Challenges for the Czech National Bank in the post-crisis era

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Presentation outline

1. The Czech National Bank before and during the crisis

2. Current risks perceived by the Czech National Bank

3. Future matters for the Czech National Bank

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Pre-crisis developments

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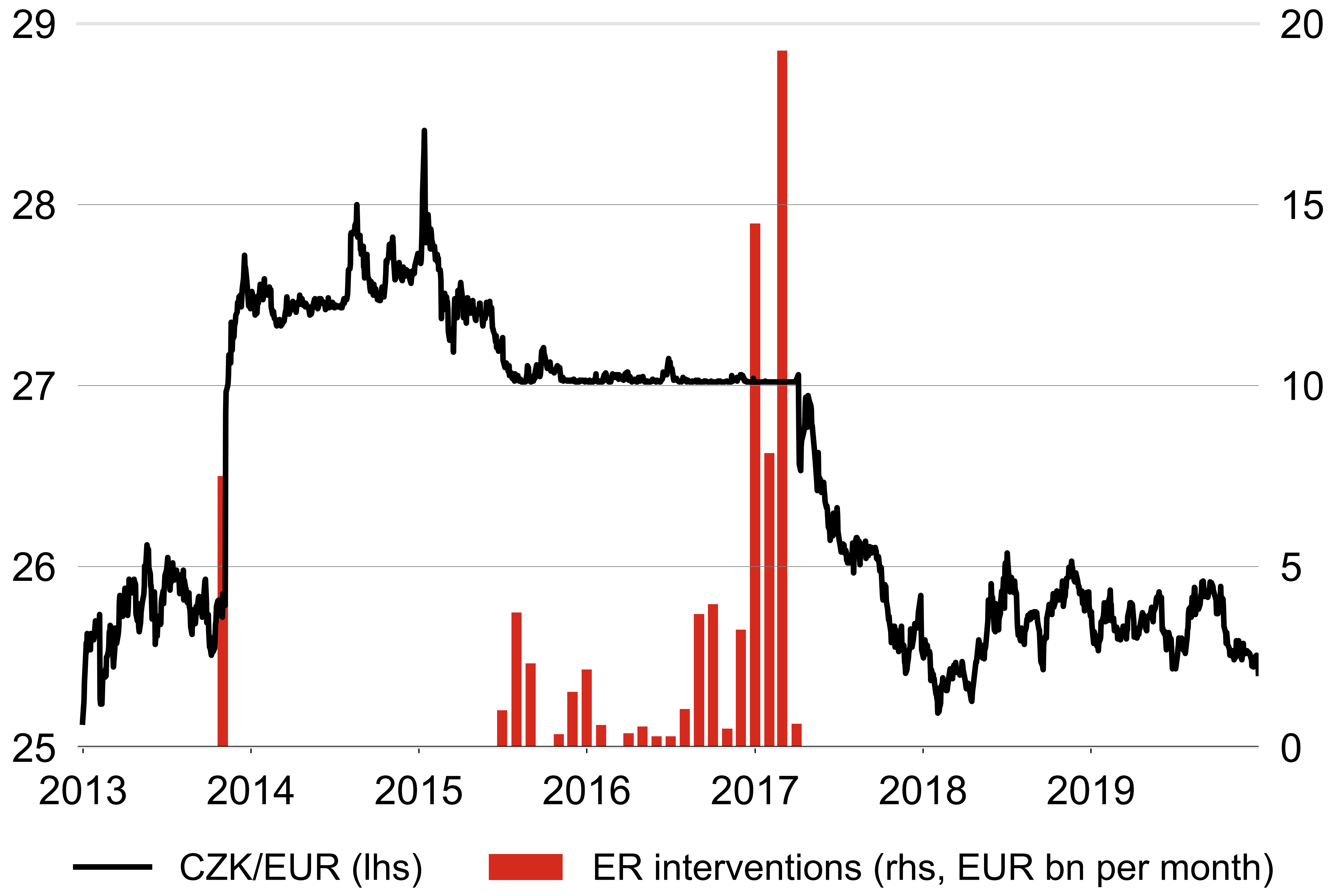
- After the global financial crisis, the Czech economy was plagued by low growth and low inflation, as the effects of the 2012–2013 recession faded very slowly.
- The analyses of the Czech National Bank (CNB) indicated a risk of deflation in 2014 unless the CNB took further action.
- On 7 November 2013, with interest rates at the zero lower bound, the CNB resorted to exchange rate interventions, committing to maintain the koruna-euro exchange rate at or weaker than CZK 27 to the euro.
- The CNB abandoned the exchange rate commitment in April 2017 as inflation increased to close to the CNB's 2% target.
- After the exchange rate commitment was abandoned, interest rates began to rise to standard levels, with the main policy rate reaching 2.25% in February 2020.

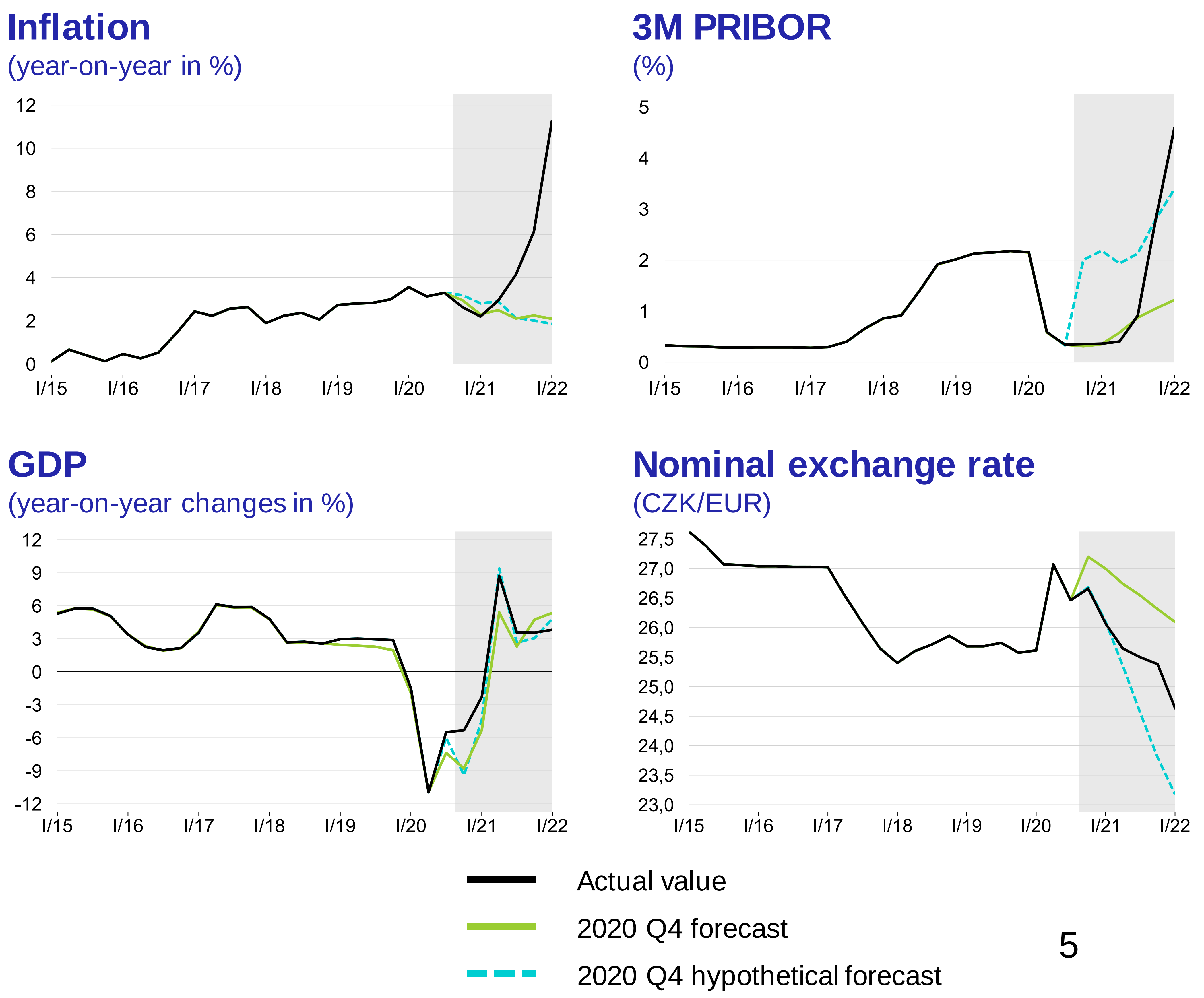
CNB exchange rate interventions



Developments during the Covid-19 crisis

- The first wave of Covid-19 in spring 2020 led to expectations of future depressed aggregate demand, accompanied by firms running low on funds and trying to cut costs, specifically through wages.
- Although inflationary factors were also identified (a weakening of the domestic currency, a deglobalisation trend and increasing market concentration), the overall outlook was classified as strongly anti-inflationary and interest rates were cut to near zero.
- Later on, CNB analyses reassessed the Covid-19 shock as a supply-side shock with inflationary consequences for the economy, more so when accompanied by fiscal stimulus.
- In hindsight, and with knowledge of the inflation pressures, the monetary policy stance during the second half of 2020 and the first half of 2021 appears to have been too loose.
- The appropriate response would have been a timely and rapid monetary policy tightening starting as early as autumn 2020.

Comparison of 2020 Q4 forecast with hypothetical forecast incorporating knowledge of subsequent developments (Spring 2022 MPR)



The high-inflation period

- The CNB was one of the first central banks to react to the mounting inflation pressures stemming from disrupted global value chains and excessive fiscal stimuli during the pandemic.
- The CNB delivered the first rate hike in June 2021 and continued to raise its main interest rate until June 2022, when it reached 7%.
- After the beginning of Russia’s aggression in Ukraine, the CNB used exchange rate interventions to stabilise the exchange rate and prevent it from loosening the monetary conditions.
- The interventions lasted until October 2022, but the CNB Board remained committed to preventing excessive exchange rate volatility until August 2023.
- The use of the exchange rate was also supported by an increased share of euro-denominated loans taken out by Czech corporations, raising concerns about the effectiveness of raising interest rates further.
- In December 2023, the CNB started to cut its interest rates and inflation dropped to close to the 2% inflation target at the beginning of 2024.

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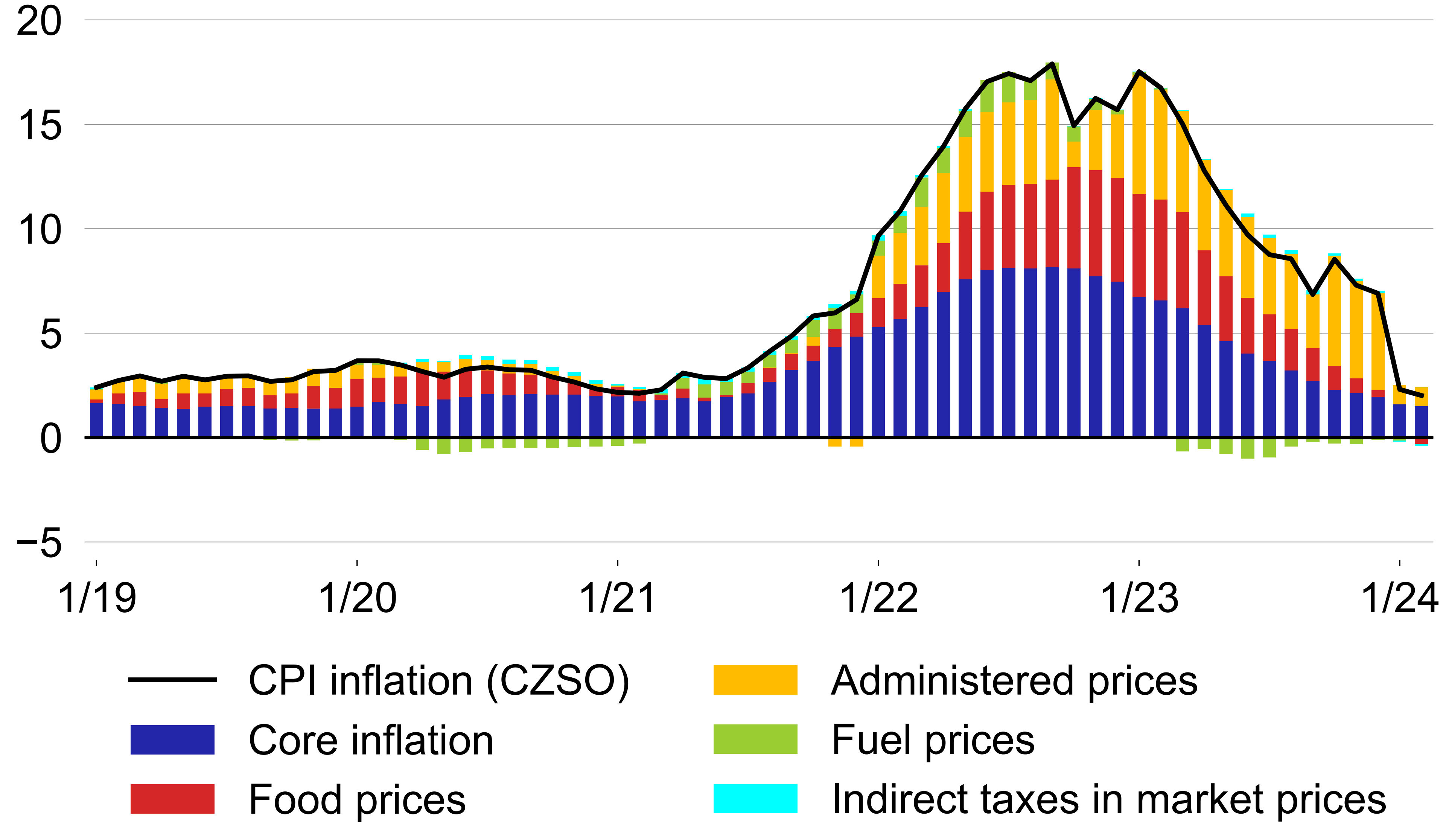
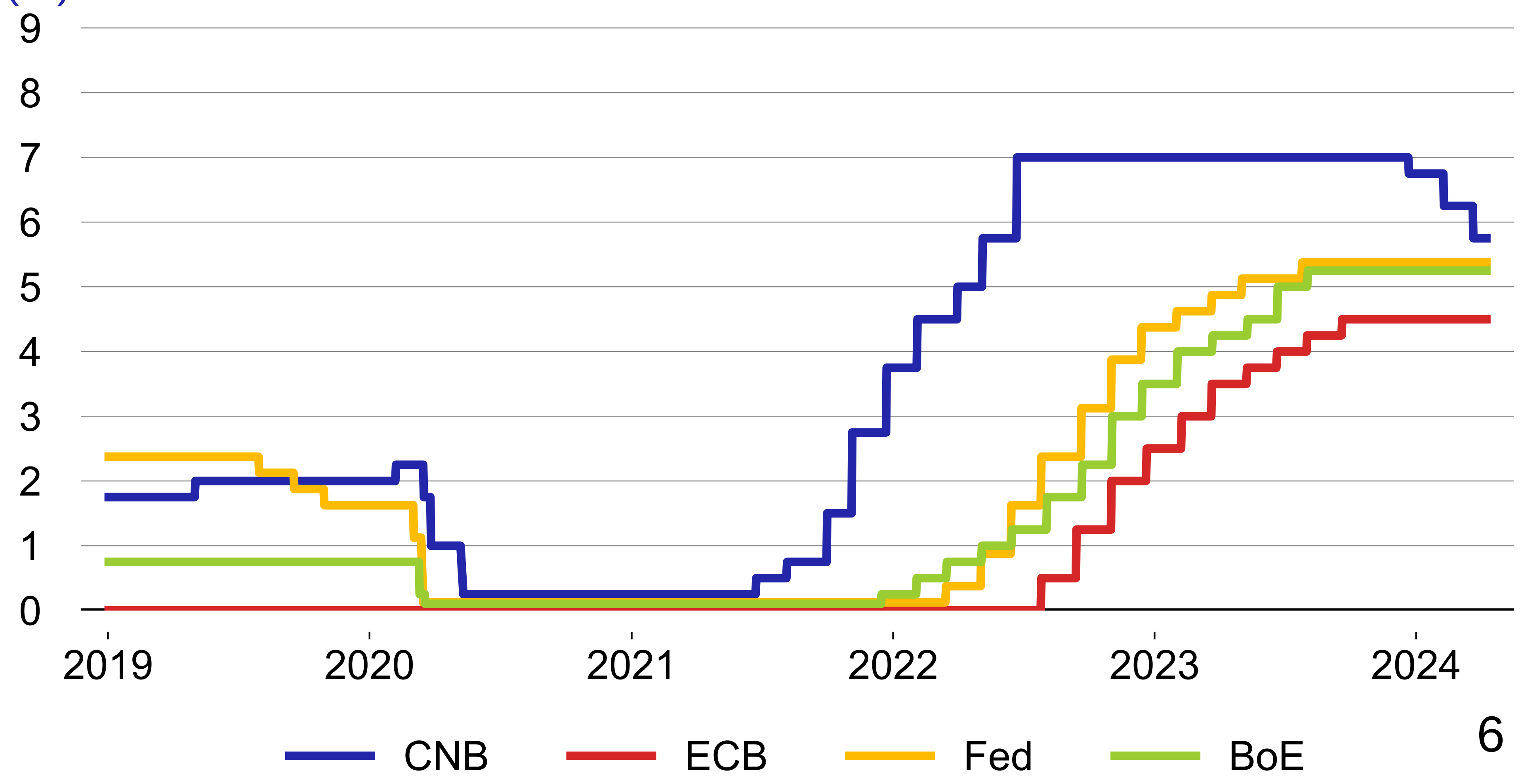
Headline inflation

(y-o-y changes in %, sources in pp)



Comparison of main policy interest rates of CNB, ECB, Fed and BoE

(%)



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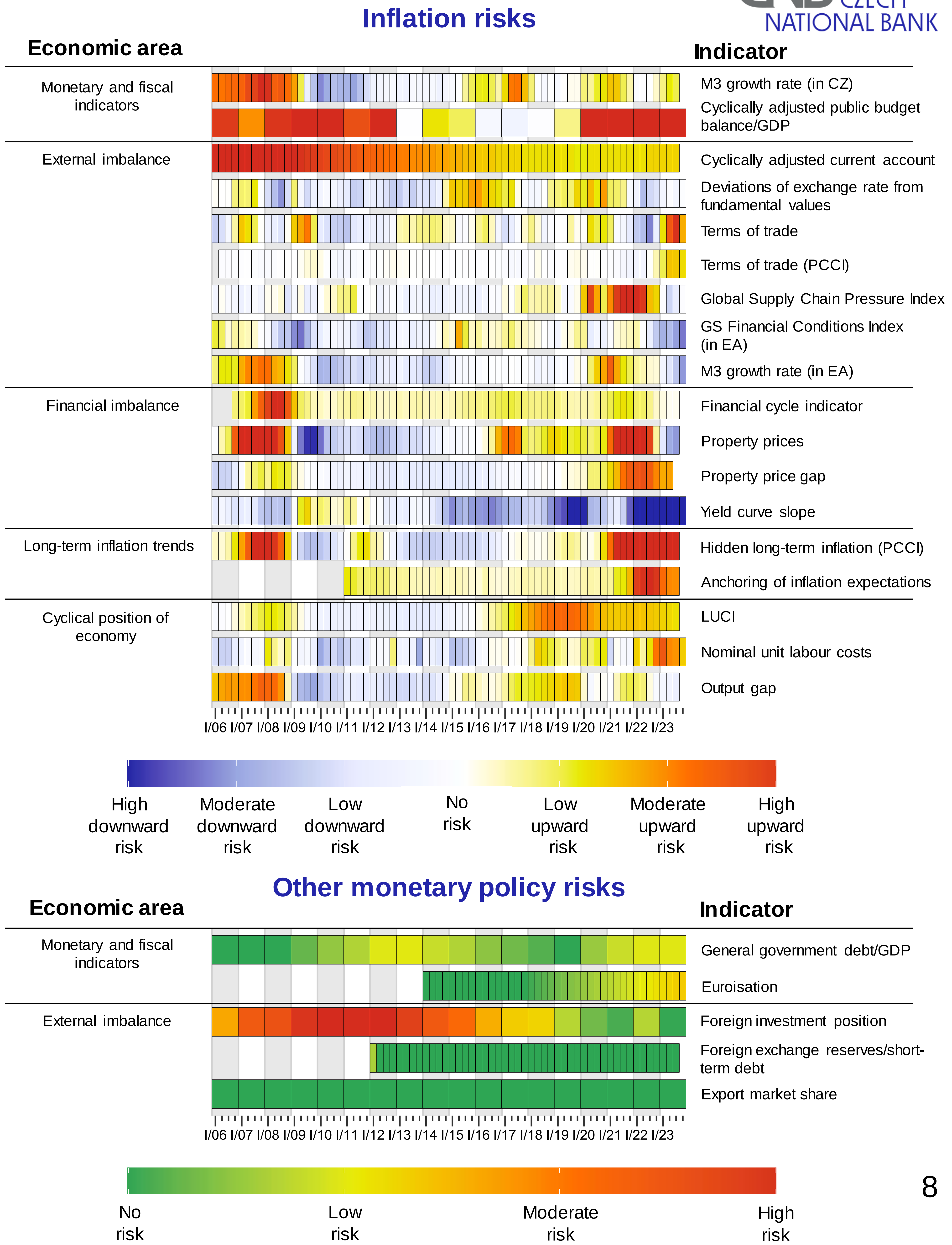
Inflation Risks Scoreboard

- The recent inflation episode has shown that beyond the scope of standard cyclical analyses, there are long-term underlying factors that are difficult to quantify. These factors may not have an immediate effect on inflation, but may have a strong effect if they accumulate in the long term and/or coincide.
- Therefore, CNB analysts have developed an Inflation Risks Scoreboard as a tool for quantifying and visualising underlying inflation risks.
- The Scoreboard reflects the development of key economic indicators with respect to their critical values. The indicators can be grouped as follows:
    - risks arising from monetary and fiscal indicators
    - risks arising from external imbalances
    - risks arising from financial imbalances
    - risks arising from long-term inflation trends
    - risks from the cyclical position of the economy

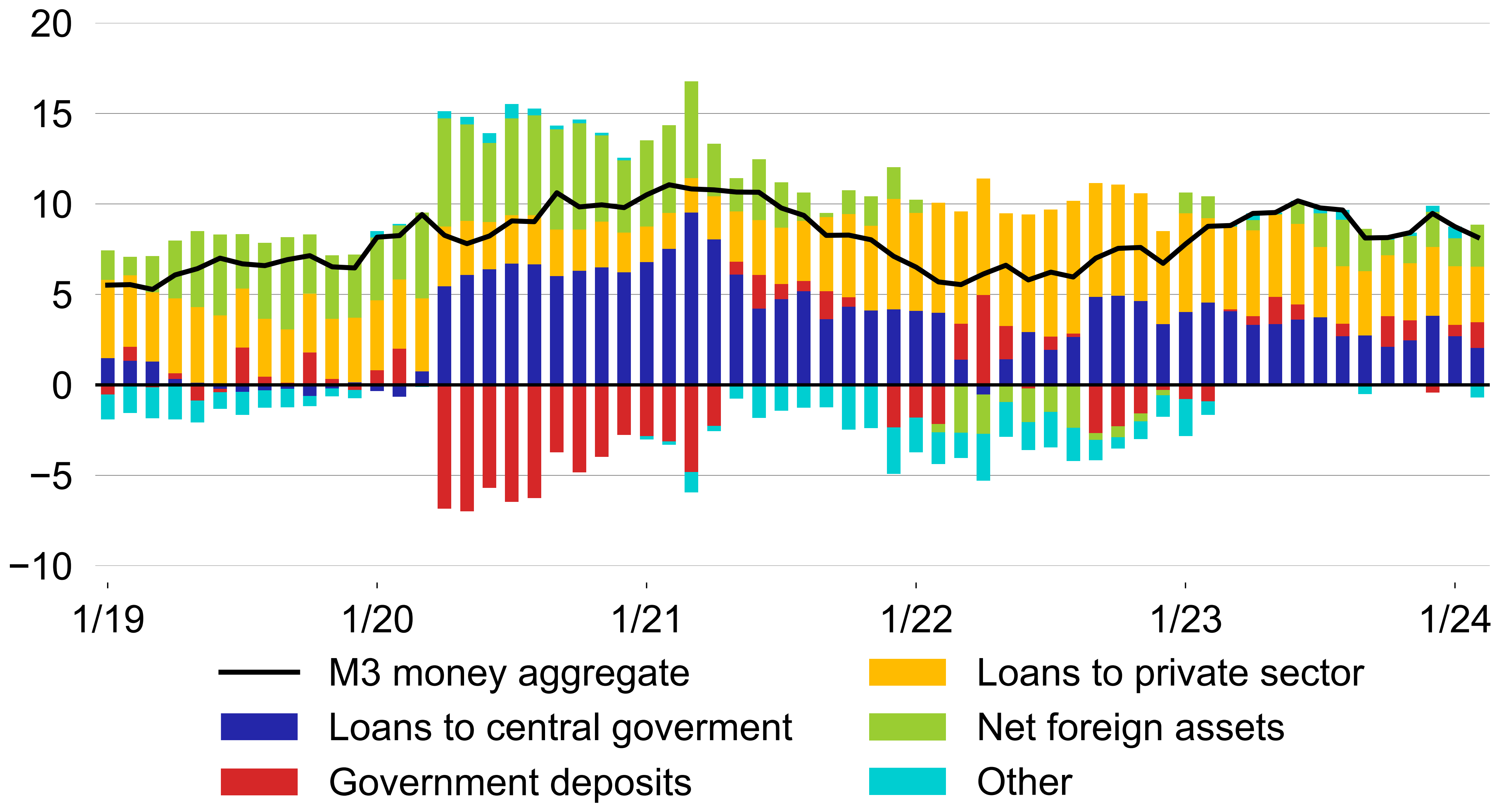


Monetary and fiscal risks

- The relationship between the money supply and inflation has been overlooked in recent decades. However, recent developments have shown that money aggregates may signal inflation pressures, especially when money creation stemming from government debt does not match the supply potential of the economy.
- The attention given to the **annual M3 growth rate** in the CNB's deliberations reflects (post-)pandemic events. Borio et al. (2023) showed that forecasts of inflation for 2021 and 2022 were more significantly underestimated in countries that had excess M3 growth between 2019 and 2020.
- **The cyclically adjusted general government balance**, which contributes to M3 growth (3.5 pp in February 2024), represents an inflationary risk.
- The Czech government has been running large budget deficits since 2020. Since then, bank loans to public institutions have become a significant source of money supply growth.

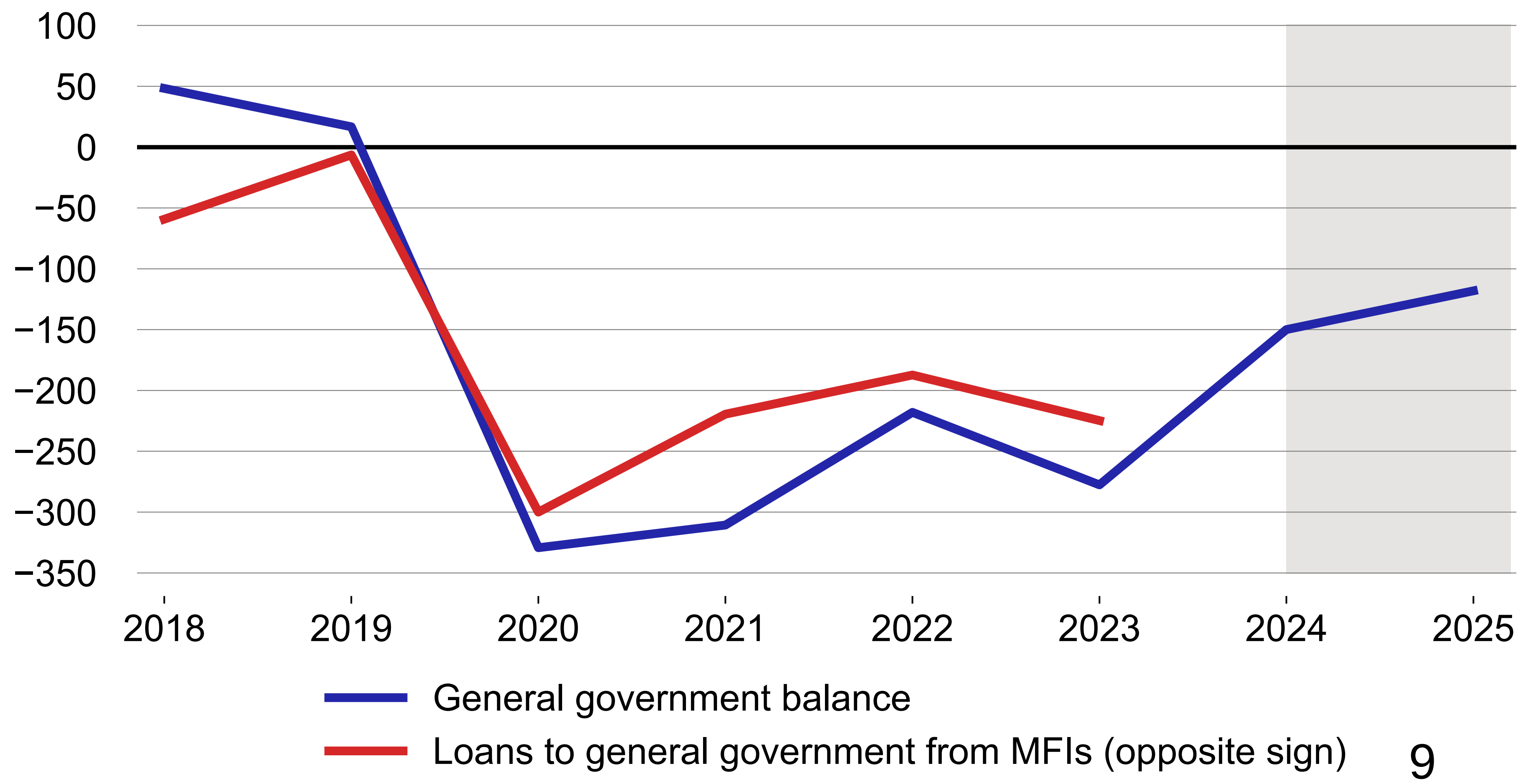
M3 growth

(annual growth rate in %, sources in pp)



General government balance

(CZK billions)

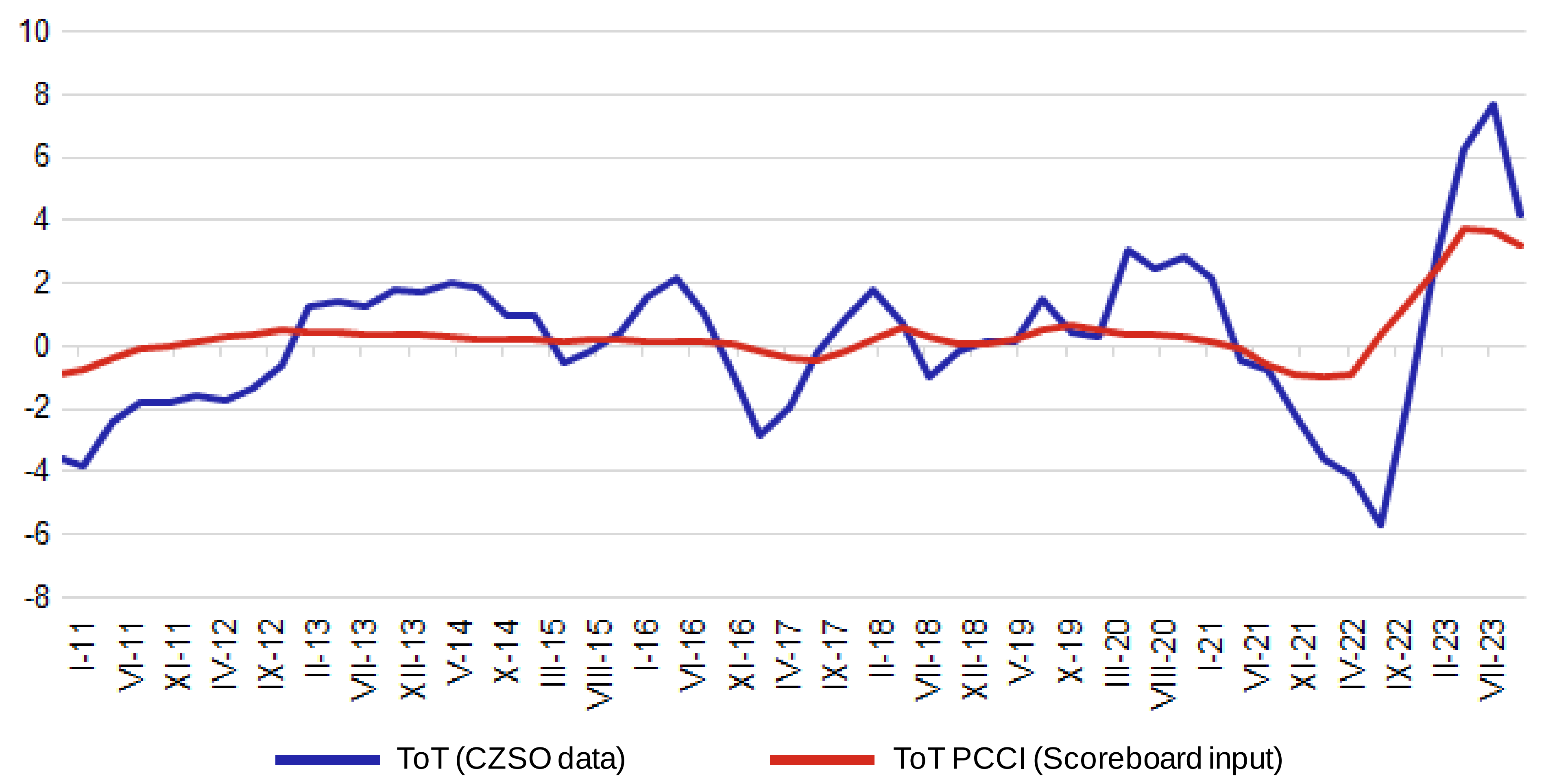


External imbalances

- The Czech economy is open to external shocks and a large part of its inflation pressures stem from the external environment. The Scoreboard therefore monitors the long-term risks of external economic imbalance, which are not part of the baseline scenario of the forecast.
- In the first half of 2022, the **terms-of-trade** changes turned significantly negative due to the effects of the Russo-Ukrainian war, specifically through higher prices of oil and natural gas, which increased domestic producers' costs, turned the current account balance significantly negative and put depreciation pressure on the koruna.
- **The Global Supply Chain Pressure Index** measures disruptions to GVCs using a number of metrics (BDI, Harpex index, PMI, etc.).
- The recent inflation episode has shown that GVC disruptions have a significant impact on the domestic inflation, as the bottlenecked supply could not keep up with the stimulated demand.

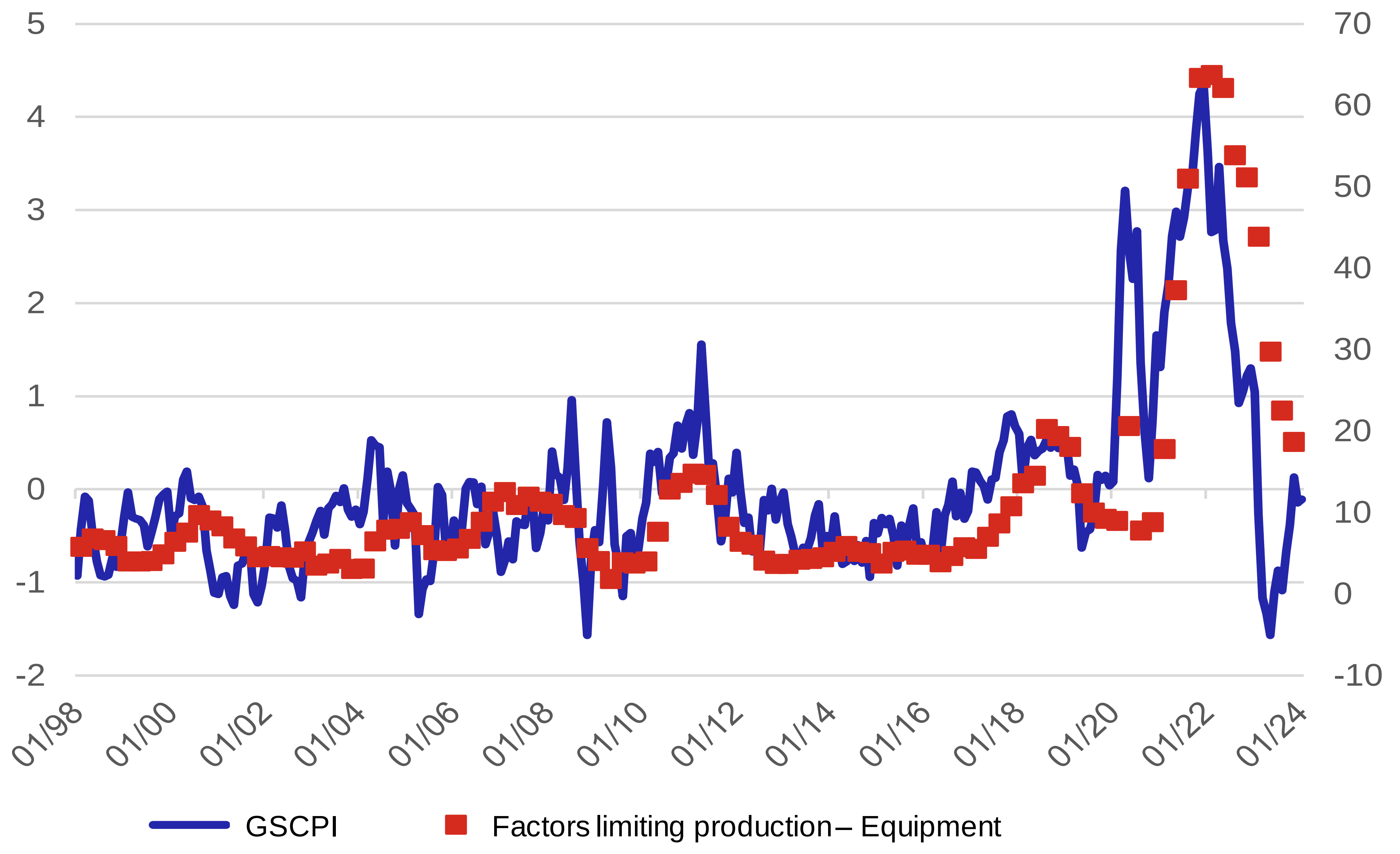
Terms of trade

(y-o-y changes in %, source: CZSO, CNB calculations)



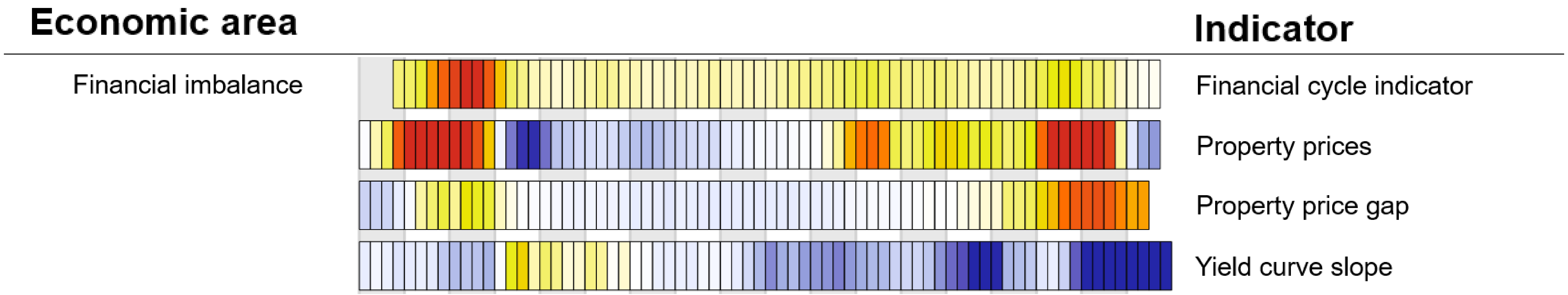
Global Supply Chain Pressure Index

(left-hand scale: index, right-hand scale: percentage of answers in Business Cycle Survey)



Financial imbalances

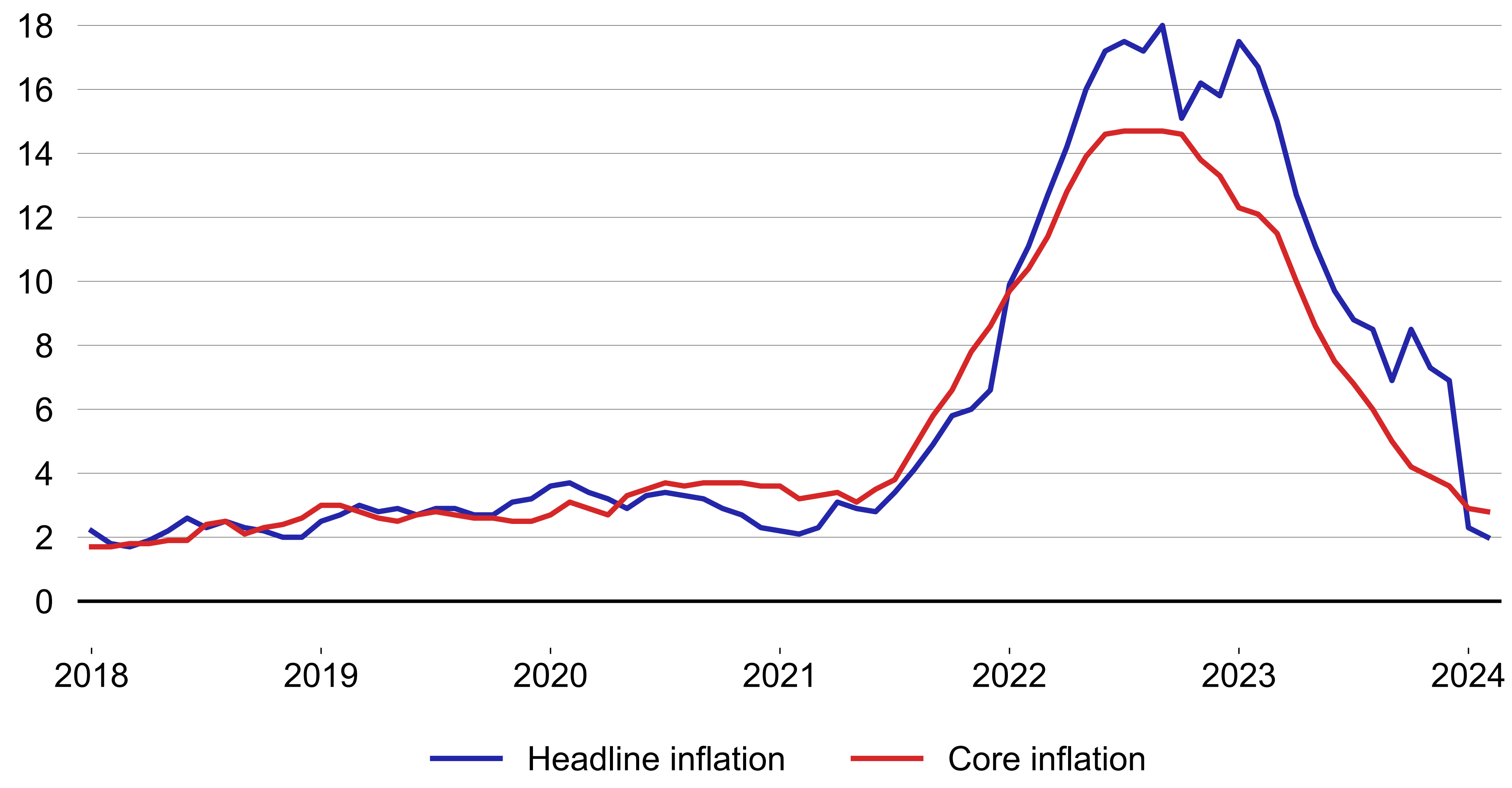
- Financial turmoil can have long-lasting disinflationary effects in the form of deleveraging. Inflation risks also stem from property prices, which have a direct impact on inflation but also affect other parts of the consumer basket.
- **The financial cycle indicator** has the potential to predict the volume of credit losses six quarters ahead. The expansionary phase of the financial cycle is characterised by high credit growth followed by a decline in creditors' ability to repay and a subsequent limited ability of banks to lend to the financially sound part of the real economy.
- **Property prices and price gap** changes can affect consumer demand and inflation through the collateral channel (Iacovello and Neri, 2010). Housing price changes also directly affect inflation in the form of imputed rent and influence other items in the consumer basket.
- Property prices are included in the consumer price index as imputed rent. Since property is the most attractive asset in the Czech economy for ordinary consumers, future expectations of monetary policy easing may boost activity on the property market and create additional inflationary pressures. The volume of new mortgages rose by 90% in February.



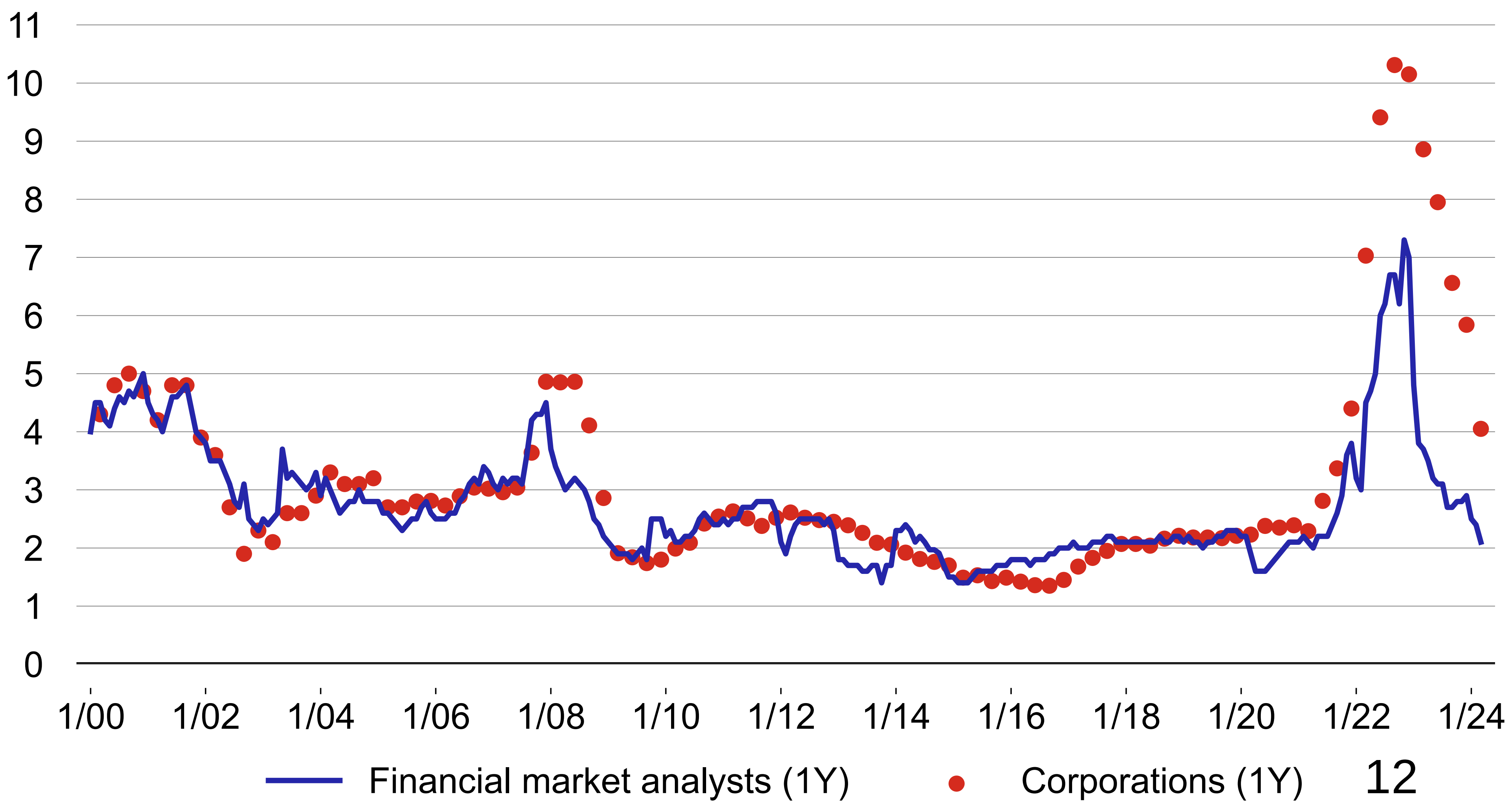
Long-term inflation trends

- **Hidden long-term inflation** may reflect structural trends (such as an inappropriate monetary and fiscal policy mix, possibly bolstered by demographic trends or green transition costs) and be concealed by the noise in the monthly data.
- Although headline inflation recently dropped to the CNB’s 2% inflation target, there are still signs that inflation has not been tamed fully.
- This is being signalled, for instance, by a slowing decline in core inflation, driven mostly by prices of services (4.4% in February) and growth in imputed rent, which is re-emerging because of increasing activity on the property market.
- The **inflation expectations** of all economic agents (households, corporations, financial markets) rose sharply during 2022. Over the course of last year, they descended to their long-term means.
- The means and medians of inflation expectations are not the most reliable indicators, due to their backward-looking nature. Multimodality (the variance of their modes) may better signal unanchored inflation expectations.

Headline and core inflation
(%)



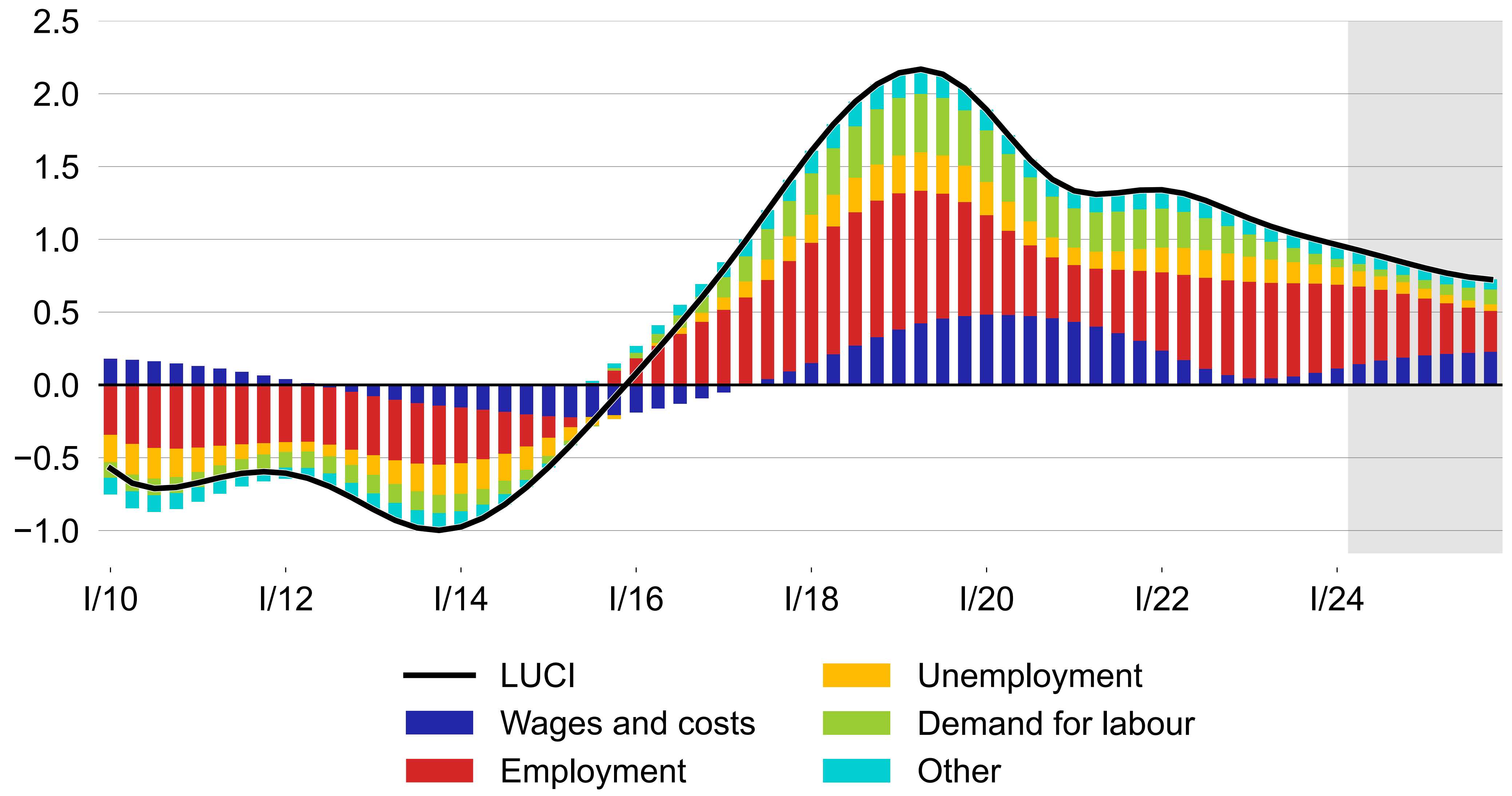
Inflation expectations
(%)



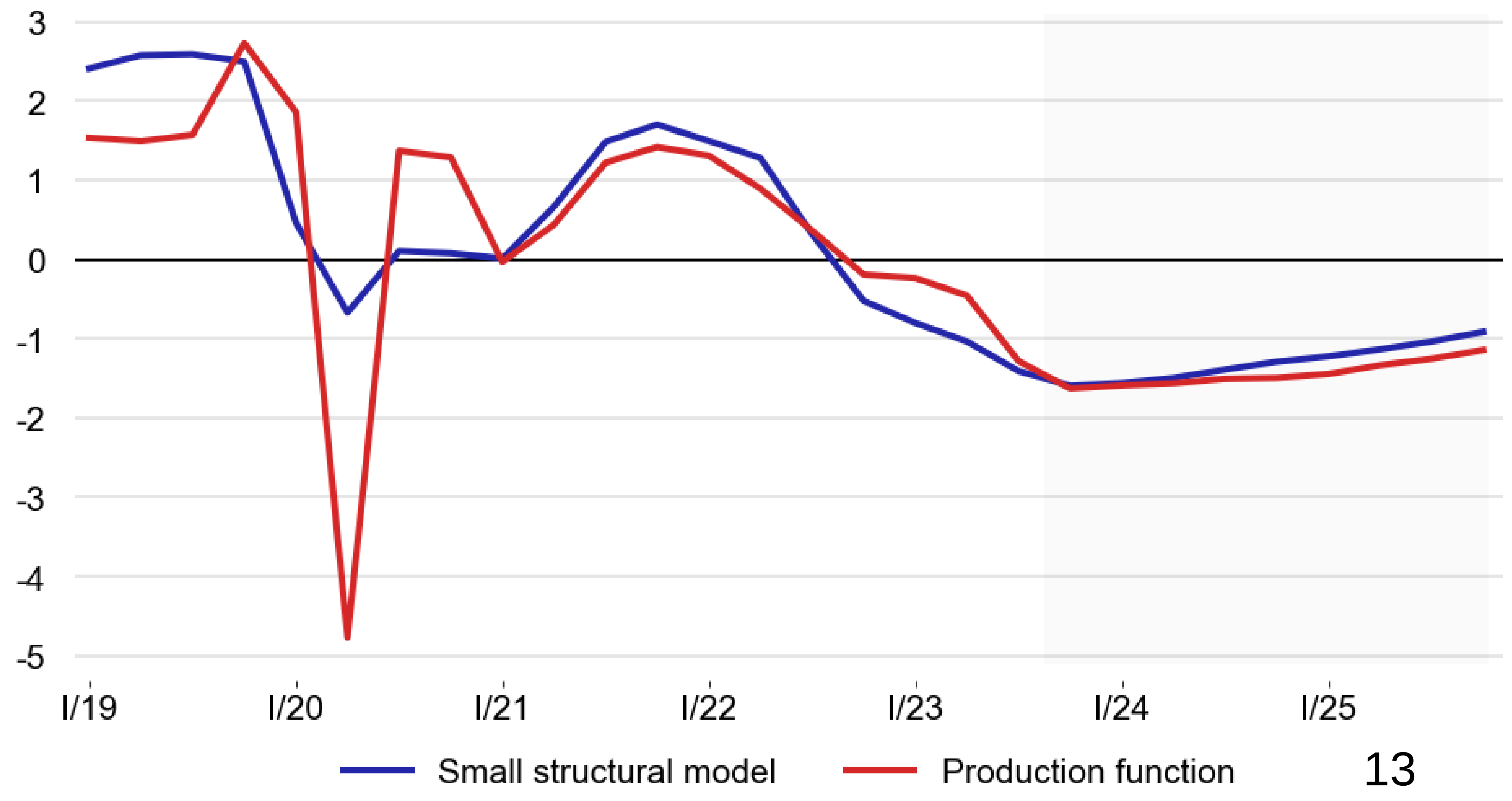
Cyclical position of the economy

- Besides long-term inflation risks, the Scoreboard includes indicators of the position of the economy in the business cycle, which are not mechanistically included in the forecast.
- The **Labour Utilisation Composite Index (LUCI)** is a composite indicator of labour market tightness. It has been signalling tight labour market conditions since 2016, reflecting a significant shortage of workers on the Czech labour market. Only recently has the number of vacancies surpassed the number of unemployed workers.
- The **output gap**, estimated using a small structural model, reflects the most important variables from the domestic and foreign economy. Positive values signal an overheating economy, while negative values signal dampened growth.
- The output gap of the Czech economy turned negative in 2022 as a result of muted demand reflecting the monetary policy tightening between 2021 and 2022.
- Even though the recent developments of LUCI and the output gap may seem inconsistent with each other, they show that the labour market is one of the biggest structural problems of the Czech economy and a persisting inflationary risk.

LUCI
(index, standard deviations)



Output gap
(% of potential output)

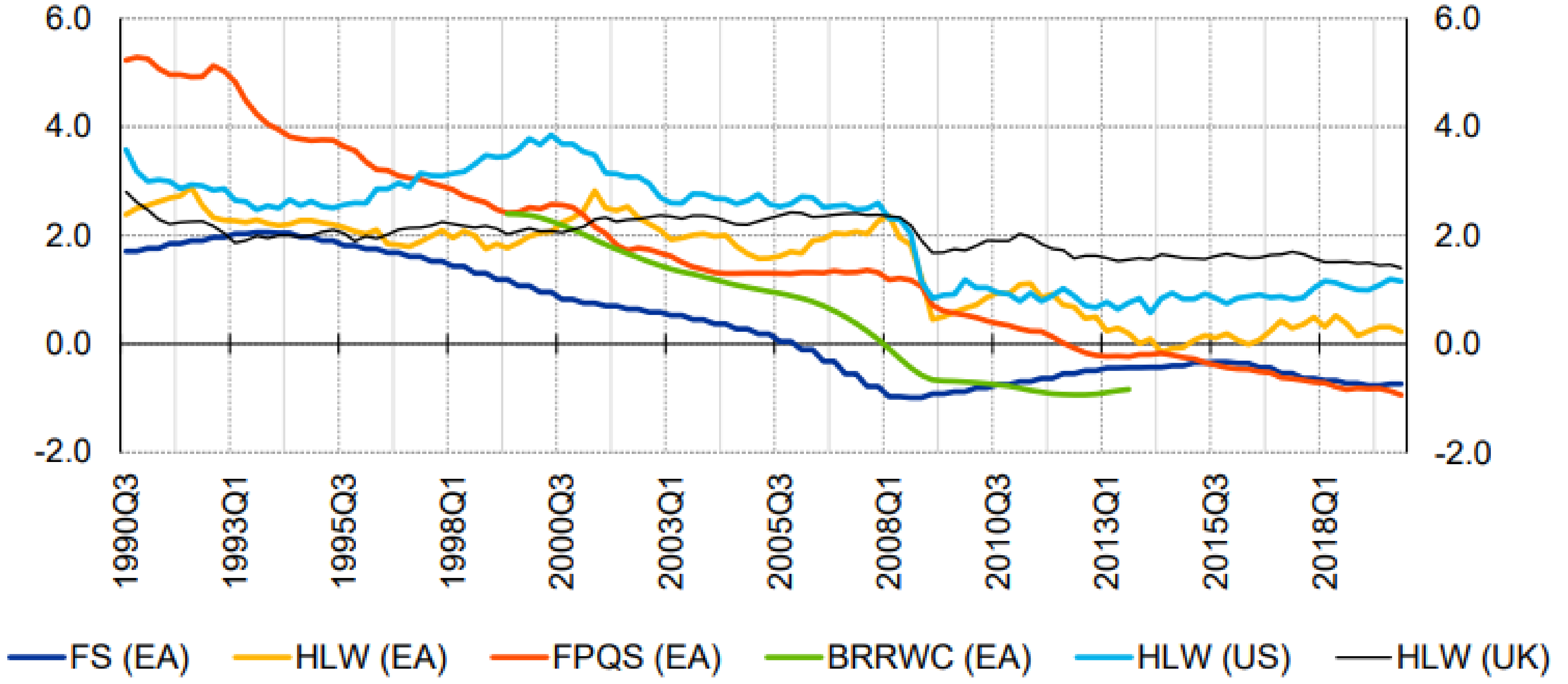


Possible shifts in the natural real interest rate r*

- The estimated r* differs depending on the methodologies and models used, but some prominent studies have concluded that r* has been declining over the last few decades, averaging between 0% and 1% just before the Covid pandemic.
- However, recent developments may have disrupted this trend, as the need for significant investment may have distorted the current equilibrium on the market for real loanable funds, to which central banks would have to react by increasing the assumed r*.
- Downward trend reversal factors may include:
  - geopolitical changes triggered by the Russo-Ukrainian war and the rivalry between the United States and China, resulting in deglobalisation and near-shoring
  - the transition to a green economy
  - developments in the AI industry
- In the Czech economy, the steep increase in public debt and the increasing old-age dependency ratio may also be contributing factors in the long run.
- The CNB is currently analysing the risks and potential implications of a higher r* using MP simulations.

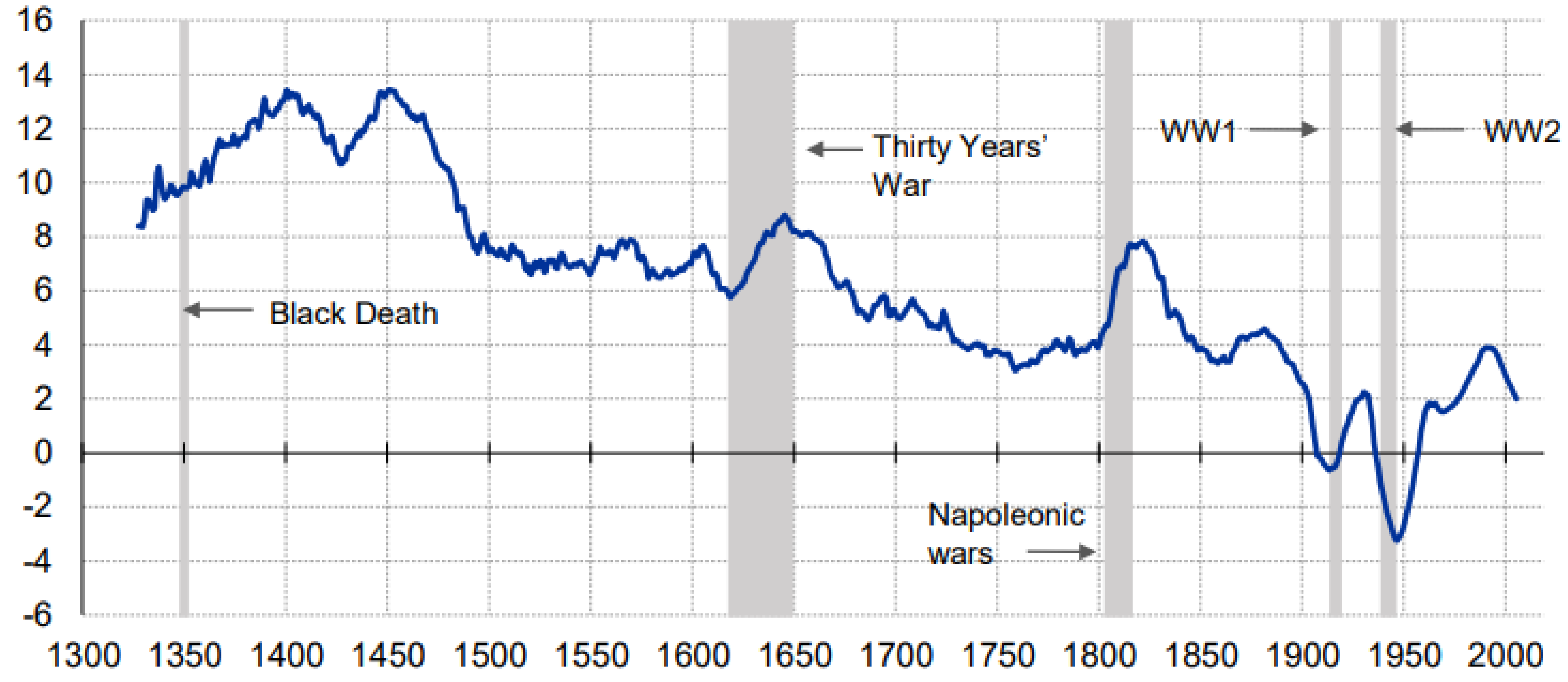
Measures for r* in euro area, US and UK

(Estimates by Ferreira and Shousha (2023, FS), Holston et al. (2023, HLW), Fiorentini et al. (2018, FPQ), Bouis et al. (2013, BRRWC). Measures of r* for US and UK estimated by Holston et al. (2023, HLW))



Long-run trend in global real interest rate

(Sources: Rogoff, Rossi and Schmelzing (2022) and ECB staff calculations. Notes: Series displays filtered trend component calculated from global real rate series provided by Schmelzing (2020) and applying Baxter King filter. Series inspired by Figure 3 in Rogoff et al. (2022). Latest observation: 2005 due to filter application (sample:1314–2018).)



Main determinants of r* – the current Czech view

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- The debate on the current level of r* is not specifically a Czech issue; a similar discussion is taking place across advanced central banks.
- Other potential reasons for a higher r* include an increase in the risk premium in the UIP equation as a result of higher and more volatile inflation in the past period, which might be absorbed by a higher r*. This stems from higher fiscal deficits increasing the money supply, shifts in supply chains and more frequent negative shocks.
- The fading of economic convergence and exhausting of the current model of the Czech economy may result in lower equilibrium exchange rate appreciation of the koruna against the euro.
- Monetary policy does not directly determine r*, as it is an endogenous unseen variable stemming from the underlying economic fundamentals (productivity, time preferences etc.). But an environment of low and stable inflation, as a consequence of successfully conducted monetary policy, might contribute to a reduction in the risk premium and thus to a decline in r*.
- **The CNB did not see a strong reason for reducing its baseline r* assumption in the previous decade and, symmetrically, does not want to rush into increasing it now. We tend to work with alternative scenarios formulated as “what if r* was higher?” rather than changing our baseline.**

Uncovered interest rate parity

$$r^*_{CZE} = r^*_{EA} - ER\ appreciation + risk\ premium$$

$$1.0\ \% = 0.5\ \% \qquad - 1.5\ \% \qquad + 2.0\ \%$$

Possible growth of r* in open economy under UIP condition

- higher r^*_{EA}
- weaker *ER appreciation*
- higher *risk premium*

CNB reserves and losses

- The CNB significantly increased its international reserves between 2015 and 2017 as a result of the exchange rate interventions needed to fulfil its exchange rate commitment.
- As the koruna appreciated after the exchange rate commitment was abandoned, CNB accrued a foreign exchange loss of CZK 270.4 billion in 2017 alone, resulting in a total net loss of CZK 243.2 billion.
- As of February 2024, the CNB's reserves amounted to USD 144.9 billion (EUR 133.9 billion, or about 40% of Czech GDP). This makes them the fifth largest in the world.
- According to the financial statement of 31 December 2023, the CNB's accumulated loss amounts to CZK 432 billion. It stems mostly from a decline in the prices of its bond and equity portfolios and an increase in the remuneration of the domestic banking sector's excess liquidity in 2022.
- To limit further growth in its reserves, the CNB is selling part of the income on them, with a monthly limit of EUR 300 million.
- To offset its losses, the CNB is using part of its reserves as an investment tranche, which is being invested in a medium-term portfolio consisting of equities and bonds.

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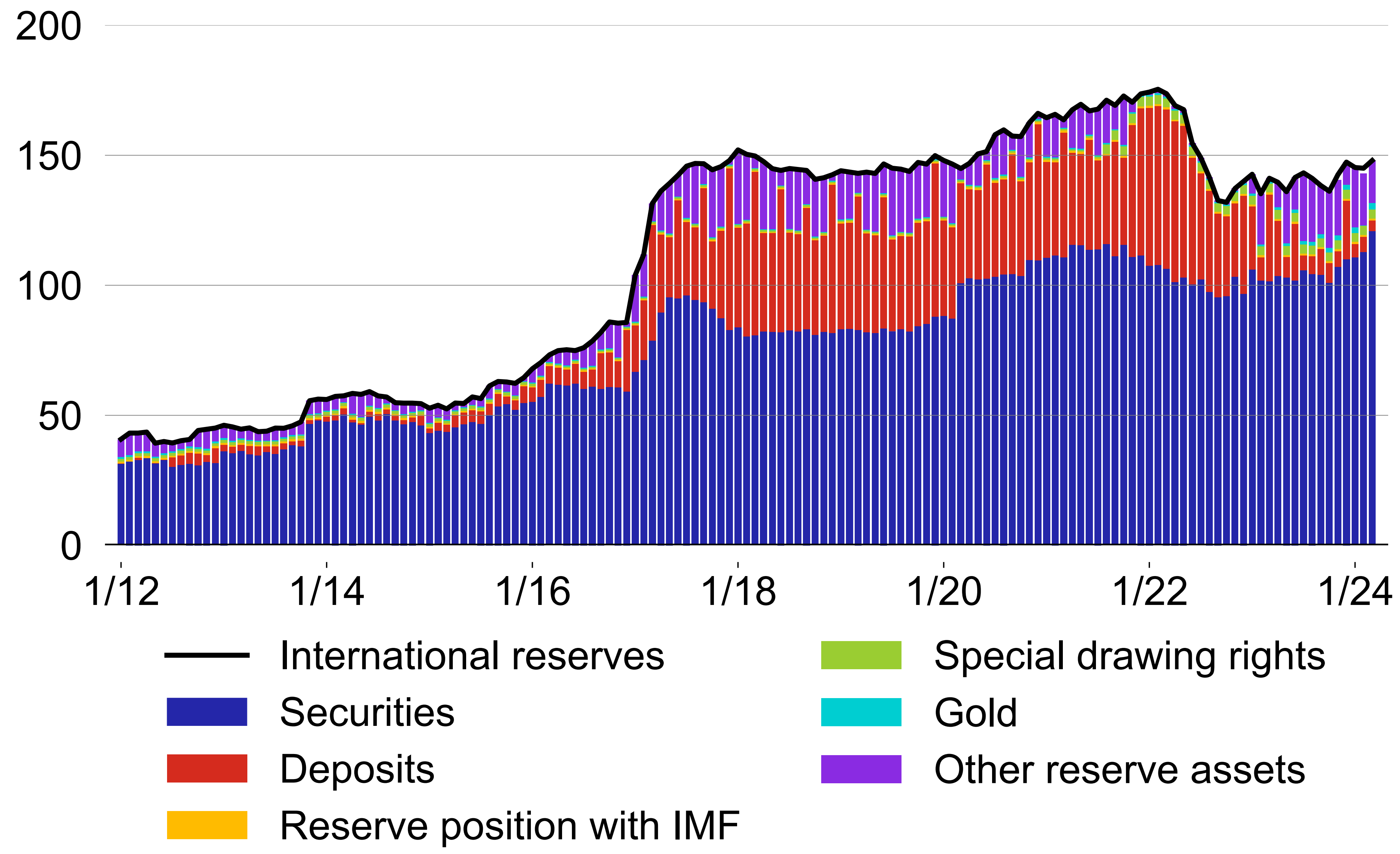
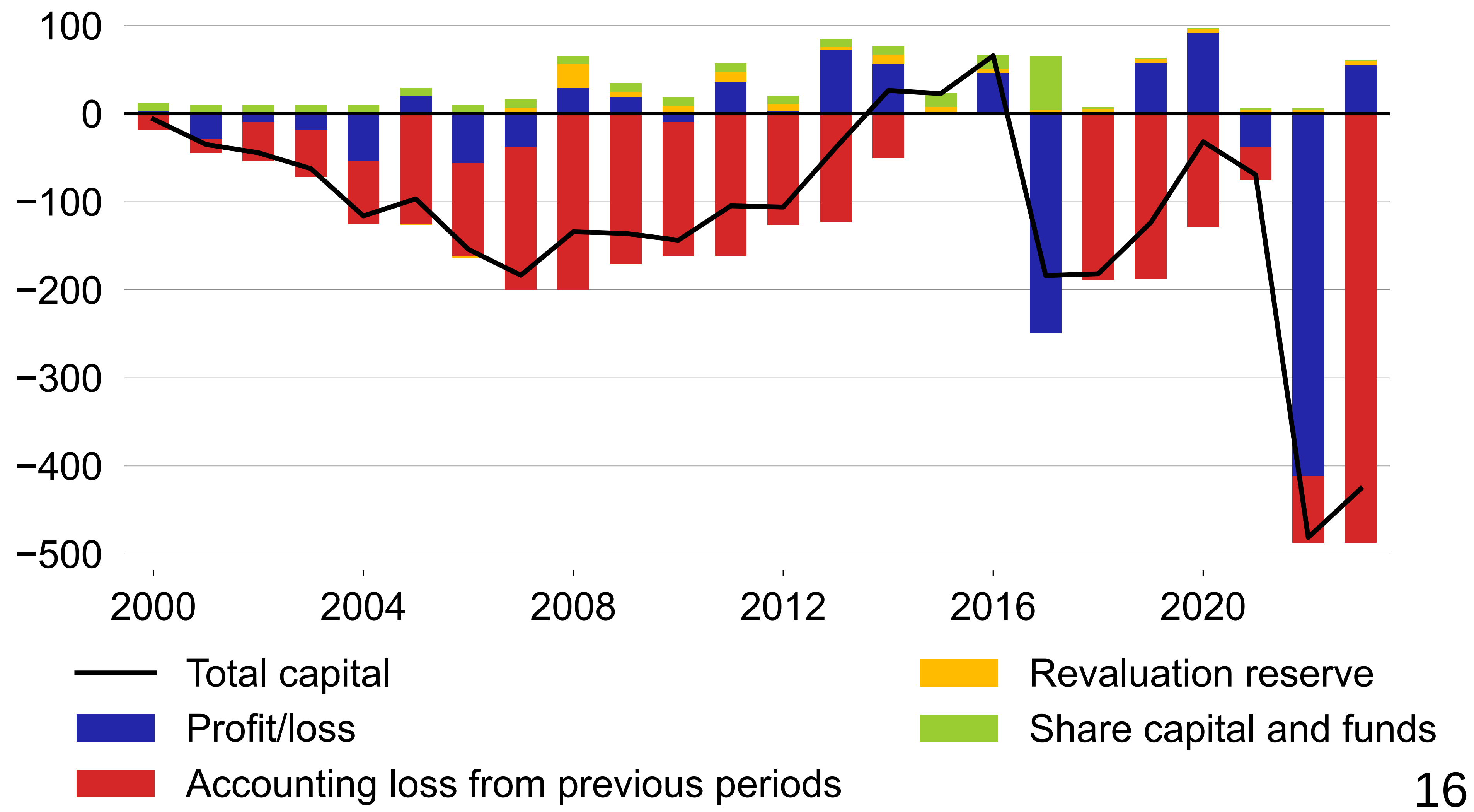
The CNB's international reserves
(USD billions)



The CNB's equity
(CZK billions)



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Euro adoption

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- As the Czech Republic committed to adopting the euro by joining the European Union in 2004, euro adoption will continue to be an important topic for the CNB, as it conducts annual analyses of the economic alignment of the Czech economy and the euro area.

- Despite not meeting the Maastricht price criterion in 2023, **the Czech Republic will probably fulfil all of the Maastricht criteria in 2024** with the exception of ERM II participation.

- According to the 2023 Alignment Analyses, the high degree of business cycle alignment between the Czech Republic and the euro area, the alignment of the koruna and the euro vis-à-vis the US dollar, the low long-term unemployment rate and the development of the domestic banking sector all imply **relatively low risk as regards potential euro adoption**. On the other hand, **there are also economic risks,** including the unfinished process of economic convergence of the Czech Republic towards the euro area, especially in terms of wages and prices, and the structural dissimilarity of the two economies stemming from a relatively high share of industry in Czech GDP.

- Moreover, **the fiscal policy of the Czech government may place another burden** on the process of adopting the euro, since it has been running significant deficits since 2020 and has failed to fulfil its medium-term objective (-0.75% of GDP for the structural deficit).

- Even though **the CNB takes a neutral stance** on euro adoption in the public debate, it will continue to analyse the state of readiness of the Czech economy for euro adoption and eventually help facilitate the transition from the koruna to the euro when the political representation makes the decision.

Summary

- The CNB has managed to overcome significant challenges over the last decade, including both low- and high-inflation environments. Today, with inflation at 2%, it is fulfilling its mandate after more than two years.

- The CNB aims to tackle future challenges by developing a new tool for assessing underlying inflation risks – the Inflation Risks Scoreboard. Moreover, it is considering a possible shift in the natural real interest rate stemming from current economic developments and seeking an appropriate way to handle its international reserves and accumulated loss.

- Some of the risks presented in the Scoreboard are elevated. Interest rates remain significantly positive in real terms and are dampening the sources of those risks. The Bank Board confirms its determination to continue its tight monetary policy in order to stabilise inflation near the 2% target in the long term.

- In the near to medium term, the CNB expects to continue participating in analyses related to possible euro adoption.

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Thank you for your attention

Director of the Monetary Policy and
Fiscal Analyses Division

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