INTERNATIONAL MONETARY FUND

IMF Country Report No. 23/31

CZECH REPUBLIC

2022 ARTICLE IV CONSULTATION—PRESS RELEASE; AND STAFF REPORT;

January 2023

Under Article IV of the IMF's Articles of Agreement, the IMF holds bilateral discussions with members, usually every year. In the context of the 2022 Article IV consultation with the Czech Republic, the following documents have been released and are included in this package:

- A **Press Release**.
- The **Staff Report** prepared by a staff team of the IMF for the Executive Board's consideration on lapse-of-time, following discussions that ended on November 22, 2022, with the officials of the Czech Republic on economic developments and policies. Based on information available at the time of these discussions, the staff report was completed on December 12, 2022.
- An **Informational Annex** prepared by the IMF staff.
- A **Supplementary Information** updating information on recent developments.

The document listed below have been or will be separately released.

Selected Issues

The IMF's transparency policy allows for the deletion of market-sensitive information and premature disclosure of the authorities' policy intentions in published staff reports and other documents.

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PRESS RELEASE

PR23/07

IMF Executive Board Concludes 2022 Article IV Consultation with the Czech Republic

FOR IMMEDIATE RELEASE

Washington, DC – January, 20, 2023: The Executive Board of the International Monetary Fund (IMF) concluded the Article IV consultation[1] with Czech Republic.

Russia's war in Ukraine has stifled the Czech Republic's nascent recovery from the pandemic. Inflation is well above target, the labor market remains tight and vulnerabilities from a heated property market persist. Growth is projected to slow to 2.5 percent in 2022 and turn negative to around -0.5 percent in 2023 as households' purchasing power weakens, and firms rein in investment amidst higher uncertainty and falling consumer sentiment. Labor market tightness is expected to ease as the economy cools and Ukrainian refugees integrate into the labor force. Growth is projected to significantly rebound by end 2024 mainly driven by consumption and exports. In the near term, inflationary pressures are expected to be driven by external and domestic factors. Barring additional shocks, headline inflation is projected to achieve the policy target range during 2024, as the contractionary monetary policy actions taken by the CNB take effect.

Uncertainty is high due to the war with risks to economic activity tilted to the downside and risks to inflation tilted to the upside. The economy remains vulnerable to the availability of and further increases in energy and commodity prices. In the unlikely event of a disorderly house price correction, financial disruptions could impair banks' and households' balance sheets, potentially suppressing aggregate demand. The risk of inflation expectations becoming untethered or wage-price spirals forming are high. Depreciation pressures on the koruna could arise if the interest rate differential versus major central banks narrows as they tighten their monetary policies. On the other hand, an unexpected significant fall in global demand could cause a fall in external inflationary pressures.

Executive Board Assessment[2]

The recovery from the pandemic is being hindered by the fallout from Russia's war in Ukraine, likely turning 2023 into a recession year. Uncertainty around the outlook is very high with risks to economic activity titled to the downside and those for inflation to the upside.

Staff recommends further hikes to the policy rate in the short term to above the current level of the policy rate. While a careful balance between high inflation and weakening economic activity needs to be taken, priority should be given to decisively quell inflation. If inflation expectations

[1]Under Article IV of the IMF's Articles of Agreement, the IMF holds bilateral discussions with members, usually every year. A staff team visits the country, collects economic and financial information, and discusses with officials the country's economic developments and policies. On return to headquarters, the staff prepares a report, which forms the basis for discussion by the Executive Board.

[2] Management has determined it meets the established criteria as set out in Board Decision No. 15207 (12/74); (i) there are no acute or significant risks, or general policy issues requiring a Board discussion; (ii) policies or circumstances are unlikely to have significant regional or global impact in the near term; and (iii) the use of Fund resources is not under discussion or anticipated.

become untethered, this would require a significantly higher tightening to restore price stability and thus entail more costly economic adjustments.

The contractionary fiscal stance is appropriate against the backdrop of high inflation and low unemployment, but previously-adopted untargeted support measures should be unwound to enhance policy space. The contractionary stance supports the overall policy mix by avoiding compounding inflationary pressures by adding to aggregate demand. While support for households and firms amidst the cost-of living crisis is justified, measures should be targeted, temporary, and preserve price signals. The PIT regime as well as the property transfer tax should be reinstated to pre-pandemic levels as soon as conditions allow, as untargeted policy support is unwarranted in the high-inflation environment. If increasing taxes in the current environment is not feasible, once the acute cost of living crisis wanes, the reintroduction of taxes could be undertaken in phases, while increasing the progressivity of the PIT and stepping up transfers for the vulnerable. The windfall tax can help offset the cost-of-energy relief measures, but its ad-hoc nature could disincentivize investment by undermining tax certainty.

The retightening of borrower-based measures is welcome as these have helped to tame risk taking, but debt servicing capacity should be monitored. While retightened borrower-based measures are increasingly binding for a growing number of borrowers, close monitoring of debt-servicing is warranted, especially if further increases in interest rates materialize or continued increases in the cost of living further limit the ability to service debt. Further loosening or tightening of macroprudential measures may be needed conditional on market developments and risk-taking behavior.

Improvements in risk measurement across the cycle and for individual exposures should be considered. Staff welcomes the CNB's retightening of the countercyclical capital buffer rate and the development of models to assess sectoral risk weights. However, leveraging information for corporates, staff recommends to further enhance models to improve the measurement of risk at the individual exposure level.

Structural policies should enhance labor supply while facilitating the green-digital transition and preserving long-term fiscal sustainability. The employment prospects for disadvantaged groups should be stepped up, while further integrating migrants, and Ukrainian refugees. Spending on Active Labor Market Policies (ALMPs), including reskilling and vocational training should be increased to facilitate job matching, and the cross-sectoral reallocation of workers. The implementation of the RRP would help build digital skills, while supporting the green transition, which would bolster energy security by increasing energy efficiency and the supply of renewables. Streamlining the business regulatory framework and simplifying construction permitting remain essential. Streamlining the business regulatory framework and simplifying construction permitting remain essential. Strengthening long-term fiscal sustainability hinges on linking the retirement age to life expectancy.

It is recommended that the next Article IV consultation be held on the standard 12-month cycle.

Czech Republic: Selected Economic Indicators, 2019–2027

	2019	2020	2021	2022	2023	2024	2025	2026	2027
				Staff projections					
National Accounts									
Real GDP (expenditure)	3.0	-5.5	3.5	2.5	-0.5	2.5	3.4	2.8	2.5
Domestic demand	3.2	-5.6	7.8	3.1	-4.4	1.2	3.2	2.6	2.5
Consumption	2.6	-4.1	3.3	-0.7	-1.4	3.8	2.6	2.2	2.2
Public	2.5	4.2	1.5	0.4	1.1	2.0	2.0	2.0	2.0
Private	2.7	-7.2	4.1	-1.2	-2.4	4.5	2.8	2.3	2.3
Investment	4.5	-9.3	19.0	11.5	-10.2	-4.0	4.5	3.5	3.0
Exports	1.5	-8.0	6.9	5.1	4.7	6.4	2.9	2.8	2.6
Imports	1.5	-8.2	13.3	4.4	1.1	5.2	2.6	2.6	2.6
Contribution to GDP									
Domestic demand	3.0	-5.1	7.9	1.9	-3.6	1.2	2.9	2.4	2.3
Net exports	0.0	-0.4	-4.3	0.6	3.1	1.4	0.5	0.4	0.2
Investment (percent of GDP)	27.1	26.5	26.0	24.4	25.1	25.3	25.3	25.4	25.6
Gross domestic investments (percent of GDP)	27.6	26.2	30.2	33.6	29.1	26.8	26.7	26.8	27.0
Gross national savings (percent of GDP)	27.9	28.1	29.3	29.6	28.2	28.0	29.0	29.2	29.5
Output gap (percent of potential output)	2.8	-0.6	1.0	0.5	-1.0	-0.4	0.0	0.0	0.0
Potential growth	2.2	-2.2	1.9	3.0	0.7	2.0	3.0	2.8	2.5
Labor Market									
Employment	0.2	-1.3	-0.6	0.5	-0.5	0.6	0.2	0.0	0.0
Total labor compensation	7.8	1.5	6.1	7.9	6.4	5.7	5.6	4.9	4.5
Unemployment rate (average, in percent)	2.0	2.5	2.8	2.5	3.1	2.5	2.3	2.3	2.3
Prices									
Consumer prices (average)	2.8	3.2	3.8	16.0	9.3	2.5	2.0	2.0	2.0
Consumer prices (end-of-period)	3.2	2.3	6.6	19.0	4.5	2.0	2.0	2.0	2.0
Producer price index (average)	2.6	0.1	7.2	...	...	...	...	...	...
GDP deflator (average)	3.9	4.3	3.3	9.7	8.4	3.2	2.6	1.8	1.5
Macro-Financial									
Money and credit (end of year, percent change)									
Broad money (M3)	6.4	10.0	6.8	...	...	...	...	...	...
Private sector credit	4.9	3.6	8.9	...	...	...	...	...	...
Interest rates (in percent, year average)									
Three-month interbank rate	2.1	0.9	1.1	...	...	...	...	...	...
Ten-year government bond	1.5	1.1	1.9	...	...	...	...	...	...
Exchange rate									
Nominal effective exchange rate (index, 2005=100)	100.9	99.7	103.6	...	...	...	...	...	...
Real effective exchange rate (index, CPI-based; 2005=100)	99.4	100.0	104.6	...	...	...	...	...	...
Public Finance (percent of GDP)									
General government revenue	41.3	41.5	41.4	41.7	42.9	41.5	40.8	40.7	40.7
General government expenditure	41.1	47.2	46.5	46.0	47.2	44.2	43.2	43.2	43.2
Net lending / Overall balance	0.3	-5.8	-5.1	-4.3	-4.3	-2.7	-2.5	-2.5	-2.5
Primary balance	0.8	-5.2	-4.5	-3.6	-3.4	-1.5	-1.3	-1.3	-1.3
Structural balance (percent of potential GDP)	-0.8	-5.5	-5.5	-4.5	-3.9	-2.5	-2.5	-2.5	-2.5
General government debt	30.0	37.7	42.0	41.8	43.7	44.1	44.2	44.9	45.9
Balance of Payments (percent of GDP)									
Trade balance (goods and services)	6.0	6.7	3.0	-1.9	2.4	4.4	5.5	5.8	5.4
Current account balance	0.3	2.0	-0.8	-4.0	-0.9	1.2	2.3	2.5	2.5
Gross international reserves (billions of euros)	133.4	135.4	153.3	151.3	160.3	169.3	178.3	186.3	192.3
(in months of imports of goods and services)	10.5	11.9	11.1	8.7	9.1	9.1	9.3	9.4	9.3
(in percent of short term debt, remaining maturity)	129.9	142.8	139.7	128.7	129.5	133.6	139.6	145.1	150.3
Memorandum Items									
Nominal GDP (USD billions)	252.5	246.0	281.8	293.08	309.08	325.81	339.00	346.89	350.65
Population (millions)	10.6	10.7	10.5	10.5	10.5	10.6	10.6	10.6	10.5
Real GDP per capita	2.6	-5.9	5.5	2.3	-0.7	2.2	3.4	2.8	2.5
GDP per capita (USD thousands)	23.71	23.00	26.85	27.85	29.32	30.88	32.12	32.87	33.24

Sources: Czech National Bank; Czech Statistical Office; Ministry of Finance; Haver Analytics, and IMF staff estimates and projections.
Structural balances are net of temporary fluctuations in some revenues and one-offs. COVID and energy price-related one-offs are however included.

INTERNATIONAL MONETARY FUND

CZECH REPUBLIC

STAFF REPORT FOR THE 2022 ARTICLE IV CONSULTATION

December 12, 2022

KEY ISSUES

Context: Czechia's nascent recovery from the pandemic has been hindered by Russia's war in Ukraine. Gas shortages are unlikely this winter but further increases in energy prices are a key risk. Inflation, which is well above target, and the rise in the cost of living are causing significant social pressure. The labor market remains tight and risks from a heated property market persist. Growth is projected to slow in 2022 and 2023 but to recover in 2024. Risks are tilted to the downside for activity and to the upside for inflation.

Policy Recommendations: Amid a volatile economic environment and high risks to the outlook, policy needs to balance reducing inflation with supporting the most vulnerable. Once uncertainty dissipates, continuing the structural policy agenda will be critical.

- ***Monetary policy.*** While a careful tread between high inflation and weakening economic activity is needed, priority should be given to decisively quelling inflation. Staff recommends further hikes to the policy rate in the short term, to bring down high inflation and to ensure fulfillment of the inflation target over the medium term, while reducing the risk of inflation expectations becoming untethered.

- ***Fiscal policy.*** Targeted and temporary support to alleviate the cost-of-living crisis should remain a priority, while limiting the impact on aggregate demand so as not to add to inflationary pressures. Unwinding previously-adopted untargeted support measures can enhance policy space to support the vulnerable in the short term, while helping to address long term debt sustainability pressures.

- ***Macrofinancial.*** The recent retightening of borrower-based tools is welcome, as these have helped to tame risk taking by banks and households. These tools should be supported by improved property taxation and measures to bolster housing supply. Conditional on market developments, further calibration of macroprudential tools may be needed.

- ***Structural policies.*** Labor market policies should continue to improve the integration of women, migrants, and refugees, and facilitate the green and digital economic transformation. The indexation of the retirement age to life expectancy would improve pension sustainability and increase labor supply. While energy security is an immediate priority, policies for the green transformation should continue.

Approved By
Oya Celasun (EUR) and Eugenio Cerutti (SPR)

Discussions took place in Prague during November 8–22, 2022. The staff team comprised Messrs. Segoviano (head), Tudyka, Noumon and Ms. Iyer (all EUR), and Mr. Weller (MCD). Mr. Marek (OED) attended some meetings. Mr. Alasal and Ms. Dumo (both EUR) assisted in the preparation of the staff report. The staff team met with CNB Governor Michl, Board Members Holub, Frait, Kubelková, Deputy Minister Jiří Valenta, Ministry of Finance Director of Economic Policy Prušvic, Head of Fiscal Policy and Sustainability Unit Marval, Fiscal Council Chairman Hampl, other senior officials, and representatives from the private sector. Czechia is an Article VIII country (Informational Annex: Fund Relations).

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TABLES

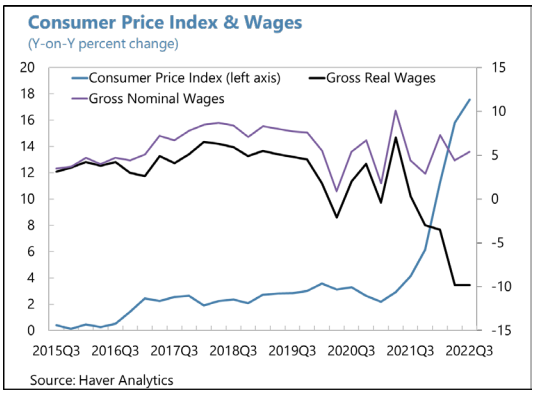
ANNEXES

CONTEXT AND RECENT DEVELOPMENTS

Russia's war in Ukraine has undermined growth, increased living costs, and clouded the economic outlook. While Czechia sourced virtually all of its gas from Russia, physical gas disruptions are unlikely this winter as the country has fully filled up its gas storage, secured access to liquified natural gas (LNG) sources and can reactivate idle coal facilities. Yet, vulnerabilities to further increases in energy prices remain.

1. The initial recovery from the pandemic was hindered by the fallout from the war in Ukraine. On the back of strong policy support, the impact of the pandemic was less severe than in several other countries in Europe. After contracting by 5½ percent in 2020, GDP rebounded to 3½ percent in 2021. The recovery, however, stalled due to the war in Ukraine. Growth in the first three quarters of 2022 was subdued, averaging around 0.3 percent q-o-q, driven largely by investment due to the buildup of inventories and a recovery in fixed investment. Private consumption was weak as households were affected by rising inflation, a fall in consumer sentiment, and rising borrowing costs. Export recovery was hindered by a fall in external demand and ongoing bottlenecks in global value chains (GVCs).

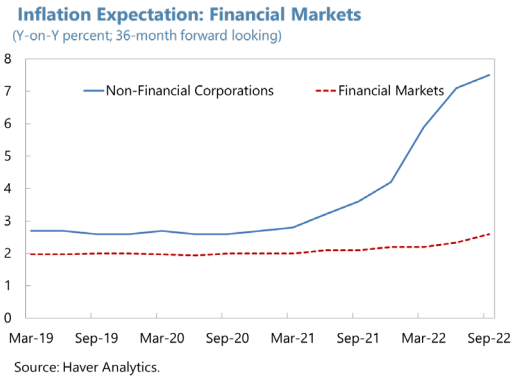
2. The labor market remains tight, but real incomes have fallen due to inflationary pressures. The unemployment rate was around 2½ percent in 2022:Q2, one of the lowest in Europe, as the labor market showed remarkable resilience supported by a decisive policy response.[1] While inflation has surged as firms' input costs have increased due to the surge in energy prices and GVC bottlenecks, nominal wage growth has been relatively subdued, resulting in a sharp fall in real wages in 2022.

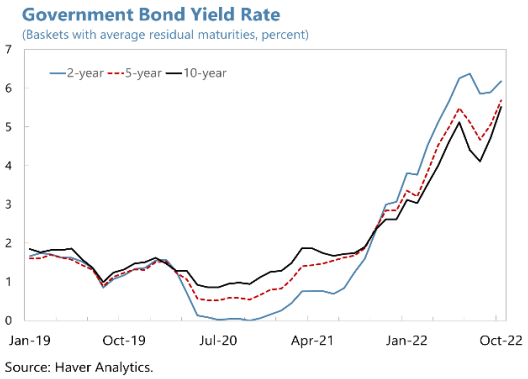


3. The CNB increased the policy rate to 7 percent to combat high and rising inflation. Headline and core inflation rose from about 2½ and 3½ percent respectively at end-2020, to peaks of 18 percent and 14.7 percent respectively y-o-y in September 2022. Core inflation rose in large part due to the increase in input costs and imputed rents. While core inflation remained at 14.6 percent in October 2022, headline inflation receded to about 15.1 percent. The decrease in CPI inflation by almost 3 percentage points in October 2022 mainly reflects a drop in administered price inflation. While indicators of inflation expectations have increased, these appear to remain broadly anchored, as reflected by the stability of the 36-month financial sector expectations and the inverted yield curve on government bonds.

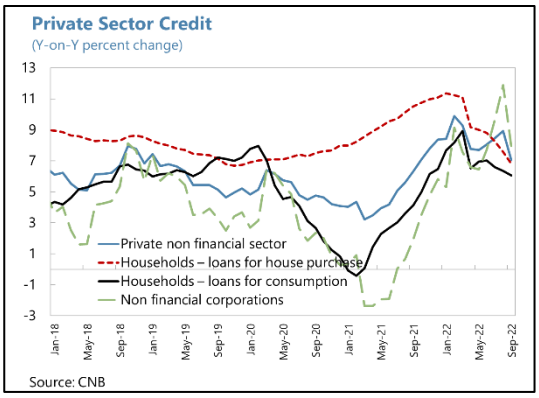
[1] In addition to monetary and macroprudential policy support, announced fiscal measures in 2021, as noted in the 2022 Article IV staff report, were about 25 percent of 2020 GDP. These included compensatory transfer payments to small businesses and the self-employed, a lump-sum payment for pensioners, care allowance packages, a broad rate cut in the personal income tax (PI) by about 5 percentage points, and the cancellation of the property sales tax.

Figure 1. Czechia: Inflation Expectations

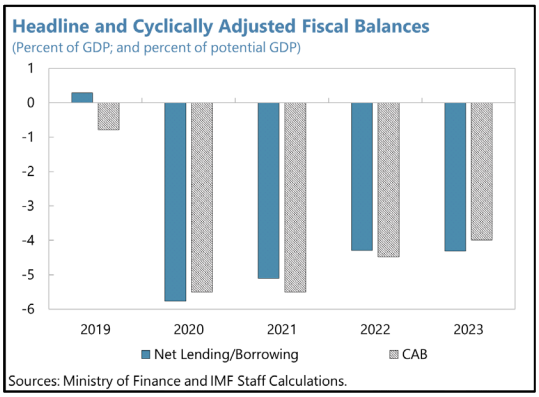




4. The 2021 fiscal outturn was better than expected, while policy support has helped to alleviate the impact of high energy price inflation and support Ukrainian refugees. The general government deficit declined to 5.1 percent of GDP in 2021 versus 7.2 percent envisaged in the November 2021 Fiscal Outlook. However, revenues declined as a share of GDP, which was largely driven by lower income tax receipts from the permanently revised personal income tax (PIT) regime. Debt at end-2021 was 42 percent of GDP—12 percentage points higher than in 2019 reflecting pandemic support measures implemented in 2020 and 2021. The headline and structural fiscal balances in 2022 are estimated to have improved by about ¾ and 1 percent and general government debt to have remained constant at about 42 percent of GDP against the backdrop of a small positive output gap and tight labor market.

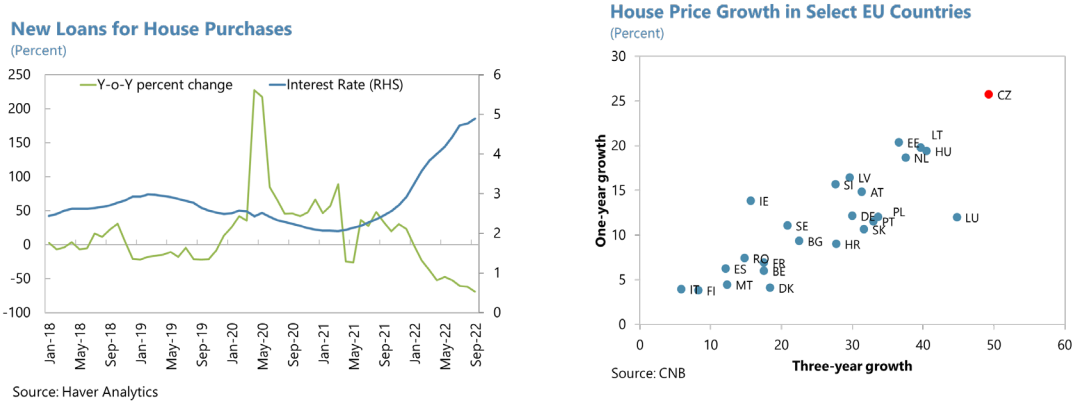


5. The housing market remains tight, though borrowing for house purchases is decelerating. Credit outstanding to the non-financial private sector grew by 7 percent y-o-y in September 2022—about 3 percentage points lower than at its peak during the pandemic. The bulk of this growth—about 6¾ percent y-o-y in mid-2022—came from lending to households for housing purchases. At the same time, the rapid increase in lending rates driven by the steep tightening of the policy rate by the CNB, has led to a rapid reduction in newly-extended housing loans since



the beginning of 2022.[2] Residential property price growth has been among the highest in Europe with prices doubling over the past six years and apartment prices estimated to be overvalued by over 40 percent in mid-2022.

Figure 2. Czechia: Housing Loans and Property Prices



6. The current account weakened as GVC disruptions constrained exports and the terms of trade declined. The current account balance turned into a deficit of close to 1 percent of GDP in 2021 after consistently having been in surplus in the prior seven years, as the import bill rose sharply while the recovery in export volumes was subpar. The current account in the medium term is uncertain but is expected to return to a surplus as exports recover amid an improved global outlook. Staff assesses the external position in 2022 to be broadly in line with fundamentals and desirable policy settings (Annex I).

OUTLOOK AND RISKS

7. Growth is projected to remain subdued and inflation high in the near term as Russia's war in Ukraine weighs on the recovery. A rebound is expected from 2024. Growth is projected to slow to 2.5 percent in 2022 and turn negative to around -0.5 percent in 2023 as households' purchasing power weakens, and firms rein in investment amidst higher uncertainty and falling consumer sentiment. Czech exports will also remain temporarily subdued due to a slowdown in external demand and continuing GVC issues. Labor market tightness is expected to ease as the economy cools and Ukrainian refugees integrate into the labor force. Growth is projected to pick up by end 2024 driven mainly by consumption and exports. As inflation drops and domestic demand recovers, the output gap is expected to close in the medium term while potential output recovers.

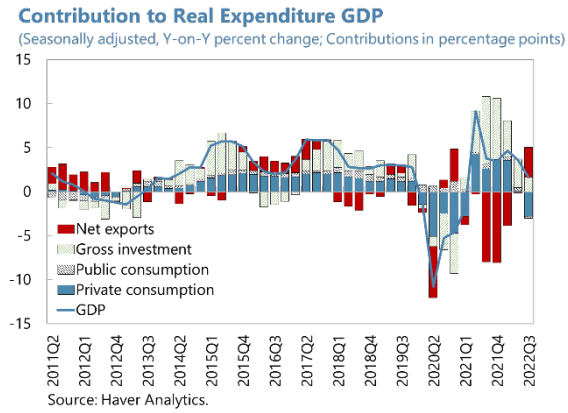
8. Inflation is projected to remain elevated in the near term but converge to the CNB's target range during 2024. In the near term, inflationary pressures are expected to be driven by domestic factors—imputed rents and input costs—as well as external factors—disruptions to GVCs

[2] New loans for housing purchases were CZK 55.9 billion in 2022:Q3 compared to CZK 154.5 billion a year before.

and high commodity prices. Barring additional shocks—and if energy and food prices soften as currently predicted by futures markets, inflation expectations remain tethered, and remaining GVC bottlenecks ease—headline inflation is projected to reach the policy target range during 2024, as the contractionary monetary policy actions taken by the CNB take effect.

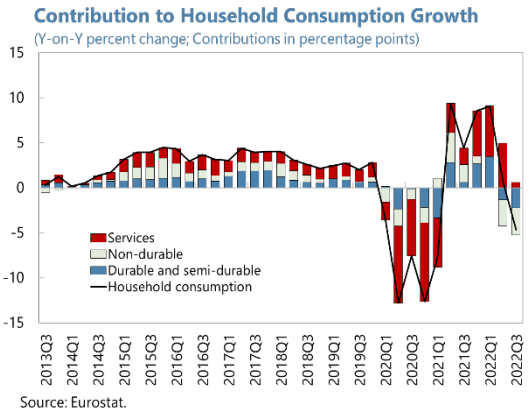
Figure 3. Czechia: Recent Growth

Growth slowed in 2022 due to supply-side constraints after an initial post-pandemic recovery.



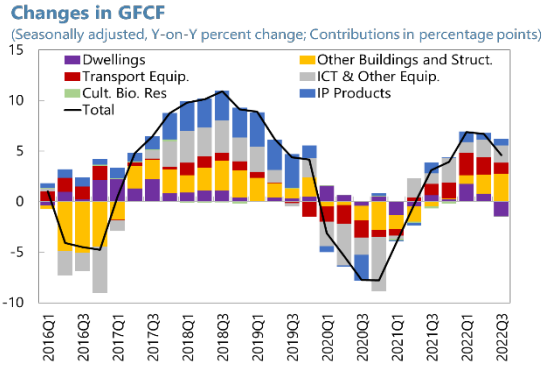
Source: Haver Analytics.

Service consumption growth continues to recover while durable and non-durable growth have slowed…



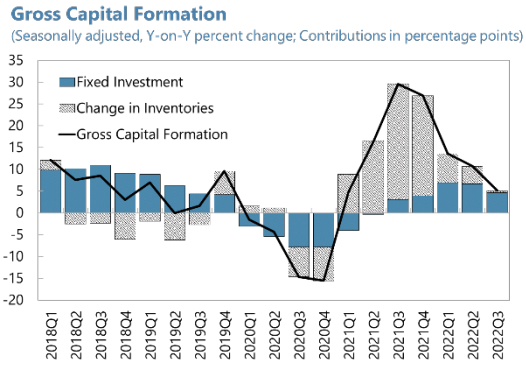
Source: Eurostat.

…and GFCF continues to recover after a drop at the onset of the pandemic.



Sources: Czech Statistics Office; Staff Calculations.

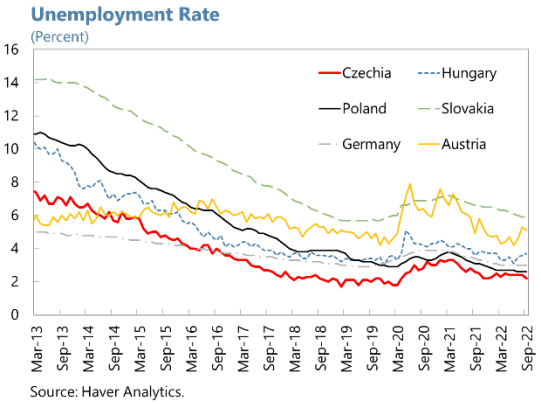
Gross capital formation has been driven primarily by a buildup of inventories alongside a recovery in GFCF.



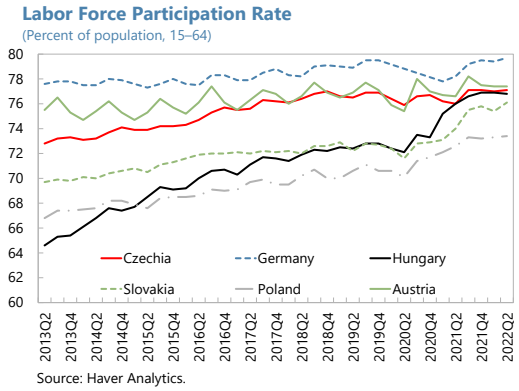
Sources: Haver Analytics; Staff Calculations.

Figure 4. Czechia: Labor Market Developments

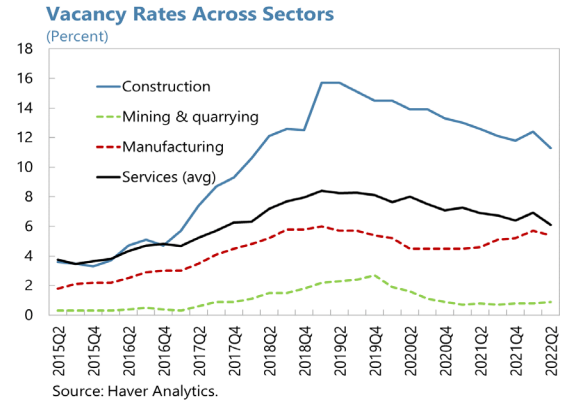
The unemployment rate has declined over time, and remains the lowest in EU, …



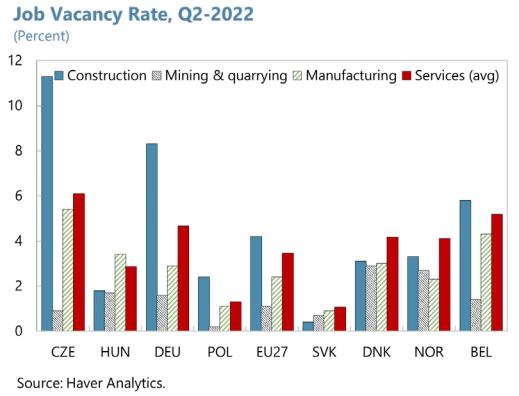
…while labor force participation has also increased slightly over time and remained stable since the pandemic.



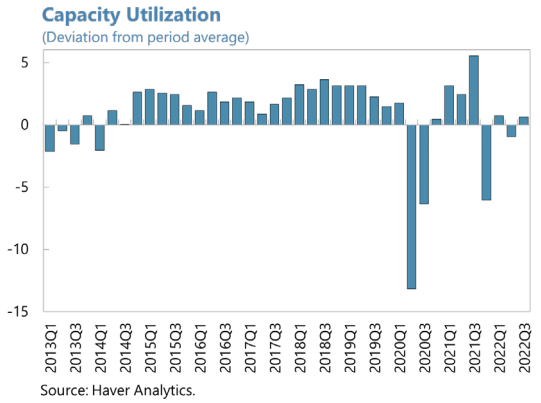
Vacancy rates have declined gradually since 2019…



…although vacancies in some sectors remain relatively high compared to other European countries.



Capacity utilization dropped again in 2022 after an initial recovery after the lockdown…



…and the growth of unit labor costs is below pre-pandemic trends.

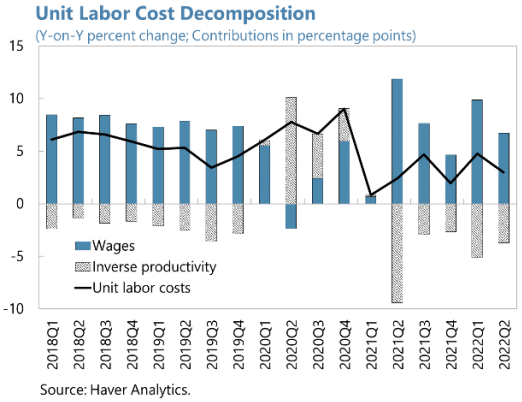
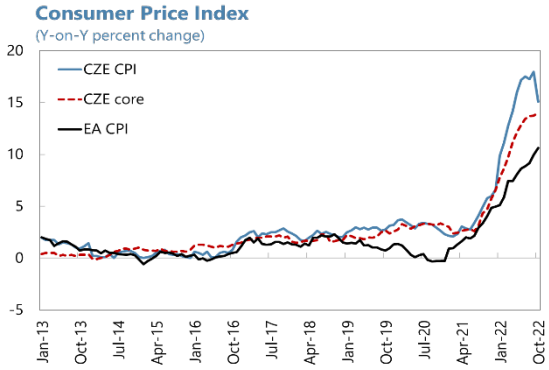


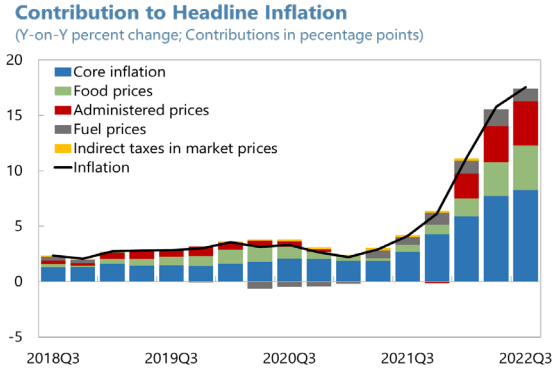
Figure 5. Czechia: Inflation

Inflation has increased since 2019 and rose well above the 2 percent target in 2021, continuing into 2022…



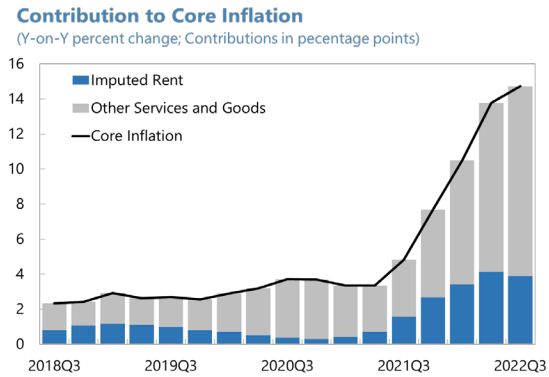
Source: Haver Analytics.

…pushed up by core inflation, administered prices, food prices and fuel prices.



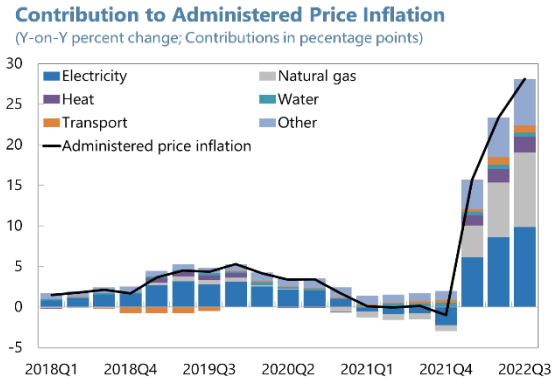
Source: CNB.

The increase in core inflation has been driven by imputed rents as well as other goods and services, …



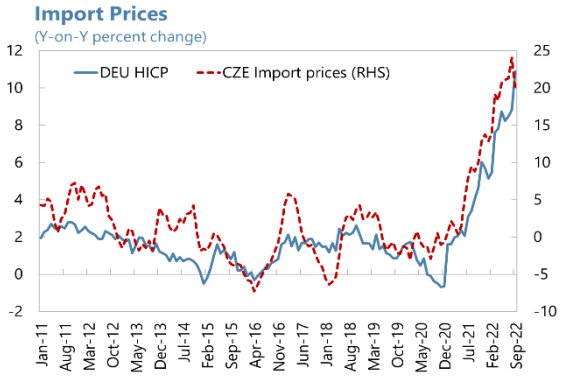
Source: CNB.

…while the increase in administered prices has been driven by housing-related gas and electricity costs.



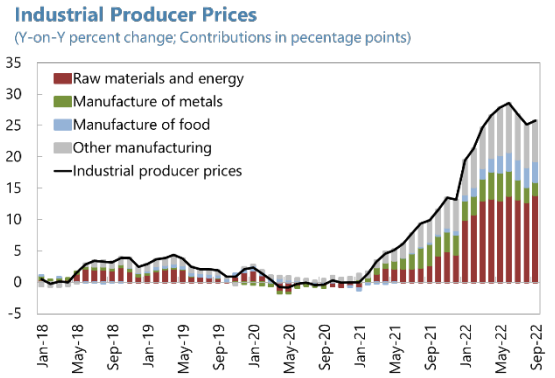
Source: CNB.

Import prices have been increasing since the onset of the pandemic and have spiked sharply in 2022, …



Source: Haver Analytics.

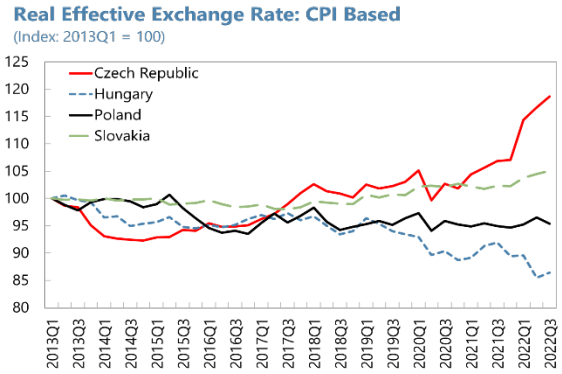
…while producer price inflation has increased due in large part to higher raw material and energy prices.



Sources: CNB.

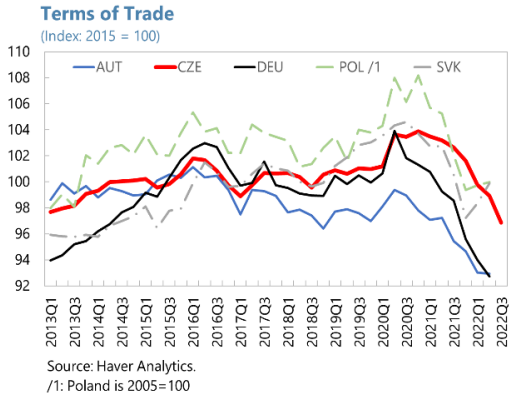
Figure 6. Czechia: External Position and Competitiveness

The REER continues to appreciate in 2022 relative to competitors…



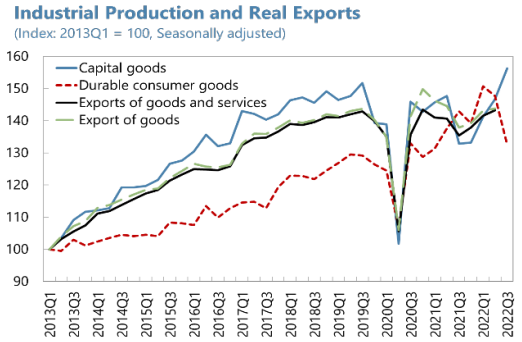
Sources: Haver Analytics; and IMF staff calculations.

…while the terms of trade have deteriorated in 2021 and 2022.



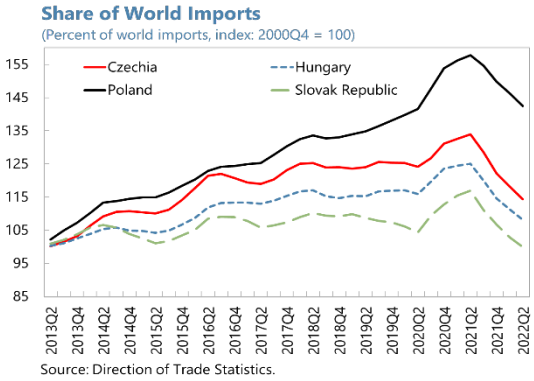
Source: Haver Analytics.
/1: Poland is 2005=100

Exports continue to recover after a sharp drop at the onset of the pandemic, …



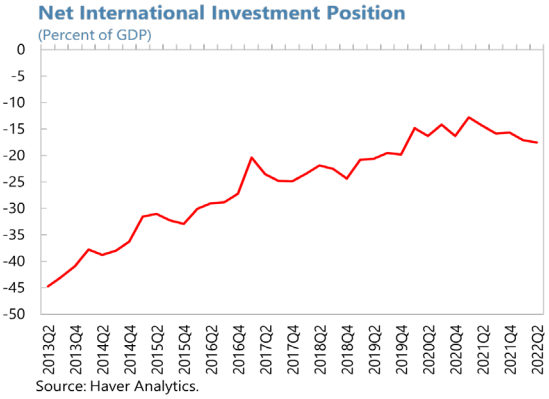
Source: Haver Analytics.

…while the share of world imports decreased in 2022 relative to 2021, in line with peers.



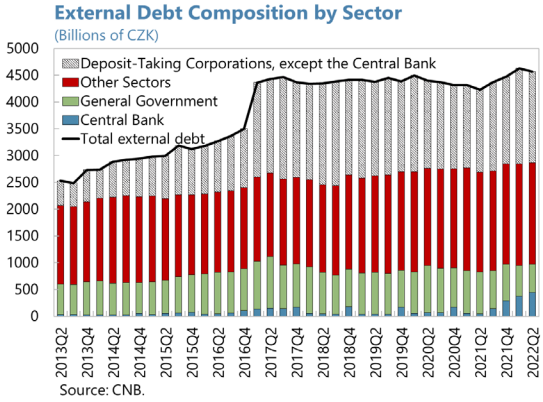
Source: Direction of Trade Statistics.

The NIIP is at a comfortable level…



Source: Haver Analytics.

…and external debt remained stable nominally.



Source: CNB.

9. Risks to the outlook are tilted to the downside and risks to inflation to the upside. While Czechia sourced virtually all of its gas from Russia—with gas representing about a fifth of the domestic energy mix—physical gas disruptions are unlikely this winter, even under the baseline scenario of a complete shut-off, as gas storage is at capacity and some resourcing took place.[3] The authorities have also indicated the possibility to reactivate idle coal facilities which could potentially fill remaining energy needs. Nevertheless, the economy remains vulnerable to further increases in energy and commodity prices, which could further impact consumption, fixed investment and exports, leading to worse outcomes for growth and inflation (Annexes VIII and IX). In the event of a disorderly house price correction, financial disruptions could impair banks' and households' balance sheets, potentially suppressing aggregate demand. The risk of inflation expectations becoming untethered or wage-price spirals forming—against the backdrop of already high inflation and an easing but still tight labor market—are high. Inflation expectations appear to remain broadly anchored but are above the inflation target, and nominal wage growth, though below inflation, has continued increasing. Depreciation pressures on the koruna could arise if the interest rate differential versus major central banks narrows as they tighten their monetary policies. On the other hand, a deeper recession or an unexpected significant fall in global demand could cause a fall in domestic or external inflationary pressures.

Authorities' Views

10. The authorities broadly agree with the outlook and list of risks. As the Russia's war in Ukraine weigh on the recovery, they project a recession in 2023 but expect growth to pick up in 2024 as consumption and exports recover. Inflation is expected to remain elevated in 2023 but to return to the target rate in 2024. The CNB Board see risks and uncertainties of the baseline scenario of the central bank forecast as being significant and going in both directions. Main risks are stemming from the future course of the war, tilted to the downside for the outlook and tilted to the upside for inflation.

POLICY DISCUSSIONS

The most immediate challenges are to fight high inflation while helping the most vulnerable deal with the cost-of-living crisis and keeping risk taking in the housing market in check.

11. Staff recommends that monetary policy be tightened further while fiscal and macroprudential policy remain broadly appropriate. Significant monetary, fiscal and macroprudential policy actions have already been taken. A pause in the tightening of macroprudential policies, along with further tightening of monetary policy and the current

[3] The government has secured access to a new Dutch LNG terminal. EU funding has been requested for reviving the Stork II project, which would connect the Czech Republic to the Polish network and its LNG terminals.

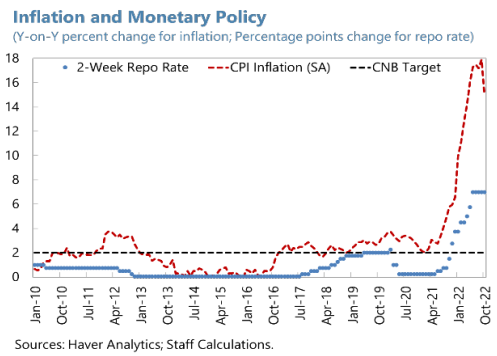
contractionary fiscal stance are prudent given the elevated inflationary risks, highly uncertain environment, and downside risks to the outlook.

12. Careful calibration of economic policies will be needed if downside risks materialize. Under the adverse scenario, the CNB needs to balance reducing inflation with shielding economic growth. Policy action should be data dependent and be taken primarily to keep inflation expectations tethered and to avoid wage-inflation spirals. Targeted and temporary fiscal support to alleviate the cost-of-living crisis should remain a priority while avoiding adding to inflationary pressures. Unwinding previously-adopted untargeted support measures can enhance policy space, which if needed in the short term could be used to further support the vulnerable. Close monitoring of financial sector risks and debt-servicing is warranted, especially if further increases in interest rates materialize or continued increases in the cost of living further limit the ability to service debt. Macroprudential measures should be calibrated to market developments and the monetary policy stance. Policy calibration should balance incentives for adequate risk-taking, while enabling the banking system to keep on providing financing to viable debtors and ensuring that buffers in the system remain adequate.

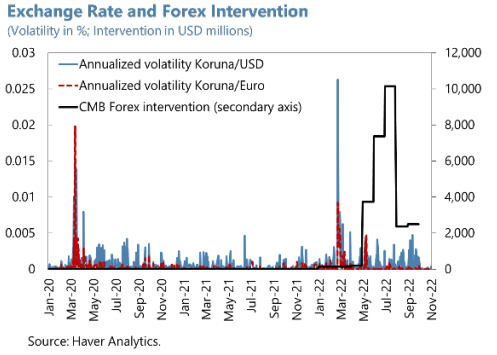
A. Monetary Policy

13. The CNB has raised the policy rate in response to rising inflation and intervened in the FX market to prevent excessive fluctuation of the koruna. The CNB proactively tightened the policy rate in a series of steps starting in June 2021, from 0.5 percent to its current value of 7 percent. At its latest policy meeting on November 3, 2022, the Bank Board kept the policy rate unchanged. The Board justified its decision with interest rates being at a level that is dampening domestic demand pressures and slowing growth in loans to households and firms. Amid higher volatility observed in FX markets, the CNB has been increasing the amount of FX interventions from May 2022 and has announced that it will continue preventing excessive fluctuations of the koruna.

Figure 7. Czechia: The CNB's Policy Actions



Sources: Haver Analytics; Staff Calculations.



Source: Haver Analytics.

14. Staff recommends further monetary policy tightening in the short term to ensure fulfillment of the inflation target over the medium term, while reducing the risk of inflation expectations becoming untethered. Staff recommends that the CNB should place greater weight on the minimization of this risk. While a careful tread between high inflation and weakening

economic activity needs to be taken, priority should be given to decisively quelling inflation. Keeping expectations tethered is of key importance, as higher inflation expectations would eventually require a significantly stronger tightening to restore price stability and thus entail more costly economic adjustments. By increasing the rate above its current level, the CNB could bring down currently elevated inflation[4]—thus limiting the pass-through of the current strong domestic and foreign cost pressures into prices and wages—and inflation expectations. Thereby, the CNB would reinforce its strong commitment to the price stability objective. Consistent with the CNB baseline scenario in the Autumn 2022 Monetary Policy Report, IMF staff analysis shows that further interest rate tightening in the short term would steer inflation to the target sooner thus allowing an earlier reduction of the policy rate Annex XI.[5]

Authorities' Views

15. The CNB confirmed its commitment to fighting inflation until it is under control; however, differences of opinion remain on the shape of the tightening cycle. While some members consider that higher weight should be given to the risk of inflation expectations becoming de-anchored, hence, the need to raise the policy rate further in the short term, other members believe that the current interest rate level is having a sufficiently restrictive effect on domestic demand. They are also of the view that the current inflation pressures are largely due to strong external price shocks lying outside the control of domestic monetary policy. Therefore, at this conjuncture, they do not consider necessary further increases to the policy rate. The CNB Board indicated that it will wait for further data to assess if further tightening might be needed.

B. Fiscal Policy

16. The 2022 and 2023 budgets include, among others, several discretionary policy measures to help households and firms cope with higher energy cost (Tables 1 and 2):

- Power and gas price caps for households and SMEs.
- An "energy package" including a one-off allowance for households' energy bills and a waiver of the renewable energy surcharge for all electricity users.

[4] Kohlsheen and Moessner (2022) find that a higher level of inflation can lead to a higher pass-through of costs to prices.

[5] Staff estimates indicate that the path of the welfare-maximizing policy rate for the Czech Republic is consistent with the path of the policy rate projected by the CNB in the Autumn 2022 Monetary Policy Report. IMF staff estimates are based on a reduced-form model that features adaptive learning instead of rational expectations, as featured in Annex 2.7 of the October 2022 World Economic Outlook (WEO).

- An energy subsidy for large businesses.
- One discretionary and two mandatory extraordinary pension hikes, support for Ukrainian refugees, the second increase in the basic income tax deduction adopted in 2020, a one-off allowance for families with children, a pension increase for women who raised kids, an increase in the turnover limit for VAT registration, as well as a cancelation of the road tax and a reduction of excise taxes on diesel and petrol.

Text Table 1. Czechia: Main Fiscal Measures in 2022 and 2023

in CZK billion unless otherwise noted	2022		2023	
	Total	percent of GDP	Total	percent of GDP
Total	**137.9**	**2.0**	**197.4**	**2.8**
Energy-price-related measures	**71.8**	**1.0**	**115.2**	**1.6**
Power price cap for households and SMEs	0.0	0.0	83.0	1.1
Energy saving tariff for households	18.5	0.3	0.0	0.0
Power subsidy for large businesses	30.0	0.4	0.0	0.0
One-off allowance for families with children	7.8	0.1	0.0	0.0
Reduction of excise tax on petrol and diesel by CZK 1.50/l	6.7	0.1	9.6	0.1
Waiver of the renewable energy surcharge	4.6	0.1	18.4	0.2
Cancellation of road tax for cars up to 12t	4.2	0.1	4.2	0.1
Other measures	**66.1**	**1.0**	**82.2**	**1.2**
Support for Ukrainian refugees	15.2	0.2	0.0	0.0
Mandatory extraordinary pension hikes due to high inflation	28.0	0.4	59.0	0.9
Discretionary pension hike	10.6	0.2	10.9	0.2
Second increase in the basic income tax deduction	12.3	0.2	12.3	0.2
Pension increase of CZK 500 per month for each child raised	0.0	0.0	18.4	0.3
Increase in the turnover limit for VAT registration from CZK 1 to 2 million	0.0	0.0	10.0	0.1

ESA 2010 methodology

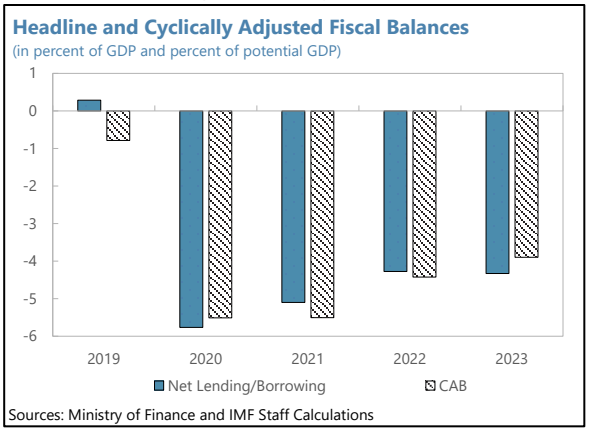
Source: Ministry of Finance

17. The current fiscal stance is appropriately contractionary, but fiscal policy should remain flexible given the uncertain outlook. The headline deficit is projected to decrease by about ¾ percentage points to 4¼ percent of GDP in 2022 and the then to remain at the same level in 2023. In cyclically adjusted terms, the fiscal stance is mildly contractionary in both years—in 2022 due to expiring pandemic-related measures, and in 2023 as the output gap turns negative. The contractionary stance is called for by above-target inflation and a tight labor market. It will avoid compounding inflationary pressures by adding to aggregate demand. The pace of consolidation should be reassessed in the event of severe shocks.

Text Table 2. Czechia: Details on Main Fiscal Policy Measures in the 2022 and 2023 Budgets

Measure	Details
Power and gas price caps for households and SMEs	Electricity price cap at CZK 5/kWh (CZK 6.05/kWh incl. VAT) for households, government entities and SMEs irrespective of energy consumption. However, for SMEs using high and very high voltage levels or with consumption between 630-4200MWh, the cap only applies to 80 percent of the highest consumption in the last five years. Gas price cap at CZK 2.5/kWh (CZK 3.025/kWh incl. VAT) for households (all consumption) and SMEs with consumption below 630MWh. The caps apply January 2023-end 2023.
Energy package including a reduced power and gas tariff for households and a waiver of the renewable energy surcharge for all electricity users	One-off allowance applied to households' energy bills of CZK 3,500 or CZK 2,000 depending on the type of electricity tariff in 2022. The waived renewable energy surcharge is CZK 599/MWh. It applies Oct 2022–Dec 2023.
Energy subsidy for large businesses	All large firms, excluding those benefiting from capped power and gas prices, or affected by the upcoming windfall tax, are eligible. Energy costs exceeding 200 percent of 2021 costs are eligible. The subsidy is limited to 50 to 70 (specific sectors) percent of eligible costs up to CZK 200 million for energy intensive firms and 30 percent of eligible costs up to CZK 45 million for all other large firms. Energy intensive firms must be incurring operating losses to be eligible, and the subsidy can cover up to 80 percent of the operating loss. In effect for 2022 costs.
Discretionary pension hike (permanent)	Pensions were increased by CZK 300.
Extraordinary mandatory pension hikes (permanent)	The pension indexation formula calls for automatic increases if consumer prices since the last indexation have increased by more than 5 percent.
Second increase in the basic income tax deduction as part of the PIT regime change adopted in 2020	Beginning 2021, the PIT rate for employees was lowered to 15 percent from an effective 20.1 percent, while the basic tax deduction was raised by CZK 3,000 (from CZK 24,840) in 2021 and again in 2022.
One-off allowance for families with children.	CZK 5,000 per child under 18 for a household with an annual gross income of up to CZK 1 million.

18. Support for households and firms amidst the cost-of living crisis is justified, but measures that are targeted, temporary, and preserve price signals to incentivize energy savings are preferable. Well-targeted, temporary expenditure side measures utilizing existing social safety nets such as lump sum cash transfers to the most vulnerable households are preferable to reducing taxes on energy or measures that suppress price signals. Allowing prices to pass through to consumers incentivizes energy-conserving behavior and energy efficiency



investments. A full pass-through in the face of extraordinarily high price increases would create unacceptable hardship and undesirable macroeconomic disruptions. However, relief should be limited in size, temporary, and designed to encourage energy savings. The one-off lump-sum allowance applied to households' energy bills, and the allowance for families with children subject to income caps, preserve price signals and incentives to conserve energy, and are therefore welcome. Energy savings have already been achieved by allowing energy prices to pass through to end consumers. However, the waivers of the renewable energy surcharge and excise and road taxes, and the energy price caps for households and SMEs are not targeted, and they blunt the incentives for further energy saving. While containing a sizeable degree of price pass-through, the energy subsidies for large firms that incur large energy bills could be designed better, for instance by linking relief to past energy usage, or offering lump-sum support, to avoid lowering the effective price of current consumption. Alternatively, energy consumption below a minimum necessary level could be subsidized at a guaranteed price, while consumption above that level would be based on market prices.

19. Unwinding previously-adopted, untargeted support measures can enhance policy space to extend further support to the vulnerable, while also helping to address long-term debt sustainability. The PIT regime as well as the property transfer tax should be reinstated to pre-pandemic levels as soon as conditions allow, as untargeted policy support is unwarranted in an environment of high inflation and low unemployment. Implementing these measures would yield over 2 percent of GDP going forward lifting the primary balance above its debt-stabilizing level of - 0.5 percent of GDP as early as 2024. If increasing taxes in the current environment is not feasible, once the acute cost-of-living crisis wanes, the reintroduction could be undertaken in phases, while increasing the progressivity of the PIT and stepping up transfers for the vulnerable. Any remaining savings would serve to replenish fiscal buffers, improving policy space to address future shocks and stabilizing debt (Annex IV). Moreover, the unwinding of untargeted measures would further improve the policy mix in its fight against inflation.

20. The windfall tax can help offset the cost-of-energy relief measures but is second best to a permanent excess profit tax that avoids disincentivizing investment. The tax will be levied on the profits of banks and energy production and distribution companies in 2023–25 exceeding average profits plus 20 percent during 2019–2021. The rate is set at 60 percent and the tax is expected to yield about CZK 150 billion (close to 2¼ percent of 2022 GDP) in 2023–2025. Given the current circumstances, staff assesses the tax to be an acceptable way to generate revenue, as it is strictly temporary and imposed only on excess profits, allowing producers to recover their operating costs and keep a portion of the excess profits. Nevertheless, by undermining tax certainty, a windfall tax may weaken the investment climate and discourage future investment due to its ad-hoc nature and is second-best to a permanent fiscal regime that determines clear rules under which excess profits can be taxed.[6]

[6] See IMF2022a and IMF2022b.

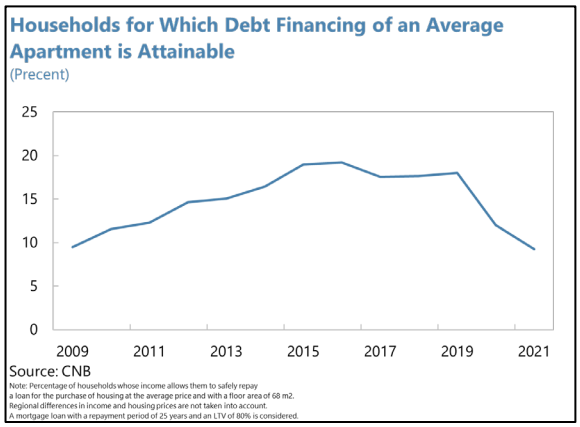
21. In the medium term, policy should focus on addressing long-term fiscal sustainability through overhauling the pension system. (Section E).

Authorities' Views

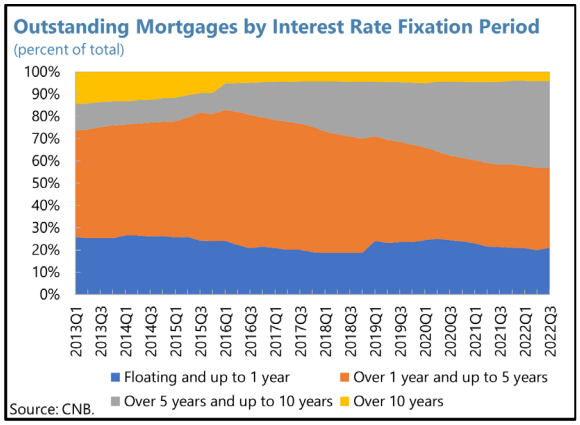
22. The authorities confirmed their commitment to provide support against the cost-of-living crisis in a fiscally prudent way and stressed that international energy prices have already been allowed to pass through to domestic prices substantially. While they agreed that temporary and fully-targeted measures are a first-best policy option, the levels of the energy price caps are set at high level and therefore strongly incentivize consumers to conserve energy. The authorities stressed that the windfall tax, including for banks, is a fair way of redistributing benefits that were generated as a consequence of external shocks. They argued that the PIT regime is difficult to reverse as it requires changing laws and would be counterproductive in the current economic environment.

C. Real Estate Markets and Macroprudential Policy

23. Continued strong house price growth increased residential property price overvaluation, stretching affordability, and intensifying vulnerabilities. The overvaluation of apartment prices of 40 percent in mid-2022 estimated by the CNB is over 15 percentage points higher than at end-2019—prior to the COVID-19 pandemic. Although average household indebtedness in Czechia is low compared to the rest of Europe, lower-income households and those that purchased in overvalued areas or at the maximum of their budget are particularly vulnerable to price shocks, increasing interest rates, and tightening financial conditions with potential spillover effects to the real economy. Rising house prices have pushed up the average mortgage size by close to 75 percent over the past five years to above CZK 3 million in 2021:H2.



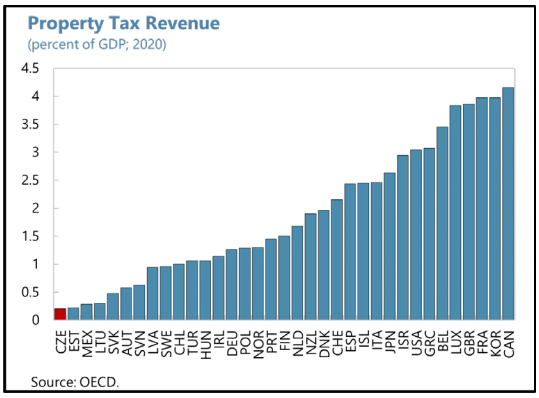
24. The retightening of borrower-based measures is welcome, as these have contributed to tame risk taking, but debt servicing capacity should be monitored. Risk taking increased during a temporary lifting of borrower-based macroprudential limits between April 2020 and April 2022. Reintroduced limits on DTI (8.5) and DSTI (45 percent) and a lower limit for LTV (80 percent) ratios became effective 1 April 2022.[7]



[7] Limits for applicants under the age of 36 are DTI (9.5), DSTI (50 percent) and LTV (90 percent).

Subsequently, the shares of newly extended loans with elevated LTV and DTI ratios have come down. However, the share with elevated DSTI ratios continues to increase, reflecting the impact of rapidly rising interest rates in monthly mortgage payments (Figure 9). While retightened borrower-based measures are increasingly binding for a growing number of borrowers, close monitoring of debt-servicing is warranted, especially if further increases in interest rates materialize or continued increases in the cost of living further limit the ability to service debt. Thus, conditional on market developments and risk-taking behavior, further loosening or tightening of macroprudential measures may be needed.[8]

25. Changes in the tax code and improved housing supply could alleviate real estate price and affordability pressures. Fiscal revenues from recurring property taxation are among the lowest in Europe and should be stepped up. Property taxes should be based on market valuations instead of floor space as is currently the case. Mortgage interest deductibility should be eliminated as in other advanced economies, as this incentivizes larger housing purchases and higher indebtedness, pushing up prices. Implementing these tax changes would, at the same time, contribute to strengthen fiscal buffers (Section B). Implementation of some of the provisions of the new construction law will take until 2023. Efforts to improve the permitting process should continue as so far, the new construction law has had a limited impact on the number of granted building permits.



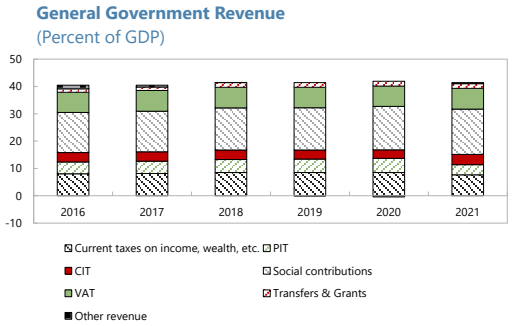
Authorities' Views

26. The authorities are monitoring households' capacity to repay mortgages closely. They acknowledged that although rapid rises in interest rates have increased repayment risk for households, risks for financial stability are still limited. Moreover, they pointed out that there are strong indications that house price growth has decreased substantially since the latest official data release. The authorities stand ready to adjust the macroprudential stance as needed.

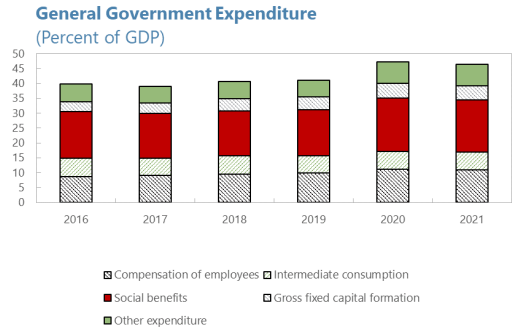
[8] 2019 GFSR.

Figure 8. Czechia: Fiscal Sector

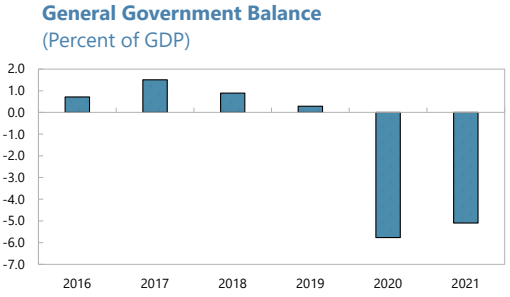
Revenue declined as a result of the change in the PIT regime, …



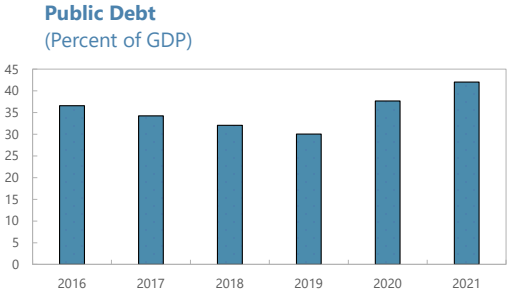
…while spending increased strongly, reflecting the policy measures in response to COVID-19…



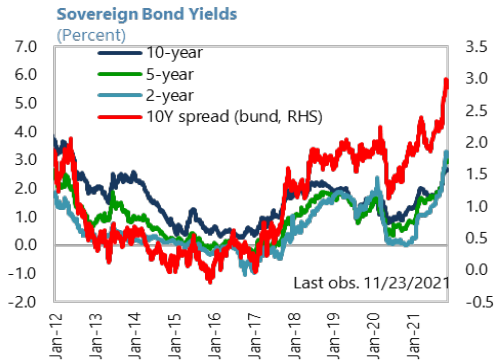
…turning the fiscal surplus into a sizeable deficit…



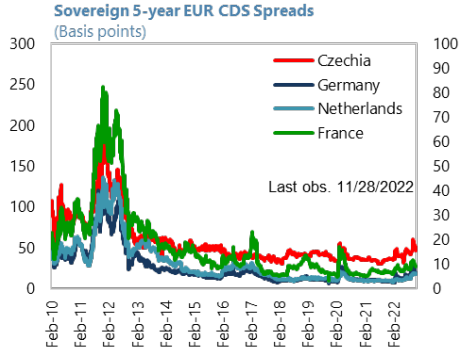
…and increasing public debt.



Bond yields and spreads increased as the CNB started tightening monetary policy, …



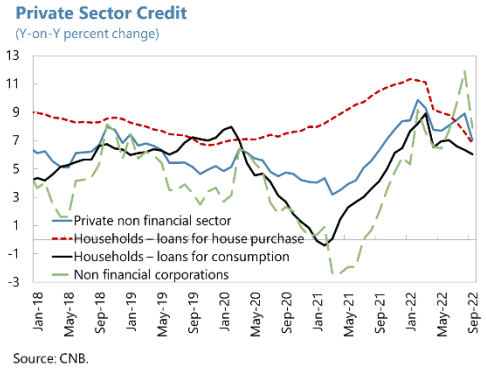
…while CDS spreads continue to be low.



Sources: Czechia Ministry of Finance; Bloomberg; and IMF staff calculations.

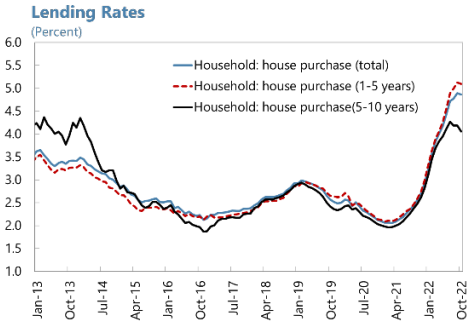
Figure 9. Czechia: Credit Developments

Private sector credit growth retreated, …



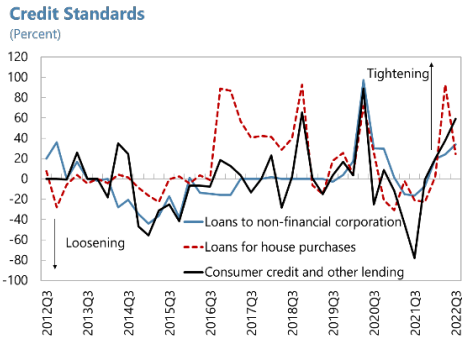
Source: CNB.

…as lending rates rose sharply…



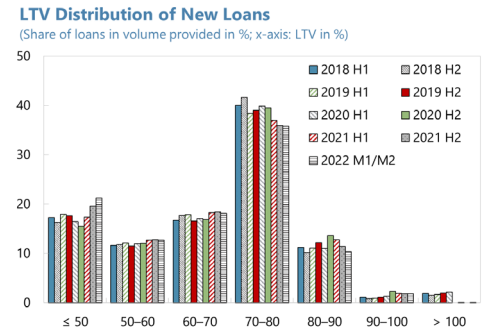
Source: Haver Analytics.

…and credit standards tightened.



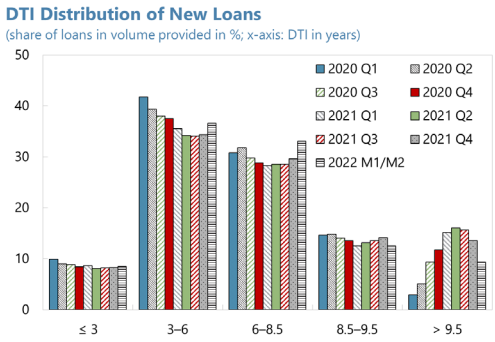
Source: Haver Analytics.

The share of new loans with higher LTVs declined somewhat, …



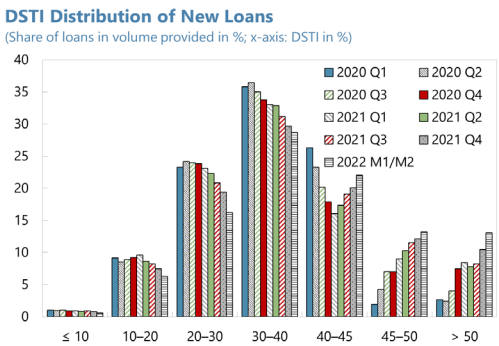
Source: CNB.

…as did the share of new loans with the highest DTIs.



Source: CNB.

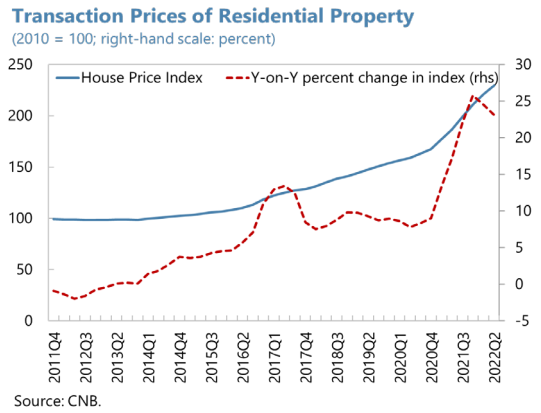
However, the sharp rise in interest rates is reflected in an increasing share of loans with elevated DSTIs.



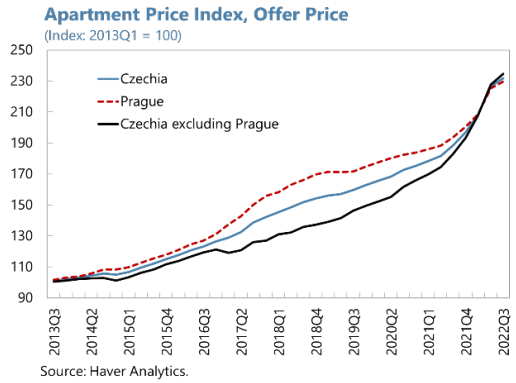
Source: CNB.

Figure 10. Czechia: Housing Sector

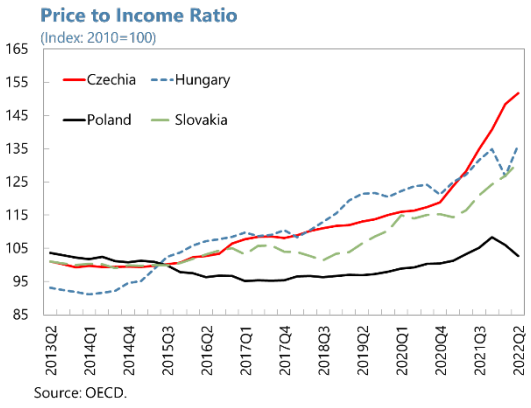
Property price growth is still elevated…



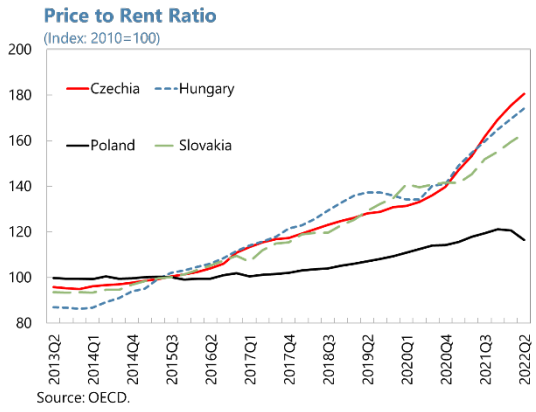
…with apartment prices rising steeply everywhere in the country.



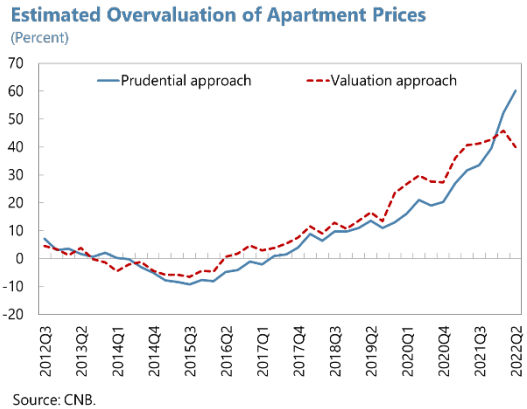
Housing prices have risen faster than incomes…



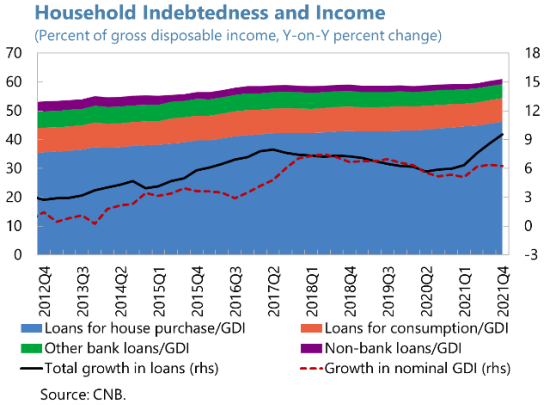
…and faster than rental prices.



Real estate price overvaluation has kept increasing…



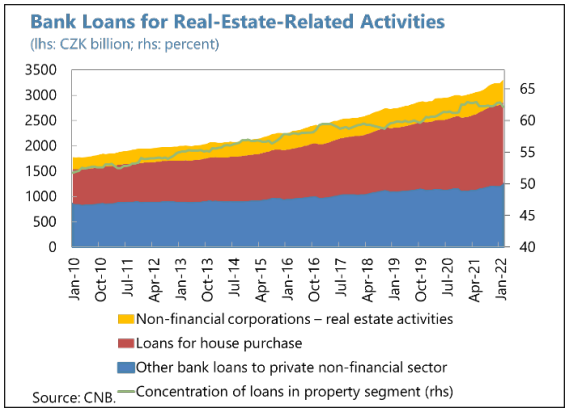
…as did household indebtedness.



D. Financial Sector Policies

27. Staff assesses that the banking sector is broadly resilient. The capital ratio in the banking sector was 23.3 percent at end-2021 including a 9 percent surplus beyond the required level. Banks' profits rebounded strongly in 2021 with ROE and ROA ratios close to pre-pandemic levels. Liquidity coverage remained comfortably above the 100 percent minimum requirement with 183 percent at end-2021 reflecting a high share of liquid assets and client deposits exceeding client loans. The net stable funding ratio was 200 percent for the average bank at the end of 2021. The ratio of non-performing loans to total loans also reverted to pre-pandemic levels at the end of 2022:Q1. Staff welcomes the lifting of restrictions on dividend distributions in September 2021.

28. Nevertheless, pockets of vulnerability remain and require close monitoring. The concentration of lending by banks for real-estate purchases continues to trend up and reached close to 63 percent of total loans to the non-financial private sector at end-2021 increasing about 3½ percentage points over the past five years. Against the backdrop of recent rapid house price increases, the increasing concentration coincides with persistently declining risk weights for banks that use internal risk-based modeling approaches. A sudden correction of real estate prices or a shock to household incomes jeopardizing their ability to repay could have a system-wide impact on regulatory capital buffers with potential spillovers to financial stability. While stress tests by the CNB indicate that banks have sufficient capital to absorb shocks under a severe adverse scenario, lending to the private sector would be curtailed with spillovers to aggregate demand.[9] Close regional interlinkages (financial and economic) expose the Czech financial system to potential spillovers which merit close monitoring. Despite negligible direct exposures to Ukraine and Russia (Annexes VIII and IX), the war in Ukraine may impact overall global financial sentiment and conditions with potentially negative implications for liquidity, credit, and market risk. The share of stage 2 loans has marginally increased in 2022:Q1.[10] The bank lending survey is starting to show expectations of rising credit losses.

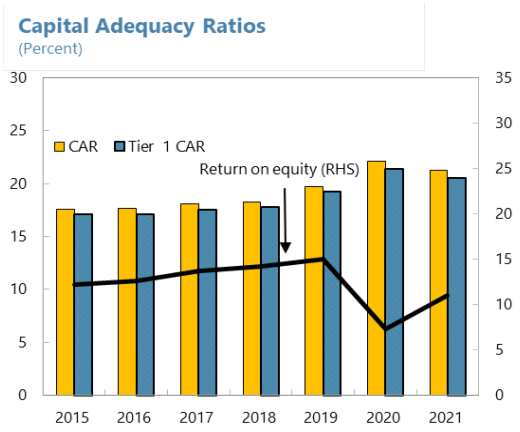


[9] Shocks (including a sharp correction of residential property prices) under an adverse scenario would significantly reduce banks' capitalization triggering the CNB to release the CCyB and banks to partially use the capital conservation buffer. The overall banking sector would be able to replenish its capital to comply with the capital requirements and the leverage ratio (CNB 2022).

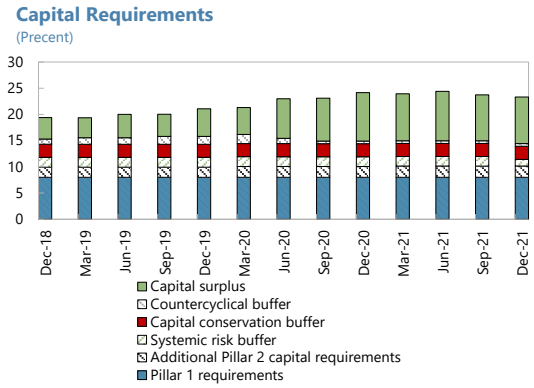
[10] The share of stage 2 loans increased by 2 percentage points to 16.3 percent for non-financial corporations and 0.4 percentage points to 9.2 percent for households in 2022:Q1.

Figure 11. Czechia: Financial Sector Developments

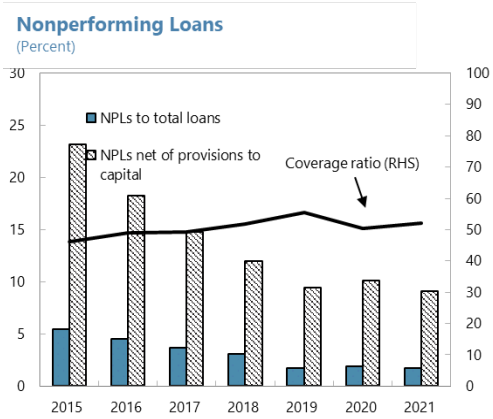
Capital adequacy ratios are solid…



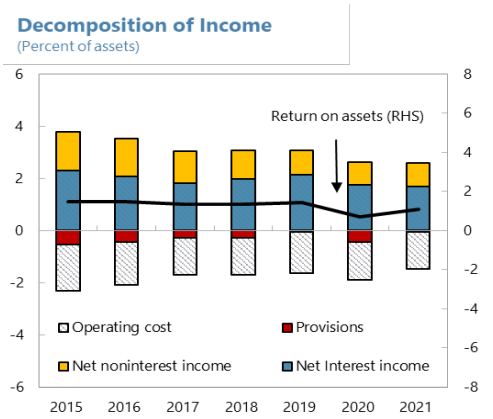
…and capital surpluses remained high.



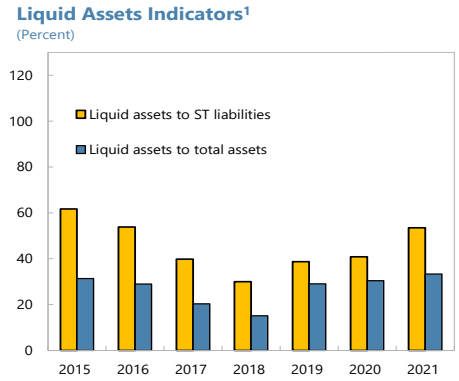
Non-performing loans decreased while the coverage ratio increased.



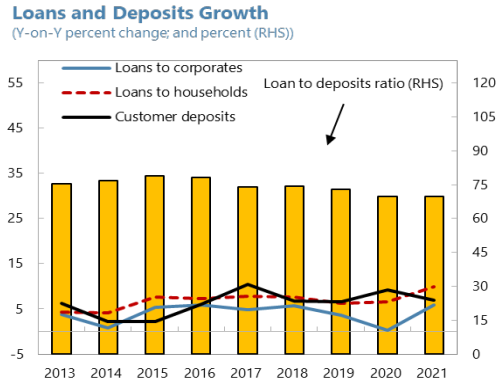
Banks' profitability rebounded in 2021 from the year before.



System liquidity coverage has improved.



Loan-to-deposit ratios have remained broadly stable.



Sources: IMF, FSI database; and Czech National Bank.

[1] Czech banks increasingly preserve additional liquidity in the form of 2-week securities repurchase agreements (repo) with the Czech National Bank. These repo loans, although highly liquid, are not included in the definition of liquid assets used above, which explains the fall in the ratio in 2017 and 2018.

29. Staff welcomes the authorities' response to the buildup of risk, while improvements in risk measurement across the cycle and for individual exposures should be considered. The CNB retightened the countercyclical capital buffer (CCyB) rate as the impact of the pandemic waned.[11] Staff welcomes the development of models to assess sectoral risk weights. However, leveraging information for corporates, staff recommends to further enhance models to improve the measurement of risk at the individual exposure level.[12] Moreover, staff recommends combining the proposed modeling framework with macroprudential stress tests to quantify potential losses due to contagion across Czech and foreign financial entities. Such a framework would also be of great use to improve the calibration of macroprudential tools.

30. Effective implementation of the AML/CFT framework is key to mitigate existing and emerging ML/TF risks, including the facilitation of transnational corruption.[13] Building on recent improvements to the legal framework for suspicious transaction reporting and sanctions, the authorities should continue to implement AML/CFT measures to mitigate laundering of foreign proceeds of corruption, increase resources for complex money laundering prosecutions, enhance the supervision of designated non-professional businesses and professions, all as recommended by MONEYVAL. The authorities should also continue to monitor the impact on the Czech financial system of EU and other sanctions against third countries, including to prevent from the regulatory and reputational impact of sanctions evasion.

Authorities' Views

31. The authorities see the financial system as stable. Risks from residential property lending have increased somewhat but are still relatively low and banks have adequate buffers to withstand potential shocks to property prices. The authorities have been taking measures to improve the accuracy of beneficial ownership data, reporting of suspicions transactions related to PEPs, supervision of real-estate agents, and implementation of Russia-related sanctions.[14]

[11] The CCyB becomes effective at 1.5 percent in October 2022, 2 percent in January 2023, and 2.5 percent in April 2023.

[12] The credit registry could allow developing risk measurement models to estimate probabilities of default and loss-given default parameters at the individual debtor level, which could be used to estimate expected and unexpected losses; hence, estimates of provisioning and capital requirements at the individual exposure level.

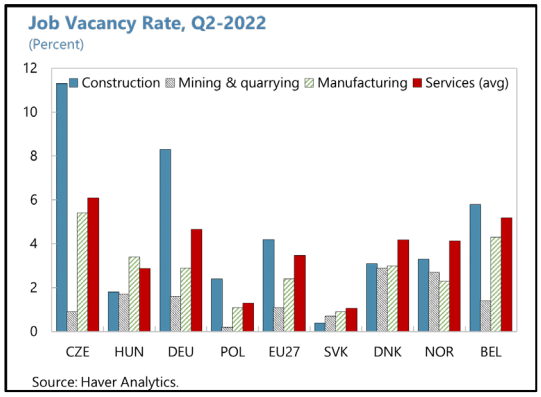
[13] The Czech Republic's 2021 AIV SR covered Staff's assessment of the authorities' efforts to combat the supply-side of transnational corruption.

[14] Czechia joined sanctions imposed on Russia in response to its invasion of Ukraine. Some of these sanctions can be considered CFMs. The impact of the war in Ukraine and the related sanctions on the global economy is discussed in the World Economic Outlook of April 2022.

E. Structural Policies

Addressing Labor Shortages and Facilitating Labor Reallocation

32. Policies to enhance the employment prospects for disadvantaged groups should be stepped up. Employment gaps for low-skilled, foreign, young, and old workers and mothers with young children remain sizable (Figure 12). Policies to improve education in technical and digital skills, as well as accessible and flexible vocational training are thus essential. However, sustaining key education and curricula reforms would require providing the National Pedagogical Institute with adequate resources. The recently developed registry of professional qualifications should continue to facilitate learning and job mobility (National Reform Program). A greater use of flexible and part-time work arrangements would also help enhance participation. Continued efforts to integrate women with young children should build on recent improvements in childcare provision and early childhood education, and target more flexible use of parental allowances and enhanced opportunities for job sharing.



33. Structural policies should support technological innovation, the redeployment of workers, and labor supply. Although technological change, automation, and the transition to electric vehicles (EV) would help boost productivity, they could destroy existing jobs and adversely impact manufacturing. The risks from Czechia's transition to EV production are compounded by the relatively lower labor shares in EV (SIP on the transition to EV). Similarly, the shortage of skilled labor in the green and digital sectors could delay the diffusion of innovation and the digital-green transition.[15] Policies should therefore proactively facilitate participation, job matching, and the cross-sectoral reallocation of workers through enhanced spending on Active Labor Market Policies (ALMPs), including reskilling and vocational training. Labor market participation would also benefit from better linking the retirement age to life expectancy.[16]

34. Further facilitating the inflow of migrants and effectively integrating Ukrainian refugees would help alleviate labor shortages. The recently upgraded "Key and Research Staff" and "Highly Qualified Employee" programs have been increasingly successful in attracting qualified employees. Efforts to increase programs' quotas and accessibility in line with the Innovation Strategy should be sustained, while diversifying source countries. In parallel, the effective integration of Ukrainian refugees would help ease labor market tightness.[17] Policy should prioritize adequate provision of language training, childcare, job search support, and ease of qualification recognition,

[15] Innovation Diffusion in the Czech Republic (OECD, 2020).

[16] Raising the retirement age to 67 beyond 2030 would boost employment by about 3 percent OECD (2020).

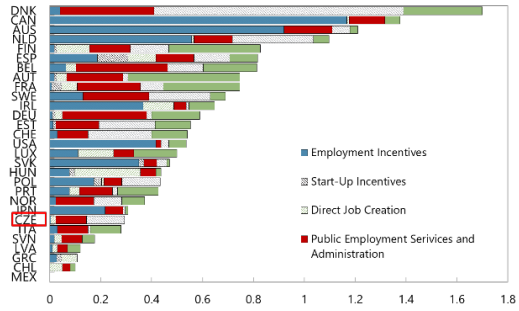
[17] As of end-October the Czech Republic was hosting about 456,000 refugees (4.3 pct of pop).

which should accelerate integration, reduce skill downgrading, and boost productivity gains.

Figure 12. Czechia: Spending on ALMP and Employment Gaps for Disadvantaged Groups

ALMP spending has been comparatively low, despite still high employment gaps in many population segments.

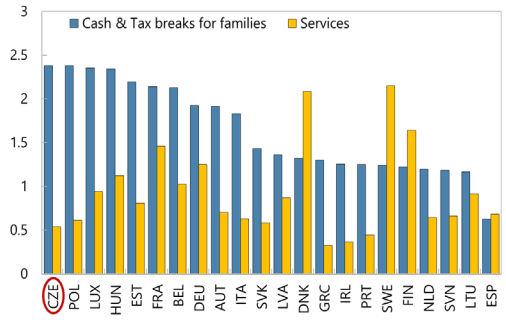
Public Spending on Active Labor Market Policies, 2020
(Percent of GDP)



Sources: OECD; and IMF staff calculations.

Generous parental leave and child cash benefits combined with relatively limited but improving supply of childcare…

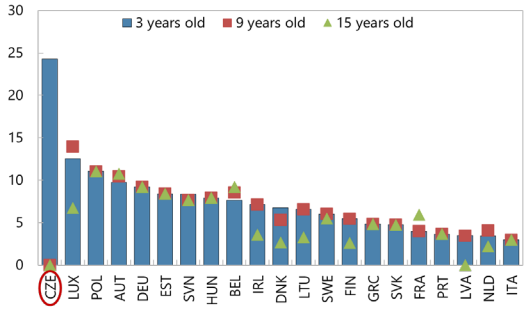
Public Spending on Family Benefits by Type of Expenditure
(Percent of GDP, 2017 and latest available)



Source: OECD Social Expenditure Database.

…has discouraged Czech women from resuming work after childbirth….

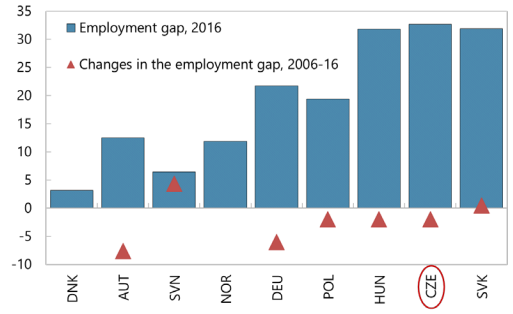
Value of Family Benefits by Age of Youngest Child
(Percent of average full-time earnings (AW), 2018)



Source: OECD estimates based on the OECD Tax-Benefit Models.

…contributing to a large gap in the employment of mothers with young children (about 30 percent).

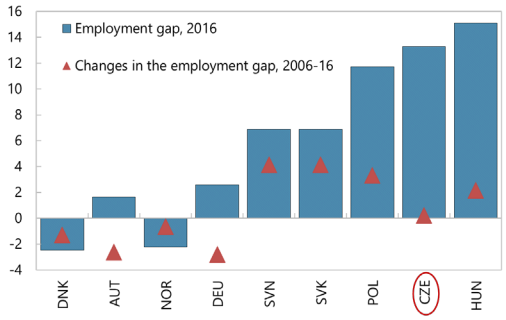
Employment Gaps for Women with Children wrt Prime-Age Men
(Percent)



Source: OECD.

The employment gap is also high among youth and…

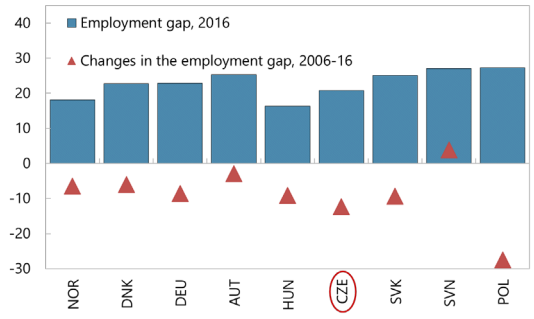
Employment Gaps for Youth (19-25) wrt Prime-Age Men
(Percent)



Source: OECD.

…non-native workers; although programs to integrate migrants have shown recent progress.

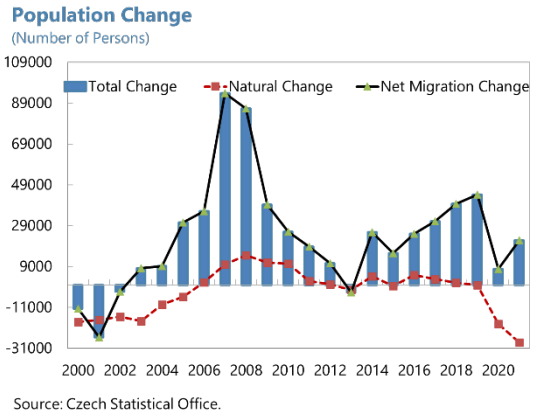
Employment Gaps for Non-Natives wrt Prime-Age Men
(Percent)

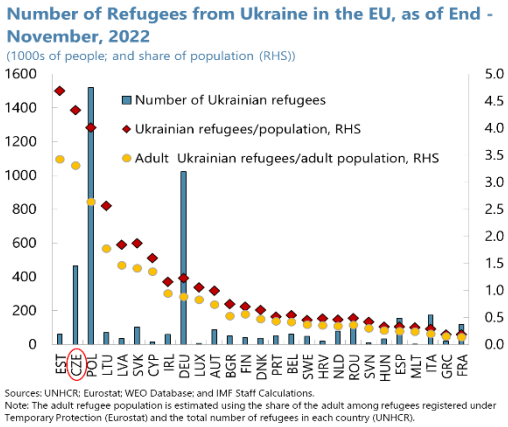


Source: OECD.

Sources: OECD, IMF staff calculations.

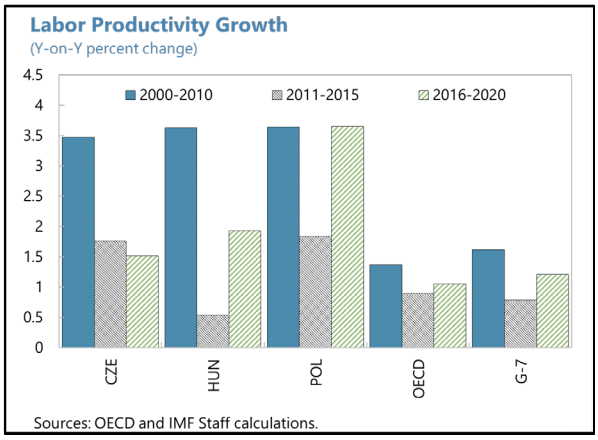
Figure 13. Czechia: Migration and Ukrainian Refugees' Inflows





Boosting Productivity and the Green and Digital Transition

35. Limited progress in enhancing productivity underscores the need for further scaling up of investment. A timely implementation of the Innovation Strategy and National Development Plan would help build the technical and digital skills needed in high productivity sectors, including Knowledge-Intensive-Sectors (KIS). The RRF implementation would critically enhance the digital transition through reforms and investments, including in new digital education curricula, digitalization of businesses, high-capacity digital infrastructure, cyber-security, and public administration digitalization (Annex VII).

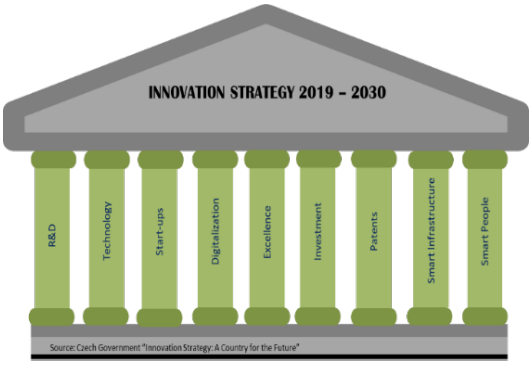


36. Private investment should be further enhanced through improved business conditions and financing. Czechia's comparatively lower support for business R&D vs. OECD peers underscores room for improvements, including to further incentivize investments in the digital and green transitions and the transition to EV production (SIP on the transition to EV). Targeted support to young and dynamic firms would help spur innovation and technology adoption.[18] In parallel, further streamlining Czechia's business regulatory framework including simplifying the construction permitting process, should strengthen the ease of doing business. Sustained private investment also hinges on improved SMEs' access to alternative sources of financing, in particular venture capital and equity financing.

[18] R&D Tax Incentives: Czech Republic (OECD, 2021).

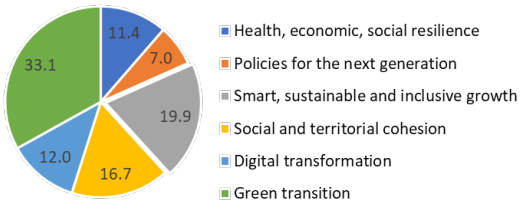
Figure 14. Czechia: Reform and Investment Priorities, R&D, Auto Industry Value

Enhancing productivity requires a timely implementation of the Innovation Strategy…



…and of the Recovery and Resilience Facility.

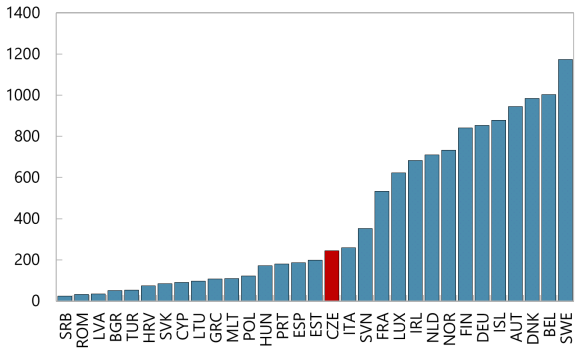
Share of the RRF Fund Contributing to Each Pillar
(Percent)



Source: European Commission's RRP Scoreboard.
Notes: Each measure contributes to two policy areas of the six pillars.

In particular, scaling up R&D spending, which was among the lowest in 2022,…

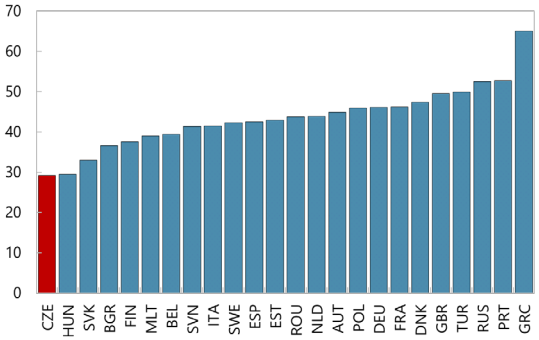
R&D per Inhabitant
(Euros per person; 2020)



Source: Eurostat.

…would help support convergence, move up the value chain, including during and the transition to EV production.

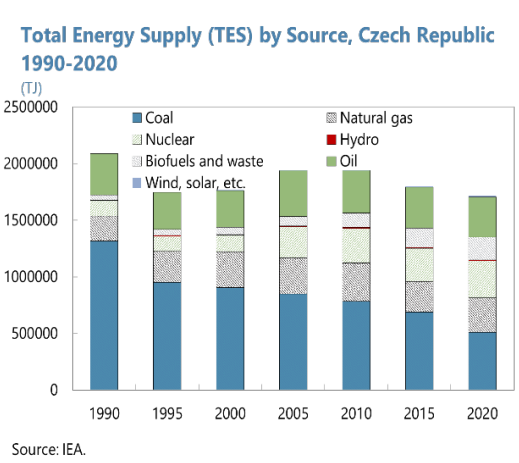
Value Added in the Automotive Sector
(Percent; 2009)

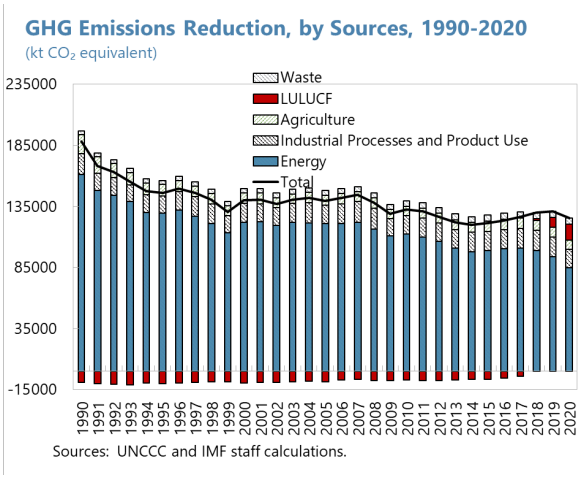


Source: WIOD.

37. Policies to foster the green transformation can bolster energy security by enhancing energy efficiency and increasing the supply of renewables. Given current energy security concerns, delaying the phase out of coal facilities could be an option to secure energy supplies in the short term. However, amid continuing efforts to diversify energy supply sources, priority should go to policies that encourage greater investment in renewables and enhance energy efficiency in line with the Fit for 55 package and the REPowerEU plan. Significant green investments also supported by the RRP are key for the green transition, especially through energy efficiency and sustainability measures in the building and transport sectors (Annex VI).

Figure 15. Czechia: Energy Mix and Progress with GHG Emissions Reduction





Restoring the Long-term Sustainability of the Pension System

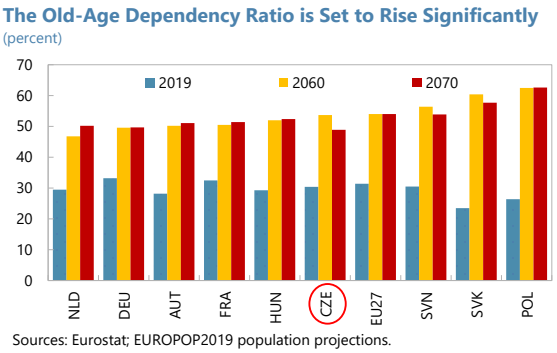
38. Ensuring sustainability of the pension system requires a multi-pronged reform. Czechia's population is one of the most rapidly aging in Central and Eastern Europe, putting pressure on the sustainability of the pension system. The fiscal council estimates that, under current policies, public debt could breach the brake threshold (55 percent of GDP) by 2028 and reach 296 percent of GDP by 2072. Strengthening sustainability would require linking the retirement age to adjust automatically to life expectancy (Annex II). This step should be complemented by net increases in revenue (e.g., Czech Fiscal Council, 2022), through growth-friendly improvements to the tax system such as raising environmental and property taxes and enhancing compliance. Moreover, indexing pensions to inflation only instead of inflation and wage developments, (OECD 2020) and increasing labor force participation would further support the sustainability of the pension system.

Authorities' Views

39. The authorities agreed that further efforts are needed to enhance labor supply and boost productivity, while prioritizing the green transition to support energy security. They highlighted ongoing enhancements to ALMPs with a focus on training, and innovative programs such as *children's groups* to improve the labor participation of women with young children. They indicated plans to streamline administrative processes, including building permitting, which should enhance private investment and improve the ease of doing business. They reiterated their commitment to phase out the use of coal in the energy sector by 2033, supported by the Just Transition Fund. Large-scale measures to increase energy efficiency and deploy renewable energy sources have also been announced.

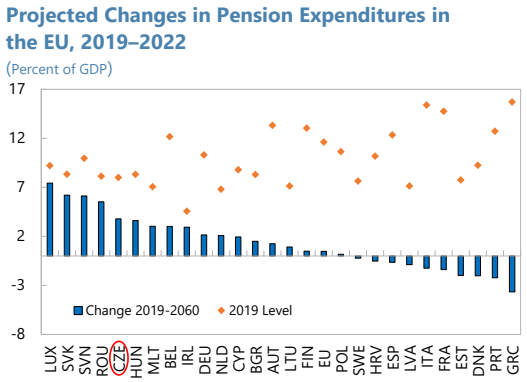
Figure 16. Czechia: Sustainability of the Pension System, 2019–2070

Old-age dependency is expected to substantially increase…



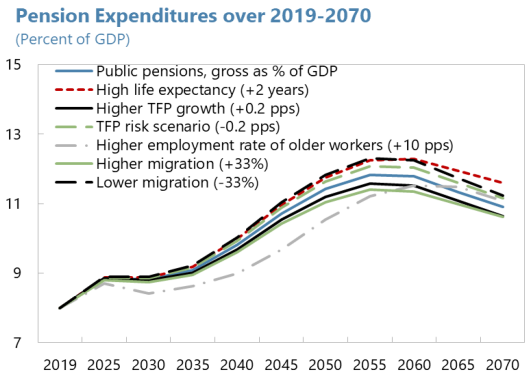
Sources: Eurostat; EUROPOP2019 population projections.

…leading to unsustainable levels of pension spending…



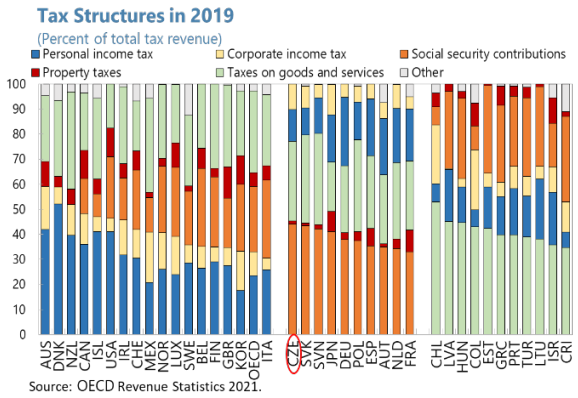
Source: European Commisison's 2021 Aging report.

…which will require improving the linking of the retirement age to life expectancy…



Source: European Commisison's 2021 Aging report.

…and increased transfer to the pension system.



Source: OECD Revenue Statistics 2021.

STAFF APPRAISAL

40. The recovery from the pandemic is being hindered by the fallout from Russia's war in Ukraine, likely turning 2023 into a recession year. Uncertainty around the outlook is very high with risks to economic activity titled to the downside and those for inflation to the upside.

41. Staff recommends further hikes to the policy rate in the short term to above the current level of the policy rate. While a careful balance between high inflation and weakening economic activity needs to be taken, priority should be given to decisively quell inflation. If inflation expectations become untethered, this would require a significantly higher tightening to restore price stability and thus entail more costly economic adjustments.

42. The contractionary fiscal stance is appropriate against the backdrop of high inflation and low unemployment, but previously-adopted untargeted support measures should be unwound to enhance policy space. The contractionary stance supports the overall policy mix by avoiding compounding inflationary pressures by adding to aggregate demand. While support for households and firms amidst the cost-of-living crisis is justified, measures should be targeted, temporary, and preserve price signals. The PIT regime as well as the property transfer tax should be reinstated to pre-pandemic levels as soon as conditions allow, as untargeted policy support is unwarranted in the high-inflation environment. If increasing taxes in the current environment is not feasible, once the acute cost of living crisis wanes, the reintroduction of taxes could be undertaken in phases, while increasing the progressivity of the PIT and stepping up transfers for the vulnerable. The windfall tax can help offset the cost-of-energy relief measures, but its ad-hoc nature could disincentivize investment by undermining tax certainty.

43. The retightening of borrower-based measures is welcome as these have helped to tame risk taking, but debt servicing capacity should be monitored. While retightened borrower-based measures are increasingly binding for a growing number of borrowers, close monitoring of debt-servicing is warranted, especially if further increases in interest rates materialize or continued increases in the cost of living further limit the ability to service debt. Further loosening or tightening of macroprudential measures may be needed conditional on market developments and risk-taking behavior.

44. Improvements in risk measurement across the cycle and for individual exposures should be considered. Staff welcomes the CNB's retightening of the countercyclical capital buffer rate and the development of models to assess sectoral risk weights. However, leveraging information for corporates, staff recommends to further enhance models to improve the measurement of risk at the individual exposure level.

45. Structural policies should enhance labor supply while facilitating the green-digital transition and preserving long-term fiscal sustainability. The employment prospects for disadvantaged groups should be stepped up, while further integrating migrants, and Ukrainian refugees. Spending on Active Labor Market Policies (ALMPs), including reskilling and vocational training should be increased to facilitate job matching, and the cross-sectoral reallocation of workers. The implementation of the RRP would help build digital skills, while supporting the green transition, which would bolster energy security by increasing energy efficiency and the supply of renewables. Streamlining the business regulatory framework and simplifying construction permitting remain essential. Streamlining the business regulatory framework and simplifying construction permitting remain essential. Strengthening long-term fiscal sustainability hinges on linking the retirement age to life expectancy. The external sector assessment indicates an external position in 2022 that was broadly in line with fundamentals and desirable policy settings.

46. It is recommended that the next Article IV consultation be held on the standard 12-month cycle.

Table 1. Czechia: Selected Economic Indicators, 2019–27

(Annual percent change, unless otherwise indicated)

	2019	2020	2021	2022	2023	2024	2025	2026	2027
						Staff projections			
National Accounts									
Real GDP (expenditure)	3.0	-5.5	3.5	2.5	-0.5	2.5	3.4	2.8	2.5
Domestic demand	3.2	-5.6	7.8	3.1	-4.4	1.2	3.2	2.6	2.5
Consumption	2.6	-4.1	3.3	-0.7	-1.4	3.8	2.6	2.2	2.2
Public	2.5	4.2	1.5	0.4	1.1	2.0	2.0	2.0	2.0
Private	2.7	-7.2	4.1	-1.2	-2.4	4.5	2.8	2.3	2.3
Investment	4.5	-9.3	19.0	11.5	-10.2	-4.0	4.5	3.5	3.0
Exports	1.5	-8.0	6.9	5.1	4.7	6.4	2.9	2.8	2.6
Imports	1.5	-8.2	13.3	4.4	1.1	5.2	2.6	2.6	2.6
Contribution to GDP									
Domestic demand	3.0	-5.1	7.9	1.9	-3.6	1.1	2.9	2.4	2.3
Net exports	0.0	-0.4	-4.3	0.6	3.1	1.4	0.5	0.4	0.2
Investment (percent of GDP)	27.1	26.5	26.0	24.4	25.1	25.3	25.3	25.4	25.6
Gross domestic investments (percent of GDP)	27.6	26.2	30.2	33.6	29.1	26.8	26.7	26.8	27.0
Gross national savings (percent of GDP)	27.9	28.1	29.3	29.6	28.2	28.0	29.0	29.2	29.5
Output gap (percent of potential output)	2.8	-0.6	1.0	0.5	-1.0	-0.4	0.0	0.0	0.0
Potential growth	2.2	-2.2	1.9	3.0	0.7	2.0	3.0	2.8	2.5
Labor Market									
Employment	0.2	-1.3	-0.6	0.5	-0.5	0.6	0.2	0.0	0.0
Total labor compensation	7.8	1.5	6.1	7.9	6.4	5.7	5.6	4.9	4.5
Unemployment rate (average, in percent)	2.0	2.5	2.8	2.5	3.1	2.5	2.3	2.3	2.3
PRICES									
Consumer prices (average)	2.8	3.2	3.8	16.0	9.3	2.5	2.0	2.0	2.0
Consumer prices (end-of-period)	3.2	2.3	6.6	19.0	4.5	2.0	2.0	2.0	2.0
Producer price index (average)	2.6	0.1	7.2	...	...	...	...	...	...
GDP deflator (average)	3.9	4.3	3.3	9.7	8.4	3.2	2.6	1.8	1.5
Macro-Financial									
Money and credit (end of year, percent change)									
Broad money (M3)	6.4	10.0	6.8	...	...	...	...	...	...
Private sector credit	4.9	3.6	8.9	...	...	...	...	...	...
Interest rates (in percent, year average)									
Three-month interbank rate	2.1	0.9	1.1	...	...	...	...	...	...
Ten-year government bond	1.5	1.1	1.9	...	...	...	...	...	...
Exchange rate									
Nominal effective exchange rate (index, 2005=100)	100.9	99.7	103.6	...	...	...	...	...	...
Real effective exchange rate (index, CPI-based; 2005=100)	99.4	100.0	104.6	...	...	...	...	...	...
Public Finance (percent of GDP)									
General government revenue	41.3	41.5	41.4	41.7	42.9	41.5	40.8	40.7	40.7
General government expenditure	41.1	47.2	46.5	46.0	47.2	44.2	43.2	43.2	43.2
Net lending / Overall balance	0.3	-5.8	-5.1	-4.3	-4.3	-2.7	-2.5	-2.5	-2.5
Primary balance	0.8	-5.2	-4.5	-3.6	-3.4	-1.5	-1.3	-1.3	-1.3
Structural balance (percent of potential GDP)	-0.8	-5.5	-5.5	-4.5	-3.9	-2.5	-2.5	-2.5	-2.5
General government debt	30.0	37.7	42.0	41.8	43.7	44.1	44.2	44.9	45.9
Balance of Payments (percent of GDP)									
Trade balance (goods and services)	6.0	6.7	3.0	-1.9	2.4	4.4	5.5	5.8	5.4
Current account balance	0.3	2.0	-0.8	-4.0	-0.9	1.2	2.3	2.5	2.5
Gross international reserves (billions of euros)	133.4	135.4	153.3	151.3	160.3	169.3	178.3	186.3	192.3
(in months of imports of goods and services)	10.5	11.9	11.1	8.7	9.1	9.1	9.3	9.4	9.3
(in percent of short term debt, remaining maturity)	129.9	142.8	139.7	128.7	129.5	133.6	139.6	145.1	150.3
Memorandum Items									
Nominal GDP (USD billions)	252.5	246.0	281.8	293.08	309.08	325.81	339.00	346.89	350.65
Population (millions)	10.6	10.7	10.5	10.5	10.5	10.6	10.6	10.6	10.5
Real GDP per capita	2.6	-5.9	5.5	2.3	-0.7	2.2	3.4	2.8	2.5
GDP per capita (USD thousands)	23.71	23.00	26.85	27.85	29.32	30.88	32.12	32.87	33.24

Sources: Czech National Bank; Czech Statistical Office; Ministry of Finance; Haver Analytics, and IMF staff estimates and projections.
Structural balances are net of temporary fluctuations in some revenues and one-offs. COVID and energy price-related one-offs are however included.

Table 2. Czechia: Balance of Payments, 2019–27

(Percent of GDP)

	2019	2020	2021	2022	2023	2024	2025	2026	2027
				Staff Projections					
Current Account Balance	0.3	2.0	-0.8	-4.0	-0.9	1.2	2.3	2.5	2.5
Trade balance (goods)	4.1	4.9	1.2	-2.8	0.9	2.6	3.6	3.8	3.5
Exports	61.8	59.4	62.1	61.3	60.7	62.3	61.3	60.9	60.7
Imports	57.7	54.4	60.9	64.1	59.8	59.7	57.7	57.1	57.2
Trade balance (services)	1.8	1.8	1.8	0.9	1.5	1.8	2.0	2.0	1.9
Receipts	12.1	10.6	10.5	11.6	11.4	11.7	11.5	11.4	11.4
Payments	10.2	8.8	8.7	10.7	9.9	9.9	9.5	9.4	9.5
Factor income (net)	-5.0	-4.2	-3.3	-1.6	-2.9	-2.7	-2.7	-3.4	-3.5
Transfers	-0.6	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	0.1	0.5
Capital Account	0.4	1.2	1.6	-0.5	1.1	0.9	0.6	0.3	0.3
Errors and Omissions	-0.6	-0.3	-0.5	0.0	0.0	0.0	0.0	0.0	0.0
Financial Account (change in stocks, + = increase)	0.1	2.9	0.2	-4.4	0.2	2.1	3.0	2.8	2.8
Direct investment, net	-2.4	-2.6	-0.1	-1.0	-1.2	-0.9	-0.9	-1.0	-0.8
Portfolio investment, net	-1.8	-2.4	1.2	-1.3	-1.0	-0.6	-0.7	-0.6	-0.5
Other investment and derivatives, net	2.4	6.8	-4.9	-1.4	-0.6	0.9	2.0	2.1	2.5
Reserve assets	1.9	0.8	4.8	-0.7	3.0	2.8	2.6	2.2	1.6
Memorandum Items									
Gross official reserves (billions of euros)	133.4	135.4	153.3	151.3	160.3	169.3	178.3	186.3	192.3
in months of the current year's imports	10.5	11.9	11.1	8.7	9.1	9.1	9.3	9.4	9.3
as a ratio to the short-term debt	129.9	142.8	139.7	128.7	129.5	133.6	139.6	145.1	150.3
External debt, percent of GDP	76.5	76.4	75.5	68.9	66.6	64.5	61.3	58.8	56.2

Sources: Czech National Bank; Czech Statistical Office; and IMF staff estimates and projections.

Table 3. Czechia: General Government Operations, 2019–27

(Percent of GDP)

	2019	2020	2021	2022	2023	2024	2025	2026	2027
						Staff Projections			
Revenue	**41.3**	**41.5**	**41.4**	**41.7**	**42.9**	**41.5**	**40.8**	**40.7**	**40.7**
Taxes	20.3	19.9	19.2	19.2	20.1	19.8	19.3	19.3	19.4
Personal income tax	5.0	5.2	3.7	3.6	3.6	3.6	3.6	3.6	3.6
Corporate income tax	3.3	3.1	3.7	3.6	4.8	4.4	4.0	4.0	4.1
VAT	7.5	7.4	7.6	8.2	8.2	8.3	8.2	8.2	8.2
Excise	3.2	3.1	3.0	2.7	2.4	2.4	2.4	2.4	2.4
Other taxes	1.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Social contributions	15.5	15.9	16.6	16.2	16.0	15.9	15.9	15.9	15.9
Capital and other current transfers and subsidies	1.8	1.8	1.8	2.4	2.8	2.1	1.9	1.8	1.8
Other revenue	3.8	3.8	3.8	3.9	4.0	3.7	3.7	3.7	3.7
Property income	0.6	0.6	0.6	0.9	1.0	0.6	0.6	0.6	0.6
Sales of goods and services	3.2	3.2	3.2	3.0	3.0	3.0	3.0	3.0	3.0
Other revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Expenditure	**41.1**	**47.2**	**46.5**	**46.0**	**47.2**	**44.2**	**43.2**	**43.2**	**43.2**
Expense	**36.7**	**42.4**	**41.8**	**41.2**	**41.9**	**39.8**	**39.2**	**39.2**	**39.2**
Compensation of employees	9.9	11.1	11.1	10.3	10.1	10.1	10.0	9.9	10.0
Use of goods and services	5.9	6.1	5.8	6.0	6.3	6.0	5.9	5.9	5.9
Interest	0.7	0.8	0.8	0.8	1.1	1.3	1.3	1.3	1.3
Subsidies	2.2	3.0	3.3	2.8	2.2	2.0	2.0	2.0	2.0
Grants	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Social benefits	15.3	18.0	17.7	17.8	18.3	17.8	17.4	17.4	17.4
Other expenses	2.4	3.1	2.9	3.1	3.6	2.2	2.2	2.2	2.2
Net Acquisition of Nonfinancial Assets	**4.4**	**4.8**	**4.7**	**4.8**	**5.3**	**4.4**	**4.0**	**4.0**	**4.0**
Gross Operating Balance	**4.7**	**-0.9**	**-0.4**	**0.6**	**1.0**	**1.7**	**1.5**	**1.5**	**1.5**
Net Lending/Borrowing (overall balance)	**0.3**	**-5.8**	**-5.1**	**-4.3**	**-4.3**	**-2.7**	**-2.5**	**-2.5**	**-2.5**
Net Financial Transactions	**0.3**	**-5.8**	**-5.1**	**-4.3**	**-4.3**	**-2.7**	**-2.5**	**-2.5**	**-2.5**
Net Acquisition of Financial Assets	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Net Incurrence of Liabilities	**-0.3**	**5.8**	**5.1**	**4.3**	**4.3**	**2.7**	**2.5**	**2.5**	**2.5**
Adjustment and statistical discrepancies 1/	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Memorandum Item:									
General government debt	30.0	37.7	42.0	41.8	43.7	44.1	44.2	44.9	45.9
Primary balance	0.8	-5.2	-4.5	-3.6	-3.4	-1.5	-1.3	-1.3	-1.3
Structural balance 2/ 3/	-0.8	-5.5	-5.5	-4.5	-3.9	-2.5	-2.5	-2.5	-2.5
Cyclically adjusted primary balance	-0.3	-4.9	-4.9	-3.8	-3.0	-1.3	-1.3	-1.3	-1.3
Change in cyclically adjusted primary balance	-1.0	-4.7	0.1	1.0	0.8	1.7	0.1	-0.1	0.0
Output gap	2.8	-0.6	1.0	0.5	-1.0	-0.4	0.0	0.0	0.0
Nominal GDP (billions of Koruny)	5,791	5,709	6,108	6,874	7,411	7,842	8,319	8,713	9,066

Sources: Ministry of Finance and IMF staff estimates and projections.

1/ Adjustments for cash-accrual differences, valuation changes and other discrepancies.

2/ In percent of potential GDP.

3/ Structural balances are net of temporary fluctuations in some revenues and one-offs. COVID and energy price-related one-offs are however included.

Table 4. Czechia: Macroeconomic Framework, 2019–27

(Annual percent change, unless otherwise indicated)

	2019	2020	2021	2022	2023	2024	2025	2026	2027
						Staff Projections			
Real Sector									
Real GDP	3.0	-5.5	3.5	2.5	-0.5	2.5	3.4	2.8	2.5
Private consumption	2.7	-7.2	4.1	-1.2	-2.4	4.5	2.8	2.3	2.3
Public consumption	2.5	4.2	1.5	0.4	1.1	2.0	2.0	2.0	2.0
Investment	4.5	-9.3	19.0	11.5	-10.2	-4.0	4.5	3.5	3.0
Fixed investment	5.9	-6.0	0.7	5.7	0.5	2.3	4.8	3.7	3.2
Exports, goods and services	1.5	-8.0	6.9	5.1	4.7	6.4	2.9	2.8	2.6
Imports, goods and services	1.5	-8.2	13.3	4.4	1.1	5.2	2.6	2.6	2.6
contribution of net exports (percent)	0.0	-0.4	-4.3	0.6	3.1	1.4	0.5	0.4	0.2
Inflation (CPI, percent)	2.8	3.2	3.8	16.0	9.3	2.5	2.0	2.0	2.0
Unemployment (percent of labor force)	2.0	2.5	2.8	2.5	3.1	2.5	2.3	2.3	2.3
Output gap 1/	2.8	-0.6	1.0	0.5	-1.0	-0.4	0.0	0.0	0.0
Gross domestic savings (in percent of GDP)	27.9	28.1	29.3	29.6	28.2	28.0	29.0	29.2	29.5
Public	14.8	11.8	11.8	12.6	13.5	13.7	13.9	13.9	13.9
Private	13.2	16.4	17.5	17.0	14.7	14.4	15.1	15.3	15.5
Gross capital formation (in percent of GDP)	27.6	26.2	30.2	33.6	29.1	26.8	26.7	26.8	27.0
Balance of Payments									
Current account balance	0.3	2.0	-0.8	-4.0	-0.9	1.2	2.3	2.5	2.5
Trade balance	4.1	4.9	1.2	-2.8	0.9	2.6	3.6	3.8	3.5
Services balance	1.8	1.8	1.8	0.9	1.5	1.8	2.0	2.0	1.9
Net factor income	-5.0	-4.2	-3.3	-1.6	-2.9	-2.7	-2.7	-3.4	-3.5
Current transfers	-0.6	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	0.1	0.5
Capital account balance	0.4	1.2	1.6	-0.5	1.1	0.9	0.6	0.3	0.3
Errors and omissions, net	-0.6	-0.3	-0.5	0.0	0.0	0.0	0.0	0.0	0.0
Financial account balance (change in stocks, + = increase)	0.1	2.9	0.2	-4.4	0.2	2.1	3.0	2.8	2.8
Direct investment, net	-2.4	-2.6	-0.1	-1.0	-1.2	-0.9	-0.9	-1.0	-0.8
Portfolio investment, net	-1.8	-2.4	1.2	-1.3	-1.0	-0.6	-0.7	-0.6	-0.5
Other investment and derivatives, net	2.4	6.8	-4.9	-1.4	-0.6	0.9	2.0	2.1	2.5
Reserve assets	1.9	0.8	4.8	-0.7	3.0	2.8	2.6	2.2	1.6

Sources: Czech National Bank, Czech Statistical Office, Ministry of Finance, and IMF staff estimates and projections.
1/ In percent of potential GDP.

Table 5. Czechia: Financial Soundness Indicators, 2015–22Q1

(In percent, unless otherwise indicated)

	2015	2016	2017	2018	2019	2020	2021	2022Q1
Core FSIs								
Regulatory capital to risk-weighted assets	17.6	17.7	18.1	18.3	19.7	22.1	21.2	20.3
Tier 1 capital to risk-weighted assets	17.1	17.1	17.5	17.8	19.2	21.4	20.6	19.6
Nonperforming loans net of provisions to capital	23.1	18.2	14.8	12.0	9.4	10.2	9.1	9.2
Capital to assets (leverage ratio)	7.5	7.2	6.5	6.5	6.8	7.3	6.9	6.0
Nonperforming loans to total gross loans	5.4	4.5	3.7	3.1	1.7	1.9	1.7	1.6
Provisions to nonperforming loans	46.3	49.1	49.2	51.8	55.4	50.4	52.2	52.6
Return on assets	1.5	1.5	1.4	1.3	1.4	0.7	1.1	1.2
Return on equity	12.2	12.6	13.7	14.2	15.0	7.3	11.0	12.9
Interest margin to gross income	60.8	59.0	59.2	64.8	69.0	66.7	64.9	68.8
Noninterest expenses to gross income	47.5	46.9	47.1	47.1	51.1	55.8	55.6	52.6
Liquid assets to total assets	31.3	29.0	20.3	15.1	29.1	30.4	33.3	32.0
Liquid assets to short-term liabilities	61.7	53.8	39.8	30.0	38.7	40.9	53.5	53.8
Additional FSIs								
Large exposures to capital								
Gross asset position in financial derivatives to capital	26.4	24.6	18.8	19.1	21.8	23.8	37.6	47.4
Gross liability position in financial derivatives to capital	24.0	21.9	19.0	18.6	22.9	24.0	44.4	57.1
Trading income to total income	9.9	11.3	12.7	6.8	3.5	5.1	5.3	5.8
Personnel expenses to noninterest expenses	40.9	42.5	43.4	44.5	41.3	40.5	40.8	37.4
Customer deposits to total (noninterbank) loans	120.9	121.9	128.3	128.2	72.8	82.3	83.7	90.6

Source: IMF Financial Soundness Indicators.

Annex I. External Sector Assessment

Overall Assessment: The external position in 2022 was broadly in line with fundamentals and desirable policy settings. The assessment attempts to account for certain transitory factors owing to disruptions to global value chains (GVCs) and deteriorating terms of trade resulting from the war in Ukraine. The estimated CA gap is 0.6 percent of GDP, with a range of 1 to -1 percent of GDP, reflecting uncertainty around any point estimate. The REER gap is estimated to be 4 percent (±1.8) percent implying that the exchange rate is broadly in line with fundamentals and desirable policy settings.

This assessment is subject to caveats including the lack of full-year data for 2022 and uncertainties associated with the timing of the normalization of GVCs and the outlook for the war in Ukraine. The current account is projected to deteriorate to -4.0 percent of GDP in 2022 reflecting a sharp decline in the trade balance caused in large measure by temporary supply chain disruptions. The trade and current account balances are expected to return to surplus over the medium-term as these disruptions dissipate.

Potential Policy Responses: The external position in 2022 was broadly in line with fundamentals and desirable policy settings. The external sector assessment identifies a small contribution from policies. If the CA gap widens in the future in a way that indicates an imbalance, then the authorities could consider implementing structural policies to reduce it.

Foreign Assets and Liabilities: Position and Trajectory

Background. The net international investment position (NIIP) is expected to deteriorate somewhat to -15 percent of GDP in 2022 from -11 percent in 2021. Gross assets and liabilities are projected to reach 131 and 146 percent of GDP, respectively. The NIIP is projected to become slightly more negative over the medium-term reflecting a somewhat faster accumulation of liabilities relative to assets. Gross external debt (68 percent of GDP in 2022) remains relatively modest and is expected to continue on a downward trajectory over the medium-term.

Assessment. The current NIIP and its projected path do not imply risks to external sustainability.

2022 (% GDP)	NIIP:	Gross Assets:	Res. Assets:	Gross Liab.:	Debt Liab.: 68
	-15	131	60	146	

Current Account

Background. The current account (CA) registered small surpluses through 2020, owing to persistent trade surpluses that offset large primary income deficits. In 2021, however, the current account balance turned negative reflecting a sharply lower trade surplus driven by a significantly higher goods import bill, including surging energy prices. These disruptions worsened in 2022 as a result of the war in Ukraine and are expected to contribute to a trade deficit. In the medium term, the CA is expected to return to a small surplus as supply chain issues are resolved.

Assessment. For 2022, the EBA CA model estimates a norm of -0.5 percent of GDP against a cyclically adjusted CA of -2.4 percent of GDP. The resulting EBA gap of -1.9 percent of GDP includes identified policy gaps of -0.3 percent of GDP. In view of shocks related to COVID and the war in Ukraine, which are judged to be transitory, staff suggests the following additional adjustments. First, an adjustment of -1.8 percent of GDP is made to the cyclically adjusted CA balance to account for half of the contraction in the primary income balance to -1.6 percent of GDP, compared to a 5-year pre-pandemic average of -5.1 percent of GDP. Second, an adjustment of 4.3 percent of GDP is made to reflect half of the decline in the trade balance to -1.9 percent of GDP vs. a pre-pandemic 5-year average of 6.6 percent of GDP. Half of the gap is used in the case of the primary income and trade balances because of uncertainty around projections and the persistence of GVC impediments.

2022 (% GDP)	Proj. CA:	Cycl. Adj. CA:	EBA CA Norm:	EBA CA Gap:	Prim. inc. Adj.:	Trade bal. Adj.:	Staff CA Gap:
	-4.0	-2.4	-0.5	-1.9	-1.8	4.3	0.6

Real Exchange Rate

Background. The real effective exchange rate (REER) has steadily appreciated since the authorities exited the koruna floor in April 2017 notwithstanding a transitory period of depreciation following the onset of the pandemic. Czechia's REER has also appreciated relative to the currencies of competitors such as Hungary, Poland, and Slovakia. Relative to the euro, the koruna depreciated by 3 percent in 2020 as a consequence of COVID-related risk aversion but gradually appreciated through 2021 and early 2022, returning to pre-pandemic levels. The currency depreciated sharply immediately after Russia's invasion of Ukraine though has since recovered some ground in part as a result of intervention by the authorities to limit overshooting.

Assessment. Under the CA gap model, staff assesses the REER gap to be 4 percent, broadly in line with fundamentals and desirable policy settings. The REER index model suggests a gap of 30.6 percent and the REER level model suggests a gap of 1.6 percent.

Capital and Financial Accounts: Flows and Policy Measures

Background. The financial account declined to 0.2 percent of GDP in 2021 from 2.9 percent of GDP in 2020 driven by a decline in other investments and liabilities due in large part to a reduction in corporate profitability. In 2022, the financial account is expected to turn negative driven by net portfolio outflows though the balance is projected to turn positive over the medium-term.

Assessment. Risks related to capital flows are assessed to be relatively small.

FX Intervention and Reserves Level

Background. Gross international reserves increased to US$178 billion (60 percent of GDP) in 2021 bolstered by the allocation of 2.09 billion SDRs—1.1 percent of GDP or 0.2 months of imports—in August 2021. Reserves are expected to decline slightly in USD terms in 2022 but reserve coverage will remain robust. The Czech koruna has been largely freely floating, and the authorities did not intervene in foreign exchange markets from the koruna floor exit in April 2017 through 2021. However, amid higher volatility observed in FX markets due to the war in Ukraine and financial tightening in global markets, the CNB intervened through the first nine months of 2022 and has announced that it may continue to intervene if warranted to prevent excessive exchange rate volatility.

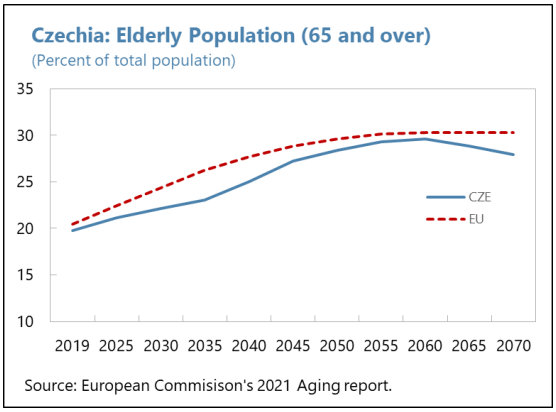
Assessment. Reserves are equivalent to approximately 9 months of imported goods and services in 2022 and are assessed to be sufficient to insulate against external shocks and disorderly market conditions.

Annex II. Restoring the Long-term Sustainability of the Pension System

Ageing is expected to substantially weigh on Czechia's pension expenditures and deteriorate the sustainability of the pension system beyond 2030. This trend is exacerbated by the delinking of the retirement age from life expectancy gains, and the permanent fiscal measures passed in 2020 which have worsened public finance sustainability. The review of recent analysis suggests that restoring the long-term sustainability of the pension system would require increasing the statutory retirement age beyond 2030, though this will only moderately ease rising pension expenditures. Additional measures ranging from indexation to inflation, reforming the tax system to increasing the pension system's financial resources, as well as boosting labour supply should be considered.

Demographic Developments and Labour Market Dynamics

1. Population ageing and declining working age-population is expected to weigh on pension spending and increase the pension system deficit. Population ageing is projected to accelerate in Czechia though at a slightly slower pace than the EU average, with the elderly population expected to increase by more than 50 percent over 2019–2060.[1] Combining this trend with the expected decline in the working-age population (by about 18 percent), implies that the old-age dependency ratio will increase from 33 percent in 2019 to 59 percent in 2060. While the recent pandemic-related higher mortality and better migration balance slightly improved short-term sustainability (Czech Fiscal Council (CFC) 2022), the long-run sustainability of the pension system remain affected by population ageing. Generations born in the 2000s are expected to bear the greatest burden of long-term unsustainable pension (CFC 2022).



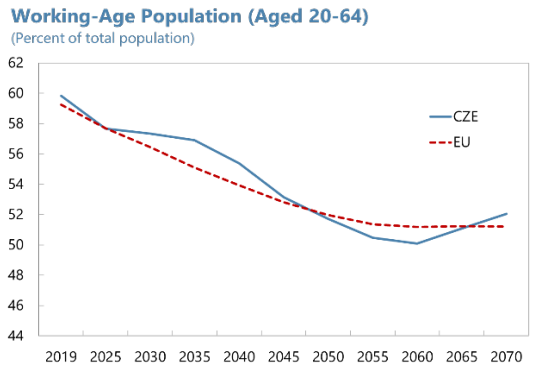
2. The delinking of the retirement age from life expectancy is expected to worsen long-term sustainability. Since 1996, reforms to the Czech pension system have led to a progressive increase in the statutory retirement age (SRA), which will reach 65 years in 2030.[2] A legislative change in 2017 set the maximum retirement age at 65 beyond 2030, with mechanism for regular re-assessments. No modifications were introduced during the 2019 round of assessment, which is has intensified fiscal sustainability challenges beyond 2030. Supported by the planned increase in the SRA through 2030, the working-age population (19 to retirement age) is expected to remain

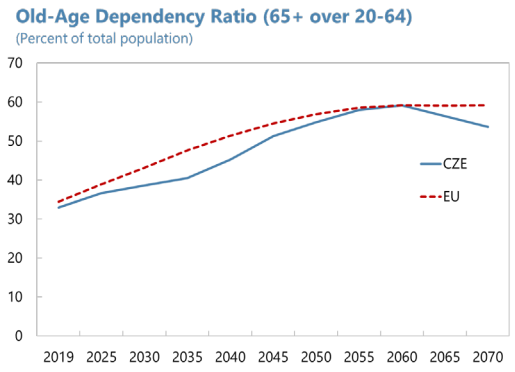
[1] The elderly population is expected to increase more for men than for women about 65 percent vs 40 percent, in line with the expected convergence of male life expectancy to that of women.

[2] The statutory retirement age is the eligibility age pension rights, though a few exceptions allow early retirement.

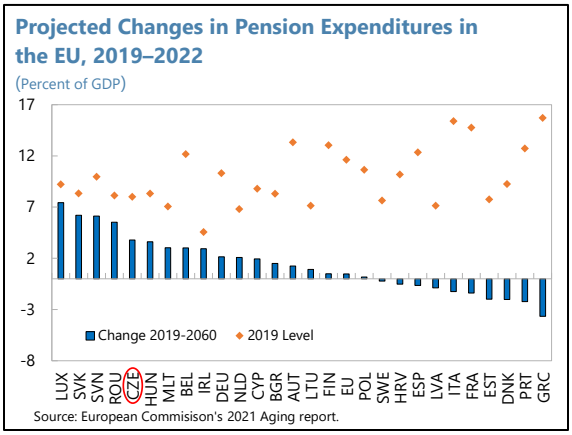
relatively stable until 2030, slowly decline until 2040, and accelerate to reach a level 18 percent below the 2019 level in 2060 (EC's Aging Report, 2021). In particular, the number of women at or above the statutory retirement age (SRA) is expected to slightly decrease between 2020 and 2030.[3] The economic dependency ratio is also expected to remain stable until 2035, before increasing until the late 2050s.[4]

Figure 1. Czechia: Working Age Population and Old-Age Dependency Ratio, 2019– 2070





3. Pension spending is projected to increase by more than in the average EU countries. Czechia is among the countries with the highest expected increase by about 3.8 percentage points to 11.8 percent of GDP 2060 (EC's Aging Report, 2021). Pension spending is expected to remain stable around 8.8 percent of GDP until 2030—contained by the increase in the retirement age—, increase progressively to peak at 11.8 percent of GDP in 2060. Thereafter, pension is expected to decline to 10.9 percent in 2070, reflecting the big cohorts born in the 1970s leaving the pension system and to lesser extent a decline in the average validated contribution periods OECD (2020). Same magnitude of pension increase was found in CFC (2022) and OECD (2020). The stable dynamics of pension spending through 2030 offer a window to progressively reform the pension system.



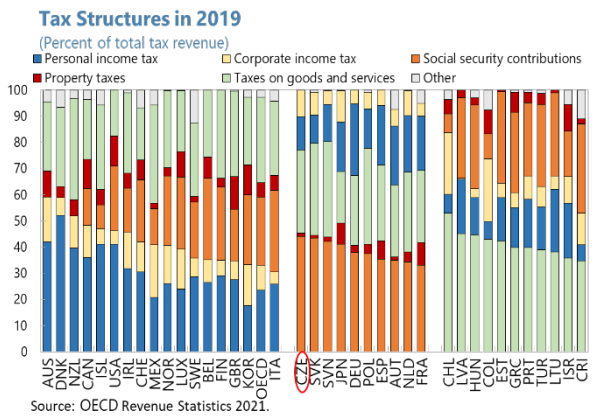
[3] The large increase in the elderly population, by about 47 percent between 2000 and 2019, only induced an 18 percent increase in the population at or beyond the statutory retirement age.

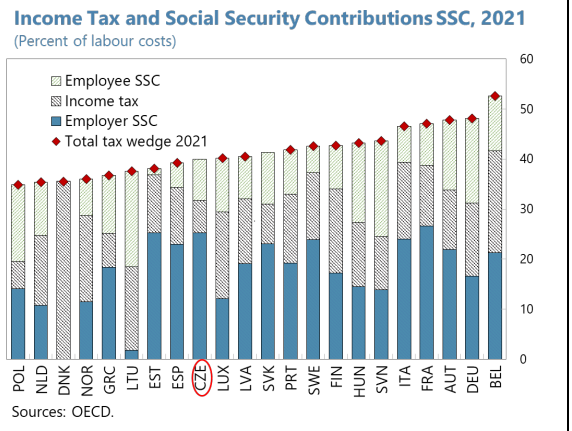
[4]The old-age dependency ratio is the ratio of the population at and over the retirement age to the working-age population. The demographic old-age dependency ratios based on a fixed age boundary, e.g., of 65 years.

The Financing of the Pension System Mostly Relies on Wage-based Social Contributions

4. Czechia pension system is mostly financed through wage-based social contributions from the government budget. The spending pressure from ageing is compounded by the limited financing sources of the pension system, which relies more on social security contributions than many EU countries (both contributory and non-contributory benefits). Furthermore, while the value added tax (VAT) revenues are above the EU average, revenues on goods and services are closer to the EU average, suggesting comparatively fewer excise duties (possibly on fuels and environmentally related taxes). Room to increase social security contribution rates in Czechia is limited by the tax wedge, which remains comparatively high in the EU. As wage converges towards EU averages, a higher level of wage taxation could impede labour market performance by incentivizing firms to substitute labour for capital (OECD 2020).

Figure 2. Czechia: Tax Revenue Structure and Tax Wedge

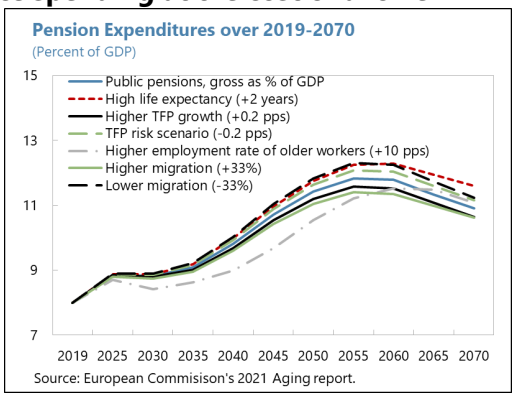




Pension Reforms to Ensure Financial Sustainability

5. Increasing the retirement age beyond 2030 will help moderate the rising pension spending beyond 2030. Increasing the retirement age would reduce the number of age cohorts in retirement while augmenting the labour force. The OECD (2020) found that increasing the statutory retirement age to 67 after 2030 would stabilize pension spending until 2040 and induce a lower and earlier peak than in the baseline (by 1.1 percentage points of GDP lower in 2050 by 0.6 percentage points and 2059). Increasing the retirement age would also: (i) improve the adequacy of the pension system, by inducing higher pension replacement rate (by 3 percentage points over the projection period); (ii) increase the revenues of the pension system as more people contribute and for longer. Although improving the linking of the retirement age after 2030 in line with life expectancy gains boost growth and reduce financing needs, additional measures would be needed to close the financing gap of the pension system (CFC 2022).

6. Indexing pensions with inflation will help reduce spending at the cost of a lower replacement rate. In recent years, pension increases have been more generous than the indexation rule. The option of indexing pensions to inflation only would reduce spending while preserving the purchasing power of retirees, at the cost of raising the income gap between retirees and workers. However, the OECD (2020) suggests that such indexation could reduce pension spending (by 0.9 percentage point of GDP at the peak in 2059), which is comparable to the spending reduction achieved by increasing the retirement age beyond 2030.



7. The sustainability of the pension system also hinges on rebalancing its financing sources and increasing budget transfers. Adequate resources are required to close the pension system's financing gap beyond 2030. Non-contributory components of the pension scheme, in particular family benefits, weigh on pension expenditures financed through wage contributions. Increasing fiscal resources for the pension system could be facilitated by greater tax revenue. The value-added tax (VAT) appears to be the less efficient scenario as it would simultaneously depress consumption and investment via higher cost of capital. OECD (2020) simulations indicate that increasing profits and corporate income taxes would have fewer negative impacts on GDP and employment than increasing social contributions and value added tax. Other options of taxes less detrimental to economic growth, include property, environment taxes, and improvement in tax compliance.

Expanding the Working-Age Population

8. Increasing the labour force participation will raise potential GDP and alleviate the weight of pension expenditures on public finances over time. Changes in the occupational structure driven by digitalization and automation and the expected transition to the EV industry require a holistic policy framework to contain displacement risks which could affect participation and employment. Long-term strategies need to be complemented by short- and medium-term policies focusing on skill upgrading of the workforce, while the current labour force should be provided with adequate training options to adapt to new skill demands. Vocational education should be further developed to play a significant role in addressing skill mismatches. Labour supply could be further enhanced by: (i) supporting flexible and part-time work arrangements for young people and elderly workers; (ii) further strengthening the labour market integration of women with young children, and of vulnerable groups such as Roma people or people with disabilities; and (iii) sustaining recent gains in migration while facilitating the integration of refugees.

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Annex III. Risk Assessment Matrix

Conjunctural Risks [1]			
Risks	**Likelihood**	**Impact on Czechia**	**Recommended Policy Response**
Intensifying spillovers from Russia's war in Ukraine. Further sanctions resulting from the war and related uncertainties exacerbate trade and financial disruptions and commodity price volatility, with Europe, LICs, and commodity-importing EMs among the worst hit.	High	High The war in Ukraine increase likelihood of trade and supply chain disruptions, higher inflation, and confidence shocks	Diversify trade, particularly imports of energy. Develop contingency plans, including to mitigate the risk of a gas shut-off by Russia. Accelerate investments in energy efficient and renewable sources of energy, and in critical energy infrastructure such as the as the Poland – Czechia gas pipeline being revamped.
Commodity price shocks. A combination of continuing supply disruptions (e.g., due to conflicts and export restrictions) and negative demand shocks causes recurrent commodity price volatility and social and economic instability.	High	High War in Ukraine will cause high and volatile food and energy prices in the region.	Keep participating in European policy responses. Diversify energy and food supply. Incentivize domestic production of food and renewable energy.
Systemic social unrest. Rising inflation, declining incomes, and worsening inequality amplify social unrest and political instability, causing capital outflows from EMDEs, slowing economic growth, and giving rise to economically damaging populist policies (e.g., preserving fossil fuel subsidies).	High	Medium High and volatile food and energy prices in the region could increase the risks of social unrest.	Keep participating in European policy responses. Diversify energy and food supply. Incentivize domestic production of food and renewable energy. Target support measures to vulnerable populations.
De-anchoring of inflation expectations and stagflation. Supply shocks to food and energy prices sharply increase headline inflation and pass through to core inflation, de-anchoring inflation expectations and triggering a wage-price spiral in tight labor markets. Central banks tighten monetary policy more than envisaged leading to weaker global demand, currency depreciations in EMDEs, and sovereign defaults. Together, this could lead to the onset of stagflation.	Medium	Medium Czechia would be relatively insulated given the public and private sector's high reliance on domestic financing. However, tighter financial conditions could weigh on households and undermine consumption with adverse spillovers to other (viable) sectors. The CNB would have to further tighten monetary policy with potentially adverse effects on growth.	Adjust fiscal spending to better target support. Tighten monetary stance in a forward-looking, data-dependent manner. Closely monitor and manage financial sector risks. Reduce vulnerabilities of household and financial sectors by calibrating the macroprudential toolkit, with particular attention to lower-income groups.
Abrupt global slowdown or recession. Global and idiosyncratic risk factors combine to cause a synchronized sharp growth slowdown, with outright recessions in some countries, spillovers through trade and financial channels, and downward pressures on some commodity prices. **Europe:** The fallout from the war in Ukraine is exacerbated by a gas shutoff by Russia, resulting in acute gas shortages and further supply disruptions, which triggers an EU recession.	Medium High	Medium Given its integration in GVCs, Czechia would be affected slowdown or recession in its trading partners	Participate in global and European policy responses. Manage risk through supply diversification, contingency plans, and investment in energy efficiency.
Local Covid-19 outbreaks. Outbreaks in slow-to-vaccinate countries or emergence of more contagious vaccine-resistant variants force new lockdowns or inhibit commerce. This results in extended supply chain disruptions, slower growth, capital outflows, and debt distress in some EMDEs.	Medium	Medium Czechia 's comparatively low vaccination coverage (in the EU) suggests the impact could be sizable. Better preparedness of the economy and healthcare system partially mitigate those risks.	Enhance vaccination coverage and other public health measures. Provide targeted policy support, including to mitigate "social scarring". Manage risk through supply diversification.

Structural Risks			
Source of Risks, Likelihood, and Time Horizon		**Impact on Czechia**	**Recommended Policy Response**
Deepening geo-economic fragmentation and geopolitical tensions. Broadening of conflicts and reduced international cooperation accelerate deglobalization, resulting in a reconfiguration of trade, supply disruptions, technological and payments systems fragmentation, rising input costs, financial instability, a fracturing of international monetary and financial system, and lower potential growth.	**High**	**High** Geopolitical tensions with Russia in Europe are high due to the strong support of Ukraine and could be exacerbated by worsening of the war in Ukraine and related spillovers	Deploy additional discretionary fiscal support. Prioritize such support in key security-related areas. Continue implementation of the AML/CFT frameworks to protect the financial sector.
Cyberthreats. Cyberattacks on critical physical or digital infrastructure (including digital currency platforms) trigger financial instability and disrupt economic activities.	**Medium**	**High** Given geopolitical tensions with Russia and recent cyber-attacks, suggest risks of further attacks.	Enhance preparedness for cyberattacks through extensive risk monitoring in cooperation with private and public sector stakeholders.
Natural disasters related to climate change. More frequent natural disasters deal severe damage to infrastructure (especially in smaller vulnerable economies) and amplify supply chain disruptions and inflationary pressures, causing water and food shortages and reducing medium-term growth.	**Medium**	**Medium** Czechia's strategy on climate adaptation to Change identifies industry and energy as the main sectors subject to climate change risks and emphasis on connectivity across sectors.	Accelerate the implementation the National Action Plan on Adaptation which established a robust scheme to build and enhance the energy sector's climate resilience.

[1] The Risk Assessment Matrix (RAM) shows events that could materially alter the baseline path. The relative likelihood is the staff's subjective assessment of the risks surrounding the baseline ("low" is meant to indicate a probability below 10 percent, "medium" a probability between 10 and 30 percent, and "high" a probability between 30 and 50 percent). The RAM reflects staff views on the source of risks and overall level of concern as of the time of discussions with the authorities. Non-mutually exclusive risks may interact and materialize jointly. The conjunctural shocks and scenarios highlight risks that may materialize over a shorter horizon (between 12 to 18 months) given the current baseline. Structural risks are those that are likely to remain salient over a longer horizon.

Annex IV. Public Debt Sustainability Analysis

Public debt increased to 42 percent of GDP in 2021 on the back of a strong fiscal response to mitigate the impact of the pandemic and the weak cyclical position induced by it. Public debt is projected to rise to 46½ percent of GDP over the medium term, assuming a recovery starting in 2024. A no-consolidation scenario in which the primary balance remains unchanged at the 2022 level leads to a steep increase of debt and gross financing needs into the medium term. The debt-to-GDP ratio does not stabilize under the baseline.

Baseline and Realism of Projections

1. The baseline scenario assumes sustained deficits and growth converging to potential over the medium term. The fiscal stance tightens by about 1 percentage point to a structural balance of -4.5 percent of GDP in 2022. Over the medium term, the headline and structural deficits converge to -2½ percent. Domestic demand is projected to drive real GDP growth, projected at 2.5 percent in 2022. The inflation rate is projected to increase from 3.8 percent in 2021 to 16 percent in 2022 and to converge to the 2 percent target by 2025.

2. Debt and funding needs will continue to increase into the medium term in the baseline scenario. Staff projects a steady increase in the debt-to-GDP ratio from 42 percent in 2021 to 46½ percent in 2028 as the primary deficit exceeds the debt-stabilizing primary balance of -0.4 percent over the entire projection horizon. Gross financing needs are projected to be 9½ percent of GDP at the end of the projection period.

Shock and Stress Tests

3. A sustained primary deficit at 2023 levels, illustrating an extreme scenario in which fiscal support measures have to be kept in place, would accelerate the increase in debt. In this scenario, the primary balance would remain at -3.4 percent into the medium term, which causes public debt to rise by about 13 percentage points to 57 percent of GDP and gross financing needs to increase to 13 percent of GDP by 2028.

4. Despite the recent significant increases in public debt, its trajectory is still relatively unsensitive to an interest rate shock. For instance, an interest rate shock, in which the real rate increases by 346 basis points (the difference between the maximum real interest rate over the last 10 years and the average real interest rate over the projection period), accelerates the increase in debt only moderately to 48 percent of GDP by 2028.

Figure 1. Czechia: Sector Debt Sustainability Analysis -Baseline Scenario

(in percent of GDP unless otherwise indicated)

Debt, Economic and Market Indicators [1/]

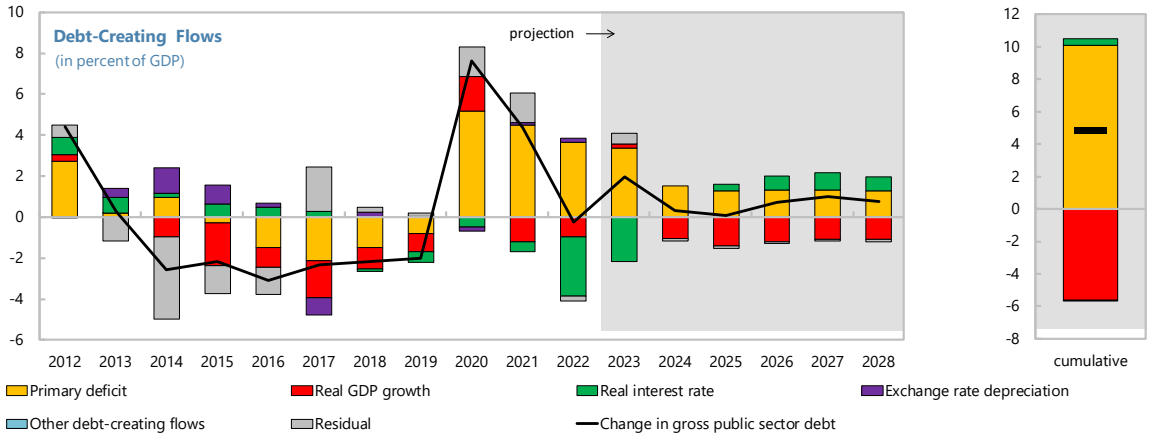
	Actual			Projections					
	2012-2020 [2/]	2021	2022	2023	2024	2025	2026	2027	2028
Nominal gross public debt	37.9	42.0	41.8	43.7	44.1	44.2	44.9	45.9	46.6
Public gross financing needs	6.9	9.5	8.1	7.7	6.8	7.2	8.0	8.0	9.5
Real GDP growth (in percent)	1.7	3.5	2.5	-0.5	2.5	3.4	2.8	2.5	2.5
Inflation (GDP deflator, in percent)	2.2	3.4	9.7	8.4	3.2	2.6	1.8	1.5	1.7
Nominal GDP growth (in percent)	3.9	7.0	12.5	7.8	5.8	6.1	4.7	4.1	4.3
Effective interest rate (in percent) [4/]	2.7	2.1	2.1	2.8	3.3	3.5	3.6	3.5	3.3

As of November 30, 2021

Sovereign Spreads		
Bunds (bp) 3/		278
5Y CDS (bp)		35
Ratings	Foreign	Local
Moody's	Aa3	Aa3
S&Ps	AA-	AA
Fitch	AA-	AA-

Contribution to Changes in Public Debt

	Actual			Projections							
	2012-2020	2021	2022	2023	2024	2025	2026	2027	2028	cumulative	debt-stabilizing primary balance [9/]
Change in gross public sector debt	-0.2	4.4	-0.2	2.0	0.3	0.1	0.7	1.0	0.8	4.8	
Identified debt-creating flows	0.1	2.9	0.0	1.4	0.4	0.2	0.8	1.1	0.9	4.9	
Primary deficit	0.3	4.5	3.6	3.4	1.5	1.3	1.3	1.3	1.3	10.1	-0.4
Primary (noninterest) revenue and grants	40.8	41.3	41.6	42.7	41.4	40.6	40.6	40.6	40.6	246.4	
Primary (noninterest) expenditure	41.2	45.8	45.2	46.1	42.9	41.9	41.9	41.9	41.9	256.5	
Automatic debt dynamics [5/]	-0.2	-1.6	-3.7	-2.0	-1.1	-1.1	-0.5	-0.2	-0.4	-5.2	
Interest rate/growth differential [6/]	-0.4	-1.7	-3.9	-2.0	-1.1	-1.1	-0.5	-0.2	-0.4	-5.2	
Of which: real interest rate	0.2	-0.5	-2.9	-2.2	0.0	0.3	0.7	0.9	0.7	0.4	
Of which: real GDP growth	-0.6	-1.2	-0.9	0.2	-1.0	-1.4	-1.2	-1.1	-1.1	-5.6	
Exchange rate depreciation [7/]	0.2	0.1	0.2	...	...	...	...	...	...	...	
Other identified debt-creating flows	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
General government net privatization proceeds (negative)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Contingent liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Please specify (2) (e.g., ESM and Euroarea loans)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Residual, including asset changes [8/]	-0.4	1.5	-0.2	0.5	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	



Source: IMF staff.

1/ Public sector is defined as general government.

2/ Based on available data.

3/ Long-term bond spread over German bonds.

4/ Defined as interest payments divided by debt stock (excluding guarantees) at the end of previous year.

5/ Derived as [(r - π(1+g) - g + ae(1+r)]/(1+g+π+gπ)) times previous period debt ratio, with r = interest rate; π = growth rate of GDP deflator; g = real GDP growth rate; a = share of foreign-currency denominated debt; and e = nominal exchange rate depreciation (measured by increase in local currency value of U.S. dollar).

6/ The real interest rate contribution is derived from the numerator in footnote 5 as r - π (1+g) and the real growth contribution as -g.

7/ The exchange rate contribution is derived from the numerator in footnote 5 as ae(1+r).

8/ Includes asset changes and interest revenues (if any). For projections, includes exchange rate changes during the projection period.

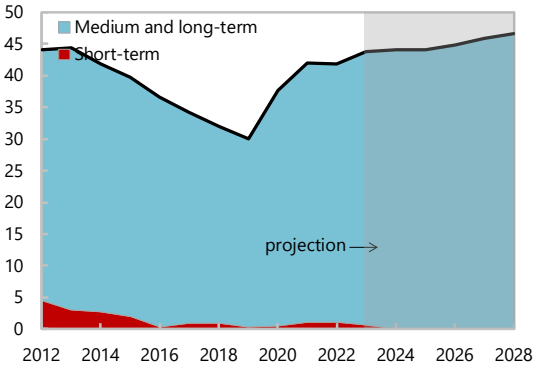
9/ Assumes that key variables (real GDP growth, real interest rate, and other identified debt-creating flows) remain at the level of the last projection year.

Figure 2. Czechia: Public Debt Sustainability Analysis—Composition of Public Debt and Alternative Scenarios

Composition of Public Debt

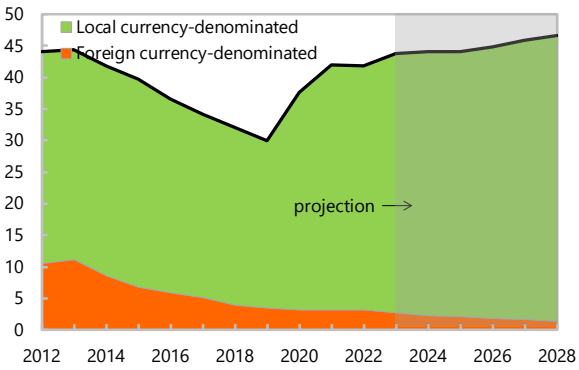
By Maturity

(in percent of GDP)

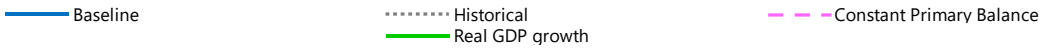


By Currency

(in percent of GDP)

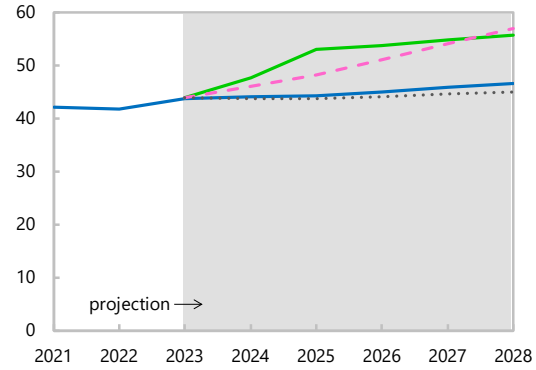


Alternative Scenarios



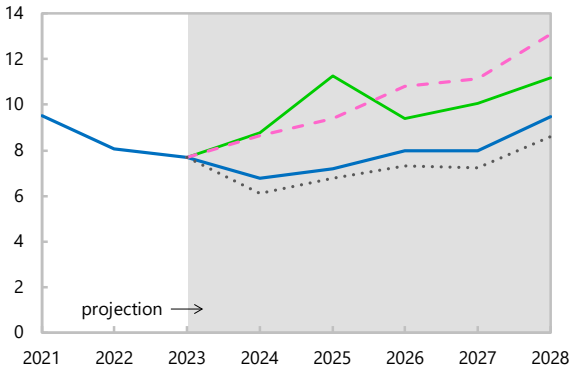
Gross Nominal Public Debt

(in percent of GDP)



Public Gross Financing Needs

(in percent of GDP)



Underlying Assumptions

(in percent)

Baseline Scenario	2023	2024	2025	2026	2027	2028
Real GDP growth	-0.8	2.5	3.4	2.8	2.5	2.5
Inflation	8.4	3.2	2.6	1.8	1.5	1.7
Primary Balance	-3.4	-1.5	-1.3	-1.3	-1.3	-1.3
Effective interest rate	2.8	3.3	3.5	3.6	3.5	3.3
Constant Primary Balance Scenario						
Real GDP growth	-0.8	2.5	3.4	2.8	2.5	2.5
Inflation	8.4	3.2	2.6	1.8	1.5	1.7
Primary Balance	-3.4	-3.4	-3.4	-3.4	-3.4	-3.4
Effective interest rate	2.8	3.3	3.6	3.7	3.6	3.4
Real GDP growth						
Real GDP growth	-0.8	-0.6	0.3	2.8	2.5	2.5
Inflation	8.4	2.4	1.8	1.8	1.5	1.7
Primary Balance	-3.4	-3.3	-4.7	-1.3	-1.3	-1.3
Effective interest rate	2.8	3.3	3.7	4.0	3.9	3.6

Historical Scenario	2023	2024	2025	2026	2027	2028
Real GDP growth	-0.8	2.2	2.2	2.2	2.2	2.2
Inflation	8.4	3.2	2.6	1.8	1.5	1.7
Primary Balance	-3.4	-0.8	-0.8	-0.8	-0.8	-0.8
Effective interest rate	2.8	3.3	3.4	3.3	3.2	2.9

Source: IMF staff.

Table 1. Czechia: External Debt Sustainability Framework 2017–2027

	Actual							Projections							
	2017	2018	2019	2020	2021			2022	2023	2024	2025	2026	2027		Debt-stabilizing non-interest current account 6/
1 **Baseline: External debt**	88.4	81.4	76.5	76.4	75.5			**68.9**	**66.6**	**64.5**	**61.3**	**58.8**	**56.2**		**-1.4**
2 Change in external debt	15.4	-7.0	-4.9	-0.1	-0.8			-7.5	-2.3	-2.1	-3.2	-2.5	-2.6	0.0	
3 Identified external debt-creating flows (4+8+9)	-10.3	-12.2	-3.8	-2.6	-2.7			-1.0	0.1	-3.7	-5.3	-5.1	-4.8	0.0	
4 Current account deficit, excluding interest payments	-1.5	-0.4	-0.3	-2.0	0.0			4.0	0.9	-1.2	-2.3	-2.5	-2.5	1.4	
5 Deficit in balance of goods and services	-7.5	-5.9	-6.0	-6.7	-3.0			1.9	-2.4	-4.4	-5.5	-5.8	-5.4		
6 Exports	79.0	76.9	73.9	69.9	72.7			72.8	72.1	74.0	72.8	72.3	72.0		
7 Imports	71.5	71.0	67.9	63.2	69.7			74.8	69.6	69.6	67.3	66.5	66.6		
8 Net non-debt creating capital inflows (negative)	-1.3	-1.0	-2.3	-2.7	-0.1			-1.0	-1.1	-0.9	-0.9	-0.9	-0.8	-0.8	
9 Automatic debt dynamics 1/	-7.5	-10.8	-1.1	2.0	-2.6			-4.0	0.3	-1.6	-2.1	-1.7	-1.5	-0.6	
10 Contribution from nominal interest rate	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11 Contribution from real GDP growth	-3.4	-2.5	-2.4	4.3	-2.6			-4.0	0.3	-1.6	-2.1	-1.7	-1.5	-1.4	
12 Contribution from price and exchange rate changes 2/	-4.1	-8.3	1.3	-2.3	0.0			...	...	...	...	...	...	0.8	
13 Residual, incl. change in gross foreign assets (2-3) 3/	25.7	5.2	-1.1	2.5	1.8			-6.5	-2.4	1.6	2.2	2.6	2.2	0.0	
External debt-to-exports ratio (in percent)	111.9	105.8	103.6	109.2	104.0			94.6	92.4	87.1	84.2	81.3	78.1		
Gross external financing need (in billions of US dollars) 4/	66.8	109.3	118.8	106.1	0.0			115.8	122.2	117.6	116.1	114.0	111.5		
in percent of GDP	30.6	43.9	47.0	43.1	0.0	10-Year	10-Year	41.8	41.0	37.3	34.7	32.5	30.5		
Scenario with key variables at their historical averages 5/								68.9	67.2	67.7	67.3	66.6	65.0		**-2.9**
Key Macroeconomic Assumptions Underlying Baseline						Historical Average	Standard Deviation							For debt stabilization	
Real GDP growth (in percent)	5.2	3.2	3.0	-5.5	3.5	1.7	3.2	2.5	-0.5	2.5	3.4	2.8	2.5	2.5	
GDP deflator in US dollars (change in percent)	5.9	10.3	-1.6	3.1	0.0	0.3	7.6	9.7	8.4	3.2	2.6	1.8	1.5	-1.4	
Nominal external interest rate (in percent)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Growth of exports (US dollar terms, in percent)	11.3	10.9	-2.6	-7.8	19.0	2.7	9.4	4.3	4.3	8.3	2.4	1.6	0.8		
Growth of imports (US dollar terms, in percent)	11.4	13.1	-3.0	-9.3	26.3	2.2	9.7	11.6	-1.7	5.3	0.6	1.1	1.3		
Current account balance, excluding interest payments	1.5	0.4	0.3	2.0	0.0	0.3	1.4	-4.0	-0.9	1.2	2.3	2.5	2.5		
Net non-debt creating capital inflows	1.3	1.0	2.3	2.7	0.1	1.6	1.5	1.0	1.1	0.9	0.9	0.9	0.8		

1/ Derived as [r - g - r(1+g) + ea(1+r)]/(1+g+r+gr) times previous period debt stock, with r = nominal effective interest rate on external debt; r = change in domestic GDP deflator in US dollar terms, g = real GDP growth rate, e = nominal appreciation (increase in dollar value of domestic currency), and a = share of domestic-currency denominated debt in total external debt.

2/ The contribution from price and exchange rate changes is defined as [-r(1+g) + ea(1+r)]/(1+g+r+gr) times previous period debt stock. r increases with an appreciating domestic currency (e > 0) and rising inflation (based on GDP deflator).

3/ For projection, line includes the impact of price and exchange rate changes.

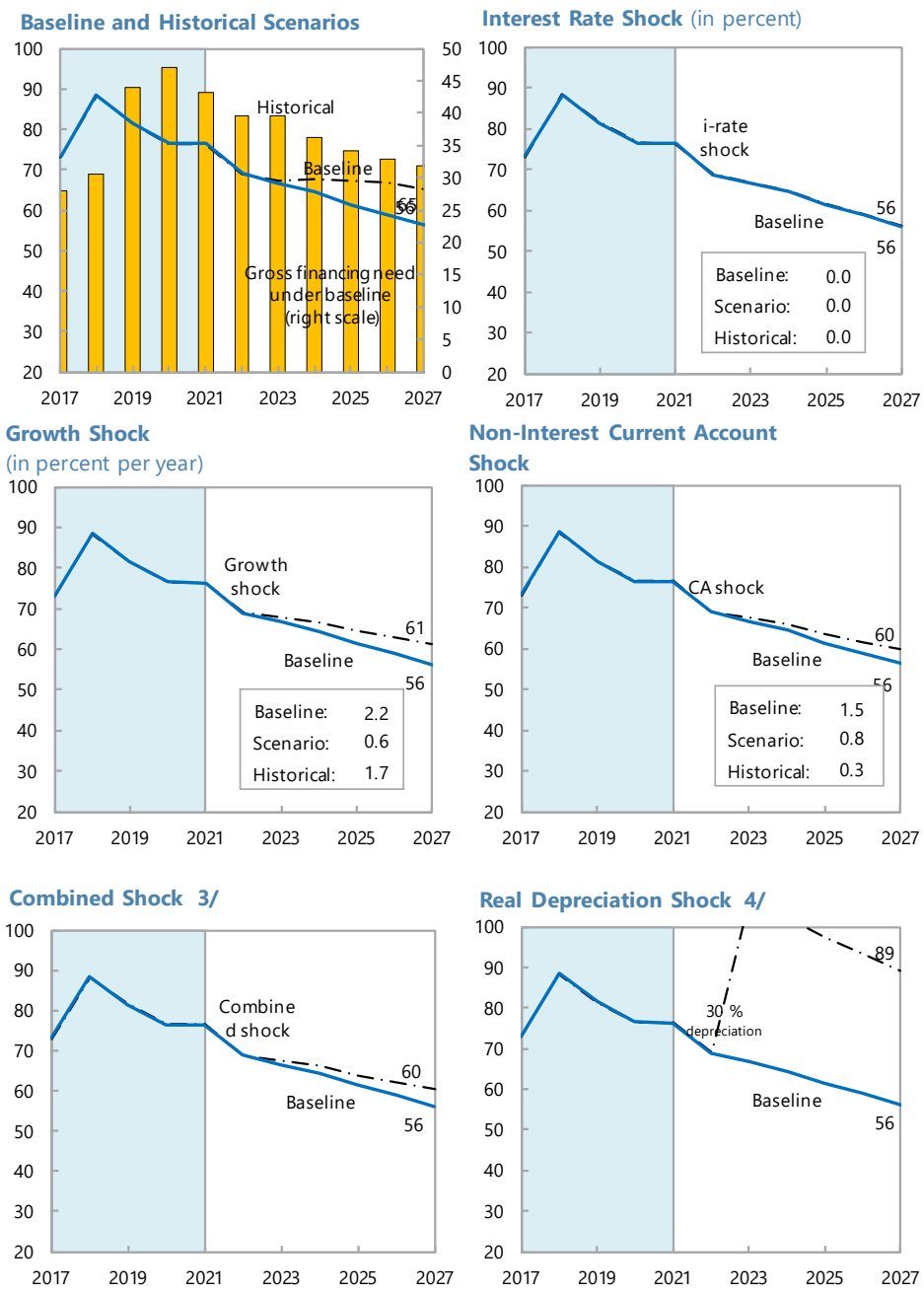
4/ Defined as current account deficit, plus amortization on medium- and long-term debt, plus short-term debt at end of previous period.

5/ The key variables include real GDP growth; nominal interest rate; dollar deflator growth; and both non-interest current account and non-debt inflows in percent of GDP.

6/ Long-run, constant balance that stabilizes the debt ratio assuming that key variables (real GDP growth, nominal interest rate, dollar deflator growth, and non-debt inflows in percent of GDP) remain at their levels of the last projection year.

Figure 3. Czechia: External Debt Sustainability: Bound Tests [1/ 2/]

(External Debt in percent of GDP)



Sources: International Monetary Fund, Country desk data, and staff estimates.
1/ Shaded areas represent actual data. Individual shocks are permanent one-half standard deviation shocks. Figures in the boxes represent average projections for the respective variables in the baseline and scenario being presented. Ten-year historical average for the variable is also shown.
2/ For historical scenarios, the historical averages are calculated over the ten-year period, and the information is used to project debt dynamics five years ahead.
3/ Permanent 1/4 standard deviation shocks applied to real interest rate, growth rate, and current account balance.
4/ One-time real depreciation of 30 percent occurs in 2021.

Annex V. Authorities' Response to Past IMF Policy Recommendations

	Key Recommendations	Actions
Monetary	Given the high uncertainty about inflation and the external environment, policy action should remain data-driven and carefully weigh trade-offs in hiking too fast.	The CNB undertook a last increase of 125 bps in June 2022 to 7 percent, reflecting a steady tightening cycle that has led to a 675 bp increase since May 2020.
Macroprudential	Macroprudential limits should be given some time to have effect but might need to be tightened further.	Macroprudential tools have been tightened adequately.
Fiscal	While fiscal consolidation is warranted in the short term, fiscal policy should remain flexible given economic uncertainty	The fiscal stance is adequately slightly contractionary while fiscal policy continues to support the vulnerable.
Structural	Increasing labor supply and enhancing the employment prospects of disadvantaged groups is critical. Policies should further incentivize investment and raise productivity. A strategy based on enhanced carbon pricing, reinforced by broader incentives across sectors is recommended.	Improvements to the structural positioning of the economy delayed during the pandemic, have been slow and could be further delayed in the short term by energy security constraints. Some progress was made in attracting skilled labor and boosting AMLP spending. The inefficient building permitting process remains a key bottleneck.

Annex VI. Enhancing the Green Transition in Czechia

Czechia has made progress towards reducing greenhouse gas emissions, though sizable efforts are still needed to effectively support the green transition, in line the "Fit for 55" package and the REPowerEU plan. Czechia should follow through on its commitment to phase out coal despite energy security challenges, while addressing the socio-economic impacts supported by Just Transition Fund. Diversifying energy sources and investing in efficiency and renewable sources should be prioritized to enhance energy security and steady the transition away from coal. Decisive efforts are also needed to ensure energy efficiency and sustainability in the transport and building sectors, while promoting biodiversity, carbon sinks.

1. Czechia has made progress in reducing GHG emissions, but the green transition still faces significant challenges. GHG emissions were reduced by about 43 percent in 2020 relative to 1990, on the back of continued progress with the phase out of coal, though the Ministry of Environment's simulations suggest additional measures would be needed for the Czechia to meet Fit-For-55 targets.[1] Fully achieving the EU-level climate related goals will require following through commitments to phase out coal by 2033, and accelerating transition to clean energy sources and higher energy efficiency.[2] More ambitious strategy and targets could involve a higher carbon pricing score, reinforced by broader incentives, including feebates, rebates and R&D incentives and the recycling of revenues to support the economy (IMF 2020, 2022).

2. Further efforts are needed to fill the substantial gaps in the financing of the green transition. The Ministry of Environment (2022) estimates that the total investment costs of decarbonization through 2030 is around EUR 41 billion (17.2 percent of 2021 GDP) under current policies; and up to EUR 61.5 billion on average under the "Fit for 55" scenario. Given sustained increases in energy prices—the green infrastructure needed for the transition is likely be more costly over the medium term. The authorities estimate that the investment gap of the green transition should largely be covered by the RRF and other structural EU funds (totaling EUR 41 billion by 2030); as well as the revenues from the EU ETS about EUR 27.1 billion (11.3 percent of 2021GDP) by 2030 in the baseline scenario and twice higher if the Fit for 55 implemented. A broader set of incentives to attract complementary private investment should be designed. A prompt definition of the tax framework for green investment, including carbon taxation, would provide clarity for private investment.[3]

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[1] The Fit- for 55 package targets a greenhouse gas emissions (GHG) reduction of 55 percent by 2030 and climate neutrality by 2050.

[2] IMF Country Report No. 2022/023

[3] The authorities are revamping their climate and energy strategies. The Climate Protection Policy is expected to be completed by end- 2023, in line with the State Energy Policy and the "Fit for 55" package. By 2024, an updated National Energy and Climate Change Plan would be adopted.

3. Investments in renewables and alternative sources would be critical for energy security and to support the transition away from coal. The share of fossil fuels in electricity production is planned to decline from 50 percent in 2016 to 11–21 percent in 2040, partially replaced by nuclear energy, which contribution would increase from 29 to 46–58 percent. Deploying a broad range of alternative technologies especially renewables (e.g., solar, wind, geothermal, renewable hydrogen, and sustainable bio-methane) would help support the green transition and cover a large share of the natural gas shortfall. Yet Czechia's 2030 goal for renewables (22 percent) is modest and below the recently proposed level (31 percent) on the Renewable Energy Directive (EC 2022). Therefore, significant additional investment in renewables is essential, beyond those financed by the RRP.[4] Nuclear expansion should be accompanied by strong regulation to minimize risks.

4. Czechia 's commitment to the phase out of coal should be support by new decarbonization measures and policies to address the socio-economic impacts. The government's objective to stop using coal by 2033, would curb reliance on fossil fuels over time, though these efforts could be delayed in the short-term due to energy security concerns. In parallel, Czechia´s coal regions (e.g., Ústí and Karlovy Vary) face higher levels of unemployment and poverty, which could be exacerbated by the phase out coal-based jobs. Key activities to support the coal regions, in the context of the Operational Programme Just Transition (allocation of EUR 1.6 billion) including investment in business start-ups and SMEs, up-skilling and retraining of workers would effectively support the transition. The Just transition Fund is complemented by the Modernization Fund, the main public financial resource for the modernization of the Czech energy sector. In line with the national energy and climate strategies, measures to support workers at risk of redundancy in coal regions should be swiftly implemented.

5. Ensuring energy efficiency and sustainability in the transport and building sectors remains a key priority that would support energy security. Investment in energy efficiency should be scaled up, while prioritizing the renovation of buildings connected to coal-based district heating (EC 2022).[5] Renovation efforts will require large investments of around EUR 17 billion (EC 2022), only partially financed by the RRP's energy efficiency allocation (EUR 1.4 billion). New measures being prepared and funded by REPowerEU, such as the subsidy program for the replacement of gas heating in low-income households, are steps in the right direction. In parallel, growing emissions in the transport sector call for decisive efficiency and sustainability measures. Greater incentives for modal shift to rail and public transport and investments in electrified rail should help improve sustainability. Measures to facilitate the use of electric vehicles, particularly

[4] The RRP includes investments for the construction of 270MW of photovoltaic power in companies, which only represents only a modest fraction of the total installed wind and solar power capacity.

[5] Czechia's energy intensity was the double of the EU average in 2019.

charging infrastructure, would help improve the comparatively lower electric vehicles adoption in Czechia.[6]

6. Further efforts are needed to support the essential functions of the forest ecosystem by promoting biodiversity, carbon sinks. Net emissions from land use, land change and forestry (LULUCF) increased by 329 percent 13 565 kt CO2 eq. in 2019 (reaching 13 565 kt CO2 eq. in 2019), driven by drought induced bark beetle outbreaks. This trend calls for large-scale reforms in forest management practices also supported by the RRP—including for nature-based solutions—are still needed to reach the LULUCF net removal levels achieved before 2015 (EC 2022).[7]

[6] The government aid to purchase of electric vehicles (announced in June 2022) funded by the National Recovery Plan and targeting public entities, educational institutions, public institutions, NGOs is also a welcomed step.

[7] The RRP allocates EUR 335 million to reforestation investments EC 2022.

References

European Commission, 2022, "2022 European Semester: Country Report– Czechia," European Semester Spring package, 2022.

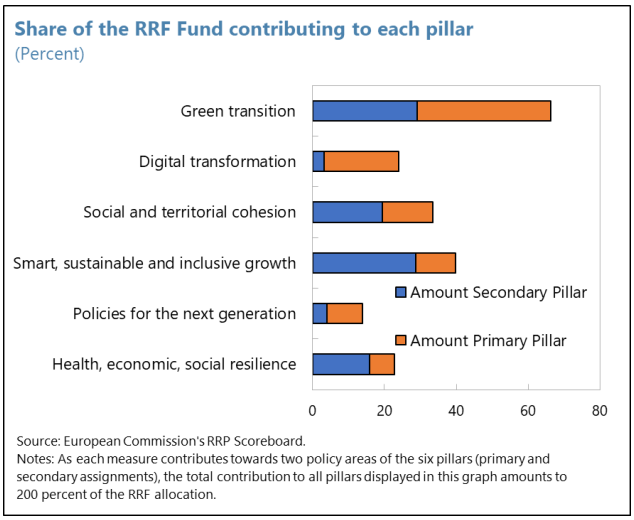
European Commission, 2021, "Analysis of the National Long-term Renovation Strategies", Commission Staff Working Document.

International monetary Fund, 2020, "Mitigating Climate—Growth and Distribution-Friendly Strategies Could be Helpful", World Economic Outlook, October 2020 Chapter 3.

Annex VII. Czechia's Resilience and Recovery Plan[1]

The Resilience and recovery Plan (RRP) contains reforms aiming to address bottlenecks to lasting and sustainable growth, and investments enhancing the transition towards low-carbon and climate-resilient economy, while maximizing the benefits of the digital transformation, and improving the quality of public administration. The RRP also aims at fostering social cohesion and resilience by increasing the availability and quality of healthcare, tackling inequalities in education, and investing in pre-school facilities.

1. The implementation of the Resilience and Recovery Plan (about EUR 7.1 billion of grants or 3 percent of GDP over 2021–2026) has commenced.[2] The RRP was kick-started in September 2021 with the disbursement of the pre-financing payment (€915 million, 13 percent of the RRF allocation) for the implementation crucial investment and reform measures outlined in Czechia's recovery and resilience plan (RRP). The implementation of the RRF is expected to boost Czechia's green and digital transition, as well as social resilience, with 42 percent and 22 percent of the plan's total envelop allocated to reforms and investments supports climate objectives and digital objectives, respectively. The macroeconomic impact of the RRF is estimated at about 0.8–1.2 percent increase in GDP by 2026 (EC 2022). Czechia expects to negotiate changes to existing milestones and targets in 2023, including to reflect the REPowerEU initiative. Additional funding would finance energy reforms and investments aimed at reducing dependence on fossil fuels from Russia. Revisions to the RRP will also be informed by the cost increases in context of high inflation and supply chain disruptions, which are estimated at around 20 percent of the basis year level (2020).



2. The RRF will support the green transition including through investments in renewables and energy efficiency. Around 20 percent of the plan is allocated to investments in (i) energy efficiency (€1.4 billion) for the financing of large-scale renovation programs to increase the energy efficiency of residential and public buildings (ii) for investments in renewable energy sources for

[1] Czechia's recovery and resilience plan, European Commission. Changes to the initial plan are expected including to reflect the REPowerEU plan.

[2] Czechia has submitted its request to the Commission for the first disbursement (EUR 928 million), after fulfilling the required 37 milestones/targets. For 2023, Czechia has to fulfil 35 milestones related to the 2nd and the 3rd payment request. Recent data suggests that of the planned CZK 30.5 billion RRF spending in the 2022 Fiscal Outlook (of which CZK 14.2 billion was allocation to capital spending), CZK 21 billion (of which CZK 13.2 billion capital spending) has been disbursed as of October 2022. This suggests an absorption rate of about 69 percent as of October 2022.

businesses and households (€480 million); (iii) for investments of in sustainable mobility (€1.1 billion), notably in low-emission vehicles for the public and business sector, improving railway infrastructure, and promoting electric charging stations and cycling pathways; and (iv) investment in the circular economy (€141 million) including recycling infrastructure and support for circular economy solutions and water savings in businesses. Reform of forestry management aims at increasing sustainability of Czech forests.

3. The RRF will help support Czechia's Digital challenges by improving connectivity, e-government services and the digital transformation of businesses, advanced digital skills. Besides revamping the digital curricula in education, digital skills will be supported by investment of in digital equipment for schools, training for teachers, new university programs in fast-growing digital fields and upskilling and reskilling courses for citizens (€585 million). Furthermore, the plan will invest in the areas of (i) digital transformation and cyber-security of public administration, the justice system and health care (€585 million); and (ii) the digital transformation of businesses, digital innovation hubs, high-capacity networks, and 5G networks (€650 million).

4. Economic and social resilience is also expected to be boosted by RRP measures. In order to reinforce economic and social resilience, the plan envisages to improve the business environment (€222 million), particularly access to finance for companies, construction licensing procedures, anti-corruption measures, and cooperation between public and private research. The RRF's reforms and investments also aim to ensure equal access to education (€393 million), notably through increasing access to affordable pre-school care, reinforced support for disadvantaged schools and additional tutoring for children at risk of failure. Czechia will also invest in the resilience of healthcare services (€823 million), including by building new hospitals and long-term care facilities, acquiring new medical equipment, strengthening cancer screening programs and the rolling out e-Health.

Reference

European Commission, 2022, "2022 European Semester: Country Report—Czechia," European Semester Spring Package, 2022.

Annex VIII. Downside Scenario

1. In consistency with the Scenario Box 1.3 in the October 2022 World Economic Outlook (WEO), the war is assumed to impact the macroeconomy mainly through four channels. The first channel is the commodities channel— an increase in energy prices raises input costs for firms, and this along with the direct impact of higher food and energy prices for households would raise consumer price inflation and reduce real incomes, thus weighing on private consumption. Second, the trade channel suggests that lower external demand—as the war hits major trading partners, notably Germany and other Euro Area trading partners—would reduce Czech exports. Third, there is the labor mismatch channel: tight labor markets and worsening efficiency in matching workers and jobs. Fourth, financial conditions: a tightening in global financial conditions could spill over to domestic financial markets, leading to stock market losses and potentially impacting economic activity.

2. In the adverse scenario, Czechia experiences a further contraction of economic activity and pressure on inflation. The shocks, channels, and other adverse scenario assumptions follow those presented in the WEO, but calibrated to Czechia. If the war were to escalate, global wholesale energy prices are assumed to increase by a further 30 percent, financial conditions are assumed to tighten further,[1] labor market tightness and mismatches are assumed to be exacerbated, and economic activity in the Euro Area is expected to fall even further by up to 1.5 percentage points as external conditions worsen.

3. The commodities and trade channels would have strong impacts on economic activity in Czechia through high energy prices and reduced external demand. Any escalation in the war would lead to further significant spikes in global commodity prices, with knock-on effects on domestic costs, inflation, and purchasing power. Based on econometric estimates of the pass-through of oil and gas prices to CPI inflation, inflation would be higher in the adverse scenario even assuming endogenous monetary policy tightening. Furthermore, as close to 90 percent of Czech exports are to the Euro Area, the fall in Euro Area demand in case of further escalation of the war would lead to a reduction in Czech exports.

4. The financial and labor market channels are also assumed to dent economic activity. The adverse scenario assumes a sharp tightening of global financial conditions and associated spillovers. Furthermore, labor market tightness and associated mismatches would have adverse ramifications for economic activity. Central Banks would raise interest rates further due to higher inflation if energy prices increase, leading to higher borrowing costs with knock-on effects on volatility in equity markets. The volatility in financial markets would also increase due to investor's concerns.

[1] Consistently with the WEO, it assumed that in global markets corporate risk premia increase by 80–100 bps and sovereign risk premia increase by about 200 bps.

5. In the adverse scenario, near-term growth would be further reduced, and inflation elevated. Relative to the baseline, GDP growth would be downgraded by around 3.1 percentage points and 2.7 percentage points in 2023 and 2024. This would imply negative growth in the near term. CPI inflation would increase by a further 1.4 percentage point and 0.7 percentage points in 2023 and 2024 relative to the baseline, even assuming endogenous monetary policy tightening. Due to the rise in inflation, it would take longer to converge to the target range of 2 percent. The adverse scenario could also be much worse depending on how the war unfolds and will require policy to remain agile and data dependent.

Table 1. Czechia: Baseline and Adverse Scenarios
(Percent)

	Baseline		Adverse		Difference	
	2023	2024	2023	2024	2023	2024
GDP Growth	-0.5	2.5	-3.6	-0.2	-3.1	-2.7
CPI Inflation	9.3	2.5	10.7	3.2	1.4	0.7

Sources: WEO and staff calculations.

Annex IX. Czechia's Exposure to Russia and Ukraine

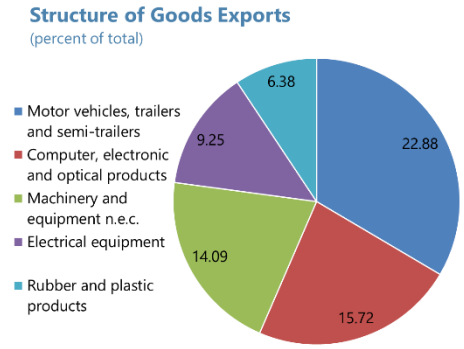
Czechia's nascent recovery from the pandemic has been undermined by the war in Ukraine. Though direct trade and financial exposures to Russia and Ukraine are limited, an escalation of the war with potential further increases in gas prices and possible prolonged disruptions in supply chains could significantly impact economic activity (see Annex VIII for discussion of the adverse scenario).

1. Goods trade exposures are relatively small. Exports to Russia and Ukraine accounted for just 1.9 percent and 0.7percent of total exports in 2021, respectively, and export shares have declined year-to-date in 2022 as a result of the war. The largest exposures of Czech exporters are in motor vehicles, computers and electronics, and machinery and related equipment. Imports from the two countries are slightly larger—4.2 percent of total imports in 2021, predominantly from Russia, although they increased to close to 6.2 percent of the total in January–July 2022 reflecting the higher price of energy.

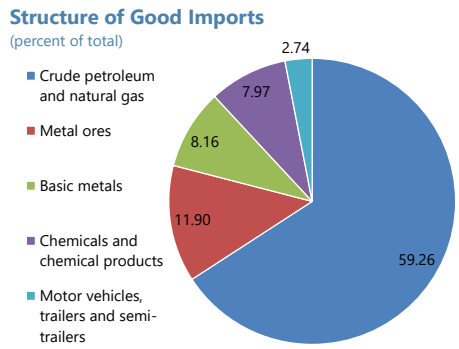
Figure 1. Czechia: Trade Exposure to Russia and Ukraine

Sources: Haver Analytics and IMF staff calculations.

Sources: Haver Analytics and IMF staff calculations.

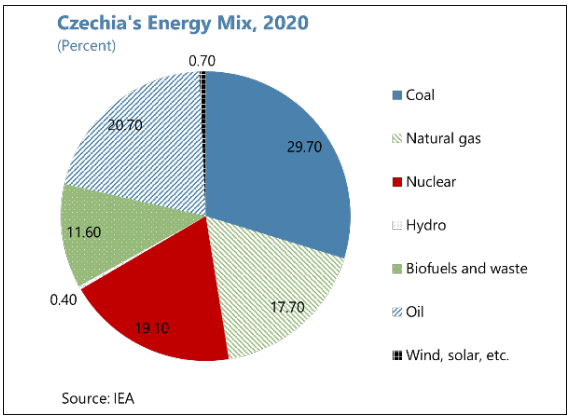


Sources: Czech Statistical Office and IMF staff calculations.



Sources: Czech Statistical Office and IMF staff calculations.

2. But the energy sector is vulnerable to the disruption of Russian gas imports. Crude petroleum and natural gas account for almost 60 percent of goods imports, largely due to imports of natural gas. Czechia sourced virtually all of its gas from Russia until the war started. Gas represents about a fifth of the domestic energy mix. Although the country's current gas supplies and ability to reactivate idled coal facilities provide a buffer against temporary supply disruptions, the economy remains vulnerable to the availability of and additional price increases in energy and fuel, which could further increase inflationary pressures and impact power generation and production. A de-anchoring of inflation expectations could trigger a wage-price spiral in an already tight labor market. Higher inflationary pressures would keep on eroding real wages and purchasing power and suppressing demand. The uncertainty of the outlook is also projected to depress investment.



3. Additional sanctions resulting from the war and related uncertainties could further impact trade and exacerbate supply chain disruptions. This could further undermine growth given Czechia's close integration in European production networks. Activities that are indirectly linked to imports of raw materials from Russia and Ukraine, e.g., car manufacturing, would be impacted as well. Overall, 91 percent of goods exports go to European countries with Germany the single largest destination at 31 percent, suggesting a significant degree of risk should demand decline further in these trade partners.

4. Services trade exposures are limited. In value terms, total exports of services to Russia were 1.3 percent of total services exports; services imports from Russia were about 4 percent of the total and mostly concentrated in travel. Comprehensive services trade data is not available for Ukraine though tourist arrivals from Russia and Ukraine typically account for less than 2 percent of the total. The share increased in 2022 to about 2.5 percent, reflecting the influx of Ukrainian refugees.

5. Large refugee flows could have a negative or positive impact. As of mid-November 2022, Ukrainian refugees in Czechia totaled about 300,000 or about 3 percent of the population. This number is expected to increase through the winter as a portion of the roughly 160,000 refugees who returned to Ukraine over the summer come back to Czechia. An intensification or prolongation of the conflict could further increase refugee inflows pressuring fiscal balances, public services, and institutional capacity. However, if the flow can be managed adequately and proper integration of refugees can be achieved, the presence of refugees could help to ease current labor market shortages. Childcare, language training and employment services could help to integrate refugees into the labor market.

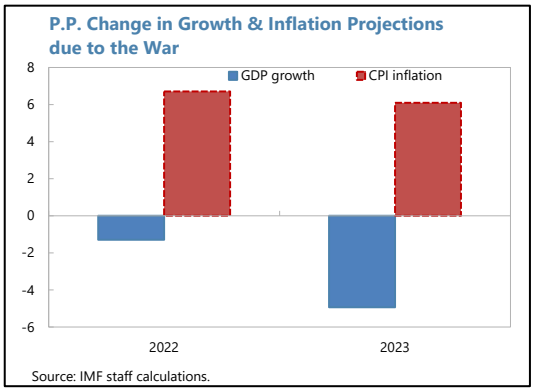
6. Financial sector exposures are limited, but indirect spillovers are a risk. According to the Czech National Bank, banks' direct exposures to Russia and Ukraine were negligible at end-2021.

The impact on financial stability through indirect exposures is much more difficult to assess. The war in Ukraine may impact overall financial sentiment and conditions with potentially negative implications for credit and market risk. A sharp tightening of financial conditions could precipitate a disorderly correction in the housing sector, impairing bank, and household balance sheets. Such contagion through indirect exposures might not be apparent during calm periods, but could assume greater relevance in periods of high volatility.

7. Investment linkages are insignificant. Direct investments in Russia stood at EUR 310 million or 0.7 percent of the total FDI stock at end-2020, and in Ukraine accounted for EUR 164 million or 0.4 percent of total FDI. Russian FDI in Czechia was EUR 948 million or 0.6 percent of the total, while investment from Ukraine was only EUR 139 million or 0.1 percent. Combined Russian and Ukrainian portfolio investment in Czechia was negligible—about 0.1 percent of total investment as of end-December 2021—and there was no reported Czech portfolio investment in either Russia or Ukraine.

8. The labor market has shown considerable resilience throughout the pandemic and war in Ukraine. However, a prolonged conflict, diminished GDP growth and a significant increase in refugees (see above) could lead to a rise in the unemployment rate.

9. The overall impact of the war has been to lower growth and increase inflation. The war in Ukraine is estimated to have led to a 1 ½ percentage point decline in baseline GDP growth and a 7percentage point increase in average baseline CPI inflation in 2022 relative to the pre-war baseline scenario.



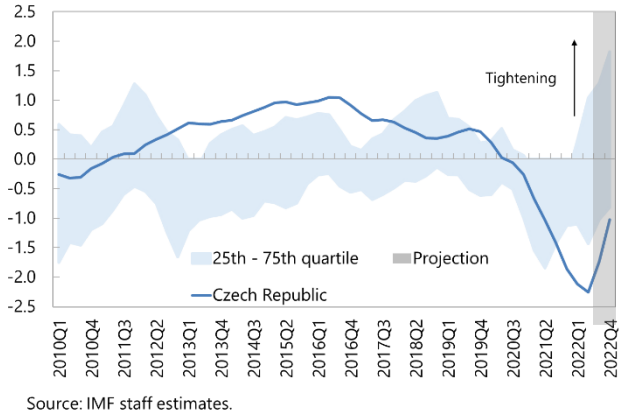
Annex X. Financial Conditions in Czechia

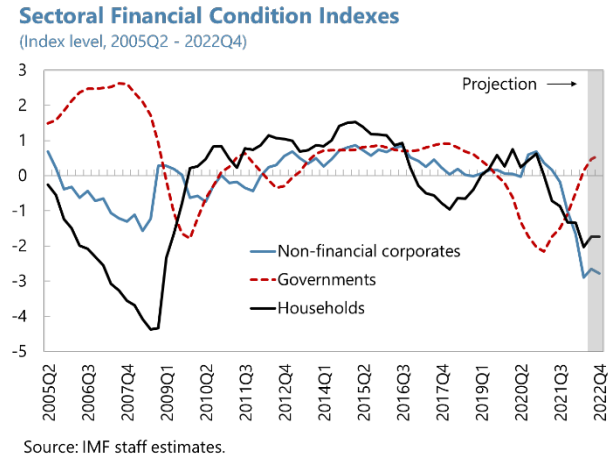
1. Financial conditions in Czechia have tightened significantly in 2022, after loosening during the pandemic. We construct a financial conditions index (FCI) that characterizes the ease of financing in the economy, in terms of both prices and quantities.[1] This index shows a significant tightening, starting in early 2022 and projected to continue into 2023.

2. The tightening in financial conditions is happening simultaneously across countries in Europe. Across countries in the euro area, the dispersion of financial conditions tightening in 2022 is smaller than during previous contraction episodes, suggesting a potentially lower role for idiosyncratic factors and the stronger resemblance of a euro area-wide phenomenon.

3. FCIs across all three sectors in Czechia exhibit some degree of tightening. This differs from the past, when the government sector has counteracted tightening cycles, increasing borrowing when conditions were tighter for households and firms. The simultaneous contraction of credit across balance sheets is expected to negatively impact the macroeconomic outcome in the medium term.

Figure 1. Czechia: Financial Conditions





Sources: Staff Calculations, Haver Analytics, Bloomberg.
Note: The FCI targets the growth in the overall level of liabilities for each sector of the economy aggregating information from a large set of price and quantity indicators through a Partial Least Square regression.

[1] See forthcoming IMF Departmental Paper: "Financial Conditions in Europe: Dynamics, Drivers, and Macroeconomic Implications". V. Nguyen, R. Espinoza, V. Guzzo, R. Lafarguette, M. Segoviano, P. Wingender.

4. Tightening has been driven by a broad range of factors, most notably the policy stance, credit availability, and a higher price of risk (Figure 2).

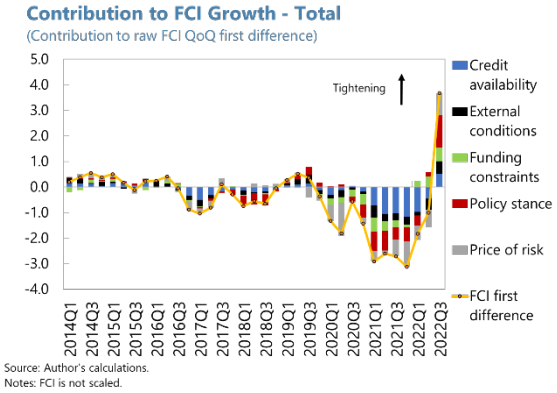
- *The policy stance,* which encompasses indicators such as central bank policy rates, estimates of the shadow rates, and money supply, has tightened considerably, primarily reflecting the CNB's increase in the policy rate from 0.25 percent in June 2021 to its current value of 7 percent.

- *The price of risk,* which encompasses measures of volatility, market, and credit risk across asset markets, has also contributed to FCI tightening and reflects increased volatility in bond and equity markets.

- *Credit availability*, which is characterized by indicators of financing cost and amount of credit, started tightening in 2022:Q1 and 2022:Q2, a trend which is expected to accelerate in the second half of 2022 and beginning of 2023, as the increase in policy rates is passed through to credit rates and a sharp decline in new mortgage origination continues.

- *Funding constraints,* mainly reflecting bank's willingness to lend, have also contributed to the tightening trend. Recent bank surveys suggest further tightening in the coming quarters.

Figure 2. Czechia: Financial Conditions Index



Source: Author's calculations.
Notes: FCI is not scaled.

Annex XI. Large Cost Push Shocks When Inflation Expectations Can Become More Adaptives? The Case of Czechia

1. In the context of high and accelerating inflation, there is a concern that expectation formation might become more backward looking. There is a growing literature that has explored deviations from the standard rational expectations (RE) assumption, in which expectations can transition from a regime close to a rational expectations to a completely backward looking expectation formation. The model presented here goes in this direction and assumes that economic agents form their expectations based on a simple statistical model. Those agents update their beliefs about the underlying economic relations when new data becomes available through a learning mechanism. These expectations have been called in the literature by adaptive learning (AL).

2. The workhorse model used here is a small open economy semi-structural model variation of the model by Galí, Smets, and Wouters (2012) and Berg and others (2006), which is a standard New Keynesian model that includes wage and price Phillips curves (PC). The same model is also used in Dizioli and Wang (2022) and Alvarez and Dizioli (2022) The equilibrium equations for each country in the linearized system are given by:

$$y_t = \alpha_{yL} y_{t-1} + \alpha_{yF} y_{t+1} + \gamma(\pi_{t+1} - r_t) + \varphi_z z_t + s_{yt} \quad \text{(IS Curve)}$$

$$s_{yt} = \rho_\varepsilon s_{y_{t-1}} + \varepsilon_{y_t} \quad \text{(Demand Shock process)}$$

$$\pi_t = \alpha_{\pi L} \pi_{t-1} + \alpha_{\pi F} \pi_{t+1} + k_\pi w_t + \lambda z_t + \varepsilon_{\pi t} \quad \text{(Price PC)}$$

$$\pi_{wt} = w_t - w_{t-1} + \pi_t \quad \text{(Nominal wage definition)}$$

$$\pi_{wt} = -\alpha_{wL} w_{t-1} + \alpha_{wF} \pi_{wt+1} + K_w y_t + \varepsilon_{wt} \quad \text{(Wage PC)}$$

$$r_t = \rho r_{t-1} + (1-\rho)(\rho_\pi \pi_{t+1} + \rho_y y_t) + \varepsilon_{rt} \quad \text{(Policy reaction function),}$$

$$z_t = E_t[z_{t+1}] - \left(r_t - \pi_t - (r_t^F - \pi_t^F)\right) + \varepsilon_{zt} \quad \text{(UIP condition)}$$

where y is the output gap (measure of slack), π is quarter-on-quarter, annualized core inflation rate, r is the nominal monetary policy interest rate, w is the constant composition real wage gap (real wage deviations from labor productivity growth), π_w is real wage inflation and z is the koruna bilateral real exchange rate with respect to the US dollar (Kč / USD).

3. In the standard full credibility RE model, the expectation is model consistent and consider all the information available: $E_t[x_{t+1}] = x_{t+1}$ if $\varepsilon_{t+1} = 0$. The expected value is a complicated function on the parameters. For the AL model, any statistical model can be used, but the one that achieves the best out of sample forecast performance is when economic agents' expectations follows an AR(2) process:

$$E_t[x_{t+1}] = \alpha_t + \beta_t^1 x_t + \beta_t^2 x_{t-1} \quad \text{(forecasting equation)}$$

4. Note that the coefficients in this equation vary over time. They depend on how accurate the forecast is at each period. The learning algorithm follows the updating model developed in

Slobodyan and Wouters 2012a; 2012b. Agents use a Kalman filter mechanism to update the coefficients of the forecasting equation, and the learning vector evolves according to:

$$B_{t|t} = B_{t|t-1} + P_{t|t-1}X_{t-1}[\Sigma_t + X'_{t-1}P_{t|t-1}X_{t-1}]^{-1} * \text{(forecast errors)},$$

where the $B_{t|t}$ is a vector that stacks all the coefficients of the AR(2) processes, $P_{t|t-1}$is the covariance matrix and Σ_t is the variance-covariance matrix of the AR(2) equation residuals.

5. The model described above is estimated with Bayesian methods and quarterly macroeconomic data from 2000:Q1 to 2019:Q4 for Czechia and the USA. The set of variables included in the estimation are the output gap (as estimated by the IMF team), the real wage gap, annualized quarterly price inflation deviation from target, and the policy rate. Since our model does not have enough structure to explain workforce composition change, we use the composition-constant real wage calculated by Howard, Rich, and Tracy (2022) for the USA.

Comparison of the Estimation Results for Czechia and the USA

6. If inflation expectations are well anchored, we would expect the lag inflation coefficients in the household's forecasting equation above to be small and the mean inflation to be zero. The first result in Figure 1 is that expectations in Czechia depend a lot more on past outcomes than in the US (the sum of the two coefficients in the AR process is almost 0.7 in Czechia compared to less than 0.3 in the USA). The second result to highlight from this figure is the coefficient stability over the last ten years before the pandemic. The coefficient reflecting the mean expected inflation was close to zero as households expected inflation to be at the central bank target. The pandemic challenged this stability in both economies, as both started seeing inflation outcomes above target. As inflation expectations respond more to past inflation outcomes in Czechia, there is feedback from inflation to inflation expectations that keep inflation higher for longer for all the shocks in the model, as it can be seen for an inflation shock in figure 2.

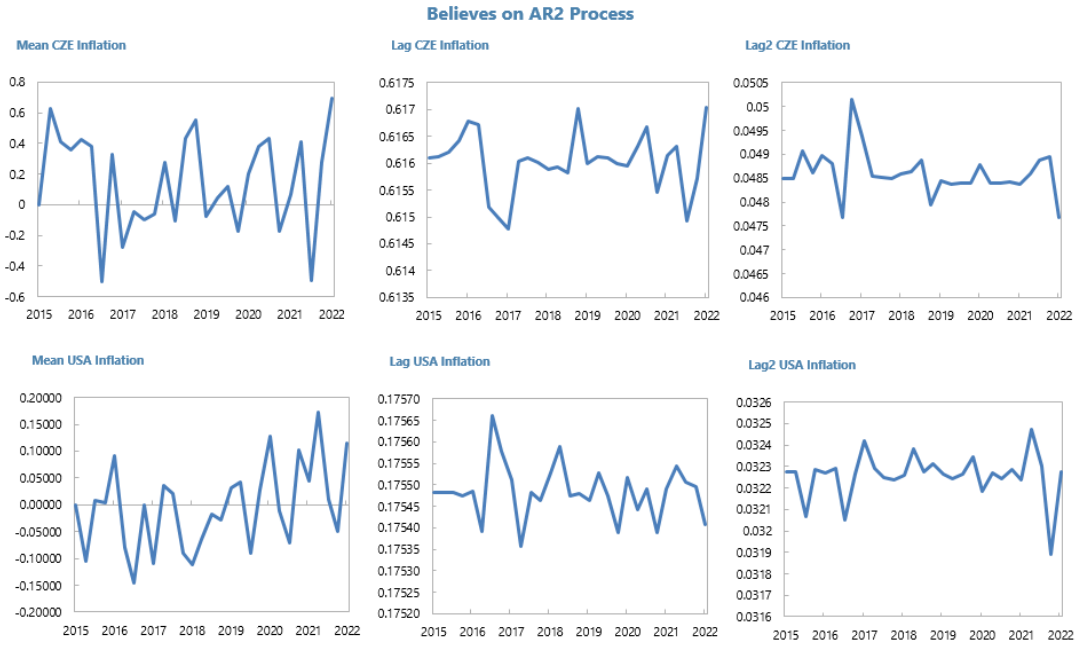
Optimal Monetary Policy Decisions

7. Instead of using the estimated monetary policy reaction function, this last section defines the optimal monetary policy path as the interest rate path, $\{i_t\}$ for t=1 to ∞, that minimizes the welfare function below:

$$\sum_{t=j}^{\infty} \beta^t (0.9(i_t - i_{t-1}) + (y_t - 0)^2 + (\hat{\pi}_t - 0)^2),$$

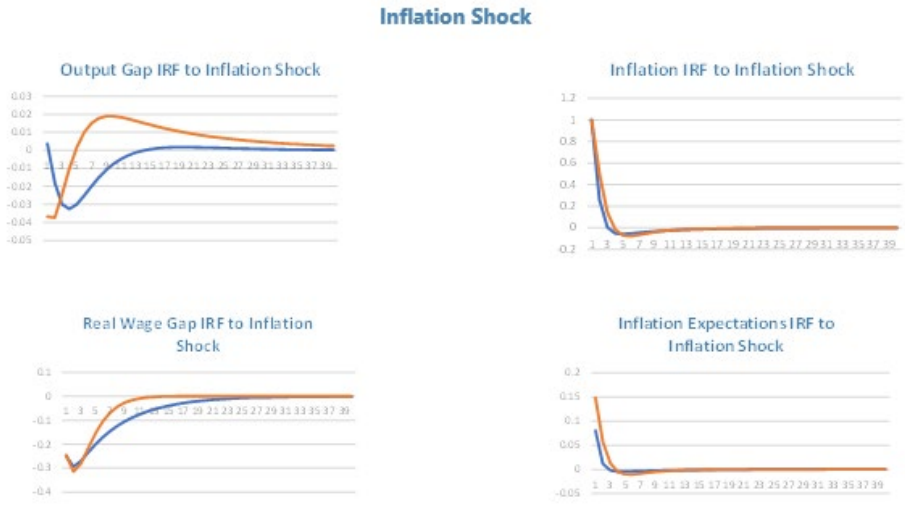
note that it is assumed an equal weights for output gap (y_t) and inflation deviations from target ($\hat{\pi}_t$). It is also assumed a role for interest rate smoothing. Other implicit assumptions are that the central bank has full knowledge of the current shocks hitting the economy, know all the future shocks that will hit the economy and have full knowledge of how their actions impact expectations.

Figure 1. Czechia: Estimated Inflation Expectations are More Backward Looking in Czechia



Source: Staff Calculations.

Figure 2. Czechia: Following an Inflation Shock, Inflation Expectations Move by More and Prolong Inflation in Czechia



Source: Staff Calculations.

8. In the estimated AL model, the central bank has three channels to influence inflation. The standard direct channel in which a tighter policy cools-off demand, lowering the output gap and hence inflation. The other two channels operate through inflation expectations. By tightening policy, the central bank lowers current inflation that enters the forecasting equation, lowering next period expectations. Finally, the central bank can also affect the agents learning, the coefficients in the forecasting equation. By seeing less inflation this period than they have expected, households update their model of how past inflation matters for future inflation.

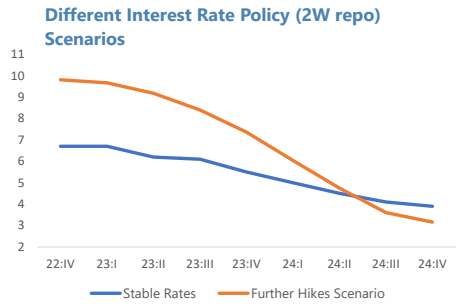
Scenario Analysis – Adaptive Expectations can Prolong this Inflationary Episode

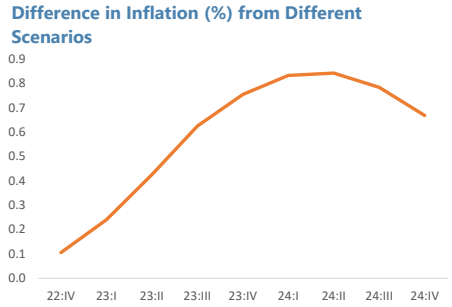
9. This section produces conditional forecasting scenarios to measure a possible path for inflation going forward in the current inflationary environment. Thus, the first simulation period is 2022:Q4. The scenarios described in figure 3 share a common set of shocks. In particular, we assume that, in both scenarios, Czechia faces an unexpected cost-push shock that takes actual inflation to what we observed in 2022:Q3 and with a half-life of 6.5 quarters. No new shocks hit the economy from 2022:Q3 onwards. Moreover, we assume that the output shock filtered by the models just unwind according to the estimated $AR(1)$ process described above.

10. Because of inflation expectations inertia, the unexpected inflation shock result in inflation outcomes that are persistent even without any new shock in 2022. In the stable rates scenario, year on year inflation is at 18.4 percent, 4.6 percent and 2.6 percent in 2022:Q4, 2023:Q4, and 2024:Q4, respectively. The policy rate in this scenario reaches 6.7 percent in 2023Q1 before slowly easing to 3.9 percent by the end of 2024. With this policy rate response and shocks, the output gap slowly closes and reaches a mild negative level by the end of 2024.

11. The further hiking scenario uses the interest rates that minimizes the welfare function discussed above when the weight on output gap is zero. In this scenario, inflation peaks at 18.3 percent in 2022:Q4, but quickly converges and stays close to target in 2024. By the end of 2024, inflation is lower by 0.7 percent in this scenario compared to the stable rates scenario. The policy rate that peaks at 9.7 percent in 2022:Q4 before quickly easing to a lower end of 3.2 percent by the end of 2024. The initial tightening lowers inflation faster and creates room for a more aggressive easing over the next two years. Note that the terminal interest rate is lower in this scenario compared to the stable rates scenario. The further hiking scenario affects inflation expectations not only by lowering inflation outcomes but also through households' learning. This way, inflation expectations are back to target a lot sooner than under the stable rates scenario. Note that the output gap bottoms in 2022:Q4 but starts to close rapidly as inflation falls.

Figure 3. Czechia: Adaptive Expectations Prolong the Inflationary Episode Even Without New Shocks





Source: Staff Calculations.
Note: Percentage points difference between inflation in the stable rates scenario and the further hikes scenario.

Table 1. Czechia: Macroeconomic Variables Under Different Interest Rate Paths

	22:IV	23:I	23:II	23:III	23:IV	24:I	24:II	24:III	24:IV
CPI YOY (stable rates)	18.4	15.0	10.3	7.2	4.6	3.1	2.5	2.5	2.6
CPI YOY (further hikes)	18.3	14.7	9.9	6.5	3.9	2.3	1.6	1.7	1.9
Output Gap (stable rates)	-7.4	-5.2	-4.6	-5.2	-5.1	-3.8	-2.7	-1.8	-1.5
Output Gap (optimal policy)	-7.9	-5.9	-5.4	-6.1	-6.0	-4.6	-3.4	-2.4	-1.7

Interest Rate Path

	22:IV	23:I	23:II	23:III	23:IV	24:I	24:II	24:III	24:IV
Stable Rates	6.7	6.7	6.2	6.1	5.5	5	4.5	4.1	3.9
Further Hikes Scenario	9.8	9.7	9.2	8.4	7.4	6.0	4.8	3.6	3.2

Source: Staff Calculations.

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Alvarez, Jorge and Allan Dizioli, Forthcoming, "How Costly Will Reining in Inflation Be? It Depends on How Rational We Are." IMF Working Paper, International Monetary Fund, Washington, DC.

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INTERNATIONAL MONETARY FUND

CZECH REPUBLIC

STAFF REPORT FOR THE 2022 ARTICLE IV CONSULTATION—INFORMATIONAL ANNEX

December 12, 2022

Prepared by

European Department
(In Consultation with Other Departments)

CONTENTS

FUND RELATIONS

(As of September 30, 2022)

Membership Status

Joined 01/01/1993; Article VIII.

General Resources Account

	SDR Million	Percent Quota
Quota	2,180.20	100.00
Fund Holdings of Currency	1,632.20	74.86
Reserve Position	562	25.78

SDR Department

	SDR Million	Percent Allocation
Net cumulative allocation	2,869.82	100.00
Holdings	2,547.74	88.78

Outstanding Purchases and Loans

None.

Latest Financial Arrangements

Type	Approval Date	Expiration Date	Amount Approved (SDR Million)	Amount Drawn (SDR Million)
Stand-By	March 17, 1993	March 16, 1994	177.00	70.00

Projected Payments to the Fund

Forthcoming (SDR Million)

	2022	2023	2024	2025	2026
Principal					
Charges / Interest	1.25	5.085.08		5.08	5.08
Total	1.25	5.085.08		5.08	5.08

Implementation of HIPC Initiative

Not applicable.

Implementation of Multilateral Debt Relief Initiative (MDRI)

Not applicable.

Implementation of Post-Catastrophic Debt Relief (PCDR)

Not applicable.

Safeguards Assessment

Not applicable.

Exchange Rate Arrangement

The currency of Czechia is the Czech koruna, created on February 8, 1993, upon the dissolution of the currency union with the Slovak Republic, which had used the Czechoslovak koruna as its currency. The de jure exchange rate arrangement is free floating and the de facto exchange rate arrangement is floating. The external value of the koruna is solely determined by supply and demand in the interbank foreign exchange market, in which the Czech National Bank (CNB) might participate.

Czechia has accepted the obligations of Article VIII and maintains an exchange system that is free of multiple currency practices and restrictions on the making of payments and transfers for current international transactions. Czechia maintains exchange restrictions for security reasons, based on UN Security Council Resolutions and Council

of the European Union Regulations that have been notified to the Fund for approval under the procedures set forth in Executive Board Decision No. 144-(52/51).

Last Article IV Consultation

Concluded on January 27, 2022 (IMF Country Report No. 22/23).

FSAP Participation

An FSAP was carried out in late 2000/ early 2001. The Financial System Stability Assessment was considered by the Executive Board on July 16, 2001, concurrently with the staff report for the 2001 Article IV Consultation. An FSAP update was carried out in 2011. ROSCs on: banking supervision; data dissemination; fiscal transparency; securities market; and transparency of monetary and financial policies were published on the Fund's external website on July 1, 2000.

Technical Assistance (last mission)

Department	Timing	Purpose
FAD	June/July 1999	Medium-term fiscal framework
MCM	February/June 1999	Integrated financial sector supervision (with WB)
RES	June/August 2000	Inflation targeting (financed by MFD)
STA	November 2006	GFSM 2001 implementation

STATISTICAL ISSUES

I. Assessment of Data Adequacy for Surveillance

General

Data provision is adequate for surveillance.

National Accounts

The Czech Statistical Office (CSO) compiles and disseminates annual and quarterly national accounts on ESA2010 basis. The CSO compiles annual Supply-Use Tables (SUT) by 88 types of economic activities and 88 products, but there is room for improvements. For example, discrepancies between GDP estimates based on the production method and the expenditure method are subsumed under changes in inventories, which sometimes significantly changes the first estimates of inventories obtained directly from the surveys.

Price Statistics

The CSO compiles and disseminates a monthly consumer price index (CPI) using a weighting structure based on expenditure data from 2016. A monthly Harmonized Index of Consumer Prices (HICP) is disseminated according to European regulations. The producer price index is released monthly with coverage including manufacturing, construction, agriculture, and select business services (business to business only). The CSO also compiles and releases monthly import and export price indexes based on data collected directly from establishments engaged in export and/or import activities.

External Sector Statistics

The CNB compiles and disseminates balance of payments and international investment position statistics in line with the sixth edition of the Balance of Payments and International Investment Position Manual (BPM6) and in accordance with legal requirements of the ECB and Eurostat. CNB generally derives balance of payments financial account transactions from changes in position data adjusted by exchange rate, price, and other changes. The CNB monthly disseminates the data template on International Reserves and Foreign Currency Liquidity. Czechia also participates in the Coordinated Direct Investment Survey (CDIS) and the Coordinated Portfolio Investment Survey (CPIS) and reports quarterly external debt statistics to the World Bank's Quarterly External Debt Statistics (QEDS) database.

Government Finance Statistics

Fiscal data in the GFSM 2014 framework is reported through the Eurostat convergence project with the IMF. Annual and quarterly fiscal data are compiled on ESA2010 basis by the Czech Statistical Office, including non-financial accounts, financial accounts, and financial balance sheets. The Ministry of Finance uses the ESA methodology for the Convergence Program targets. The ESA 2010 methodology includes a wider coverage of the general government sector, different classification of some government transactions, and impacts the calculation of GDP. Government transactions are recorded on an accrual basis.

Monetary and Financial Statistics

Monthly MFS data is sent to STA by ECB and is based on standardized report forms (SRFs). Monetary survey data is also provided to the European Department for policy purposes. MFS data covers the central bank (CNB) and the other depository corporations which comprises other monetary financial institutions which are defined under the European Union law to include deposit-taking corporations, electronic money institutions and other issuers of deposits and close substitutes of deposits. Data from the other financial corporations are currently not compiled. Czechia reports data on some basic series and indicators of the Financial Access Survey (FAS), including the two indicators adopted by the UN to monitor Target 8.10.1 of the Sustainable Development Goals (SDGs).

II. Data Standards and Quality

Czechia has adhered to the SDDS Plus since April 2016. Data ROSC was published on July 1, 2000.

Table of Common Indicators Required for Surveillance

(As of December 6, 2022)

	Date of latest observation	Date received	Frequency of data [7]	Frequency of reporting [7]	Frequency of publication [7]
Exchange rates	Current	Current	D	D	D
International reserve assets and reserve liabilities of the monetary authorities [1]	October 2022	November 2022	M	M	M
Reserve/base money	October 2022	November 2022	M	M	M
Broad money	October 2022	November 2022	M	M	M
Central bank balance sheet	October 2022	November 2022	M	M	M
Consolidated balance sheet of the banking system	October 2022	November 2022	M	M	M
Interest rates [2]	November 2022	November 2022	D	D	D
Consumer price index	October 2022	November 2022	M	M	M
Revenue, expenditure, balance, and composition of financing [3] – general government [4]	June 2022	October 2022	Q	Q	Q
Revenue, expenditure, balance, and composition of financing – central government	September 2022	October 2022	M	M	M
Stocks of central government and central government-guaranteed debt [5]	September 2022	October 2022	Q	Q	Q
External current account balance	September 2022	November 2022	M	M	M
Exports and imports of goods and services	September 2022	November 2022	M	M	M
GDP/GNP	September 2022	December 2022	Q	Q	Q
Gross external debt	June 2022	October 2022	Q	Q	Q
International investment position [6]	June 2022	October 2022	Q	Q	Q

[1] Includes reserve assets pledged or otherwise encumbered as well as net derivative positions.
[2] Both market-based and officially-determined, including discount rates, money market rates, rates on treasury bills, notes and bonds.
[3] Foreign, domestic bank, and domestic non-bank financing
[4] The general government consists of the central government (budgetary funds, extra budgetary funds, and social security funds) and state and local governments. Data for the state budget are available with monthly frequency and timeliness, while data on extra budgetary funds are available only on an annual basis.
[5] Including currency and maturity composition.
[6] Includes external gross financial asset and liability positions vis-à-vis nonresidents.
[7] Daily (D), Weekly (W), Monthly (M), Quarterly (Q), Semi-annually (SA), Annually (A), Irregular (I), or Not Available (NA).

INTERNATIONAL MONETARY FUND

CZECH REPUBLIC

STAFF REPORT FOR THE 2022 ARTICLE IV CONSULTATION—SUPPLEMENTARY INFORMATION

January 6, 2023

Prepared By

European Department

This supplement provides information that became available after the staff report was issued to the Executive Board on December 15, 2022.

The updates to the historical data including Q3:2022 had to be incorporated after the tables originally prepared for the staff report have been finalized.

The changes were mechanical after adjusting marginally some numbers in 2021, which carried over to our projections and impacted some figures in all the tables (1–4). This update does not alter the thrust of the staff appraisal.

Table 1. Czechia: Selected Economic Indicators, 2019–27

(Annual percent change, unless otherwise indicated)

	2019	2020	2021	2022	2023	2024	2025	2026	2027
						Staff projections			
National Accounts									
Real GDP (expenditure)	3.0	-5.5	3.5	2.5	-0.5	2.5	3.4	2.8	2.5
Domestic demand	3.2	-5.6	7.8	3.1	-4.4	1.2	3.2	2.6	2.5
Consumption	2.6	-4.1	3.3	-0.7	-1.4	3.8	2.6	2.2	2.2
Public	2.5	4.2	1.5	0.4	1.1	2.0	2.0	2.0	2.0
Private	2.7	-7.2	4.1	-1.2	-2.4	4.5	2.8	2.3	2.3
Investment	4.5	-9.3	19.0	11.5	-10.2	-4.0	4.5	3.5	3.0
Exports	1.5	-8.0	6.9	5.1	4.7	6.4	2.9	2.8	2.6
Imports	1.5	-8.2	13.3	4.4	1.1	5.2	2.6	2.6	2.6
Contribution to GDP									
Domestic demand	3.0	-5.1	7.9	1.9	-3.6	1.1	2.9	2.4	2.3
Net exports	0.0	-0.4	-4.3	0.6	3.1	1.4	0.5	0.4	0.2
Investment (percent of GDP)	27.1	26.5	26.0	24.4	25.1	25.3	25.3	25.4	25.6
Gross domestic investments (percent of GDP)	27.6	26.2	30.2	33.6	29.1	26.8	26.7	26.8	27.0
Gross national savings (percent of GDP)	27.9	28.1	29.3	29.6	28.2	28.0	29.0	29.2	29.5
Output gap (percent of potential output)	2.8	-0.6	1.0	0.5	-1.0	-0.4	0.0	0.0	0.0
Potential growth	2.2	-2.2	1.9	3.0	0.7	2.0	3.0	2.8	2.5
Labor Market									
Employment	0.2	-1.3	-0.6	0.5	-0.5	0.6	0.2	0.0	0.0
Total labor compensation	7.8	1.5	6.1	7.9	6.4	5.7	5.6	4.9	4.5
Unemployment rate (average, in percent)	2.0	2.5	2.8	2.5	3.1	2.5	2.3	2.3	2.3
PRICES									
Consumer prices (average)	2.8	3.2	3.8	16.0	9.3	2.5	2.0	2.0	2.0
Consumer prices (end-of-period)	3.2	2.3	6.6	19.0	4.5	2.0	2.0	2.0	2.0
Producer price index (average)	2.6	0.1	7.2	...	...	...	...	...	...
GDP deflator (average)	3.9	4.3	3.3	9.7	8.4	3.2	2.6	1.8	1.5
Macro-Financial									
Money and credit (end of year, percent change)									
Broad money (M3)	6.4	10.0	6.8	...	...	...	...	...	...
Private sector credit	4.9	3.6	8.9	...	...	...	...	...	...
Interest rates (in percent, year average)									
Three-month interbank rate	2.1	0.9	1.1	...	...	...	...	...	...
Ten-year government bond	1.5	1.1	1.9	...	...	...	...	...	...
Exchange rate									
Nominal effective exchange rate (index, 2005=100)	100.9	99.7	103.6	...	...	...	...	...	...
Real effective exchange rate (index, CPI-based; 2005=100)	99.4	100.0	104.6	...	...	...	...	...	...
Public Finance (percent of GDP)									
General government revenue	41.3	41.5	41.4	41.7	42.9	41.5	40.8	40.7	40.7
General government expenditure	41.1	47.2	46.5	46.0	47.2	44.2	43.2	43.2	43.2
Net lending / Overall balance	0.3	-5.8	-5.1	-4.3	-4.3	-2.7	-2.5	-2.5	-2.5
Primary balance	0.8	-5.2	-4.5	-3.6	-3.4	-1.5	-1.3	-1.3	-1.3
Structural balance (percent of potential GDP)	-0.8	-5.5	-5.5	-4.5	-3.9	-2.5	-2.5	-2.5	-2.5
General government debt	30.0	37.7	42.0	41.8	43.7	44.1	44.2	44.9	45.9
Balance of Payments (percent of GDP)									
Trade balance (goods and services)	6.0	6.7	3.0	-1.9	2.4	4.4	5.5	5.8	5.4
Current account balance	0.3	2.0	-0.8	-4.0	-0.9	1.2	2.3	2.5	2.5
Gross international reserves (billions of euros)	133.4	135.4	153.3	151.3	160.3	169.3	178.3	186.3	192.3
(in months of imports of goods and services)	10.5	11.9	11.1	8.7	9.1	9.1	9.3	9.4	9.3
(in percent of short term debt, remaining maturity)	129.9	142.8	139.7	128.7	129.5	133.6	139.6	145.1	150.3
Memorandum Items									
Nominal GDP (USD billions)	252.5	246.0	281.8	293.08	309.08	325.81	339.00	346.89	350.65
Population (millions)	10.6	10.7	10.5	10.5	10.5	10.6	10.6	10.6	10.5
Real GDP per capita	2.6	-5.9	5.5	2.3	-0.7	2.2	3.4	2.8	2.5
GDP per capita (USD thousands)	23.71	23.00	26.85	27.85	29.32	30.88	32.12	32.87	33.24

Sources: Czech National Bank; Czech Statistical Office; Ministry of Finance; Haver Analytics, and IMF staff estimates and projections.
Structural balances are net of temporary fluctuations in some revenues and one-offs. COVID and energy price-related one-offs are however included.

Table 2. Czechia: Balance of Payments, 2019–27

(Percent of GDP)

	2019	2020	2021	2022	2023	2024	2025	2026	2027
				Staff Projections					
Current Account Balance	0.3	2.0	-0.8	-4.0	-0.9	1.2	2.3	2.5	2.5
Trade balance (goods)	4.1	4.9	1.2	-2.8	0.9	2.6	3.6	3.8	3.5
Exports	61.8	59.4	62.1	61.3	60.7	62.3	61.3	60.9	60.7
Imports	57.7	54.4	60.9	64.1	59.8	59.7	57.7	57.1	57.2
Trade balance (services)	1.8	1.8	1.8	0.9	1.5	1.8	2.0	2.0	1.9
Receipts	12.1	10.6	10.5	11.6	11.4	11.7	11.5	11.4	11.4
Payments	10.2	8.8	8.7	10.7	9.9	9.9	9.5	9.4	9.5
Factor income (net)	-5.0	-4.2	-3.3	-1.6	-2.9	-2.7	-2.7	-3.4	-3.5
Transfers	-0.6	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	0.1	0.5
Capital Account	0.4	1.2	1.6	-0.5	1.1	0.9	0.6	0.3	0.3
Errors and Omissions	-0.6	-0.3	-0.5	0.0	0.0	0.0	0.0	0.0	0.0
Financial Account (change in stocks, + = increase)	0.1	2.9	0.2	-4.4	0.2	2.1	3.0	2.8	2.8
Direct investment, net	-2.4	-2.6	-0.1	-1.0	-1.2	-0.9	-0.9	-1.0	-0.8
Portfolio investment, net	-1.8	-2.4	1.2	-1.3	-1.0	-0.6	-0.7	-0.6	-0.5
Other investment and derivatives, net	2.4	6.8	-4.9	-1.4	-0.6	0.9	2.0	2.1	2.5
Reserve assets	1.9	0.8	4.8	-0.7	3.0	2.8	2.6	2.2	1.6
Memorandum Items									
Gross official reserves (billions of euros)	133.4	135.4	153.3	151.3	160.3	169.3	178.3	186.3	192.3
in months of the current year's imports	10.5	11.9	11.1	8.7	9.1	9.1	9.3	9.4	9.3
as a ratio to the short-term debt	129.9	142.8	139.7	128.7	129.5	133.6	139.6	145.1	150.3
External debt, percent of GDP	76.5	76.4	75.5	68.9	66.6	64.5	61.3	58.8	56.2

Sources: Czech National Bank; Czech Statistical Office; and IMF staff estimates and projections.

Table 3. Czechia: General Government Operations, 2019–27

(Percent of GDP)

	2019	2020	2021	2022	2023	2024	2025	2026	2027
						Staff Projections			
Revenue	**41.3**	**41.5**	**41.4**	**41.7**	**42.9**	**41.5**	**40.8**	**40.7**	**40.7**
Taxes	20.3	19.9	19.2	19.2	20.1	19.8	19.3	19.3	19.4
Personal income tax	5.0	5.2	3.7	3.6	3.6	3.6	3.6	3.6	3.6
Corporate income tax	3.3	3.1	3.7	3.6	4.8	4.4	4.0	4.0	4.1
VAT	7.5	7.4	7.6	8.2	8.2	8.3	8.2	8.2	8.2
Excise	3.2	3.1	3.0	2.7	2.4	2.4	2.4	2.4	2.4
Other taxes	1.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Social contributions	15.5	15.9	16.6	16.2	16.0	15.9	15.9	15.9	15.9
Capital and other current transfers and subsidies	1.8	1.8	1.8	2.4	2.8	2.1	1.9	1.8	1.8
Other revenue	3.8	3.8	3.8	3.9	4.0	3.7	3.7	3.7	3.7
Property income	0.6	0.6	0.6	0.9	1.0	0.6	0.6	0.6	0.6
Sales of goods and services	3.2	3.2	3.2	3.0	3.0	3.0	3.0	3.0	3.0
Other revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Expenditure	**41.1**	**47.2**	**46.5**	**46.0**	**47.2**	**44.2**	**43.2**	**43.2**	**43.2**
Expense	**36.7**	**42.4**	**41.8**	**41.2**	**41.9**	**39.8**	**39.2**	**39.2**	**39.2**
Compensation of employees	9.9	11.1	11.1	10.3	10.1	10.1	10.0	9.9	10.0
Use of goods and services	5.9	6.1	5.8	6.0	6.3	6.0	5.9	5.9	5.9
Interest	0.7	0.8	0.8	0.8	1.1	1.3	1.3	1.3	1.3
Subsidies	2.2	3.0	3.3	2.8	2.2	2.0	2.0	2.0	2.0
Grants	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Social benefits	15.3	18.0	17.7	17.8	18.3	17.8	17.4	17.4	17.4
Other expenses	2.4	3.1	2.9	3.1	3.6	2.2	2.2	2.2	2.2
Net Acquisition of Nonfinancial Assets	**4.4**	**4.8**	**4.7**	**4.8**	**5.3**	**4.4**	**4.0**	**4.0**	**4.0**
Gross Operating Balance	**4.7**	**-0.9**	**-0.4**	**0.6**	**1.0**	**1.7**	**1.5**	**1.5**	**1.5**
Net Lending/Borrowing (overall balance)	**0.3**	**-5.8**	**-5.1**	**-4.3**	**-4.3**	**-2.7**	**-2.5**	**-2.5**	**-2.5**
Net Financial Transactions	**0.3**	**-5.8**	**-5.1**	**-4.3**	**-4.3**	**-2.7**	**-2.5**	**-2.5**	**-2.5**
Net Acquisition of Financial Assets	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Net Incurrence of Liabilities	**-0.3**	**5.8**	**5.1**	**4.3**	**4.3**	**2.7**	**2.5**	**2.5**	**2.5**
Adjustment and statistical discrepancies 1/	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Memorandum Item:									
General government debt	30.0	37.7	42.0	41.8	43.7	44.1	44.2	44.9	45.9
Primary balance	0.8	-5.2	-4.5	-3.6	-3.4	-1.5	-1.3	-1.3	-1.3
Structural balance 2/ 3/	-0.8	-5.5	-5.5	-4.5	-3.9	-2.5	-2.5	-2.5	-2.5
Cyclically adjusted primary balance	-0.3	-4.9	-4.9	-3.8	-3.0	-1.3	-1.3	-1.3	-1.3
Change in cyclically adjusted primary balance	-1.0	-4.7	0.1	1.0	0.8	1.7	0.1	-0.1	0.0
Output gap	2.8	-0.6	1.0	0.5	-1.0	-0.4	0.0	0.0	0.0
Nominal GDP (billions of Koruny)	5,791	5,709	6,108	6,874	7,411	7,842	8,319	8,713	9,066

Sources: Ministry of Finance and IMF staff estimates and projections.

1/ Adjustments for cash-accrual differences, valuation changes and other discrepancies.

2/ In percent of potential GDP.

3/ Structural balances are net of temporary fluctuations in some revenues and one-offs. COVID and energy price-related one-offs are however included.

Table 4. Czechia: Macroeconomic Framework, 2019–27

(Annual percent change, unless otherwise indicated)

	2019	2020	2021	2022	2023	2024	2025	2026	2027
				Staff Projections					
Real Sector									
Real GDP	3.0	-5.5	3.5	2.5	-0.5	2.5	3.4	2.8	2.5
Private consumption	2.7	-7.2	4.1	-1.2	-2.4	4.5	2.8	2.3	2.3
Public consumption	2.5	4.2	1.5	0.4	1.1	2.0	2.0	2.0	2.0
Investment	4.5	-9.3	19.0	11.5	-10.2	-4.0	4.5	3.5	3.0
Fixed investment	5.9	-6.0	0.7	5.7	0.5	2.3	4.8	3.7	3.2
Exports, goods and services	1.5	-8.0	6.9	5.1	4.7	6.4	2.9	2.8	2.6
Imports, goods and services	1.5	-8.2	13.3	4.4	1.1	5.2	2.6	2.6	2.6
contribution of net exports (percent)	0.0	-0.4	-4.3	0.6	3.1	1.4	0.5	0.4	0.2
Inflation (CPI, percent)	2.8	3.2	3.8	16.0	9.3	2.5	2.0	2.0	2.0
Unemployment (percent of labor force)	2.0	2.5	2.8	2.5	3.1	2.5	2.3	2.3	2.3
Output gap 1/	2.8	-0.6	1.0	0.5	-1.0	-0.4	0.0	0.0	0.0
Gross domestic savings (in percent of GDP)	27.9	28.1	29.3	29.6	28.2	28.0	29.0	29.2	29.5
Public	14.8	11.8	11.8	12.6	13.5	13.7	13.9	13.9	13.9
Private	13.2	16.4	17.5	17.0	14.7	14.4	15.1	15.3	15.5
Gross capital formation (in percent of GDP)	27.6	26.2	30.2	33.6	29.1	26.8	26.7	26.8	27.0
Balance of Payments									
Current account balance	0.3	2.0	-0.8	-4.0	-0.9	1.2	2.3	2.5	2.5
Trade balance	4.1	4.9	1.2	-2.8	0.9	2.6	3.6	3.8	3.5
Services balance	1.8	1.8	1.8	0.9	1.5	1.8	2.0	2.0	1.9
Net factor income	-5.0	-4.2	-3.3	-1.6	-2.9	-2.7	-2.7	-3.4	-3.5
Current transfers	-0.6	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	0.1	0.5
Capital account balance	0.4	1.2	1.6	-0.5	1.1	0.9	0.6	0.3	0.3
Errors and omissions, net	-0.6	-0.3	-0.5	0.0	0.0	0.0	0.0	0.0	0.0
Financial account balance (change in stocks, + = increase)	0.1	2.9	0.2	-4.4	0.2	2.1	3.0	2.8	2.8
Direct investment, net	-2.4	-2.6	-0.1	-1.0	-1.2	-0.9	-0.9	-1.0	-0.8
Portfolio investment, net	-1.8	-2.4	1.2	-1.3	-1.0	-0.6	-0.7	-0.6	-0.5
Other investment and derivatives, net	2.4	6.8	-4.9	-1.4	-0.6	0.9	2.0	2.1	2.5
Reserve assets	1.9	0.8	4.8	-0.7	3.0	2.8	2.6	2.2	1.6

Sources: Czech National Bank, Czech Statistical Office, Ministry of Finance, and IMF staff estimates and projections.
1/ In percent of potential GDP.

Table 1. Czechia: External Debt Sustainability Framework 2017–2027

	Actual							Projections							
	2017	2018	2019	2020	2021			2022	2023	2024	2025	2026	2027		Debt-stabilizing non-interest current account 6/
1 **Baseline: External debt**	88.4	81.4	76.5	76.4	75.5			**68.9**	**66.6**	**64.5**	**61.3**	**58.8**	**56.2**		**-1.4**
2 Change in external debt	15.4	-7.0	-4.9	-0.1	-0.8			-7.5	-2.3	-2.1	-3.2	-2.5	-2.6	0.0	
3 Identified external debt-creating flows (4+8+9)	-10.3	-12.2	-3.8	-2.6	-2.7			-1.0	0.1	-3.7	-5.3	-5.1	-4.8	0.0	
4 Current account deficit, excluding interest payments	-1.5	-0.4	-0.3	-2.0	0.0			4.0	0.9	-1.2	-2.3	-2.5	-2.5	1.4	
5 Deficit in balance of goods and services	-7.5	-5.9	-6.0	-6.7	-3.0			1.9	-2.4	-4.4	-5.5	-5.8	-5.4		
6 Exports	79.0	76.9	73.9	69.9	72.7			72.8	72.1	74.0	72.8	72.3	72.0		
7 Imports	71.5	71.0	67.9	63.2	69.7			74.8	69.6	69.6	67.3	66.5	66.6		
8 Net non-debt creating capital inflows (negative)	-1.3	-1.0	-2.3	-2.7	-0.1			-1.0	-1.1	-0.9	-0.9	-0.9	-0.8	-0.8	
9 Automatic debt dynamics 1/	-7.5	-10.8	-1.1	2.0	-2.6			-4.0	0.3	-1.6	-2.1	-1.7	-1.5	-0.6	
10 Contribution from nominal interest rate	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11 Contribution from real GDP growth	-3.4	-2.5	-2.4	4.3	-2.6			-4.0	0.3	-1.6	-2.1	-1.7	-1.5	-1.4	
12 Contribution from price and exchange rate changes 2/	-4.1	-8.3	1.3	-2.3	0.0			...	...	...	...	...	...	0.8	
13 Residual, incl. change in gross foreign assets (2-3) 3/	25.7	5.2	-1.1	2.5	1.8			-6.5	-2.4	1.6	2.2	2.6	2.2	0.0	
External debt-to-exports ratio (in percent)	111.9	105.8	103.6	109.2	104.0			94.6	92.4	87.1	84.2	81.3	78.1		
Gross External Financing Need (in billions of US dollars) 4/	66.8	109.3	118.8	106.1	0.0			115.8	122.2	117.6	116.1	114.0	111.5		
in percent of GDP	30.6	43.9	47.0	43.1	0.0	10-Year	10-Year	41.8	41.0	37.3	34.7	32.5	30.5		
Scenario with Key Variables at Their Historical Averages 5/								68.9	67.2	67.7	67.3	66.6	65.0		**-2.9**
Key Macroeconomic Assumptions Underlying Baseline						Historical Average	Standard Deviation							For debt stabilization	
Real GDP growth (in percent)	5.2	3.2	3.0	-5.5	3.5	1.7	3.2	2.5	-0.5	2.5	3.4	2.8	2.5	2.5	
GDP deflator in US dollars (change in percent)	5.9	10.3	-1.6	3.1	0.0	0.3	7.6	9.7	8.4	3.2	2.6	1.8	1.5	-1.4	
Nominal external interest rate (in percent)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Growth of exports (US dollar terms, in percent)	11.3	10.9	-2.6	-7.8	19.0	2.7	9.4	4.3	4.3	8.3	2.4	1.6	0.8		
Growth of imports (US dollar terms, in percent)	11.4	13.1	-3.0	-9.3	26.3	2.2	9.7	11.6	-1.7	5.3	0.6	1.1	1.3		
Current account balance, excluding interest payments	1.5	0.4	0.3	2.0	0.0	0.3	1.4	-4.0	-0.9	1.2	2.3	2.5	2.5		
Net non-debt creating capital inflows	1.3	1.0	2.3	2.7	0.1	1.6	1.5	1.0	1.1	0.9	0.9	0.9	0.8		

1/ Derived as [r - g - r(1+g) + ea(1+r)]/(1+g+r+gr) times previous period debt stock, with r = nominal effective interest rate on external debt; r = change in domestic GDP deflator in US dollar terms, g = real GDP growth rate, e = nominal appreciation (increase in dollar value of domestic currency), and a = share of domestic-currency denominated debt in total external debt.

2/ The contribution from price and exchange rate changes is defined as [-r(1+g) + ea(1+r)]/(1+g+r+gr) times previous period debt stock. r increases with an appreciating domestic currency (e > 0) and rising inflation (based on GDP deflator).

3/ For projection, line includes the impact of price and exchange rate changes.

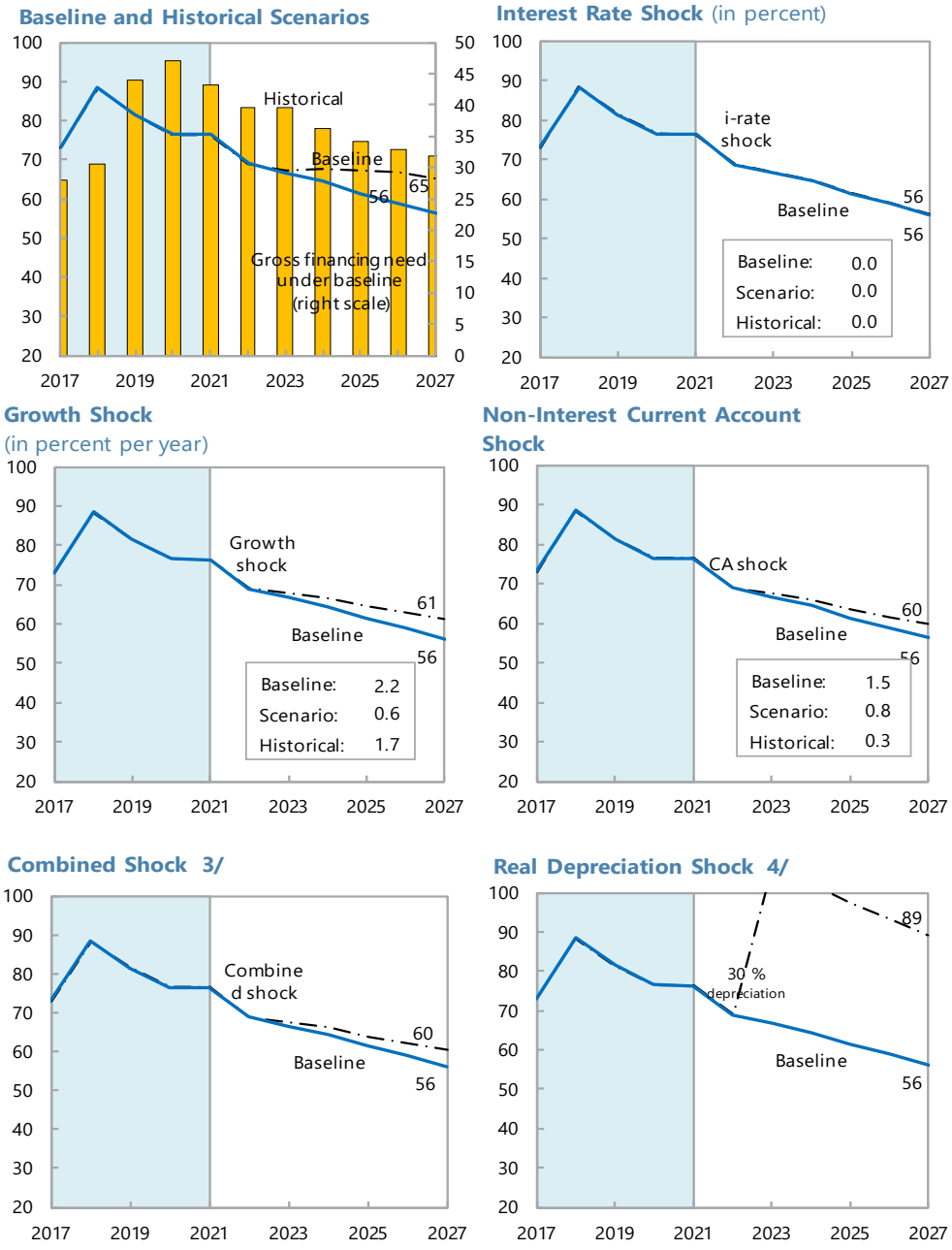
4/ Defined as current account deficit, plus amortization on medium- and long-term debt, plus short-term debt at end of previous period.

5/ The key variables include real GDP growth; nominal interest rate; dollar deflator growth; and both non-interest current account and non-debt inflows in percent of GDP.

6/ Long-run, constant balance that stabilizes the debt ratio assuming that key variables (real GDP growth, nominal interest rate, dollar deflator growth, and non-debt inflows in percent of GDP) remain at their levels of the last projection year.

Figure 3. Czechia: External Debt Sustainability: Bound Tests [1/ 2/]

(External Debt in percent of GDP)



Sources: International Monetary Fund, Country desk data, and staff estimates.
1/ Shaded areas represent actual data. Individual shocks are permanent one-half standard deviation shocks. Figures in the boxes represent average projections for the respective variables in the baseline and scenario being presented. Ten-year historical average for the variable is also shown.
2/ For historical scenarios, the historical averages are calculated over the ten-year period, and the information is used to project debt dynamics five years ahead.
3/ Permanent 1/4 standard deviation shocks applied to real interest rate, growth rate, and current account balance.
4/ One-time real depreciation of 30 percent occurs in 2021.