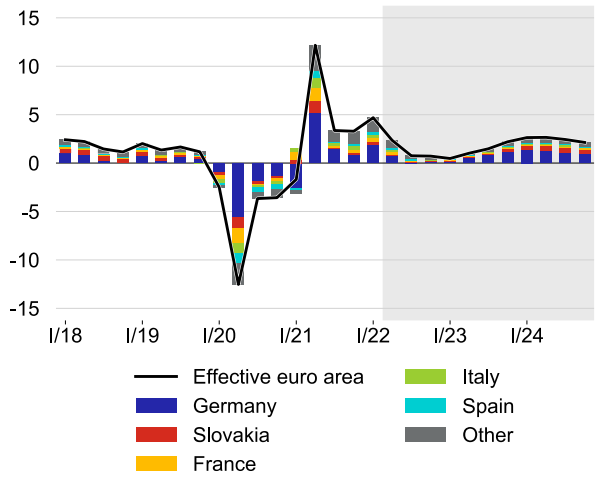
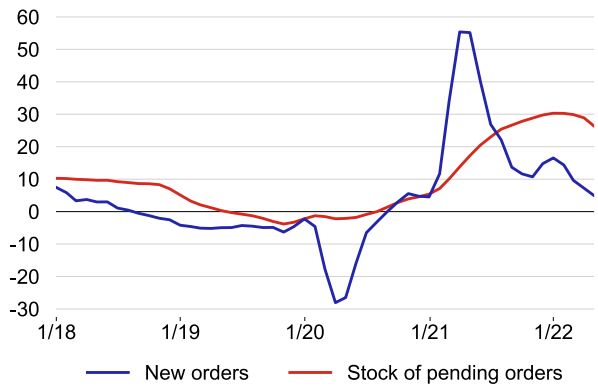


Chart I.4

The stock of pending orders in German industry from the Covid period is beginning to decrease

y-o-y changes in %; source Bundesbank, Eurostat



1 According to Eurostat's flash estimate, GDP in the effective euro area rose by 0.2% quarter on quarter and by 2.5% year on year in 2022 Q2. This figure is not included in the forecast, as it was released after the closing date of the latter.

2 A brief shallow recession in late 2022 and early 2023 cannot be completely ruled out.

Inflation in the production sector is being driven mainly by further growth in gas and electricity prices, but concerns of a recession have lowered the outlook for prices of oil, metals and some foodstuffs

Russia's invasion of Ukraine and the subsequent EU sanctions against Russia triggered further sizeable growth in prices of some energy commodities. Gas prices rose in particular (see Chart I.5) and are expected to go up further at the close of this year. This increase was due partly to a strike-related fall in gas supplies from Norway and to problems at a liquefied natural gas export terminal in Texas. However, there are realistic concerns that natural gas supplies from Russia could be halted completely.[3] Electricity prices went up similarly, reflecting the high gas price and outages at French nuclear power stations. The latter will partly persist during next winter. By contrast, the Brent crude oil price outlook shifted lower (by more than USD 10 a barrel in the short term) and remains sharply falling. This is due to concerns that some countries could slip into recession as a result of forceful interest rate hikes by major central banks, which would reduce oil demand markedly. The situation on the physical oil market is nonetheless still extremely tight, as demand remains strong, the OPEC+ countries are unable to meet their agreed supply quotas and Russia's problems with exporting oil to Europe are likely to escalate.[4]

Growth in prices of other industrial commodities and persisting stress in global supply chains, which is visible in core producer price inflation, are also passing through to inflation (see Chart I.6). Industrial producer price inflation in the effective euro area will exceed 30% on average in 2022. It will slow markedly next year due to an expected decline in commodity prices and easing of supply chain stress. It will even turn slightly negative in 2024.

The high energy and food prices are also being reflected in growth in consumer prices in the effective euro area. Inflation increased to 9.1% in June, driven predominantly by these two items. Energy prices alone rose by almost 40% year on year. Higher core inflation is also contributing to the high headline inflation, mainly as a result of supply chain disruptions and the pass-through of the high energy prices to other price categories. However, inflation in the effective euro area

Chart I.5

Gas and electricity prices will go up again in late 2022, but the Brent crude oil price should drop

energy commodity prices; index: 2018 = 100; source Bloomberg, CNB calculation

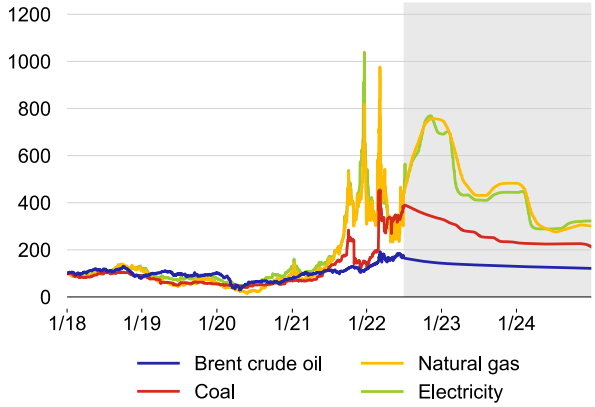
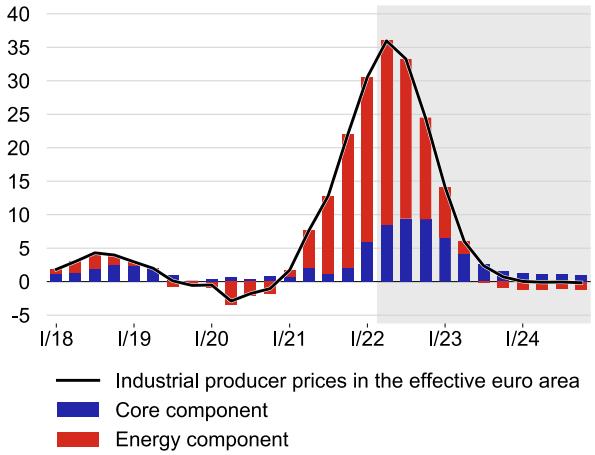


Chart I.6

The current extraordinary price growth in industry abroad is being driven mainly by the energy component, i.e. by rising prices of gas and electricity, but the contribution of the core component is also increasing

annual industrial producer price inflation in effective euro area in %; contributions in pp



Note: Besides oil, the energy component also includes gas and electricity from 2021 Q3 onwards.

Liquefied natural gas *(LNG) enables natural gas to be transported long distance between locations where pipelines cannot be built. Typically, extracted natural gas is transported by pipeline to a shore terminal, where it is cooled to the liquid state in a liquefaction line. This substantially reduces its volume. It is then pumped into special highly insulated tankers, which keep it cool and ship it by sea. At the destination port, the LNG is transferred into storage tanks. It then enters a regasification terminal, where it is vaporised into gas pipelines and distributed to its final destination. The process is demanding in terms of investment, technology and energy.*

3 One of the assumptions of the baseline scenario of the forecast is that gas supplies from Russia will resume in late July following the planned outage of the Nord Stream 1 pipeline. The opposite case is described in the *Scenario of a complete and permanent halt in energy commodity supplies from Russia to the EU* in the Appendix to this Report.

4 A package of sanctions was adopted in June 2022 prohibiting, among other things, the purchase, import and transfer of crude oil and some oil products from Russia to the EU. The restrictions are to be phased in over six months in the case of crude oil and over eight months in the case of refined oil products. Some EU countries are temporarily exempt from the ban on crude oil supplies by pipeline.

will peak in the summer and then start to come down. Average inflation will thus be 8.2% this year, slowing to 3.9% in 2023 and less than 2% in 2024.

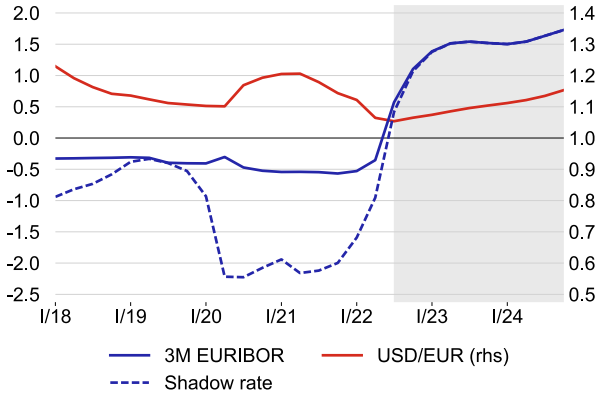
The ECB is starting to tighten its monetary policy, but the key rate in the euro area will be lower than that in the USA

ECB monetary policy is lagging behind the US Fed's actions. Coupled with the economic uncertainty, this is causing the euro to depreciate towards parity against the dollar. However, the outlook is for renewed slight appreciation of the euro. The ECB kept its key rate unchanged at its June meeting, but the markets reacted to its communications and the 3M EURIBOR market outlook rose, especially for 2023 (see Chart I.7). In addition, the ECB ended net purchases under the Asset Purchase Programme (APP) as of 1 July 2022. As a result, the shadow rate will soon converge to the 3M EURIBOR market rate. At its July meeting, the ECB raised rates by 0.5 pp. Its deposit rate thus left negative territory after more than eight years. The market expects another 0.5 pp hike at the September meeting. The ECB is also facing the risk of market fragmentation, as the differentials between yields on German bonds and those on the bonds of southern euro area countries (Italy in particular) are widening. At its July meeting, the ECB therefore also introduced a new instrument to support effective monetary policy transmission (the Transmission Protection Instrument, TPI). The ECB has the discretion to activate this purchase programme without strictly defined criteria.

Chart I.7

The market outlook for rising interest rates reflects the ECB's expected reaction to the increasing inflation pressures

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



COMPARISON WITH THE PREVIOUS FORECAST: Economic developments abroad

		2022	2023	2024	
GDP (in the effective EA)	y-o-y changes in %	**2.1**	**1.3**	**2.5**	The economic growth outlook for late 2022 and early 2023 is worse because of faster depletion of pandemic savings amid higher energy prices than previously expected.
	pp	(0.1)	(-1.5)	-	
Consumer prices (in the effective EA)	y-o-y changes in %	**8.2**	**3.9**	**1.8**	The consumer price inflation outlook is higher mainly because of stronger growth in food prices and longer-lasting stress in global distribution chains.
	pp	(0.3)	(1.0)	-	
Producer prices (in the effective EA)	y-o-y changes in %	**30.9**	**5.6**	**-0.1**	The higher producer price outlook reflects outlooks for higher energy commodity prices and a weaker euro against the dollar coupled with longer-lasting supply chain disruptions.
	pp	(3.2)	(2.5)	-	
Brent crude oil price	USD/barrel	**103.1**	**90.3**	**83.4**	The oil price outlook remains sharply falling; the decrease next year reflects a larger global growth slowdown.
		(2.6)	(-2.2)	-	
3M EURIBOR	%	**0.2**	**1.5**	**1.6**	The expected 3M EURIBOR market interest rate is higher due to the stronger reaction to the faster-rising inflation announced by the ECB.
	pp	(0.3)	(0.4)	-	
Exchange rate	USD/EUR	**1.08**	**1.09**	**1.13**	The outlook for the euro-dollar exchange rate is slightly weaker on account of faster monetary policy tightening in the USA and greater concerns about the economic situation in Europe.
		(-0.03)	(-0.04)	-	

Note: Changes compared to the previous forecast in brackets (a green label indicates an increase in value or a shift to a weaker dollar, while a red label indicates a decrease in value or a shift to a stronger dollar)

II. THE REAL ECONOMY AND THE LABOUR MARKET

GDP growth will slow this year in whole-year terms. Domestic economic activity will even decline year on year at the year-end and fall quarter on quarter already in the summer. This will be due largely to a drop in household consumption owing to a decline in real household income caused by rapid growth in living costs. In an environment of great uncertainty, firms will rein in investment because of a worse financial situation reflecting a further rise in prices of energy, commodities and materials, and also due to subdued domestic demand. The latter will prevent them from passing their rising costs to prices as strongly as before. As a result of a noticeable slowdown of demand in the euro area and persisting problems in value chains, Czech exports will remain temporarily subdued and firms will be forced to make increased additions to inventories. However, the contribution of net exports to economic growth will be slightly positive this year due to a noticeable cooling of domestic demand. The overheating of the Czech economy will subside quickly this year. The labour market tightness will ease somewhat further because of subdued growth in domestic economic activity and the continued integration of Ukrainian refugees into the labour force. The unemployment rate will remain very low, though slightly rising. Following a temporary slowdown, fundamental wage growth will pick up again in the second half of 2022 but will lag behind growth in inflation until mid-2023.

Czech economic growth will be dampened in the coming quarters by a deterioration in the sentiment and financial situation of Czech firms and households along with persisting problems in global value chains exacerbated by the war in Ukraine

The persisting problems in global value chains are being felt strongly in the industry-oriented Czech economy. Moreover, they have been exacerbated by the war in Ukraine, the introduction of sanctions against Russia and the related severing of many trade links. Material shortages – mostly in industrial production – will hold back the economy in the second half of this year, too (see Chart II.1). The forecast assumes that the problems in global value chains will ease gradually and disappear entirely in mid-2023.

GDP growth will slow to 2% this year in whole-year terms (see Chart II.2).[5] In 2023, it will decrease further to around 1%, and in 2024 it will pick up to 4%.

Household consumption will decrease this year due to a sharp decline in households' real income and sentiment, with higher interest rates also contributing

Household consumption will start to fall in year-on-year terms in 2022 Q2 (see Chart II.3). The current adverse

Chart II.1

Material and component shortages continue to significantly limit domestic industrial production

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

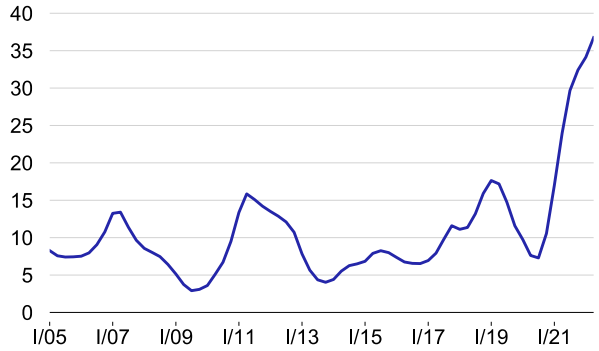
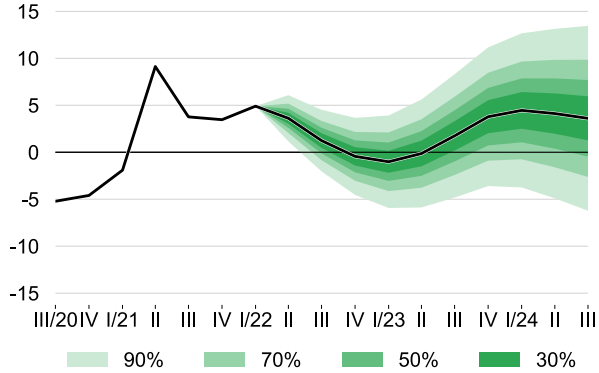


Chart II.2

The economy will contract in the second half of 2022 and start to grow again next year

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



5 According to a preliminary CZSO estimate, Czech GDP increased by 0.2% quarter on quarter and 3.6% year on year in 2022 Q2. This is in line with the CNB forecast. This figure was published on 29 July 2022.

consumer appetite[6] will worsen further owing to the falling purchasing power of households. Fast-growing essential housing-related expenditure (especially on energy) will meanwhile drain the last remaining forced savings created by households during the pandemic, or the part thereof earmarked for spending in the form of deferred consumption (see Chart II.4). However, households already spent most of these "Covid" savings last year, and another part in the first half of this year. This dampened the effect of the drop in real income (see Chart II.5). Household spending will also be hampered by higher interest rates. Household consumption will decrease sharply in whole-year terms this year.

Growth in households' nominal gross disposable income will be driven this year primarily by the contribution of wages and salaries (see Chart II.6), which reflects still strong demand on the labour market. Another increase in pensions and a range of fiscal support measures, such as an energy-saving package, will also help maintain a brisk pace of growth in households' income.

However, real household income will decline until mid-2023 due to high inflation. Real consumption will thus also fall year on year in the first half of 2023. The financial situation of households will improve as inflation drops significantly and wage growth picks up. This will lead to renewed growth in private real consumption. It will decrease slightly in 2023 as a whole due to a weak first half of the year, and increase again in 2024.

The saving rate will quickly fall to its pre-pandemic level

The improvement in consumer sentiment in 2021 due to the post-Covid opening of the economy led to a gradual decline in the saving rate. The saving rate will continue to fall owing to spending of the rest households' forced savings, partly on higher energy bills. The saving rate will thus decrease roughly to its pre-Covid level during 2022. It will stay there for the rest of the forecast horizon.

A slowdown in external demand and persisting, war-exacerbated shortages of components and materials will be reflected in subdued export growth and high additions to inventories this year

The export-oriented part of the domestic economy (especially the automotive industry) continues to face problems with supplies of inputs (see Chart II.1). These difficulties intensified further at the start of this year after the outbreak of the war in Ukraine, the related

Chart II.3

Household consumption will decline until mid-2023, while government consumption will conversely rise steadily

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

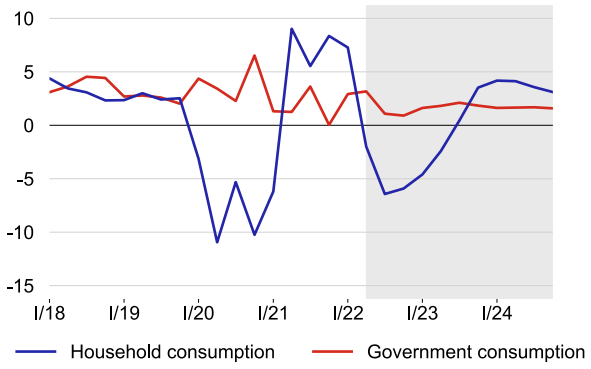
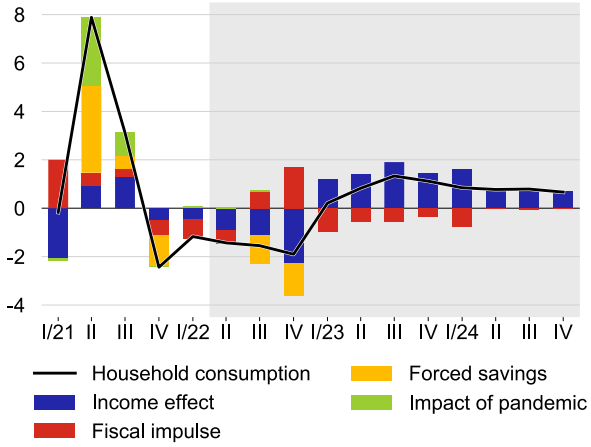


Chart II.4

Household consumption will be adversely affected this year by a sharp fall in households' real income and by depletion of forced savings

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



Note: "Income effect" reflects real income (including wages and salaries) and energy commodity prices. "Impact of pandemic" embodies the effect of shutdowns and the subsequent reopening of the economy and the return to normal consumer behaviour, for example in terms of how often people go to the cinema, eat out and so on.

6 According to the July business cycle survey data, consumer sentiment reached a historical low. By contrast, business sentiment remains above the pre-pandemic level.

introduction of economic sanctions against Russia and the severing of most trade links between the EU and Russia. Moreover, Czech exporters cannot rely on any major redirection of their activities to new export territories this year, as growth in global demand will slow markedly. In addition, the promising, but fragile, recovery of tourism (exports of services) will slow on concerns of a global economic slowdown. This will be yet another blow to the industry after the impacts of the pandemic.

Under the national accounts methodology, export growth will also be boosted this year by spending by Ukrainian refugees in the Czech Republic, as they are deemed non-residents (de facto tourists) for these purposes. Their consumption in the Czech Republic is thus recorded as a Czech export, not as household consumption (as is the case with residents). The forecast assumes that their spending on a quarterly basis will increase to CZK 11 billion in summer 2022 and stay at this level over the rest of the forecast horizon.

Exports will recover quickly next year on the back of accelerating economic growth abroad (see Chart II.7). This recovery will also be fostered by the fade-out of the problems in global value chains, which will further support the export performance of the Czech economy. Exports will thus grow by more than 7% in 2023 and continue to rise briskly in 2024.

Despite the subdued growth in exports, the contribution of net exports to GDP growth will be slightly positive this year. Imports will weaken due to slower growth in import-intensive fixed investment and declining household consumption. The fall in imports will exceed that in exports. Next year, the contribution of net exports to growth will be strongly positive, owing to the aforesaid recovery in the export performance of the economy. The same will hold true in 2024 (see Chart II.7).

Growth in fixed investment was solid at the start of this year but will slow due to a cooling of external demand and a deterioration in firms' financial situation

The room for corporate investment to grow has been shrinking since last autumn due to rising input prices (of energy in particular). Fixed investment growth was solid at the start of the year, despite an almost flat gross operating surplus in year-on-year terms. This probably reflected the completion of investment realised after the Covid downturn and continued automation and robotisation of production.

The financial situation of firms will worsen in the second half of this year, again due mainly to rapidly rising energy prices. Investment in renewing and expanding production will be postponed on concerns of a distinct cooling of external demand growth and increased uncertainty linked with the ongoing war.

Chart II.5

The rest of the forced savings created by households during the pandemic will be used up quickly this year

households' consumer spending in CZK billions; constant prices; columns correspond to forced savings in Chart II.4

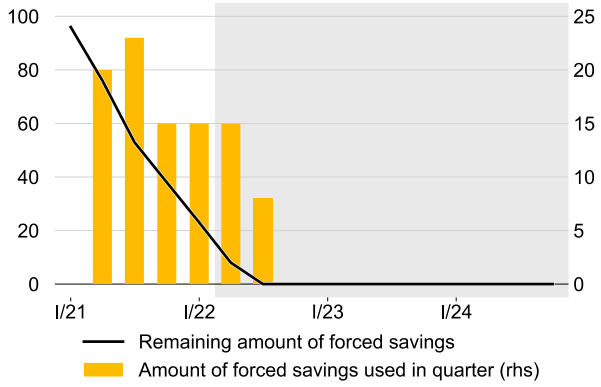


Chart II.6

Disposable income growth will slow this year, mainly due to smaller contributions of wages and salaries and entrepreneurs' income

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

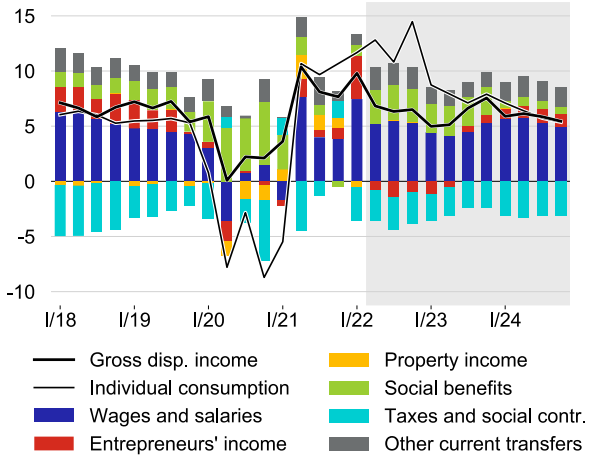
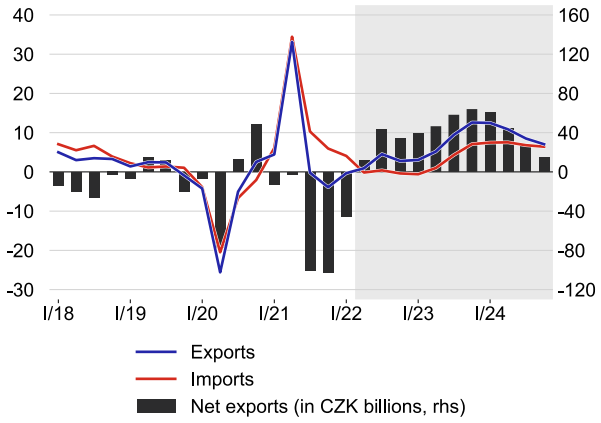


Chart II.7

Exports and imports will be subdued this year

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



Higher interest rates and persisting value chain disruptions will have the same effect, but it will gradually fade. Conversely, full order books in many firms and the above-mentioned long-standing need for automation, robotisation and digitalisation will initially stimulate investment activity. Overall, private fixed investment growth will be positive but gradually slowing this year. By contrast, government investment will be subdued in real terms throughout this year despite financial support from EU funds and NGEU programmes (see Chart II.8).

Growth in private fixed investment will increase next year as the difficulties in global value chains fade away and external demand picks up. Government investment will also rise substantially again, supported by absorption of EU funds and a purchase of military helicopters.[7] Total fixed investment will thus grow by around 4% next year. It will reach its steady-state level of 3% in 2024.

Additions to inventories will remain above their long-term level until mid-2023, amid continued bottlenecks on the supply side of the economy, and will fall only gradually (see Chart II.9). Firms will later be able to complete and export their forced stocks of unfinished products as the supply disruptions fade. Total gross capital formation growth will thus stay positive this year due to growth in fixed investment. It will later turn negative as the release of accumulated inventories picks up pace.

Fiscal policy will dampen GDP growth slightly this year as Covid support programmes are phased out, despite expenditure linked with the arrival of Ukrainian refugees and the energy-saving package

Real government consumption growth slowed significantly last year (see Chart II.3). This was due to the reduction and termination of pandemic-related spending, especially in health care. Real government consumption will increase by almost 2% this year in whole-year terms. Its continued growth will be fostered by an increase in health and education expenditure linked with the arrival of Ukrainian refugees. Moreover, nominal government consumption will reflect the expected increase in wages and salaries (see below for details).

The fiscal impulse will slightly dampen GDP growth this year (see Chart II.10). This will be due to the termination of many of the support programmes that fostered the economic recovery for most of last year. However, the restrictive effect associated with the phasing out of these programmes this year will be partly offset by a large number of measures on both the

7 The investment will amount to CZK 14 billion, distributed evenly across the whole of 2023.

Chart II.8

Persisting problems in global value chains will lead to still high additions to inventories and slower growth in private fixed investment in 2022; government investment spending will be volatile

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

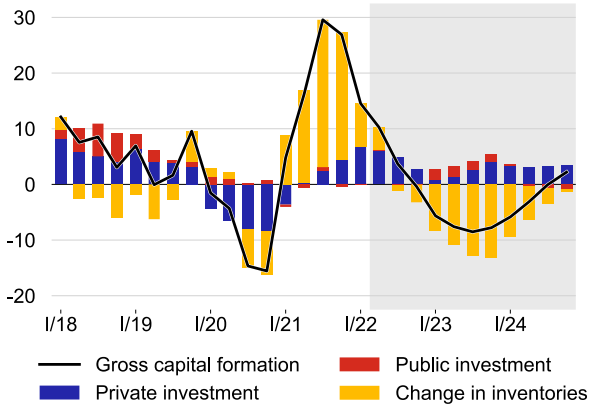


Chart II.9

Additions to inventories will remain at extreme levels until mid-2022 and then fall only gradually

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

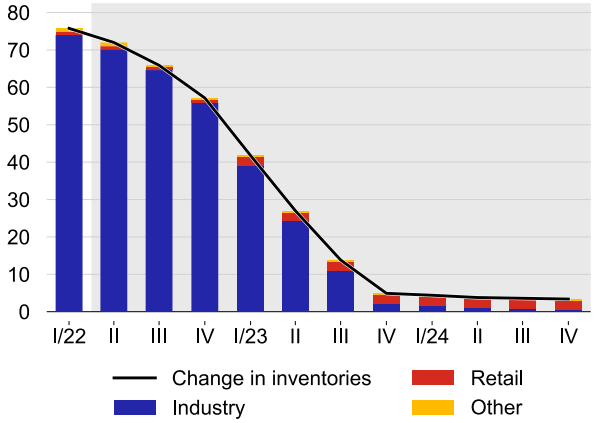
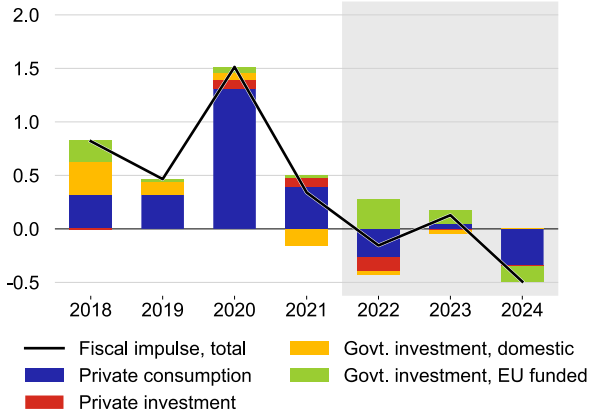


Chart II.10

Despite extraordinary refugee and energy crisis-related expenditure, fiscal policy will dampen GDP growth slightly this year due to the phasing out of Covid support programmes, and stimulate it slightly next year

fiscal impulse; contributions to GDP growth in pp



revenue and expenditure sides of public budgets.[8] The forecast includes approved assistance for households and firms related to the surge in energy prices.[9] These measures will be in place until next year, when the fiscal impulse will make a slightly positive contribution to GDP growth.[10] After they are ended, GDP growth will be dampened again – quite significantly – by the fiscal impulse in 2024.

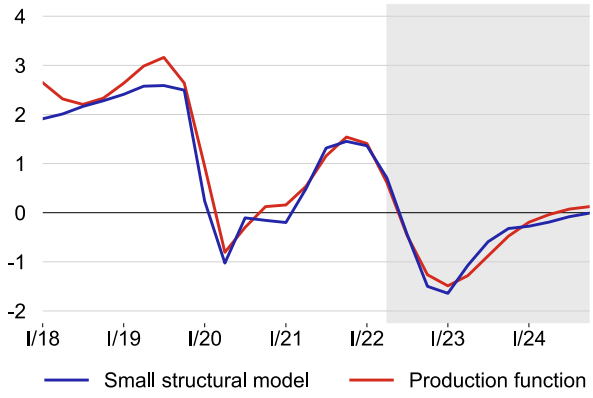
The previous overheating of the Czech economy will fade away quickly in the second half of this year

The economic slowdown this year will lead to rapid closure of the positive output gap, and the economy will then fall temporarily below its potential (see Chart II.11). All this will go on amid continued supply constraints, which will slow potential output growth this year. In the second half of 2023, after inflation drops sharply and domestic demand recovers, the economy will return to growth at a pace exceeding potential output growth as the problems in global value chains abate. The output gap will thus close from below during 2024.

Chart II.11

The previous overheating of the economy will fade away quickly in 2022 H2 and the economy will temporarily be below its potential

output gap in % of potential output



8 These include a further increase in the deductible bonus, an above-average increase in pensions in January, an increase in subsidies for renewable resources, faster absorption of EU funds, expenditure on assistance for Ukrainian refugees, a temporary decrease in excise duty on diesel and petrol and a reduction in road tax due to rising fuel prices, and a "family assistance package". It introduces a one-off benefit payment of CZK 5,000 for children in households with an annual income of less than CZK 1 million, faster payment of family allowance and support for part-time work and children's groups.

9 The energy compensation totals around CZK 65 billion. It includes a temporary waiver of the fee for renewable energy sources, the introduction of an energy-saving tariff for households for electricity, gas and home boiler rooms, support for central heating and subsidies for certain firms.

10 Over and above the energy package, the impulse is positively affected next year by an increase in the thresholds for both VAT registration and a flat-rate tax regime.

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

		2022	2023	2024	
GDP	y-o-y changes in %	**2.3**	**1.1**	**3.8**	The GDP growth outlook is higher for this year, due to better-than-expected figures at the start of the year, and significantly lower next year, due to a greater cooling of domestic demand.
	pp	(1.5)	(-2.5)	-	
Household consumption	y-o-y changes in %	**-2.0**	**-0.8**	**3.7**	The household consumption growth outlook is lower, due to a deeper decline in real wages and salaries and a greater deterioration in sentiment.
	pp	(-2.1)	(-2.7)	-	
Government consumption	y-o-y changes in %	**2.0**	**1.8**	**1.6**	The government consumption forecast is slightly higher for this year, due mainly to expected stronger growth in compensation of employees in the government sector, and unchanged for 2023.
	pp	(0.3)	(0.0)	-	
Gross fixed capital formation	y-o-y changes in %	**5.1**	**3.9**	**2.9**	This year's higher growth in investment activity reflects data revisions and more solid figures at the start of the year; next year the figure is lower due to weaker external demand.
	pp	(5.3)	(-0.6)	-	
Net exports	contr. to GDP growth	**0.7**	**3.5**	**2.4**	The contribution of net exports to GDP growth is slightly higher this year due to moderately higher exports and a bigger drop in domestic demand; next year it will conversely be smaller.
	pp	(0.2)	(-0.6)	-	
Employment	y-o-y changes in %	**1.1**	**0.7**	**0.8**	This year's lower growth in employment is caused mainly by the methodology (the effect of refugees from Ukraine is excluded); lower economic activity will have an effect in 2023.
	pp	(-1.3)	(-0.5)	-	
Unemployment (ILO)	%	**2.5**	**2.7**	**2.7**	The outlook for the general unemployment rate is almost unchanged.
	pp	(0.0)	(0.1)	-	
Average monthly nominal wage	y-o-y changes in %	**4.5**	**6.2**	**7.5**	The higher wage growth in 2023 reflects greater compensation for the drop in real income this year caused by higher and more persistent inflation compared with the spring forecast.
	pp	(-0.1)	(1.2)	-	

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

The tightness in the labour market will gradually ease further

From the perspective of the LUCI, the labour market remains slightly tight, i.e. just above its steady-state level, despite cooling gradually. This is mainly due to developments in its real part (see Chart II.12). Over the rest of this year, the tightness in the labour market will ease slightly further. The arrival of Ukrainian refugees and their partial integration into the labour force is a major factor behind this trend. This is reducing the excess demand for labour. The tightness in the labour market is also being reduced by a significant decline in real wages.

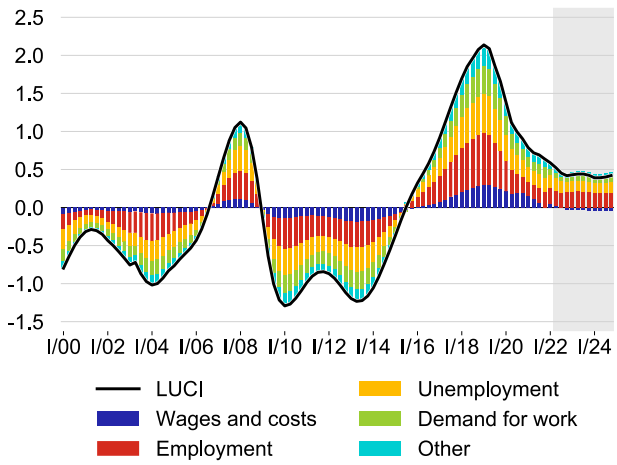
Real income will fall sharply, as nominal wage growth will lag well behind inflation

Wage growth in market sectors continues to be affected by one-off factors and base effects,[11] which

Chart II.12

From the perspective of the LUCI, the labour market will cool slightly further this year, but will remain strong

LUCI; vertical axis shows standard deviations



11 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 in 2021. 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,

make year-on-year wage growth highly volatile until mid-2022 (the statistical effects in the year-on-year growth will drop out fully at the start of next year). In terms of the economic interpretation of wage growth, it thus makes more sense to monitor estimated fundamental wage growth (see Chart II.13).

Inflation will not be significantly reflected in wage growth this year, despite still solid demand for labour in the first half of the year. Firms are facing high energy prices and also problems in global value chains, which have been exacerbated by the war in Ukraine. This is markedly reducing the room for growth in wages. The arrival of a large number of war refugees is fostering subdued wage growth. Ukrainian nationals entering the labour market are reducing the average wage through the composition effect, i.e. by taking jobs with mostly below-average pay.[12] The higher labour supply due to the refugees is meanwhile increasing competition. Wage growth will not start to rise markedly until 2023, when this year's drop in employees' real income will be partially "made up for" by firms as economic growth starts to recover again, the problems in global value chains subside and the war de-escalates. The forecast also assumes a CZK 1,000 increase in the minimum wage on 1 January 2023 following tripartite negotiations.

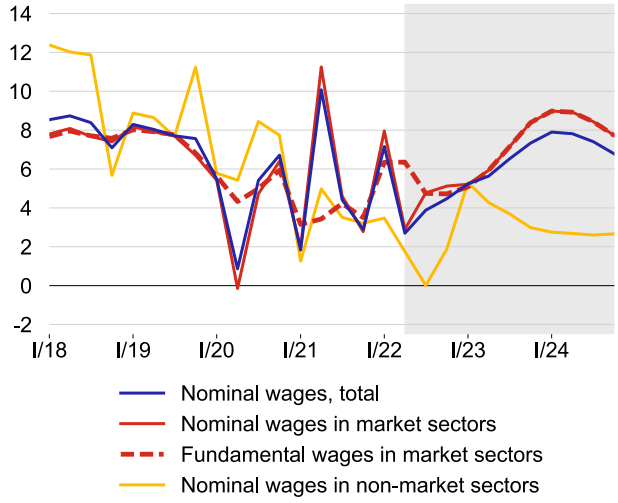
Wages in non-market sectors will grow at a slower pace in the years ahead than they did before the pandemic. According to the state budget, salaries of teachers will rise by 2% and wages of employees of integrated rescue system units and social services workers will go up by a flat amount of CZK 700 in 2022. The forecast also takes into account the probable increase of 10% in the wages of the lowest-income workers in the first salary category (non-teaching staff in education, non-civil service employees, culture workers, etc.). This is expected to take effect on 1 September 2022 and involve around 300,000 workers. Wages of all other government employees should be frozen until the end of the year. For 2023, the forecast expects a modest increase across the board, in line with the available information.

Growth in the volume of wages and salaries is also being affected by the arrival of Ukrainian nationals, as the wage bill is being pushed up by an increase in the full-time equivalent number of employees.[13] In real terms, the volume of wages and salaries will drop

Chart II.13

Fundamental wage growth will accelerate significantly in the years ahead and thus partially make up for the previous real decline

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.*

—

extraordinary "Covid" bonuses were paid in the health care sector in spring 2021 (similarly as at the end of 2020 and 2021). These effects were visible mainly in 2021 Q2, when year-on-year wage growth in market sectors as recorded in the statistics surged due to the unwinding of negative statistical effects from 2020 combined with the payment of the aforementioned extraordinary bonuses in health care.

12 The position of Ukrainians on the Czech labour market was discussed in a box in MPR – Spring 2022.

13 The above-mentioned effect of a lower average wage of Ukrainian workers will conversely have a dampening effect.

sharply in 2022 (see Chart II.14). This will be due to nominal wage growth lagging well behind inflation. The real wage volume will start to rise again as inflation gradually falls in the first half of next year, the global value chain problems disappear and the energy crisis abates. This will boost household consumption.

Employment will continue to rise, with the growth decreasing only slightly owing to subdued economic activity

Employment will continue to rise moderately this year, amid continued solid demand for labour (see Chart II.15). In terms of structure, the growth in total employment will be driven mainly by a rising number of employees, although the number of entrepreneurs will also go up gradually. Despite a slight fall in economic activity, firms will not lay off staff massively, as they will prefer to retain even less productive employees rather than incurring high recruitment costs again later on. The arrival of Ukrainian nationals will not be reflected in the LFS statistics, as the nature of this survey practically precludes this.[14] Some high-frequency and leading indicators[15] and the European Commission survey are also indicating a rise in employment in the coming months. However, the increased supply of labour has led to a change in the behaviour of employers, who are reporting far fewer new job vacancies at labour offices than they did in the past. The general unemployment rate will be broadly flat this year. It will start to rise slightly at the end of the year, but will stay very low both from the historical perspective and by international comparison. This trend will continue in the years ahead. The forecast also expects a similar trend in the share of unemployed persons.

Chart II.14

Growth in the real volume of wages and salaries will be deeply negative in the coming quarters due to high inflation and will thus lead to subdued growth in household consumption

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

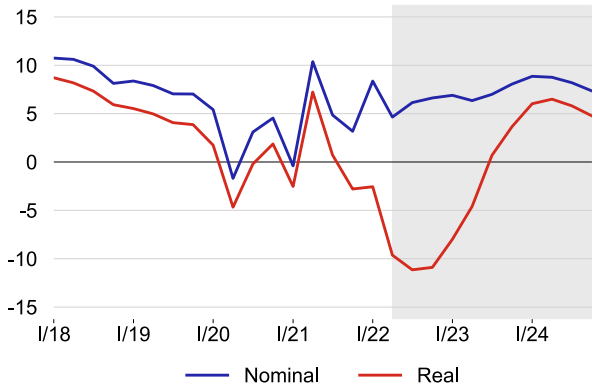
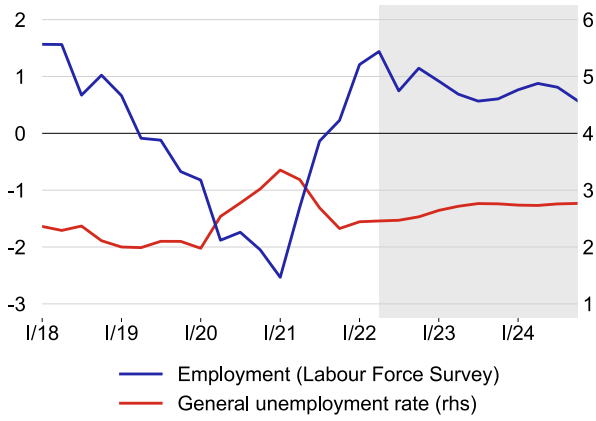


Chart II.15

Migration from Ukraine will not be reflected in employment and unemployment statistics, so employment will reflect still solid labour demand and the unemployment rate will grow only marginally

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



14 The LFS is conducted in the form of interviews in households and at other accommodation facilities. The frequency of contact with foreign respondents is much lower than that with Czech ones.

15 The Google Trends scores for "unemployment" and "unemployment benefit" are relatively low. The ManpowerGroup index of expected employment is at a historical high.

III. INFLATION

Inflation will rise further in the summer and average around 20% in Q3, with all its components contributing significantly to the increase. Core inflation will continue to reflect strong producer price inflation both at home and abroad and peaking domestic demand pressures. Rapidly rising housing-related energy bills will be reflected in a further unprecedented increase in administered price inflation. Strong growth in agricultural commodity prices will cause food prices to rise further. The record-high cost pressures, driven by both import prices and the domestic economy, peaked in 2022 Q2. The overall inflation pressures will diminish over the rest of the year, due in part to the previous tightening of monetary policy. The currently high growth in import prices will fade out, wage growth will not escalate, and the margins of producers, retailers and service providers will fall. Next year, the cost pressures will ease further, with most components contributing, and inflation will be quickly falling. The previous increases in interest rates will also contribute substantially to the drop. In 2024, both headline and monetary policy-relevant inflation will decrease close to the CNB's 2% target.

The strong overall cost pressures peaked in the spring but will remain exceptionally high for the whole of this year; they will ease as the rapid growth in import prices subsides

Growth of total costs in the consumer sector rose significantly in 2022 Q2, due mainly to a further pick-up in growth in import prices (see Chart III.1). The strengthening contribution of energy import prices primarily reflected a further rise in gas and electricity prices on international exchanges. The contribution of the core component of import prices also increased, owing to rising growth in core foreign producer prices. Its increasing pace reflected the persisting problems in global value chains. Unlike in 2022 Q1, foreign producer price inflation was not dampened by appreciation of the koruna. The koruna remained broadly stable; this, too, contributed to the higher growth in import prices and total costs. The domestic economy also continued to contribute substantially to the high growth in costs.

The still accelerating and exceptionally strong cost pressures will start to ease in the second half of this year. This will be due to lower growth in import prices and prices of domestic intermediate goods. The cost pressures will decrease further next year, as their growth will start to be gradually dampened by a negative contribution of energy import prices linked with an expected partial correction of the high prices on commodity exchanges. However, a more pronounced drop in costs will be prevented by a slight upswing in core import price inflation in the first half of 2023 caused mainly by the previous depreciation of the koruna. Growth in core import prices will slacken again in the second half of 2023 as the koruna-euro exchange rate stabilises. This will contribute to a further slowdown in the growth rate of total costs, which

Chart III.1

The strong growth in cost pressures in Q2 was driven mainly by import prices; however, growth in costs will gradually slacken, with most components contributing to the slowdown

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

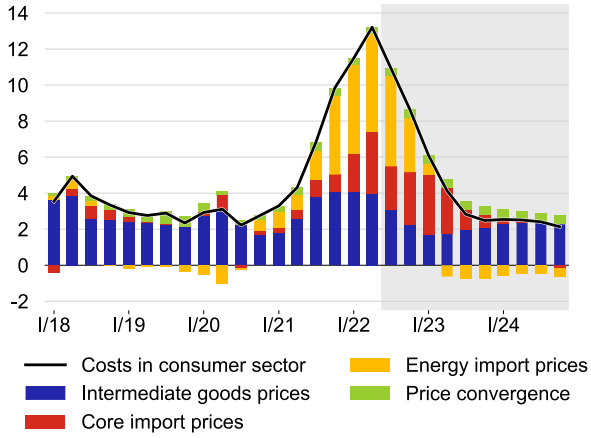
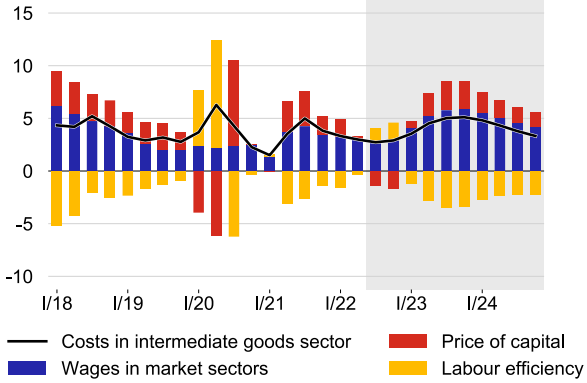


Chart III.2

Domestic cost pressures will ease this year but will strengthen again next year, due mainly to accelerating wage growth

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



will converge to 2% from above at the end of 2023 and stay at that level in 2024.

Domestic cost pressures eased in the first half of this year but will start to strengthen next year

The gradual slowdown in growth in domestic costs (see Chart III.2) was due in part to a temporary drop in wage growth. Moreover, the positive contribution of the price of capital decreased markedly because of the cooling of economic activity in 2022 Q2. Growth in labour efficiency meanwhile slowed.

Domestic cost pressures will remain broadly stable in the second half of this year. Wage growth will stay solid. The contribution of the price of capital will turn negative due to a marked quarter-on-quarter decline in economic activity caused mainly by falling domestic demand. A deterioration in labour efficiency will conversely have an inflationary effect. The negative contribution of the price of capital will increase even slightly further as economic activity drops again, because of a sizeable decline in real household income amid rising housing costs and high inflation.

The contribution of wages to growth in domestic costs will strengthen gradually in 2023 due to efforts to make up at least partly for this year's drop in real income. Wage costs will also reflect the assumed CZK 1,000 increase in the minimum wage on 1 January 2023. The contribution of the price of capital will turn inflationary again at the start of next year, amid renewed economic growth and an improving situation in industry. Growth in labour efficiency will also resume and start to reduce the cost pressures again. The economy will stabilise in 2024 following the recovery next year. This will lead to domestic cost pressures gradually decreasing towards their steady-state level.

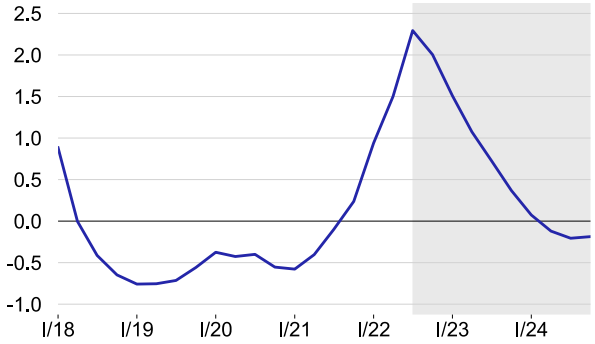
The inflationary effect of the gap in mark-ups affected by domestic demand will start to subside in the autumn due to the previous monetary policy tightening

Domestic demand pressures will push prices up further until the autumn as the positive gap in mark-ups in the consumer sector increases even further in the short run (see Chart III.3). Fading solid domestic demand, supported by the use of the remaining forced savings and a still strong labour market, will enable domestic producers, retailers and service providers to increase their prices in excess of the growth in their costs. However, the gap in mark-ups will start to close at the end of this year. This will be due to a considerable cooling of consumption, which will reflect the fall in real income and the previous tightening of monetary policy. Increased domestic interest rates will suppress consumer appetite, and retailers will have to gradually lower their profit margins back to the usual level amid lower demand. This will help slow inflation.

Chart III.3

The highly positive gap in mark-ups will start to close quickly as domestic demand cools, aided by the previous tightening of monetary policy

gap in mark-ups on consumer goods in %

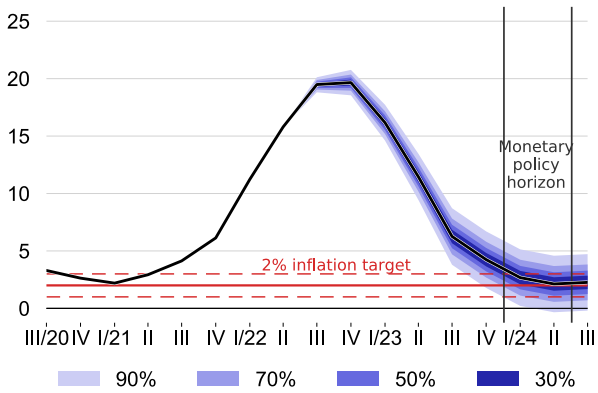


***Mark-ups in the consumer sector** represent the difference between the prices and marginal unit costs of producers of final consumer goods. The gap in mark-ups shows the deviation of current mark-ups from their steady-state level. A positive gap in mark-ups thus implies a higher-than-usual "profit margin", while a negative gap represents a lower-than-usual one. If the gap increases (decreases) over time, it gives rise to an additional inflationary (anti-inflationary) effect, i.e. upward (downward) pressure on consumer prices going beyond the increase (decrease) in costs.*

Chart III.4

Inflation will approach 20% in 2022 Q3 and Q4 and then start to fall, returning close to the 2% target in the first half of 2024

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



Note: In this forecast, the monetary policy horizon is shifted two quarters into the future, i.e. 18–24 months ahead (previously 12–18 months ahead). It is therefore located in the first half of 2024.

Inflation will accelerate significantly further in 2022 Q3; it will return to single digit readings in the second half of next year

Besides further growth in core inflation, strengthening growth in administered prices and food prices will foster growth in headline inflation (see Chart III.4). The growth in fuel prices will meanwhile subside only gradually. Headline inflation will thus increase to 20% on average in Q3 (see Chart III.5).

Within core inflation, there is significant growth in prices of tradables and especially non-tradables, in which imputed rent still plays a big role

Core inflation rose further in Q2, owing to rising growth in prices of goods and especially services. It will accelerate further in Q3 (see Chart III.5). This will be due to both a significant rise in costs (mainly energy ones) and a summer increase in prices of (mainly foreign) package holidays, which are in great demand among Czech households following two years of Covid.

The contribution of imputed rent (see Chart III.6), which has a relatively large weight in the national consumer price index, is an important item of core inflation. The high growth in imputed rent reflects continuing sharp year-on-year growth in prices of new properties (of almost 30% in 2022 Q1) and high growth in prices of construction work and materials. Growth in construction work prices reached almost 13% in June. This was due in large part to the global value chain difficulties, which are giving rise to shortages of building materials and subsequent growth in their prices, which reached almost 26% in June. According to the latest available data, these cost pressures, combined with strong demand for construction output, led to high growth in housing prices (prices of new and existing apartments and houses, including land) of almost 25% in 2022 Q1.[16] This growth will start to slow in the second half of the year, due mainly to an increase in mortgage interest rates.

Core inflation will remain very high in Q3, due to only slowly fading growth in industrial producer prices abroad, which is spilling over noticeably into domestic industrial and consumer prices. Core inflation will start to decline gradually at the end of this year and return to 2% in the first half of 2024, aided by the previous tightening of domestic monetary conditions.

Administered price inflation will rise further due to continued growth in energy prices

Administered prices will rise further in the quarters ahead on the back of a further increase in exchange prices of energy, whose growth to levels unseen until recently is also being fostered by Russia's invasion of

16 Measured by the CZSO House Price Index.

Chart III.5

The escalating price growth will continue to be dominated by core inflation, but growing contributions of administered prices and sharply rising food prices will also play a significant role

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

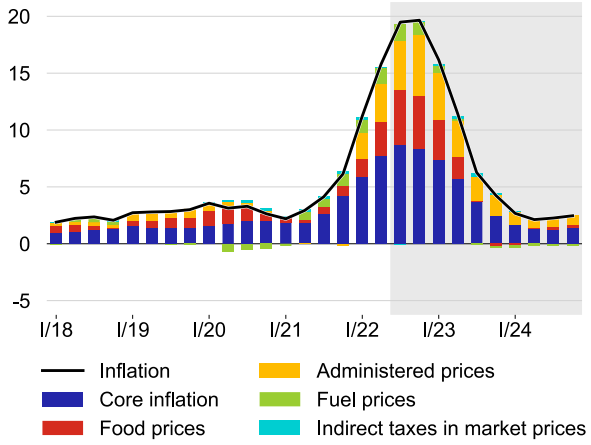


Chart III.6

The strong contribution of imputed rent will start to decrease gradually in the second half of this year due to base effects and the previous interest rate increases

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

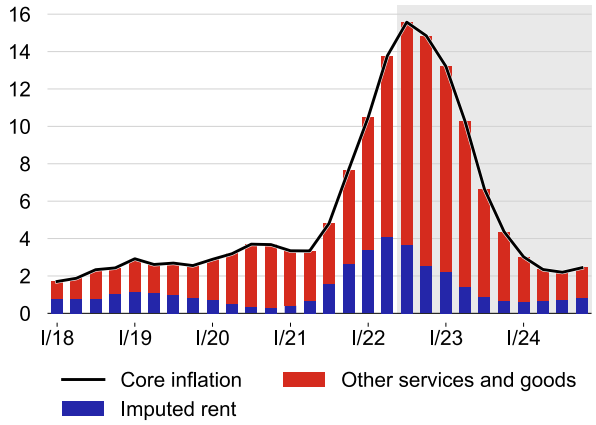
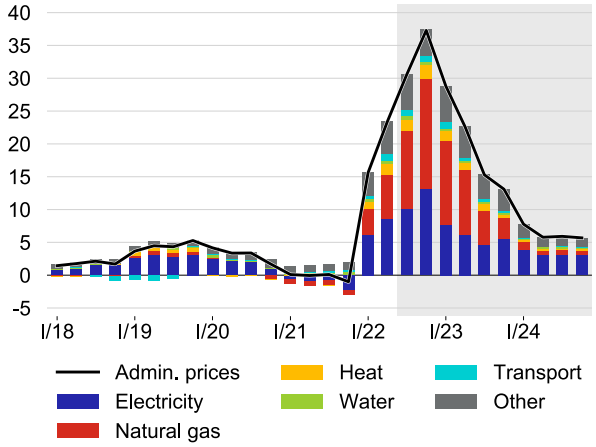


Chart III.7

Administered price inflation will be extremely high this year and the next and will remain elevated in 2024 even after falling sharply

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



Ukraine. In particular, housing-related energy (electricity, natural gas, heating) will continue to get more expensive within domestic administered prices. Overall, administered price inflation will exceed 30% in Q3 (see Chart III.7). It will slow slightly in October due to a waiver of the renewable sources fee.[17] Despite that, it will peak at almost 40% at the end of the year on account of base effects caused by a temporary waiver of VAT on energy last year. In 2023, administered price inflation will slow but remain high due to the gradual pass-through of the previous growth in prices on energy exchanges.

Growth in food prices will peak at the turn of summer and autumn

The sharp growth in food prices is being driven mainly by still high world agricultural commodity prices and soaring domestic agricultural producer prices. This is going on amid rising energy costs, which producers must face. Strong global demand, along with supply-side constraints, is being reflected mainly in high prices of crop products, particularly cereals and oilseed. This is also leading to growth in domestic agricultural and food producer prices. A significant rise in prices can be expected across all food categories in the summer months. It will be fostered in part by the situation in Ukraine, which is one of the leading grain and oilseed exporters. The surging food price inflation will peak at the turn of summer and autumn (see Chart III.5). It will slow distinctly in 2023, owing to an expected correction of world agricultural commodity prices, and turn negative at the end of 2023.

Fuel price inflation will be high throughout this year

Fuel prices (adjusted for a temporary decrease in excise duty; see below) increased by more than 50% year on year in June owing to the high oil prices. They then started to go down in July. However, their year-on-year growth will remain high throughout this year but will decrease gradually as global oil prices fall. Prices at filling stations will decrease year on year in the second half of 2023.

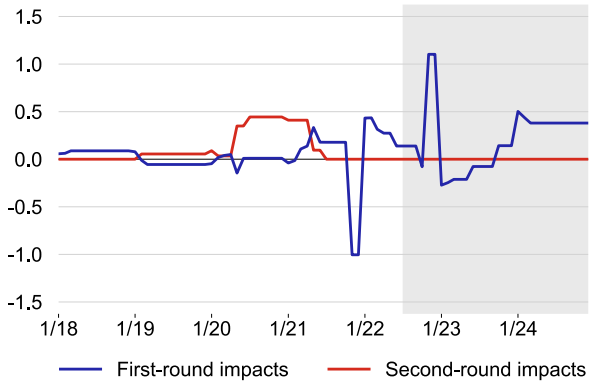
The gap between headline and monetary policy-relevant inflation will widen at the end of this year

Changes to indirect taxes will affect consumer price inflation in both directions. Excise duty on tobacco was increased again in January this year. A reduction in excise duty on petrol and diesel of CZK 1.50 a litre (currently valid from June to September 2022) leads to a temporary negative contribution of changes to indirect taxes to inflation of 0.14 pp (see Chart III.8). The

Chart III.8

The first-round effects of changes to indirect taxes will reflect changes in excise duty on tobacco and fuel, the base effect of the waiver of VAT on energy at the end of 2021 and the waiver of the renewable sources fee from this autumn onwards

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



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

17 The waiver of the renewable sources fee was approved by the Czech government as part of an energy-saving tariff. It will be in effect from October 2022 until December 2023.

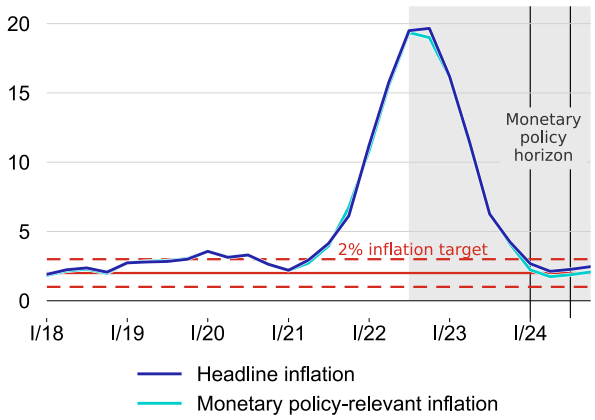
waiver of the fee for renewable energy sources will have the same effect from October onwards. The temporary waiver of VAT on electricity and gas in the last two months of 2021 will slightly widen the gap between headline and monetary policy-relevant inflation for a short time at the end of this year, due to base effects. Excise duty on cigarettes will go up by 5% at the start of 2023. These changes do not affect monetary policy-relevant inflation, so the CNB 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. The central bank usually ignores such changes, especially if, as in this case, they do not have clear long-term second-round effects on inflation.

Monetary policy-relevant inflation will fall close to the inflation target over the monetary policy horizon (18–24 months ahead, i.e. in the first half of 2024), due in part to the previous tightening of monetary conditions (see Chart III.9).

Chart III.9

Monetary policy-relevant inflation will decrease close to the 2% target at the monetary policy horizon; headline inflation will be at around the same level over the entire outlook

headline and monetary policy-relevant inflation; in %



COMPARISON WITH THE PREVIOUS FORECAST: Price developments

		2022	2023	2024	
Consumer prices	y-o-y changes in % pp	**16.5** (3.4)	**9.5** (5.4)	**2.4** -	The marked upward revision of the inflation forecast is due to all its components.
Administered prices	y-o-y changes in % pp	**26.7** (4.0)	**20.0** (12.7)	**6.3** -	The extremely large rise in the administered price outlook for 2022 and especially 2023 is due to higher energy price growth than expected in the previous forecast.
Core inflation	% pp	**13.7** (2.8)	**8.6** (4.5)	**2.5** -	Higher margins and faster growth in inflation abroad than expected in the previous forecast have moved the outlook for core inflation in the Czech Republic upwards markedly.
Food prices (incl. alc. bev. and tobacco)	y-o-y changes in % pp	**13.3** (3.8)	**4.9** (3.0)	**0.5** -	The food price forecast is higher due to stronger growth in global agricultural commodity prices and domestic agricultural producer prices.
Fuel prices	y-o-y changes in % pp	**41.4** (9.6)	**4.5** (3.4)	**-5.2** -	Fuel price inflation is much higher this year than in the spring forecast due to higher oil prices and a weaker koruna.

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

BOX 1 The breadth and intensity of Czech inflation in the European context

European and global inflation are breaking historical records but have likely yet to peak. The current growth in prices can probably only be compared to the decade of inflation that followed the oil price shocks of the 1970s or – in the case of the new EU Member States – to the growth in prices they experienced during their transition to a market economy in the 1990s. Although the current inflation is a global phenomenon, it varies visibly across countries. This box focuses primarily on Czech inflation in the European context. It aims to examine the differences in price growth more closely and offer possible explanations for them.[1]

While inflation in June reached double figures in 15 EU countries, including the Czech Republic (and even exceeded 20% in Estonia and Lithuania), it was still far below 7% in France and Malta and well short of 4% in Switzerland. Increased inflation can be the result either of a sharp rise in the prices of a small number of items, or of somewhat lower, but broad-based, price growth.[2] To what extent can the breadth of the rise in prices and, conversely, its intensity explain the current differences in inflation across countries?

The differences in breadth are obvious at first glance. On average only about one in five of the 256 items in the HICP consumer basket have risen in price by more than 10% year on year in the euro area, whereas the prices of more than half of the items are going up fast in the Baltic countries (see Chart 1).[3] Before Covid, the Baltic States were in a similar situation to the Czech Republic as regards the labour market, consumer demand, sentiment and the property market. Indeed, the Czech Republic is the infamous "winner" in terms of broad-based price growth, as almost two-thirds of the items in the Czech economy have gone up in price by more than 10%. At the other end of the scale are Switzerland and France, where the share of rapidly rising prices account for only around a tenth of the consumer basket items.

The intensity of the growth in prices of individual items also plays an important role. The year-on-year price growth in the main consumer basket categories in Chart 2 shows that inflation in the countries under review was driven up mainly by growth in housing, energy and fuel, transport and food prices. However, the rates of price growth in these categories vary widely across countries. Energy prices for Hungarian consumers, for example, have risen by less than 12% since June 2021, while Belgian consumers are now paying 65% more. However, headline inflation is comparable in the two countries because the price growth in Hungary is much more broad-based (more than half of items went up by 10% or more in Hungary, as against only one in six in Belgium). In terms of the intensity of inflation, the Czech Republic holds several "first places": in the area of hotels and restaurants (23.7%, i.e. almost 5 pp higher than Bulgaria in second place), in clothing and footwear (19.7%, i.e. some 8 pp higher than Croatia in second place) or in the recreation and culture category (12.2%, i.e. almost 2 pp higher than Poland in second place). None of these categories is directly associated with external

Chart 1

There are significant differences in the breadth of inflation across European countries

shares of items in the HICP consumer basket in %; data for June 2022; source Eurostat, CNB calculation

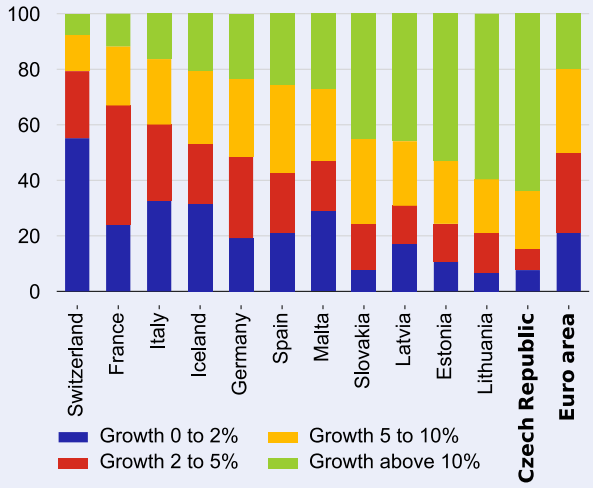
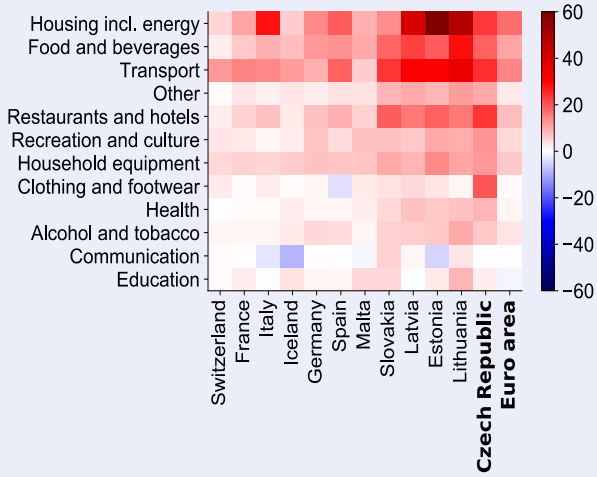


Chart 2

The intensity of the growth in prices of individual consumer basket categories also varies across European countries

year-on-year growth in %; data for June 2022; colour scale indicates intensity of annual inflation; source Eurostat



shocks. Growth in prices of food, transport and energy – all items directly affected by the commodity crisis exacerbated by Russia's invasion of Ukraine and supply chain disruptions – is only slightly above the European average in the Czech Republic, while for energy it is even below the average.

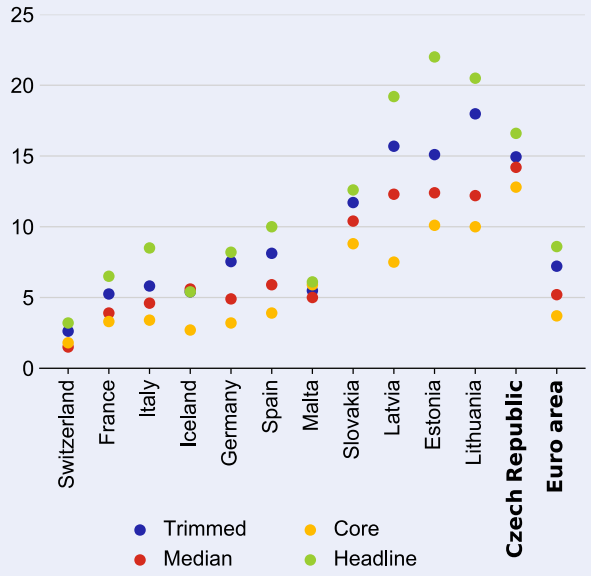
Another way to distinguish extraordinary price effects from the rate at which price growth permeates the economy as a whole is to look at indicators of underlying inflation. These indicators use various statistical techniques to adjust headline inflation for volatile factors and thus more faithfully illustrate the medium-term inflation trend. The three indicators of underlying inflation in the Czech Republic[4] shown in Chart 3 differ little from headline inflation. They thus clearly show that inflation in the Czech Republic cannot be attributed solely to extreme swings in the prices of a few volatile items. For the Baltic countries, by contrast, the difference between headline inflation and the other indicators is considerable. The clearest example is Estonia, where inflation is only about half as high after adjustment for extreme price fluctuations. Despite the fact that the Baltic countries have higher headline inflation than the Czech Republic, the price pressures from the depths of the economy are stronger in the Czech economy. Hence, unlike in some other European countries, it cannot be said that the Czech Republic is merely experiencing growth in energy or food prices. Prices are rising broadly across categories and HICP items. The Czech Republic has not only the highest core and median inflation in the EU, but also the highest services and durables inflation (excluding energy).

Explaining the international differences in the intensity of inflation is generally easier than explaining those in its breadth. For example, the same global shock of rising fuel prices led to different increases in energy prices for consumers in different countries. This is linked to the country's energy policy, the type of contracts concluded with fuel suppliers, the speed at which energy prices on exchanges pass through to retail prices, the ability of distributors to pass on costs to consumers, and of course government measures, which, by lowering indirect taxes or price caps, can directly influence prices for end customers.[5] The impact of growth in energy prices on headline inflation is also affected by the weight of energy in the consumer basket. Expenditure on energy represents only 5% of total household spending in Switzerland but a full 16% in Latvia. Similar differences are seen for food – the average Swiss household spends 16% of its total outgoings on food, while the average Latvian household spends 34%. A higher weight of rapidly rising items in the consumer basket naturally increases headline inflation in the country. The different intensity of the growth in prices may also be related to the initial price level. For example, there is a clear statistical relationship across countries between the 2020 price

Chart 3

While several volatile items are driving inflation in some European countries, the price pressures in the Czech Republic are broad-based

various inflation indicators; y-o-y in %; data for June 2022; source Eurostat, CNB calculation

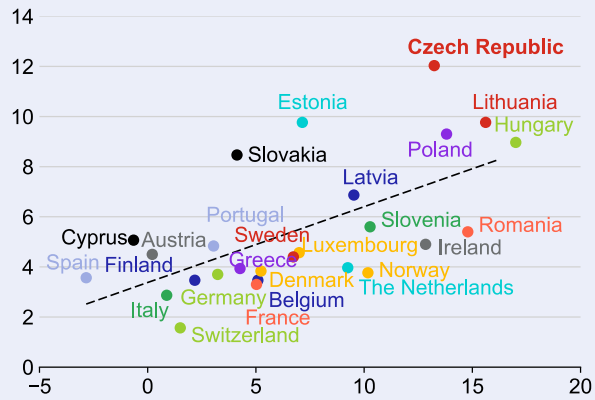


Note: Headline inflation is the HICP index. Core inflation is the HICP excluding prices of energy, food, alcohol and tobacco. The weighted median was used for median inflation. A trim of 10% was used for trimmed inflation.

Chart 4

Different household income growth during the pandemic explains one-third of the differences in current core inflation in European countries

horizontal axis: change in households' disposable income in 2021 relative to 2019 in %; vertical axis: harmonised core inflation in %; average for 2022 Q2; source Eurostat and ECFIN (Directorate-General for Economic and Financial Affairs)



Note: The coefficient of determination (R^2) of the linear regression is 0.32. This means that the independent variable on the horizontal axis explains one-third of the variability of the dependent variables on the vertical axis. Household disposable income data for 2021 Q4 is not yet available for some countries, so ECFIN estimates are used instead.

level and current inflation in restaurants and hotels, recreation and culture, for which the Czech Republic has the highest inflation in Europe.

The differences in the breadth of the growth in prices are more complicated, because they relate to the overall macroeconomic environment. Broader price growth generally signals a bigger role of demand-pull inflation pressures. However, data from the Czech national accounts show that Czech households' real expenditure on durable goods in 2022 Q1 had not yet exceeded the pre-Covid level. The same is true for many other EU countries.[6] The picture is similar for services prices, where we do not see a link between the growth in prices of services and the intensity of the increase in real expenditure on services across the euro area countries.[7]

An analysis of the variability in the month-on-month rates for the sub-components of inflation in European countries furthermore reveals that there is a relationship between the similarity of the evolution of those sub-components (lower variability) and the level of core inflation. Lower variability of price changes in the individual consumer basket items, which indicates broader-based inflation, is accompanied by a higher inflation rate on aggregate. This is also true for the Czech Republic, where core inflation is even higher than in countries with a comparable level of variability. This evidence suggests that the broader and more intense growth of prices of goods and services in the Czech Republic is not driven primarily by increased demand itself, but rather by the willingness of consumers to accept higher prices in an environment where the labour market is tight and households have forced savings and a solid income situation. After the pandemic shutdowns ended, firms apparently took advantage of this willingness to make up for their lost profits. They continue to be able to pass on their growing costs to customers, and are doing so to a greater extent than would be consistent with the intensity of the growth in their costs.[8]

Support for the above hypothesis can be found by looking at the income side of households' budgets instead of the expenditure side. Chart 4 shows that the difference in growth in households' disposable income during the pandemic years (2020 and 2021) across countries explains one-third (0.32) of the cross-country differences in current core inflation. A similar relationship can be found between the current core inflation in European countries and the intensity of growth in their government debt in 2021, or between core inflation and the lead of wage growth over labour productivity. Generous fiscal and monetary stimuli probably contributed to the tight labour market, with many otherwise non-viable firms not forced to lay off staff. The Czech Republic has the lowest unemployment rate and one of the highest labour force participation rates in the EU. At the same time, Czech fiscal policy last year was one of the most expansionary, and the rise in government debt relative to GDP was one of the steepest and most sustained.

The measured correlations should be interpreted with a high level of caution. They are, however, consistent with economic intuition, according to which the external cost shocks have spilled over to across-the-board demand-pull price shocks. This has occurred in particular in countries where governments provided the public with greater fiscal stimuli, households were in a more robust financial position after the pandemic, and a long-term tight labour market contributed to wages rising faster than labour productivity.

The domestic, and hence demand-pull, origin of the broad-based price growth in the Czech Republic confirms that the CNB's monetary policy response to date has been appropriate. However, in line with the forecast, many of the supply factors (commodity prices, tensions in global value chains, the labour market situation, developments in mark-ups) and demand factors (previous government fiscal measures, forced savings) driving up prices will probably subside. This will lead to a gradual decrease in inflation.

—

1 For the purposes of comparing inflation across countries, this box uses the Harmonised Index of Consumer Prices (HICP), which, unlike the national CPI indices, uses the same inflation calculation methodology across countries. Unlike the Czech CPI, the HICP does not include the cost of owner-occupied housing (homeowners' imputed/hypothetical rent).

2 The intensity and breadth of inflation in the Czech Republic was described in a box in MPR – Winter 2022.

3 The Czech Republic's five largest trading partners, the three countries with the lowest inflation and the three countries with the highest inflation were selected from all the countries under review (i.e. the European countries excluding Turkey) for the purposes of illustrative graphical comparison in Charts 1–3.

4 In the calculation of trimmed inflation, the individual items of the consumer basket are sorted by price growth. The size of the "trim" of the two tails of the distribution is then selected, and trimmed inflation is calculated from the remaining items. Median inflation is an extreme form of trimmed inflation, as it trims everything except the weighted midpoint of the distribution.

5 For example, the Hungarian government capped fuel prices last November and some food prices this February. Germany has slashed the cost of public transport (to EUR 9 a month) and cut fuel tax from June to August 2022. The Czech government has also dampened the rise in fuel prices by lowering excise duty on petrol and diesel by CZK 1.50 a litre from June (currently until September). A detailed and regularly updated overview of national measures, including tax changes, price regulation and other policies, can be found in Sgaravatti, G., S. Tagliapietra, G. Zachmann (2022), National policies to shield consumers from rising energy prices, Bruegel Datasets.

6 The situation was rather different in the USA, where final consumption of durable goods is currently well above the 2019 level (by 25%). This increased demand was subsequently reflected in higher growth in durable goods prices in the USA (by 14.7% year on year so far in 2022 on average). The USA was therefore able to "vacuum up" durable goods from the global market, making them temporarily unavailable, pushing up their prices and causing related transport disruptions.

7 By contrast, the rise in services prices in the USA was visibly linked to growth in consumption of services.

8 Despite the sharp increase in input and energy prices, the profit rate (the ratio of gross operating surplus to gross value added) is currently around the level seen during the period of solid economic growth in 2018–2019. The Monetary Department's core forecasting model also indicates that current margins in the consumer sector are above the usual level.

IV. MONETARY POLICY

At its August monetary policy meeting, the CNB Bank Board kept interest rates unchanged. The two-week repo rate thus remained at 7%, the discount rate at 6% and the Lombard rate at 8%. The Bank Board assessed the uncertainties and risks of the baseline scenario of the new forecast as being significant and going in both directions. Consistent with the baseline scenario of the summer forecast is broad stability of market interest rates initially, followed by a gradual decline next year. The interest rate path in the baseline scenario reflects the fact that a majority of the Bank Board members consider the current high growth in prices to be largely a consequence of strong external price shocks lying outside the control of domestic monetary policy, shocks that will gradually fade away and can be disregarded at the moment in an environment of greatly increased uncertainty. The baseline scenario takes this into account by shifting the monetary policy horizon two quarters further ahead than the one used previously in the CNB's forecasting system. The monetary policy horizon in the baseline scenario of the forecast thus lies in the first half of 2024. The current level of interest rates should ensure a return of inflation to the 2% target in two years. There are a number of substantial risks and uncertainties associated with the baseline scenario of the forecast. The major upside risks include inflation expectations becoming unanchored from the CNB's 2% target, related higher growth in prices and wages, and a consequent threat that inflation will stay higher for longer than expected in the baseline scenario. The risk of even higher energy prices than assumed in the forecast and of Russia cutting off gas supplies to Europe in the summer are other upside risks. By contrast, the growing likelihood of recession abroad and a larger-than-forecasted downturn in domestic consumer and investment demand due to generally adverse sentiment are downside risks to inflation. In addition to the baseline scenario, the Bank Board discussed other scenarios: an increased inflation expectations scenario and a scenario featuring the original monetary policy horizon 12–18 months ahead.

In the baseline scenario of the forecast, the central bank sets interest rates in order to achieve the 2% target at a monetary policy horizon two quarters further ahead than the one used previously in the CNB's forecasting system, while inflation expectations stay anchored to the 2% target

In the context of the high inflation, which is currently having a significant adverse effect on firms' performance and households' purchasing power, the majority of the Bank Board considers it relevant to take into account the fact that this is largely a consequence of strong external price shocks lying outside the control of domestic monetary policy. In the baseline scenario of the forecast, the central bank therefore abstracts from the inflation that is due directly to the strong exogenous price shocks showing up in inflation 12–18 months ahead. An important condition is that inflation expectations stay anchored to the 2% target, thereby helping inflation return close to it.

The CNB will abstract only temporarily from the part of the inflation pressures embodied by the more distant monetary policy horizon

The baseline scenario with a more distant monetary policy horizon is justified, among other factors, by the gradual pass-through of the extreme rise in energy prices on exchanges to domestic consumer prices of electricity, gas and heat in an environment of extraordinarily heightened uncertainty. Administered price inflation will thus peak at almost 40% at the end of this year and then come down only slowly. This is an argument for making monetary policy more forward-looking than it has been up to now.

Consistent with the baseline scenario of the summer forecast is broad stability of market interest rates initially, followed by a gradual decline next year

The Czech economy continues to face exceptionally strong price pressures from abroad amid a persisting inflationary effect of the domestic economy. Overall, this is being reflected in broad-based and accelerating price growth. Inflation continues to be strongly affected by growth in prices of energy and other commodity and material inputs, which is significantly raising the costs of domestic firms. The still somewhat tight labour market is also contributing to the fast growth in costs, albeit to a lesser extent. Moreover, the impact of the cost pressures is being amplified by domestic firms' still high profit margins amid still solid, albeit weakening, domestic demand. The still overheated property market is also having an inflationary effect, with still sharply rising house prices driving up imputed rent within core inflation.

Consistent with the baseline scenario of the forecast is stability of short-term market interest rates at their current level initially (see Chart IV.1). This rate stability represents the monetary policy response consistent with the central bank endeavouring to fulfil the 2% target in the first half of 2024. The central bank thus abstracts from the unprecedented effect of the strong exogenous cost factors at this extraordinary time and focuses on stabilising inflation at the horizon immediately after they diminish. The gradual fading of the current extreme foreign price pressures, combined with the previous monetary policy tightening, will result in inflation falling close to the target in the first half of 2024. Interest rates will thus be able to start decreasing gradually at the start of 2023.

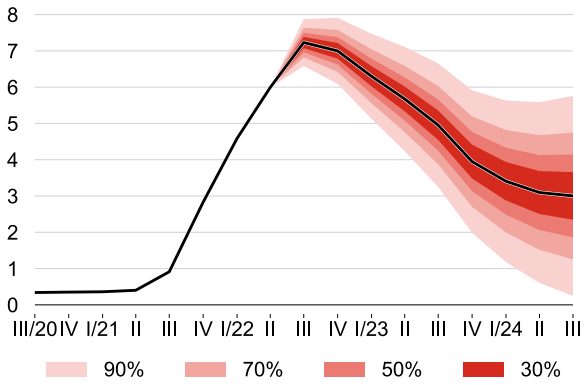
The koruna will weaken slightly by mid-2023 and subsequently appreciate slightly

Apart from a brief weakening in May, the koruna was relatively stable against the euro in 2022 Q2, although this was due in large part to CNB monetary policy. Amid a sharply increasing koruna interest rate differential and foreign exchange interventions against

Chart IV.1

Consistent with the baseline scenario is broad stability of market interest rates initially, followed by a gradual decline next year

3M PRIBOR in %; confidence interval



***The confidence intervals of the forecasts** for key macroeconomic variables reflect the predictive power of past forecasts. They are symmetric and linearly widening. In the case of headline inflation, they widen only for the first five quarters and then stay constant. This is consistent with both the past predictive power and the stabilising role of monetary policy. For interest rates and the koruna exchange rate, the exchange rate commitment period is not included in the confidence interval calculation.*

depreciation of the koruna, the koruna fluctuated around CZK 24.6 to the euro in Q2. The CNB's spring forecast had assumed an exchange rate of CZK 24 to the euro for Q2, i.e. about 2.5% stronger. In mid-July, the koruna appreciated slightly to CZK 24.4 to the euro.

The forecast expects the koruna to average CZK 24.7 to the euro in Q3. Its subsequent slight depreciation will be due mainly to a worsening external trade balance and negative sentiment in the region, factors caused primarily by the current geopolitical situation and high energy commodity prices. A gradually narrowing interest rate differential will act in the same direction over the entire outlook. The koruna will thus weaken slightly in mid-2023 (see Chart IV.2). The negative impacts of disrupted global supply chains and the direct impacts of the war in Ukraine will gradually fade next year. A renewed trade surplus and improved global sentiment will then be reflected in appreciation pressure on the koruna. This pressure will prevail in 2024.

The market interest rate outlook is above the CNB's baseline forecast scenario; the exchange rate path expected by analysts is stronger than the central bank's forecast

The market outlook for short-term FRA rates has moved significantly higher in recent weeks and months. The market has thus responded to the June increase in the 2W repo rate, the related communications by the CNB Bank Board and the continued rise in inflation. The market currently expects a slight rise in the 3M PRIBOR in Q3 (see Chart IV.3) and subsequent stability slightly below 8%. This outlook is higher than the CNB forecast. Analysts' short-term forecasts in the FMIE survey are below the market outlook. Most of the respondents expect the 2W repo rate to be left at its current level at the August monetary policy meeting, with only a minority foreseeing a slight increase. The analysts expect the CNB's key interest rate to be in a very wide range of 4.5%–8% (6.3% on average) at the one-year horizon.

On average, the analysts in the FMIE and FECF surveys expect the koruna to weaken imperceptibly from its current level at the one-year horizon (see Table IV.1). Their forecasts thus expect a stronger exchange rate than the central bank's outlook. According to the analysts, the uncertainty associated with the lower probability of a further rise in policy rates following the change in the composition of the CNB Bank Board is weighing on the koruna. Some of the analysts feel that "wait-and-see" monetary policy amid sharp growth in the price level may undermine the credibility of the fight against inflation and complicate the anchoring of inflation expectations. There is also uncertainty about the new Bank Board's attitude to further use of foreign exchange interventions as a complementary monetary policy tool. A narrowing of the interest rate differential vis-à-vis the rest of the

Chart IV.2

The koruna will depreciate slightly in the coming quarters

CZK/EUR exchange rate; confidence interval

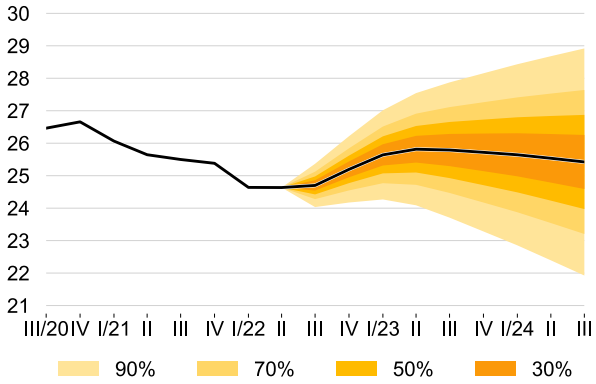
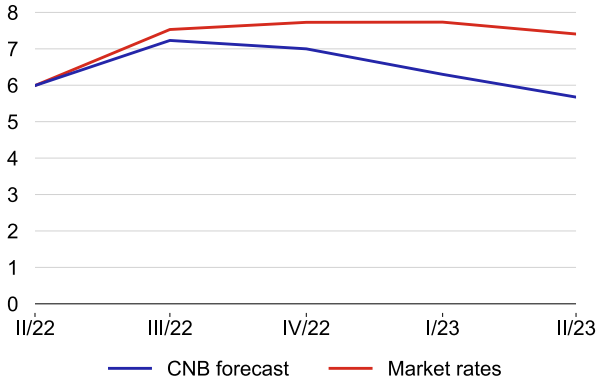


Chart IV.3

The market outlook suggests a slight increase in rates, followed stability; it is higher than the CNB forecast at the one-year horizon

3M PRIBOR; FRA in %



Note: Market rates represent for 2022 Q2 the 3M PRIBOR and for 2022 Q3–2023 Q2 the average values of the FRA 1*4, 3*6, 6*9 and 9*12 rates for the last 10 trading days as of 29 July 2022.

*The **3M PRIBOR market interest rate** is a money market reference rate with a maturity of three months which is closely linked to the CNB's monetary policy rates. The CNB's key rate is the **two-week (2W) repo rate**, paid on commercial banks' excess liquidity as absorbed by the CNB in two-week repo operations. The difference between the 3M PRIBOR and the 2W repo rate fluctuates over time and reflects, among other things, expectations regarding the future path of monetary policy interest rates. After the June Bank Board meeting, the difference was 0.3 pp.*

world and the expected deterioration in macroeconomic fundamentals may also foster depreciation of the koruna. The difference between the minimum and maximum expected rates against the euro at the one-year horizon (which was relatively small until recently) is almost CZK 3.

The Bank Board members' communications regarding future rates sent a mixed message

In recent weeks, some of the Bank Board members have been emphasising that radical monetary policy tightening will not deal with the cost pressures and that price stability can be fostered, for example, by foreign exchange interventions against significant depreciation of the koruna. Other members have been indicating a need to raise the CNB's interest rates further at the August monetary policy meeting. According to those members, the central bank's task is to prevent the external cost shocks from causing permanently elevated inflation in an environment of strong demand and elevated inflation expectations. In the view of those members, the interest rate increase is intended to support the return of inflation towards the target at the monetary policy horizon and to help anchor firms' and households' inflation expectations. Some members felt that the present situation was extremely uncertain and said that before the August monetary policy meeting they had considered either keeping rates unchanged or raising them slightly depending on economic developments and also taking into account, for example, wage bargaining about wage indexation.

Table IV.1

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

1Y horizon; annual percentage changes unless otherwise indicated

	3/22	4/22	5/22	6/22	7/22
FMIE:					
CPI	4.5	4.7	5.0	6.0	6.2
CPI, 3Y horizon	2.2	2.2	2.3	2.5	2.5
Real GDP in 2022	2.5	1.9	1.8	1.9	1.9
Real GDP in 2023	3.2	3.0	2.8	2.3	2.2
Nominal wages in 2022	6.5	6.5	6.5	7.0	7.2
Nominal wages in 2023	5.6	5.9	6.2	7.0	7.0
CZK/EUR exchange rate (level)	24.5	24.2	24.5	24.9	24.9
2W repo rate (%)	4.6	4.9	5.4	6.2	6.3
1Y PRIBOR (%)	4.6	5.1	5.4	6.3	6.4
Corporations:					
CPI	7.1			9.4	
CPI, 3Y horizon	5.9			7.1	
CF:					
Real GDP in 2022	2.4	2.0	2.1	2.2	2.2
Real GDP in 2023	3.2	3.1	2.9	2.7	2.1
Nominal wages in 2022	6.8	7.2	6.9	7.3	7.3
Nominal wages in 2023	6.1	7.0	6.8	7.2	7.0
CZK/EUR exchange rate (level)	24.8	24.5	24.5	24.8	24.9
3M PRIBOR (%)	4.4	5.1	5.2	5.9	5.8

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

Chart IV.4

Interest rates are rather lower at the start of the forecast, and the rate path is slightly higher in the first half of next year

decomposition of changes in 3M PRIBOR forecast in pp

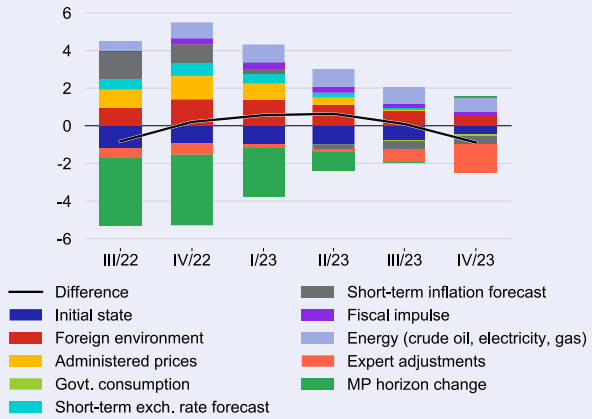
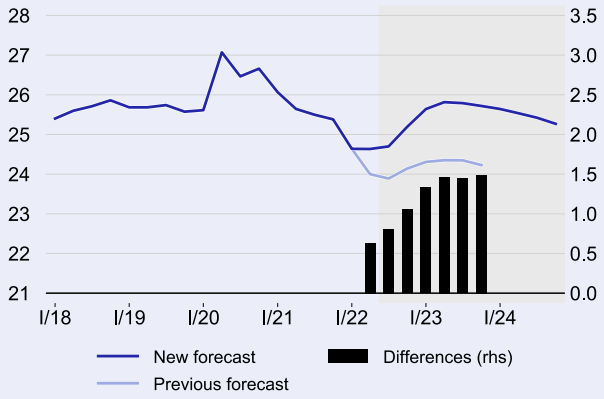


Chart IV.5

The koruna is weaker than in the previous forecast over the entire outlook

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



- **The foreign outlook** fosters higher rates over the entire forecast horizon. This reflects both less accommodative ECB monetary policy and a stronger contribution of the core component of foreign producer prices.
- **The energy component of import prices**, which reflects a higher outlook for prices of oil, gas and electricity on commodity exchanges, also pushes rates up.
- **The short-term inflation forecast** and the outlook for faster growth in **administered prices** lead to higher rates. A weaker **short-term exchange rate forecast** acts in the same direction to a lesser extent.
- **The shift of the monetary policy horizon** has a strong downward effect on the rate path, especially over the rest of this year and at the start of 2023.
- **The initial state** fosters lower rates than in the previous forecast. This is due to smoothing of the interest rate path combined with a lower initial rate level and higher labour efficiency.
- **Expert adjustments** foster lower rates. They capture the stronger expected decline in household consumption this year and the dampening of wage growth next year.

- **The exchange rate of the koruna** is weaker over the entire forecast horizon than in the previous forecast.
- At the start of the forecast horizon, the weaker exchange rate is due mainly to its previous **observed path**. The previous forecast had expected the koruna to appreciate in 2022 Q2, but this did not happen; on the contrary, the koruna faced negative sentiment, which fostered depreciation. The exchange rate thus remained broadly stable with the aid of **foreign exchange interventions** by the CNB.
- A smaller **trade surplus** compared with the previous forecast will foster a weaker exchange rate in the second half of 2022 and the first half of 2023.
- The revision of the exchange rate path next year is also due to the **interest rate differential** vis-à-vis the euro area, which will decrease faster than in the previous forecast in the second half of next year.

The previous increases in monetary policy interest rates passed through to domestic market and client interest rates

Money market interest rates moved to a higher level in response to the May and June increases in key interest rates. The slope of the domestic IRS and government bond yield curves thus remains distinctly negative (see Chart IV.6). Interest rates on foreign markets also generally increased in Q2, for most maturities to the same extent as those on the domestic market (see Chart IV.7). However, rates have decreased slightly since the end of June.

The rise in market interest rates in Q2 continued to be reflected most strongly in growth in client rates on corporate loans. Rates on housing loans also kept increasing (see Chart IV.8). Growth in the stock of corporate loans remains relatively high, with strong demand for short-term loans for operations and inventories. The widening interest rate differential with respect to the rest of the world sparked firms' interest in foreign currency loans, whose share in total corporate loans reached a historical high of 40.2% in June. The forecast expects growth in corporate loans to slow significantly by the end of 2022. The rise in interest rates, coupled with growth in property prices, fostered a general fall in demand for housing loans. Growth in these loans will slow gradually over the next two years. Client interest rates on time deposits continue to rise.

The risks and uncertainties of the baseline scenario are significant and going in both directions

Owing to the ongoing war in Ukraine and the geopolitical situation, significant risks and uncertainties of a stagflationary nature persist. The possibility of Russian gas supplies being reduced or halted is a sizeable specific risk (this situation is described in the *Scenario of a complete and permanent halt in energy commodity supplies from Russia to the EU* in the Appendix to this Report). The growing likelihood of recession abroad is a downside risk.

An unanchoring of inflation expectations from the CNB's 2% target, which we discuss in more detail below, is a significant risk to the forecast. Related to this is an uncertainty of the forecast regarding the subdued wage growth seen in the domestic economy to date.

The forecast is also accompanied by uncertainty about the impact of the high energy prices and the related decline in real income on household consumption. It is objectively very difficult to accurately estimate the timing and extent of the cooling of domestic demand in the coming quarters. The combination of shocks currently hitting the Czech economy is truly very unusual, and the response of households and firms may be quite discontinuous. Should the inflation

Chart IV.6

The Czech government bond yield curve shifted upwards; it still has a substantially negative slope

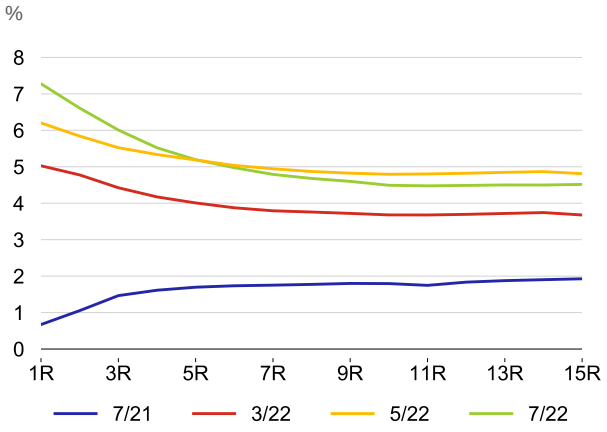


Chart IV.7

Interest rates with longer maturities continued to increase in the Czech Republic and abroad in Q2; however, they fell slightly in July

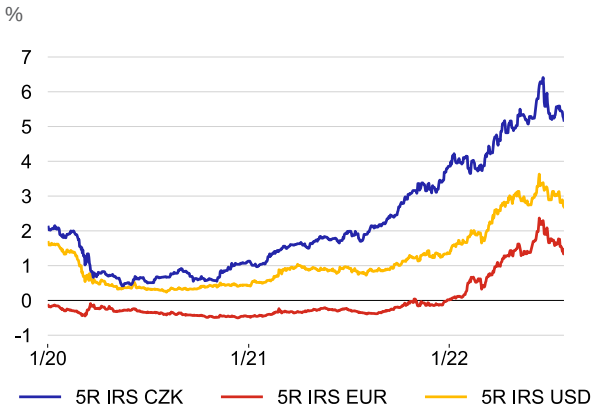
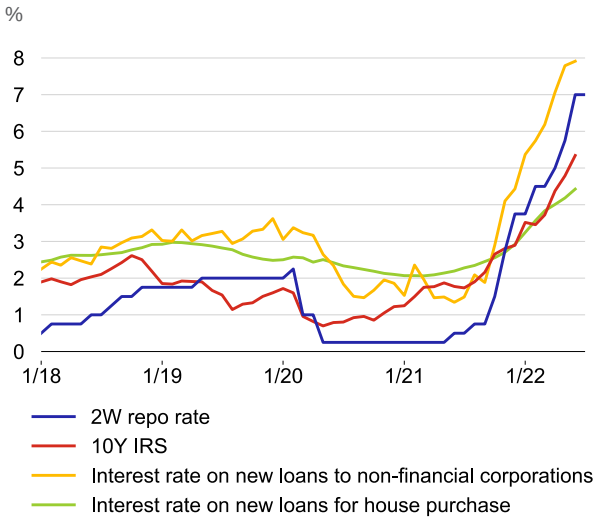


Chart IV.8

Rates on corporate loans reacted most strongly to the rise in market interest rates; rates on house purchase loans also kept increasing



pressures reverse quickly and start to fade more strongly than expected, the CNB may respond rapidly by easing monetary policy sharply.

Similarly, monetary policy abroad is a source of uncertainty. A rapid tightening in other countries may put further depreciation pressure on the koruna. Uncertainty also continues to surround the duration of the disruptions to global value chains, owing primarily to the uncertain situation in Ukraine and the anti-Covid measures in China.

Further growth in inflation expectations and an unanchoring of expectations from the CNB's inflation target are a significant inflationary risk to the forecast

The anchoring of inflation expectations ensures that shocks to inflation (due, for example, to growth in energy prices or a weakening of the exchange rate) tend to disappear relatively quickly. However, if inflation expectations are not sufficiently anchored, major price shocks can have rapid, large and persistent effects on inflation. A general marked rise in inflation expectations in the longer term would greatly complicate the return of inflation to the CNB's 2% target.

The available indicators are signalling that the relevance of this risk is still increasing. Inflation expectations are visibly growing among non-financial corporations, whose inflation expectations at the three-year horizon are rising sharply (even exponentially). According to the June survey conducted by the Confederation of Industry of the Czech Republic and the CNB, firms on average expect inflation of more than 7% at the three-year horizon (see Chart IV.9). The European Commission's business surveys show that the share of firms expecting the prices of their products and services to go up in the near term remains high, with rising prices expected across all sectors (industry, construction, retail and services).

Concerns about rising prices also persist among households. The indicator of inflation perceived by households in the European Commission survey has risen significantly further. Most of the respondents expect inflation to continue rising sharply over the next 12 months, but a minority see it peaking now (see Chart IV.10). According to the CZSO's business survey, around one-half of consumers expect the overall price level to go up further in the coming months. Consumers also remain pessimistic about the future economic situation. The outlook for their financial situation has worsened in recent months, mainly due to rapid growth in housing-related energy prices.

The analysts expect inflation of 2.5%, i.e. above the CNB's target, at the three-year horizon. This section of the public is very familiar with the central bank's monetary policy regime and its inflation target. It therefore has great confidence in the CNB's ability to

Chart IV.9

Inflation expectations are rising exponentially among non-financial corporations at the three-year horizon

sample of 150–200 corporations; %

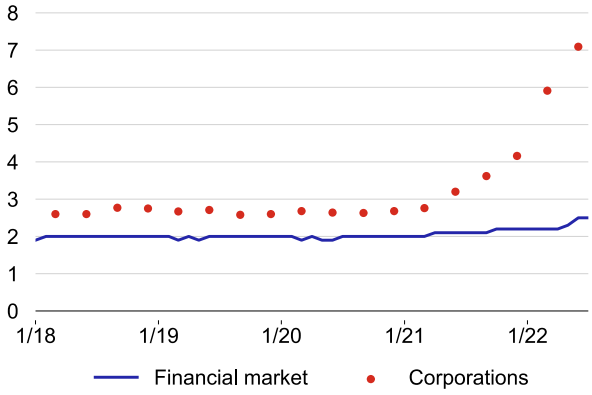
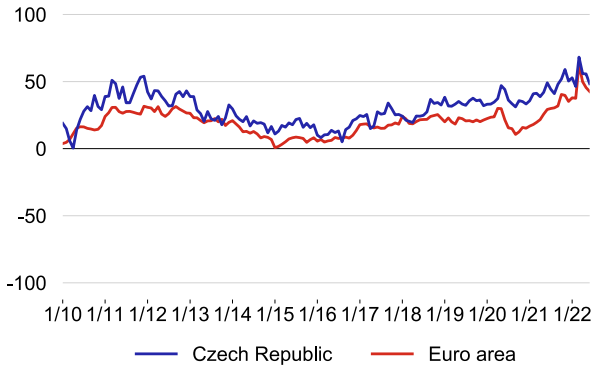


Chart IV.10

The inflation expectations of households in the Czech Republic and the euro area remain high

households' inflation expectations in the next 12 months according to the European Commission Business and Consumer Survey; sample of around 1,000 households; balance of answers



***The inflation expectations of households, firms and the financial markets** fundamentally affect their behaviour and decision-making, and hence also the overall economic situation and the resulting inflation rate. As expectations can be largely self-fulfilling, it is important that central banks monitor them and try to keep them close to their inflation target.*

achieve the inflation target in the medium term, even though it may not fully share its view on the monetary policy stance needed to achieve this.

Expectations of high inflation can affect household consumption in either direction

Rising inflation passes through to rising short-term inflation expectations of households and hence influences their economic decisions, including those on how much to consume and save. Higher inflation leads, *ceteris paribus*, to lower real interest rates. This stimulates expenditure on durable goods in particular and further increases the demand of some households (especially high-income households that have access to the financial markets and optimise their consumption intertemporally). On the other hand, in the event of a drop in real income due to rising inflation and higher inflation-related uncertainty, some households tend to reduce their consumption and increase their precautionary saving.[18]

In a situation of an impending or emerging unanchoring of inflation expectations from the 2% target, monetary policy must fight this trend

The breadth of the inflation pressures, which have their origin both inside and outside the domestic economy, is fostering a rise in inflation expectations. The growth in prices is spread across households' consumer basket and firms' production inputs (see the Box *The breadth and intensity of Czech inflation in the European context* in section III). For the entire first half of this year, the communications of the CNB and the Bank Board emphasised the need to fight the elevated inflation and expressed a willingness to take monetary policy actions to return inflation to the 2% target at the monetary policy horizon. The monetary policy tightening so far has been forceful, strong and very timely by international comparison.

The potential effects of the decoupling of inflation expectations on rates and inflation are simulated in a scenario of increased inflation expectations

It is not possible to accurately measure the extent to which inflation expectations are already unanchored from the 2% target, or to model what changes would occur in a situation of a significant decoupling of inflation expectations and the associated start of a wage-inflation spiral. This scenario therefore represents a schematic outline of the situation (see Chart IV.11 below).

—

18 The empirical and theoretical impacts of rising inflation expectations are documented, for example, in D'Acunto, Hoang and Weber (2022), Pilossoph and Ryngaert (2022) and Coibion et al. (2021).

If inflation expectations were to rise in an environment of high inflation, it would make it difficult for inflation to return quickly to the inflation target. In the scenario, it is assumed that economic agents have increased inflation expectations at the 5% level until the end of 2023, after which their inflation expectations gradually return to the 2% level. Inflation in this scenario reaches higher levels than in the baseline scenario and remains high for considerably longer. The central bank has to raise interest rates significantly. This leads to a stronger koruna than in the baseline scenario in the near term, but in the longer term the exchange rate will weaken significantly due to a rapid narrowing of the interest rate differential and a higher price level.

The forecast scenario with the original monetary policy horizon 12–18 months ahead implies significantly higher interest rates and an earlier return of inflation to the target

For the purposes of comparing the effect of the shift in horizon on the message of the forecast, a scenario featuring the original monetary policy horizon 12–18 months ahead was developed (see Chart IV.12 below).

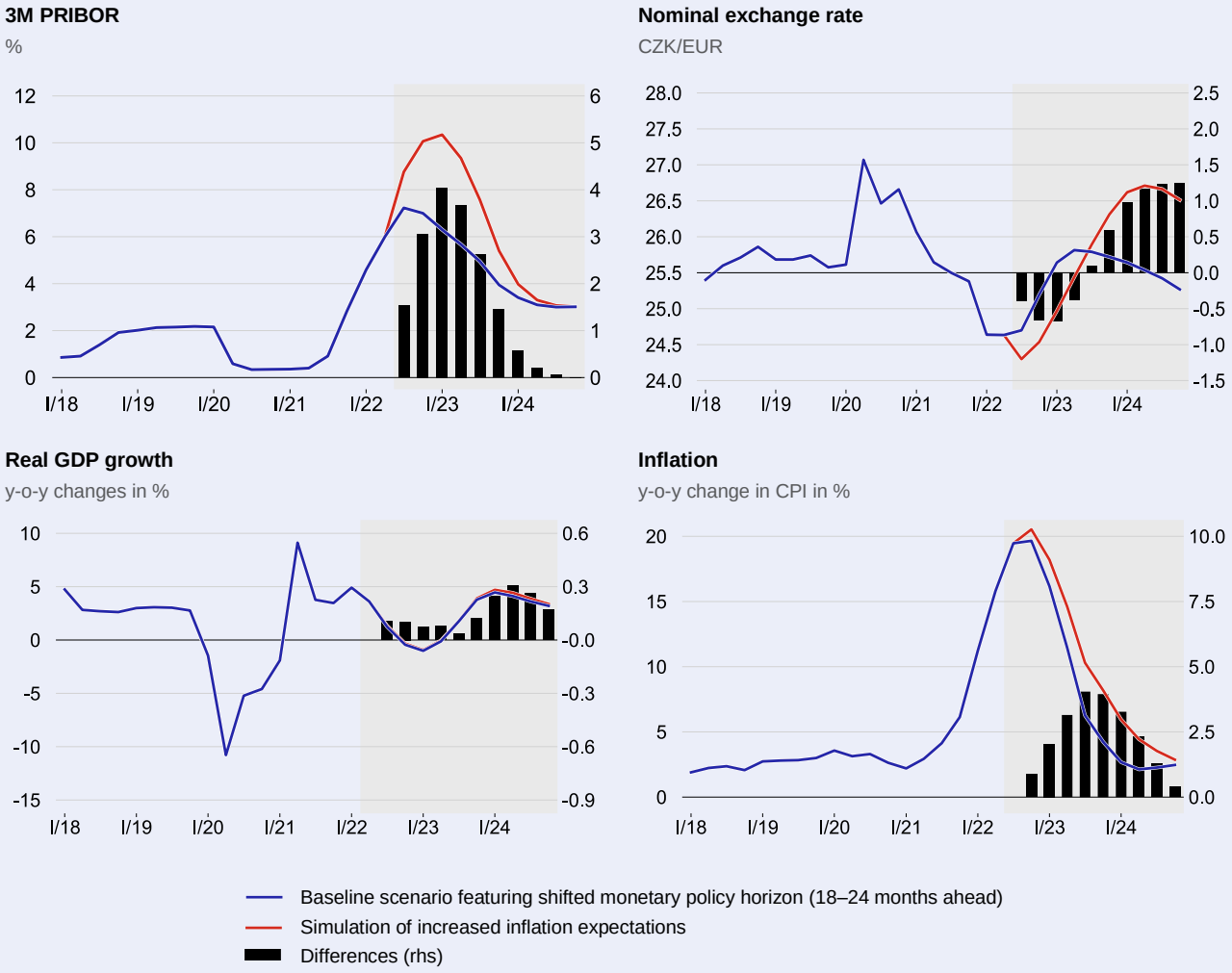
In the forecast scenario with the original monetary policy horizon 12–18 months ahead, monetary policy reacts as before to the strong inflationary pressures inside and outside the domestic economy and prevents them from spilling over into future inflation. The standard response of the central bank leads to significantly higher interest rates than in the baseline scenario (with a monetary policy horizon 18–24 months ahead). This ensures an earlier return of inflation to the target and a stronger koruna over the entire forecast horizon. Inflation returns to the 2% target roughly one quarter earlier in this simulation.

Increased inflation expectations scenario

Chart IV.11

Increased inflation expectations would require a more significant tightening of monetary policy

comparison of baseline scenario featuring shifted monetary policy horizon with simulation of temporarily increased inflation expectations

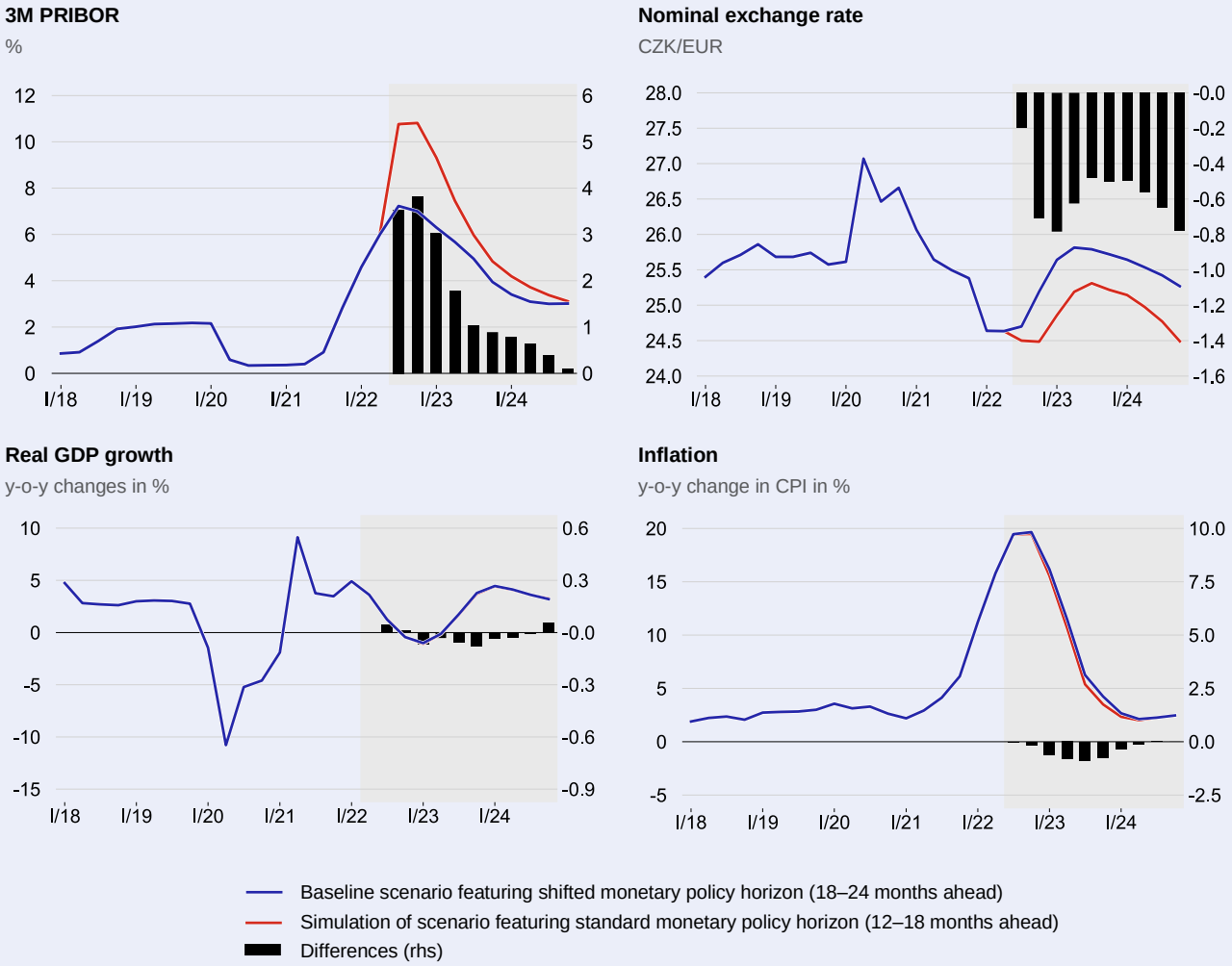


Scenario featuring the standard monetary policy horizon

Chart IV.12

With the standard monetary policy horizon, the central bank is stricter over the entire horizon

comparison of baseline scenario featuring shifted monetary policy horizon with scenario featuring standard monetary policy horizon



APPENDIX Scenario of a complete and permanent halt in energy commodity supplies from Russia to the EU

Russia's aggression against Ukraine is another major blow to the world economy after the coronavirus pandemic. Trade links between the European Union (EU) and the Russian Federation (RF) have broken down in response to the Russian invasion. The war has reduced or completely halted supplies of commodities, materials and components from Ukraine and Russia. Prices of grain and energy commodities such as natural gas, oil and coal have hit almost unimaginable highs in recent months. Exports of natural gas from the RF to the EU remain one of the relatively little affected areas of bilateral trade, despite a drop in the volume supplied. However, uncertainty as to whether gas supplies to the EU will continue is growing, as Russia has repeatedly reduced capacity utilisation in the available gas pipelines.[1] Natural gas is a crucial commodity for households and manufacturing sectors in European economies, and many EU countries are critically dependent on it. The economic situation in the Czech Republic would also become dramatic if energy commodity supplies from Russia to the EU were to halt completely and permanently. This Appendix attempts to outline the contours of such a hypothetical (crisis) scenario.

The simulation shows that a halt in energy commodity supplies from the RF would cause production problems across the entire EU economy. The growth of the Czech economy would fall by around 4 pp this year and 12 pp in 2023 relative to the forecast in Monetary Policy Report (MPR) – Summer 2022. Moreover, the already high domestic inflation would rise significantly further due to continued growth in energy commodity prices. This would result in whole-year inflation exceeding the summer forecast by around 2.5 pp in 2023 and 1 pp in 2024. This year, inflation would be at a similar level as in the forecast.

The scenario of a halt in energy commodity supplies is necessarily conditional on a whole range of simplifying assumptions and, as such, is surrounded by a high degree of uncertainty, as standard economic relations largely cease to apply in such an extreme situation. At the same time, such a situation would undoubtedly lead to many structural changes. However, identifying them goes beyond the scope of this analysis. For this and other reasons, and given all the uncertainties, the resulting simulation should be viewed from the broader perspective as just one possible scenario of how the future might unfold.

The following text begins by describing the external and domestic assumptions of the scenario, which are key to the overall message. It goes on to quantify the direct impacts of a halt in gas supplies on the domestic economy using an analysis of input-output tables and then calculates the overall impact on the domestic economy, including the indirect impacts via the economies of our main trading partners, and on monetary policy. The last part presents a monetary policy simulation of a possible alternative central bank response to the economic situation outlined.

External assumptions of the scenario

The scenario builds on several basic assumptions regarding the external environment: (i) the war does not spread beyond Ukraine; (ii) the complete and permanent halt in supplies of energy commodities (gas, oil and coal) from the RF to the EU occurs in 2022 Q3 and its negative impacts fade out over the following two years as the EU economy adjusts endogenously to the new situation; (iii) energy commodity supplies from other countries are not affected in any way.

The intensity of oil, gas and coal imports from Russia differs across EU countries. There is also diversity in the EU's degree of dependence on imports of these commodities, which is highest for gas and much lower for the other commodities. The situation also differs widely from country to country as regards natural gas alone. Germany and Italy would be hit hard by a halt in supplies, whereas Slovakia has already filled its storage tank capacity for the first heating season after the assumed halt in Russian supplies and France and Spain are almost independent of Russian gas. As Germany is a major Czech trading partner and simultaneously ranks among the EU countries most jeopardised by a halt in gas supplies, we put great emphasis on that country in our external assumptions.

If Russian gas supplies were to be cut off this summer, Germany would not manage to refill its gas storage facilities sufficiently in time for the coming winter. Although we assume that the winter follows a normal course and that firms and households adopt energy-saving measures leading to a cut in gas consumption of more than 15%, gas in storage facilities drops to a level requiring industrial companies to limit production. The scenario assumes that these shutdowns continue into the first half of 2023. The drop in economic activity in Germany spills over to other EU countries via trade links and supply chains. A further rise in gas and electricity prices, coupled with significant economic uncertainty, is reflected in a sharp drop in the real purchasing power and sentiment of households and businesses, which scale back on both consumption and investment.

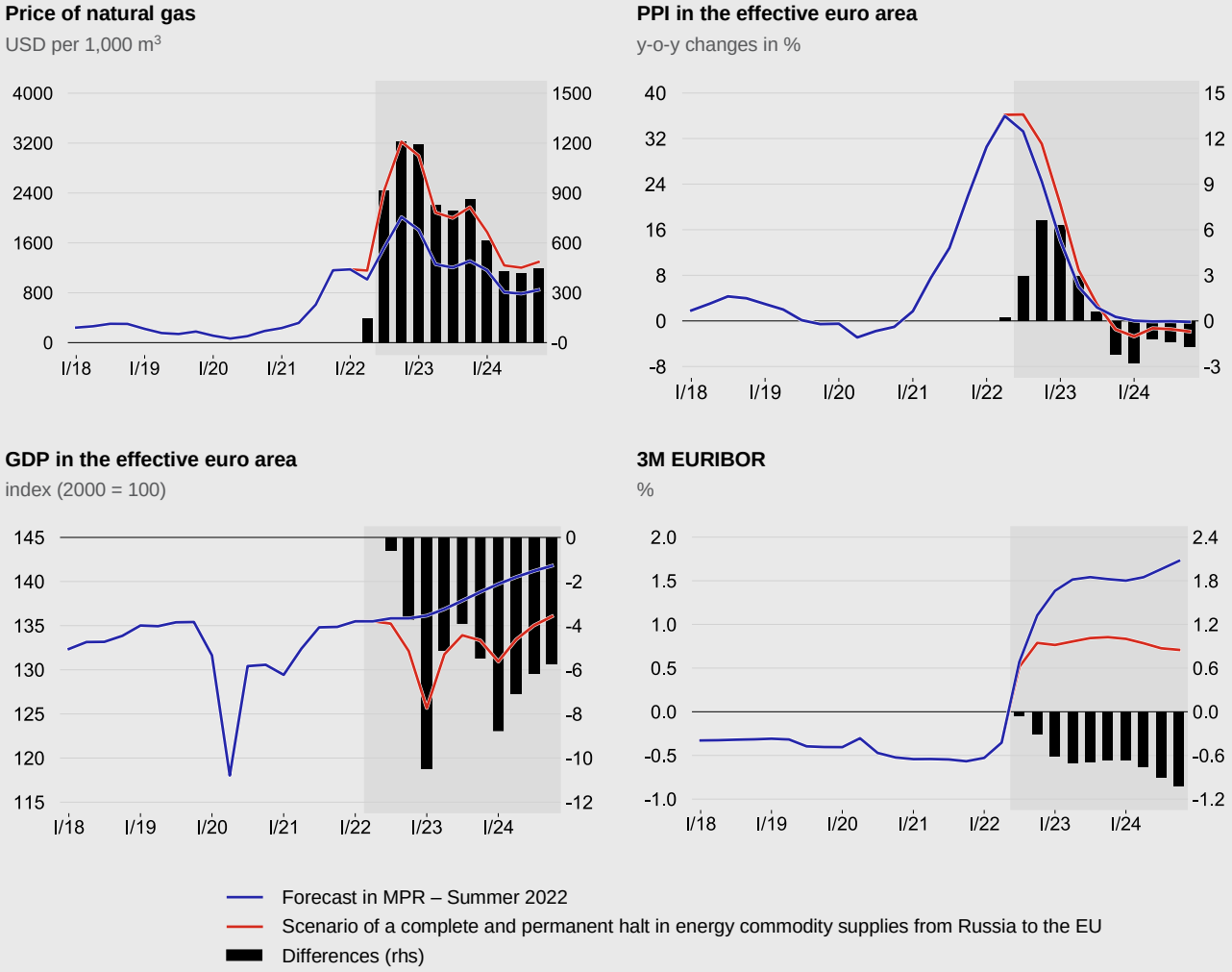
However, gas supplies to Germany from sources outside the RF are still insufficient in 2023 (so storage facilities are not sufficiently refilled in summer 2023) and do not cover the expected gas demand in the next heating season

(2023/2024) either. Although the first liquefied natural gas (LNG) terminal opens in Germany in January 2023, further capacity is not available until the end of 2023. As a result, Germany fails to avoid another economic downturn in late 2023 and early 2024.

All this leads to markedly **lower economic output in the effective euro area** than in the baseline scenario of the forecast (see Chart 1). As regards foreign government policies, the scenario assumes additional fiscal expansion to support households and the sectors affected (in the form of compensation for higher expenditure on energy, for example), which partly absorbs the negative impacts of the economic situation. The drop in production in the euro area is accompanied by a proportionate decrease in imports from sub-contractors (including domestic ones), so the primary effect on total euro area GDP is relatively limited. A larger part of the fall in aggregate demand and GDP in the effective euro area is caused by secondary effects in the form of a deterioration in overall sentiment and a decline in real wages and salaries. This results from both higher inflation and a decrease in hours worked due to shifts being cancelled.

Chart 1

External assumptions of the scenario of a halt in energy supplies from Russia



The complete halt in natural gas supplies from the RF to the EU leads to another sharp **rise in energy commodity prices** above the summer forecast levels. The global market lacks Russian gas. This results in a surge in spot LNG prices in Europe.[2] In the scenario, this is reflected in a dramatic increase in the LNG price above USD 3,000 per 1,000 m^3 (USD 285/MWh) this winter (see Chart 1). However, gas prices remain significantly elevated next year as well. The scenario expects electricity prices to follow a similar pattern. It also assumes a (short-lived) sizeable rise in prices of oil and coal due to temporary shortages and increased demand as natural gas is replaced by coal and partially also by oil (where technologies permit) for electricity generation, especially in Europe and Asia. The oil price thus goes up to USD 200 a barrel by the end of this year and then partly reverses this growth in early 2023. However, it subsequently comes down only gradually and does not return to the path contained in the forecast until after 2024.

In this crisis scenario, the outlook for the energy component of the PPI increases in response to the sharp rise in energy commodity prices this year. The growth of the core component of the PPI slows in the near term compared to the baseline scenario of the forecast, owing to a sharp fall in aggregate demand in the effective euro area. However, the growth of the energy component is stronger and the average growth in **the overall PPI in the effective euro area** is thus higher than forecasted this year and for most of next year. The increased uncertainty about the future is reflected in an outflow of capital and migration of investors to safer overseas assets. This results in slower appreciation of **the euro against the dollar** than the forecast expects. According to the assumptions of this scenario, the ECB opts for a wait-and-see strategy given the highly uncertain economic situation. **The 3M EURIBOR** is thus lower than in the forecast in MPR – Summer 2022.

Domestic assumptions of the scenario

The Czech Republic is almost entirely dependent on imports of natural gas. A full 98% of its demand for this commodity is covered by supplies from Russia (and the remaining 2% by local oil and gas producer Moravské naftové doly). Although the Czech government has recently been quite successful in securing alternative sources to reduce the country's dependence on Russian gas supplies, these alternative solutions (such as LNG terminal capacity) still cover only a small proportion of total domestic gas consumption. Moreover, it will take some time for gas to start flowing through these terminals. A complete halt in Russian gas supplies would thus mean that the Czech Republic would have to rely on other alternative solutions and EU-level options to cover its total gas demand.

The Czech economy's import dependence on other energy commodities (oil and coal) is lower and a halt in supplies could be substituted from other sources relatively well. In 2021, its dependence on Russia was 50% in the case of oil and only 5% in the case of coal. According to the available information, supplies from the Druzhba oil pipeline could be replaced with increased transit from the TAL/IKL pipeline (from Trieste in Italy via Ingolstadt in Germany to Kralupy nad Vltavou and Litvínov) or with tanker supplies of Brent crude oil from Germany or Austria. A halt in supplies of these two commodities thus does not represent a critical situation. The presented scenario therefore focuses on quantifying the impacts of a halt in supplies of Russian gas but not other commodities.

The higher prices of commodities – especially natural gas – are reflected in higher growth in **domestic administered prices** than in the baseline scenario of the forecast. As in the case of our European trading partners, we assume **Czech fiscal policy support** of around CZK 30 billion for 2022 and CZK 110 billion for 2023 over and above the baseline scenario. The scenario also implicitly contains an assumption of active government intervention in the market in the form of the launch of a rationing system for a scarce commodity (gas) and hence assumes minimum impacts on the day-to-day functioning of critical infrastructure (such as hospitals) and households, to which sufficient gas for heating, cooking and so on will be supplied as a priority. This gas rationing will also be characterised by continued supplies of at least a minimum amount of gas to the production segments affected, enough to cover a (government-defined) proportion of their consumption (see below for more details).

Direct impacts of a halt in energy supplies on Czech GDP

We used input-output analysis to assess the direct impacts of a halt in gas supplies on domestic economic activity stemming from a reduction in the physical amount of gas present in the Czech Republic (excluding the effect of external demand).[3] This analysis involves quantifying the primary and secondary effects on the economy. The primary effects on the sectors affected stem from a reduction in their production activity. The secondary effects arise from the interconnectedness of sectors (taking into account their dependence on natural gas). The resulting approach is thus able to capture, for example, a situation where gas shortages in the electricity generation sector lead to partial plant shutdowns in the automotive industry, which is heavily dependent on electricity. Conversely, a shortcoming of the chosen approach is that it faithfully captures only the standard linkages between sectors in a situation of continuity and does not allow for the complete shutdown of firms or entire sectors that are critically dependent on gas. In addition, the linear model used fails to capture the situation in which even only a partial gas cut-off leads to a complete outage in sectors where gas is a crucial production input (such as steelworks).

The scenario assumes that despite the Czech economy's almost complete dependence on supplies of Russian gas, it would be possible to replace at least part of these supplies by using alternative sources, by importing LNG and through EU solidarity. A reduction in gas consumption, which fell by about 10% year on year in the first five months of 2022,[4] should also help lessen impact of the halt in gas supplies to the Czech Republic. The gas storage filling rate in the Czech Republic at the end of July amounted to more than one-third of the country's total annual gas consumption. This currently represents roughly the annual consumption of Czech households. The "rationing" of gas mentioned by the government (and described above) also implies that in order for households and critical infrastructure not to be threatened with gas outages, production would have to be limited. In this context, the scenario assumes that there is an average reduction of 65% in total natural gas supplies for domestic production in the next

four quarters and that this reduction subsequently decreases in summer 2023 (see Chart 2A). In other words, it assumes that firms have to make do with 35% of their current gas consumption in the coming quarters.

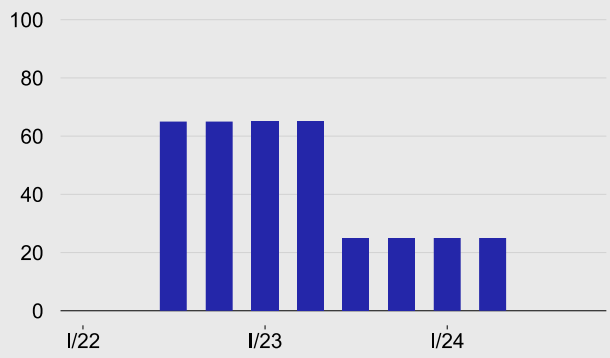
The analysis identified the five industrial sectors whose production is the most natural gas-intensive (see Chart 2B).[5] Those industries, which are critically dependent on gas supplies, will find it most difficult to quickly find alternative energy sources or substitutes for the production input itself (for example gas used in the production of fertiliser in the chemical industry). At the same time, these sectors will probably be most affected by government gas rationing, as together they account for more than half of total domestic gas consumption.[6] These five sectors generate 7.5% of the Czech Republic's gross value added. Their multiplier effects on the gross value added of related sectors are at the average level for manufacturing as a whole (see Table 2C).

Chart 2

Assumptions and quantification of the direct impacts of a halt in gas supplies on the domestic economy

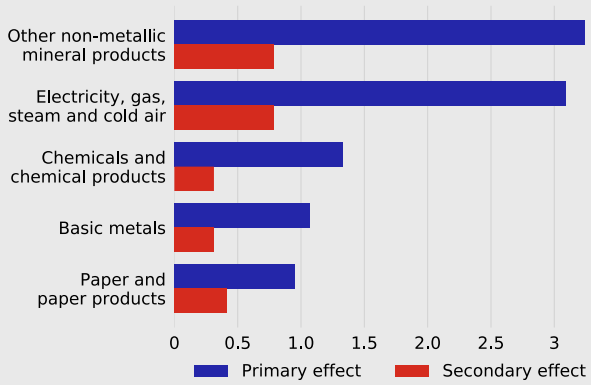
2A Drop in gas supplies in domestic production

%



2B Natural gas intensity of sector output

terajoules/CZK million of output



2C Multipliers and contributions to gross value added

multiplier values; contribution of sector to gross value added in %

	Multiplier	Contribution to gross value added
Other non-metallic mineral products	1.68	1.23
Electricity, gas, steam and cold air	1.62	3.86
Chemicals and chemical products	1.94	0.93
Basic metals	1.96	1.03
Paper and paper products	2.18	0.43
Average for all economic sectors	**1.86**	

Note: The multiplier effect indicates how much gross value added in the economy will increase/decrease overall if the output of the given sector rises/falls. In general, the multiplier effect thus shows the intensity of the sector's interconnectedness with other sectors. For example, given a multiplier of 2.18, an increase of CZK 1,000 in gross value added in the paper and paper products sector will result in an increase of CZK 2,180 in gross value added in the economy as a whole (for example due to additional production in the wood processing industry and growth in value added in wholesale and retail trade).

2D Impact of a halt in gas supplies on annual GDP growth

deviation from forecast in MPR – in Summer 2022 in pp

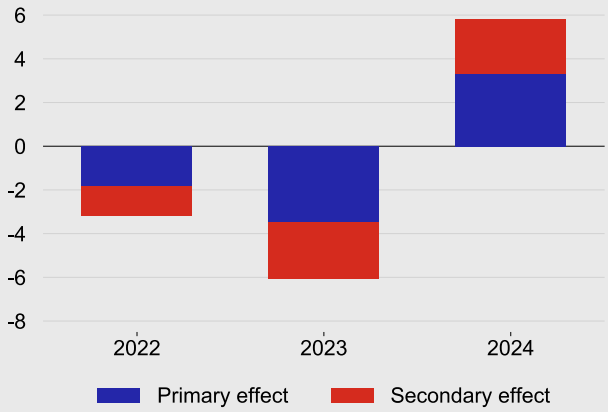


Chart 2D reveals that a halt in gas supplies would hit the domestic economy hard. During summer and early autumn 2022, consumers and firms are still able make do with current gas stocks or alternative energy sources without any constraints. The situation becomes critical with the onset of winter, when excess demand for gas peaks and the economic effects are at their strongest. The Czech economy faces a similar predicament during winter 2023/2024, when, however, the drop in GDP is less devastating due to partial economic adjustment, the coming on line of alternative sources of gas and energy in general, and a reduction in energy demand. In whole-year terms, annual GDP growth is about 3 pp lower in 2022 and 6 pp lower in 2023 than in the baseline scenario of the forecast due to

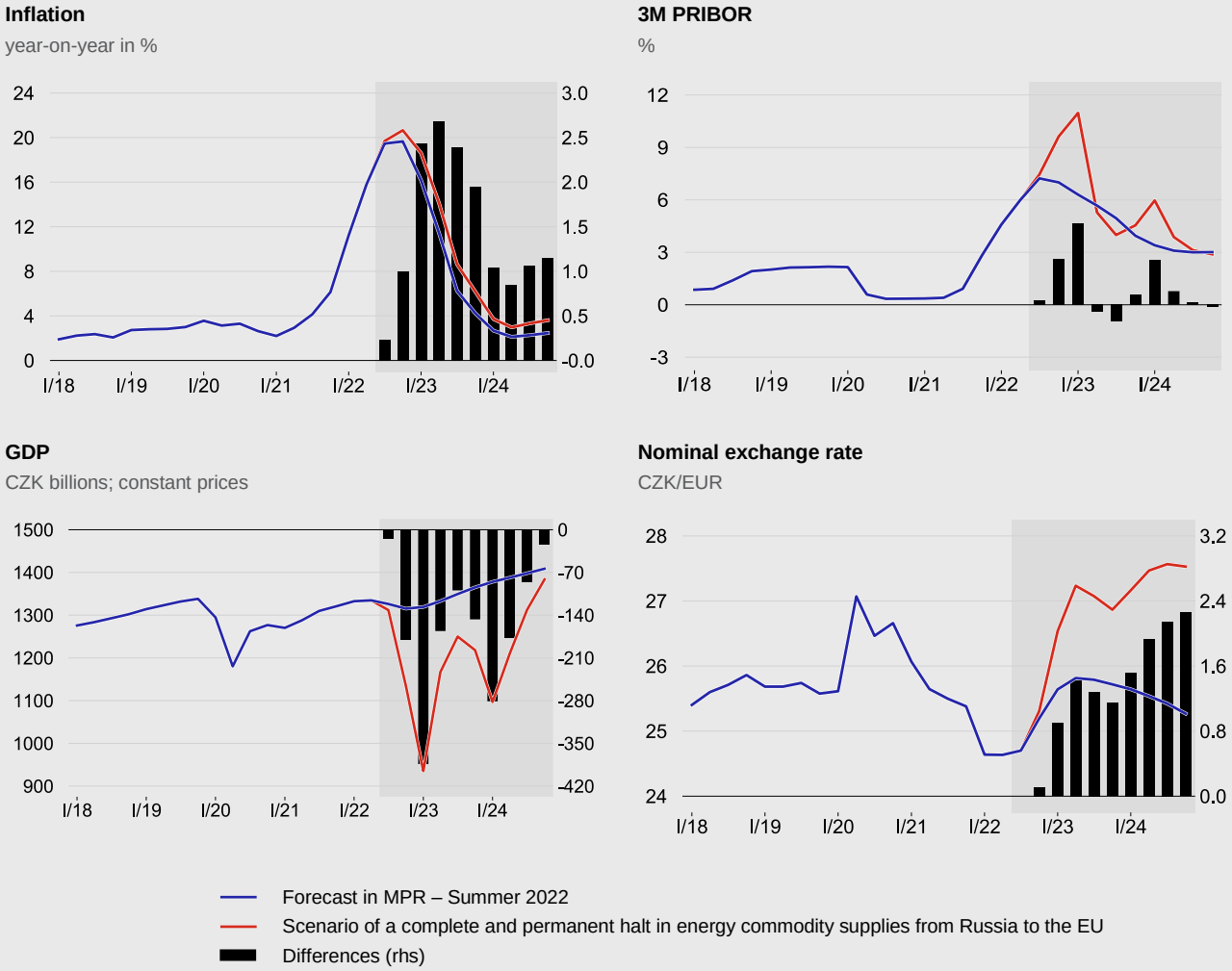
the reduction in gas supplies. It turns out to be very important to take into account the secondary effect, i.e. the inter-sector links in the economy, which increase the primary effect by more than 70%.

Overall impacts on the domestic economy

The shortage of gas is reflected first of all in a parallel reduction in output in the sectors affected (i.e. those dependent on gas) in both the domestic and foreign economies. The overall decline in external economic activity is reflected in the Czech economy in a broad drop in demand for domestic exports across sectors.[7] In 2022, about -1 pp is added to the direct effect on **Czech GDP growth** (see Chart 3) of -3 pp (relative to the forecast in MPR – Summer 2022) via the fall in external demand. In 2023, the overall effect of around -12 pp is due in roughly equal measure to the direct reduction in output in the domestic economy and the fall in external demand. The expansionary **fiscal impulse**, reflecting government stabilisation measures, has the opposite effect. It is 0.5 pp higher in 2022 and 1 pp higher in 2023 than in the baseline scenario. In 2024, the domestic economic recovery is driven mainly by the fading of the direct negative effects of the energy commodity shortages, and growth is almost 6 pp higher than in the forecast. However, the GDP level remains well below that in the baseline scenario until almost the end of the forecast horizon.

Chart 3

Overall impacts of the scenario of a halt in energy supplies from Russia on the domestic economy



With production capacity and sales limited, the domestic economy experiences significantly lower **wage growth** than in the baseline scenario, especially in 2023 and 2024. Firms' efforts to retain their work teams and minimise redundancies lead to a significant decline in labour efficiency at a time of commodity shortages and reduced output. However, even in the domestic economy, firms cannot avoid cancelling shifts and laying off staff in the business areas concerned. This is negatively reflected in a rise in unemployment and a fall in real disposable income and household consumption.

A further surge in energy commodity prices on international markets, combined with a deterioration in the Czech Republic's current account balance, leads to a significant **depreciation of the koruna** in the crisis scenario compared

to the baseline scenario. The exchange rate fluctuates around CZK 27 to the euro in 2023 and weakens further to CZK 27.50 to the euro in 2024. In terms of inflation pressures, the impacts of the subdued domestic demand and slower wage growth are outweighed overall by the effects of the higher energy prices, weaker koruna and lower labour efficiency. Total costs thus increase faster on average than in the baseline scenario of the forecast. On average, **headline inflation** (including faster-growing administered prices) is around 2.5 pp higher in 2023 and 1 pp higher in 2024. **Interest rates** react to the additional inflation pressures by rising further to 11% at the start of next year (as in the forecast, a monetary policy horizon of 18–24 months ahead is assumed). Rates then fluctuate significantly as a result of another drop in output in late 2023 and early 2024. In 2024, interest rates gradually decrease to the policy-neutral level as the economic situation normalises in general.

The overall impacts on the domestic economy (its main macroeconomic variables) in whole-year terms are summarised in Table 1.

Table 1

Summary of the scenario of a halt in energy supplies from Russia, including differences relative to the baseline scenario of the forecast in MPR – Summer 2022

		2022	2023	2024
GDP	y-o-y changes in %	**-1.5**	**-10.6**	**9.5**
	pp	(-3.8)	(-11.7)	(5.7)
Average monthly nominal wage in market sectors	y-o-y changes in %	**4.8**	**1.8**	**4.1**
	pp	(-0.4)	(-4.9)	(-4.4)
Consumer prices	y-o-y changes in %	**16.8**	**11.9**	**3.4**
	pp	(0.3)	(2.4)	(1.0)
3M PRIBOR	%	**6.9**	**6.2**	**4.0**
	pp	(0.7)	(1.0)	(0.9)
CZK/EUR exchange rate	nominal value	**24.8**	**26.9**	**27.4**
	CZK	(0.0)	(1.2)	(1.9)

Differences in the scenario of a halt in energy supplies compared to the baseline scenario of the forecast (a green label indicates a shift to a higher level or a weaker koruna and a red label a shift in the opposite direction).

Monetary policy simulation of rate stability

The halt in energy commodity supplies from Russia, which destabilises the economy in this scenario, is a strong negative supply shock. It can thus be concluded that the inflationary factors which materialise in the scenario (over and above the baseline scenario of the forecast) are primarily of a cost nature. Full exemptions (escape clauses) can therefore be applied to these factors in the monetary policy response.

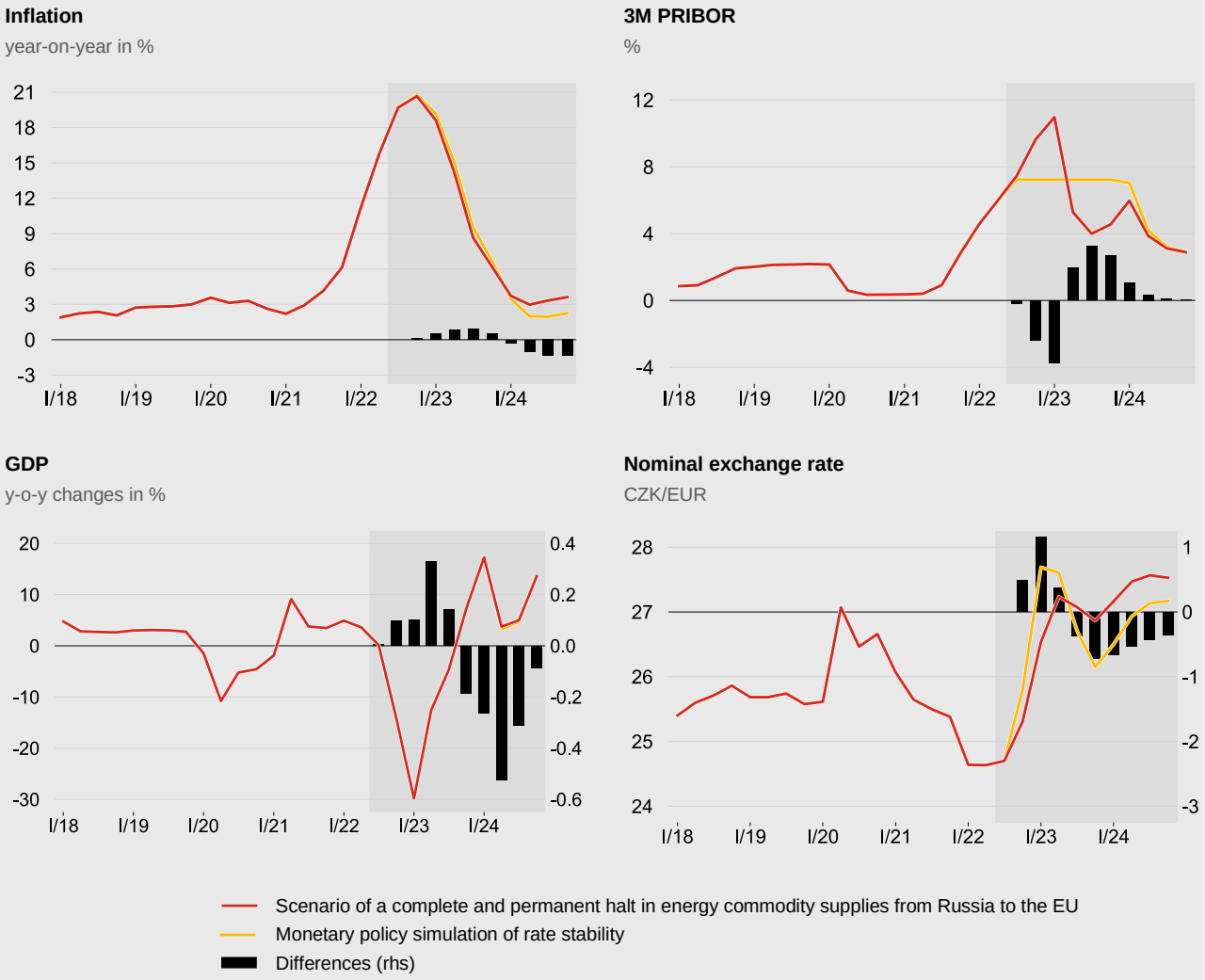
However, such an approach by the central bank may be risky in terms of the potential loss of anchoring of inflation expectations. We thus assume that the central bank prefers to smooth interest rates for longer. This implies easier monetary conditions at first than in the baseline version of the crisis scenario (marked with a red line in Chart 4; not to be confused with the baseline scenario of the MPR forecast, which is marked with a blue line in Chart 3), followed for a time by tighter conditions. The monetary policy simulation below (marked with a yellow line in Chart 4) used to illustrate the possible behaviour of the central bank thus assumes that the domestic 3M PRIBOR remains at its initial level (7.2%) from 2022 Q3 until the end of 2023.

In the baseline scenario of a halt in gas supplies, the koruna is already exposed to strong depreciation pressure due to a significant deterioration in the current account balance (the net foreign asset channel). In the derived monetary policy simulation, however, the interest rate differential does not widen commensurately to counteract the effect of the net foreign asset channel. In this simulation, the koruna thus weakens to CZK 27.5 to the euro at the start of next year (see Chart 4). At the same time, the more accommodative monetary conditions lead to a slightly smaller drop in GDP in the domestic economy in 2023. The weaker koruna, coupled with the lower interest rates, is reflected in slightly higher inflation next year.

Conversely, the later rise in domestic market interest rates in this monetary policy simulation (i.e. in 2023) relative to the scenario of a halt in gas supplies leads to greater appreciation of the koruna in the course of next year. This anti-inflationary impulse is subsequently reflected in lower headline inflation in 2024 (about 1 pp lower). However, the tighter monetary conditions meanwhile dampen the economic recovery slightly that year by comparison with the baseline version of the crisis scenario.

Chart 4

Monetary policy simulation of rate stability against the backdrop of the scenario of a halt in energy supplies from Russia



—

1 In July 2022, for example, the Nord Stream 1 gas pipeline was shut down for regular maintenance, leading to considerable speculation that supplies would not restart. After the shutdown ended, supplies were resumed at a fraction of the pipeline's capacity.

2 Global LNG production capacity is not expected to rise significantly until 2025, when new liquefaction plants in Qatar will start to operate.

3 Input-output tables describe the sales and purchase relationships between producers and their customers in the economy. They can display flows of final goods, intermediate products and services defined according to either sector outputs (sector × sector tables), which the presented analysis uses, or product outputs (product × product tables). The chosen calculation method is inspired by National Bank of Slovakia, Deutsche Bundesbank and Deutsche Bundesbank. A description of input-output tables is available in Timmer, M. P., Dietzenbacher, E., Los, B., Stehrer, R. and de Vries, G. J. (2015), "An Illustrated User Guide to the World Input-Output Database: the Case of Global Automotive Production", Review of International Economics, 23: 575–605. The input-output table was converted from USD to CZK.

4 The figures on the reduction in demand are based on data from Amper Meteo. Gas consumption in the Czech Republic was at its lowest level in five years. The EU Member States recently agreed to a voluntarily gas demand reduction of at least 15% between 1 August 2022 and 31 March 2023 compared to their average consumption in the last five years. The approved European Commission plan includes the possibility of declaring a gas emergency, in which case the reduction would become mandatory.

5 For simplicity, we also assume that gross domestic product is equal to gross value added.

6 When quantifying the impacts of a reduction in gas supplies on GDP we use the simplifying assumption that a decrease in the available volume of gas leads to a proportionate drop in production in all five sectors affected. In the coming quarters, those five sectors therefore face a reduction in output of 65%. For the remaining sectors, the size of the drop in production is reduced proportionately to the gas intensity of their production.

7 The overlap between the direct effects on the sectors affected and the broad impacts of the cooling of external demand (and hence potential "double-counting") is small, as the reduction in output of the domestic firms directly affected amounts to tens of per cent, while the drop in aggregate external demand is only a few per cent (compared to the baseline scenario of the forecast in MPR – Summer 2022).

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
GVCs	global value chains
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

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
DEMAND AND SUPPLY												
Gross domestic product												
GDP (CZK bn, constant p. of 2015, seas. adjusted)	4290.8	4387.8	4627.4	4740.8	4994.2	5154.3	5307.2	5014.3	5189.2	**5308.7**	**5366.4**	**5572.6**
GDP (CZK bn, current p., seas. adjusted)	4141.9	4344.6	4627.4	4794.9	5116.8	5416.4	5793.9	5710.7	6106.7	**6789.3**	**7341.7**	**7641.6**
GDP (%, y-o-y, real terms, seas. adjusted)	0.0	2.3	5.5	2.5	5.3	3.2	3.0	-5.5	3.5	**2.3**	**1.1**	**3.8**
GDP (%, q-o-q, real terms, seas. adjusted)	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
Household consumption (%, y-o-y, real terms, seas. adjusted)	0.9	1.4	3.9	3.7	4.0	3.3	2.6	-7.4	4.0	**-2.0**	**-0.8**	**3.7**
Government consumption (%, y-o-y, real terms, seas. adjusted)	2.4	1.0	1.8	2.5	1.8	3.9	2.5	4.2	1.5	**2.0**	**1.8**	**1.6**
Gross capital formation (%, y-o-y, real terms, seas. adjusted)	-4.2	7.1	13.1	-3.9	6.5	7.7	4.5	-9.2	18.9	**6.8**	**-7.4**	**-1.8**
Gross fixed capital formation (%, y-o-y, real terms, seas. adjusted)	-2.2	3.3	9.8	-3.1	5.1	10.0	5.9	-6.0	0.6	**5.1**	**3.9**	**2.9**
Exports of goods and services (%, y-o-y, real terms, seas. adjusted)	0.3	8.7	6.2	4.1	7.6	3.7	1.3	-8.1	6.8	**2.0**	**7.6**	**9.6**
Imports of goods and services (%, y-o-y, real terms, seas. adjusted)	0.1	10.0	7.0	2.7	6.5	5.8	1.5	-8.2	13.2	**1.0**	**2.9**	**7.1**
Net exports (CZK bn, constant p. of 2015, seas. adjusted)	295.5	283.3	276.7	337.5	401.7	338.1	338.4	315.6	96.8	**140.5**	**348.9**	**496.3**
PRICES												
Main price indicators												
Consumer Price Index (%, y-o-y, average)	1.4	0.4	0.3	0.7	2.5	2.1	2.8	3.2	3.8	**16.5**	**9.5**	**2.4**
Administered prices (14.21%)* (%, y-o-y, average)	2.2	-3.0	0.0	0.2	0.0	1.8	4.4	3.1	-0.2	**26.7**	**20.0**	**6.3**
Food prices (incl. alcoholic beverages and tobacco) (26.50%)* (%, y-o-y, average)	3.1	1.8	0.1	0.2	3.6	1.6	2.6	4.2	2.1	**13.3**	**4.9**	**0.5**
Core inflation (56.14%)* (%, y-o-y, average)	-0.5	0.5	1.2	1.2	2.4	2.1	2.7	3.4	4.8	**13.7**	**8.6**	**2.5**
Fuel prices (3.15%)* (%, y-o-y, average)	-2.1	0.2	-13.5	-8.5	6.7	6.3	-0.4	-11.4	16.8	**41.4**	**4.5**	**-5.2**
Monetary policy-relevant inflation (%, y-o-y, average)	0.6	0.2	0.2	0.5	2.5	2.1	2.9	3.2	3.9	**16.2**	**9.5**	**2.0**
Partial price indicators												
Industrial producer prices (%, y-o-y, average)	0.8	-0.8	-3.2	-3.3	1.8	2.0	2.6	0.1	7.1	**26.4**	**9.1**	**1.3**
Agricultural prices (%, y-o-y, average)	-12.1	4.7	-6.2	-6.0	7.4	-0.2	5.7	-3.2	5.9	**35.3**	**0.6**	**-5.7**
LABOUR MARKET												
Average monthly wage (%, y-o-y, nominal terms)	-0.1	2.9	3.2	4.4	6.7	8.2	7.9	4.6	4.7	**4.5**	**6.2**	**7.5**
Average monthly wage in market sectors (%, y-o-y, nominal terms)	-0.3	3.0	3.2	4.3	6.7	7.7	7.6	4.1	5.1	**5.1**	**6.7**	**8.5**
Average monthly wage (%, y-o-y, real terms)	-1.6	2.6	2.8	3.8	4.3	6.0	5.0	1.5	0.9	**-12.1**	**-3.1**	**5.1**
Unit labour costs (%, y-o-y)	0.9	1.6	-0.4	3.1	3.9	6.2	4.7	5.9	2.2	**6.7**	**6.0**	**4.3**
Aggregate labour productivity (%, y-o-y)	-0.4	1.7	3.9	0.9	3.6	1.9	2.8	-3.8	3.1	**1.1**	**0.4**	**3.1**
ILO general unemployment rate (%, average, age 15–64, seas. adjusted)	7.0	6.2	5.1	4.0	2.9	2.3	2.0	2.6	2.9	**2.5**	**2.7**	**2.7**
Share of unemployed persons (MLSA) (%, average, seas. adjusted)	7.7	7.7	6.5	5.5	4.2	3.2	2.8	3.6	3.8	**3.3**	**3.6**	**3.6**
Employment (ILO) (%, y-o-y)	0.9	0.7	1.3	1.8	1.5	1.2	-0.1	-1.6	-0.9	**1.1**	**0.7**	**0.8**
Full-time employment (%, y-o-y)	-1.0	1.1	2.1	1.8	2.2	1.5	-0.3	-1.7	-0.3	**1.8**	**0.8**	**0.8**
PUBLIC FINANCE												
Government budget balance (ESA2010) (CZK bn, current prices)	-53.2	-90.2	-29.8	34.1	76.7	48.3	16.7	-329.2	-359.4	**-332.0**	**-343.7**	**-222.2**
Government budget balance/GDP** (%, nominal terms)	-1.3	-2.1	-0.6	0.7	1.5	0.9	0.3	-5.8	-5.9	**-4.9**	**-4.7**	**-2.9**
Government debt (ESA2010) (CZK bn, current prices)	1840.2	1818.9	1836.0	1754.7	1749.7	1734.6	1740.3	2149.3	2566.6	**2866.6**	**3228.6**	**3466.8**
Government debt/GDP** (%, nominal terms)	44.4	41.9	39.7	36.6	34.2	32.1	30.0	37.6	42.0	**42.2**	**44.0**	**45.4**
EXTERNAL RELATIONS												
Current account												
Trade balance (CZK bn, current prices)	167.0	220.0	187.7	258.5	259.3	200.9	239.8	280.3	73.3	**-92.2**	**82.3**	**117.2**
Trade balance/GDP (%, nominal terms)	4.0	5.1	4.1	5.4	5.1	3.7	4.1	4.9	1.2	**-1.4**	**1.1**	**1.5**
Balance of services (CZK bn, current prices)	70.4	55.7	86.6	106.6	124.6	120.0	106.0	103.5	110.1	**120.4**	**129.0**	**145.5**
Current account (CZK bn, current prices)	-21.8	7.9	20.7	85.2	79.1	24.1	19.2	113.7	-51.1	**-381.7**	**-203.1**	**-175.5**
Current account/GDP (%, nominal terms)	-0.5	0.2	0.4	1.8	1.5	0.4	0.3	2.0	-0.8	**-5.6**	**-2.8**	**-2.3**
Foreign direct investment												
Direct investment (CZK bn, current prices)	7.4	-80.4	49.7	-186.5	-45.9	-51.0	-137.1	-149.1	-4.8	**-50.0**	**-60.0**	**-60.0**
Exchange rates												
CZK/USD (average)	19.6	20.8	24.6	24.4	23.4	21.7	22.9	23.2	21.7	**23.0**	**23.6**	**22.5**
CZK/EUR (average)	26.0	27.5	27.3	27.0	26.3	25.6	25.7	26.5	25.6	**24.8**	**25.7**	**25.5**
MONEY AND INTEREST RATES												
M3 (%, y-o-y, average)	5.1	5.1	7.3	9.1	11.7	6.6	6.3	9.0	9.6	**5.9**	**10.0**	**13.7**
2W repo rate (%, average)	0.1	0.1	0.1	0.1	0.2	1.1	1.9	0.8	0.9	**5.9**	**4.9**	**2.8**
3M PRIBOR (%, average)	0.5	0.4	0.3	0.3	0.4	1.3	2.1	0.9	1.1	**6.2**	**5.2**	**3.1**
EXTERNAL ASSUMPTIONS												
Foreign GDP (%, y-o-y, seas. adjusted, effective)	0.3	1.9	2.0	2.0	2.8	1.8	1.5	-5.6	4.1	**2.1**	**1.3**	**2.5**
Foreign GDP (%, q-o-q, seas. adjusted, effective)	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
Foreign HICP (%, y-o-y, seas. adjusted, effective)	1.6	0.6	0.4	0.3	1.6	2.0	1.5	0.6	2.9	**8.2**	**3.9**	**1.8**
Foreign PPI (%, y-o-y, seas. adjusted, effective)	-0.1	-1.6	-2.5	-2.3	2.7	3.3	1.1	-1.6	11.0	**30.9**	**5.6**	**-0.1**
Brent crude oil (in USD/barrel) (average)	108.8	99.5	53.6	45.0	54.8	71.5	64.2	43.2	70.8	**103.1**	**90.3**	**83.4**
3M EURIBOR (%, average)	0.2	0.2	0.0	-0.3	-0.3	-0.3	-0.4	-0.4	-0.5	**0.2**	**1.5**	**1.6**
USD/EUR (average)	1.3	1.3	1.1	1.1	1.1	1.2	1.1	1.1	1.2	**1.1**	**1.1**	**1.1**

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

	2022				2023				2024			
	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)	1332.6	**1334.6**	**1326.2**	**1315.3**	**1319.1**	**1332.9**	**1349.4**	**1365.0**	**1377.9**	**1387.8**	**1398.1**	**1408.7**
GDP (CZK bn, current p., seas. adjusted)	1639.4	**1669.9**	**1712.2**	**1767.8**	**1797.1**	**1821.8**	**1848.5**	**1874.3**	**1889.1**	**1900.7**	**1915.5**	**1936.4**
GDP (%, y-o-y, real terms, seas. adjusted)	4.9	**3.6**	**1.2**	**-0.4**	**-1.0**	**-0.1**	**1.7**	**3.8**	**4.5**	**4.1**	**3.6**	**3.2**
GDP (%, q-o-q, real terms, seas. adjusted)	0.9	**0.2**	**-0.6**	**-0.8**	**0.3**	**1.0**	**1.2**	**1.2**	**0.9**	**0.7**	**0.7**	**0.8**
Household consumption (%, y-o-y, real terms, seas. adjusted)	7.3	**-2.0**	**-6.4**	**-5.9**	**-4.6**	**-2.4**	**0.4**	**3.5**	**4.2**	**4.1**	**3.6**	**3.1**
Government consumption (%, y-o-y, real terms, seas. adjusted)	2.9	**3.2**	**1.1**	**0.9**	**1.6**	**1.8**	**2.1**	**1.8**	**1.6**	**1.7**	**1.7**	**1.6**
Gross capital formation (%, y-o-y, real terms, seas. adjusted)	14.6	**10.3**	**3.7**	**-0.4**	**-5.6**	**-7.6**	**-8.5**	**-7.8**	**-5.8**	**-3.1**	**-0.1**	**2.2**
Gross fixed capital formation (%, y-o-y, real terms, seas. adjusted)	6.8	**6.3**	**4.6**	**2.8**	**2.6**	**3.3**	**4.3**	**5.4**	**3.6**	**2.9**	**2.6**	**2.6**
Exports of goods and services (%, y-o-y, real terms, seas. adjusted)	-0.3	**0.9**	**4.5**	**2.8**	**3.0**	**5.2**	**9.5**	**12.6**	**12.5**	**10.9**	**8.5**	**7.1**
Imports of goods and services (%, y-o-y, real terms, seas. adjusted)	4.1	**-0.1**	**0.4**	**-0.4**	**-0.6**	**1.0**	**4.3**	**7.1**	**7.5**	**7.5**	**6.8**	**6.4**
Net exports (CZK bn, constant p. of 2015, seas. adjusted)	19.8	**31.8**	**39.8**	**49.1**	**59.4**	**78.4**	**98.0**	**113.1**	**120.4**	**122.7**	**125.1**	**128.1**
PRICES												
Main price indicators												
Consumer Price Index (%, y-o-y, average)	11.2	15.8	**19.5**	**19.7**	**16.2**	**11.5**	**6.3**	**4.2**	**2.7**	**2.1**	**2.3**	**2.5**
Administered prices (14.21%)* (%, y-o-y, average)	15.7	23.4	**30.5**	**37.3**	**28.8**	**22.6**	**15.3**	**13.1**	**7.8**	**5.8**	**5.9**	**5.7**
Food prices (incl. alcoholic beverages and tobacco) (26.50%)* (%, y-o-y, average)	6.2	11.4	**18.0**	**17.7**	**13.1**	**7.1**	**0.1**	**-0.7**	**-0.4**	**0.3**	**1.0**	**1.2**
Core inflation (56.14%)* (%, y-o-y, average)	10.5	13.8	**15.6**	**14.8**	**13.2**	**10.3**	**6.6**	**4.4**	**3.0**	**2.3**	**2.2**	**2.4**
Fuel prices (3.15%)* (%, y-o-y, average)	36.9	46.1	**47.4**	**35.4**	**22.2**	**4.0**	**-2.9**	**-5.4**	**-5.9**	**-5.6**	**-5.1**	**-4.1**
Monetary policy-relevant inflation (%, y-o-y, average)	10.8	15.6	**19.4**	**19.0**	**16.1**	**11.3**	**6.3**	**4.1**	**2.2**	**1.7**	**1.9**	**2.1**
Partial price indicators												
Industrial producer prices (%, y-o-y, average)	21.8	27.7	**28.4**	**27.3**	**18.1**	**10.2**	**5.8**	**3.3**	**1.9**	**1.3**	**1.1**	**0.9**
Agricultural prices (%, y-o-y, average)	23.9	39.1	**43.5**	**34.2**	**19.1**	**-1.0**	**-6.7**	**-7.0**	**-7.1**	**-6.3**	**-5.2**	**-4.0**
LABOUR MARKET												
Average monthly wage (%, y-o-y, nominal terms)	7.2	**2.7**	**3.9**	**4.5**	**5.2**	**5.6**	**6.5**	**7.3**	**7.9**	**7.8**	**7.4**	**6.8**
Average monthly wage in market sectors (%, y-o-y, nominal terms)	8.0	**2.9**	**4.8**	**5.1**	**5.2**	**5.9**	**7.1**	**8.4**	**9.0**	**8.9**	**8.4**	**7.7**
Average monthly wage (%, y-o-y, real terms)	-4.1	**-13.1**	**-15.6**	**-15.2**	**-10.9**	**-5.8**	**0.3**	**3.1**	**5.2**	**5.7**	**5.1**	**4.3**
Unit labour costs (%, y-o-y)	6.4	**4.4**	**7.4**	**8.8**	**8.2**	**6.5**	**5.2**	**4.2**	**4.2**	**4.4**	**4.4**	**4.1**
Aggregate labour productivity (%, y-o-y)	3.6	**2.4**	**0.3**	**-1.5**	**-1.9**	**-0.8**	**1.2**	**3.2**	**3.7**	**3.2**	**2.8**	**2.6**
ILO general unemployment rate (%, average, age 15–64, seas. adjusted)	2.4	**2.5**	**2.5**	**2.5**	**2.6**	**2.7**	**2.8**	**2.8**	**2.7**	**2.7**	**2.8**	**2.8**
Share of unemployed persons (MLSA) (%, average, seas. adjusted)	3.3	**3.2**	**3.2**	**3.2**	**3.4**	**3.6**	**3.6**	**3.6**	**3.6**	**3.7**	**3.7**	**3.6**
Employment (ILO) (%, y-o-y)	1.2	**1.4**	**0.7**	**1.1**	**0.9**	**0.7**	**0.6**	**0.6**	**0.8**	**0.9**	**0.8**	**0.6**
Full-time employment (%, y-o-y)	1.1	**1.9**	**2.2**	**2.1**	**1.6**	**0.7**	**0.4**	**0.7**	**0.9**	**0.9**	**0.7**	**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)	8.2	**-55.8**	**-28.7**	**-15.8**	**36.8**	**-5.9**	**23.3**	**28.2**	**77.7**	**12.2**	**19.8**	**7.5**
Trade balance/GDP (%, nominal terms)	0.5	**-3.3**	**-1.7**	**-0.9**	**2.2**	**-0.3**	**1.2**	**1.4**	**4.4**	**0.6**	**1.0**	**0.4**
Balance of services (CZK bn, current prices)	24.7	**25.7**	**39.8**	**30.2**	**29.7**	**35.2**	**31.8**	**32.3**	**30.3**	**41.3**	**39.3**	**34.6**
Current account (CZK bn, current prices)	-7.8	**-161.9**	**-121.3**	**-90.7**	**16.5**	**-99.4**	**-75.0**	**-45.2**	**56.4**	**-82.2**	**-77.5**	**-72.2**
Current account/GDP (%, nominal terms)	-0.5	**-9.6**	**-7.0**	**-4.9**	**1.0**	**-5.4**	**-4.0**	**-2.3**	**3.2**	**-4.3**	**-4.0**	**-3.6**
Foreign direct investment												
Direct investment (CZK bn, current prices)	-23.3	**-8.9**	**-8.9**	**-8.9**	**-15.0**	**-15.0**	**-15.0**	**-15.0**	**-15.0**	**-15.0**	**-15.0**	**-15.0**
Exchange rates												
CZK/USD (average)	22.0	23.1	**23.4**	**23.7**	**23.9**	**23.8**	**23.5**	**23.3**	**23.1**	**22.8**	**22.4**	**21.9**
CZK/EUR (average)	24.6	24.6	**24.7**	**25.2**	**25.6**	**25.8**	**25.8**	**25.7**	**25.6**	**25.5**	**25.4**	**25.3**
MONEY AND INTEREST RATES												
M3 (%, y-o-y, average)	6.0	6.2	**6.2**	**5.1**	**7.3**	**9.2**	**11.9**	**11.7**	**14.3**	**14.7**	**13.9**	**11.9**
2W repo rate (%, average)	4.2	5.6	**6.9**	**6.7**	**6.0**	**5.4**	**4.7**	**3.6**	**3.1**	**2.8**	**2.7**	**2.7**
3M PRIBOR (%, average)	4.6	6.0	**7.2**	**7.0**	**6.3**	**5.7**	**5.0**	**3.9**	**3.4**	**3.1**	**3.0**	**3.0**
EXTERNAL ASSUMPTIONS												
Foreign GDP (%, y-o-y, seas. adjusted, effective)	4.7	**2.3**	**0.8**	**0.7**	**0.5**	**1.0**	**1.5**	**2.2**	**2.6**	**2.7**	**2.4**	**2.1**
Foreign GDP (%, q-o-q, seas. adjusted, effective)	0.5	**0.0**	**0.2**	**0.0**	**0.2**	**0.5**	**0.7**	**0.7**	**0.6**	**0.6**	**0.5**	**0.4**
Foreign HICP (%, y-o-y, seas. adjusted, effective)	6.5	**8.8**	**9.1**	**8.3**	**6.3**	**4.3**	**3.1**	**2.1**	**1.6**	**1.7**	**1.9**	**2.1**
Foreign PPI (%, y-o-y, seas. adjusted, effective)	30.5	**36.0**	**33.3**	**24.5**	**14.1**	**6.0**	**2.4**	**0.7**	**0.0**	**-0.1**	**-0.1**	**-0.2**
Brent crude oil (in USD/barrel) (average)	97.9	112.0	**105.3**	**97.8**	**93.6**	**91.2**	**89.2**	**87.3**	**85.5**	**84.0**	**82.7**	**81.3**
3M EURIBOR (%, average)	-0.5	-0.4	**0.6**	**1.1**	**1.4**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.6**	**1.7**
USD/EUR (average)	1.1	1.1	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.2**

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

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

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

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