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CZECH REPUBLIC

SELECTED ISSUES

March 2026

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Approved By
European Department

Prepared By Thomas Gade and Lukas Boer (both EUR) and Jesper Linde (MCM), Lukas Boer and Allan Dizioli (both EUR), and Esha Chhabra (STA)

CONTENTS

SCENARIO ANALYSIS FOR THE CZECH REPUBLIC – USING THE INTEGRATED POLICY FRAMEWORK (IPF)

This paper applies the IMF's Integrated Policy Framework (IPF) to the Czech Republic with the aim of contributing to the use of scenario analysis at the Czech National Bank (CNB). The paper identifies some shallowness of FX markets as the main relevant friction under the IPF. Moreover, while inflation expectations are generally well anchored, they can nevertheless deviate from the inflation target for extended periods. Using an extended version of the QIPF model, the paper broadens the scope of analysis beyond traditional external shock scenarios, to also include domestic fiscal policy shocks and central bank balance sheet normalization. The paper finds that (i) in the event of a global risk-off outflow shock, the CNB can improve macro stabilization through a combined use of reserves and interest rate policy, (ii) refocusing fiscal stimulus towards more productive uses greatly reduces the degree of monetary policy tightening needed to stabilize inflation at target, and (iii) balance sheet normalization is optimally implemented in a preannounced and gradual manner, in which potential currency appreciation in principle can be mitigated through a slightly lower policy rate.

A. Introduction

1. Scenario analysis has become an integral part of central banks' assessment of risks around the baseline. Over the years, major central banks have increasingly incorporated scenario analysis into monetary policy decision-making frameworks to assess risks around the baseline.[1] The frequent shocks (including the pandemic, swings in food and energy prices, and disruptions to global trade) in recent years have underscored the benefits of applying scenario analysis to assess the robustness of baseline monetary policy decisions.[2] Scenario analysis can also be taken a step further to analyze tail-risks, or materialization of vulnerabilities in the medium-term, helping assess whether the legislative framework, monetary instruments, and decision-making processes remain adequate, and ensure that the monetary policy framework remains fit for purpose.

2. The Czech National Bank is updating its monetary policy analytical and forecasting framework, further strengthening its long-standing use of scenario analysis. The CNB regularly uses both baseline and alternative scenarios to inform its monetary policy decisions. These scenarios range from simple simulations, e.g., holding selected variables constant, to more complex alternative scenarios involving full parallel forecasts.[3] In response to the economic turbulence of recent years, the CNB commissioned a review of its modelling framework in 2024 and is currently developing a new alternative forecasting model to complement its existing DSGE model. The aim is to enhance forecasting robustness against unexpected shocks.[4] Improved robustness around baseline

[1] For example, the Bank of England moved to a broader range of "what-if" scenarios following the Ben Bernanke review in 2024 of forecasting for monetary policy making and communication at the Bank of England.

[2] The 2025 review of the ECB's monetary policy strategy acknowledges that ongoing structural shifts (geopolitical, technological, demographic, environmental) increase uncertainty, making scenario analysis more important.

[3] See CNB's Forecasting and Policy Analyses System: Forecasting Tools, October 2024.

[4] See External review of the CNB's monetary policy analytical and modelling framework.

projections, together with more advanced scenario analysis, is expected to play a critical role in this multi-model development process.

3. Using the IMF's Integrated Policy Framework (IPF), this paper explores the policy tradeoffs - and the adequacy of available policy instruments - under certain tail-risk scenarios. Section B outlines the IPF in the context of the Czech economy. Section C provides an empirical assessment of the potential frictions under the IPF that are relevant for the IPF analyses. Section D introduces an extended version of the Quantitative Model for the Integrated Policy Framework (QIPF) and applies it to three types of simulations to the economy. Section E concludes.

B. The IPF Framework in the Context of the Czech Republic

4. The IMF's Integrated Policy Framework (IPF) supports both the Fund's and the authorities' analysis of policy responses to shocks. The IPF jointly considers the role of monetary, exchange rate, macroprudential, and capital flow management policies, and their interactions with each other and other policies, including fiscal policy. It clarifies the conditions under which each instrument is appropriate and guides the coordinated use of multiple tools to achieve macroeconomic and financial stability objectives. The conceptual foundations of the IPF are set out in a series of papers, and the framework has been applied in around 30 Article IV consultations.[5]

5. The IPF incorporates a set of potential frictions that may amplify shocks and alter policy tradeoffs. Under the IPF, several "frictions" may heighten countries' exposure to shocks, including shallow FX markets, balance-sheet FX mismatches, and weakly-anchored inflation expectations. These challenges are particularly pronounced in emerging and developing economies but can also affect small open advanced economies. Ex-ante policies, such as structural policies or macroprudential measures (MPMs) can play an important role in mitigating these frictions, reducing macroeconomic imbalances, and limiting the impact of economic and financial shocks. Ex-post, the availability of adequate policy space and tools to respond to shocks is a critical element in mitigating shocks. In some cases, complementary policies, such as foreign exchange intervention (FXI), can alleviate the costs from relying solely on conventional monetary policy tools.

6. The Czech Republic is a small open advanced economy with no major imbalances, sound institutions and strong policy frameworks. It operates under a floating exchange rate regime and an inflation targeting monetary policy framework. Financial supervision is aligned with European Union (EU) standards. The economy exhibits no major external imbalances, faces no restrictions on capital movements, and it benefits from fiscal policy anchored in the EU fiscal framework, which contributes to debt sustainability. These features distinguish the Czech Republic from many emerging market economies and make it more resilient to capital flow volatility. However, as a small open economy with a flexible exchange rate, it can still exhibit some of the "frictions" highlighted in the IPF. The framework can therefore provide useful insights both for evaluating ex-ante policies, and for assessing ex-post policy tradeoffs in response to shocks.

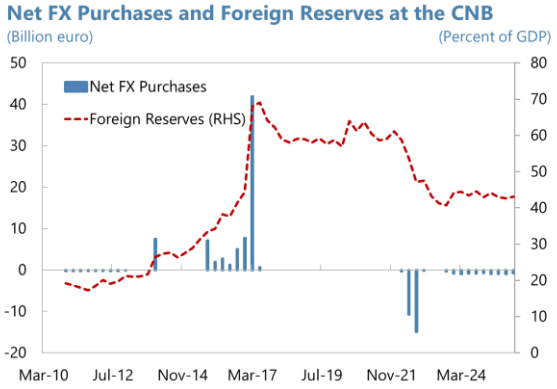
[5] See (IMF 2020a), which lays out the key concepts, and (Basu et al, 2020, Adrian et al, 2020, Adrian et al, 2021, Chen et al, 2023, Basu et al 2023, and Basu and Gopinath, 2024) providing the main conceptual and quantitative modelling frameworks for assessing policies under the IPF. (IMF 2023c) provides principles for the use of FXI under the IPF.

C. An Empirical Assessment of IPF Frictions for the Czech Republic

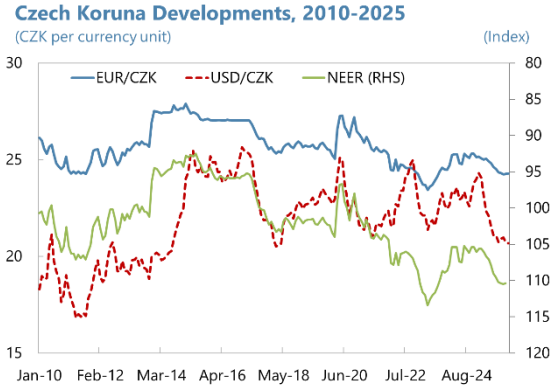
Institutional Setup

7. The CNB operates a traditional inflation targeting framework. Its primary objective is to maintain price stability, supported by an inflation target of 2 percent. The main instrument is the monetary policy interest rate, implemented primarily through two-week repo operations. The CNB also retains the option to intervene in the foreign exchange market to address excessive volatility or disorderly market conditions. These interventions are guided by internal operational procedures and are used only when necessary to preserve monetary and financial stability.

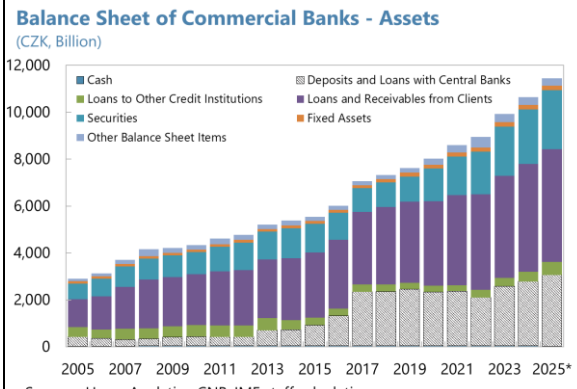
Figure 1. Czech Republic: FXI, Reserves and Banking Sector Balance Sheet



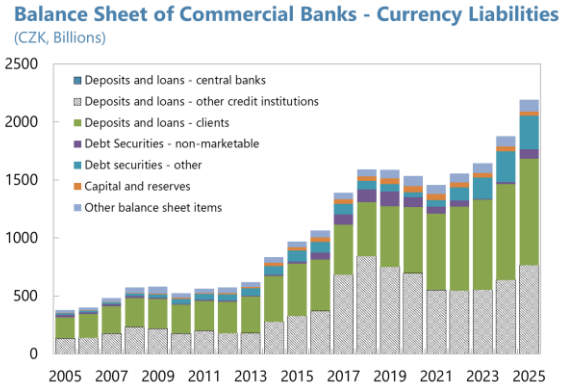
Sources: Haver Analytics, CNB, IMF staff calculations.



Sources: Haver Analytics, CNB, IMF staff calculations.



Sources: Haver Analytics, CNB, IMF staff calculations.
Note: * September 2025



Sources: CNB, IMF staff calculations.

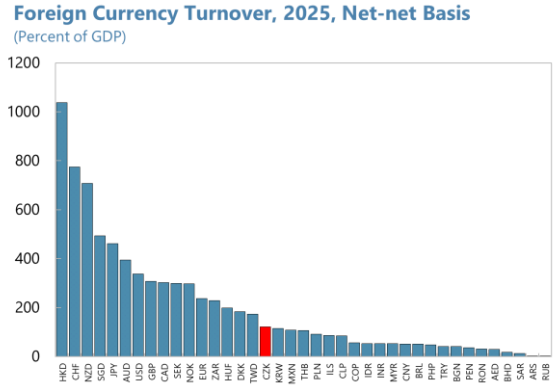
8. The CNB rarely intervenes in the FX market. Over the past decade, larger scale FX interventions have occurred only on two occasions: during the implementation of a depreciated koruna floor vis-a-vis the euro in 2013-2017 and during the energy crisis in 2022 (see Figure 1). While the former was an active policy decision motivated by below-target inflation and limited room for conventional easing at the zero lower bound, the latter episode was in response to large FX liquidity demand at times of heightened market stress. The return to a standard policy regime after

the FX floor involved resumption of a long-term program of partial sales of the returns generated by the FX reserves, executed in such a way as to minimize their impact on the FX market.

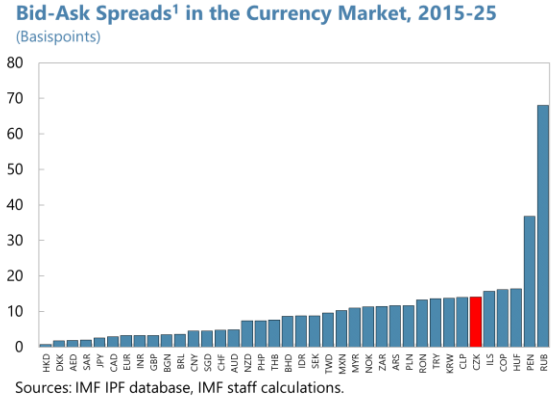
FX Market Depth

9. The Czech banking sector is predominantly foreign owned. Nine of the ten largest banks in the Czech Republic are held by foreign banking groups, and more than 90 percent of total banking assets are under foreign ownership. Subsidiaries or branches of foreign banks typically obtain their currency funding by swapping their CZK liquidity, via loans from their parent banks, by market-based funding through debt issuance, and complemented by client currency deposits.

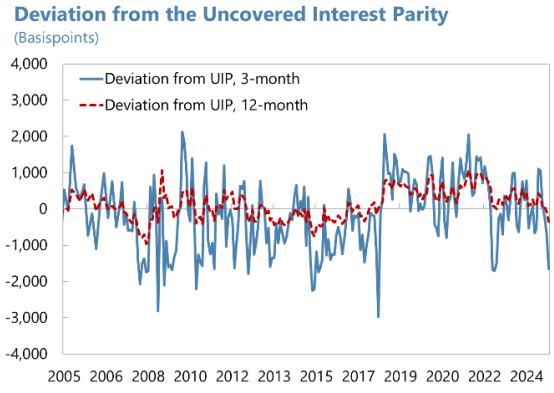
Figure 2. Czech Republic: FX Market Shallowness and Currency Liquidity Indicators



Sources: BIS, IMF World Economic Outlook, IMF staff calculations.



Sources: IMF IPF database, IMF staff calculations.
1/ Spreads are calculated as (spot ask - spot bid) / ((spot ask + spot bid)/2)



Sources: IMF IPF database, IMF staff calculations.

10. Non-financial companies use domestic banks for currency liquidity and hedging needs. Large Czech non-financial corporations often obtain FX funding through revenues, or via intercompany loans with their parent company abroad, or by issuing corporate bonds in foreign currency. Smaller firms rely more heavily on foreign currency bank loans provided by domestic financial institutions. Companies commonly involve domestic banks in their short-term FX liquidity management, both for cash transactions and for FX forwards and swaps for hedging purposes.

11. Trading in CZK includes both spot transactions and a range of derivative instruments used primarily for hedging purposes. The CZK market is part of the global over-the-counter FX market and is traded across multiple electronic platforms rather than a centralized exchange. Liquidity is provided primarily by large international banks and domestic banks, both of which act as market makers. Trading activity is heavily concentrated in EUR/CZK reflecting strong trade and financial linkages with the euro area. FX swaps account for the highest turnover, followed by spot transactions and forwards. Forwards are used primarily by non-financial corporates and, to a lesser extent, by institutional investors, reflecting companies' substantial demand for hedging instruments.

12. Indicators of FX market depth point to some shallowness in the FX market. FX turnover in CZK compared to the size of the Czech economy is broadly comparable to that of some other small open advanced economies as well as several emerging economies (see Figure 2). However, the bid-ask spread on CZK - around 10 basis points - is wider than for comparable currencies, suggesting lower liquidity. Over the last two decades, the CZK has also exhibited deviations from uncovered interest rate parity, although the magnitude of these deviations is in line with those observed in comparable economies. Overall, empirical indicators on FX market depth present a mixed picture, but when combined with anecdotal information from domestic banks and the authorities, there is some indication of lack of depth in the FX market. Market depth can become even more limited during periods of financial or economic stress, as is the case in many countries.

Foreign Currency Balance Sheet Mismatches

13. The Czech economy has a positive balance in net foreign currency assets. The net foreign currency asset position is driven primarily by the CNB's exceptionally large reserve holdings, which amount to about 43 percent of GDP.[6] Excluding these reserve assets, foreign currency assets are held mainly by non-financial corporations, investment funds, and banks, while foreign currency liabilities – though smaller in scale – are concentrated among non-financial companies and banks (see Figure 3). Excluding the central bank, foreign currency liabilities consist mainly of debt instruments, roughly one-third to one-half of which are short-term, while foreign currency assets are both debt and equities. Except for banks, foreign currency assets are generally higher than foreign currency liabilities.[7] Most foreign currency assets and liabilities are denominated in euros.

14. Strong supervisory guidance ensures that domestic banks extend foreign-currency loans only to companies with a natural hedge. Although banks have a net negative external foreign currency asset-liability position, foreign parent institutions support a stable and reliable funding base. These foreign-currency liabilities are then used to finance foreign currency loans to the non-financial corporate sector. The share of foreign currency loans to non-financial corporations has risen to nearly 50 percent of total corporate lending, equivalent to around 10 percent of GDP (see Figure 3). However, strict supervisory expectations require banks to verify that borrowers have

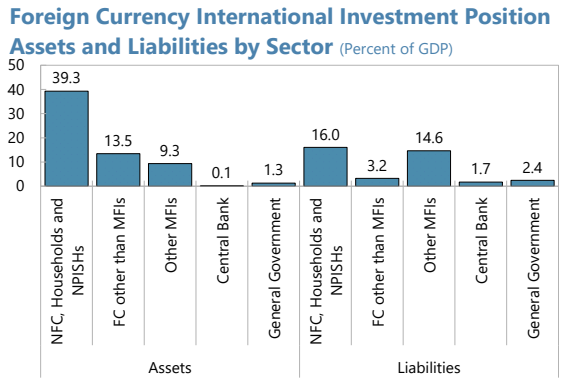
[6] The overall Net International Investment Position (IIP) of the Czech Republic is negative (10 percent of GDP) given external liabilities denominated in CZK. The external liabilities denominated in CZK are less important from an IPF perspective as they do not pose a direct financial stability risk as a result of movements in the exchange rate.

[7] The general government (excluding the central bank) has a small negative foreign currency asset-liability balance.

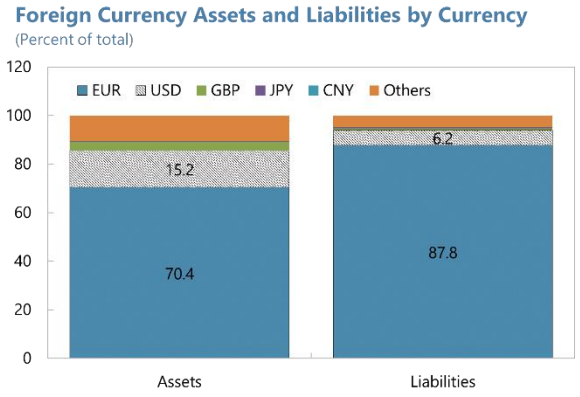
foreign currency income or other natural hedges, thereby mitigating the risk that exchange rate movements could generate adverse financial stability implications.

15. The Czech non-financial sector has a positive net foreign currency position. External foreign currency assets amount to approximately 40 percent of GDP, while foreign currency liabilities account for 16 percent of GDP. This reflects that households may hold some foreign currency assets but engage in very limited foreign currency borrowing. Non-financial corporations have foreign currency assets through direct investment and portfolio holdings, while inward direct investment into the Czech Republic typically takes the form of equity or debt denominated in local currency. Intercompany loans with parent groups play an important stabilizing role. Taken together, these patterns indicate the absence of significant foreign currency balance sheet mismatches.

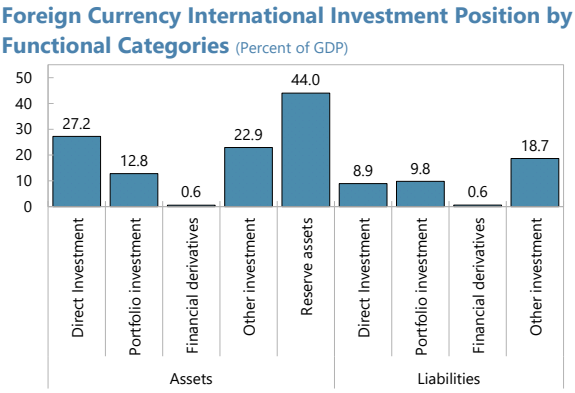
Figure 3. Czech Republic: Foreign Currency Assets and Liabilities, 2024



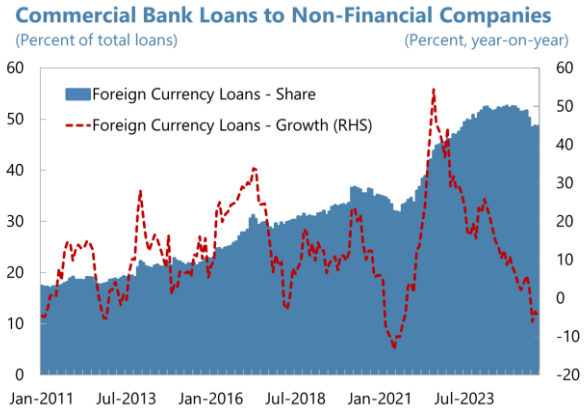
Sources: CNB, Haver Analytics, IMF staff calculations.
Note: The chart excludes central bank reserve assets. Preliminary data.



Sources: CNB, IMF staff calculations.
Note: The chart excludes foreign reserve assets.



Sources: CNB, Haver Analytics, IMF staff calculations.

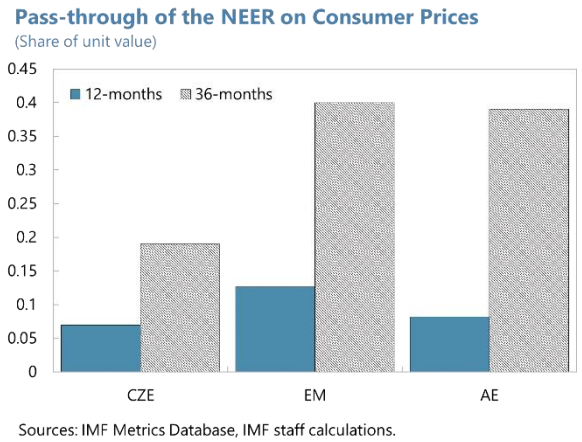


Sources: Haver Analytics, CNB, IMF staff calculations.

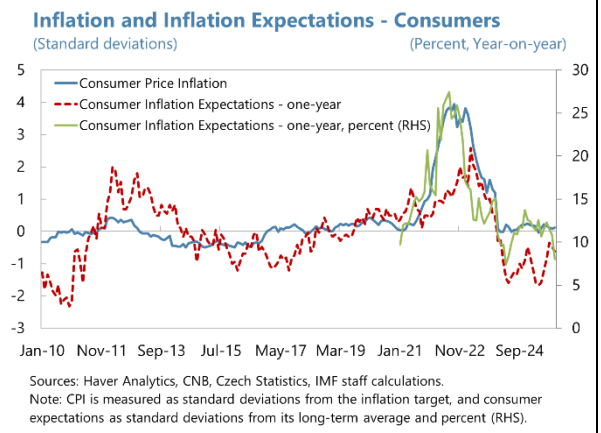
Inflation Expectations – Pass-Through and Anchoring

16. Empirical studies consistently find that exchange rate pass-through to consumer prices in the Czech Republic is low, incomplete, and has declined over time. Empirical literature provides broadly converging evidence on this point. Kucharčuková (2017) estimates that the exchange rate pass-through (ERPT) to CPI is under 0.1, with most of the effect materializing within the first three months. Baxa and Šestořád (2019) confirm this trend using a time-varying parameter VAR model. Hájek and Horváth (2015), using data from 1998–2013, find a somewhat higher long-run pass-through of approximately 0.5, with peak effects occurring 9–13 months after the shock. Cross-country estimates from the ECB (2020) further corroborate a low ERPT for the Czech Republic. Our own empirical estimates, based on a local projections' framework, point to a pass-through of roughly 0.06 after 12 months and 0.2 after 36 months, further supporting the conclusion that ERPT is muted (see Figure 4). Factors commonly cited in the literature for this low pass-through include strong monetary policy credibility, pricing-to-market behavior by firms, and the large share of non-tradable items in the consumer price basket.

Figure 4. Czech Republic: Pass-Through and Inflation Expectations



Sources: IMF Metrics Database, IMF staff calculations.



Sources: Haver Analytics, CNB, Czech Statistics, IMF staff calculations.
Note: CPI is measured as standard deviations from the inflation target, and consumer expectations as standard deviations from its long-term average and percent (RHS).

17. Inflation expectations are generally well anchored, but they can nevertheless deviate from the inflation target for extended periods. The CNB monitors expectations through survey-based measures, polling analysts from major banks and brokerage firms active in the Czech Republic as well as households' and companies' price expectations in monthly surveys (see Figure 4).[8] Households' expectations are likely most important for wage-setting dynamics. They tend to be backward-looking and adaptive. Granger causality tests indicate that inflation leads inflation expectations and not vice versa, while inflation expectations are significantly impacted by previous inflation and its own history. Statistical tests find evidence of significant persistence in inflation expectations, with a half-life of about eight months, although with a faster decay rate than for actual

[8] The Czech Republic has not issued inflation-linked public debt.

inflation. Overall, the indication is that inflation expectations are reasonably well-anchored from a level- and dynamic perspective with a moderate sensitivity to the exchange rate only.

D. Policy Tradeoffs Using the IMF's QIPF Model

The IMF's QIPF—Estimated for the Czech Republic

18. The model—key characteristics. The QIPF model is a New Keynesian open economy model tailored to capture key features common to both AE and EMEs (see also Adrian et al. 2020, 2021). The estimated model for the Czech Republic is a linearized version of the Adrian et al. (2021) IPF model, following the implementation of Chen et al. (2023), and is extended to include a more elaborate supply side of the economy. In addition, the model has been augmented to include hand-to-mouth and Ricardian households (Two-Agent New Keynesian (TANK)-type households) to enhance the transmission of fiscal policy shocks by allowing for heterogeneity in consumption responses. A central feature of the model is the assumption that FX traders have limited risk-bearing capacity (Gabaix and Maggiori, 2015). This helps generate realistic exchange rate volatility and implies that sterilized FX interventions can have real economic effects, which creates a role for policy to offset inefficient fluctuations in the Uncovered Interest Parity (UIP) risk premium.

19. Estimation for the Czech Republic—model properties. The model is estimated using quarterly data for 2000-2025 with Bayesian likelihood techniques. The estimated parameters suggest that the FX market is moderately shallow, exchange-rate pass through is gradual (and modest in the near-term), and medium-term inflation expectations are reasonably well-anchored, consistent with the CNB's active interest rate policy. The model's impulse responses (IRFs) to major shocks and policy instruments align well with empirical evidence for the Czech Republic and have been discussed with CNB staff.

Simulation of Shocks

20. External risks and policy relevant questions guide the simulation of shocks under the IPF. The global financial risk off shock is informed by the global risk matrix in the October 2025 World Economic Outlook, while domestic policy simulations draw on key policy risks identified in the Staff Report for the 2026 Article IV consultation with the Czech Republic.

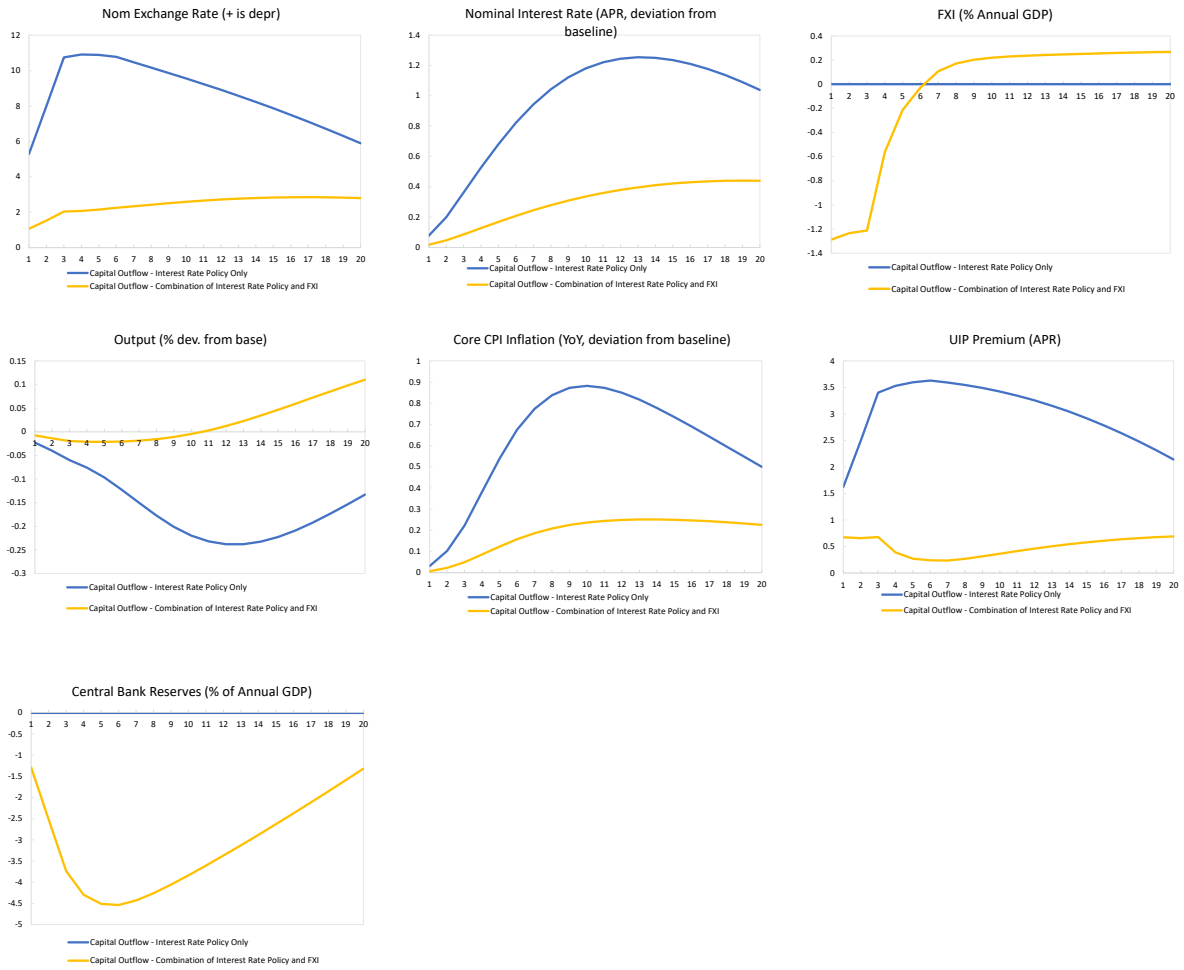
- **Scenario 1— Global financial risk-off shock (non-fundamental).** Stretched asset valuations, easy global financial conditions, and subdued volatility could make global markets vulnerable to a sudden and disruptive shift in investor sentiment or policy stance. Such a reassessment could trigger broad market corrections, exchange rate turbulence, spikes in sovereign bond yields, and heightened capital flow volatility. For the Czech Republic, this scenario generates a capital outflow, CZK depreciation, and a sharp increase in the UIP premium.

- **Scenario 2—Expansionary fiscal policy shock (fundamental).** Fiscal policy is gradually loosened. Two variants are considered: (i) a fiscal expansion driven mainly by current expenditure, with limited effects on productivity and potential output, and (ii) a fiscal expansion driven primarily by capital expenditure, yielding positive effects on productivity and potential output.

- **Scenario 3—CNB balance sheet reduction.** The scenario explores the macro-financial implications of a reduction in the CNB's FX reserves under different assumptions regarding the pace of balance-sheet unwinding and the depth of the FX market.

Results of Shock Simulations Using QIPF

Figure 5. Czech Republic: Scenario 1—Global Financial Risk-Off shock



Source: IMF staff simulations.

21. Under adverse scenario 1, the CZK depreciates (rise in UIP premium) due to shallow FX markets, and this depreciation spills over into a spike in inflation and the risk of above-target inflation expectations. The global shock is of non-fundamental nature, driven by a broad repricing of global financial assets, which triggers capital outflows from the Czech Republic and CZK depreciation. Although the Czech economy has become more resilient to global shocks over the last two decades, episodes of capital outflows and currency depreciation have been observed in the Czech Republic, most recently as a result of the US tariff announcements in early April 2025. The simulation also assumes that FX market depth temporarily declines as a direct consequence of the global shock, in line with evidence of moderately shallow FX markets. CZK depreciation raises

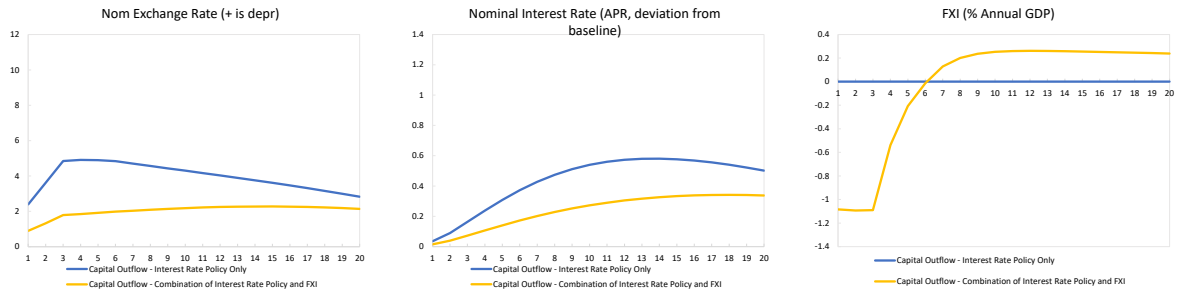
inflation, prompting the CNB to tighten the policy rate, especially if there are signs that inflation expectations become de-anchored and rise persistently above the CNB's inflation target. Because of the inherent challenge of transmission lags between high-frequency movements in financial market variables and lower-frequency availability of inflation and expectations data, the simulation is used to assess policy tradeoffs and illustrate real-time policy reactions to evolving market conditions.

22. Under the given set of assumptions, the QIPF model suggests that a combination of policy rate tightening and selling of foreign currency (FXI) delivers the most effective macroeconomic stabilization. The joint use of these instruments reduces both the rise in inflation and output loss compared to relying on policy rate tightening alone, because the required interest rate increase is smaller when complemented by FXI to offset the surge in the UIP premium (see Figure 5). Some policy rate tightening is useful if there is a risk of de-anchoring of inflation expectations. Financial stability risks related to CZK depreciation remain contained, given the absence of significant FX balance sheet mismatches in the economy. However, while not part of a key propagation channel in the model, tighter monetary policy itself could in principle heighten financial stability risks in the domestic economy, such as mortgages or consumer lending, which can be mitigated *ex-post* through FXI, resulting in less policy rate tightening, or *ex-ante* through macro-prudential policy tools such as DTI and DSTI limits. The CNB holds ample FX reserves to withstand such a global external shock. Using FXI in response to a non-fundamental global shock that generates disorderly market conditions would be consistent with the IPF and with the CNB's mandate.

Box 1. Robustness Check of FX Market Shallowness

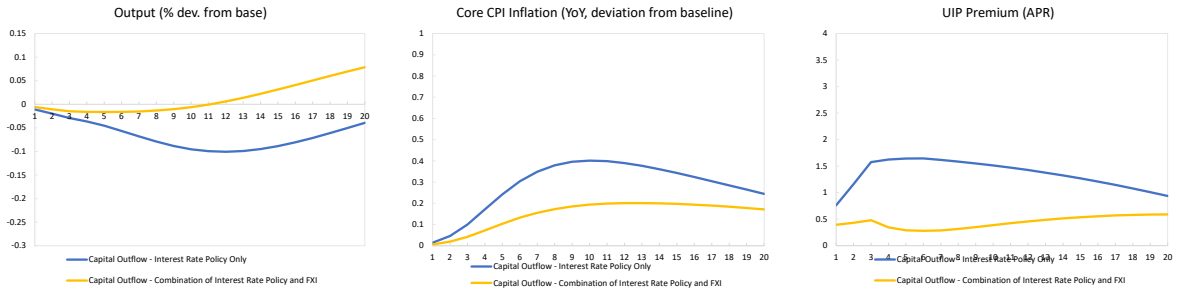
The baseline assumption for the simulations in scenario 1 uses a measure of FX market shallowness, between the lower liquidity typically estimated for small emerging economies in Central and Eastern European Countries (CEEC) and the higher liquidity generally estimated for Small Open Advanced Economies. This is in line with the empirical findings for the Czech Republic as well as in line with an assumption that FX markets may temporarily become increasingly illiquid during a global risk-off shock.

If scenario 1 was instead implemented using an assumption of deeper FX markets, a combination of policy rate tightening and selling of foreign currency (FXI) would still deliver the most effective macroeconomic stabilization. However, the impact on the exchange rate, the UIP premium, and inflation would be less and FXI itself would be less effective, suggesting a more limited case for using FXI (see charts below).



Source: IMF staff simulations.

Box 1. Robustness Check of FX Market Shallowness (Concluded)



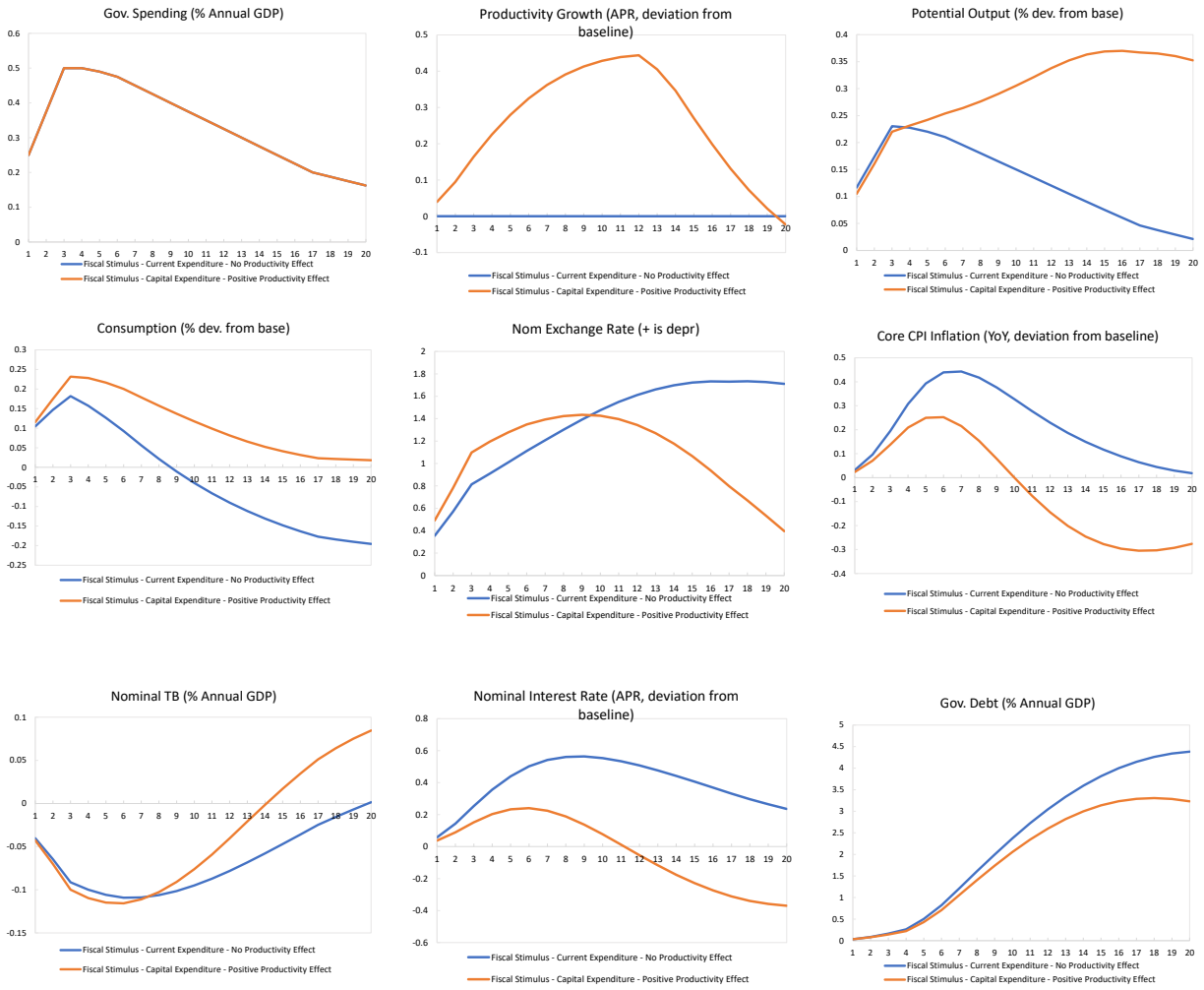
Source: IMF staff simulations.

23. Under Scenario 2, the macroeconomic impact of fiscal expansion and the estimated policy response depend on the composition of the expansion and its effects on productivity and potential output. In the simulation, government expenditure increases by 1.5 percent of GDP over one year, raising consumption, output and inflation, along with modest CZK depreciation in the near-term. Government debt rises in the medium-term. The magnitude of the impact and the estimated policy response depend on the composition of fiscal stimulus and the impact on productivity and potential output (see Figure 6). The UIP premium moves very little, and FXI is not used to counteract domestic fiscal expansion, especially when the fiscal expansion contributes to macroeconomic imbalances. As a result, the two variants generate different macro-financial outcomes and policy responses:

- **Current expenditure expansion, no productivity effects.** A fiscal expansion based on higher current spending that does not raise productivity boosts output immediately and crowds in consumption, as liquidity constrained households raise spending initially. The trade balance deteriorates modestly, and the CZK weakens marginally. Potential output rises briefly due to higher labor supply, but this effect fades quickly, while inflation increases. The estimated CNB policy response is to tighten policy rates sufficiently to bring inflation back to target.

- **Capital expenditure expansion with productivity and potential output gains.** A fiscal expansion concentrated in capital spending or budgetary measures supporting structural reforms increases productivity and potential output. With these supply-side improvements, monetary policy needs to tighten less in the near-term and may even ease in the medium-term, as higher productivity may eventually lower inflation and strengthen the trade balance. Consumption and output rise above the baseline on a sustained basis. The resulting increase in government debt would be less than that observed in scenarios without productivity gains.

Figure 6. Czech Republic: Scenario 2—Expansionary Fiscal Policy



Source: IMF staff simulations
Note: Lines follow a similar path (overlap) where less than three lines are illustrated.

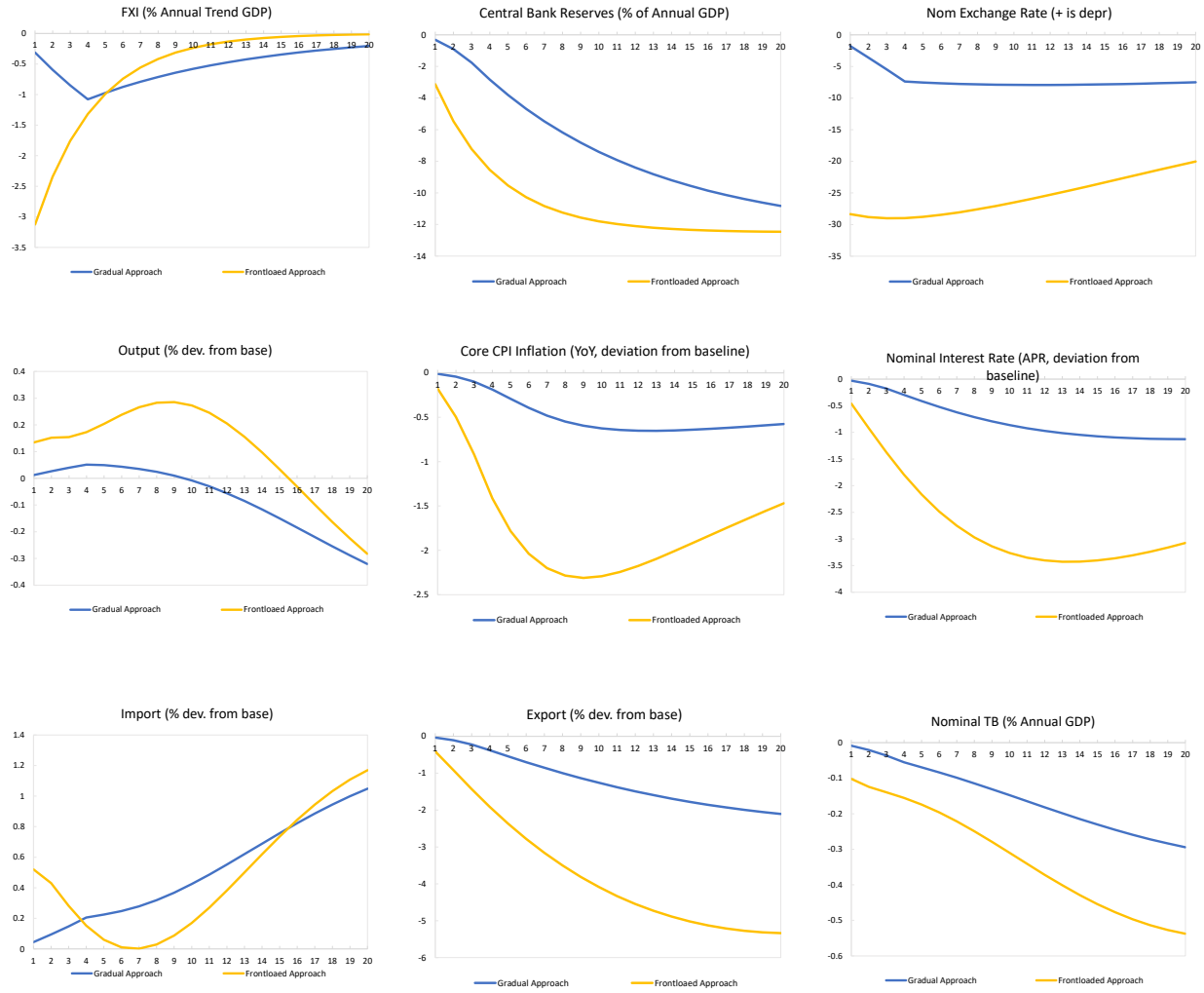
24. Under Scenario 3, central bank balance sheet reduction, the degree of CZK appreciation and the resulting effects on inflation and trade balance vary according to the pace of FX reserve sales. The simulation considers both a front-loaded and a gradual reduction in FX reserves. In each case, the CNB preannounces the intention and the path for reducing reserves by one third - from the current level of about 45 percent of GDP to 30 percent of GDP, leaving ample reserves remaining to withstand shocks.

- **Using a frontloaded approach**, the CNB is assumed to communicate and implement a rapid decline in reserves over one year. In addition, FX market depth is assumed to be limited, meaning that markets cannot fully absorb the speedy large CNB FX sales. Under these conditions, the QIPF model generates i) a strong and front-loaded appreciation of the CZK, ii) a substantial

decline in inflation, prompting iii) significant policy rate easing in response to the disinflationary impact. Consumption and output would rise initially due to the easing of monetary policy, while exports would gradually fall and the trade balance would deteriorate over time (see Figure 7).

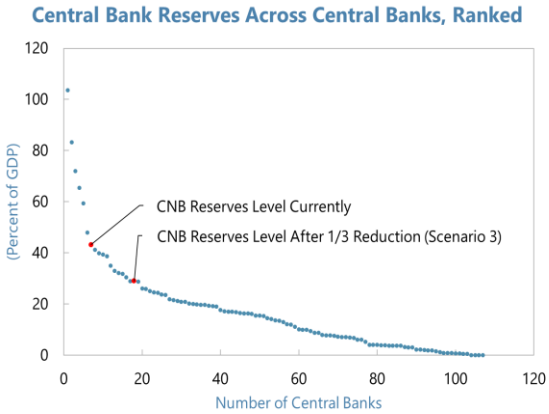
- **Using a gradual approach**, the CNB is assumed to communicate its intention to gradually reduce its FX reserves over a three-year period. FX markets are assumed to be able to absorb the gradual FX sell-off, although the CZK would still appreciate during the first year (albeit to a lesser extent than under the front-loaded scenario. In this case, QIPF suggests i) a more moderate and manageable impact on output and core inflation, ii) a smaller deterioration in the trade balance, and iii) a modest and gradual policy rate easing over the simulation horizon.

Figure 7. Czech Republic: Scenario 3—CNB Balance Sheet Reduction



Source: IMF staff simulations

25. A preannounced and gradual approach would provide a more stable macroeconomic adjustment path, and leave ample reserves to withstand shocks. A gradual strategy with a clearly preannounced pace of FX reserve reduction, designed to preserve the FX market's ability to absorb FX sales, offers a more manageable macro environment. This approach results in only modest CZK appreciation and a limited impact on core inflation. If monetary policy space allows, the CZK appreciation could in principle be offset through a modest policy rate easing. According to the estimated model, a CZK nominal appreciation of approximately 6 percent under the gradual scenario, could be neutralized with an additional 70 bp policy rate reduction during the first 3 years (normal forecast horizon). While this approach does not pose immediate financial stability risks, the CNB may still consider activating ex-ante macroprudential tools such as the DTI and DSTI limits should lower lending rates contribute to an undesirable buildup in credit.



Sources: CEIC Data, IMF staff calculations.

E. Conclusions

26. The IMF's IPF can be helpful in supporting scenario analysis. The IPF offers a useful tool for assessing policy tradeoffs and impacts when simulating risks around the baseline or conducting policy simulations, thereby contributing to the ongoing update of the CNB's monetary policy analytical and forecasting framework.

27. The Czech economy is a small open advanced economy with some shallowness of FX markets identified as the main friction under the IPF. Meanwhile, there is no evidence for FX balance sheet mismatches, nor of any major risk of de-anchoring of inflation expectations. Overall, the frictions that can amplify shocks or alter policy tradeoffs are thus modest in the Czech Republic.

28. The CNB has ample reserves to withstand external shocks. In the event of a correction in global asset valuations leading to currency depreciation, a combination of policy rate tightening and selling of foreign currency (FXI) delivers the most effective macroeconomic stabilization, as opposed to relying solely on policy rate tightening.

29. The impact of fiscal stimulus and the monetary policy response depend on the composition of fiscal expansion. Fiscal expansion that contributes to the buildup of macroeconomic imbalances is countered exclusively with tighter monetary policy, while the monetary policy response is more muted when the expansion has positive effects on productivity.

30. A gradual approach to reducing the size of CNB FX reserves suggests a reasonably stable adjustment path while still leaving ample reserves. A gradual and preannounced pace of FX reserve reduction offers a more manageable macro environment. If monetary policy space allows, the CZK appreciation could in principle be offset through a modest additional policy rate easing. Early introduction of macroprudential measures could help mitigate emerging vulnerabilities.

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MONETARY AND FISCAL POLICY LINKAGES IN THE CZECH REPUBLIC

This paper uses scenario analysis to illustrate the implications of persistently higher fiscal deficits for monetary policy in the Czech Republic. It distinguishes across different types of fiscal spending and monetary policy responses. The paper argues that coordinated action, explicitly accounting for the monetary policy response to a fiscal easing, can improve policy outcomes. The analysis is complemented by a historical perspective of fiscal and monetary policy interactions in the Czech Republic. Specifically, the paper reviews past policy synchronization, estimates the responsiveness of fiscal policy to debt levels, and constructs a measure of monetary-fiscal policy tensions based on fiscal r. Intensifying tensions over the coming years point to a potential need for policy adjustments.*

A. Introduction

1. Longstanding and emerging spending pressures point to a deterioration in the fiscal position in the years ahead. The Czech Republic faces significant structural spending demands from population ageing, while emerging needs related to defense commitments and the energy transition add to these pressures (see REO 2025, chapter one). Without significant new revenue measures or expenditure reprioritization, these trends will lead to larger fiscal deficits and rising public debt levels over the medium term, developments which could in turn raise inflation.

2. Delivering on its mandate of price stability, the CNB would likely respond to a looser fiscal stance with tighter monetary policy, which could lead to several unintended consequences. Looser fiscal policy would in principle lead to fiscal dominance if monetary policy did not respond appropriately and debt were perceived as unsustainable. This scenario is, however, unlikely in the Czech Republic given the CNB's strong inflation targeting framework, institutional, independence, established credibility, and currently moderate levels of debt. Instead, inflationary pressures stemming from fiscal expansion would prompt the CNB to raise interest rates. This necessary response could have important side effects:

1. Higher public debt service costs, weighing on fiscal sustainability and constraining room for other spending.
2. Crowding out of private investment, raising borrowing costs and dampening the intended stimulative effects of fiscal measures.
3. Appreciation pressures on the exchange rate, further neutralizing the expansionary effect of fiscal loosening by weakening external demand.
4. Increased costs associated with central bank liabilities, potentially leading to losses on the CNB's balance sheet given its large foreign reserve holdings.

3. Internalizing these unintended effects can help improve policy outcomes. Achieving low and stable inflation requires an appropriate fiscal framework that ensures government debt

sustainability.[9] Fiscal consolidation, or reprioritization of spending toward productivity-enhancing areas, would ease tensions between fiscal and monetary policy, reducing the need for monetary policy to offset fiscal-driven inflationary pressures. In general, coordination between the two policies can improve macroeconomic stabilization. For instance, during the COVID-19 pandemic, fiscal policy and monetary policy acted in the same direction, easing the burden on monetary policy and improving business cycle stabilization (Beyer et al., 2023). Fiscal multipliers are larger when monetary policy is accommodative or constrained by the effective lower bound (Erceg and Linde, 2014). Moreover, unconventional monetary policy via asset purchases can reduce risk premia, thereby supporting debt sustainability (Alberola-Illa et al., 2022).

4. This paper examines past and future linkages between monetary and fiscal policy in the Czech Republic. First, it starts with a literature review on monetary-fiscal interactions, summarizing findings on the impact of fiscal policy on inflation, the mutual transmission effects between fiscal and monetary policy, and the potential benefits of policy coordination. Second, it provides a historical account and a forward-looking assessment of monetary-fiscal policy dynamics in the Czech Republic. The analysis draws on the concept of fiscal r*, the debt-stabilizing real interest rate, relative to the conventional monetary r*, the neutral rate of interest. Third, it employs a structural model to explore scenarios of more expansionary fiscal policy, differentiating between different types of fiscal spending and varying degrees of monetary responsiveness. The note concludes by outlining key policy implications.

B. Selected Literature on Monetary and Fiscal Policy Interactions

5. Monetary and fiscal policy are deeply interconnected. Both operate within a consolidated government budget, requiring either explicit coordination or a consolidated analytical perspective (Basseto and Sargent, 2020. Both policies provide liquidity to firms and households by supplying assets (currency, reserves and government bonds) and both affect inflation: fiscal policy via tax and spending decisions and monetary policy through interest rate management. Inflation, in turn, has important fiscal consequences by generating seignorage and altering the real value of government debt (ECB 2021). Standard macroeconomic theory assumes a monetary-led policy mix, where monetary policy determines the price level and fiscal policy ensures debt sustainability through passive adjustment (e.g., Gali, 2015). However, these roles can be reversed when fiscal policy does not commit to adjust future fiscal balances in response to rising debt. In such cases, fiscal policy becomes active, determining the price level, while monetary policy accommodates by stabilizing debt (Leeper 1991, Cochrane, 2023), a regime known as fiscal dominance or fiscally-led policy mix. In practice, the policy environment often lies between these extremes, with episodes of partially unfunded fiscal expansions or switching between regimes (Bianchi, Faccini and Melosi, 2023).[10]

[9] In other words, monetary policy independence does not imply lack of coordination with fiscal policy. For a central bank to pursue its price stability objective, fiscal policy must stabilize debt. Otherwise, fiscal dominance could unanchor inflation expectations, trigger an inflation spike, and force monetary policy to accommodate fiscal policy to maintain solvency.

[10] In the extreme cases that both policies are 'active', both debt and inflation will follow explosive paths. If both are passive, the equilibrium is indeterminate (Leeper, 1991).

6. Fiscal and monetary policy affect each other's transmission mechanisms. A growing empirical literature shows that fiscal expansions tend to raise future inflation (e.g., Hazell and Hobler, 2025; Banerjee et al., 2022: Checherita-Wetsphal and Pesso, 2024). The effect on inflation or inflation expectations is significantly larger when fiscal policy is unfunded/active (Ascari et al., 2025; Banerjee et al., 2022; Bianchi et al., 2023), debt levels are higher (Checherita-Westphal and Pesso, 2024; Cevik and Miryugin, 2025; Brandao-Marquez et al., 2023) and in lower-income countries. (Brandao-Marquez et al., 2023). A small empirical literature provides some tentative evidence that tighter and more responsive monetary policy can mitigate these fiscally-induced inflationary effects (Banerjee et al., 2022; Checherita-Westphal and Pesso, 2024; Grigoli and Sandri, 2024, Hack et al., 2023).[11] Fiscal policy also shapes the effectiveness of monetary transmission. Monetary policy can only stabilize inflation, if fiscal policy ensures debt sustainability (Sargent and Wallace; 1981, Leeper 1991; Kloosterman et al., 2024). Conversely, high debt levels tend to weaken the effectiveness of monetary policy (Caramp and Feilich, 2025; Brandao-Marquez et al., 2023).

7. Coordinating monetary and fiscal policy can yield significant welfare gains. If fiscal policy fails to stabilize debt, monetary policy can lower inflation, but only in the short run (Sims, 2011; Cochrane, 2018). Eliminating fiscal dominance improves welfare outcomes (Kumhof et al., 2010).[12] In an optimal mix, monetary policy primarily stabilizes the business cycle while fiscal policy focuses on redistribution (Bilbie et al., 2024). At the zero lower bound, fiscal policy becomes particularly effective in countering recessionary shocks (Ramey and Zubairy, 2018; Miyamoto et al., 2018). Conversely, during high inflation episodes, fiscal policy can ease the burden on monetary policy, allowing for lower policy rates (Beyer et al., 2023; Chen et al., 2023).

C. Monetary And Fiscal Policy Interactions in the Czech Republic

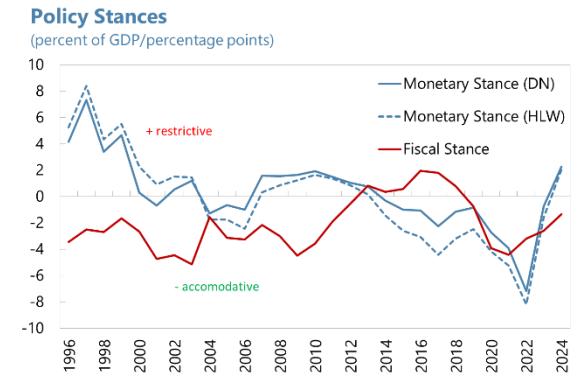
8. Monetary and fiscal policy in the Czech Republic have rarely been synchronized, with the period after 2019 being a notable exception. Although output and inflation gaps have historically comoved, monetary and fiscal stances have displayed low synchronization, as shown by their negative correlation over time (Figure 1, top charts).[13] From the mid-1990s till the mid-2010s, monetary policy was relatively restrictive, while fiscal policy remained accommodative, contributing to an increase in the government debt-to-GDP ratio from around 10 percent to 45 percent (bottom left chart). In contrast, during 2014-16, when both output and inflation gaps were negative and monetary policy was constrained by the lower bound, fiscal policy turned restrictive, lowering the debt level for several years. Since 2019, however, policies have tended to move in tandem, easing countercyclically marking a notable episode of effective monetary-fiscal policy synchronization. In conclusion, while synchronization has historically been rare, periods of aligned inflation and output gaps could have provided in principle opportunities for stronger policy coordination.

[11] It is more established that restrictive monetary policy lowers the effect on output, with fiscal multipliers estimates around 0 for tight monetary policy responses and larger fiscal multipliers at the zero lower bound (Cloyne et al., 2023; Hack et al., 2023; Ramey and Zubairy, 2018; Miyamoto et al., 2018; Leeper et al., 2017).

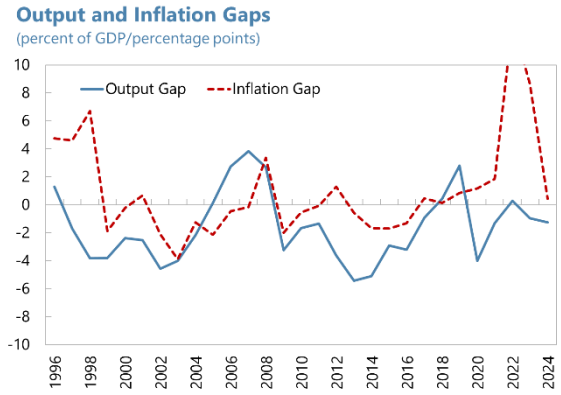
[12] Under specific cases at the zero lower bound, this might not be the case (Harrison, 2021).

[13] Note, that we mix concepts of active/passive and cyclical/countercyclical policies here, which cannot be related without adding debt dynamics to the analysis.

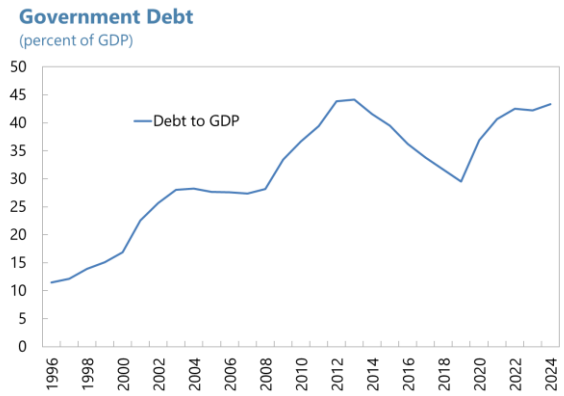
Figure 1. Czech Republic: Monetary and Fiscal Policy Synchronization



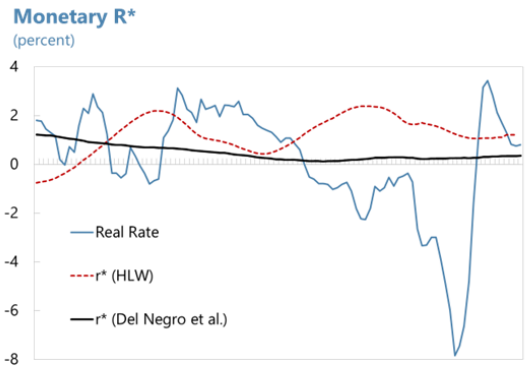
Sources: IMF staff estimates. Monetary stance = r-r*. r* estimation is based on Holsten et al. (2017) and Del Negro et al. (2017). Fiscal stance is structural balance.



Sources: IMF staff estimates. Inflation gap is CPI inflation minus CNB target.



Sources: CNB.



Sources: IMF staff calculations. HLW is Holsten et al. (2017) and Del Negro is Del Negro et al. (2017). r is the 3-month Pribor minus average core inflation over the last t to t-3 quarters.

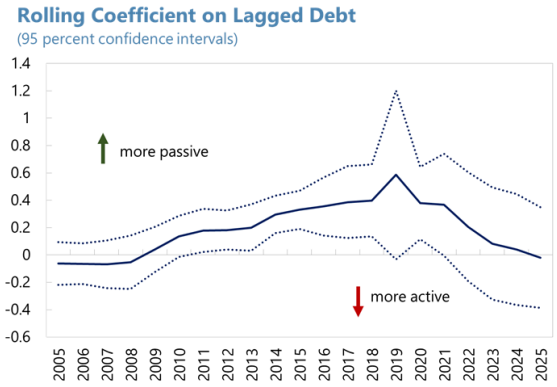
9. Czech fiscal policy has become more active in recent years. The historical account of policy synchronization and debt dynamics provides only a limited indication of the degree of fiscal and monetary activeness or passiveness of fiscal. To gauge the activeness of fiscal policy, following Bohn (1998), we estimate

$$pb_t = \rho_1 d_{t-1} + \alpha_1 Y_{gap,t} + \epsilon_t, \qquad (1)$$

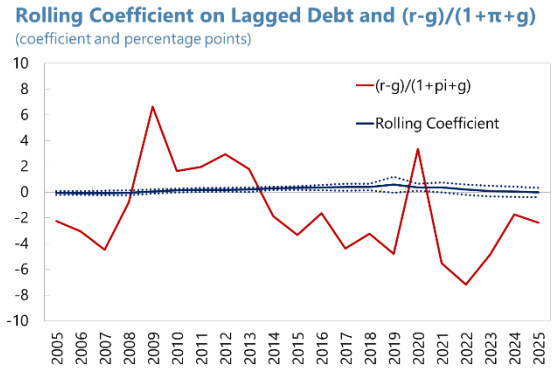
where pb_t denotes the primary balance, d_{t-1} the past debt level, and $Y_{gap,t}$ the output gap. The coefficient ρ_1 captures the responsiveness of the primary balance to past debt, controlling for cyclical conditions. Under passive fiscal policy, ρ_1 should exceed $(r-g)/(1+\pi+g)$, indicating that

higher debt prompts larger primary balances consistent with a motive to stabilize debt.[14] [15] Figure 2 plots the rolling coefficients on lagged debt and the debt-stabilizing primary balance over 10-year windows. Over the full sample, the coefficient on lagged debt is positive and was at most times larger than *r-g*, implying a passive fiscal policy. Fiscal policy became increasingly passive until 2018 but has been slightly more active since then.

Figure 2. Czech Republic: The Activeness of Fiscal Policy



Sources: IMF staff estimates. Notes: 10-year window, 2005 value is for 1996-2005.



Sources: IMF staff estimates. Notes: *r* = effective government debt servicing cost minus GDP deflator. Same coefficient as in left panel, 95 percent confidence intervals..

Box 1. Monetary and Fiscal Policy Tensions Defined as the Gap Between Fiscal and Monetary r*

Fiscal *r—defined as the debt-stabilizing real interest rate for a given fiscal path—measures debt sustainability and can help in assessing fiscal-monetary tensions.** The concept of fiscal *r** was developed by Bolhuis et al. (2024) and the following exposition is based on their article. With an assumption on expected future primary balances pb, growth g and inflation π, one can use the debt accumulation equation

$$\Delta d_t = (r_t - g_t)/(1 + \pi_t + g_t)\, d_{t-1} - pb_t \quad (1)$$

to back out the real rate r_f^*, called fiscal *r**, that would stabilize the debt-to-GDP ratio d:

$$r_f^* = \bar{g} + (1 + \bar{\pi} + \bar{g})\, \overline{pb}/\bar{d}, \quad (2)$$

where bars denote steady state values.

Inserting equation (2) into the debt accumulation equation (1) shows the evolution of debt as a function of fiscal *r**,

$$\Delta d_t/\bar{d} = (r_t - r_f^*)/(1 + \bar{\pi} + \bar{g}) - (pb_t - \overline{pb})/\bar{d}. \quad (3)$$

The debt-to-GDP ratio increases if r is larger than fiscal *r** and it decreases when primary surpluses rise above the expected constant path of the primary balance as a percentage of potential GDP.

Following Bolhuis et al. (2024) and assuming a standard aggregate supply and demand framework (e.g., Gali, 2008), the change in inflation $\Delta\pi_t = \theta_t - \phi\,(r_t^p - r_m^*)$ can be modelled as a function of the monetary policy stance, the difference between the real policy rate r_t^p and the natural monetary rate r_m^*—the equilibrium rate

[14] The debt-accumulation equation is given by: $\Delta d_t = (r_t - g_t)/(1 + \pi_t + g_t)\, d_{t-1} - pb_t$. For constant debt, $\Delta d_t = 0$, the equation yields $pb_t = (r_t - g_t)/(1 + \pi_t + g_t)\, d_{t-1}$.

[15] The second exercise in Bohn (1998) that estimates the responsiveness of primary balances to the debt-stabilizing primary balance, $pb_t = \rho_2 pb_t^{DS} + \alpha_w Y_{gap,t} + \epsilon_t$, produces less conclusive results. It shows no clear relation between the primary balance and different concepts of the debt-stabilizing primary balance (based on actual or natural interest rates).

Box 1. Monetary and Fiscal Policy Tensions Defined as the Gap Between Fiscal and Monetary r* (Concluded)

consistent with inflation at target and a closed output gap—with sensitivity parameter ϕ, and the difference between inflation expectations and past inflation denoted as θ_t. Combining this with the adjusted debt-accumulation equation (3), the fiscal-monetary gap can be expressed as

$$r^*_{m_t} - r^*_{f_t} = \Delta d_t/\bar{d}\,(1+\bar{\pi}+\bar{g}) + 1/\phi\,(\Delta\pi_t - \phi_t) + (pb_t - \overline{pb})/\bar{d}\,(1+\bar{\pi}+\bar{g}) - \tau^*_t, \quad (4)$$

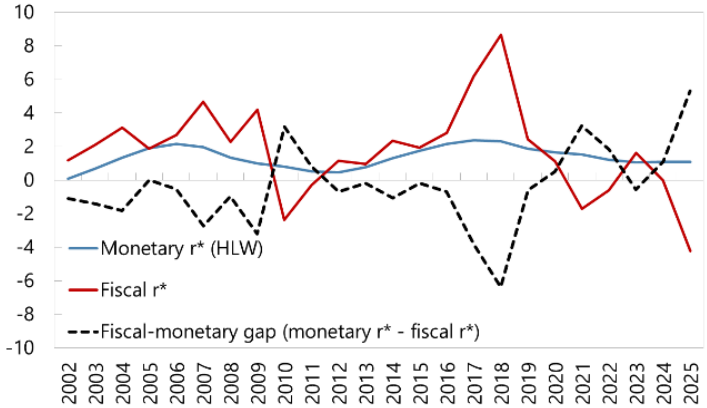
where $\tau^*_t = (r_t - r^p_t)$, the spread between the real effective interest rate on government debt and the real policy rate.

A fiscal-monetary gap, $r^*_{m_t} - r^*_{f_t}$, indicates tensions between monetary and fiscal policy. Bolhuis et al., (2024) define the tension between fiscal and monetary policy as a situation in which fiscal policy makes it more difficult for the central bank to stabilize inflation, or when monetary policy makes it more difficult for fiscal policy to stabilize the debt ratio. When the two *r** measures are equal, monetary and fiscal policy can achieve their policy goals without any adjustments in either the primary balance or the monetary policy rate. When the monetary *r** is higher, fiscal and/or monetary policy need to adjust their stances to achieve their goals. When monetary policy raises the rate in line with the higher r^*_m, interest rate costs increase and public debt could become explosive without an adjustment to primary balances, higher growth or inflation. If monetary policy does not raise rates, due to debt sustainability concerns, inflation may rise.

The policy trade-offs related to a positive fiscal-monetary gap are displayed by equation (4):

1) If there is no change in policy stances, debt would grow (first term), or
2) if monetary accommodates fiscal policy by not raising rates, inflation would rise (second term), or
3) fiscal policy could accommodate by running larger primary balances to close the gap, or
4) the spread between the rate on government debt and the policy rate would need to be lowered via for instance the issuance of shorter-maturity debt or financial repression.

10. Fiscal-monetary tensions are expected to intensify over the coming years. The 2025 gap between the monetary and the fiscal *r** widens sharply (see Box 2 for an explanation of the concept).[16] Based on projected debt and primary deficits over the medium term, the fiscal *r**, the equilibrium real interest rate needed to stabilize debt at around 50 percent by 2030 with primary deficits slightly below 2.5 percent, is around -3 percent.[17] This



Sources: IMF staff estimates. HLW is Holsten et al. (2017). Fiscal r* is based on Bolhuis et al. (2024).

[16] The calculation for fiscal *r** in the text figure is based on the 5-year WEO forecasts of growth, inflation, the primary balance and the debt level, taking these expected *t+5* values as equilibrium values for period *t*.

[17] Historically, positive fiscal-monetary gaps have been only observed around the euro area crisis (2010-2012) and the Covid and energy shocks (2020-2022). The 5-year WEO forecast for debt and t in 2011 and 2021 was 57 and 54% of

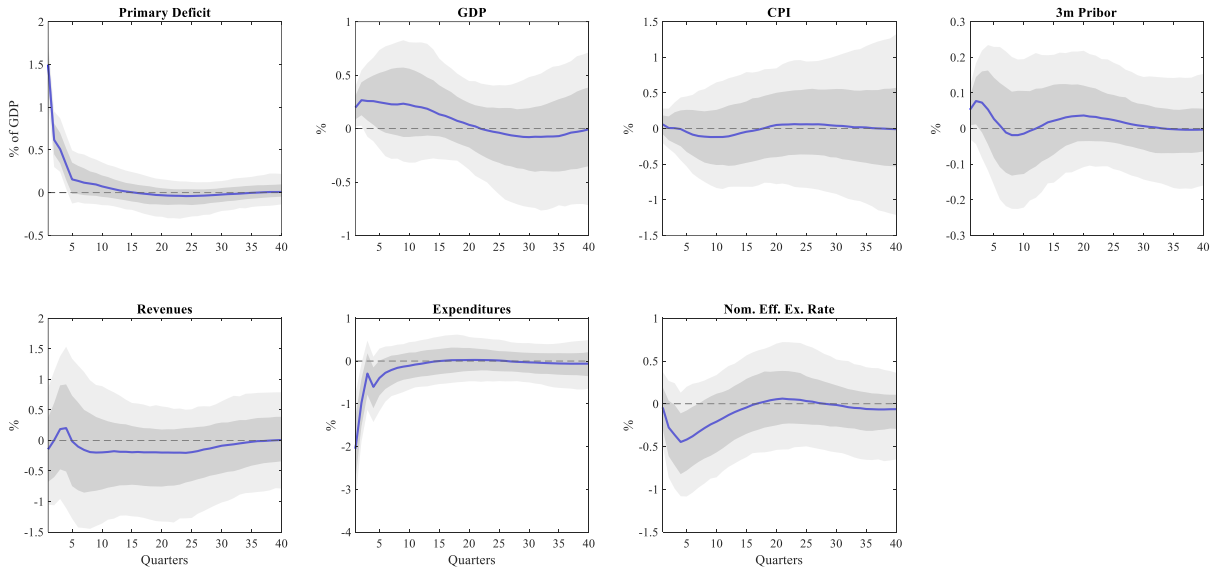
(continued)

is significantly below the monetary *r***—the neutral interest rate consistent with inflation at target and a closed output gap—implying growing tensions between monetary and fiscal policy and the eventual need for policy adjustments. The widening gap driven primarily by a decrease in fiscal *r** due to higher expected primary deficits, suggests that policies will need to adjust to achieve their objectives. Tighter monetary policy will aim to stabilize inflation but at the cost of higher debt-servicing costs, rising debt ratios, and lower fiscal multipliers.[18]

D. Scenario Analysis: The Effects of Persistently Higher Deficits

11. Empirical evidence for the Czech Republic shows that higher government deficits have on average not led to higher inflation in the past. An SVAR-identified deficit shock explaining most of the variance in primary deficits does not lead to an increase in inflation. The shock triggers a central bank response to raise interest rates, which may explain this finding. However, given that debt levels have been historically low, this relationship could change under higher future debt burdens. To assess the potential effects of persistently larger deficits on inflation, we turn to a structural model in the following analysis. [19]

VAR Evidence: Impulse Responses to a Main Primary Deficit Shock



Notes: Impulse responses to main primary deficit shock. The shock is identified as the main driver in the forecast error variance of the primary deficit at business-cycle frequency. Identfication follows Angeletos et al. (2020). Estimation follows standard Bayesian techniques. The shock explains around 90% of the primary deficit forecast error variance on impact, then decreases to around 60% after 5 years. 68% and 90% credible bands. Sample: 1999q1-2025q1.

GDP and for the primary balance –3.3 and –2.2% of GDP. Debt growth was then quickly reigned in (see Figure 1, panel 3), indicating a monetary-led policy mix, where fiscal policy was adjusted to sustain debt levels.

[18] Bolhuis et al. (2024) show empirically that larger fiscal-monetary gaps are associated with increases in future debt levels, inflation and financial repression as well as increases in the probability of crises.

[19] The model is a semi-structural variation of the small open economy model developed by Gali, Smets and Wouters (2012), as well as Berg and others (2006) and laid out in detail in IMF Country Report No. 24/29 'Czech Republic – Selected Issues 2023', Dizioli and Wang (2022) and Alvarez and Dizioli (2023).

12. We contrast two scenarios of persistently higher deficits, differentiated by the type of fiscal spending. In the alternative fiscal scenario, deficits remain permanently elevated as shown in Figure 3 (top panels). These higher deficits could stem from various fiscal policy changes. For illustrative purposes, we consider two types of government spending:

i) In the first scenario, the additional deficit relative to the baseline is entirely due to higher government consumption (for example increased public wages), leaving potential GDP unchanged. We assume a first-year multiplier of 0.6 and a second-year multiplier of 0, implying that GDP returns to its baseline level after one year. Coenen et al. (2012) show that multipliers are significantly lower, and even negative, when fiscal spending or deficits are permanently higher.

ii) In contrast, the second scenario assumes that the additional spending is allocated exclusively to investment, which raises potential GDP and thus has a smaller effect on the output gap. Here, we assume a first-year multiplier of 0.3, a second year multiplier of 0.5, and a multiplier of 0.3 thereafter, resulting in an increase in potential GDP by 0.3 percent of the spending shock.

Across the two scenarios, we consider two alternative monetary policy frameworks:

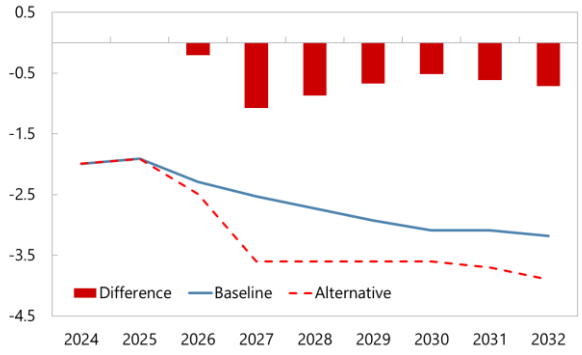
a) An estimated Taylor rule with interest rate smoothing, which responds to current deviations of inflation from target and the output gap.

b) An optimal monetary policy response, based on a loss function that assigns equal weight to discounted deviations of inflation and output, with additional emphasis on interest rate smoothing. The key distinction is the assumption of perfect foresight, allowing policy to minimize expected losses over time.

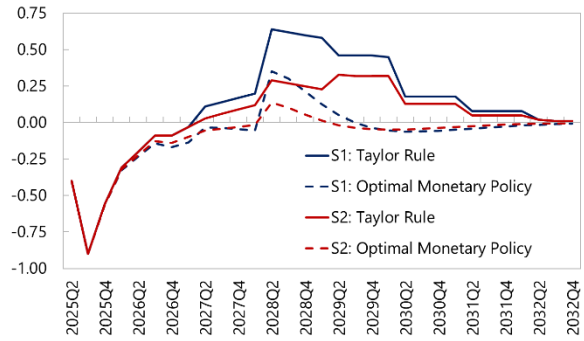
13. Allocating additional fiscal spending to investment rather than consumption results in a smaller widening of the output gap and requires a more muted monetary policy response. Investment spending raises potential output, reducing the impact on the output gap, whereas spending concentrated on public wages has little effect on potential output. Consequently, the lower output gap under the investment scenario necessitates a smaller monetary tightening, allowing interest rates to remain lower for a similar level of inflation (compare S1 (blue lines) to S2 (red lines) in the lower panel in Figure 3).

14. An optimal monetary policy that frontloads rate hikes in response to fiscal easing can keep inflation closer to target and accelerate the return to the natural policy rate. Under a permanent deterioration in the fiscal position due to higher government spending, optimal monetary policy reacts not only to the immediate increase in spending but also to anticipated future spending. By incorporating the full expected path, an optimal monetary policy response differs from a Taylor rule that responds only to current conditions (see Figure 3). The optimal policy approach implies an immediate and stronger policy rate hike, remaining above the Taylor rule path for several quarters. As a result, the output gap closes more quickly and inflation declines faster, allowing the policy rate to return to its natural level sooner.

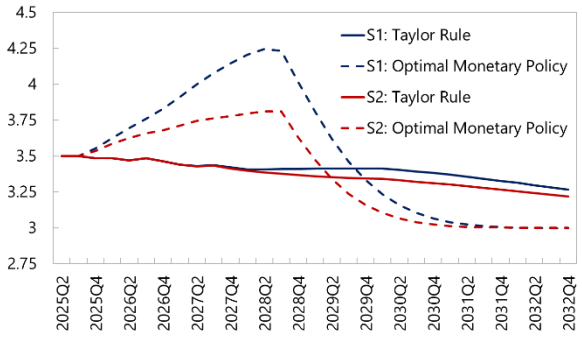
Figure 3. Czech Republic: Monetary Policy under Alternative Fiscal Scenarios



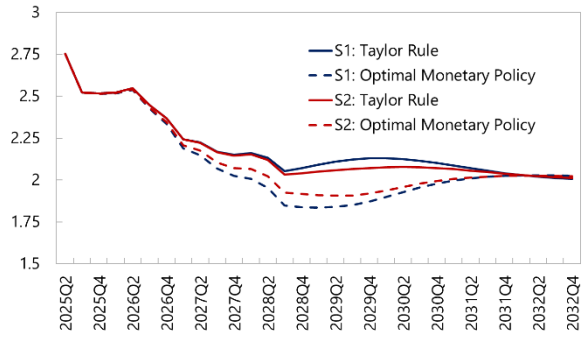
Sources: Haver Analytics and IMF staff calculations.



Sources: IMF staff estimates. Notes: S1: Government Consumption Scenario. S2: Government Investment Scenario.



Sources: IMF staff estimates. Notes: S1: Government Consumption Scenario. S2: Government Investment Scenario.



Sources: IMF staff estimates. Notes: S1: Government Consumption Scenario. S2: Government Investment Scenario.

E. Conclusion

15. Given the strong interlinkages between fiscal and monetary policy, coordinated action can deliver significant benefits. While historically low debt levels have kept fiscal-monetary tensions contained in the Czech Republic, these tensions could arise in the future. Internalizing these linkages can markedly improve policy outcomes. The fiscal easing simulated in this paper would likely trigger a monetary policy tightening, dampening output gains and raising debt servicing costs. Designing fiscal policy with these interactions in mind, by prioritizing investment spending and preserving fiscal space for downturns, would enhance its effectiveness. Synchronizing fiscal and monetary policy can help stabilize the business cycle, achieving lower inflation and output gaps under more moderate interest rates. Finally, a front-loaded monetary policy response to expected persistent fiscal easing enables inflation to return to target more quickly and policy rates to normalize sooner, supporting fiscal sustainability.

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HOUSING AFFORDABILITY IN THE CZECH REPUBLIC: DRIVERS, DYNAMICS, AND POLICY OPTIONS

Worsening housing affordability in the Czech Republic reflects a structural imbalance between supply and demand, where income-driven demand has persistently outpaced construction capacity constrained by slow permitting processes and municipal fragmentation. Using a structural vector autoregression (SVAR) framework, this paper quantifies the contributions of demand, supply, and monetary shocks to movements in Czech house prices. The findings show that while monetary policy can moderate cyclical pressures, achieving sustainable affordability requires structural reforms that address rigidities in the construction sector, scale affordable housing development, and modernize property taxation.

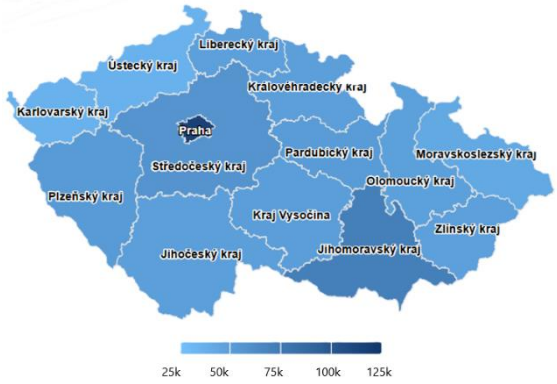
A. Introduction

1. Housing affordability is macro-critical because it directly affects household consumption, savings behavior, and financial stability. When housing costs outpace income growth, the effects propagate across multiple channels: a rising share of household budgets absorbed by housing costs compresses non-housing consumption, particularly for younger and credit-constrained households; rising household debt burdens increase financial vulnerabilities; affordability barriers in high-productivity urban centers impede labor mobility and constrain efficient resource allocation; and exclusion of younger and lower-income households from homeownership entrenches wealth inequality.

2. The Czech Republic has experienced one of the sharpest deteriorations in housing affordability in the European Union. House prices rose at an average annual rate of nearly 9 percent between 2013 and 2021, accelerating sharply during the pandemic-era boom before moderating during the 2022–2023 monetary tightening cycle. The market entered a recovery phase in late 2024, with house prices accelerating to 10 percent year-on-year in 2025Q1 and nominal prices surpassing their 2022 peak by late 2025 (Figure 1).

3. These price increases have led to a marked deterioration in housing affordability since 2015. The price-to-income ratio rose strongly through the late 2010s before surging around 2021–22. While this ratio has eased from its peak, it remains well above pre-pandemic levels, indicating sustained pressure on household budgets. Housing costs absorb approximately one-quarter of disposable income on average and close to half for lower-income households, underscoring severe distributional strain (Figure 1). The affordability crisis is most acute in Prague, which consistently ranks among the least affordable

Average purchase prices of apartments (CZK per m^2)



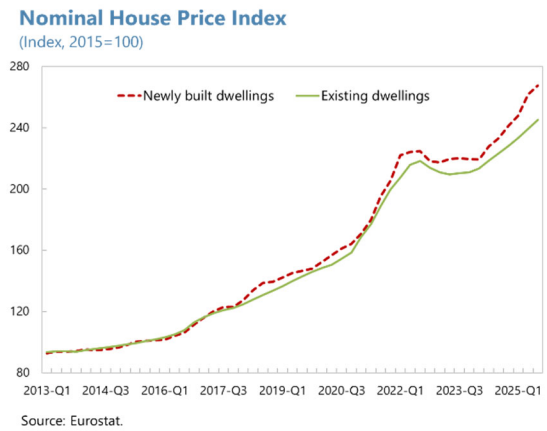
Source: Czech Statistical Office (CZSO).

capitals in Europe, requiring 13-15 years of gross annual income to purchase a standardized 70-square-meter dwelling (Deloitte 2025).

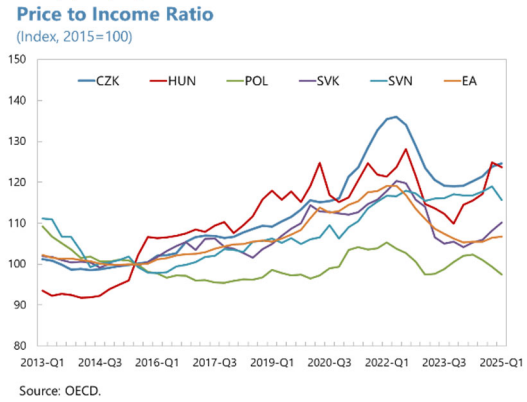
4. Housing market dynamics also have implications for financial stability given the concentration of bank exposures in property-related lending. Housing loans account for close to half of total bank credit to the private non-financial sector, and the share has been rising steadily since 2014 (CNB 2025b). While financial stability risks are currently contained—supported by prudent credit standards, low default rates, and well-capitalized banks—the concentration warrants continued monitoring.

Figure 1. Czech Republic: Measures of Housing Affordability

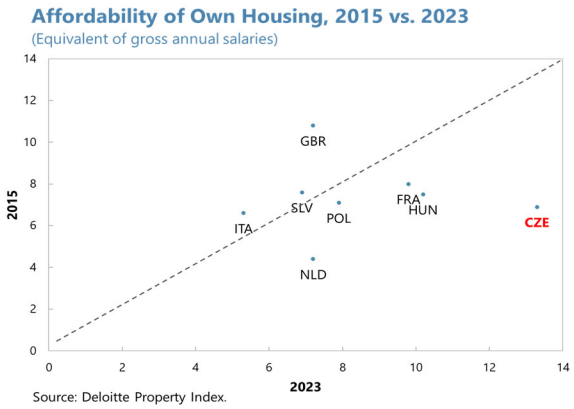
House prices more than doubled over the past decade, with a sharp acceleration during the pandemic boom…



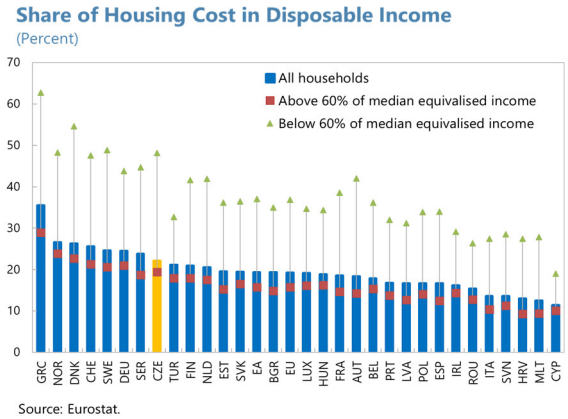
…even with the sustained increases in real income, house price-to-income ratio surged during the 2020-22 boom, before moderating as monetary policy tightened.



Czech Republic experienced one of the sharpest deteriorations in housing affordability, with the number of annual salaries required to purchase a home rising substantially in the last decade…



…with Czech households allocating a higher share of income to housing costs than most EU peers and lower-income households facing particularly acute burdens exceeding 40 percent.



5. This paper analyzes the dynamics underlying the Czech Republic's worsening housing affordability. First, it examines the fundamental drivers of demand, including income growth, credit conditions, and demographic pressures—alongside the structural rigidities constraining supply, particularly lengthy permitting processes and inefficiencies in the construction sector. Second, it

employs a Structural Vector Autoregression (SVAR) model to decompose historical house price movements, quantifying the relative contributions of demand shocks, monetary policy transmission, and supply constraints across different phases of the housing cycle. Finally, it offers a comprehensive policy framework that addresses both cyclical demand pressures and supply-side rigidities.

B. Structural Drivers of Housing Market Dynamics

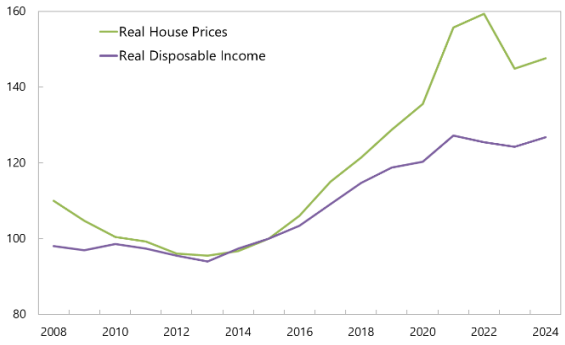
The persistence of high housing prices in the Czech Republic is rooted in a structural mismatch where robust, income-backed demand meets a rigid and underperforming supply side.

Demand-Side Drivers

6. Housing demand strengthened markedly over 2013–21, driven by sustained real income gains and favorable labor market conditions. Šustek and Zapletalová (2023) estimate that rising real household incomes—and expectations of continued growth—accounted for 32 percentage points of the 78 percent increase in nominal house prices during this period (with some temporary slowdown during the monetary tightening of 2022-23). Persistently low unemployment (below 4 percent over the past decade) reinforced income security and borrowing capacity. The COVID-19 pandemic created a temporary but powerful acceleration of housing demand through simultaneous shifts in preferences and financial capacity. Remote work arrangements increased demand for larger living spaces, while pandemic-related consumption restrictions allowed households to accumulate savings for down payments precisely when mortgage rates reached historic lows (Figure 2). With limited alternative investment options, both households and institutional investors increasingly turned toward residential real estate in search of higher yields, further intensifying demand pressures.

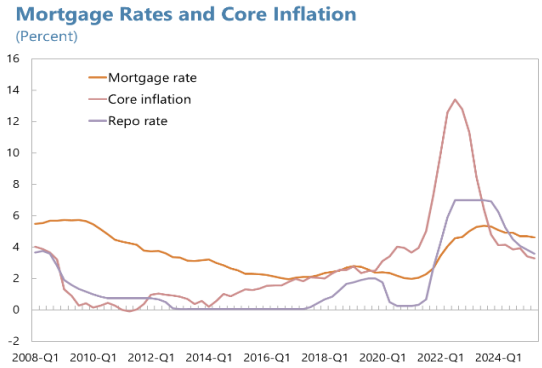
Figure 2. Czech Republic: Income Growth and Credit Conditions

Rising real incomes have fueled the demand for housing over the past decade…



Source: Eurostat.

…and low mortgage rates through 2021, frequently negative in real terms, drove housing demand far beyond supply capacity, fueling the price boom.



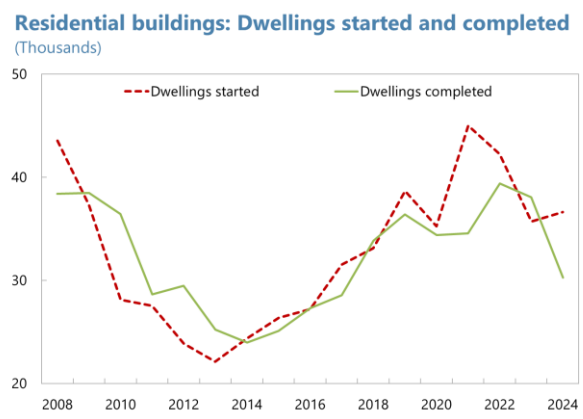
Source: Czech National Bank.

7. Demographic pressures further intensified housing demand. Net migration has remained positive for over a decade, and the arrival of close to 400,000 Ukrainian refugees under temporary protection after 2022—the highest per-capita share in the EU at 36 per 1,000 people as of November 2025 (Eurostat 2025)—placed additional pressure on an already constrained housing market.

Concurrently, internal migration toward Prague and other urban centers, combined with rising single-person household formation, increased demand for rental units where supply constraints were most binding. The post-pandemic recovery in tourism has further tightened the rental market, as property owners convert long-term rental units into short-term vacation accommodations.

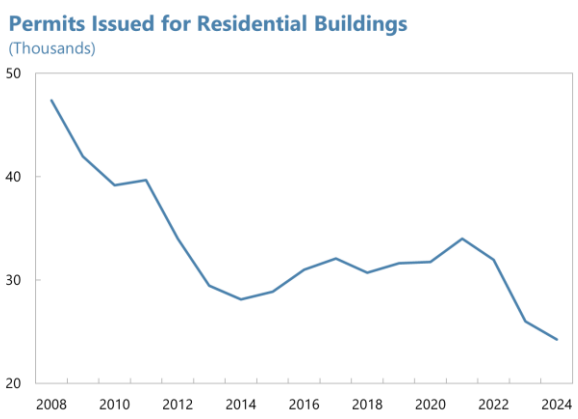
Figure 3. Czech Republic: Construction and Housing Supply

Residential construction recovered after 2014 but remains below levels needed to meet demand, widening the supply gap....



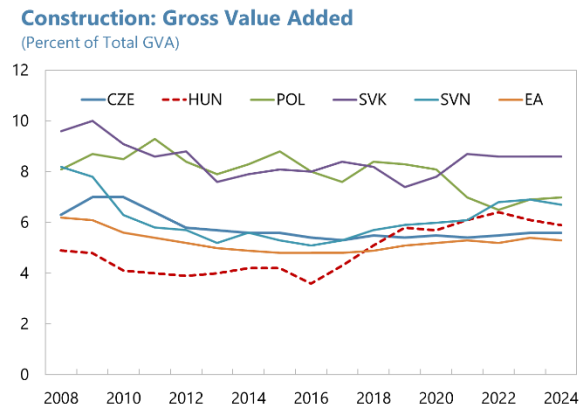
Sources: Czech Statistical Office.

...with the protracted delays in issuing permits adding to the delays in increasing the housing stock.



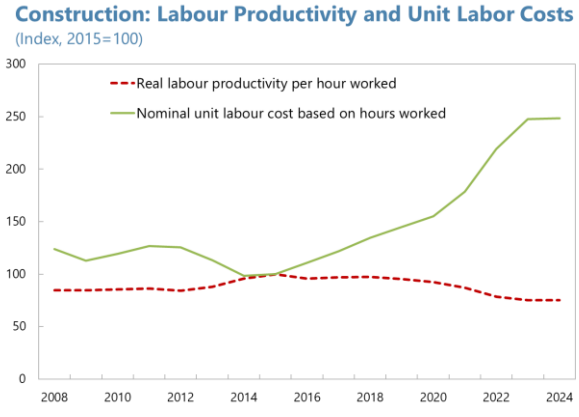
Sources: Czech Statistical Office.

GVA in the construction sector has stagnated at 5 percent of total GVA since 2008...



Source: Eurostat.

...while productivity has declined and costs have increased.



Source: Eurostat.

Supply-Side Rigidities

8. Housing supply has failed to keep pace with the intensifying demand pressures. The construction sector contracted sharply after the global financial crisis (GFC), with new residential construction declining steeply between 2008 and 2013. Despite recovering after 2014, construction activity remains below pre-crisis levels, constraining the sector's ability to address accumulated supply shortfalls (Figure 3). Moreover, supply has shown limited responsiveness to market signals, with new development not concentrated in areas where prices are highest and shortages most severe (OECD 2021). This spatial mismatch is particularly costly for fast-growing mid-sized cities, where

inadequate housing supply holds back the concentration of economic activity needed to drive productivity gains (Ayerst and others, 2025).

9. The construction sector's stagnation reflects both structural inefficiencies and regulatory constraints that impede housing supply responses to rising demand. The sector's share of gross value added has stagnated around 5 percent for the past decade. Labor productivity remains below pre-crisis levels despite unit labor costs nearly doubling since 2015, compressing profit margins and discouraging new investment (Figure 3). These cost pressures are compounded by protracted permitting delays, which can extend standard residential project timelines from months to several years, raising holding costs and constraining supply.

10. Beyond construction sector constraints, the provision of social and affordable housing remains severely underdeveloped. Rental housing accommodated close to 22 percent of Czech households in 2021, but the supply of affordable options remains limited—subsidized social rental units constituted less than 4 percent of the dwelling stock (OECD 2025). The Czech Housing Strategy (Koncepce 2021+) outlines a comprehensive framework to address structural affordability and quality gaps through expanded social, affordable, and municipal housing (Földi 2025). However, implementation is hindered by significant administrative fragmentation at the local level. The 6,258 municipalities—with an average of about 1,700 inhabitants per municipality, the smallest in the OECD— create a fragmented municipal structure that limits economies of scale and undermines coordinated policy implementation.

C. Decomposition of House Price Movements

11. A structural vector autoregression (SVAR) is estimated to disentangle these drivers and decompose Czech house price movements into supply, demand, and monetary policy shocks using a sign-restricted identification strategy. The model employs quarterly data from 2005 to 2025 across four key variables: real house prices, construction activity (proxied by the first principal component of real residential investment and dwellings completed), real disposable income, and real mortgage rates (Box 1).

12. The decomposition confirms the dominance of demand shocks during the pre-pandemic boom, magnified by inelastic supply, and the central role of monetary policy in driving the subsequent correction:

- **2010–2015 (Post-GFC Adjustment):** The collapse in household purchasing power and reduced credit availability drove house prices down, more than offsetting the modest upward pressure from lower construction activity. The prolonged demand weakness, persisting even after the broader economic recovery began in 2013, illustrates the persistent "scarring effects" common in housing markets following major financial disruptions.

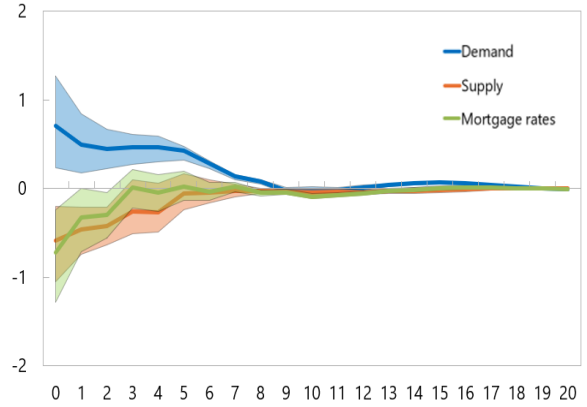
- **2015–2020 (Gradual Recovery):** Positive demand shocks drove steady price growth, supported by rising real incomes, improving labor market conditions, and mortgage rates falling below 3 percent by 2014. Supply-side contributions indicate that construction activity recovered during

this period but not sufficiently to offset mounting demand pressures, underscoring the structural constraints that would later prevent a meaningful adjustment during the pandemic boom.

- **2020–2022 (Pandemic Boom):** Supply constraints were the dominant driver of price growth during this period, as construction activity stalled amid labor shortages, supply-chain disruptions, and persistent permitting delays. Accommodative monetary policy (reflected in the CNB maintaining near-zero rates through 2021) further amplified the pressures. Pandemic-induced shifts in housing preferences for larger spaces and accumulated household savings provided additional positive demand contributions.

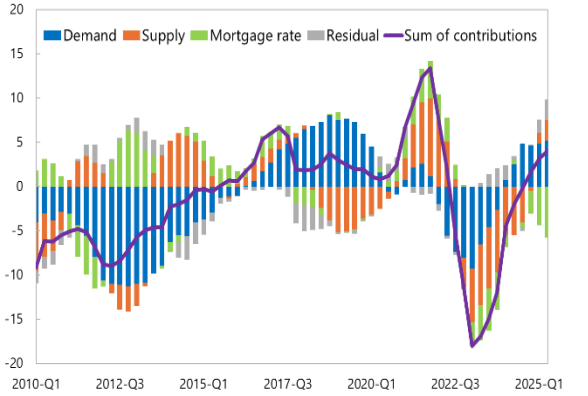
Figure 4. Czech Republic: Drivers of House Price Growth

Demand shocks produce large, persistent price responses (lasting 3-4 quarters), while supply shocks generate smaller, shorter-lived effects.



Sources: IMF Staff Calculations.

The 2020-2022 expansion reflected demand shocks amplified by accommodative financing, while the 2022-2023 correction was driven by monetary tightening and recovering construction activity.



Sources: IMF Staff Calculations.

- **2022–2023 (Monetary Correction):** A stabilization in house prices occurred during this period, driven almost entirely by monetary policy tightening. The CNB's aggressive rate hikes—raising the policy rate from 0.25 to 7 percent—transmitted quickly to mortgage rates, dampening borrowing capacity and housing demand. The decomposition confirms that the resulting correction in prices was predominantly policy-induced rather than reflecting any fundamental easing in supply-side constraints.

- **2024–2025 (Demand-Led Recovery):** Price growth resumed as demand turned positive again, driven by recovering household confidence and gradually easing financing conditions following the CNB's shift toward a rate-cutting cycle. Supply contributions remain minimal throughout this period, reinforcing the conclusion that structural constraints in housing construction continue to persist.

13. This analysis points to clear policy priorities for achieving sustainable improvements in housing affordability. First, monetary policy transmission to house prices is effective but its influence is primarily cyclical and cannot address structural rigidities in housing supply. Second,

supply shocks contributed minimally throughout the sample period, confirming that Czech housing supply remains structurally unresponsive to price signals due to permitting bottlenecks, construction sector inefficiencies, and municipal coordination failures. Third, as demand is already driving the current recovery while supply remains constrained, lasting affordability gains require addressing supply-side rigidities rather than demand support.

Box 1. Methodological Framework for House Price Decomposition

Sign restrictions identify structural shocks by constraining the direction of key impulse responses: a positive housing supply shock lowers real house prices and raises construction activity; a positive housing demand shock raises prices, construction, income, and mortgage rates; and a monetary tightening shock—captured by an increase in real mortgage rates—lowers prices, construction, and income. A Monte Carlo simulation recovers all structural shocks satisfying these restrictions, and the historical decomposition quantifies each shock's contribution to observed house price movements.

The reduced form VAR with four lags is specified as:

$$Y_t = A_0 + A_1 Y_{t-1} + A_2 Y_{t-2} + A_3 Y_{t-3} + A_4 Y_{t-4} + u_t$$

where $Y_t = [p_t, q_t, y_t, r_t]'$ contains real house prices (p_t), construction activity (q_t), real disposable income (y_t), and real mortgage rates (r_t). The reduced-form residuals $u_t$are related to the vector of structural shocks $\varepsilon_t = [\varepsilon_t^{supply}, \varepsilon_t^{demand}, \varepsilon_t^{mortgage}, \varepsilon_t^{residual}]'$through:

$$u_t = B\varepsilon_t$$

where B is the 4x4 impact matrix satisfying $E[\varepsilon_t \varepsilon_t'] = I$ (orthonormalized shocks) and $E[u_t u_t'] = BB' = \Sigma_u$(reduced-form covariance matrix). The system identifies three shocks (supply, demand, mortgage rate) plus a fourth shock capturing residual variation that is not uniquely attributable to these mechanisms. Following Towbin and Weber (2015), structural shocks are identified through contemporaneous sign restrictions on impulse responses:

	House Prices	Construction	Disposable Income	Mortgage Rate
Demand shock	+	+	+	+
Supply shock	-	+	..	..
Mortgage rate shock	-	-	-	+

Note: The table shows the sign restrictions of a positive demand shock (an increase in the demand for housing), a positive supply shock (an increase in supply of housing), and a positive mortgage rate shock (an increase in mortgage rates).

+ Positive response; - Negative response; .. Unrestricted

D. Policy Options

14. Addressing the Czech Republic's worsening housing affordability will require a comprehensive strategy combining demand-side moderation with ambitious supply-side reforms. Targeted measures can help curb excessive demand and speculative activity without resorting to broad-based monetary tightening. However, these demand-side tools would need to be complemented by far-reaching supply-side interventions—such as streamlining and digitalizing the

permitting processes, expanding affordable rental housing, reforming fiscal transfers to municipalities, and modernizing property taxation—to tackle the structural shortage of homes.

Macroprudential Measures

15. Careful calibration of macroprudential tools to target speculation without locking out first-time buyers is important. The introduction of recommended lower limits on LTV (70 percent) and DTI (7) for investment mortgages—defined as loans for third or subsequent residential properties or buy-to-let properties— effective April 2026, aims to preventively mitigate emerging risks while maintaining the more accommodative binding limits for owner-occupied loans (80 percent LTV, or 90 percent for borrowers under 36). While the 70 percent LTV limit is broadly in line with—or tighter than—those applied in other EU countries that differentiate by loan purpose, such as Greece, Lithuania and Slovenia (Durante and others, 2025); however, the Czech definition of investment lending is notably broader, as most of these jurisdictions apply tighter limits from the second and subsequent property. As mortgage credit growth accelerates, close monitoring of compliance with these recommended limits would help ensure their effectiveness, including by considering tightening the definition to cover second or subsequent residential properties. Regionally differentiated limits for high-demand metropolitan areas (particularly Prague and Brno) could further help address localized overheating pressures without unduly constraining credit availability in regions facing lower affordability strain.

Supply-Side Reforms

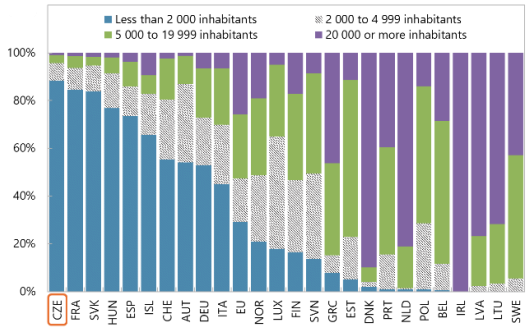
16. Permitting reform under the 2024 Building Act marks a critical step toward alleviating supply constraints by consolidating previously separate zoning and construction approval processes into a unified 'one-stop' system. The December 2025 amendments (pending Parliamentary approval) which centralize permitting under state authority and fast-track large housing projects, should help address chronic permit processing delays. Fully realizing the Act's potential would require resolving the remaining technical implementation challenges especially around digitalization and enforcing processing timelines to ensure predictable and transparent outcomes.

17. Complementing these regulatory reforms, new financing instruments are expanding the resources to scale affordable housing development. The State Investment Support Fund launched its program in April 2024, allocating CZK 7 billion through 2026 for grants and low-interest loans, followed in April 2025 by the National Development Bank's program, which provides CZK 2.25 billion to support large-scale projects that leverage private capital (Földi 2025, OECD 2025). The European Investment Bank Group's decision to double its EU-wide housing commitment to EUR 6 billion for 2026 further broadens financing opportunities for Czech municipalities and housing providers (EIB 2025). Translating these resources into tangible housing outcomes will require strengthening municipal, administrative, and technical capacity to develop and implement projects effectively. Furthermore, strengthening transport infrastructure to improve connectivity between regions facing affordability pressures and neighboring municipalities can also help to expand effective housing supply.

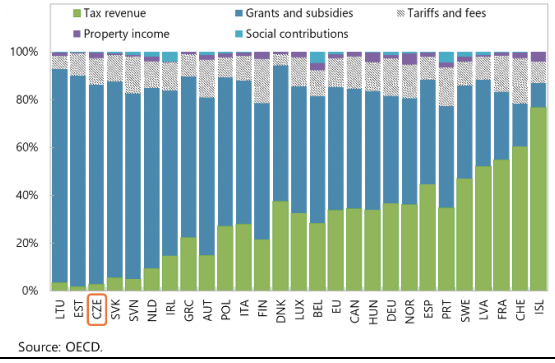
18. Even with adequate financing and improved technical capacity, misaligned fiscal incentives can weaken municipal responsiveness to housing needs. Under the current revenue allocation framework, where population size is the primary determinant of transfer receipts, municipalities compete for residents in ways that can encourage sprawling housing developments and inefficient land use (OECD 2021). This population-based formula leaves smaller municipalities with limited resources for housing development. Restructuring intergovernmental transfers to reward investment in housing construction and improvements in public service provision could incentivize more efficient residential development, while reducing the competitive pressures that impede intermunicipal cooperation. Such reforms would be especially important given that severe administrative fragmentation leaves many small municipalities lacking the technical capacity to address housing challenges independently (Figure 5).

Figure 5. Czech Republic: Municipalities in the Czech Republic

The Czech Republic has 6,258 municipalities, most of them small in size…



…which rely heavily on transfers from the central government and have limited autonomous revenue generation.



Property Tax Reform

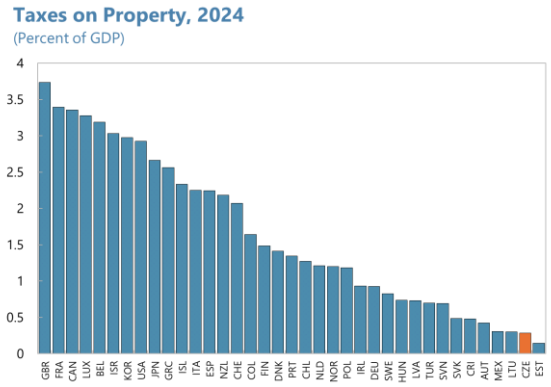
19. Transitioning to a value-based property tax system will help dampen speculative demand, mobilize underutilized housing stock, and generate revenue for affordable housing investment. The current area-based system fails to penalize land hoarding, undertaxes high-value properties, and produces regressive outcomes, generating just 0.3 percent of GDP in revenue, among the lowest in the EU. The recent reform (effective January 2024), which increased base rates by about 80 percent and introduced inflation indexation, represents progress toward more sustainable revenue generation. However, indexation alone is insufficient in an environment where house price growth persistently exceeds economy-wide inflation. A value-based system would fundamentally address these structural weaknesses by linking liabilities to actual property values, raising the holding costs of vacant properties and land banks, and incentivizing owners to bring idle assets to market or pursue development. Higher-yielding, value-based property taxation would give Czech municipalities a more autonomous revenue source that could be dedicated to affordable housing development (Figure 5).

20. Complementary tax reforms could further strengthen incentives to bring underutilized housing onto the market. With 16 percent of Czech dwellings vacant as of 2021 (Census 2021),

targeted taxation in high-demand urban areas could encourage owners to sell or lease properties rather than keep them idle. The abolition of the 4 percent tax on real estate transactions in 2020 almost halved housing-related tax revenue (Figure 6). While the measure was introduced to support home ownership and aid the construction sector during the pandemic, reinstating it as market conditions normalize merits consideration. More broadly, tax policy reforms should eliminate distortions favoring ownership over rental tenure. Possible measures include limiting capital gains exemptions on primary residences, removing exemptions for secondary homes, and continuing to gradually phase out mortgage interest relief (OECD 2025). Such reforms would align tax incentives more closely with efficient land use, reduce speculative holding, and support the expansion of professionally managed rental housing.

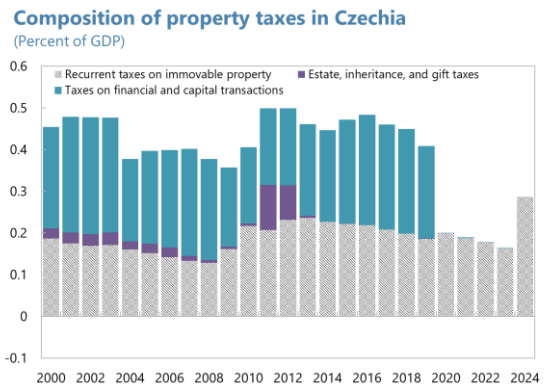
Figure 6. Czech Republic: Property Taxation in the Czech Republic

Czech property tax revenues are the lowest in the OECD with the exception of Estonia…



Sources: OECD Revenue Statistics.

…the sharp decline in 2020 resulted from the abolition of the real estate transfer tax, while the uptick in 2024 reflects the increased base rates.



Sources: OECD Revenue Statistics.

E. Conclusion

21. Alleviating housing affordability pressures points to a need for a coordinated reform strategy that delivers benefits across multiple time horizons, with near-term actions laying the groundwork for deeper structural changes. The empirical analysis confirms that while monetary policy can moderate demand-driven price cycles, lasting improvements in affordability depend on addressing structural supply-side rigidities. Persistent constraints—compounded by demographic pressures from net migration, shrinking household sizes, and ongoing urbanization—mean that without sustained policy action, affordability strains will remain acute. Achieving meaningful and durable progress will require a sequenced approach: short-term measures (operationalizing the 2024 Building Act and implementing differentiated macroprudential limits), medium-term institutional reforms (expanding affordable housing and restructuring municipal fiscal incentives), and long-term structural changes (transitioning to a value-based property tax system). Critically, these reforms reinforce each other: permitting reform unlocks supply capacity, value-based property taxes mobilize vacant housing and discourage speculative holding, while fiscal restructuring aligns municipal incentives with housing development. Beyond domestic affordability, these supply-side reforms matter for broader economic performance. Analysis suggests that domestic structural reforms in

CESEE economies could raise productivity by over 6 percent, but without adequate housing in the cities and regions where economic activity is concentrating, the Czech Republic risks losing skilled workers to countries that address these constraints more effectively (Ayerst and others, 2025).

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