

# Inflation and Monetary Policy Risks Scoreboard

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## February 2024



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# Inflation and Monetary Policy Risks Scoreboard

## A tool for tracking hidden inflation risks and other monetary policy threats

Monetary Department, February 2024

### 1. Introduction

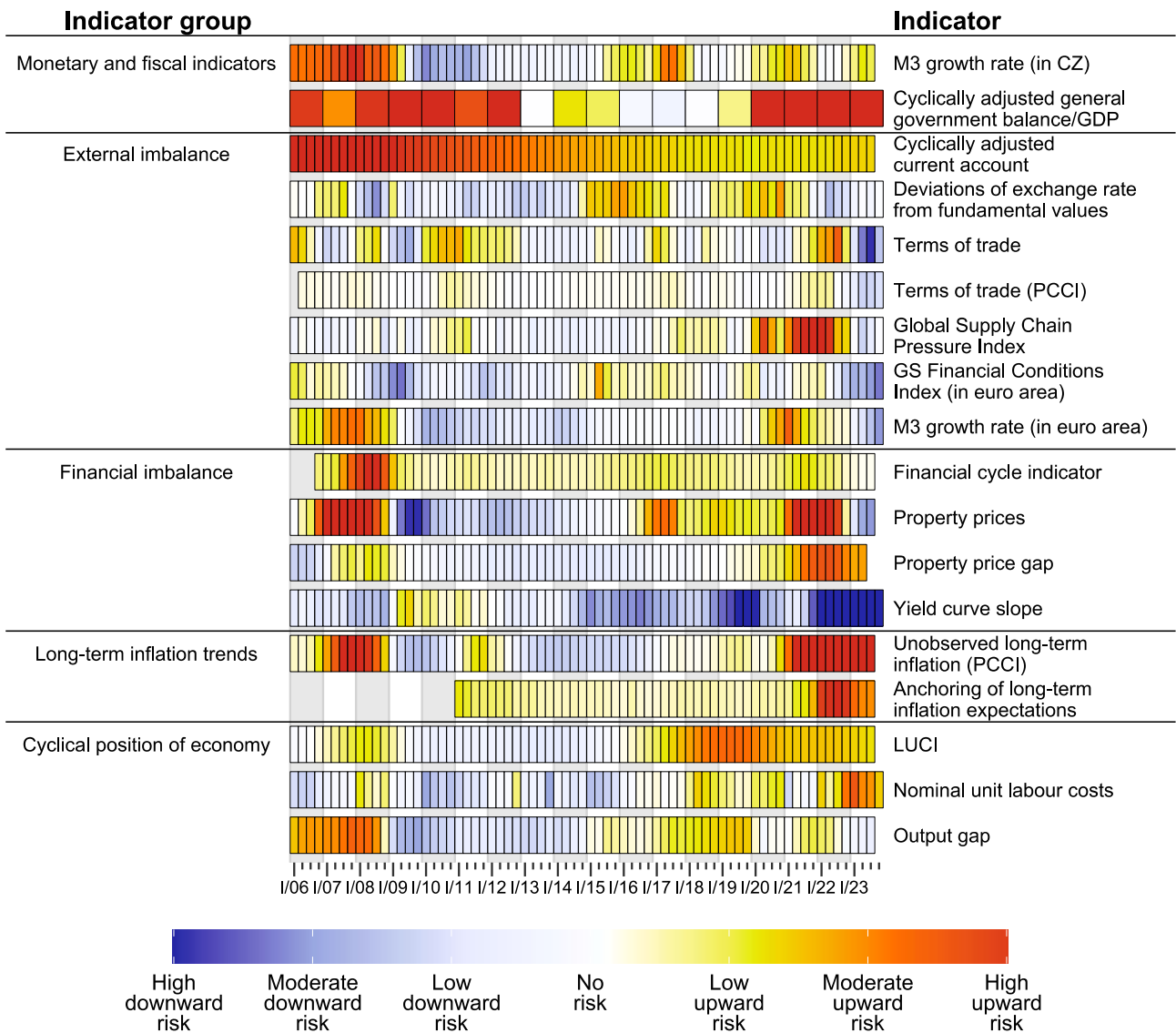
The recent inflation episode has shown that it may not be enough to understand the processes whereby inflation risks form and build up in the economy and, in particular, to capture them in usual analytical and forecasting practice. Beyond the scope of standard cyclical analyses, there are long-term underlying inflation risks that are difficult to quantify. These risks may only materialise if they accumulate in the long term and/or if several critical events coincide. An example of this was the Covid pandemic, which led to widespread production shutdowns in the Czech and global economies, general supply chain disruptions and supply shortfalls. Expansionary fiscal and monetary policy meanwhile sustained demand at a level inconsistent with the supply situation. Indicators of the quantity of money in the economy rose at double-digit rates. In the Czech Republic, moreover, there was potential for nominal convergence of the price level towards the countries of Western Europe. On top of that, the Czech economy, and especially its labour market, had been overheated before the pandemic broke out. Despite all the negative shocks, the labour market has since been cooling only very slowly and haltingly, and some of its characteristics – such as a high ratio of vacancies to the number of unemployed workers – have turned out to be more structural than cyclical. Property prices also went up sharply, perhaps reflecting households' concerns about potential inflation risks. Into this generally risky situation came a substantial energy shock, which led to coordinated price increases by sellers. Hiking prices ceased to be regarded as "immoral". What is more, in Central and Eastern European countries, which were most exposed to the energy crisis, energy prices play a larger role in the economy (because energy-intensive industries have a higher weight and value added a generally lower share in the structure of the economy) and have a larger weight in the consumer basket. The effect of the strongly negative terms of trade developments and widening current account deficit on the exchange rate of the koruna was only slowed by central bank interventions (verbal and physical), which ensured that the exchange rate did not exacerbate the already escalating inflation situation.

All the effects described above were one-off, non-systematic, "once-a-century" events. Clearly, none of them alone would have led to such high price growth, but together they caused inflation to rise to the highest levels since the economic transformation of the 1990s. It is therefore perhaps undesirable to try to capture such effects systematically in the forecasting framework, as including them would probably not improve the accuracy of the forecasts in "quiet times". Their impact on inflation is difficult to quantify. They often have a cumulative effect, and it is impossible to predict exactly when they will escalate. Moreover, the severity of a risk and the probability of it materialising increase substantially if two or more such effects occur at the same time.

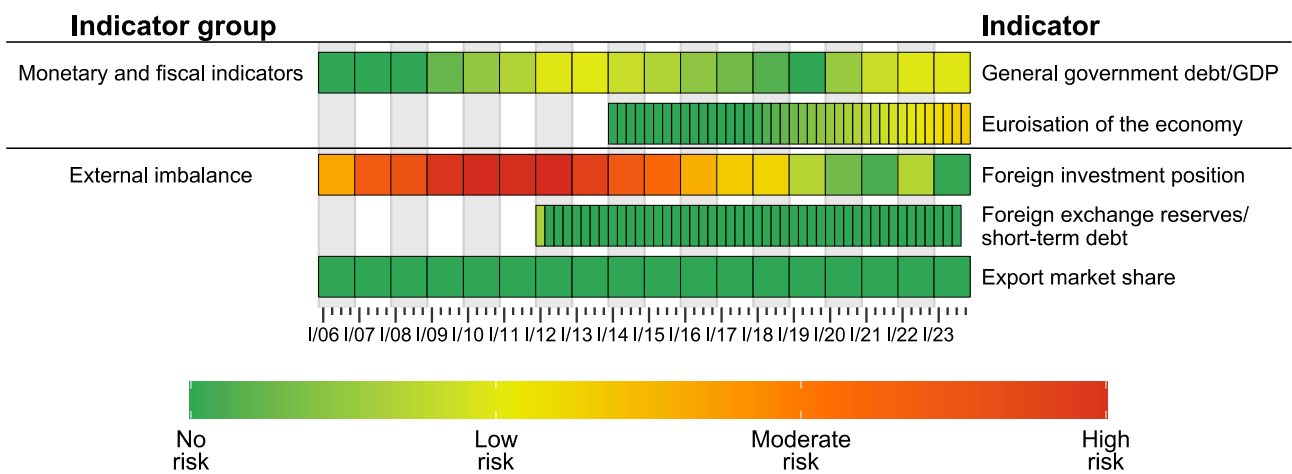
Given the aforementioned characteristics of the long-term underlying inflation risks, the Monetary Department, following discussions with the Bank Board, has opted for an indicator method – an "Inflation and Monetary Policy Risks Scoreboard". Where we do not have the channels of effect on inflation precisely mapped, or where we openly acknowledge that they are complex, hard-to-describe and non-linear, a visual indicator is a possible way of getting a handle on these risks, making them more visible and offering them as a potential additional argument for the monetary policy decision-making process.

This report presents the Scoreboard as a new tool for quantifying and visualising long-term inflation risks and other monetary policy threats. Even for the Scoreboard, we had to select critical thresholds for each indicator, consider a suitable transformation for it and justify its inclusion. These issues are addressed in the text below. We may make so much progress in the analysis of a particular area that we will later be able to modify the forecasting process or core model to systematically include some of the risks described below (which have perhaps been neglected in the past). The simple Scoreboard visualisation may be the first stage in this process. Even as it stands, it should help us not to underestimate these risks.

## Inflation risks



## Other monetary policy risks



## 2. Description of the visualisation

The Scoreboard is divided into two parts. The first has a blue-red temperature scale and summarises indicators that have a defined inflationary (red) or anti-inflationary (blue) direction. Although most of the indicators included in this part have a relatively clear direction, more complicated cases can be found even here. Take, for example, the property price gap, which, when positive, can be an inflationary risk in the short term but can also be anti-inflationary if a sudden correction occurs. In these cases, we had to choose a direction (in this case, greater overvaluation = red). This choice is described for each relevant indicator in the text below and is also clear from the critical threshold tables and time series charts.

The second part of the Scoreboard does not have a definable inflationary/anti-inflationary direction. The indicators included here signal general risk if they take on critical (risky) values. An example is total general government debt, low levels of which do not imply a monetary policy risk, but excessively high values of which indicate macroeconomic and financial vulnerability and reduce the fiscal room for manoeuvre. Then there is the trend euroisation rate, which is not a risk in either direction in itself but at elevated levels limits the effectiveness of the domestic monetary policy response to both inflationary and deflationary shocks. Likewise, an inverted yield curve can make monetary policy less restrictive, but it can also signal an impending recession, associated with a deflationary environment and monetary policy easing.

The colour saturation gradually increases with increasing intensity of the risk signalled by the indicator. Most of the indicators have expertly set critical thresholds defining the transition from neutral to low, moderate and high risk. Some of the critical thresholds are economically justified or reflect international standards (such as the Maastricht criteria or the indicators of the European Commission's Macroeconomic Imbalance Procedure). Others are set on the basis of historical means and multiples of standard deviations. The choice of critical thresholds for each indicator is described in the text below and summarised in Appendix 1. Charts for all the indicators included at the time of writing (February 2024) are presented in Appendix 2.

In the following sections, the indicators are grouped by thematic area (and in the visualisation by the categories shown on the left) regardless of their directional interpretation and thus regardless of whether they are included in the first or second block of the Scoreboard.

## 3. Risks arising from monetary and fiscal indicators

The first category of inflation risk indicators is linked with the quantity of money in the economy, with an emphasis on the effect of government debt dynamics on the potential future inflation risk. The relationship between the money stock and the price level is the classical assumption of monetarist economics, as represented by the quantity theory of money ( $M * v = P * Y$ ). However, this relationship has taken a back seat in recent decades, on account of the instability of the velocity of money ( $v$ ). In a mostly low-inflation environment, the implications of the money stock for inflation have also been overshadowed by a range of stronger effects, such as shocks to prices of crude oil and other commodities, exchange rate fluctuations, the demand situation, and labour market developments and wage growth. In the concept of inflation targeting, the price level is determined by active central bank monetary policy, so there shouldn't be much room left for long-term impacts of growth in the quantity of money on inflation.

However, recent years – affected by pandemic lockdowns and parallel fiscal support – have shown that monetary aggregates can signal mounting inflation risks when the observed inflationary pressures and inflation itself are still low. This became particularly risky at a time when money creation stemming from government debt did not match the supply potential of the economy and the supply situation on the global scale. Likewise, however, private borrowing due to excessively loose financial conditions or excessively optimistic sentiment can also foster growth in inflation risks. It is therefore useful to systematically monitor these areas.

We also include risks arising from trend euroisation of the economy in this section. This process can restrict the credit channel of monetary policy transmission and hence the ability of monetary policy to stabilise inflation and anchor inflation expectations.

### a. Growth rate of M3 (in the Czech Republic)

**Justification:** The instability of the relationship between monetary aggregate growth and inflation over recent decades has suppressed the role of monetary aggregates in monetary policy. But as the post-pandemic situation has shown, excess money growth in the economy can make households less sensitive to price increases in certain circumstances, thereby facilitating the pass-through of cost-push shocks to prices (e.g. Schnabel, 2023). Borio et al. (2023) showed that forecasts

inflation for 2021 and 2022 were more significantly underestimated in countries that had excess M3 growth between the end of 2019 and the end of 2020. Monetary aggregate growth may thus have predictive power for risks to price stability, risks that central banks must carefully assess.

The M3 monetary aggregate is routinely used to monitor the quantity of money in the economy. It is compiled for the money-issuing sector, i.e. monetary financial institutions, and contains all their highly liquid liabilities (currency in circulation, overnight deposits, deposits with an agreed maturity of up to two years and short-term marketable instruments such as shares and units). Its definition is highly transparent and harmonised across the European Union, allowing for international comparisons.

**Definition:** Unlike the normally reported year-on-year growth, which is computed from the difference in stocks, the annual growth rate is expressed on the basis of financial transactions (flows). They are calculated from differences in stocks of transactions adjusted for reclassifications, other revaluations, exchange rate movements and other changes which do not arise from transactions. This definition best matches the assessment of transactions in the real economy. The last observed quarterly value is assessed.

**Critical thresholds:** The long-term mean (since 2010, when the CNB's 2% inflation target started to apply)  $\pm 1$  (low risk), 2 (moderate risk) and 3 (high risk) standard deviations. Calculated from a data sample updated as of the preceding quarter. Where the growth rate is close to or above these thresholds, it is also important to assess it in relation to the growth of the real economy, using either the ratio of M3 to nominal GDP or the monetary overhang/real money gap (indicators reported in the Chartbook in the CNB's Monetary Policy Reports).

### b. General government debt/GDP

**Justification:** There are several mechanisms through which high government debt can affect the long-term sustainability of achievement of the inflation target. First, if the government debt is too high, it can restrict the room for fiscal expansion in a cyclical recession. In such case, fiscal policy cannot help to break a deflationary spiral when monetary policy rates are at the zero lower bound. Second, high government debt can have a negative impact on the risk premium for the economy. Third, monetary policy may be constrained in terms of raising interest rates if doing so would have too adverse an effect on government debt and increase the related risk of insolvency.<sup>1</sup>

**Definition:** Government debt is defined as the nominal consolidated liabilities of the general government sector arising from currency issued, deposits accepted, debt securities issued and loans accepted. The whole-year prediction for the current year expressed in per cent of nominal GDP is assessed.

**Critical thresholds:** No risk up to 30% of GDP; more than 45% of GDP (low risk), more than 50% of GDP (moderate risk), more than 55% of GDP (high risk).

Romer and Romer (2017) showed empirically that when the ratio of government debt to GDP exceeds 60%, the room for fiscal expansion in cyclical crises decreases.<sup>2</sup> This numerical threshold is also contained in the European Commission's macroeconomic imbalance procedure scoreboard. The same value is used in the Maastricht convergence criteria as the limit at which the excessive deficit procedure is triggered. The CNB's Financial Stability Department applies a critical threshold of 61.4% of GDP for government debt in its regular stress test of Czech public finances.

Moreover, the debt ratio risk threshold for small, open economies with a relatively short repayment history, which include the Czech Republic, will be lower than that for advanced economies. Under the Budget Responsibility Act, the debt brake is activated when the debt exceeds 55% of GDP. Exceeding the debt brake threshold is a negative signal for the financial markets and is highly likely to lead to an increase in the country's risk premium. It will thus reduce the fiscal room for manoeuvre.

The relatively strict critical threshold of 45% of GDP reflects the need to create enough fiscal space to adjust to large economic shocks or structural imbalances in the longer run. Again, business cycles are more volatile and fiscal stimulation is less effective in small, open economies than in closed ones.

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<sup>1</sup> Brandao-Marques et al. (2023) draw attention to the related risk via inflation expectations.

<sup>2</sup> Babecká Kucharčuková and Brůha (2017) arrived at a similar threshold, albeit based on a different methodology. They found that EU countries with government debt ratios of less than 60% of GDP recovered faster from the economic and financial crisis of 2008–2009 than those with higher government debt ratios.

### c. Cyclically adjusted general government balance/GDP

**Justification:** As a flow variable, the cyclically adjusted government balance can be sizeable even when stocks of government debt are relatively favourable. It is therefore desirable to monitor the cyclically adjusted balance as well as the debt.

Persistent government deficits drive up the quantity of money in the economy and are thus an inflationary factor. An excessively large government deficit can weaken the interest rate channel of monetary policy through its effect on the equilibrium interest rate (Kaplan et al., 2023).

Theoretically, the opposite situation – persistent cyclically adjusted government surpluses depressing growth in the quantity of money in the economy and having an anti-inflationary effect – can also arise.

**Definition:** The cyclically adjusted government balance is an abstract construction of what government finances would look like if the economy was at its potential output level. The whole-year prediction for the current year expressed in per cent of nominal GDP is assessed.

**Critical thresholds:** A cyclically adjusted deficit of more than 1% of GDP (low risk), more than 2% of GDP (moderate risk) and more than 3% of GDP (high risk). Treated symmetrically in the opposite direction for cyclically adjusted government surpluses.

The third critical threshold is based on the Maastricht government deficit limit of 3% of GDP. The CNB's Financial Stability Department applies a similar critical threshold (3.1% of GDP) in its public finance stress test, based on a panel estimate for multiple countries, including the Czech Republic.

The choice of a critical threshold of 1% of GDP approximately reflects the government's medium-term budgetary objective, which since 2020 has been a structural government deficit of 0.75% of GDP.

The overall fulfilment of the cyclically adjusted government balance criterion should not be assessed mechanistically or in isolation, but in a broader context taking into account the desirable effect of fiscal policy in the course of the economic cycle (i.e. countercyclical fiscal policy is appropriate in recessions and procyclical fiscal policy in booms).

### d. Euroisation of the economy

**Justification:** The aim of this part of the Scoreboard is to assess the trend (permanent) and cyclical components of euroisation. The first component is independent of the economic and monetary cycle and reflects autonomous processes in the economy (such as growing trade interconnectedness, regulation, the process of learning about foreign currency loans and expectations about future euro adoption; legislation – such as the possibility of keeping accounts in a foreign currency – may also play a role). The second component contains the cycle, which is linked with the attractiveness of foreign currency loans and thus primarily reflects the interest rate differential. While this second component may weaken the effectiveness of monetary policy transmission in the course of the economic cycle (see the structural model with endogenous euroisation in Audzei, Brůha and Sutóris, 2024), trend growth in the first component may pose a risk to the very stabilisation function of the credit channel of domestic monetary policy (according to the aforementioned model, a breach of the trend threshold of a 65% share of foreign currency loans poses a threat to the very possibility of nominal stabilisation).

The growth in the share of foreign currency loans to non-financial corporations observed in recent years can be explained only partially by the interest rate differential. Trend growth is also playing a role. It has slowly but surely been causing a permanent increase in the share of foreign currency loans over the last ten years.

**Definition:** The indicator is based on the estimated euroisation trend. The trend–cycle decomposition of the share of euro loans itself is performed using a small stock model filtered by a sparse Kalman filter (Andrle and Brůha, 2023). The model is estimated on data on loans to non-financial corporations since 2014. It employs data on both stocks of loans and pure new loans (along with other data such as the interest rate differential).

**Critical thresholds:** No risk up to 30%; in the case of the trend component, above 40% is considered low risk, above 50% moderate risk and above 60% high risk.

## 4. Risks arising from external imbalances

The Czech economy is open to external influences and a large part of its inflation pressures stem from the external environment. However, foreign inflation, which is incorporated systematically and as faithfully as possible into the baseline scenario of the forecast, is not the only factor at work. This part of the Scoreboard deals more with external imbalance risks, such as the long-term current account balance and possible loss of export competitiveness, which could cause the exchange rate to weaken and thereby drive up inflation. What matters is not only the short-term external imbalance itself, but also the accumulation of such imbalances, as captured by the net external investment position. Evaluating the financing stability of the international position is crucial for assessing the risk of capital outflows and their potential effect on the exchange rate. This can be done using the ratio of foreign exchange reserves to short-term debt (the Guidotti–Greenspan rule). This part of the Scoreboard also contains the risks arising from exchange rate overvaluation/undervaluation and the Global Supply Chain Pressure Index.

### a. Cyclically adjusted current account

**Justification:** The current account surplus/deficit, usually normalised to GDP, is a widely used external (im)balance indicator. A large, persistent deviation of the current account balance from zero may signal the need for a correction in the external position. This tends to be accompanied by sudden changes in the exchange rate and domestic demand (see, for example, Freund and Warnock, 2007). These changes may in turn make it harder to achieve the inflation target.

As with fiscal deficits, it is desirable to adjust the current account for temporary factors. Although the various current account items are affected by both trend and cyclical and one-off factors, it is the long-term trend factors which are relevant to the Scoreboard as a tool for assessing long-term inflation risks.

The macroeconomic intuition for distinguishing the frequencies of the various components is as follows. At business cycle frequency, trade in goods and services is affected primarily by the cyclical component of external and domestic demand. From the long-term perspective, though, the goods and services balance is affected by structural factors such as (de)globalisation and the competitiveness of the economy. In the case of compensation of employees, income and expenditure are affected both by the cyclical position of the labour market and by demographic trends and legislative changes. Investment income flows are affected by the cyclical position of the economy and by profitability (cyclical factors) and in the long term by the investment attractiveness of the economy. It is therefore clear that different factors act over different time scales and affect different items with different intensity.

**Definition:** A cyclically adjusted current account model (Babecká Kucharčuková and Brůha, 2020) calibrated to the Czech economy is used to identify trend factors.

**Critical thresholds:** If the cyclically adjusted current account is in the range of 0% to +1% of GDP, the corresponding colour is neutral.<sup>3</sup> The colour intensifies in the red direction (widening deficit) or blue direction (widening surplus) with each additional percentage point above or below this threshold.

### b. Foreign investment position

**Justification:** While the current account balance measures external (im)balances on the basis of flows (transactions between residents and non-residents), the foreign investment position is a stock (cumulative) indicator and can therefore send warning signals if current account imbalances accumulate. It is thus a complementary indicator to the current account.

**Definition:** The net investment position measures a country's net international financial position, i.e. the difference between the economy's assets and liabilities to the rest of the world. The investment position roughly accumulates the financial account balance over time (by definition, the financial account balance is equal to the current and capital account balance) and thus indicates the cumulative external imbalance of the economy. The change in the investment position between two points in time additionally includes price, exchange rate and other effects. As with the current account, the indicator is normalised to GDP.

**Critical thresholds:** The benchmark for the European Commission's macroeconomic imbalance procedure is -35%. Based on the literature (Turrini and Zeugner, 2019, and Coutinho, Turrini and Zeugner, 2022), we identify -50% as highly risky. Beyond this threshold, the colour is red. By contrast, -15% can be considered safe.

<sup>3</sup> The range is not symmetrical around zero, because a current account surplus is less of a threat to the stability of the economy than a deficit. On the other hand, sustained high surpluses are also indicative of an unhealthy trend.



### c. Foreign exchange reserves/short-term debt

**Justification:** Alongside the imbalance indicators themselves, the way external imbalances are financed is of key importance. If a country invests or consumes more than it saves (as reflected in a current account deficit), its excess need for foreign currency can be financed with both long-term and short-term debt. A large inflow of foreign direct investment gives rise to a completely different (and less significant) type of risk than when a country finances excess consumption with short-term foreign debt. From this perspective, it is important to monitor the accumulation of short-term capital, i.e. capital that can exit the economy quickly in adverse conditions, potentially giving rise to depreciation pressures and hence also to inflation. The central bank should have enough capital to intervene in a timely fashion should such a situation arise. To capture these relationships, we include an indicator of vulnerability to capital outflows.

**Definition:** The indicator is based on the Guidotti–Greenspan rule, which involves the ratio of foreign exchange reserves to short-term debt. The ratio should take a value of at least 1. Short-term debt is considered in two sectors at risk of a sudden capital outflow: debt of deposit-taking institutions except the central bank and debt of other sectors (excluding trade credits and advances). The amount of foreign exchange reserves in convertible currencies is used as the numerator.

**Critical thresholds:** A ratio of reserves to short-term debt of greater than 1 can be considered completely safe. Based on the literature (e.g. Calafell and Padilla del Bosque, 2002), a ratio of less than 0.5 can be interpreted as unsafe and is therefore categorised as highest risk. However, when interpreting the Guidotti–Greenspan rule used in the Scoreboard, one should bear in mind that it involves the short-term debt of only two sectors. The total short-term debt – including that of the CNB and general government – is larger.

### d. Deviations of exchange rate from fundamental values

**Justification:** The degree of misalignment of the exchange rate (the deviation of the current real exchange rate from its estimated equilibrium level) is a very valuable piece of information for the central bank, as in certain circumstances the exchange rate can absorb the impacts of shocks hitting the economy. The real exchange rate and its position in relation to equilibrium also indicate the price competitiveness of the economy. If the exchange rate deviates from its equilibrium level, it becomes overvalued or undervalued. If the deviation is significant and sustained, and if it destabilises inflation or the business cycle, it can cause serious macroeconomic problems. If the exchange rate is overvalued with respect to its equilibrium level, it reduces the price competitiveness of the domestic economy, hinders economic growth and ultimately has a downward effect on inflation. An undervalued exchange rate has the opposite effect.

**Definition:** Economic theory offers a whole range of methods for estimating the equilibrium exchange rate. The most frequently used approach is the BEER (behavioural equilibrium exchange rate). It takes into account a set of key variables – economic fundamentals – that affect the long-run evolution of the real exchange rate, such as the productivity differential, the trade balance, and investment that expands the production capacity of the economy. Another approach is the FEER (fundamental equilibrium exchange rate), which is based on the condition of simultaneous internal and external balance of the economy. Internal balance is reached when actual and equilibrium (i.e. potential) GDP are equal, i.e. when the economy is neither overheating nor cooling. External balance is characterised as the current account – which primarily reflects exports and imports of goods and services – being at a sustainable level. The overall equilibrium real exchange rate is the average of the estimates produced by the two models.<sup>4</sup>

**Critical thresholds:** The percentage deviations of the market rate from its estimated fundamental equilibrium are evaluated. Positive values indicate an overvalued real exchange rate and related anti-inflationary risks, reflecting a restrictive exchange rate component of the monetary conditions and worse price competitiveness of domestic exporters. Negative values conversely imply an inflationary risk, indicating how undervalued the exchange rate was in the given period in per cent. The critical thresholds represent degrees of misalignment, i.e. 0% to  $\pm 2.5\%$  (low risk),  $\pm 2.5\%$  to  $\pm 10\%$  (moderate risk) and greater than  $\pm 10\%$  (high risk). Calculated from a data sample updated as of the preceding quarter.

### e. Terms of trade

**Justification:** The terms of trade are an indicator of a country's price competitiveness and can generate appreciation or depreciation pressure if they move significantly in one direction or the other. Along with the terms of trade themselves, the Scoreboard contains their fundamental component, constructed analogously to underlying inflation using the concept of the Persistent and Common Component of Inflation (PCCI). Persistent items and items that co-move with the first

<sup>4</sup> See, for example, the February 2024 presentation *Behavioural and fundamental equilibrium exchange rate of the Czech koruna* [https://www.cnb.cz/export/sites/cnb/en/public/galleries/media\\_service/conferences/speeches/download/komarek\\_motl\\_20240228\\_ecb.pdf](https://www.cnb.cz/export/sites/cnb/en/public/galleries/media_service/conferences/speeches/download/komarek_motl_20240228_ecb.pdf)

component (see the more detailed description in *Long-term inflation trends – Unobserved long-term inflation* in section 6a below) have a greater weight in the PCCI. This means that commodity prices, for example, have a lower weight in this concept, because they are more prone to non-fundamental fluctuations not necessarily linked with business cycle. By contrast, co-moving items have a higher weight.

**Definition:** The terms of trade proper are the ratio of the export price index to the import price index. In addition to the main indicator, we use a re-weighted ratio of the export price to the import price index based on the PCCI method. Unlike the standard export and import price indices, the latter is weighted according to the correlation with the first common component, meaning that greater weight is given to items that better capture the co-movement of the index.

**Critical thresholds:** The historical mean of the observed growth in the terms of trade is used as the centre for both the main indicator and the re-weighted PCCI indicator. This mean is very similar to that of the terms of trade transformed using the PCCI that we use here. The risk is then graded according to the standard deviations of the actual terms of trade as low ( $\pm 1$  standard deviation), moderate ( $\pm 2$  standard deviations) and high ( $\pm 3$  standard deviations).

#### f. Supply chain disruptions (GSCPI)

**Justification:** The recent inflation episode showed how critical the smooth running of global supply chains is for domestic price pressures. This part of the Scoreboard is therefore based on the New York Fed's Global Supply Chain Pressure Index (GSCPI). In addition to information from a survey of firms regarding the smooth running of supplies, it includes freight price information for a range of countries that are significant in terms of global trade. The choice of the index reflects the lessons of the past period of inflation, when problems with supplies of materials and components fostered a sizeable increase in inflation pressures on the global scale.

**Definition:** The GSCPI integrates a number of commonly used metrics to identify global supply chain disruptions. Global transport costs are measured using the Baltic Dry Index (BDI) and the Harpex index, as well as airfreight cost indices. The GSCPI also uses several components from Purchasing Managers' Index (PMI) surveys, focusing on manufacturing firms across seven interconnected economies: China, the euro area, Japan, South Korea, Taiwan, the United Kingdom and the United States. The global factor is then extracted from the indicators for each country through principal component analysis.

**Critical thresholds:** The indicator is already expressed as the standard deviation from the long-term mean, so the thresholds can be expressed as  $\pm 1$  standard deviation (low risk),  $\pm 2$  standard deviations (moderate risk) and  $\pm 3$  standard deviations (high risk).

#### g. Foreign financial conditions index (GSFCI in euro area)

**Justification:** The long period of accommodative monetary and financial conditions in large Western economies led to a build-up of inflationary (and other) risks that spilled over into the Czech Republic (via the global supply-demand mismatch during and after the Covid period, supercyclical growth in commodity prices and so on). It is therefore useful to monitor an indicator that captures the degree to which foreign financial conditions are accommodative. We use the Goldman Sachs Financial Conditions Index (GSFCI) for the euro area for this purpose.

**Definition:** The GSFCI is defined as a weighted average of short-term and long-term interest rates (the monetary policy rate and long-term bond yields), the exchange rate, equity valuations and credit spreads (government and corporate in the case of the euro area). The weights correspond to the estimated impact of shocks to each component on real GDP growth over the following four quarters.<sup>5</sup> The indicator is constructed as an index with a long-term value of 100. Higher values indicate tighter monetary conditions and lower values looser conditions.

**Critical thresholds:** The thresholds are set as standard deviations on either side. The red scale indicates loose (expansionary) financial conditions and the blue scale tight financial conditions.

#### h. Growth rate of M3 (in euro area)

**Justification:** Changes in the stock of money in the economy are linked with movements in the price level and hence with inflation. Significant growth in the money supply in the long term can put upward pressure on the price level. We track the price level risks not only in the domestic economy, but also abroad. The ECB also monitors and comments on M3 growth

<sup>5</sup> The methodology and results of simulations of the impacts of the FCI on economic activity can be found on the Goldman Sachs website here: <https://www.goldmansachs.com/intelligence/pages/case-for-financial-conditions-index.html>

in the euro area. This broad definition of the monetary base captures not only migrations between various types of assets and various liquidities, but also the rate of growth of loans.

**Definition:** The year-on-year change in the seasonally adjusted M3 monetary base in the euro area in %.

**Critical thresholds:** The indicator is defined in terms of year-on-year changes. The thresholds are set at 1, 2 and 3 standard deviations on either side.

### i. Export market share

**Justification:** Competitiveness is one of the external imbalance indicators. As such, it features in the Macroeconomic Imbalance Procedure scoreboard, which it enters as the five-year percentage change of export market shares.<sup>6</sup> For the purposes of our Scoreboard, we slightly adjust this variable, which is available yearly.

There are two reasons for making this adjustment – statistical and macroeconomic. First, from the statistical point of view, the five-year growth has the disadvantage of being sensitive to short-term fluctuations and can thus send wrong signals about the competitiveness of the economy. If, in the time series, a fluctuation in the current year meets with a fluctuation with the opposite sign five years ago (which happens, given the volatility of the underlying time series), there can be a false sense of a sudden change in competitiveness in one direction or the other. However, this may not be based on fundamentals. Second, from the macroeconomic point of view, export market shares have a cyclical component in addition to the trend component corresponding to long-term change in competitiveness. At cyclical frequencies, the export market share is above average in expansionary phases of the cycle and below average in contractionary phases. The five-year change alone does not take the cyclical position of the economy into account, so trend movements – which are of key importance as regards competitiveness – may be overshadowed by cyclical movements.

**Definition:** For the reasons given above, we filter the time series of export market shares using a small stock model that decomposes the time series into its trend and cyclical components. The trend component is modelled as a random walk with drift;<sup>7</sup> this drift gives us the long-term change in export market share. The cyclical component is linked with the Czech export cycle. If the drift is positive, the long-term export market share is rising. If it is negative, the share is falling. It is the filtered<sup>8</sup> drift that enters the Scoreboard.

**Critical thresholds:** Positive drift corresponds to the neutral state. The risk is low for drift of 0 to -0.001 (this extreme value corresponds to a loss of market share of 0.1 percentage point in ten years) and moderate for drift of -0.001 to -0.005 (corresponding to a loss of market share of 0.5 percentage point in ten years). Drift in excess of these values is identified as highly risky.

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<sup>6</sup> Annual data from the macroeconomic imbalance procedure are used up to 2022. The data for 2023 are estimated on the basis of data on Czech goods exports according to the Czech balance of payments statistics and global goods exports from the IMF Direction of Trade Statistics (IMF-DOTS) available for January–October 2023.

<sup>7</sup> This model was proposed for the trend in Harvey and Jaeger (1993).

<sup>8</sup> We use the sparse Kalman filter of Andrlé and Brůha (2023), which is less sensitive to outliers.

## 5. Risks arising from financial imbalances

The links between financial and price stability are widely described in the literature. Financial crises or contractions can have a long-term disinflationary effect in the form of very slow deleveraging, as seen in Japan for a long time and the USA and Europe following the Great Financial Crisis. Another inflationary risk, however, is excessively fast growth in property prices, which shows up directly in consumer inflation via the weight on new property purchases in imputed rent. Moreover, property prices are linked with other consumer basket items, such as prices of construction work and building materials (also included in imputed rent), prices of furnishings, household equipment and routine maintenance of the house, and market rents. Property price overvaluation in turn gives rise to a two-sided risk: an inflationary risk in the event of continued growth in prices, but also a significant anti-inflationary risk if a rapid correction were to occur for any reason. In addition, one can consider the role of prices of property used as collateral and the income effects of movements in property prices. An inverted or, conversely, excessively steep yield curve signals other potential monetary policy risks.

### a. Financial cycle indicator

**Justification:** Financial risks and imbalances originate in times of favourable economic conditions accompanied by optimistic expectations. The expansionary phase of the financial cycle, associated with high (or even excessive) credit growth, is often followed by a deterioration in borrowers' ability to repay, growth in defaults and high losses in the banking sector. Together, these can limit banks' ability to lend to the sound part of the real economy. Identifying such an environment is crucial for detecting risks arising from financial imbalances in time. The financial cycle indicator is an appropriate benchmark. It has the ability to capture the phases of the financial cycle and predict the banking sector's future credit losses six quarters ahead.

**Definition:** The financial cycle indicator (FCI) is published by the CNB's Financial Stability Department four times a year. It is constructed as a composite indicator capturing the banking sector's aggregate tendency to swing up and down. It therefore provides information on the position of the economy in the cycle. The Financial Stability Department designed the FCI in order to determine the size of newly accepted cyclical risks. Its sub-indicators cover a wide range of financial risks forming on both the demand side and the supply side:

- 12-month moving sum of new loans to households/gross disposable income of households (weight 35%)
- 12-month moving sum of new loans to non-financial corporations/gross operating surplus of firms (weight 27%)
- property price inflation (weight 9%)
- debt growth/gross disposable income of households (weight 8%)
- debt growth/gross operating surplus of firms (weight 7%)
- interest rate spread for households (weight 5%)
- interest rate spread for non-financial corporations (weight 5%)
- PX index (weight 2%)
- adjusted current account deficit/GDP (weight 2%)

The aggregation of the sub-indicators into the FCI captures both the time dimension and the cross-sectional dimension of risk (the correlations between all the sub-indicators).<sup>9</sup> The time dimension of risk is given by the magnitude of the sub-indicators itself. The time series have differing importance for the final FCI value. The weights of the sub-indicators were calibrated to best predict credit losses six quarters ahead (Plašil et al., 2015).

**Critical thresholds:** By construction, the FCI takes values between 0 and 1.<sup>10</sup> The higher the value, the more cyclical risks are being created in the financial system. An FCI value in the range of 0.15 to 0.17 indicates neutral risk.<sup>11</sup> A rise in the FCI value above 0.17 indicates an increase in the formation of risks to the financial system above the neutral level.

An FCI value one standard deviation above the long-term mean is the first critical threshold (yellow). This corresponds to 0.17 at the current FCI values. An FCI value two standard deviations above the long-term mean is the second critical

<sup>9</sup> The evolution of the cross-sectional dimension of risk is represented by the time-varying correlations between the FCI input variables. The stronger are the correlations between them, the higher is the FCI and the stronger is the signal sent out about the overall nature of the observed cyclical risks. This implies that the sub-indicators that show a strong positive correlation with each other have the strongest upward effect on the FCI. In the case of perfect correlation between all the input variables, the FCI would attain its highest possible value with respect to the values of the sub-indicators.

<sup>10</sup> To ensure that the input time series are mutually comparable, the components are transformed into the interval (0;1) using the kernel estimate of the distribution function, where 0 corresponds to the trough of the financial cycle and 1 to the peak.

<sup>11</sup> This follows from the conversion table for determining the CCyB rate – see [https://www.cnb.cz/export/sites/cnb/en/financial-stability/galleries/macprudential\\_policy/countercyclical\\_capital\\_buffer/ccyb\\_methodology.pdf](https://www.cnb.cz/export/sites/cnb/en/financial-stability/galleries/macprudential_policy/countercyclical_capital_buffer/ccyb_methodology.pdf), p. 24.

threshold (orange). This corresponds to roughly 0.24 at the current FCI values. An FCI value three standard deviations above the long-term mean is the third critical threshold (red). This corresponds to roughly 0.30 at the current FCI values.

### b. Property prices

**Justification:** A dramatic rise or fall in property prices that is not based on fundamentals can lead – via the collateral channel (Iacoviello and Neri, 2010) – to a swing in consumer demand and thus in inflation. Such a swing can occur not only in the growth (optimistic) phase of the cycle, when there can be excessive credit expansion (inside and outside the property sector) and hence also growth in demand and, in turn, inflation, but also in the contraction phase, when a correction swings demand in the opposite direction. Besides this effect, prices of new properties enter imputed rent directly and also affect a number of other items in the consumer basket. Any movement in property prices thus has inflation implications.

**Definition:** Property prices are expressed using the year-on-year change in the House Price Index (HPI), which measures the price level of all residential properties in the Czech Republic in accordance with a single harmonised EU standard. It has the advantage of being internationally comparable. Methodological aspects of the HPI are described in more detail on the website of the Czech Statistical Office.

**Critical thresholds:** We regard 5% as moderate, zero-risk growth in property prices. This figure is used to derive the critical thresholds, which are graduated in steps of  $\pm 4$  percentage points.

### c. Property price gap

**Justification:** An overheated property market has an inflationary effect. However, the risk of the bubble bursting and the market having an anti-inflationary effect increases over time in such a situation. Exactly the opposite applies in a sluggish property market.

**Definition:** The property price gap (overvaluation/undervaluation) is the average of three approaches:

- the price-to-income ratio, i.e. the ratio of the HPI to disposable income
- the price-to-rent ratio, i.e. the ratio of the rental price index to disposable income
- an inverted demand model which estimates the deviation of observed house prices from fundamentals using Bayesian techniques, with interest rates, disposable income and the housing stock entering the model as explanatory variables.

**Critical thresholds:** A standardised score<sup>12</sup> derived from the degree of undervaluation/overvaluation in percentage points. The mean overvaluation from 2006 to the present is chosen as the centre. The critical thresholds are set at  $\pm 1, 2$  and 3 standard deviations from this mean.

### d. Yield curve slope

**Justification:** Monetary conditions in the interest rate area affect the economy not only through short (two-week or three-month) rates, which normally receive the most monetary policy attention, but also via longer rates, as captured, for example, by the government bond or interest rate swap yield curve. Long rates reflect not only expected short rates, but also global financial sentiment and the inflation, liquidity and risk premium on the relevant assets. Government bond yields can in turn reflect the stability of public finances and the credibility of fiscal planning, as well as demand for these relatively low-risk assets. These effects reflected in long rates meanwhile have a significant bearing on monetary conditions in the economy.

**Definition:** The yield curve slope is computed as the difference between the 10-year government bond yield and the 3M PRIBOR. Monthly averages are used. The yield curve slope is considered “normal” if it is positive, i.e. if long-term rates are higher than short-term ones. An inverted, i.e. downward-sloping, curve is regarded as a warning signal of an impending recession. A downward-sloping (upward-sloping) yield curve can also make monetary policy less (more) restrictive. On the Scoreboard, the yield curve slope is indicated in shades of red when it is more positive than the mean and shades of blue when it is less positive (or negative).

<sup>12</sup> The standardised score (the z-score in this case) is derived from the equation  $z = \frac{x-\mu}{\sigma}$ , where x is the original value of the indicator (such as the degree of overvaluation/undervaluation in percentage points),  $\mu$  is the original mean of the indicator and  $\sigma$  is the original standard deviation of the indicator.

**Critical thresholds:** The mean spread between the 10-year bond yield and the 3M PRIBOR is 0.82 percentage point and the standard deviation is 1.44 percentage point. The critical thresholds are set as 1, 2 and 3 standard deviations on either side of the mean.

## 6. Long-term inflation trends

Besides the risks and indicators described above, there may be long-term trends in the economy that can make it harder to sustainably achieve the inflation target. Unobserved long-term inflation can capture trends that are lost in the noise of the standard data. Anchored inflation expectations are also crucial for achieving the inflation target on a long-term basis. The extent to which expectations are anchored is assessed using their distribution – if the degree of disagreement between the survey respondents is large, i.e. if there is more than one local maximum (multimodality), expectations cannot be described as well anchored, even if they are falling.

### a. Unobserved long-term inflation

**Justification:** Unobserved long-term inflation may reflect structural trends (such as an inappropriate monetary and fiscal policy mix, possibly bolstered by adverse demographic trends and/or rising costs of the green transition) and may simultaneously be concealed by the noise in the monthly data. However, it can be filtered using the Persistent and Common Component of Inflation (PCCI) method. The PCCI is a measure of underlying inflation – developed at the ECB (Bańbura and Bobeica, 2020) – that aims to filter the persistent signal from the data. The PCCI is less prone to contamination by the short-term non-fundamental noise that headline monthly inflation is subject to. It also has some predictive power with respect to future long-term changes in inflation. Technically, it is based on a dynamic factor model. The weights of the items in the PCCI increase relative to the traditional consumer price index if the correlation across selected frequencies of their inflation with the common dynamics of the estimated factors is high.

**Definition:** The PCCI has two selectable parameters – the number of factors (common components) and the frequency, which defines the permanent part. The Czech data point to three dynamic factors. Like Bańbura and Bobeica (2020), we use a frequency range of three years to infinity. Generally, the longer the cycle (the lower the frequency), the smoother the PCCI. For our chosen parameters, the PCCI starts to increase in the second half of 2020, indicating that there were already risks in underlying inflation at that time.

**Critical thresholds:** The indicator is constructed around the inflation target and expressed in terms of annualised monthly percentage changes. The first threshold is set at 1 percentage point and the next ones in steps of 2 percentage points on either side of the target.

### b. Anchoring of long-term inflation expectations

**Justification:** Long-term achievement of the inflation target requires anchored inflation expectations. To analyse how anchored expectations are, we use their higher-order moments, which can signal that they are de-anchored.

The empirical literature shows that the means and medians of reported inflation expectations are strongly backward-looking and hence not a reliable indicator of future inflation risk. On the other hand, it turns out that higher-order moments, and especially multimodality, can signal that expectations are not anchored and there is a risk of future high inflation (see Reis, 2021, for international evidence and Bunn et al., 2023, for a survey of UK firms). We therefore use data on inflation expectations among company managers to estimate a mixture model that can capture multimodality and whose parameters can be used to measure the distance between the modes of the expectations distribution. Growth in the dispersion of the modes of expected inflation is a signal of future growth in inflation expectations, which represents an inflationary risk.

**Definition:** Multimodality of expectations is an indicator of the dispersion of the modes of expected inflation. The data source is three-year inflation expectations from the survey of firms conducted by the CNB and the Confederation of Industry of the Czech Republic. Under a project of the Technology Agency of the Czech Republic, for which the CNB is the internal application guarantor, this method may be expanded in the future to include households' inflation expectations. We normalise the inflation expectations multimodality index such that values between 0 and 1 can be considered safe (not signalling significant de-anchoring of inflation expectations). Higher values indicate growing risk.

**Critical thresholds:** The normalised multimodality values are constructed so that 0 indicates no risk, 1 low risk, 2 moderate risk and 3 high risk.

## 7. Cyclical position of the economy

In addition to the long-term inflation risks, we include selected indicators of the cyclical position of the economy. These capture the inflation environment in the Czech economy and are regularly incorporated into the forecasting framework. Specifically, we use the LUCI (an indicator of labour market tightness), nominal unit labour costs and the output gap.

### a. LUCI

**Justification:** The LUCI is an add-on index to the baseline scenario. It is prepared on the basis of historical data and labour market forecasts. As wages are the only labour market variable to figure explicitly in the core forecasting model (together implicitly with labour productivity as part of the domestic cost pressures), the LUCI – computed using variables generated by the baseline scenario – is a valuable broad indicator of the labour market situation. Although by definition not an indicator of long-term pressures (it is a cyclical indicator by construction), it can be a useful tool for assessing medium-term inflation pressures, given that labour market variables are highly persistent.<sup>13</sup>

**Definition:** The LUCI combines information from the labour market using the principal components method. The trend and cyclical components of a total of 28 time series of labour market variables are simultaneously separated. The composite information from all the cyclical components – de facto their first common component – then offers a comprehensive view of the cyclical position of the labour market, expressed at the aggregate level by the LUCI. The resulting index is then standardised. This means that for each estimate the long-term mean is zero. Positive values signal higher labour market tightness and negative values lower labour market tightness than the long-term mean. An updated LUCI computation method<sup>14</sup> has been in use since autumn 2023. The LUCI was introduced in 2017<sup>15</sup> and extended in 2019.<sup>16</sup>

**Critical thresholds:** Standard deviations of the index in steps of 1 on either side are used as critical thresholds.

### b. Nominal unit labour costs

**Justification:** Nominal unit labour costs are an indicator of the cost of the labour needed to produce a unit of output. Growth in nominal unit labour costs means an increase in the nominal wage cost-output ratio resulting from disproportionate wage growth relative to productivity growth. The difference between nominal unit labour costs and the inflation indicator indicates either the extent of the absorption of such cost pressures into current prices or the accumulation of these pressures, i.e. a build-up of wage-inflationary potential that might pass through into prices if conditions in the economy ease, for example in a phase of economic recovery.

**Definition:** Nominal unit labour costs are defined as the nominal wage bill from the national accounts divided by real GDP.

**Critical thresholds:** Standard deviations of the index in steps of 1 on either side are used as critical thresholds.

### c. Output gap

**Justification:** Like the LUCI, the output gap is filtered in satellite fashion after the growth forecast has been prepared. This means that the growth path in the forecast is only subsequently broken down into the output gap and potential output growth. Therefore, the output gap does not enter the forecast directly and thus provides additional information value for assessing the inflation environment on top of the relationships captured by the forecast.

**Definition:** The output gap is estimated using a small structural model. The most important macroeconomic variables from the domestic and foreign economy enter the model. Positive values signal an overheating domestic economy, while negative values indicate below-potential growth.

**Critical thresholds:** A standardised score derived from the size of the output gap in % of potential output in steps of 1 standard deviation on either side is used for the critical thresholds.

<sup>13</sup> See the blog article *Ukazatele napětí trhu práce jako lakmusový papírek stavu ekonomiky (Indicators of labour market tightness as a litmus test of the state of the economy)*, Livorová, Ruschka, Galuščák, 2023 (in Czech only), [https://www.cnb.cz/cs/o\\_cnb/cnblog/Ukazatele-napeti-trhu-prace-jako-lakmusovy-papirek-stavu-ekonomiky/](https://www.cnb.cz/cs/o_cnb/cnblog/Ukazatele-napeti-trhu-prace-jako-lakmusovy-papirek-stavu-ekonomiky/)

<sup>14</sup> <https://www.cnb.cz/en/monetary-policy/monetary-policy-reports/boxes-and-articles/An-updated-LUCI-computation-method/>

<sup>15</sup> <https://www.cnb.cz/en/monetary-policy/inflation-reports/boxes-and-annexes-contained-in-inflation-reports/The-LUCI-the-labour-utilisation-composite-index/>

<sup>16</sup> <https://www.cnb.cz/en/monetary-policy/inflation-reports/boxes-and-annexes-contained-in-inflation-reports/The-extended-LUCI/>

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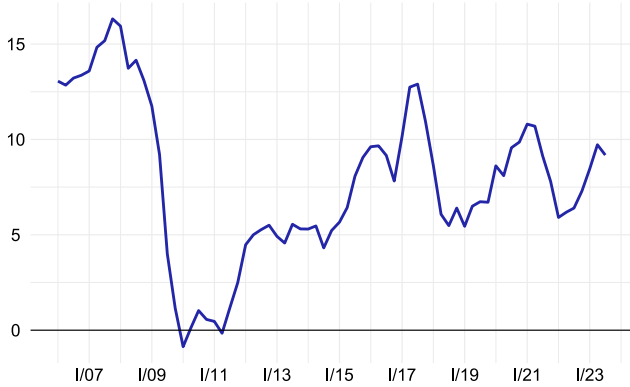
## Appendix 1: Critical values of indicators entering Scoreboard (February 2024)

INFLATION RISKS	UNIT	High downward risk	Moderate downward risk	Low downward risk	No risk	Low upward risk	Moderate upward risk	High upward risk
<b>MONETARY AND FISCAL INDICATORS:</b>								
M3 growth rate (in CZ)	annual growth rate in %	-3.280	-0.036	3.208	6.453	9.697	12.941	16.186
Cyclically adjusted general government balance/GDP	%	3.000	2.000	1.000	0.000	-1.000	-2.000	-3.000
<b>EXTERNAL IMBALANCE:</b>								
Cyclically adjusted current account	%	3.000	2.000	1.000	0.500	0.000	-1.000	-2.000
Deviations of exchange rate from fundamental values	%	10.000	7.000	2.500	0.000	-2.500	-7.000	-10.000
Terms of trade	standard deviations	3.000	2.000	1.000	0.000	-1.000	-2.000	-3.000
Terms of trade (PCC)	year-on-year change in %	7.973	5.426	2.878	0.330	-2.218	-4.765	-7.313
Global Supply Chain Pressure Index	standard deviations	-3.000	-2.000	-1.000	0.000	1.000	2.000	3.000
GS Financial Conditions Index (in euro area)	standardised index	2.339	1.560	0.780	0.000	-0.780	-1.560	-2.339
M3 growth rate (in euro area)	year-on-year change in %	-3.000	-2.000	-1.000	0.000	1.000	2.000	3.000
<b>FINANCIAL IMBALANCE:</b>								
Financial cycle indicator	standardised index				0.000	0.172	0.236	0.301
Property prices	year-on-year change in %	-7.000	-3.000	1.000	5.000	9.000	13.000	17.000
Property price gap	standard deviations	-3.000	-2.000	-1.000	0.000	1.000	2.000	3.000
Yield curve slope	percentage points	-3.494	-2.055	-0.617	0.822	2.260	3.698	5.137
<b>LONG-TERM INFLATION TRENDS:</b>								
Unobserved long-term inflation (PCCI)	annualised quarter-on-quarter changes in %	-3.000	-1.000	1.000	2.000	3.000	5.000	7.000
Anchoring of long-term inflation expectations	standardised index				0.000	1.000	2.000	3.000
<b>CYCLICAL POSITION OF ECONOMY:</b>								
LUCI	standard deviations	-3.000	-2.000	-1.000	0.000	1.000	2.000	3.000
Nominal unit labour costs	standard deviations	-3.000	-2.000	-1.000	0.000	1.000	2.000	3.000
Output gap	standard deviations	-3.000	-2.000	-1.000	0.000	1.000	2.000	3.000

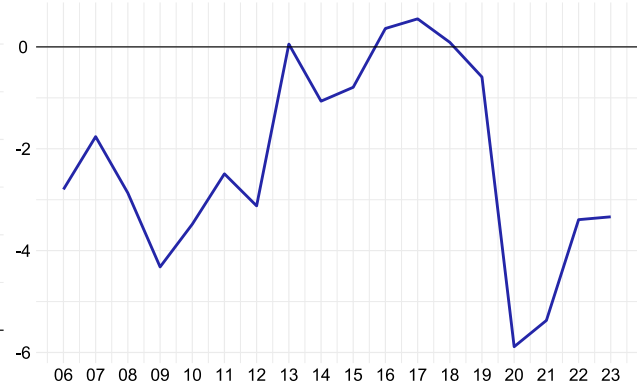
OTHER MONETARY POLICY RISKS	UNIT	No risk	Low risk	Moderate risk	High risk
<b>MONETARY AND FISCAL INDICATORS:</b>					
General government debt/GDP	%	30	45.000	50.000	55.000
Euroisation of the economy	trend in %	30	40.000	50.000	60.000
<b>EXTERNAL IMBALANCE:</b>					
Foreign investment position	%	-15	-25.000	-35.000	-50.000
Foreign exchange reserves/short-term debt	ratio	1	0.833	0.666	0.500
Export market share	trend change in %	0	-0.001	-0.005	-0.009

## Appendix 2: Time series of indicators entering Scoreboard (February 2024)

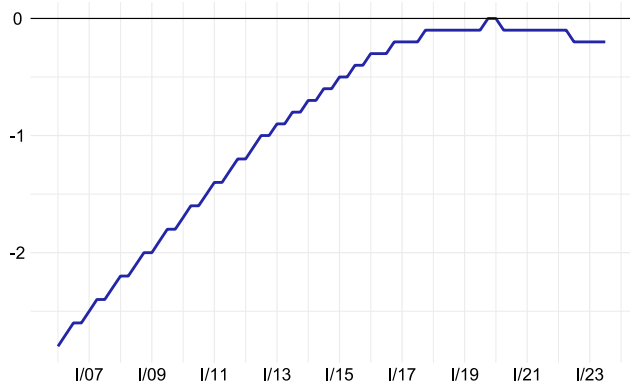
**M3 growth rate (in CZ)**  
(annual growth rate in %)



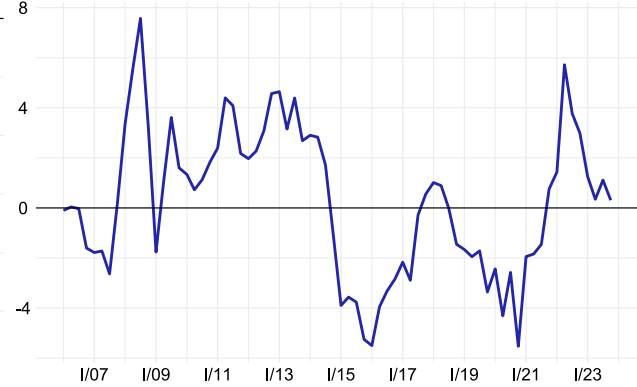
**Cyclically adjusted general government balance/GDP**  
(%)



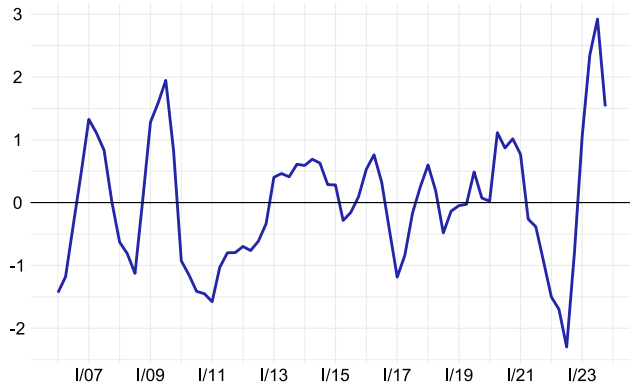
**Cyclically adjusted current account**  
(%)



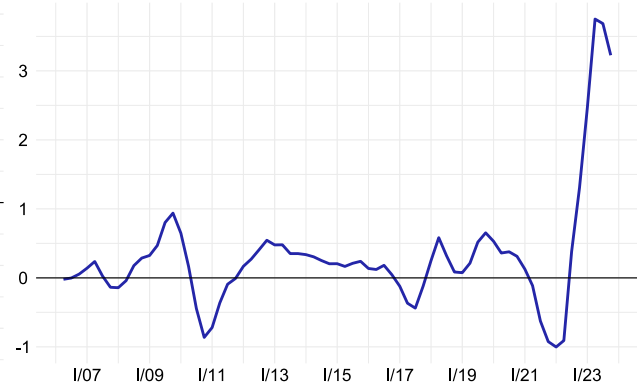
**Deviations of exchange rate from fundamental values**  
(%)



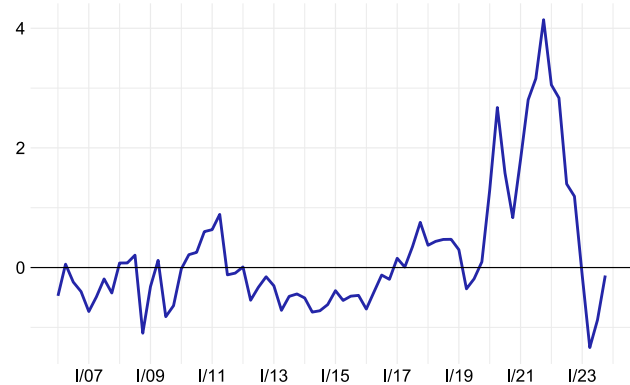
**Terms of trade**  
(standard deviations)



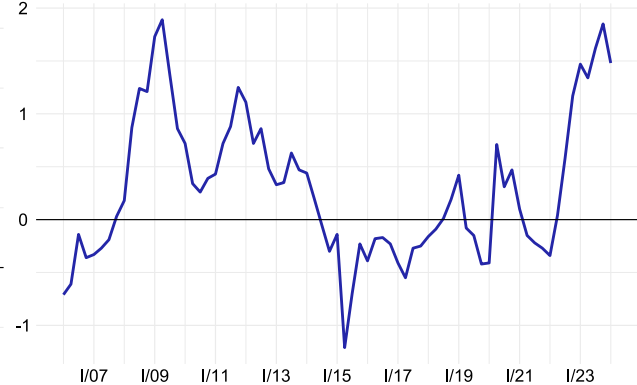
**Terms of trade (PCCI)**  
(year-on-year change in %)



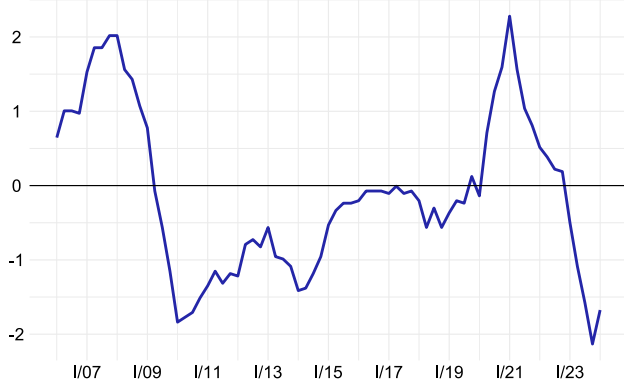
**Global Supply Chain Pressure Index**  
(standard deviations)



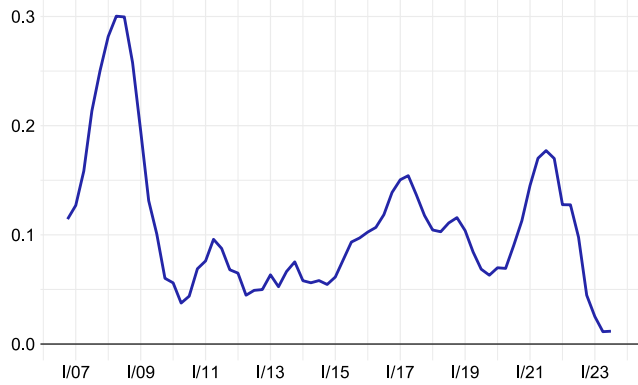
**GS Financial Conditions Index (in euro area)**  
(standardised index)



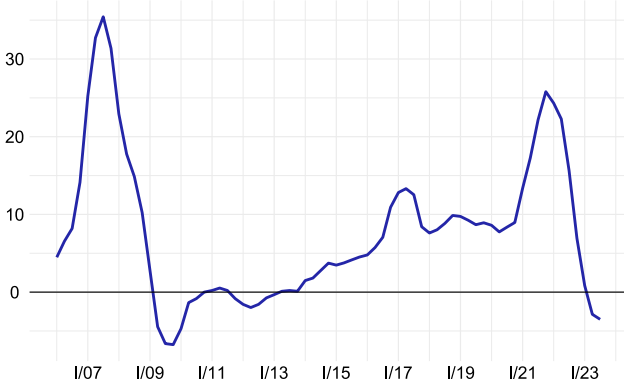
**M3 growth rate (in euro area)**  
(year-on-year change in %)



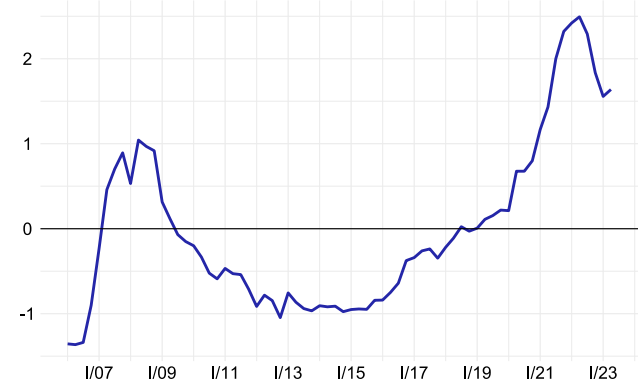
**Financial cycle indicator**  
(standardised index)



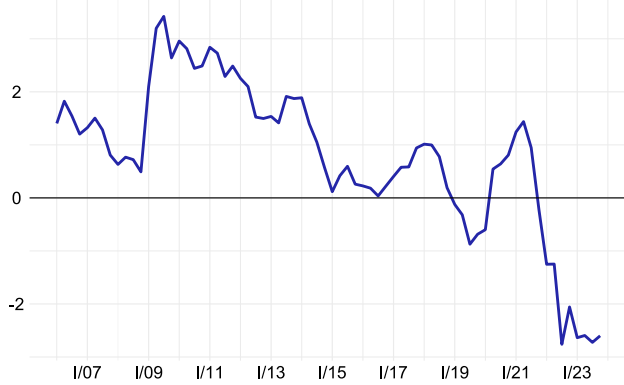
**Property prices**  
(year-on-year change in %)



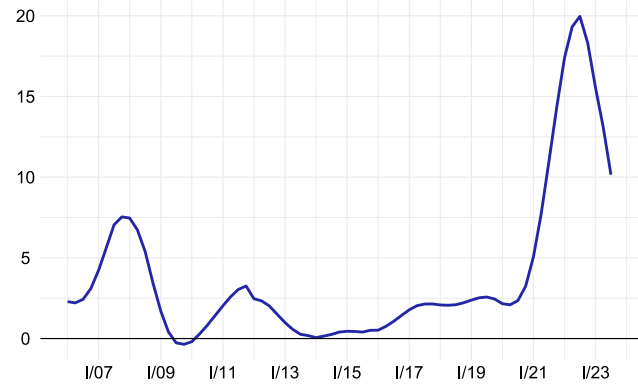
**Property price gap**  
(standard deviations)



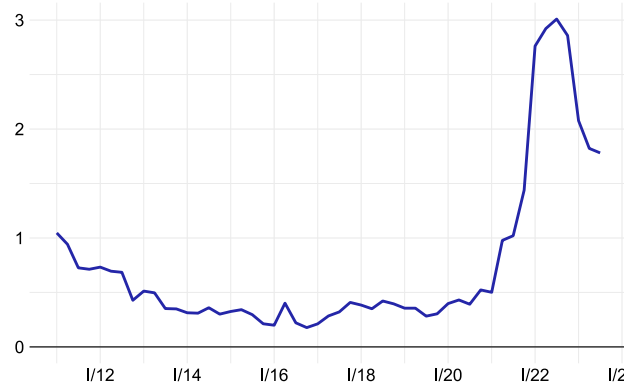
**Yield curve slope**  
(percentage points)



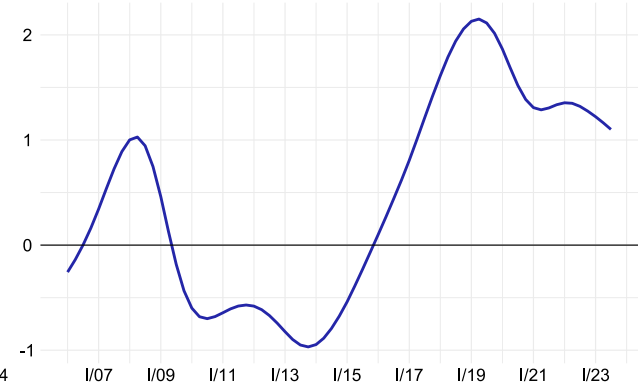
**Unobserved long-term inflation (PCCI)**  
(annualised quarter-on-quarter changes in %)



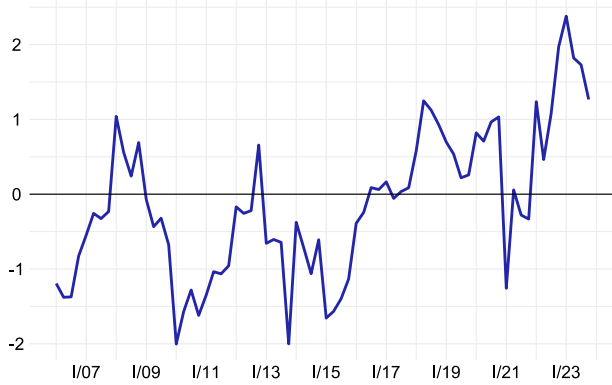
**Anchoring of long-term inflation expectations**  
(standardised index)



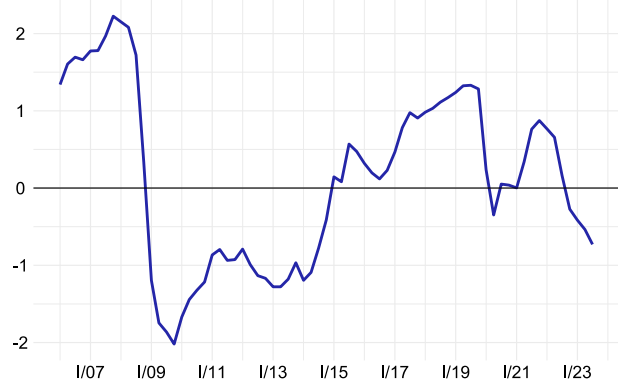
**LUCI**  
(standard deviations)



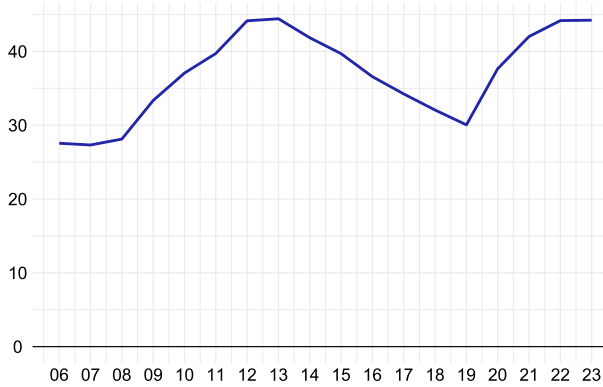
**Nominal unit labour costs**  
(standard deviations)



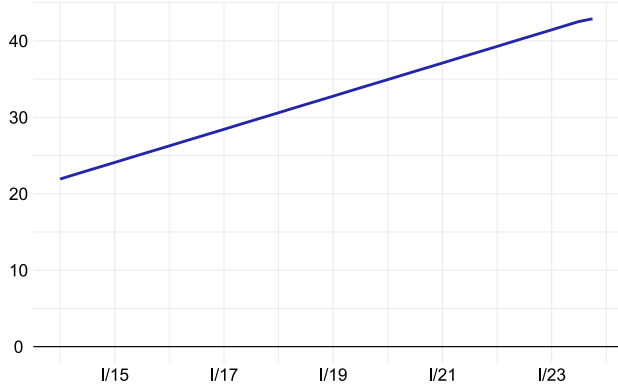
**Output gap**  
(standard deviations)



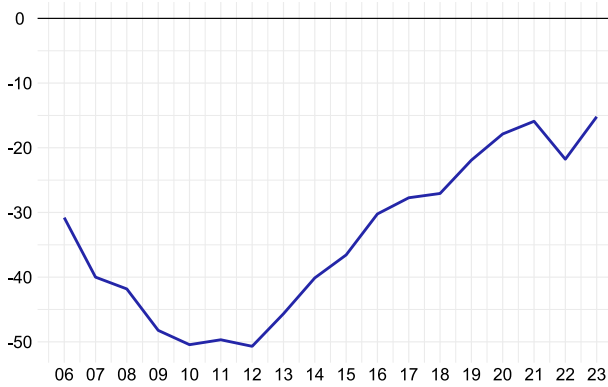
**General government debt/GDP**  
(%)



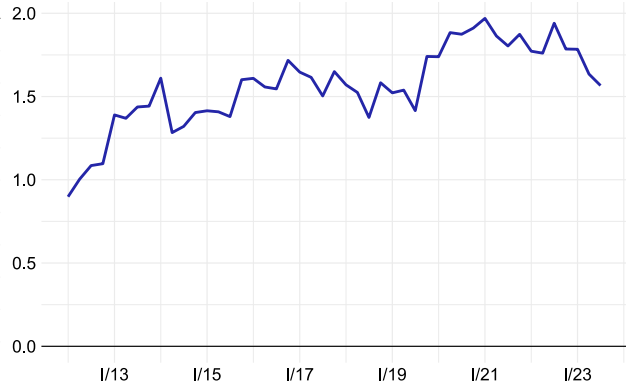
**Euroisation of the economy**  
(trend in %)



**Foreign investment position**  
(%)



**Foreign exchange reserves/short-term debt**  
(ratio)



**Export market share**  
(trend change in %)

