

Analyses of the Czech Republic's Current Economic Alignment with the Euro Area ——— 2022



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Introduction

Every year, the CNB’s “Analyses of the Czech Republic’s Current Economic Alignment with the Euro Area” presents a long-term and structural view of economic developments in the Czech Republic in the context of the country’s obligation to join the euro area. In preparing this document, the CNB – in line with the Czech Republic’s Euro-area Accession Strategy – fulfils its obligation to regularly assess the Czech Republic’s progress in laying the groundwork for euro adoption. The analyses contained in the publication assess the Czech Republic’s economic alignment with the euro area and the ability of the Czech economy to absorb potential asymmetric shocks by means of other mechanisms after losing its own monetary policy. The document also monitors the economic and institutional developments in the European Union and the euro area, and the resulting obligations relating to euro area entry.

The analyses focus on the traditional range of macroeconomic topics without any ambition to assess all issues relevant to the Czech Republic’s entry to the euro area.

The document does not examine the overall advantages and disadvantages of adopting the euro¹ and does not formulate recommendations on this step. The political decision on the date of entry into the euro area falls to the government of the Czech Republic.² Nor does this document analyse in detail the impacts of the Czech Republic’s joining the banking union, including the transfer of powers in the area of prudential supervision and resolution of credit institutions to the supranational level and the related economic and financial impacts, the costs linked with ESM membership and other – for example legal and political – aspects of joining the euro area. The consequences of changes to the process of ERM II entry, which is a precondition for euro area entry, are not assessed either.

The current economic situation is strongly affected by the ongoing war in Ukraine. Its impacts have so far been observed mainly in the higher-frequency data. Many of the analyses presented in this document are based on annual data with the last known value for 2021 and thus do not capture the impacts of the war. By contrast, the effects of the Covid-19 pandemic and the related anti-epidemic measures restricting economic activity, especially in 2020 and 2021, have already been reflected in the analyses.

The core of the document is the **Overall Message of the Analyses**, which summarises the results of the traditional analyses. Their outputs are shown in the charts and tables presented in the **Chartbook**. The findings underlying these analyses are described in the **Theoretical Foundations of the Analyses**. The motivation for each of the analyses and their technical descriptions are contained in a separate **Methodological Annex**, which is available as an e-document on the CNB website.

This year’s Alignment Analyses have been supplemented with six **thematic chapters**. The first examines in more detail the current institutional developments in the euro area and the European Union, while the second focuses on the ongoing discussion about the reform of the Stability and Growth Pact rules. The next two thematic chapters describe the conclusions of seminars organised by the Czech National Bank on the role of the exchange rate (whether it serves as a buffer that absorbs economic shocks or, on the contrary, is a source of shocks) and the relationship between market flexibility and monetary integration. The fifth thematic chapter describes Slovakia’s position in the euro area from the perspective of cluster analysis, and the final thematic chapter shows the inflation trends in selected European countries in the context of their economic convergence.

¹ A description of the costs and benefits of potential euro adoption and the motivations for these analyses are contained in the *Analyses of the Czech Republic’s Current Economic Alignment with the Euro Area 2018*, available on the CNB website: <<https://www.cnb.cz/en/monetary-policy/euro-adoption/>>.

² A recommendation to the Czech government on the timing of euro adoption from the economic perspective is given in the *Assessment of the Fulfilment of the Maastricht Convergence Criteria and the Degree of Economic Alignment of the Czech Republic with the Euro Area* issued jointly by the Ministry of Finance and the CNB. <<https://www.cnb.cz/en/monetary-policy/euro-adoption/>>.

The analyses assess the evolution of individual indicators over time and in selected countries. Unless stated otherwise, the countries assessed are Austria, the Czech Republic, Germany, Hungary, Poland, Portugal, Slovakia and Slovenia. These countries are either euro area members showing similar features in terms of economic level and trade integration as the Czech Republic, or are countries expected to adopt the euro in the future. The above selection is not related to any assessment of how successfully these economies have performed in the euro area. Germany, the largest trading partner of the Czech Republic, also provides a useful benchmark as a core country of the euro area. However, the large weight of Germany in the calculation of aggregate or average indicators for the euro area must be taken into account when making comparisons with those economic indicators.

The euro area is abbreviated as EA in the tables and charts. Unless indicated otherwise in a note, this refers to the EA19, i.e. the GDP-weighted average of the euro area member countries.




AT	Austria
BE	Belgium
CY	Cyprus
DE	Germany
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
PT	Portugal
SI	Slovenia
SK	Slovakia

The selected non-EA countries under analysis are:




CZ	Czech Republic
HU	Hungary
PL	Poland

The messages of the analyses for the Czech Republic have been illustrated graphically with arrows of different colours and directions.

The colour underlying the arrow gives information on the message of the indicator in terms of the risks associated with potential euro adoption in the areas analysed:

-  relatively low level of risk associated with potential euro adoption
-  economic risks associated with potential euro adoption
-  neutral message

The direction of the arrow gives information on the change in the indicator since the previous (last year's) analysis:

-  improved
-  deteriorated
-  neither improved nor deteriorated

The assessment of the message of the indicator applies only to the results of a specific analysis in a selected area of the economy. Likewise, the direction of the arrow indicates only whether the situation in that area has improved, has stayed at approximately the same level or has deteriorated over the last year.

However, the message should in no way be interpreted as a CNB recommendation for the Czech Republic to adopt the euro, much less as the Czech Republic's final euro adoption decision. Similarly, a single summary indicator cannot be compiled by adding up the individual coloured indicators or arrows.

I. OVERALL MESSAGE OF THE ANALYSES

Future adoption of the single European currency should further increase the benefits accruing to the Czech Republic from its intense involvement in international economic relations. Euro adoption will lead to the elimination of exchange rate risk in relation to the euro area and thus to a reduction in the costs of foreign trade and investment.

Besides these benefits, however, euro adoption simultaneously entails risks arising from the loss of independent monetary policy and the stabilising role of a flexible exchange rate. Following euro area entry, Czech economic policy will have fewer tools at its disposal to respond to the domestic economic situation. **Euro adoption is also associated with costs arising from new institutional commitments due to developments in the euro area, including the obligation to join the banking union or the European Stabilisation Mechanism.**

The key factors for the Czech economy will be its alignment with the euro area and its ability to absorb potential asymmetric shocks by means of other mechanisms after losing its own monetary policy. The analyses presented in this document thus assess the similarity of the long-term trends, medium-term development and structure of the Czech economy to the euro area, including the similarity of monetary policy transmission. The ability of the economy to adjust by means of autonomous fiscal policy, the labour market and the banking sector is also examined.

The analysed characteristics of the Czech economy as regards its economic preparedness to adopt the euro can be divided into three groups:

Indicators suggesting a relatively low level of risk associated with potential euro adoption in the area analysed

This group has long included the Czech economy's close trade and ownership links with the euro area and the high degree of its openness. These factors represent preconditions for the realisation of the benefits of euro adoption and also foster alignment between the Czech and euro area business cycles. The latter is currently very high, but this is due mainly to the similar impacts of strong global economic shocks. The use of the euro by Czech households has long been very low, but Czech companies have rapidly increased their euro financing in the last year, due also to the high differential between koruna and euro interest rates. The Czech koruna and the euro remain aligned vis-à-vis the dollar, while the stability of the exchange rate of the koruna against the euro was affected by the CNB's interventions in the foreign exchange market. Inflation persistence, which is relatively low in the Czech Republic, is not a barrier to joining the euro area either. As regards the adjustment mechanisms of the Czech economy, the high participation of the Czech population in the labour market and the low long-term unemployment rate can be positively assessed. Despite a slight increase, the Czech Republic still has one of the lowest long-term unemployment rates in Europe. The domestic banking sector remains resilient. Its profitability increased last and this year and its capitalisation and liquidity position remain robust.

Indicators with a neutral message

This category primarily includes the similarity of monetary policy transmission in the Czech Republic and the euro area. Although the Czech Republic differs from the monetary union average in some financial indicators such as the financial assets and liabilities structure and the loans structure of corporations and households, this cannot be considered a fundamental barrier to euro adoption. The depth of financial intermediation and the level of private sector debt in the Czech Republic are well below the euro area average and thus do not represent a systemic risk. The alignment of the Czech and euro area financial cycles, which has increased slightly, and the convergence of interest rates, which has decreased due to a stronger tightening of domestic monetary policy, are also assessed as neutral. The observed higher volatility of the Czech koruna against the euro and the decrease in the alignment of the Czech and euro area financial markets, which are a result of geopolitical uncertainty and worse sentiment and are therefore probably only temporary, cannot be regarded as a major risk either. As regards labour market flexibility, the geographical mobility of the labour force is rising gradually due to an increase in the share of foreign nationals in the population, while the share of part-time employees is stagnating.

Indicators suggesting economic risks associated with potential euro adoption in the area analysed

These indicators include the unfinished process of economic convergence of the Czech Republic towards the euro area, especially as regards the convergence of the price and wage levels. However, they have started to converge towards the euro area again in the last year. In the event of euro adoption, a risk may also arise from the lower structural similarity of the Czech economy with the euro area, consisting in an above-average share of industry in domestic GDP. As regards the configuration of the tax and benefit system on the Czech labour market, the problem of an "unemployment trap", which reduces the incentive to return to employment after a period of unemployment, persists (despite a slight improvement). The need to stabilise the epidemic-hit economy using fiscal policy tools and other expansionary fiscal steps have been reflected in the Czech Republic's large general government deficits and a marked increase in its government debt. This has further intensified the persistent problem of Czech public finance long-term sustainability stemming, among other things, from an ageing population and the lack of reforms of the pension and health systems.

THE CZECH REPUBLIC'S CYCLICAL AND STRUCTURAL ALIGNMENT WITH THE EURO AREA

Direct alignment indicators

The economic level of the Czech Republic (as measured by GDP per capita at purchasing power parity) diverged slightly from the euro area average in 2021, but convergence of the price and wage levels resumed. However, the lag behind the euro area average remains significant, especially in terms of the price and wage levels. The unfinished process of convergence thus remains a factor arguing against early euro adoption. If the euro was adopted, there could be sustained pressure on the overshooting of the current 2% inflation target due to appreciation of the equilibrium real exchange rate and convergence of the wage level. (See [Chartbook, page 32.](#))

The correlation of economic activity in the Czech Republic and the euro area has long been high, as business cycles in the last fifteen years have been largely determined by common external shocks. In the last two years, these economies have become even more cyclically aligned as a result of the global pandemic, the war in Ukraine and the related energy crisis. This has been reflected in a high correlation of GDP growth in the Czech Republic and the euro area and a strong correlation of Czech exports with economic developments in the euro area. However, it is unclear to what extent this increase in cyclical alignment is only a temporary consequence of strong global economic shocks. (See [Chartbook, page 35.](#))

The persisting differences in the structure of the Czech economy compared with that of the euro area consist mainly in an above-average share of industry in Czech GDP. As regards euro adoption, the structural differences pose a risk of asymmetric effects of economic shocks, to which the single monetary policy would not be able to respond in full. There were no major changes in the structural similarity of economies in the pandemic years 2020 and 2021, as the pandemic hit industry and services (albeit with varying intensity) in all euro area and EU countries. A current example of a potentially asymmetric shock is (albeit now to a lesser extent than before) the still persisting shortage of some components which is slowing the automotive industry. By international comparison, this sector is represented well above average in domestic industry. The rapidly growing electromobility and reduction of energy dependence on Russia will also pose a challenge for this sector and the entire domestic economy. (See [Chartbook, page 37.](#))

The robust trade and ownership links have long been one of the strongest arguments for the Czech Republic joining the euro area. Euro adoption would eliminate exchange rate risk and reduce transaction costs for all trade with euro area countries. At the same time, the high intensity of international economic relations, including the high intensity of intra-industry trade, usually leads to greater synchronisation of economic shocks and cyclical alignment and hence to lower costs associated with the loss of independent monetary policy. Alignment is also being supported by a high level of ownership links with the euro area in terms of investment from euro area countries in the Czech Republic. (See [Chartbook, page 38.](#))

The alignment of the Czech and euro area financial cycles increased slightly last year. The simplified financial cycle indicator for the Czech Republic rose faster than the aggregate indicator for the euro area, approaching it from below. Besides the convergence of the positions of the two economies, a noticeable increase in the correlation of movements in the indicator for the Czech Republic and the aggregate indicator for the euro area is also indicating a higher alignment of the financial cycle. By contrast, the evolution of the components of the simplified financial cycle indicator fostered a decrease in overall alignment, as the differences between these factors for the Czech Republic and the euro area increased year on year. (See [Chartbook, page 40.](#))

The continued tightening of monetary policy by the CNB in 2022 significantly outpaced the ECB's steps, leading to a marked increase in the interest rate differential in short-term rates. The response in long-term rates was more moderate, although the spread between Czech and German government bond yields is at its highest levels in ten years. (See [Chartbook, page 41.](#))

The Czech currency reacts to changes in the environment outside the euro area similarly to the euro. The correlation between the koruna-dollar exchange rate and the euro-dollar exchange rate worsened temporarily following the start of Russia's invasion of Ukraine. Later this year, this correlation increased noticeably due to the CNB's foreign exchange interventions against a depreciation of the koruna against the euro. The volatility of the koruna-euro exchange rate increased markedly after the outbreak of the war. This trend, also observed for other Central European currencies, reflected worse financial market sentiment linked with geopolitical uncertainty, impending recession and an appreciation of the dollar. Overall, the results of the analyses of financial market convergence also indicate the significant effect of extraordinary events in the global economy (the fading impacts of the coronavirus crisis, an increase in general risk connected mainly with the war in Ukraine and the asymmetric response by central banks to this situation). The alignment of the individual segments of the Czech financial market with the euro area is moving away from the pre-pandemic level. However, the rate of transmission of global news on the Czech money and foreign exchange markets remains at the levels seen in the last decade. (See [Chartbook, page 42.](#))

Similarity of monetary policy transmission

The depth of financial intermediation and the level of private sector debt in the Czech Republic are relatively low and thus do not pose a systemic risk. Their levels remain well below the euro area average. However, the euro area levels do not represent the levels to which the Czech financial sector should converge, as an excessively large financial sector and overleveraged private sector may pose a risk of exacerbating the cyclical decline in the real economy due to a possible negative shock. Moreover, the elevated private sector debt may limit the room for manoeuvre of monetary or other economic policies in economies with higher debt levels (See [Chartbook, page 44.](#))

The similarity of the structure of the financial liabilities of Czech and euro area non-financial corporations has remained relatively high despite a drop last year, while the similarity of the structure of the financial assets of Czech and euro area households is still low despite a gradual increase. The decrease in the structural similarity of the financing of Czech firms with those in the euro area was due to a marked decline in the share of debt securities in the Czech Republic relative to this share in the euro area. By contrast, a decrease in the structural mismatch has long been fostered by a gradual decline in other accounts payable (especially trade credits and advances, i.e. short-term financing by bridging the period of time until the due date of invoices, etc.) of Czech firms, whose share in the total liabilities of the domestic business sector was much higher than in euro area countries. The structural similarity of the financial assets of Czech households and households in the euro area has risen slightly but remains relatively low. The persisting dissimilarity is due mainly to Czech households' preference for cash and deposit holdings, together with holdings of units and shares, while households in the euro area hold a large part of their balance sheets also in insurance and pension schemes. The increase in similarity last year was due to a decrease in the share of cash and deposits in the Czech Republic and its rise in the euro area. Differences in the asset structure of households in the Czech Republic and in the euro area may imply their different sensitivities to changes in interest rates and hence the different impacts of a possible single monetary policy. (See [Chartbook, page 45.](#))

The structure of loans according to the interest rate fixation period for both non-financial corporations and loans for house purchase followed a similar trend in the Czech Republic and the euro area. The share of loans to non-financial corporations with longer fixation periods has increased in both the Czech Republic and the euro area in the last ten years. Nevertheless, 88% of new loans to non-financial corporations in the Czech Republic have floating rates or fixed rates of up to one year. This gives rise to the fast transmission of changes in monetary policy rates and, in turn, market rates to loan rates provided to firms. The spread between client rates on loans to non-financial corporations and the overnight interbank rate remains lower in the Czech Republic than in the euro area. The structure of the spread differs significantly, as monetary policy rates in the Czech Republic have risen rapidly in the last year and have been reflected in the individual interest rate segments gradually and to varying degrees. The Czech Republic's ten-year government bond yield in particular reflects monetary policy rates to only a limited extent, as it is also shaped by factors outside domestic monetary policy (such as long-term market expectations, fiscal policy and developments on the foreign bond markets). More specifically, the spread between the ten-year bond yield and the overnight interbank rate is significantly negative, i.e. short-term money market rates are markedly higher than the ten-year government bond yield. By contrast, the spread between the client rate on loans to non-financial corporations and the ten-year government bond yield is strongly positive. This, together with other factors, is due to the inverted shape of the yield curve. However, from the perspective of monetary policy transmission, the size of this spread is immaterial, as changes in monetary policy rates are most often transmitted to client rates on loans to non-financial corporations through the three-month PRIBOR. The transmission of the increase in monetary policy rates to client rates has thus been substantial. In previous years, loans to households for house purchase have been shifting towards longer fixation periods in both the Czech Republic and the euro area due to low market and client interest rates. This trend has been fading in the Czech Republic over the last year, reflecting households' efforts to lock in lower levels of interest rates on house purchase loans before their expected increase. Fixation periods of over 10 years predominate in the euro area, with fixation periods of five years prevailing in the Czech Republic. Different fixation periods may imply different levels of sensitivity to changes in market and monetary policy rates. A shift towards longer fixation periods may also lead to a decrease in the sensitivity of client interest rates to changes in financial market rates. (See [Chartbook, page 46.](#))

Companies have increased their euro-denominated loan financing due to a rise in the interest rate differential, while the share of foreign currency loans and deposits of Czech households has long remained very low. In the case of companies, the share of foreign currency loans has long been showing an upward trend due to high trade integration with the euro area and to natural hedging of exchange rate risk. A high interest rate differential between koruna and euro interest rates has led to a marked acceleration in this upward trend in euro-denominated loans in the last year. Their share in total corporate loans thus reached a historical high (more than 40% in August). In terms of sector and company size, this trend was relatively broad-based and may lead to an increase in exchange rate risk in some companies in the event of more significant depreciation of the koruna and weaker transmission of domestic monetary policy in the interest rate channel. The degree of euroisation in Czech companies could increase further due to the government's

intention to allow firms to keep accounts and pay taxes in euro. However, in addition to making the entire tax system less transparent, this would lead to an increase in the exchange rate risk of public budgets and dependence of tax revenues on exchange rate movements. Moreover, the transition of companies to the euro (as their operating currency) would result in the CNB's monetary policy being less effective. At the same time, there could be less appreciation pressure on the koruna in the years ahead as a result of a drop in the exchange of euro for koruna on the foreign exchange market by firms paying taxes in euro. (See [Chartbook, page 47.](#))

ADJUSTMENT MECHANISMS OF THE CZECH ECONOMY

Fiscal policy

Fiscal policy played an important role in stabilising the Czech economy during the Covid-19 pandemic. Owing to an extension of the effect of several fiscal stabilisation measures and the adoption of new measures, the Czech Republic recorded a sizeable general government sector deficit in 2021 again, albeit slightly lower than in 2020. It exceeded the 3% Maastricht convergence criterion for the general government deficit for the second consecutive year and failed to meet the medium-term objective (MTO) for the structural balance (-0.75% of GDP). However, given the application of the general escape clause of the Stability and Growth Pact (SGP), which allowed EU Member States to deviate temporarily from the SGP fiscal rules, these developments were in line with EU legislation. A favourable initial level of general government debt also allowed for large-scale fiscal stimulus. Therefore, the fulfilment of the Maastricht debt criterion has not yet been jeopardised, and the national debt limit (the “debt brake”) has not been exceeded.³ However, some measures, which had significant and potentially lasting fiscal impacts, were not directly linked to the pandemic (a reduction in personal income tax, for example) and exerted additional constant pressure on Czech public finance due to their size and unlimited duration. Moreover, Czech public finance will face further challenges in the long run owing to the ageing of the Czech population.

Fiscal policy should gradually return to compliance with European fiscal rules and create room for the still unresolved reforms of the pension and health systems. Under the current legislation,⁴ and in view of the recovery of the Czech economy, public finance consolidation should have commenced this year. The statutory minimum level of structural balance consolidation of 0.5 percentage point per year is likely to be achieved this year without additional restrictive measures. Despite the evident and necessary costs of the fight against the impacts of the energy crisis on the Czech economy, the government keeps to its commitment to formulate and implement fiscal consolidation. This will broaden the room for reducing the cyclical fluctuations of the economy, which is particularly necessary if a country loses its domestic monetary policy after euro adoption. (See [Chartbook, page 51.](#))

The labour and product market

Czech labour market indicators deteriorated only slightly after the onset of the coronavirus pandemic thanks to measures to protect jobs, and started to show a gradual improvement last year. This was reflected mainly in renewed growth in employment, a return of the rate of economic activity of the population to pre-crisis levels and a turnaround in the Beveridge curve, which shows that the number of vacancies remains well above the number of unemployed persons. The very low long-term unemployment rate, which is among the lowest in Europe, also remains a positive aspect. The growing labour market flexibility is being fostered by an increasing share of foreign nationals in the population. This will be strongly supported further by the arrival of war refugees from Ukraine this year. By contrast, the share of part-time jobs remains low. Tax changes helped reduce overall labour taxation last year. This was reflected in a decline in the risk of a “low wage trap”, which reduces the incentive to seek better-paid work. By contrast, the risk of an “unemployment trap”, which reduces the incentive to return from unemployment to employment, remains high despite the new configuration of the tax system. The Czech Republic is one of the better-scoring countries under review as regards the overall competitiveness of the economy. (See [Chartbook, page 55.](#))

The banking sector

The domestic banking sector developed favourably in 2021 and thus maintained its high resilience to potential adverse shocks. The stabilisation of economic conditions after the pandemic has led to a decline in the level of credit risk perceived by banks. This was positively reflected in the banking sector's profitability in 2021, which remains high by international comparison. Growth in profits strengthened further in the first half of this year due to higher margins related

³ The “debt brake” is defined in the Act on Budget Responsibility. It is a rule requiring the approval of balanced and long-term sustainable budgets of all government institutions if general government debt exceeds 55% of GDP (taking into account the government debt financing reserve).

⁴ The amended Act on Budget Responsibility.

to the process of the CNB raising monetary policy rates and the persistent, relatively strong growth of the main credit portfolios. The capitalisation of the domestic banking sector remains robust and is high by international comparison. The gradual build-up of the countercyclical capital buffer, which is continuing this year, is enhancing the resilience of the banking sector. Overall, capital buffers create favourable conditions for smooth lending to the real economy and absorption of any increased credit losses, which may arise from geopolitical tensions, elevated inflation or the related potential economic recession. The liquidity position remains strong due to a persistently high share of liquid assets. (See [Chartbook, page 62.](#))

SITUATION IN THE EURO AREA AND THE EUROPEAN UNION

The coronavirus pandemic continued to adversely affect macroeconomic developments in the euro area last year, whereas this year's economic and geopolitical situation has been fundamentally shaped by Russia's aggression towards Ukraine. However, the impacts of these events vary from country to country and thus economic developments continue to be very mixed across countries. Following the largest post-war decline, the euro area countries recorded renewed economic growth in 2021. However, this was relatively fragile due to the course of events. At the same time, the fiscal positions of individual countries remained unfavourable. Only five euro area countries met both fiscal criteria – debt and deficit – last year. This is still an improvement on 2020 when no country met these criteria. The fragile economic growth was disrupted by Russia's attack on Ukraine in February, which significantly increased the uncertainty regarding future developments, especially in view of the escalation of energy prices and the need to end the energy dependence of many euro area countries on Russia. Inflation has seen an unprecedented growth over time as a result of several parallel major events, caused by a combination of supply factors (problems with supplies and increased energy and food commodity prices due to the war in Ukraine) and demand factors (the repercussions of deferred consumption and the spending of forced household savings created in the Covid period), stimulated by major fiscal measures taken by individual European governments. Core inflation also climbed to an unprecedented level. However, inflation increased very unevenly across the euro area countries and its heterogeneity is complicating the conduct of the ECB's single monetary policy. (See [Chartbook, page 63.](#))

Given the need to address urgent problems, institutional and economic policy developments in the euro area and the EU have, as in previous years, been subdued and often accompanied by a complicated search for compromise. This was confirmed, for example, by the negotiations on completing the banking union, which even in 2022 were accompanied by fundamental differences in opinion among Member States on the final form of the banking union. To ensure at least some progress, a decision was taken to focus further work only on the area of bank crisis management for the time being, as this is an area on which Member States are most likely to reach a consensus in the current situation. In connection with the reform of EU fiscal rules, on 9 November 2022, the European Commission issued a communication outlining possible adjustments to the economic governance framework, including revising the Stability and Growth Pact rules.

Therefore, the monetary policy steps taken by the ECB (the decision to end net asset purchases under the PEPP and APP programmes and later also to raise its key interest rates) were among the more significant events as regards developments in the euro area and the EU in 2022.⁵ This was reflected in a sharp rise in long-term government bond yields, especially in the southern euro area countries. In July, the ECB introduced the Transmission Protection Instrument (TPI), which should reduce the differences in interest demanded by the market for government bonds of euro area Member States. The approval of EU sanctions packages against Russia in response to its aggression in Ukraine, which included a partial embargo on the import and use of Russian oil and the exclusion of several major Russian banks from the global SWIFT payment system, also had considerable economic impacts. A decision was also taken to enlarge the euro area for the first time since 2015 in summer 2022, when Croatia's accession to the monetary union on 1 January 2023 was approved on the basis of positive assessments in the Convergence Reports issued by the European Commission and the ECB. (For details, see the thematic chapters [Institutional developments in the euro area and the European Union](#) and [Discussion on a possible reform of the Stability and Growth Pact rules.](#))

As regards the decision on the timing of the Czech Republic's potential entry into the euro area, it should be noted that not all future potential obligations for the Czech Republic arising from euro adoption are known at this time. This is due to the unfinished nature of some key projects which will greatly affect the functioning of the euro area and some persisting problems of the economic and monetary union. The potential decision about the timing of joining the monetary union is thus still accompanied by major uncertainties.

⁵ Net asset purchases under the PEPP were terminated at the end of March 2022. Purchases under the APP ended as of 1 July 2022. The ECB raised interest rates by 0.5 pp in July and by a further 0.75pp to 1.25% in September for the main refinancing operation (0.75% for the deposit facility) and to 2% in November.

II. THEMATIC CHAPTERS

II.1 INSTITUTIONAL DEVELOPMENTS IN THE EURO AREA AND THE EUROPEAN UNION

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The EU economies showed signs of stabilising in the course of 2021. In early 2022, it was thus expected that most of the extraordinary measures introduced in response to the Covid-19 pandemic would continue to be lifted and that standard rules, including those in the area of fiscal coordination, would start to apply again. This year, however, the economic and geopolitical situation has been significantly affected by Russia's invasion of Ukraine. The EU responded to Russia's aggression by introducing a number of economic sanctions and efforts to end energy dependence on Russia. There has been no tangible progress this year in the further deepening of the economic and monetary union and euro area integration. The Czech Republic took over the presidency of the Council of the EU in the second half of 2022.

Russia's invasion of Ukraine on 24 February 2022 dealt a severe blow to the prospect of a sustained recovery of European economies after the coronavirus crisis. The EU's main response to the launch of the offensive was to impose a series of sanctions⁶ on Russia and subsequently on Belarus which supports the Russian war effort in Ukraine. These packages of sanctions target a wide range of economic areas. The most important measures include the exclusion of many major Russian banks from SWIFT, the international banking telecommunications system, restrictions on the ability of Russian citizens, firms and other entities to dispose of their assets in the EU, and restrictions on imports to and exports from Russia of goods which could generate significant profits or support the continuation of the Russian war effort. The EU countries also approved a gradual move away from Russian oil by the end of 2022,⁷ including the shipment of Russian oil and a ban on insuring tankers transporting Russian oil. Russia's invasion of Ukraine also affected expectations regarding economic developments in the EU and the euro area. The ECB has revised its forecast for euro area GDP growth downwards several times this year. By contrast, the inflation forecast was revised significantly upwards, as growth in energy commodity prices accelerated further due to the war, accompanied by rising prices of food commodities. The need to address the impacts of the war was reflected in the priorities of the Czech Presidency of the Council of the EU, which included: 1) managing the refugee crisis and Ukraine's post-war recovery; 2) energy security; 3) strengthening Europe's defence capabilities and cyberspace security; 4) strategic resilience of the European economy; and 5) resilience of democratic institutions.

Deepening economic and monetary union

The Conference on the Future of Europe was formally concluded in May. Its outputs were also reflected in the preparation of the European Commission's work programme for 2023, which included the issuing of legislative and non-legislative proposals responding to the conclusions of the conference.⁸ The recommendations arising from the conference include introducing direct elections of the President of the European Commission, reforming the European Parliament's electoral system, introducing the right of legislative initiative for the European Parliament and extending voting by qualified majority.⁹ These proposals require a broader discussion by Member States and could form the basis for wider debate on the institutional set-up and general functioning of the EU ahead of elections to the European Parliament in the first half of 2024. In addition, the European Parliament has presented its own proposal for changes to the electoral system, which it would also like to implement before the 2024 elections. However, in the case of institutional proposals, caution is needed to avoid a swift adoption of measures that would significantly undermine the institutional balance in the EU. Maintaining the role of the Council of the EU and retaining the possibility of a national veto on key issues such as foreign, security and tax policy remain crucial for the Czech Republic.

⁶ A complete and regularly updated list of all applicable sanctions imposed on Russia and Belarus in connection with the ongoing war, including answers to frequently asked questions, is available on the European Commission's website: <https://ec.europa.eu/info/business-economy-euro/banking-and-finance/international-relations/restrictive-measures-sanctions/sanctions-adopted-following-russias-military-aggression-against-ukraine_en#sanctions>

⁷ The Czech Republic, Hungary and Slovakia were exempted from this measure (due to their high dependence on Russian oil and limited possibility of using alternative sources) until 2024. At the same time, however, it was emphasised that these three countries should strive to move away from Russian oil as soon as possible before the extended period ends.

⁸ In line with the conclusions of the conference, the Commission is expected to present, for example, specific proposals for reviewing economic governance, a legislative proposal for a package of own resources for the EU budget and the planned legislative proposal on a digital euro.

⁹ Voting could be modified either by using passerelle clauses (i.e. provisions in the Treaties which allow for changes in voting without the need to change primary law) or through amendments to the Treaties.

In 2022, the European Commission first applied a procedure provided for in the regulation on a general regime of conditionality for the protection of the Union budget (the Conditionality Regulation) to an EU Member State. This regulation was adopted in December 2020 and allows the adoption of measures necessary to protect the EU budget where the financial interests of the EU and the EU budget are jeopardised by breaches of the rule of law principles in a Member State. In line with the procedure set out in this regulation, the European Commission proposed on 18 September 2022 that the Council adopt an implementing regulation with measures to protect the EU budget, consisting mainly of a suspension of the payment of part of the funds (amounting to EUR 7.5 billion), which were to be paid from the EU budget to Hungary, due to insufficient protection of funds from the EU budget during public procurement. The implementing regulation will enter into force if it is approved by the Council by qualified majority.¹⁰ The above mentioned Conditionality Regulation represents a new tool parallel to the procedure under Article 7 of the TEU (the rule of law mechanism) and allows the EU authorities to make the drawdown of EU funds by a Member State conditional on the implementation of specific measures in various national policy areas if such measures are necessary for the protection of the EU budget. The regulation thus represents a potentially strong tool for promoting certain measures in Member States and it will be interesting to watch its future use in practice.¹¹

Banking union and capital markets union

Owing to persisting fundamental differences of opinion between euro area Member States, no major progress has been made in the completion of the banking union in 2022. Despite intensive negotiations, an agreement is yet to be reached on the planned roadmap covering the four areas discussed above.¹² The main contentious issues included the form of the European Deposit Insurance Scheme (EDIS), the approach to the level of risk of sovereign exposures in banks' portfolios and disagreements over the home-host balance,¹³ which is also an important topic for the Czech Republic.

Instead of the comprehensive roadmap which was originally under consideration, the Eurogroup agreed to continue discussions on one of its parts only, specifically partial reforms in the area of bank resolution. This was subsequently confirmed by a decision taken at the Euro Summit in June 2022. The European Commission is expected to present specific legislative proposals by the end of 2022. The main elements for strengthening the crisis management framework should be the harmonisation and clarification of the public interest assessment process, which is a key prerequisite for the use of resolution tools, the extended application of these tools at the European and national level, further harmonisation of the use of national deposit insurance funds in resolution and harmonisation of selected elements of national legislation relating to bank insolvency. In November 2022, the Council of the EU reached an agreement on a common position regarding the transposition of the Basel III international standard into the EU directive and regulation on capital requirements for banks. This will be followed by trilogue negotiations with the European Parliament next year. The ratification of the amended Treaty establishing the European Stability Mechanism (ESM), which aims to enable the ESM to fulfil the role of a common backstop for the Single Resolution Fund (SRF), is yet to be completed. According to an earlier Eurogroup political agreement, a backstop in the form of a credit line from the ESM was to be introduced at the start of 2022.

Some progress was made in the negotiations on creating the Capital Markets Union (CMU).¹⁴ An general approach was reached in the Council of the EU on a directive and regulation establishing a European Single Access Point for information about companies (ESAP), a review of the Alternative Investment Fund Managers Directive (AIFMD) and a review of the regulation on European long-term investment funds (ELTIF). The Czech Presidency continued to discuss

¹⁰ The Council of the EU should discuss the draft implementing regulation no later than 19 December 2022. Following the publication of the draft Council implementing decision, the Hungarian government announced that it would amend the relevant legislation governing public procurement by the end of November 2022. For the full text of the draft Council implementing regulation of 18 September, including the EC's explanatory memorandum, see: <https://eur-lex.europa.eu/legal-content/CS/TXT/?uri=CELEX:52022PC0485>.

¹¹ The Conditionality Regulation was reviewed by the European Court of Justice on the basis of actions brought by Hungary and Poland. The court did not find the regulation to be in contravention with EU primary law (see judgements C-156/21 and C-157/21).

¹² The pillars should have been as follows: the creation of a common deposit protection scheme, i.e. the establishment of a European Deposit Insurance Scheme (EDIS), support for the diversification of banks' government bond holdings, an improvement in bank resolution and the creation of conditions for a single market in banking services.

¹³ The issue is related to the risks which integration in the banking sector represents for host countries (countries where, within a given banking group, only subsidiaries of a parent company are located but the parent company is not), in particular as regards the capitalisation of the individual banks within the group, the effectiveness of supervision and the responsibility for the liabilities of distressed banks. In the negotiations, host countries seek to ensure that subsidiaries (and not just their parent companies) are sufficiently capitalised in the event of financial distress, so that the competent supervisory authorities have sufficient tools to carry out their activities with respect to banks located in the given country and to limit as much as possible the cases in which the host country would be liable for problems caused by decisions taken by authorities outside its jurisdiction.

¹⁴ Although the CMU project has been designed for the EU as a whole, its individual measures largely respond to the specific problems facing the euro area, such as persistently low economic growth, the relative weakness of the capital markets, stagnating profitability and significant financial sector diversity, and support efforts to strengthen the role of the euro in the global economy.

these standards, and in the case of ELTIF revision, political agreement was reached with the European Parliament in the second half of October 2022. At the end of 2022, the European Commission should submit further draft legislation in the area of the CMU, including an initiative to harmonise some aspects of insolvency proceedings for companies in the Member States, a revision of the European Market Infrastructure Regulation (EMIR) and legislation regulating listing on public stock exchanges. The deepening of the CMU is also closely linked to the area of sustainable finance in which advances were made in the negotiations on taxonomy in 2022. The EU Council and the European Parliament supported the European Commission's proposal to temporarily include natural gas and nuclear energy in sustainable sources (subject to a number of conditions).

Review of the Stability and Growth Pact rules

The general escape clause of the Stability and Growth Pact (SGP) was supposed to be deactivated at the end of 2022, but the EU Member States agreed to extend it for another year, so EU fiscal rules will not be renewed until 2024. In November 2022, as part of the long-running debate on the revision of the EU's fiscal rules, the European Commission submitted a communication presenting the specific features of a possible reform for further discussion. The communication followed up, among other things, on a public consultation which took place at the end of 2021, the outputs of which were also published in 2022. (For details see the thematic chapter [Discussion on a possible reform of the Stability and Growth Pact rules](#) of these Alignment Analyses).

The extension of the actually suspended EU fiscal rules points to shortcomings in the current fiscal policy coordination. Moreover, the lack of respect for and compliance with the fiscal rules of the Stability and Growth Pact, which have not been rigorously enforced in the past, is a long-standing problem for the euro area.¹⁵ Similarly, the system of economic policy coordination remains hindered by a low degree of compliance with the recommendations issued, which are legally non-binding and thus unenforceable.

EU debt financing

EU debt financing, i.e. the possibility of issuing common EU bonds to finance specific projects, has also long been the subject of EU debate. The need to respond to the impacts of the Covid-19 pandemic has made this topic even more relevant, as by introducing breakthrough instruments such as the Recovery Plan under the Next Generation EU (NGEU) scheme and the SURE programme,¹⁶ the European Commission, on behalf of the EU borrowed or, in the case of the needs of the NGEU, continues to borrow the amount of funds which would enable these programmes to be financed on an ongoing basis and cover the needs of individual Member States.¹⁷ The European Commission provides regular updates on the management of the common debt arising from the issuance of EU bonds in reports summarising total borrowings, their maturities and remuneration rates. Owing to this year's extraordinary events, such as the impacts of Russia's aggression against Ukraine and the significant rise in energy prices, other similar instruments – whether extraordinary or permanent – have also started to be considered. The most specific new proposal so far concerns the reconstruction of Ukraine. In November, the European Commission proposed borrowing a total of EUR 18 billion (guaranteed by the EU budget) on capital markets for the provision of financial assistance to Ukraine in 2023. Unlike in the case of the SURE and NGEU tools, raising funds to finance the EU's macrofinancial assistance in the financial markets is already standard practice. However, the amount of the proposed assistance is much higher than in the past.

In relation to the current debt financing of the EU budget, it is important to mention the economic and institutional issues raised by the enhanced use of this instrument. Owing to the principle of EU budget balance enshrined in primary law, the budget commitments of individual countries have increased, further complicating the already difficult process of approving the Multiannual Financial Framework. The greater use of common European bonds was approved on condition that it would be exceptional, limited in volume and temporary. However, it has led to repeated considerations regarding the permanent introduction of common bonds, which has long been sought mainly by the southern periphery countries. This step would be a major shift towards a fiscal union, which would, in addition to common bond management, strengthen the EU's supervision of individual financial flows and the related policies. As a secondary consequence, this would weaken the budgetary sovereignty of individual Member States and significantly affect the inter-institutional balance enshrined in primary law without directly changing these rules.

¹⁵ IMF experts have repeatedly drawn attention to this problem; see, for example, Eyraud et al. (2018).

¹⁶ Support to mitigate Unemployment Risks in an Emergency.

¹⁷ The Recovery Plan was discussed in the 2021 Alignment Analyses in thematic chapter 4: *Current challenges to euro area and EU fiscal policy in the context of the Czech Republic's obligation to adopt the euro* and in thematic chapter 5: *Comparison of selected national recovery and resilience plans*:

<https://www.cnb.cz/export/sites/cnb/en/monetary-policy/galleries/strategic_documents/analyses_of_alignment_2021.pdf>:

Activities of the European Central Bank

The ECB ended net asset purchases under its Pandemic Emergency Purchase Programme (PEPP) at the end of March 2022. It also terminated purchases under the Asset Purchase Programme (APP) – its largest programme unrelated to the coronavirus crisis – as of 1 July 2022.¹⁸ However, maturing principals from the securities should be reinvested under both programmes. PEPP reinvestments should continue until at least the end of 2024, while the ECB is yet to specify a date for the end of APP reinvestments. The end of the PEPP was announced some time ago, as the tool was designed as temporary from the very beginning and was created solely to address the economic impacts of the Covid-19 pandemic. However, the discontinuation of both programmes also fits into the context of the ECB's reassessment of its approach to rising inflation in the euro area.

Subsequently, from mid-2022, the ECB started raising its interest rates in response to rising inflation, first by 0.5 percentage point in July 2022, then by 0.75 percentage point in September and November, first to 1.25% and then to 2% for its main refinancing facility. In July, the Governing Council also decided to make future interest rate decisions at individual meetings on the basis of incoming data, thus moving away from forward guidance which it had long used to signal a policy stance.¹⁹

Simultaneously with the July increase in interest rates, and in anticipation of a possible financial market response to it, the ECB announced the establishment of the Transmission Protection Instrument (TPI).²⁰ Its declared aim is to ensure a smooth transmission of monetary policy across all euro area countries. In practice, the TPI should prevent excessive growth in differences between the government bond yields of individual countries, which could make government debt financing excessively expensive for some of them (especially those on the southern periphery of the euro area). The TPI will thus serve as a tool for the ECB to purchase the bonds of these countries, provided that predefined conditions are met.²¹ The total volume of purchases has not been limited *ex ante* and is thus fully at the discretion of the ECB. Therefore, like some other ECB government bond purchase programmes, the TPI also raises a number of questions, such as its compliance with the prohibition of monetary financing.

The ECB continued its activities to support the fight against climate change this year. Following on from its 2021 climate plan, the ECB announced that it would include a climate criterion in its corporate bond purchases. The declared aim of this step is to reduce the financial risk related to climate change on the Eurosystem's balance sheet, encourage transparency and support the green transition of the economy.²² Attention also focused on some public statements by the President of the ECB on climate action, which raised questions as to whether the ECB's activities in this area are consistent with its primary objective and its legal mandate.

Euro area enlargement

The European Commission and the European Central Bank published their regular Convergence Reports in June 2022. The reports are usually prepared over a two-year cycle and aim to assess the progress made by EU Member States that have not yet adopted the euro and do not have an opt-out from this obligation in their preparations for joining the monetary union. Seven countries were assessed: Bulgaria, the Czech Republic, Croatia, Hungary, Poland, Romania and Sweden.²³ This year's assessment was significantly affected mainly by the economic pressures caused by the Covid-19 pandemic, but also by the war in Ukraine, the overall situation in the global economy and the limited application of EU fiscal rules as a result of the continued use of the general escape clause from the SGP rules, which applies above all to the assessment of the criterion of sound and sustainable public finances.

The main output of the two Convergence Reports in terms of euro area developments is that Croatia has met all the criteria for adopting the single currency. This conclusion was subsequently confirmed by the relevant decisions taken by the EU Council, the European Council and the European Parliament. Therefore, Croatia is continuing with the process of adopting the euro, which it started in 2020 by joining the exchange rate mechanism (ERM II) and fulfilling a set

¹⁸ Information on the monetary policy of the ECB and other selected central banks is available in the CNB's quarterly Central Bank Monitoring at <<https://www.cnb.cz/en/monetary-policy/monitoring/>>.

¹⁹ For details see: <<https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.mp220721~53e5bdd317.en.html>>.

²⁰ For details see: <<https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr220721~973e6e7273.en.html>>.

²¹ A country that would receive assistance through the TPI should not be subject to the excessive deficit procedure or the macroeconomic imbalance procedure and should have a sustainable, declining government debt path, and sound and sustainable macroeconomic policies.

²² For details see: <<https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr220704~4f48a72462.en.html>>.

²³ These countries have a temporary exemption from adopting the euro (a derogation). The Convergence Reports do not assess Denmark, which has negotiated a permanent exemption from adopting the euro (an opt-out). The Convergence Reports in general and the conclusions of the June 2020 Reports were discussed in Spotlight in Central Bank Monitoring III/2020: <https://www.cnb.cz/export/sites/cnb/en/monetary-policy/galleries/monitoring/2003_cbm.pdf>.

of *ex ante* conditions, including joining the banking union at the time of ERM II accession.²⁴ In the second half of 2022, the conversion rate of the Croatian kuna to the euro was set²⁵ and a number of formal and practical steps were taken, such as the preparation of euro coins and the introduction of a transitional period during which prices in Croatia would be displayed in both currencies. Croatia will officially adopt the euro on 1 January 2023, becoming the 20th member of the euro area. Euro adoption is a way for this country to naturally eliminate the risks arising from the high degree of spontaneous euroisation of its banking sector and the economy as a whole, which dates back to the 1960s and 1970s when Croatians converted their assets to German marks.²⁶ Denmark, which has an opt-out from adopting the euro, and Bulgaria, which, according to the available information, is continuing to take steps towards adopting the euro on 1 January 2024, will continue to participate in ERM II.

Conclusion

The content of the euro adoption obligation assumed by the Czech Republic on acceding to the EU has been fundamentally extended in recent years. As in previous years, the Czech Republic will have to carefully evaluate these developments and take them into account in its considerations on the timing of joining the euro area. However, the high indebtedness of euro area countries coupled with only little effort to reduce it, weak enforceability of fiscal rules, a tendency towards economic divergence among members of the Economic and Monetary Union and repeated proposals to establish a fiscal union make the future evolution of the euro area hard to predict. Therefore, it is very difficult to predict the appropriate timing of the Czech Republic's potential entry into the euro area.

²⁴ The CNB has long been opposed to the imposition of *ex ante* conditions relating to euro adoption and ERM II entry, and has repeatedly objected to this unprecedented step, which lacks the support of primary law, at the relevant fora.

²⁵ The exchange rate was set at HRK 7.53450 to the euro, i.e. at the level of the current central rate in ERM II.

²⁶ For more details, see Spotlight in Central Bank Monitoring IV/2019:

<https://www.cnb.cz/export/sites/cnb/en/monetary-policy/galleries/monitoring/1904_cbm.pdf>

II.2 DISCUSSION ON A POSSIBLE REFORM OF THE STABILITY AND GROWTH PACT RULES

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Despite a number of past adjustments and additions, the Stability and Growth Pact rules (SGP) have long been struggling with low clarity, enforceability and credibility. The issue of a thorough revision of these rules to respond to these problems was raised even before the Covid-19 pandemic. The developments over the last two years have further underlined the importance of this topic. Several proposals to modify them have already been tabled. A communication of the European Commission has been the latest of them so far.

The rules collectively constituting the Stability and Growth Pact provide the basis for economic and fiscal coordination between all EU Member States and in particular the euro area countries. They aim to promote budgetary stability in order to prevent the possible negative effects of Member States' fiscal imbalances on the economic position of the euro area. This is in a situation in which the euro area shares only a common monetary policy, while fiscal policy has remained within the competence of individual Member States, and primary law enshrines the principle of unaccountability of the EU and its Member States for the obligations of individual Member States and the European balanced budget rule. Public finance sustainability, along with the price, exchange rate and interest rate stability criteria, is a basic requirement for potential candidates for monetary union membership.

The SGP rules emerged as part of the process of establishing the euro area in the 1990s. The 1992 Maastricht Treaty laid down the reference value of 60% for the government debt-to-GDP ratio and 3% for the general government deficit-to-GDP ratio as the maximum permissible debt targets for EU Member States. These are the central and still valid principles of EU fiscal policy. These fiscal rules were further refined in secondary legislation, which incorporated the excessive deficit procedure (EDP) into EU law. There has been a debate about the configuration, effectiveness and enforcement of these fiscal rules essentially since their establishment.²⁷ The definitions of the rules were the result of a compromise between two opposing groups of Member States. On the one hand, some countries called for maximum flexibility of the rules, fearing that such rules would unduly restrict them in the conduct of economic policy. The other group, by contrast, emphasised budgetary discipline in view of the sort of shape the individual Member States are in and its influence on the euro area (and on the EU) as a whole.

The SGP fiscal rules have been revised several times in response to the economic situation in the EU and the euro area. Due to their increasing complexity and following a debate on the effectiveness of the existing rules, the European Commission tasked its expert advisory body, the European Fiscal Board (EFB), to examine options for a further reform of the SGP in 2017. The European Commission, led by Ursula von der Leyen, also followed up on plans to revise the SGP, and announced a public consultation at the end of 2021. Some Member States and relevant professional organisations have responded to the Commission's initiative.²⁸ The ongoing debate is also affected by the currently increasing pressure on public budgets owing to the repercussions of the Covid-19 pandemic, Russia's aggression against Ukraine, the related energy crisis and national governments' plans to increase defence and security spending. Last but not least, the urgency of the reform is associated with the expected deactivation of the general escape clause (GEC) under the SGP from the start of 2024. The GEC currently suspends the launch of the excessive deficit procedure due to these shocks. On 9 November 2022, the European Commission issued a communication containing proposals for a possible revision of the SGP rules on the basis of an assessment of the public consultation and the EU Member States' discussions so far. The approach proposed by the European Commission is based on strengthening the "individual" approach to each Member State when assessing compliance with fiscal rules, mainly with respect to their debt level. When reducing government debt, Member States should follow medium-term plans (set for 4 years, with the option of an extension of up to 7 years), which, in addition to debt reduction, should also focus on reforms and investment and be linked to the European Semester, or the national recovery plans. According to the European Commission's proposal, the medium-term plans should replace the "one-twentieth rule" (an annual consolidation of 1/20 of the difference between a country's own debt and the threshold of 60% of GDP). The implementation of the rules and the supervision of compliance with these rules should take greater account of potential risks. Any non-compliance with the rules should be sanctioned more effectively and non-fulfilment of the set objectives should be associated with greater reputational risk. The currently applicable criteria

²⁷ At the time of the establishment of the euro area, three countries (Belgium, Italy and Greece) did not satisfy the debt-GDP ratio of 60% of GDP, and yet they were accepted into the monetary union. Croatia will also be accepted at the beginning of 2023 without fulfilling this criterion. Therefore, the 60% debt-GDP ratio is more of a target for the fiscal policy of a euro area candidate country rather than a fixed condition that must be met before joining the euro area. The same increasingly applies to current euro area EU Member States.

²⁸ ECB analysts also commented on possible reforms in 2019 [Fiscal rules in the euro area and lessons from other monetary unions \(europa.eu\)](#) and in March 2022 [Post-COVID fiscal rules: a central bank perspective \(europa.eu\)](#).

and benchmarks for the general government deficit and government debt, as well as the excessive deficit procedure and the mechanism of macroeconomic conditionality, should be preserved.

Past revisions of the SGP rules as a precursor to the current debate

As mentioned, the SGP fiscal rules have already been subject to several modifications in the past, the first being in response to non-compliance by Germany and France in 2003 and a series of structural reforms in Germany. This revision consisted in expanding the SGP to include medium-term budgetary objectives (MTOs), which are set individually for each Member State, and in taking into account the level of deficits and the speed of fiscal consolidation in their structural form (i.e. adjusted for cyclical effects).

In response to the financial and debt crisis in 2008–2012, the rules were supplemented by the Six-Pack, the Two-Pack and the Fiscal Compact,²⁹ which strengthened the elements of the SGP aimed at closer fiscal coordination between EU Member States, strengthened the European Commission's fiscal policy surveillance and sanction mechanisms. They also expanded the fiscal rules by including a benchmark for growth in expenditure linked to medium-term economic growth in line with the MTOs (*the expenditure rule*) and the possibility of correcting macroeconomic imbalances, which, by contrast, applies also to Member States which are not among the largest debtors. A “debt brake” for countries with debt exceeding 60% of GDP was also incorporated into EU law or the excessive deficit procedure in the form of the “one-twentieth rule”.

The SGP fiscal rules were last revised in 2015 by incorporating elements of flexibility into the medium-term objectives. When setting MTOs, these should better reflect the position of countries within the business cycle, with an emphasis on growth-friendly investment, structural reforms and job creation. At the same time, however, this change further increased the complexity of fiscal rules and their difficult comprehensibility.

Motivation for SGP reform

The legitimacy of the debate on a reform of the SGP rules is demonstrated not only by the supposed or real complexity and incomprehensibility of the current rules, but above all by the fact that euro area Member States are becoming increasingly indebted. The latter proves that the current configuration of the system and their enforcement does not meet its primary objective. According to Eurostat, the EU debt ratio averaged 86.4% of GDP in 2022 Q2, i.e. well above 60% of GDP under the SGP. When looking at the individual Member States, the range of debt is large, from Greece (182%), Italy (150%) and Portugal (123%) to Bulgaria (21%) and Estonia (17%).³⁰ At the same time, 12 out of 19 euro area Member States have a debt ratio above 60% of GDP. Yet, a rapid return of most debtors below the SGP limit can hardly be expected without radical fiscal consolidation, which is, however, difficult to enforce politically within the parameters stipulated by the applicable rules. Proponents of the changes to the rules also argue that this approach would almost certainly lead to an economic recession. There are also calls for a weakening of the rules, maintaining that their target setting is outdated.

The reasons for reforming the SGP rules also include the insufficient suppression of the procyclicality of fiscal policies. The current rules, which have been in place over the last two decades, have not prompted Member States to build up budgetary buffers in good times and, conversely, not to cut investment spending as a first step in bad times. This procyclicality adversely affects the price at which the countries concerned borrow in the markets, which in turn requires more forceful fiscal consolidation than would have been necessary if buffers were in place.

These two aspects have been further compounded by the relatively low incentive of national governments to comply with the rules and the lack of willingness of the European Commission and the Council to enforce them effectively. Reform advocates point out that even the Court of Justice of the EU has allowed Member States and the EU Council to depart from the European Commission's fiscal recommendations in its case law.³¹ However, in the hypothetical absence of any fiscal rules and their application, Member States' debt and annual budget deficits are likely to be much higher than at present.

The trend of long-term non-compliance, problematic enforceability, along with reduced transparency, undermines the credibility of the SGP fiscal rules. In the longer run, this will further increase the risks to the capital market financing

²⁹ The fiscal compact still stands outside the formal framework of EU law (in the form of an intergovernmental agreement (IGA)), although a plan for its incorporation into the system of European law was part of the agreement when it was adopted.

³⁰ France has seen a significant jump in its debt ratio since the global financial crisis. Its debt was “only” almost 69% in 2008, compared to more than 113% of GDP in 2022 Q2. This makes France the fifth most indebted economy, both in the euro area and in the EU as a whole. By comparison, Germany's debt ranged between 60% and 70% of GDP in the same period.

³¹ See the article by ESM Managing Director Klaus Regling: <<https://www.intereconomics.eu/contents/year/2022/number/1/article/eu-fiscal-rules-a-look-back-and-the-way-forward.html>>.

of euro area countries' public budgets, as well as the risks to the euro exchange rate and price stability. The lack of credibility of the shared rules also poses purely political risks with potentially serious implications for the quality of cooperation between euro area Member States and their integration.

Clearly defined and enforced fiscal rules could also take pressure off the European Central Bank to address the issues which fall outside its primary mandate. The ECB has long been preventing the materialisation of the above risks using unconventional monetary policy instruments. However, this raises controversy over its possible conflict with the ECB's mandate. Legal disputes relating to the ECB's monetary policy at national and EU level have not yet been to the detriment of the ECB, and the case-law has brought demands for greater transparency and some refinement of the use of unconventional monetary policy instruments. It is, nevertheless, clear that the ECB's role adopted following the financial and debt crisis is currently also affecting its room for manoeuvre as regards the use of its standard monetary policy instrument — interest rates. Any revision to the fiscal rules may therefore ultimately seem useful even to critics of the ECB's unconventional monetary instruments, especially in the context of the possible use of the ECB's latest monetary policy transmission tool, the Transmission Protection Instrument (TPI) of July 2022. It is to be used only for the purchase of bonds of euro area countries that are not subject to an excessive deficit procedure. This may negatively affect the European Commission's decision to open an excessive deficit procedure, as the country concerned would thereby lose its access to the TPI. This could then lead to a further relaxation of the enforcement of fiscal rules and a deterioration in budgetary discipline.

Basic options

The necessary trust can be reinstated in the SGP fiscal rules in essentially three ways:

- i) by sharply reducing further debt in order to comply with the existing rules and strengthen the enforcement component;
- ii) through parametric changes to the existing rules by adjusting the path towards achieving the targets set, changing or streamlining enforcement processes and simplifying related EU legislation, without, however, having to change primary EU law;
- iii) through a radical change involving a significant revision of expenditure rules, basic benchmarks for structural budget balances and potentially also a change to the Treaties (abolition, addition or revision of one of the basic fiscal rules of the SGP).

However, these options represent ideal, or simplified, types of reform which are not acceptable in their pure form and are not designed as such. Any change would probably include elements from all three approaches, which would be designed so as not to require a significant change to primary law, which currently seems politically impossible.

Regardless of how exactly the reform is ultimately proposed, it will have to be accompanied by a clear political declaration of a turning point or a “new beginning” in order to increase its credibility, which would emphasise respect for the modified set of rules and their enforceability. At the same time, none of the approaches chosen should be in conflict with the objective of simplifying the rules and enhancing their transparency. This would make the reformed framework of the SGP fiscal rules easier to understand for both the responsible actors and the public, further enhancing its credibility and legitimacy.

Presented proposals for SGP reform

The closest to the third, most radical approach is a joint proposal from France and Italy, which was published in late 2021 as an opinion article by French President Emmanuel Macron and Italian Prime Minister Mario Draghi.³²

The French-Italian proposal is mostly concerned with the procyclicality of fiscal policies in the euro area. However, it does not primarily blame fiscal policy actors for this situation, but rather the very rules that *per se* limit the response of countries and their preparations for crises in the form of higher public investment. On the contrary, the proposal is that fiscal rules should create favourable conditions for growth-friendly investment that would increase the resilience of states in the event of a crisis while reducing the pressure on the ECB's independent monetary policy-making. According to Macron and Draghi, only an adjustment of this kind can lead to a reduction in public debt in the euro area. Both politicians refer to the work of Francesco Giavazzi and his co-authors.³³ In addition to establishing a “bad bank” for part of the debt of euro area Member States, these authors propose that a “golden rule” be established for investment in the future which would be exempted from the medium-term ceiling for primary public expenditure.³⁴ The team of economists is also agrees fully with French

³² Full text here: <<https://www.ft.com/content/ecbdd1ad-fcb0-4908-a29a-5a3e14185966>>.

³³ Francesco Giavazzi, Veronica Guerrieri, Guido Lorenzoni and Charles-Henri Weymuller: Revising the European Fiscal Framework. Full text here: <https://cpb-us-w2.wpmucdn.com/voices.uchicago.edu/dist/6/2265/files/2019/04/Reform_SGP-final-draft.pdf>.

³⁴ The paper by Giavazzi et al. deals more with the issue of debt reduction than Macron's and Draghi's article. According to Giavazzi and his co-authors, the rule that debt may not exceed 60% of GDP should be maintained. This contrasts with the statement made by French

and Italian government representatives on replicating the post-pandemic recovery plan (NGEU) — which has been met with a positive reaction on the capital markets — as a means of implementing public investment in the future. With reference to the success in obtaining loans for the NGEU, the authors believe that Member States should embrace further fiscal policy integration in the form of common bonds.

The joint proposal by the Spanish and Dutch finance ministers in their April 2022 “non-paper”³⁵ aims primarily at fiscal sustainability, i.e. the elimination of pro-cyclical stimuli and the creation of budgetary buffers. This is to be done through gradual, yet ambitious, consolidation and growth-friendly targets set for individual Member States along the lines of post-pandemic national recovery plans. The existing medium-term objectives (MTOs) should be replaced by only a simple expenditure rule to ensure that growth in spending does not exceed the trend in economic growth. However, investment expenditure on the green and digital transformation should not be affected by fiscal consolidation, making the proposal similar to its French-Italian counterpart. But, unlike the French-Italian proposal, it puts greater emphasis on ensuring the quality of investment and national budgets as a whole through spending reviews and more efficient public investment management systems. At the same time, the European Commission and the Council should be given stronger tools to enforce the set objectives. However, apart from a better-defined general escape clause, these tools remained unspecified. Independent fiscal institutions such as national budgetary councils should be strengthened at the national level. For the reform of the fiscal rules to succeed, a shift in other areas relevant to economic growth and state financing is necessary, such as the completion of the banking union and the capital markets union.

Another euro area Member State to express its opinion was Germany. Its federal government introduced a non-paper drafted mainly by the Ministry of Finance and the Ministry of Economic Affairs and Climate Action in August 2022.³⁶ Unlike the above mentioned proposals, the paper deals more closely with enforceability and setting limits for those elements of the SGP rules that would ensure their greater flexibility. At the same time, it is critical of bilateral compliance agreements between the Member State concerned and the European Commission, while striving to support the multilateral components of the fiscal rules in terms of their binding effect on Member States. According to the German proposal, the activation of the escape clause should be defined in EU law more clearly. The independence of the European Fiscal Board from the European Commission should be strengthened, which could contribute to a more consistent implementation of fiscal rules by Member States and joint institutions. Unlike the French-Italian and Dutch-Spanish proposals, the German non-paper is reluctant to take investment expenditure into account in the SGP. Rather than excluding specific expenditures from the debt calculation, the existing SGP clauses for investment activity and the implementation of structural reforms should be used more intensively. In addition, drawdowns from EU programmes should be considered, even outside of crisis periods, but in line with the MTOs, whose role should be strengthened by a reform of the fiscal rules. As part of the simplification of the MTOs, the emphasis on the expenditure rule can be strengthened if the valid expenditure benchmark continues to be set on the basis of the structural budget balance. The reform should also remove the annual adjustment of economic growth outlooks in favour of the medium-term perspective. If the MTOs are maintained as a preventive arm of the SGP, the German proposal is open to waiving the strict compliance with the “one-twentieth rule” applied to the debt reduction for the largest debtors among the Member States.

As regards other publicly debated proposals, it is worth mentioning inputs by the above-mentioned European Fiscal Board. Back in 2018 and 2019, the EFB put forward its proposals to the European Commission and the general public.³⁷ These proposals, like the current German non-paper, emphasise medium-term objectives and a strengthening of the expenditure benchmark, which should be translated into a single operational rule. The expenditure rule, according to which expenditure growth should not exceed the medium-term economic growth trend, could even replace the 3% budget deficit rule, which, according to the EFB, does not effectively prevent growth in debt and rather encourages national governments to favour short-term consolidation approaches. By contrast, the level of public debt at 60% of GDP should be maintained in the SGP, although the path towards achieving it should be changed from the “one-twentieth rule” to the expenditure rule, and investment projects co-financed from EU programmes could be excluded from this calculation. According to a comment made by EFB Member Roel Beetsma,³⁸ the current risks in the form of increased inflation and the current pressure to invest in the green and digital transformation speak in favour of maintaining the reference value of 60%

Finance Minister Bruno Le Maire in July 2022 that the rule is “obsolete”. However, in the case of more indebted countries, the path to achieving a debt-to-GDP ratio of 60% would be completely changed. Instead of the current “one-twentieth rule” – which is practically not applied at all – the proposal is to break down the debt into two parts, each with a different pace of consolidation: debts incurred in response to crises and eligible investments in the future could be reduced at a slower pace than debts that do not fall into these categories.

³⁵ Full text here: <<https://www.government.nl/documents/publications/2022/04/04/joint-paper-eurogroup-es-nl>>.

³⁶ Full text here: <<https://www.bmwk.de/Redaktion/EN/Downloads/P/proposed-principles-to-guide-the-german-government-in-deliberations-on-the-reform-of-eu-fiscal-rules.pdf>>.

³⁷ Full texts here: <https://ec.europa.eu/info/sites/default/files/2019-09-10-assessment-of-eu-fiscal-rules_en.pdf>.

³⁸ Full text here: <<https://www.intereconomics.eu/contents/year/2022/number/1/article/the-economics-of-fiscal-rules-and-debt-sustainability.html>>.

of GDP. Beetsma points out that it is not certain that an easing of the debt rule would put an end to the pressure for further concessions and restore the credibility of EU fiscal rules. The SGP fiscal rules should therefore be approached in a more responsible manner and numerical rules should be upheld. In order to make the fiscal rules more credible, Beetsma proposes to strengthen the role of national budgetary councils in the Member States, to support productive investment expenditure rather through common funds and the EU budget, and – rather provocatively – to set up an infrastructure at euro area level for the managed bankruptcy of its Member States, which would strengthen the prohibition of unilateral financial assistance between Member States (*no-bail-out clause*) enshrined in the EU Treaties.

Managing Director of the European Stability Mechanism (ESM) Klaus Regling also contributed to the debate on the reform of the SGP fiscal rules.³⁹ He agrees with the EFB in a number of aspects (the simplification of the SGP and the waiver of the “one-twentieth rule”). But unlike the experts of this advisory body, he would remove the debt rule of 60% of GDP from the SGP and make the 3% limit on the budget deficit the main numerical criterion of the fiscal rules. Regling believes that the numerical debt rule should be replaced by an expenditure rule and a primary budget surplus perspective. According to the head of the ESM, however, the possibility of privileging investment expenditure as regards its inclusion in sovereign debt deserves careful analysis, as the mere replacement of the debt rule would provide Member States with additional leeway to implement such expenditure.

Conclusion

The above summary of contributions to a possible revision of the SGP fiscal rules demonstrates the progress in the debate on changes, for which there was considerable demand even before the coronavirus pandemic. The current situation, marked by high debt in a number of countries and an extension of the activation of the general escape clause, further increases the pressure for at least parametric changes. However, as can be seen from the above proposals, the ideas of the individual actors regarding the desirable direction of the SGP reform differ fundamentally.

The very act of dividing debt into “good” and “bad” debt, as implied in the French-Italian and Dutch-Spanish proposals, may seem problematic for many agents. However, even if agreement was reached on this division, the criteria used to do so are likely to become highly disputed. Looking at the debates over the past decade, the idea of introducing permanent common bonds, the introduction of which would be more questionable without amending the Treaties, can be considered an even more controversial proposal. Moreover, the French-Italian proposal is disqualified on the basis of an EU-wide consensus because it does not address strengthening the enforceability of fiscal rules and takes the loyalty of Member States to the proposed corpus for granted.

The Dutch-Spanish proposal contains at least a brief formulation of its ideas regarding strengthening the monitoring of the quality of investments, strengthening independent national budgetary councils at the government level and clarifying the application of the general escape clause. This is similar to the much more moderate proposals made by the German government, the EFB and the Managing Director of the ESM, whose positions on the exclusion of investment expenditure are mostly reserved, but are open to modifying some of the rules and benchmarks in the SGP to varying degrees or removing them completely. The natural consequence of strengthening the processes of monitoring and evaluating the planned and realised investments would be, first, a further strengthening of the role of the European Commission as the main ‘controller’, second, a reduction of national governments’ room for manoeuvre as regards the choice of solutions or the focus of reforms, and third, an increase in the complexity of the system as a whole.

The proposal closest to the current status quo is the position held by EFB member Roel Beetsma, who does not recommend abandoning numerically expressed fiscal rules in the SGP. In many respects, his position dissents from the EFB’s official proposals. Roel Beetsma refers to the current risks and the possible end of the low interest rate environment which we have seen over the past decade. He is however open to discussing the role and enforcement of the “one-twentieth rule” of debt reduction, similarly as the EFB.

The European Commission’s Communication of 9 November 2022 on a reformed EU economic governance framework, which marks the start of the intense phase of discussions on revising the SGP rules, confirmed that the European Commission’s aim is to find a system which satisfies both main camps of Member States to some extent. The European Commission aims to reflect the actual level of debt in the individual countries and adjust the rules and pace of fiscal consolidation to this level, while enabling investment in priority areas. By doing so, it caters for those countries which prefer a flexible approach and put emphasis on maintaining fiscal space for investment. At the same time, it aims to make the system of sanctions more efficient, while maintaining the system’s basic parameters. This can be

³⁹ Full text here: <<https://www.intereconomics.eu/contents/year/2022/number/1/article/eu-fiscal-rules-a-look-back-and-the-way-forward.html>>.

interpreted as a move in favour of fiscally more cautious countries. The question is whether such a system will be acceptable for the Member States. No matter how difficult the discussion between the Member States turns out to be, it should result in an assignment based on which the European Commission will prepare follow-up legislative proposals, the approval of which should complete the reform. The timing of the deactivation of the escape clause, which is planned for the end of 2023, will form an important part of the discussions. Given the timing of the whole process and its expected complexity, it is unlikely that it will be fully completed in 2023. It will therefore be necessary to decide on next steps in the event that the escape clause is deactivated at the end of 2023 but the new rules have not yet been prepared. This situation could further contribute to the erosion of the credibility of the rules and the absence of effective barriers both for Member States' fiscal policy decision-making and for the European Commission at the level of fiscal surveillance.

As regards the final revision of the SGP fiscal rules, the most realistic option would be partial parametric changes to some criteria. The content of these changes could be closer to the German non-paper or Roel Beetsma's position. After all, Germany is also signalling some openness towards the most indebted Southern European economies as regards the status of the 'one-twentieth rule', but in exchange for a clarification of the application of the general escape clause. The debate will almost certainly also include pressure to establish elements of a transfer union and to create a fiscal capacity for the euro area.⁴⁰ Given the controversial nature of this topic, the demand for more unconventional ways of dealing with joint debt cannot be ruled out, along the lines of the NGEU or instruments created outside the framework of EU law.

⁴⁰ The "transfer union" is a concept that does not have a fixed definition in discussions about the further development of the Economic and Monetary Union. In principle, however, it would be a system of direct budgetary transfers between EU Member States. In practice, the fiscal capacity for the euro area would then mean the creation of a separate budget (either as a special chapter of the EU budget or an entirely autonomous one) only for the member states of the monetary union. France, for example, has already called for the creation of such a budget, along with the function of "common Finance Minister".

II.3 EXCHANGE RATE: A SHOCK ABSORBER OR A SHOCK GENERATOR?

Report of the seminar organised by the Czech National Bank

Jan Brůha

One of the key issues for assessing the macroeconomic benefits and costs of adopting the single currency is an assessment of whether the exchange rate acts as an automatic stabiliser or whether it is a source of additional shocks. This was discussed at a seminar entitled “The exchange rate: a shock absorber or a shock generator?” held by the Czech National Bank on 6 December 2021. The presentations looked at the causes, nature and consequences of exchange rate changes and exchange rate regimes, thereby broadening the knowledge crucial for assessing the impacts of adopting the single currency.⁴¹ In this chapter, we present selected speeches deemed by us to be the most important in terms of the focus of the seminar.

In his speech “Animal Spirits in the Foreign Exchange Markets”, keynote speaker Paul de Grauwe of the London School of Economics presented a model with a limited degree of rationality among economic agents who form their expectations about exchange rate developments based on a choice between several simple forecasting rules. According to this model, the interaction between these agents can lead to disorderly exchange rate dynamics and long-term deviations of the exchange rate from its fundamental equilibrium. Thus, there may be alternating periods in which the exchange rate moves according to fundamental equilibrium, and periods when it is very far from its fundamental equilibrium.

In his presentation “Monetary Policy and Redistribution in Open Economies”, Xing Guo from the Bank of Canada presented a model of a small open economy with heterogeneous households. This model was used to assess the impacts of external shocks on the economy under various exchange rate regimes. It confirmed the conclusion of previous literature that macroeconomic variables are more volatile in a fixed exchange rate regime than in a situation where the exchange rate can act as an automatic stabiliser. However, beyond existing literature, the model has shown that external demand shocks have smaller impacts on inequality among households in a country with a fixed exchange rate. Therefore, in terms of exchange rate regimes, there is a trade-off between stabilising the economy and the effects on inequality. If this conclusion is borne out by further studies, the impact on inequality of leaving the floating exchange rate will be one aspect worthy of attention.

In her presentation “Exchange Rate Dynamics and their Effect on Macroeconomic Volatility: the Czech Republic and Selected CEE Countries”, Volha Audzei of the Czech National Bank described an empirical study focusing on the role of exchange rate shocks in macroeconomic volatility and the potential of the real exchange rate to dampen shocks. This study followed up an earlier article by Audzei and Brázdík (2018), but with extended data coverage including the period of the coronavirus pandemic. The updated study confirmed the findings of previous research that the real exchange rate is an important shock absorber in countries which do not have an independent monetary policy (e.g. Slovakia). In the Czech Republic, the real exchange rate is not a generator of large shocks, nor is it their most significant shock absorber, but it is an important element of the transmission. The main shock-absorbing role is played by active monetary policy (or nominal interest rates and the nominal exchange rate).

Paolo Cavallino of the Bank for International Settlements presented his paper “Fiscal Regimes and the Exchange Rate” dealing with the response of the exchange rate to shocks depending on the sustainability of a country’s public debt. Based on empirical data from Brazil and a theoretical model, the paper demonstrated that the response of the exchange rate to shocks and monetary policy can be different during periods of fiscal distress than in normal times of sustainable public debt.

In his presentation “UIP: A Partial Reconciliation from Event Studies” Elías Albagli of the Central Bank of Chile also showed that in certain circumstances the exchange rate response may differ from that implied by interest rate parity. On the basis of empirical data, he demonstrated that the uncovered interest parity equation works well in good times. However, the exchange rate may respond differently to shocks in periods of increased market uncertainty.

The research presented at the seminar leads us to conclude that the issue of the exchange rate as a shock generator or absorber must be addressed with balance and perspective. The last two presentations showed that the exchange rate response may differ from normal times in the event of a macroeconomic stress situation. However, this

⁴¹ Research in this area is not only relevant for the adoption of the single currency, but is also important for independent monetary policy. In order to set monetary policy conditions appropriately, it is vital that considerable attention be paid to exchange rate movements, interpreting the source of such movements and determining whether the exchange rate movement concerned is fundamental or not.

means that the exchange rate may lose its role as an automatic stabiliser under certain conditions (such as irresponsible fiscal policy or increased uncertainty). Therefore, we cannot automatically rely on its stabilising role. Analyses of changes in exchange rate regimes (including exits from own currency) should therefore take into account the fact that the degree to which the floating exchange rate performs a stabilising function may depend on the current situation (a calm versus economically unstable period) and on the quality and consistency of the entire economic and political mix. The distributional effects and the heterogeneity of agents may also have non-trivial implications for assessing the benefits of different exchange rate regimes. The application of knowledge in the area of limited rationality of economic agents may also affect the view of the role of the exchange rate as a shock generator or a shock absorber.

It is clear that neither theoretical macroeconomics nor applied modelling has had the last word when it comes to the role of the exchange rate as an automatic stabiliser. Thanks to the seminar, new and noteworthy papers in this area were presented at the CNB. With the agreement of the authors, the presentations are available on the [CNB website](#).⁴²

⁴² <<https://www.cnb.cz/en/economic-research/conferences-seminars-and-workshops/exchange-rate-a-shock-absorber-or-a-shock-generator/>>.

II.4 MARKET FLEXIBILITY AND MONETARY INTEGRATION

Report of the seminar organised by the Czech National Bank

Jan Brůha

The adoption of the single currency implies the loss of one of the important macroeconomic adjustment mechanisms. It is therefore linked to a question of whether sufficiently flexible markets can replace this loss to some extent, or how this loss will affect economies' responses to negative shocks. The relationship between regulation, market flexibility and monetary integration was the subject of a seminar held at the Czech National Bank on 28 June 2022. This chapter summarises selected presentations given at the seminar.

The keynote lecture "Labour Markets and Structural Reforms: Regulation and Flexibility" on the relationship between European integration, structural reforms and their impact on European economies was delivered by Nauro F. Campos of University College London. He presented both the existing findings described in the literature and the results of his own research. According to the theoretical literature, entry into the European single market can foster incentives for structural reforms by increasing international competition for tradable goods. Entry to the single market also provides the legislative framework for these reforms. On the one hand, the adoption of the single currency may — owing to the loss of possible competitive devaluation — motivate reforms aimed at greater market flexibility, but on the other hand it may discourage reforms, mainly because of their higher costs (as it is more difficult to support aggregate demand as a substitute for reforms in a monetary union). Previous empirical literature has concluded that both entry into the EU single market and euro adoption has led to product market reforms, but not to labour market reforms. Entry to the euro area had a greater impact. In his own research, however, Nauro F. Campos concluded (using improved indicators to measure reforms) that both phases of European integration contributed to both product and labour market reforms and that, on the contrary, entry to the single market had a greater effect. The lecture concluded with the economic impacts of structural reforms. These are difficult to estimate because of the complexity of measurement, difficult econometric identification (e.g. the effect of lags, a possible reversal of reforms, the problem that reforms are often implemented in crisis years) and the heterogeneous impacts of reforms. According to the author, however, there is evidence that the reforms are helping to increase productivity, but their impact varies from country to country.

In his presentation "Why are Political Budget Cycles Larger in Monetary Unions?", Jan-Egbert Sturm (KOF Swiss Economic Institute) presented a model from game theory, which he used to study the interaction between fiscal and monetary policies. It showed that there is more room for pre-election fiscal expansion in a monetary union than in a country with an independent monetary policy. This is because an independent inflation-targeting central bank in a country with independent monetary policy can suppress the effect of politically motivated fiscal expansion on inflation and aggregate demand by tightening monetary policy. By contrast, a common central bank in a monetary union cannot fully respond to the inflationary effect of a politically motivated fiscal expansion of the government of one member country, as it targets headline inflation in the entire union. Therefore, fiscal rules are more necessary for the sustainability of public finances in a monetary union than in countries with an independent monetary policy. This presentation also showed empirical evidence supporting the implications of the described theoretical model.

In his presentation "Quantifying the Benefits of Labor Mobility in a Currency Union", Christian Proebsting (KU Leuven) investigated the cost of limited labour mobility in a currency union using a DSGE model calibrated to the euro area. The data show that labour mobility in the euro area is lower than in the USA, while unemployment volatility is higher in the euro area. Increasing labour mobility in the euro area would reduce unemployment volatility and increase overall well-being. On the other hand, the increase in well-being would be very unevenly distributed across countries.

Speaking on the "Macroeconomic Resilience in the European Union: The Role of Regulation, Institutions and Common Currency", Jan Brůha (CNB) addressed the determinants of the resilience of EU countries to negative shocks. In the first part of his presentation, he summarised previous CNB research (Brůha and Babecká Kucharčuková, 2017), which empirically examined the resilience of EU countries during the crisis in 2009 and 2010. According to this research, the negative effects of the global economic and financial crisis on GDP and the labour market were low in countries which had sufficient fiscal space (pre-crisis debt of less than 60% of GDP) and in which the quality of governance was high. By contrast, whether or not a country was a euro area member was irrelevant to GDP and labour market growth during the crisis. The second part of his talk described a replication of the empirical analysis for the Covid-19 pandemic. Its results confirmed the previous conclusions that sufficient fiscal space and the quality of governance reduced the negative effects of the pandemic on the labour market, while a common currency was again not shown to have had an impact. Unlike the global economic and financial crisis, the different impacts of the pandemic on the labour markets in individual countries can also be explained by the different structures of their economies.

The presentations showed that issues related to market flexibility are very important for assessing the effects of membership in the monetary union. The loss of some adjustment mechanisms upon joining the monetary union may be at least partially offset by other instruments (increasing production factor mobility, fiscal rules, and the quality of governance). The presentations and discussions at the seminar also pointed out that there are still topics in this area which require further research, including in particular the distributional effects of monetary union membership (i.e. the different impacts that membership has on individual countries and sectors). The presentations from the seminar are available on the [CNB website](#).⁴³

⁴³ <<https://www.cnb.cz/en/economic-research/conferences-seminars-and-workshops/market-flexibility/>>

II.5 SLOVAKIA AS A EURO AREA MEMBER FROM THE PERSPECTIVE OF CLUSTER ANALYSIS

Soňa Benecká

During the debt crisis, the economic differences between euro area member countries became more pronounced. A cluster analysis using convergence indicators shows that while the southern periphery countries hit hardest by the debt crisis moved away from the core countries, the new Member States, including Slovakia, created an eastern periphery, which has significant potential for further convergence towards the more advanced euro area economies. Like the Baltic states, the Slovak economy is growing faster than the other euro area countries. Price level convergence plays a major role.

Slovakia was the first of the Visegrad Four countries to join the euro area in January 2009. The country's rapid euro area entry, to which Slovakia committed during EU accession negotiations, was part of a reform strategy to support economic developments following the transformation shock of the 1990s. Euro adoption was seen as an opportunity to gain more from the benefits of the single market due to increased inflows of foreign capital and faster productivity growth. According to Žúdel and Melioris (2016), Slovakia's entry to the euro area had a clearly positive effect, as, according to their estimates, Slovakia's GDP was 10% higher in 2011 directly as a result of euro adoption than it would have been if the euro had not been adopted. At the same time, however, the authors recognise that euro adoption also led to a deeper recession in the crisis year 2009.

Slovakia did not join a homogeneous union – the euro area became economically fragmented during the debt crisis. We addressed the topic of economic misalignment in Europe in the boxes of the Alignment Analyses in 2014 and 2015.⁴⁴ However, a number of other studies confirm the existence of multiple groups within the euro area in terms of economic characteristics, with their conclusions differing slightly from each other depending on the chosen criteria for determining the groups. For example, Irac and Lopez (2015) correctly identify a group of southern countries (Greece, Italy, Spain, and Portugal) in the data. According to this study, the existence of groups is mainly due to structural differences, which unfortunately do not tend to diminish over time. Other studies have allowed more for the economic developments in different countries (e.g. Haynes and Haynes, 2016).

The results of the cluster analysis place Slovakia in the eastern periphery, which is economically converging toward the northern euro area economies. As in the above-mentioned boxes in previous Alignment Analyses, we conducted a cluster analysis with several convergence indicators (GDP per capita at purchasing power parity, GDP growth, inflation, unemployment and long-term bond yields).⁴⁵ We linked its results with the principal component analysis (see Chart 1). The cluster analysis found several important groups within the euro area, to which we assigned indicative names based on their geographical location in Europe without requiring perfect accuracy. The stable *northern countries* (also called the core of the euro area) include Belgium, Finland, Germany, the Netherlands and Austria (the green group in the chart). France was hit harder by the debt crisis, but in 2019 we also find it among the northern euro area economies. During the debt crisis, the *southern periphery* countries (Italy, Cyprus, Portugal, Greece and Spain) moved away from the cluster of other countries outside the core but did not stay in one group. While Italy, Spain and Portugal (the blue group in the chart in 2019) started to converge again economically towards the northern countries, Greece and Cyprus are lagging behind. By contrast, convergence towards the northern countries accelerated in the *eastern periphery* countries (the yellow group), where Slovenia joined Slovakia and the Baltic states. In 2019, this eastern periphery converged closer towards the northern countries than the southern countries did. This is also apparent from more detailed dendrograms. This finding is also in line with the results of the study by Irac and Lopez (2015), and similar conclusions are reached, for example, by Haynes and Haynes (2016).

⁴⁴ Analysis of Alignment 2014 – Box 1: *Economic alignment in euro area economies and the Central European region from the perspective of cluster analysis*:

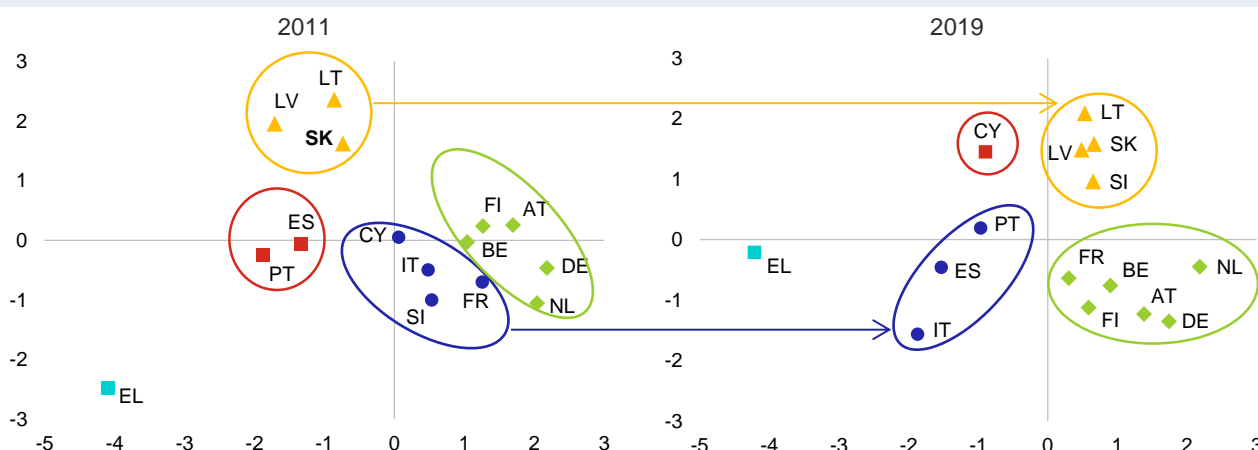
<https://www.cnb.cz/export/sites/cnb/en/monetary-policy/galleries/strategic_documents/analyses_of_alignment_2014.pdf>

and Box 1 of the 2015 Alignment Analysis: *Structural alignment of euro area countries and the Central European region from the perspective of cluster analysis*

<https://www.cnb.cz/export/sites/cnb/en/monetary-policy/galleries/strategic_documents/analyses_of_alignment_2015.pdf>.

⁴⁵ We excluded Malta, Estonia and Ireland from the analysis due to the lack and significant volatility of the data. However, on a smaller sample, it can be shown that Estonia would belong to the eastern periphery cluster, while the other two countries would be identified as outliers, like Greece and Cyprus. For the sake of simplicity, the analysis compares only 2011 and 2019 (i.e. the period before the onset of the coronavirus pandemic). Similar trends described here can also be found in dendrograms (hierarchical clustering charts) for the individual years 2009–2021 (i.e. including the pandemic period), available on request from the author.

Chart 1: Shifts in the composition and proximity of euro area country clusters between 2011 and 2019

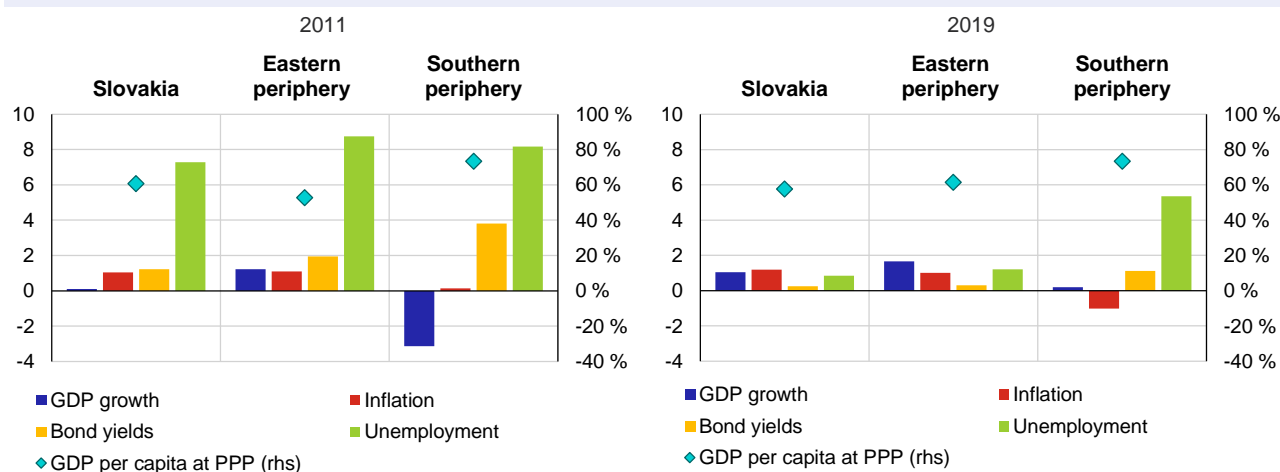


Note: The colours denote individual clusters identified by cluster analysis. The x- and y-axes denote the first two values from the principal component analysis, which explained more than 77% of the variability in the data in both years.

Source: Eurostat, CNB calculations.

The convergence of the eastern periphery towards the northern euro area countries is also confirmed by a taking a detailed look at the individual convergence indicators in the categories identified. This shows that the eastern periphery economies grew faster on average than the northern ones, while the southern countries recorded comparable GDP growth to the northern countries only in some years. As shown in Chart 2, the growth differential of the eastern periphery countries exceeded 1 percentage point in both 2011 and 2019. At the same time, the faster growing eastern periphery countries had significantly lower GDP per capita at purchasing power parity than the northern countries, so beta convergence was found. However, this is no longer the case for the southern countries. The eastern countries also recorded a faster decline in unemployment to the levels observed in the northern countries. In 2018, their government bond yields were close to the average for the northern countries, while the bond yields in the southern periphery countries and the northern countries still have a stronger positive spread. However, inflation has been rising in the eastern countries since 2017, so the inflation differential vis-à-vis the northern countries is positive. This effect is stronger for Slovakia, where a small unemployment rate differential is also visible amid slower real GDP growth.

Chart 2: Deviations of the convergence indicators by cluster from the group of northern countries



Note: The values indicate the difference between the average indicator for a given group and the average for the northern countries, while expressing their share in the average for the northern countries in the case of GDP per capita at PPP (right-hand scale). The eastern periphery comprises Lithuania, Latvia and Slovakia; the southern periphery includes Italy, Portugal and Spain.

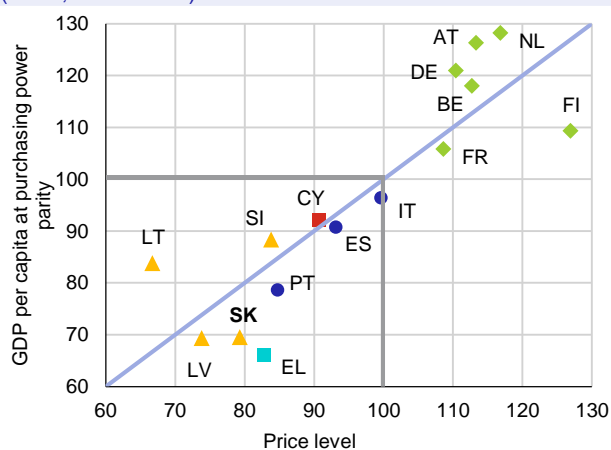
Source: Eurostat, CNB calculations.

The different developments in the eastern and southern peripheries of the euro area are due not only to the different structure of their economies and the alignment of business and financial cycles, but also to different public debt accumulation rates. The eastern economies of the euro area are structurally closer to the northern countries (higher value-added production/services) than those on the southern periphery (tourism, agriculture). Boltho (2020) arrives at similar conclusions. The eastern periphery countries experienced a severe recession after the global financial crisis, but thanks to lower debt, Eastern European governments were not forced to adopt austerity measures as severe as those adopted by Italy, let alone Greece, Spain and Portugal. While the southern countries lost their external competitiveness and were negatively affected by the redirection of FDI, the quality of institutions and business support improved in the east (Boltho, 2020). Companies on the eastern periphery have become part of the value chains – production and supply chains – within the euro area, and ownership links in the financial sector and the single monetary policy have simultaneously contributed to greater economic and financial cycle alignment. The potential for convergence of the eastern periphery to the northern periphery thus increased further.

There is still considerable room for the real and nominal economic convergence of the countries on the eastern periphery. In 2019, the average GDP per capita of the eastern periphery was only 77% of the average in the 27 EU countries (see Chart 3), while in Latvia and Slovakia it did not even reach 70%. Lithuania is the driver of real convergence in this group. Slovakia recorded an increase in GDP per capita in the initial years following euro area entry, but inflation has been more significant in recent years.⁴⁶ This is in line with the National Bank of Slovakia's (NBS) previous expectation⁴⁷ that due to euro adoption the dampening effect of the appreciation of the Slovak koruna on inflation would be lost. Before Slovakia joined the euro area, the NBS estimated that the long-term differential in annual inflation in Slovakia vis-à-vis the EU would be 1.2 percentage points. As a result of the strong recession at the start of the last decade, Slovakia's inflation differential vis-à-vis the northern countries was strongly negative, but it had already widened to above 1 percentage point in 2018 and 2019. The price level in Slovakia was just under 81% of the EU average in 2021.

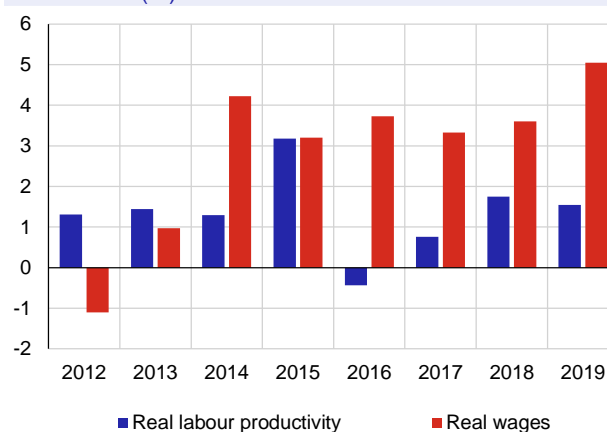
In Slovakia's case, nominal convergence can be expected to continue. This is supported mainly by the domestic labour market situation. While productivity growth amid low real wage growth had been dominant in Slovakia after joining the euro area, the decline in unemployment was accompanied by higher wage demands in the pre-pandemic period (as in the other Eastern periphery countries). According to data from the Slovak Statistical Office, real wage growth on average in 2016–2019 was more than double that of productivity growth (see Chart 4).

Chart 3: Convergence in the euro area
(2019; EU27=100)



Source: Eurostat, CNB calculations.

Chart 4: Annual growth in real wages and productivity in Slovakia (%)



Source: Eurostat, the Statistical Office of the Slovak Republic, CNB calculations

⁴⁶ When comparing convergence data over time, prudence is called for in the case of Slovakia, as the jump in the price level is related to the change in weights in 2019 and has no economic interpretation.

⁴⁷ The Slovak central bank's calculations regarding the long-term inflation situation after euro adoption can be found in Box 1: https://www.nbs.sk/img/documents/biatec/bia09_08/9_1.pdf.

II.6 INFLATION TRENDS IN SELECTED EUROPEAN COUNTRIES AND ECONOMIC CONVERGENCE

Michal Franta and Ivan Sutóris

An understanding of the relationship between nominal convergence, or more generally, economic convergence, and the inflation trend is important for discussing the possible causes of inflation divergence among countries in a monetary union and changes in the inflation trend following a country's entry into the monetary union. A look at the inflation trends of selected European economies over more than the past two decades suggests that economic convergence affects the inflation trend, but has not led to problematic inflation development in the founding members of the euro area or in the countries that joined it later.

Economic convergence is a long-term process of catching up with more developed economies, which is associated with structural changes in the converging economies.⁴⁸ It involves the price level of converging economies moving towards the price level of more advanced countries. This may take place via nominal exchange rate appreciation or through higher inflation in the country catching up, or a combination of the two. It is thus reflected in the long-run inflation trend, also depending on the economy's exchange rate regime. The inflation trend can be estimated on the basis of models decomposing observed inflation into a trend and a cyclical component.⁴⁹ This is a different approach than in models that assume an inflation trend.

Estimated inflation trends provide a suitable basis for economic considerations dealing with inflation differentials in the European Union and their implications for adopting the single European currency.⁵⁰ Chart 1 illustrates the inflation trends of selected European economies.⁵¹ The countries are divided into three groups: *a) euro area founding members* – EA11 (Belgium, Finland, France, Ireland, Italy, Luxembourg, Germany, the Netherlands, Portugal, Austria and Spain), including the average of their inflation trends used in our reflections to capture pan-European long-term inflation effects (trends); *b) countries that joined the euro area later* and that converged during part of the period under review (Slovakia and Slovenia); *c) economies that have yet to join the euro area* and that have converged or are still converging (the Czech Republic, Hungary and Poland).

The inflation trends in the founding members of the euro area are within a relatively narrow band. There is a visible common long-term trend that is the same for all the economies under review. We interpret this as the common European inflation trend. This trend is based on strong links between European real economies and financial markets and also reflects the global economic situation.⁵²

Slovakia and Slovenia initially show sustained declines in inflation trends in the period under review, which, however, came to a halt around 2015. The inflation trend is higher for most of the period under review in Slovakia. This is consistent with the stronger observed economic convergence of the Slovak economy compared with Slovenia. The Slovak economy reached 45% of the EU15 average in terms of the economic level⁵³ in 1998 and gradually converged to around 65% in 2021. The Slovenian economy converged from 70% of the EU15 average in 1998 to 85% in 2021.⁵⁴ The

⁴⁸ The literature mainly analyses changes in productivity differences between economies and changes in their openness – see e.g. Lein-Rupprecht et al. (2007).

⁴⁹ These are unobserved component stochastic volatility models based on Stock and Watson (2007). Recent applications of this model-based approach to examining inflation can be found in Cecchetti et al. (2017) for the USA, Forbes et al. (2019) for the UK and Correa-López et al. (2019) for euro area countries. Franta and Sutóris (2020) apply this approach to Czech inflation.

⁵⁰ Estimated inflation trends are a theoretically more accurate starting point than the average of observed inflation over an arbitrarily selected period. These two variables may differ quite significantly, as shown e.g. by the average inflation observed after Slovakia joined the euro area, which is 0.6 pp lower than the average inflation trend. Therefore, considerations of long-term changes in inflation following Slovakia's accession to the euro area based solely on observed inflation could be inaccurate.

⁵¹ The model specification in Franta and Sutóris (2020) was used to estimate the inflation trends in selected European countries. This assumes stochastic volatility only in the cyclical component of inflation, not in the inflation trend. The choice of countries is determined both by the subject of this article and by the suitability of the model for estimating the trend in specific countries. Thus, they exclude e.g. the Baltic States, which applied an exchange rate peg to the euro (or to the Deutsche Mark or a basket of currencies) for most of the period under review and therefore it is not possible to examine changes in the inflation trend after the “switching-off” of the exchange rate channel of nominal convergence. For similar reasons, Malta and Cyprus are not included either. In addition, the analysis excludes e.g. Romania, for which the assumption of constant trend volatility is inappropriate. The inflation trends were estimated for 1998 Q1–2022 Q1 (given the availability of data and the high volatility of inflation in previous years).

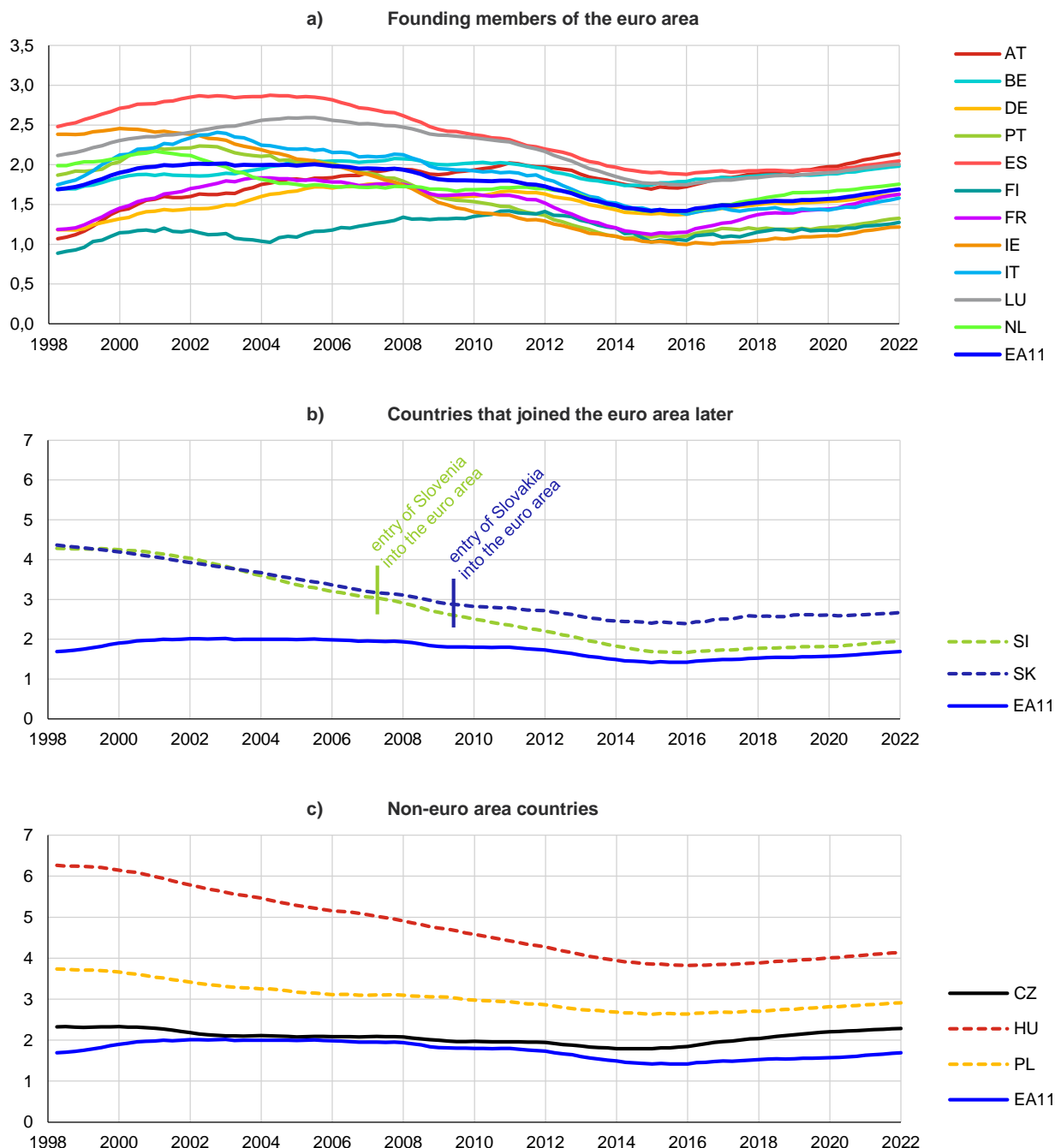
⁵² The growing role of global factors in the inflation process and the channels through which globalisation may affect the permanent component of inflation are discussed by Attinasi and Balatti (2021) and Forbes (2019).

⁵³ The European Union consisted of the following 15 countries (from 1995 to its major enlargement in 2004): Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.

⁵⁴ We understand the degree of economic convergence to mean gross national disposable income per capita in PPS (purchasing power standards), which is used to capture real convergence as the measure of the real resources residents can use for consumption or

turnaround in inflation trends in the two countries in 2015 is fully synchronised with the reversal of the common inflation trend in the founding members of the euro area. This is therefore not a (delayed) consequence of the manifestations of economic convergence following the accession of Slovakia and Slovenia to the euro area, when their entry switched off the exchange rate channel of convergence of price levels and the inflation differential channel could therefore be more significant. However, the inflation trend in the two economies remains slightly above the average of the euro area’s common inflation trend. This reflects the continued convergence of the two economies.

Chart 1: Inflation trends in selected European countries
(%)



Note: The inflation rate from which the trend is extracted is the annualised seasonally adjusted quarter-on-quarter change in the CPI.
Source: Eurostat, CNB calculations.

investment (see e.g. Kábrt et al., 2021). We also take advantage of the close relationship between real and nominal convergence of the newer EU members, as documented in Kábrt et al. (2021). Although Kábrt et al. (2021) show some loosening of the relationship after the financial crisis, this degree is sufficient to examine the relationship between economic convergence and the inflation trend. Eurostat is the source of the data on gross disposable income.

The non-euro area central European countries show inflation trends reflecting their degree of economic convergence and their inflation target. The Czech Republic has been the closest to the economic level of the advanced countries since the start of the period under review (at 60% of the EU15 average in 1998 and around 80% in 2021). Hungary and Poland have been at lower levels throughout the period (around 40% of the EU15 average in 1998 and 70% in 2021). Poland and Hungary have thus converged faster (and from lower levels), in line with their higher inflation trends compared with the Czech Republic. Moreover, Hungary converged more quickly than Poland at the start of the period under review, which is again consistent with the observed difference in inflation trends in the two countries. At the same time, it is visible that the inflation targets set in these countries reflected their different potential for economic convergence due to their distance from the EU15 average. The Czech National Bank has applied an inflation target of 2% since 2010. The Polish central bank has been targeting inflation at 2.5% since 2004 and in Hungary the target has been 3% since 2005.

The analysis reveals that the economic convergence of the economies under review is reflected in their inflation trends. Converging economies are showing an inflation trend above the common trend in the euro area. Countries which have their own monetary policy can take economic convergence into account when setting their inflation target, and their nominal convergence can also take place via the exchange rate channel (depending on the exchange rate regime). However, no significant long-term or sudden changes in inflation trends associated with economic convergence have been observed for the countries under review that joined the euro area (Slovakia and Slovenia) after their entry. A possible explanation is that the current nature of economic convergence in these countries would not have been reflected in nominal exchange rate appreciation if they had stayed outside the euro area, so switching off the exchange rate nominal convergence channel has no significant effect on the inflation trend.⁵⁵

⁵⁵ This thematic chapter described long-term inflation trends. A view of the current inflation wave across European countries is given in *Box 1: The breadth and intensity of Czech inflation in the European context* in Monetary Policy Report – Summer 2022: <https://www.cnb.cz/en/monetary-policy/monetary-policy-reports/boxes-and-articles/The-breadth-and-intensity-of-Czech-inflation-in-the-European-context/>.

III. CHARTBOOK

III.1 THE CZECH REPUBLIC'S CYCLICAL AND STRUCTURAL ALIGNMENT WITH THE EURO AREA

III.1.1 Direct alignment indicators

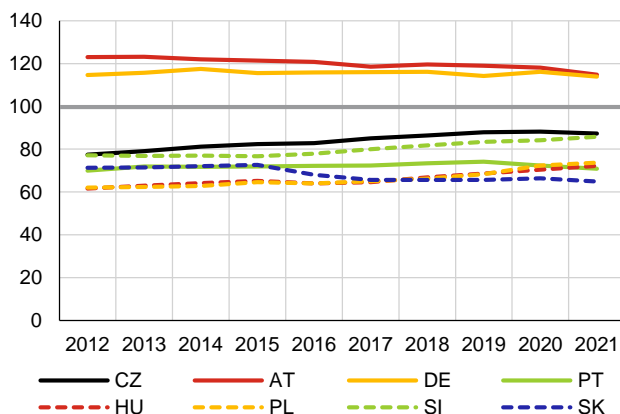
-  Real economic convergence⁵⁶
-  Convergence of price levels and wages
-  Cyclical alignment of the Czech Republic's economic activity with the euro area
-  Structural similarity of the Czech economy to the euro area economy
-  Trade links with the euro area
-  Intensity of intra-industry trade with the euro area
-  Ownership links with the euro area
-  Alignment of the Czech Republic's financial cycle with the euro area
-  Interest rate convergence vis-à-vis the euro area
-  Volatility of the exchange rate of the Czech currency against the euro
-  Alignment of the Czech koruna with the euro
-  Financial market alignment

ECONOMIC CONVERGENCE

Czech GDP per capita at purchasing power parity exceeds that of other Central European countries, but the lag behind the more advanced euro area countries remains significant. Moreover, it moved slightly away from the euro area average last year.

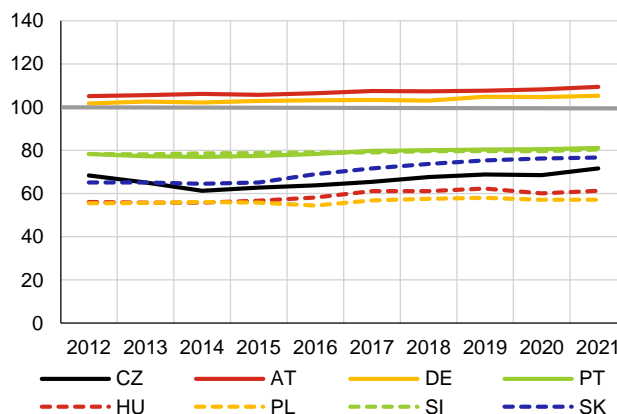
The gap between the price level of Czech GDP and advanced euro area countries is even more pronounced but decreased slightly last year.

GDP per capita at purchasing power parity (PPP)
(EA = 100)



Source: Eurostat, CNB calculations.

Price level of GDP
(EA = 100)



Source: Eurostat, CNB calculations.

⁵⁶ The colours and directions of the arrows are explained in the Introduction to this document.

In 2021, the real appreciation of the koruna against the euro was strongest since 2008. The average annual rate of appreciation of the koruna's real exchange rate over the last ten years is 0.3%.

Real exchange rate against the euro (HICP-deflated)

(2010 = 100; a rise in the index means appreciation of the real exchange rate)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CZ	101.0	97.8	92.3	93.2	94.4	97.8	100.6	101.9	100.7	105.9
AT	104.0	106.0	106.0	105.9	106.5	109.8	111.6	111.6	109.4	112.7
DE	102.9	100.9	101.0	101.0	100.9	102.2	103.0	104.6	103.3	105.1
PT	102.0	101.8	101.6	100.8	101.2	103.4	104.2	105.2	104.9	108.2
HU	99.3	97.1	93.0	92.5	92.3	93.7	91.9	92.1	86.9	88.3
PL	97.7	96.9	96.8	96.0	91.6	94.0	93.4	93.4	92.3	93.3
SI	102.5	102.7	102.1	101.6	100.9	100.7	101.5	103.1	103.7	105.1
SK	99.4	99.7	100.0	100.5	100.6	100.8	101.0	101.1	100.1	101.8

Source: Eurostat, CNB calculations.

As in all the other countries under review, real interest rates in the Czech Republic remained significantly negative in 2021.

Real 3M interest rates

(%, ex post, HICP-deflated)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CZ	-2.4	-0.9	-0.1	0.0	-0.4	-2.0	-0.7	-0.5	-2.4	-2.4
AT	-2.0	-1.9	-1.2	-0.8	-1.2	-2.5	-2.4	-1.8	-1.8	-3.2
DE	-1.6	-1.4	-0.6	-0.7	-0.6	-2.0	-2.2	-1.7	-0.8	-3.6
PT	-2.1	-0.2	0.4	-0.5	-0.9	-1.9	-1.5	-0.7	-0.3	-1.4
HU	2.3	2.4	2.5	1.5	0.5	-2.2	-2.7	-3.1	-2.6	-4.1
PL	1.2	2.2	2.5	2.5	1.9	0.1	0.5	-0.4	-2.8	-4.7
SI	-2.2	-1.7	-0.2	0.7	-0.1	-1.9	-2.2	-2.0	-0.1	-2.5
SK	-3.1	-1.2	0.3	0.3	0.2	-1.7	-2.8	-3.0	-2.4	-3.2

Source: Eurostat, CNB calculations.

As the koruna appreciated, the gap narrowed further between Czech wages expressed in euro and the euro area average.

Average wage per employee in EUR

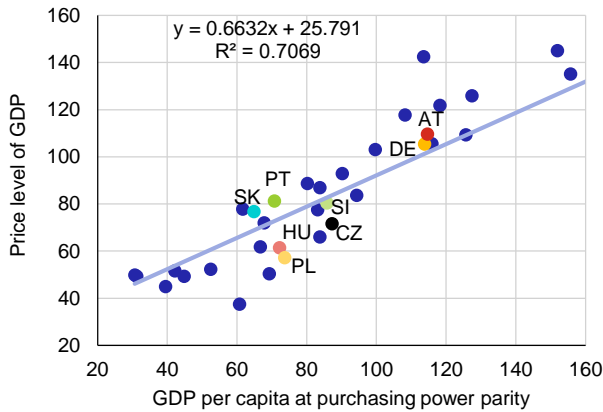
(EA = 100)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CZ	41.0	39.0	37.4	38.3	39.7	43.0	46.8	49.0	48.7	52.0
AT	105.3	105.9	106.5	107.0	108.5	108.3	109.1	109.7	110.9	110.4
DE	95.5	95.8	97.2	98.5	99.7	100.6	101.4	102.5	102.3	102.7
PT	50.6	51.5	50.0	49.5	49.5	49.7	50.6	51.8	52.6	52.3
HU	31.1	29.9	28.6	28.6	28.9	30.6	30.9	31.7	29.8	30.7
PL	30.6	30.5	30.8	31.1	30.8	32.9	34.8	36.2	36.1	36.8
SI	61.8	61.1	61.0	61.1	62.3	63.1	64.2	65.9	67.8	68.3
SK	36.8	37.1	37.4	38.2	38.7	39.9	41.4	43.3	44.5	45.6

Source: AMECO, CNB calculations.

The Czech price level is still below the level corresponding to domestic GDP per capita by international comparison.

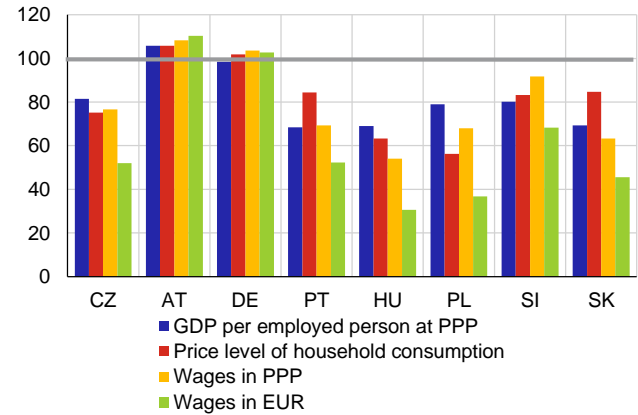
GDP per capita at purchasing power parity versus the price level
(2021, EA = 100)



Source: Eurostat, CNB calculations.

Czech wages at purchasing power parity are roughly 77% of the euro area average. In euro terms, they are 52%.

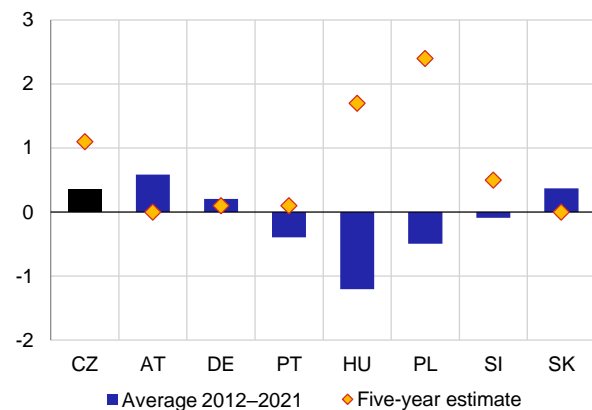
Other indicators of long-term convergence
(2021, EA = 100)



Source: Eurostat, EC, CNB calculations.

The real exchange rate of the koruna has appreciated by 0.3% a year on average over the last ten years. Its future annual equilibrium rate of appreciation is estimated at close to 1%.

Real exchange rate appreciation:
average for last ten years and estimate for next five years
(% p.a., HICP-deflated)

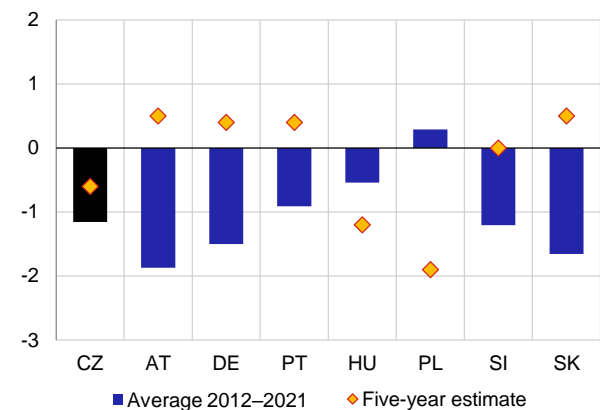


Note: The chart shows the geometric mean for 2012–2021. The estimate of the average pace of equilibrium real exchange rate appreciation for the next five years is based on a panel regression linking the price level of final consumption of households compared to the euro area average with GDP at purchasing power parity per capita.

Source: Eurostat, CNB calculations.

Czech real interest rates would probably be negative following euro adoption. However, they have also been negative on average over the past ten years.

Real 3M interest rates:
average for last ten years and estimate for next five years
after hypothetical euro adoption
(%, ex post, HICP-deflated)



Note: Simple arithmetic mean for 2012–2021. The estimated average equilibrium real interest rate for the next five years after hypothetical euro adoption is derived from the estimate of the pace of equilibrium real exchange rate appreciation, assuming a zero money market risk premium and an equilibrium real interest rate in the euro area of 0.5%.

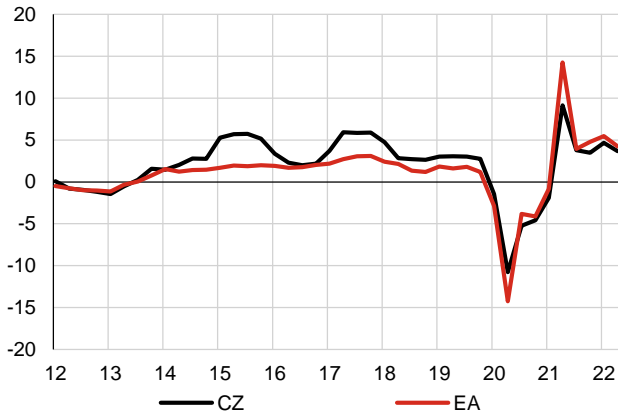
Source: Eurostat, CNB calculations.

See the [Overall message of the analyses](#).

CYCLICAL ALIGNMENT OF ECONOMIC ACTIVITY

The growth of the Czech economy has been lagging slightly behind that of the euro area over the last two years.

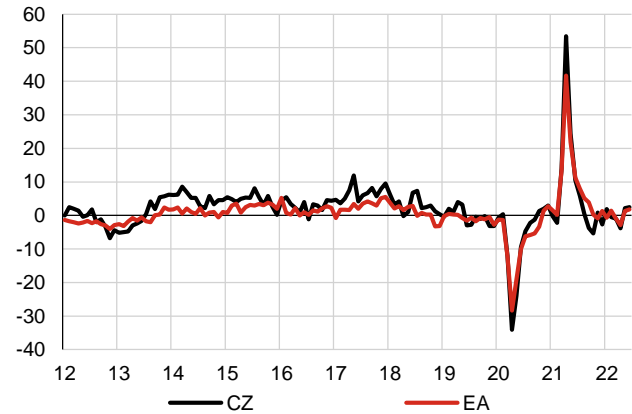
Real GDP
(y-o-y, %)



Source: Eurostat.

Industrial production growth, which has long been above the euro area average, is now relatively low.

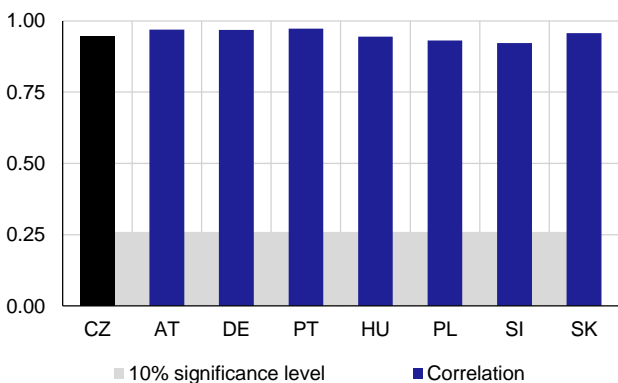
Industrial production index
(y-o-y, %)



Source: Eurostat.

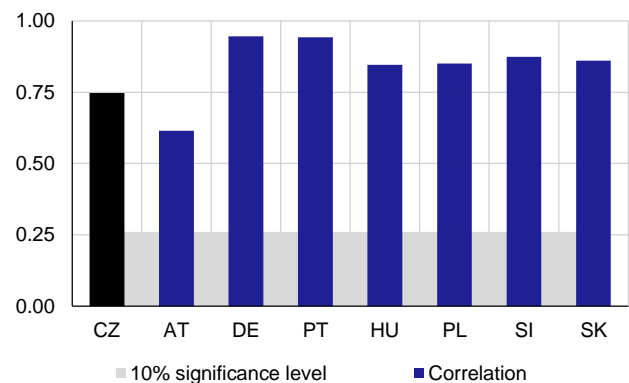
The economic impacts of common external shocks in the form of the Covid-19 pandemic, the war in Ukraine and the related energy crisis foster a high correlation for all the countries under comparison.

Correlation coefficients of GDP with the euro area



We have also observed the synchronisation of economic activity in the relationship between the exports of the countries under review to the euro area and euro area GDP.

Correlation coefficients of exports to the euro area with euro area GDP

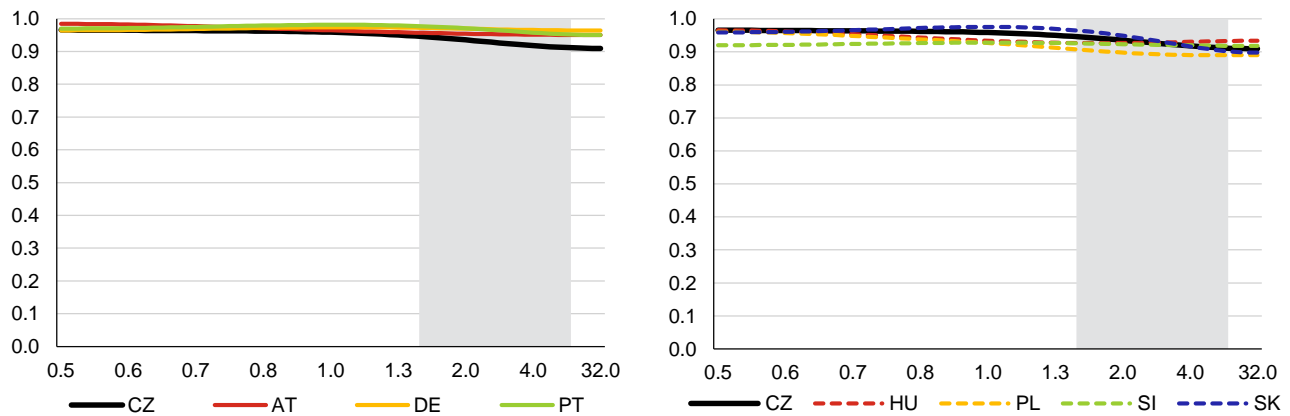


Note: The calculation is based on the quarter-on-quarter differences in the logarithms of the seasonally adjusted data. The statistical significance of the correlation coefficients is indicated in the chart: values statistically significant at the 10% level lie in the white part of the chart (meaning that values in the grey part of the chart are not statistically significant at the 10% level).

Source: Eurostat, CNB calculations.

The high alignment of the economy's response to a shock is indicated by the dynamic correlations between business cycles in the monitored band of 1.5–8 years.

Dynamic correlations of economic activity with the euro area

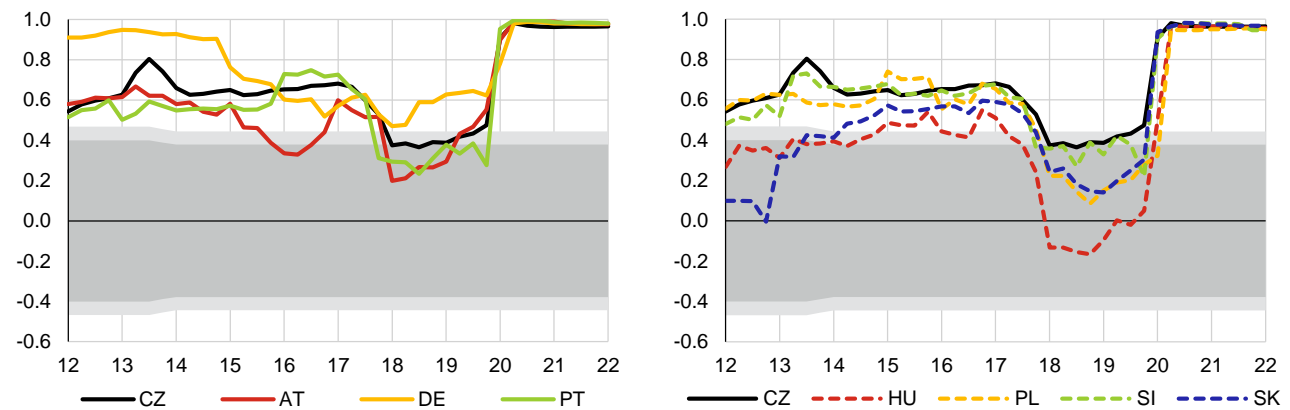


Note: The calculation is based on the quarter-on-quarter differences in the logarithms of the seasonally adjusted data. The x-axis is the cycle length in years. The grey area indicates the monitored band of 1.5-8 years, which usually covers the typical duration of the business cycle.

Source: Eurostat, CNB calculations.

The five-year rolling correlations of the economic activity between the countries under review and the euro area show that the correlations surged in 2020 due to a synchronised drop in activity as a result of a common external shock (the coronavirus pandemic). Therefore, the current high correlation may not be evidence of long-term alignment between the Czech Republic and the euro area.

Five-year rolling correlations of GDP growth between individual countries and the euro area



Note: The time data indicate the end of the rolling window of 5 years. The calculation is based on the quarter-on-quarter differences in the logarithms of the seasonally adjusted data. The statistical significance of the correlation coefficients is indicated in the chart: values statistically significant at the 5% level lie in the white area of the chart, and values statistically significant at the 10% level lie in the white or light grey parts of the chart. Values in the dark grey part of the chart are not statistically significant at the 10% level.

Source: Eurostat, CNB calculations.

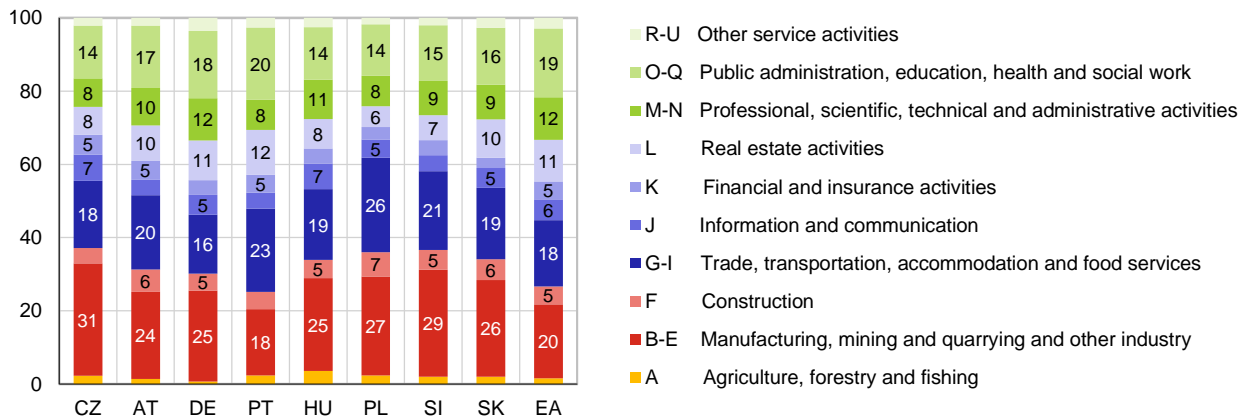
See the [Overall message of the analyses](#).

STRUCTURAL SIMILARITY OF THE ECONOMIES

The Czech Republic has long had a higher share of industry in GDP than the euro area.

Shares of economic sectors in GDP

(2021, %)

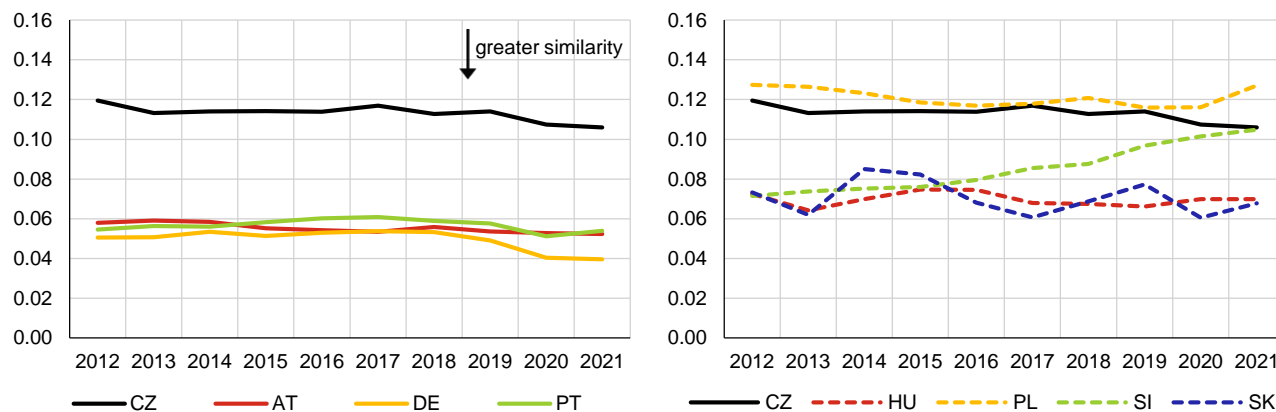


Source: Eurostat, CNB calculations.

The different sector structure of value added is also reflected in higher values of the Landesmann index, indicating a lower degree of similarity of the Czech economy with the euro area economy.

Structural similarity vis-à-vis the euro area

(Landesmann index)



Note: The Landesmann index takes values in the range [0;1]. The closer the index is to zero, the more similar is the structure of the economies under comparison. Given the methodological changes in the GDP calculation and the revisions of the historical GDP data, the results published in previous issues of this publication may differ slightly from this year's figures.

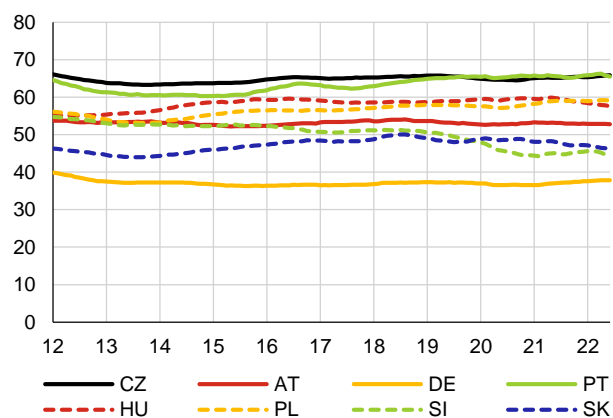
Source: Eurostat, CNB calculations.

See the [Overall message of the analyses](#).

TRADE AND OWNERSHIP LINKS BETWEEN THE ECONOMIES

The share of exports to the euro area in total exports has long been high in the Czech Republic, exceeding the shares observed in most countries under comparison.

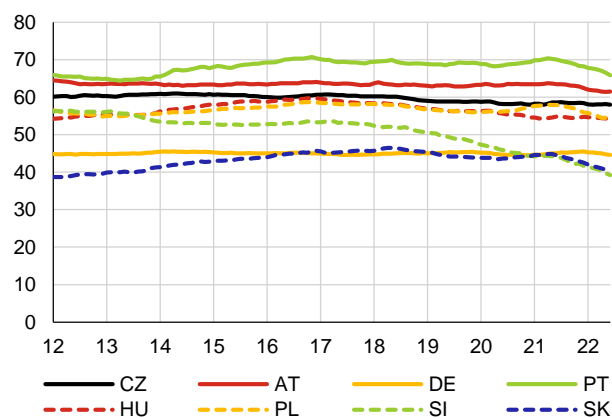
Shares of exports to the euro area in total exports (%)



Note: Annual moving total of the monthly data.
Source: Eurostat, CNB calculations.

The share of imports from the euro area in total imports to the Czech Republic is slightly lower than in the case of exports, but even so it exceeds the share of imports from the euro area to the other EU Member States of Central and Eastern Europe under review.

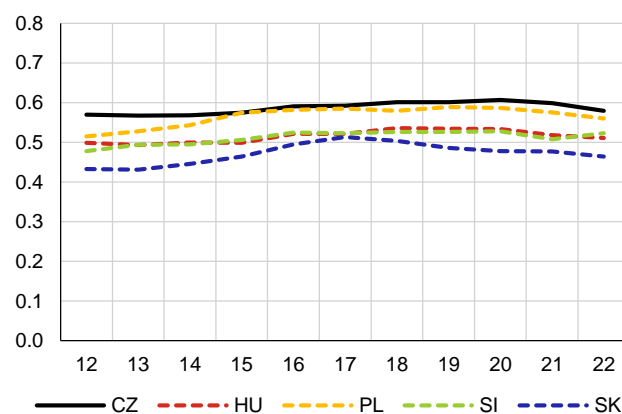
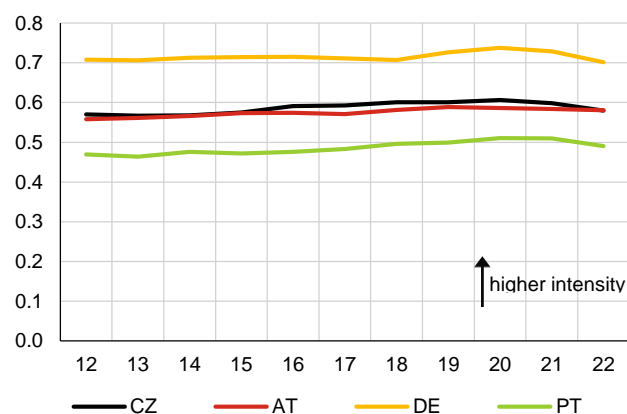
Shares of imports to the euro area in total imports (%)



Note: Annual moving total of the monthly data.
Source: Eurostat, CNB calculations.

The high intensity of intra-industry trade between the Czech Republic and the euro area, which supports a similar reaction of the two currency areas to economic shocks, has long exceeded the levels seen in most of the other countries under review.

Intensity of intra-industry trade with the euro area (under SITC5)



Note: The results were calculated using the five-digit SITC classification. To analyse intra-industry trade we used the Grubel-Lloyd index, which indicates the share of the absolute amount of intra-industry trade in total foreign trade turnover with the euro area. The 2022 figure is for the first five months of the year.

Source: Eurostat, CNB calculations.

Alignment of economic activity is also fostered by ownership links, which, in the case of investment from the euro area in relation to GDP, are also quite high in the Czech Republic.

Ratios of FDI stock from the euro area to GDP

(%)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CZ	60.2	58.6	61.2	62.0	63.1	64.4	63.4	62.3	66.3	67.2
AT	35.6	35.2	36.6	44.5	35.1	39.3	39.7	34.2	35.3	34.4
DE	25.8	27.0	26.3	26.3	26.6	26.7	28.9	28.6	31.0	30.5
PT	58.1	64.6	65.0	63.3	63.3	65.0	61.1	63.2	65.9	66.2
HU	58.1	56.2	56.0	57.2	50.1	45.9	46.3	42.4	42.8	41.5
PL	37.1	39.4	39.7	36.6	39.3	39.6	37.6	37.5	37.0	38.4
SI	20.7	19.6	21.9	23.7	25.6	26.1	27.0	27.1	28.9	26.9
SK	48.3	47.1	44.5	45.0	51.2	49.2	48.5	47.4	47.8	45.7

Source: Eurostat, Magyar Nemzeti Bank for Hungary, CNB calculations.

Investment by the other EU Member States of Central and Eastern Europe in the euro area economies is still low, but the Czech Republic is faring much better than the other EU Member States of Central and Eastern Europe.

Ratios of DI stock in the euro area to GDP

(%)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CZ	14.8	16.5	17.3	18.5	18.0	21.4	20.4	20.6	21.3	21.0
AT	25.0	26.1	30.0	26.1	30.3	31.2	30.4	31.5	27.9	27.1
DE	26.6	27.4	27.7	28.6	29.3	30.7	33.4	34.6	38.1	37.9
PT	30.3	32.2	28.7	28.6	29.3	27.9	25.6	27.0	27.8	26.2
HU	10.5	10.2	11.2	8.7	9.6	8.2	8.0	8.0	10.5	11.0
PL	8.8	8.7	8.5	8.7	8.6	7.2	7.0	6.9	7.2	7.1
SI	3.9	3.7	4.2	4.3	4.7	5.3	5.6	6.5	6.4	6.0
SK	6.5	7.1	6.7	7.8	11.5	8.9	8.5	8.3	10.3	10.7

Source: Eurostat, Magyar Nemzeti Bank for Hungary, CNB calculations.

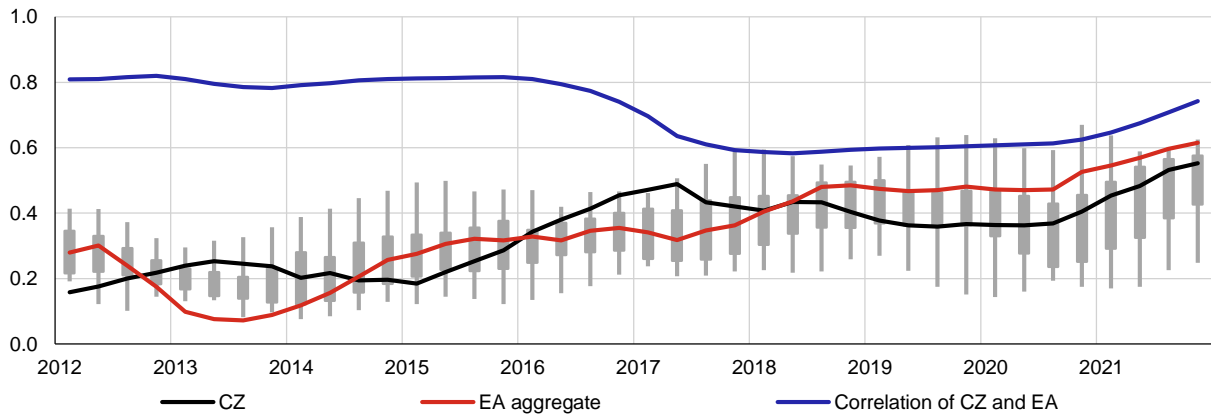
See the [Overall message of the analyses](#).

ALIGNMENT OF THE CZECH AND EURO AREA FINANCIAL CYCLES

The positions of the Czech Republic and the euro area in the financial cycle have converged and the correlation of their movements has risen...

Simplified financial cycle indicators for the Czech Republic and the euro area and their correlation

(0 minimum, 1 maximum)



Note: The simplified financial cycle indicator takes values from 0 to 1, with higher values corresponding to an expansionary phase of the financial cycle. The boxplot shows the minimum value, the 25% quantile (the lower edge of the rectangle), the 75% quantile (the upper edge of the rectangle) and the maximum value of the simplified financial cycle indicator in the euro area countries for each period.

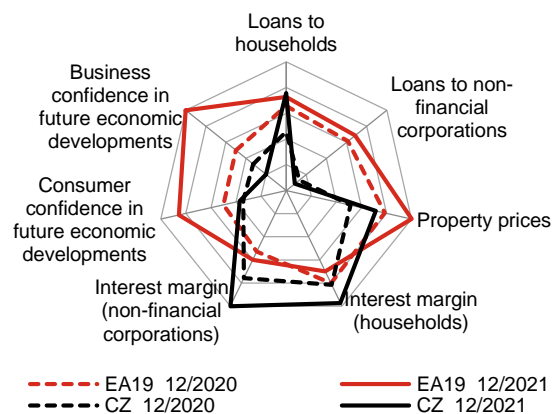
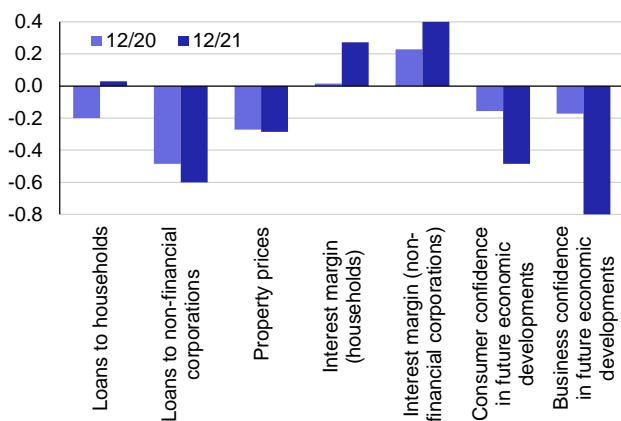
The indicator values differ from previous issues of this publication due to data revisions.

The construction and composition of the simplified indicator differs from the official financial cycle indicator (FCI) used in the Financial Stability Report, mainly because of the unavailability of similar data for all the countries analysed. The results for the Czech Republic may therefore differ from the official FCI.

Source: ECB, Eurostat, BIS, CNB calculations.

...but there was also a higher difference between the Czech Republic and the euro area in the individual factors affecting the position in the financial cycle.

Individual contributions of the simplified financial cycle indicator and their differences



Note: The simplified financial cycle indicator takes values from 0 to 1 (the trough and the peak of the cycle respectively). The same applies to its individual components.

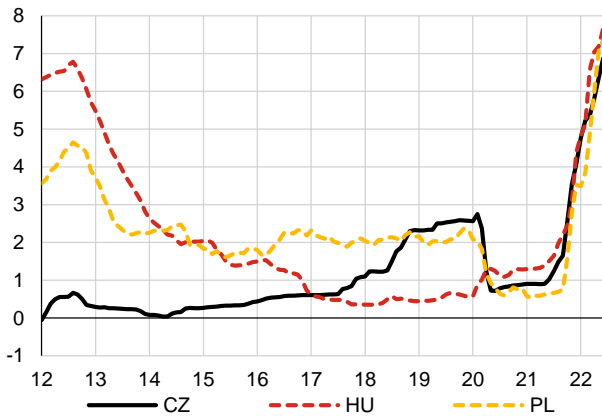
Source: ECB, Eurostat, BIS, CNB calculations.

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INTEREST RATE CONVERGENCE VIS-À-VIS THE EURO AREA

The significant tightening of CNB monetary policy from mid-2021 was reflected in an increase in the short-term differential vis-à-vis euro area rates. The short-term interest spreads rose to a similar extent in Hungary and Poland.

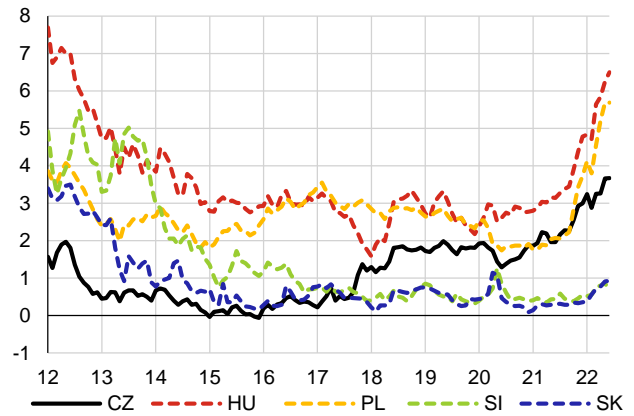
Differences in 3M interest rates vis-à-vis the 3M EURIBOR (pp)



Source: Eurostat, CNB calculations.

The long-term rate spread in the Czech Republic reached its highest level in ten years. However, it is much lower than in Hungary and Poland.

Differences in 10Y interest rates vis-à-vis Germany (differential vis-à-vis 10Y government bond yield in pp)

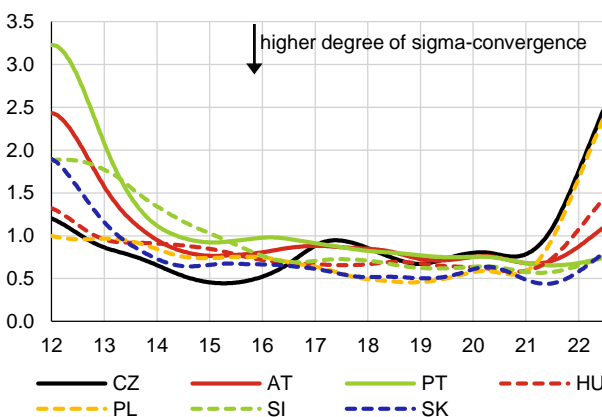


Source: Eurostat, CNB calculations.

In 2022, the alignment of the Czech government bond market with the benchmark German market moved further away from the levels observed over the last decade.

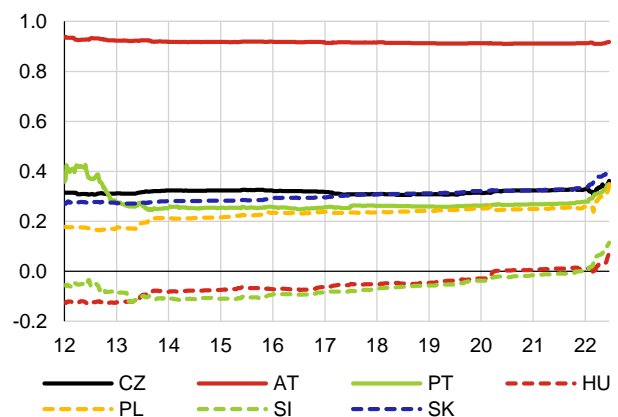
The rate of transmission of global news on the government bond market remains relatively high in the Czech Republic by comparison with the euro area. As in the other monitored countries, it increased further at the end of the period under review, underlining the importance of global shocks in the current turbulent period.

Degree of convergence of government bonds compared to Germany (sigma-convergence)



Note: Lower standard deviations (y-axis) correspond to a higher degree of convergence.
Source: Refinitiv, CNB calculations.

Sensitivity of asset prices to global news by comparison with the euro area (gamma-convergence)



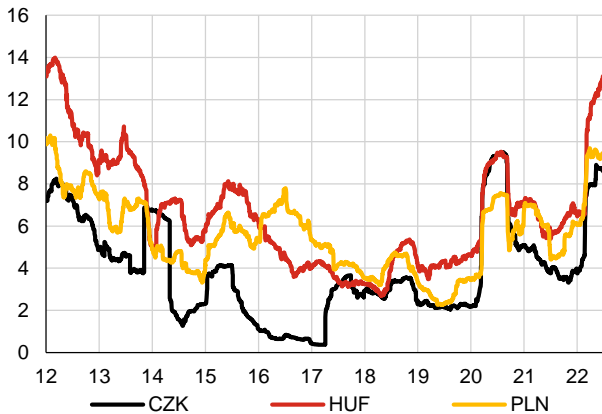
Note: Positive (negative) gamma values close to one express the same (opposite) directional and similarly strong sensitivity to news and hence a higher degree of integration; values close to zero express low integration.
Source: Bloomberg, Refinitiv, CNB calculations.

See the [Overall message of the analyses](#).

EXCHANGE RATE VOLATILITY AND ALIGNMENT

A deterioration of the economic outlook and the outbreak of the war, together with a strong dollar, triggered a marked outflow of capital from Europe, which contributed to an increase in the historical volatility of all Central European currencies.

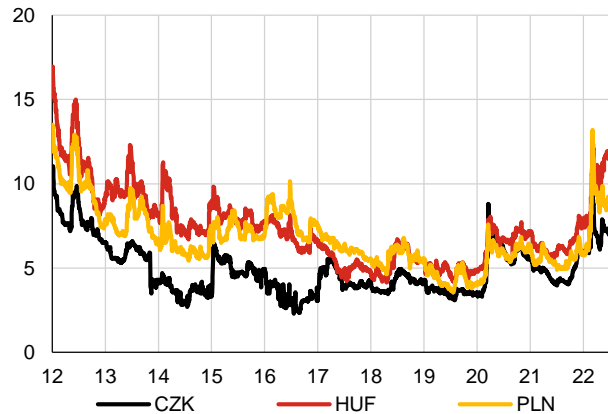
Historical volatility of exchange rates vis-à-vis the euro (%)



Source: Refinitiv, CNB calculations.

Implied volatility also surged but the volatility of the Czech koruna is the lowest among the Central European currencies. The koruna was supported, among other things, by the CNB's foreign exchange interventions.

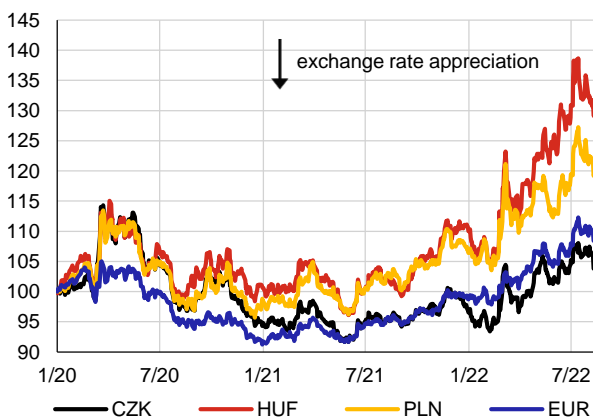
Implied volatility of exchange rates vis-à-vis the euro
(daily data, expected volatility of exchange rates of national currencies based on prices of options for those currencies, %)



Source: Refinitiv, CNB calculations.

In 2022 so far, the currencies under review mostly depreciated against the dollar.

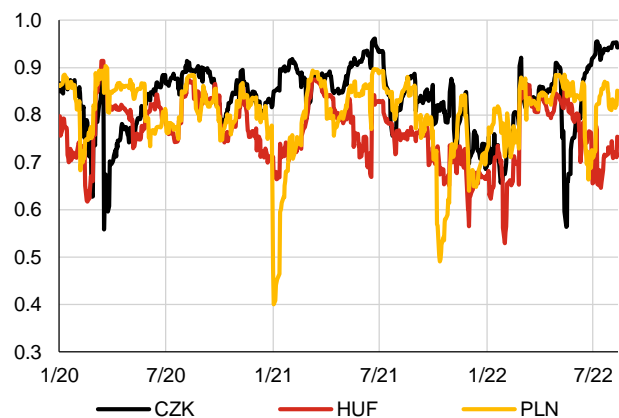
Exchange rates against the US dollar
(index, 1 January 2020 = 100)



Source: Refinitiv.

The correlation of the koruna-dollar exchange rate with the euro-dollar exchange rate has been affected this year by the geopolitical situation and, since May, also by CNB interventions. The high correlation between the koruna and euro exchange rates is thus not comparable with the correlation between the Polish zloty or the Hungarian forint and the euro.

Correlations of exchange rates against the US dollar
(correlations: national currency/USD and EUR/USD)



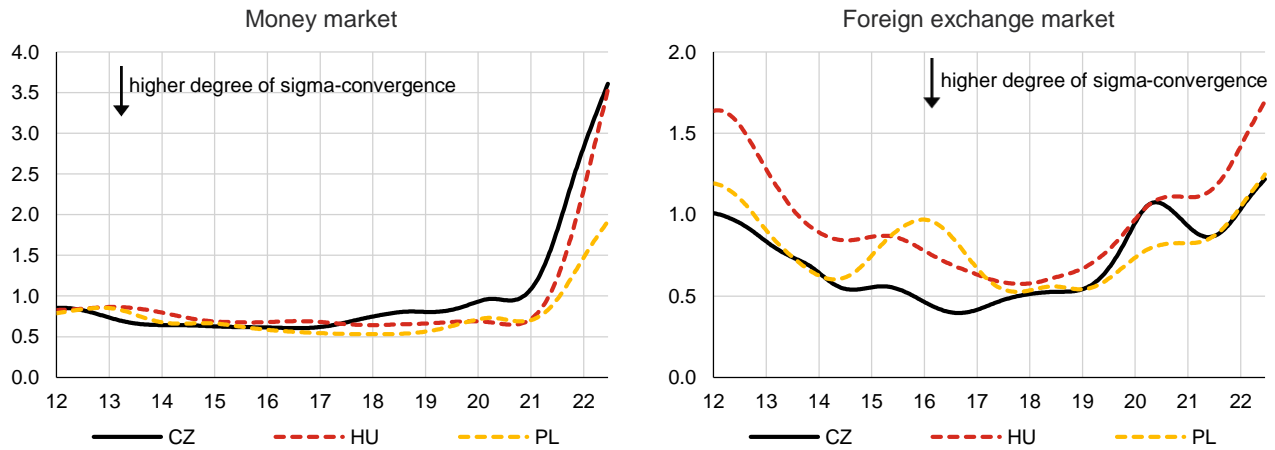
Note: A marked drop in the correlation of the exchange rate of the Polish zloty to the dollar with the euro-dollar exchange rate in late 2020 and early 2021 is due to the zloty weakening as a result of foreign exchange market interventions by the Polish central bank (NBP). This year, the NBP intervened in support of the zloty.

Source: Refinitiv, CNB calculations.

FINANCIAL MARKET ALIGNMENT

The Czech foreign exchange and money market diverged temporarily from the benchmark euro market as a result of the coronavirus crisis, followed by the outbreak of the war in Ukraine, a sharp rise in inflation and the different reactions of central banks.

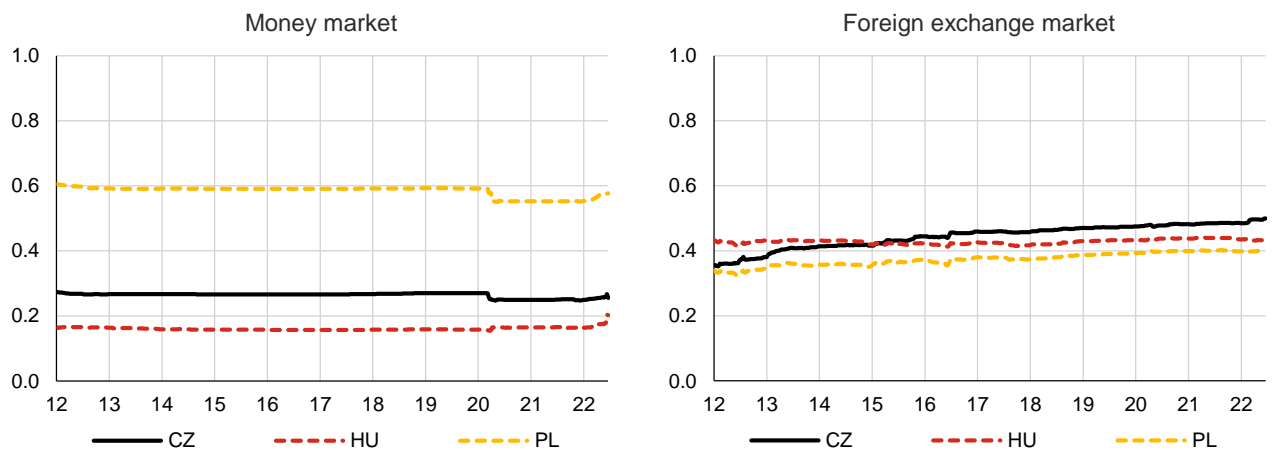
Degree of convergence of national financial markets to the euro area
(sigma-convergence)



Note: Lower standard deviations (y-axis) correspond to a higher degree of convergence.
Source: Refinitiv, CNB calculations.

The rate of transmission of global news on the Czech money market is little changed by comparison with the euro area, while it increased slightly on the foreign exchange market.









Sensitivity of asset prices to global news by comparison with the euro area
(gamma-convergence)



Note: Positive (negative) gamma values close to one express the same (opposite) directional and similarly strong sensitivity to news and hence a higher degree of integration; values close to zero express low integration.
Source: Bloomberg, Refinitiv, CNB calculations.

See the [Overall message of the analyses](#).

III.1.2 Similarity of monetary policy transmission

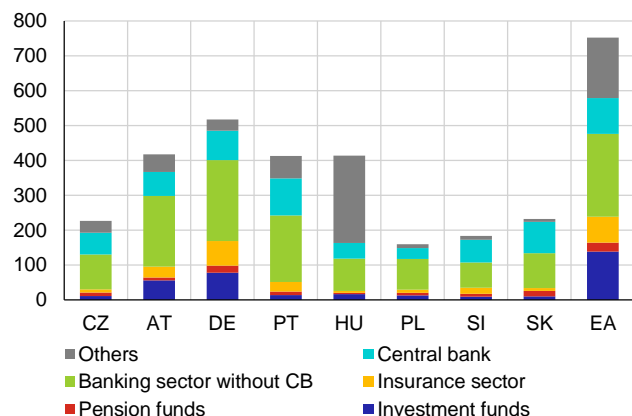
-  Depth of financial intermediation
-  Private sector debt
-  Structural similarity of non-financial corporations' balance sheets in the Czech Republic and the euro area
-  Structural similarity of households' balance sheets in the Czech Republic and the euro area
-  Structural similarity between the volume of loans of non-financial corporations in the Czech Republic and the euro area
-  Structural similarity between the volume of loans for house purchase in the Czech Republic and the euro area
-  Spontaneous euroisation
-  Inflation persistence

FINANCIAL SYSTEM

The depth of financial intermediation in the Czech Republic is one of the lower ones among the countries under comparison.

Depth of financial intermediation

(2021, assets of financial institutions as % of GDP)



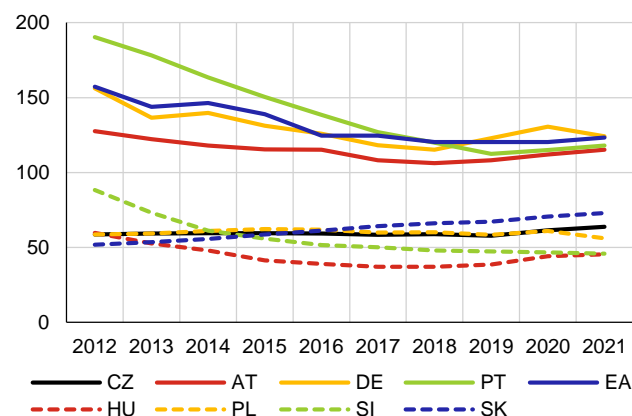
Note: The banking sector's total assets are adjusted for exposures to the central bank. The euro area value exceeds the other countries in the chart due to the large volume of assets of financial corporations in Luxembourg, Ireland, the Netherlands and France both as a percentage of their GDP and in comparison with the total financial assets of the euro area.

Source: CNB, ECB, Eurostat, national central banks.

Private sector debt in the Czech Republic is substantially below the euro area average.

Private sector debt

(% of GDP)



Source: IMF, Eurostat.

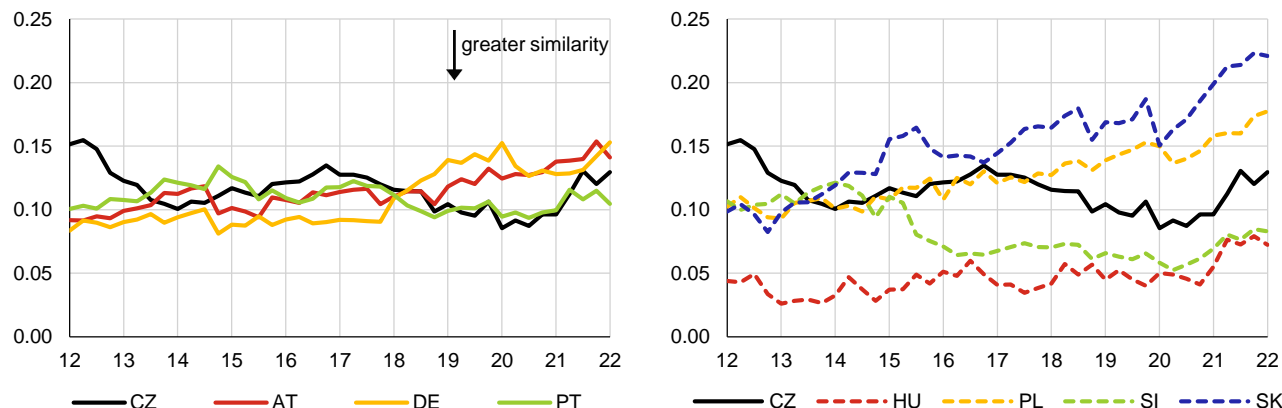
See the [Overall message of the analyses](#).

STRUCTURE OF FINANCIAL ASSETS AND LIABILITIES OF CORPORATIONS AND HOUSEHOLDS

The structural similarity of the financing of Czech corporations with firms in the euro area slightly over the past year, due to a marked decline in the share of debt securities in the Czech Republic relative to the share of these liabilities in the euro area.

Similarity of the structure of the financial liabilities of non-financial corporations

(Landesmann index)



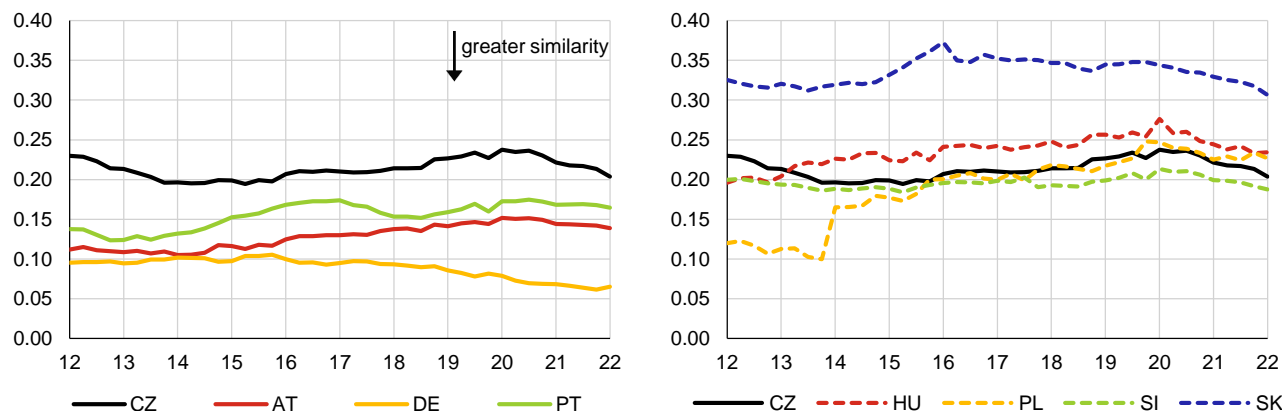
Note: The Landesmann index takes values in the range [0;1]. The closer the index is to zero, the more similar is the structure of the balance sheets under comparison. The shares of the individual categories of liabilities in total liabilities were used for non-financial corporations. The index values differ from the previous year due to data revisions.

Source: ECB, CNB calculations.

The structural similarity of the financial assets of Czech households and households in the euro area rose slightly but remains relatively low. The persisting dissimilarity is due to Czech households – unlike euro area ones – preferring cash, deposits, unit certificates and shares to insurance and pension schemes. The increase in similarity over the past year is due to a decrease in the share of cash in the Czech Republic and its rise in the euro area.

Similarity of the structure of the financial assets of households

(Landesmann index)



Note: The Landesmann index takes values in the range [0, 1]. The closer the index is to zero, the more similar is the structure of the balance sheets under comparison. The shares of the individual categories of assets in total assets were used for households. The index values differ from the previous year due to data revisions.

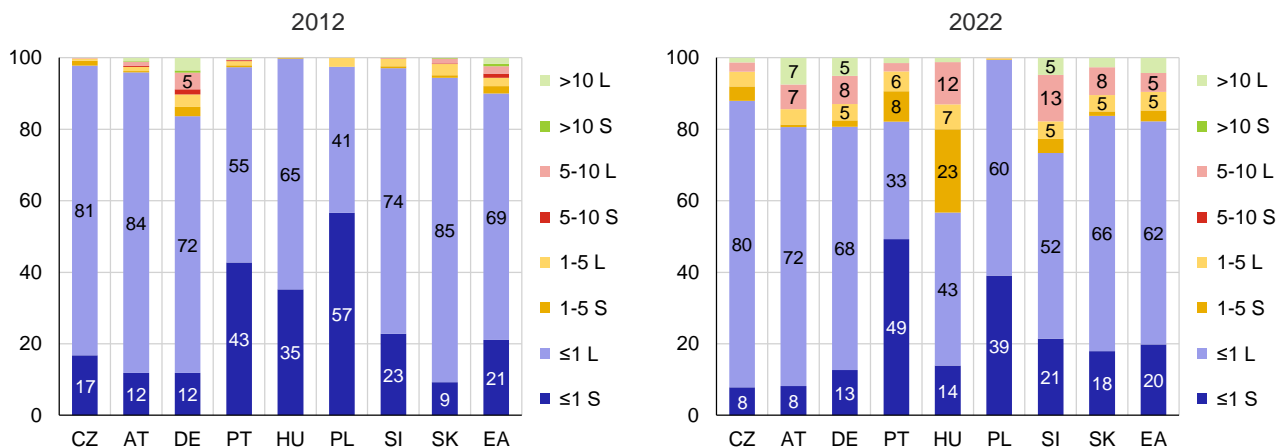
Source: ECB, CNB calculations.

See the [Overall message of the analyses](#).

EFFECT OF MONETARY POLICY ON CLIENT INTEREST RATES

Most non-financial corporations in the countries under review still mainly take out loans with floating rates or rates fixed for up to one year. This gives rise to relatively fast transmission of changes in monetary policy rates to rates on loans to non-financial corporations. The share of loans with longer fixation periods (especially 1–5 years) in the Czech Republic slightly increased this year due to interest rate optimisation in an environment of rapid growth in CNB monetary policy rates.

Structure of new loans to non-financial corporations by interest rate fixation period (%)



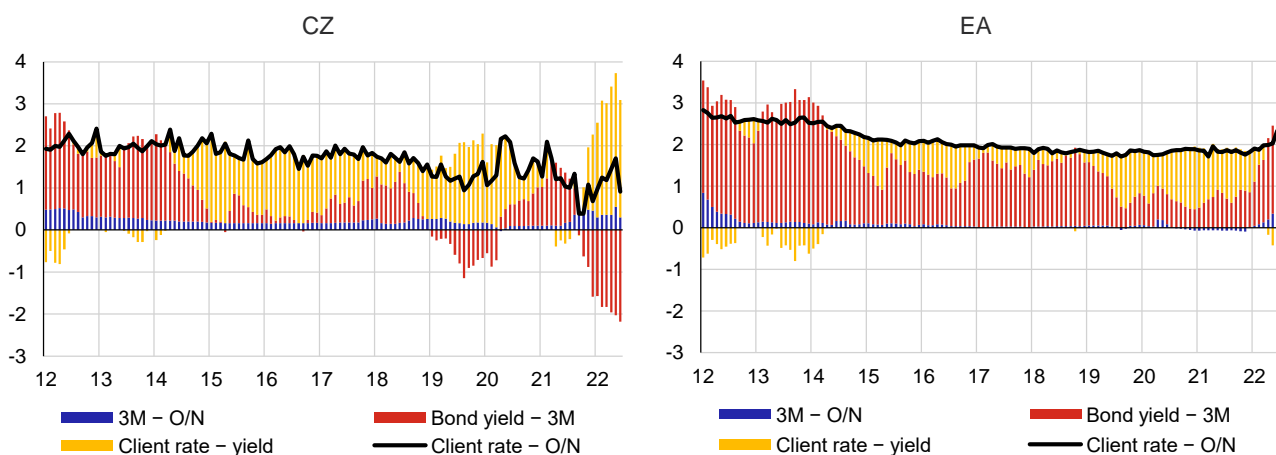
Note: The numbers in the legend stand for the fixation period in years; the ≤1 category also includes loans with a floating interest rate. S and L denote small (up to EUR 1 million) and large (over EUR 1 million) loans, respectively.

The structure of the euro area total varies according to the increasing number of countries. The 2022 data are as of June.

Source: ECB, CNB calculations.

The spread between client rates on loans to non-financial corporations and the overnight (O/N) interbank rate mostly picked up in the Czech Republic this year but is lower than in the euro area. The structure of the spread differs significantly, as Czech monetary policy rates rose rapidly and were reflected in the individual interest rate segments at different times and with different degrees of completeness. The inverted nature of the yield curve has shaped the spreads containing bond yields in an unusual way, i.e. the spread between the ten-year bond and the O/N interbank rate is significantly negative and the spread between the client rate and the ten-year government bond is significantly positive.

Decomposition of the spread between interest rates on loans to non-financial corporations and O/N interbank rates (pp)



Note: 3M – O/N is the difference between the three-month rate and the overnight interbank rate.

Bond yield – 3M is the difference between the ten-year government bond yield and the three-month interbank rate.

Client rate – yield is the difference between the client rate on loans across all maturities to non-financial corporations and the ten-year government bond yield.

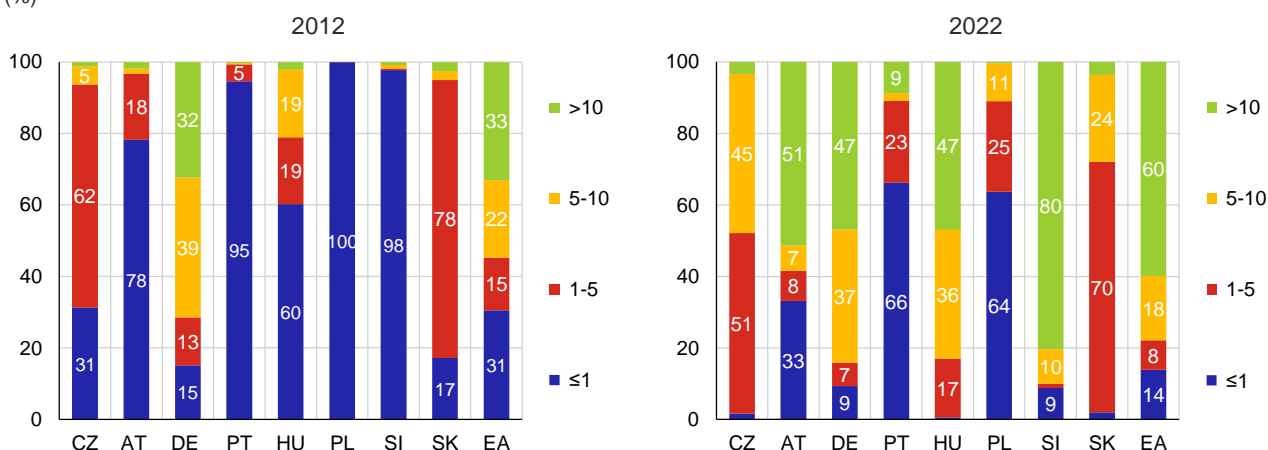
The data are monthly averages.

Source: ECB, CNB, CNB calculations.

In most of the countries under review, there has long been a trend towards loans for house purchase with longer fixation periods (over 10 years in many euro area countries). This is due to low market interest rates. Five-year fixation periods have long prevailed in the Czech Republic. A shift towards longer fixations was still visible here in the past year in an effort to fix rates on house purchase loans at – what was until recently – a low level, before their expected marked rise.

Structure of new loans to households for house purchase by interest rate fixation period

(%)



Note: The numbers in the legend stand for the fixation period in years; the ≤1 category also includes loans with a floating interest rate. The structure of the euro area total varies according to the increasing number of countries. The 2022 data are as of June.

Source: ECB, CNB calculations.

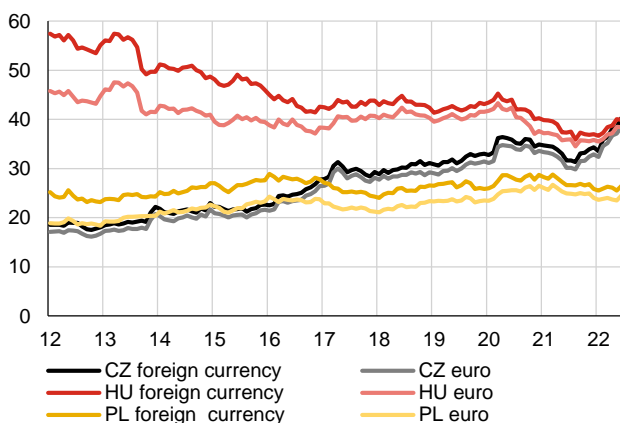
See the [Overall message of the analyses](#).

SPONTANEOUS EUROISATION

The share of foreign currency loans of Czech corporations (mostly euro-denominated) increased, reaching a historical high (around 40%) in mid-2022. The increase in this share was the steepest in the Central European region in the past year.

Foreign currency loans of non-financial corporations

(shares in total loans to non-financial corporations with domestic banks, %)

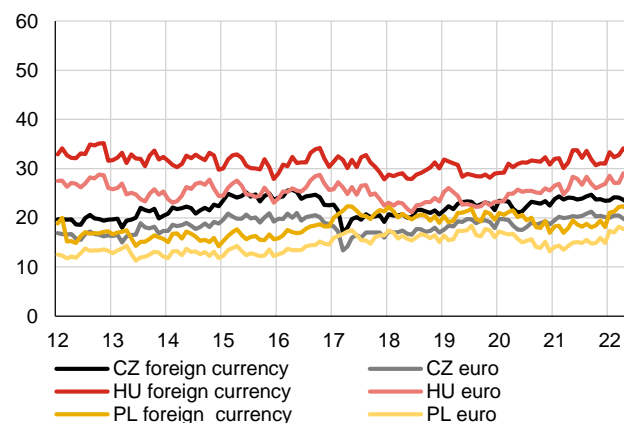


Source: ECB, CNB calculations.

The share of foreign currency deposits of corporations declined marginally, mainly reflecting a deterioration in foreign trade and high prices of energy and other inputs.

Foreign currency deposits of non-financial corporations

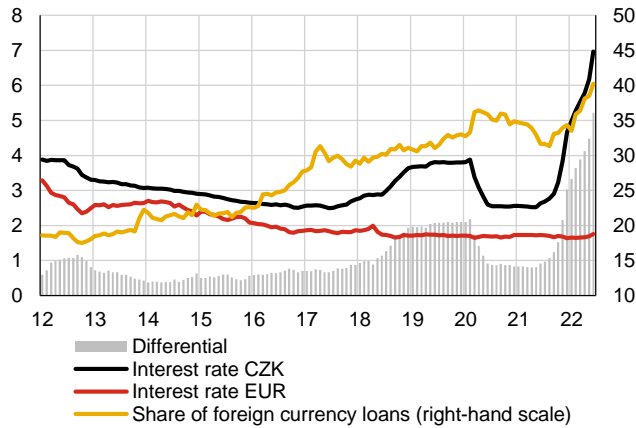
(shares in total deposits of non-financial corporations with domestic banks, %)



Source: ECB, CNB calculations.

A high interest rate differential is motivating Czech corporations to take out euro-denominated loans.

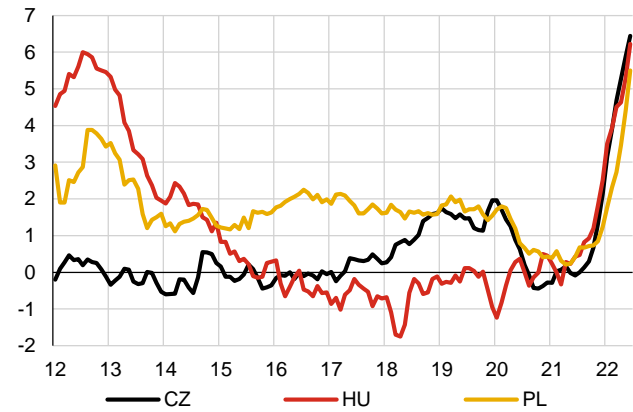
Interest rates on koruna- and euro-denominated loans of Czech non-financial corporations
(%)



Source: CNB.

Poland and Hungary have also recorded a widening of interest rate differentials.

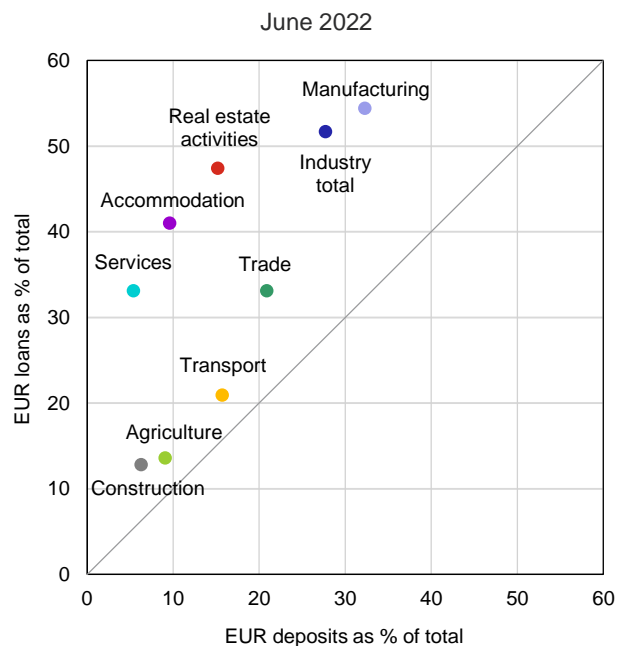
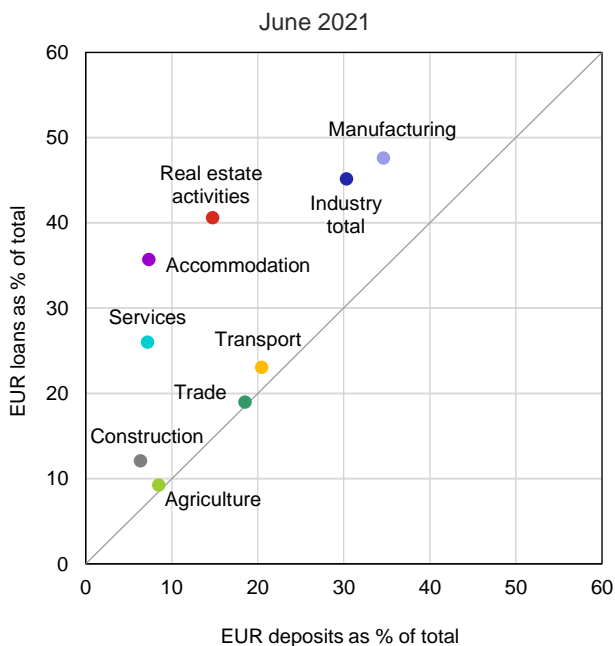
Interest rate differentials on domestic currency and euro loans of non-financial corporations in Central Europe
(pp)



Note: 3M moving average. The data refer to new loans of over EUR 1 million with interest rates fixed for up to one year.
Source: ECB, CNB calculations.

The euroisation of the Czech corporate sector is asymmetrical in terms of loans and deposits. A particularly high share of euro-denominated loans is recorded in manufacturing (54%) and real estate activities. However, the share of euro-denominated loans has risen in most sectors over the past year, especially in trade. The share of euro-denominated deposits remains lower.

Euro-denominated loans and deposits by sector
(shares in total loans and deposits in given sector with domestic banks, %)

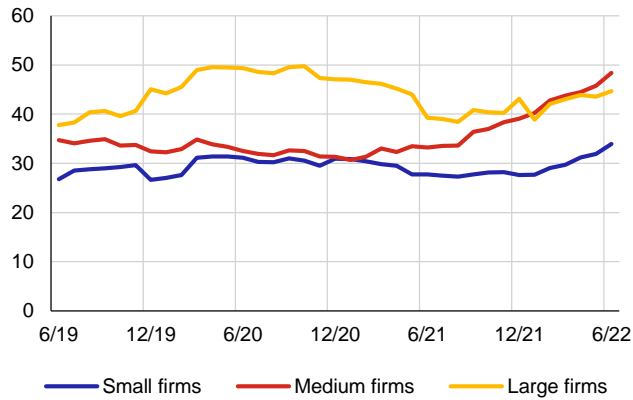


Source: CNB.

In terms of company size, the increase in the share of foreign currency loans was relatively broad-based. That said, the largest increase was recorded for medium-sized firms. Foreign currency financing remains lower in small enterprises.

Foreign currency loans by company size

(shares in total loans in given category with domestic banks, %)



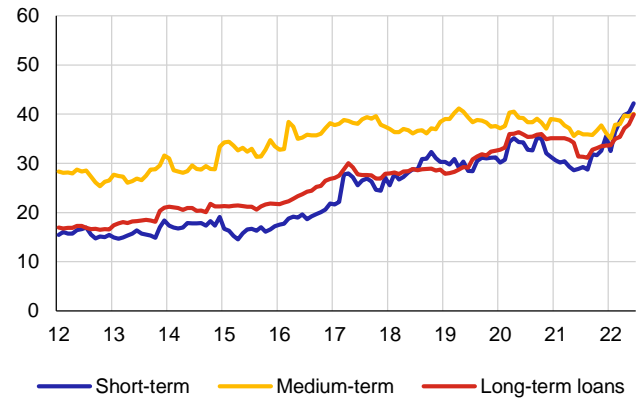
Note: The size structure of companies is based on EU Recommendation 2003/361.

Source: CNB Anacredit, CNB calculations.

An increase in the share of foreign currency corporate loans was recorded for all maturities.

Foreign currency corporate loans by maturity

(shares in total loans in given category with domestic banks, %)

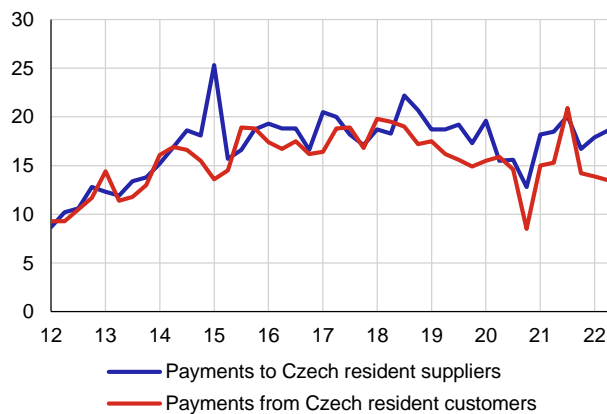


Source: CNB.

The share of euro payments between Czech firms is close to its long-term level.

Shares of euro payments between Czech firms

(%)

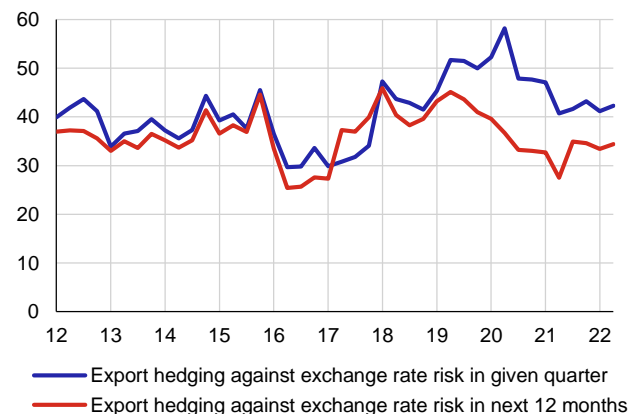


Source: Survey of non-financial corporations conducted by the CNB and the Confederation of Industry of the Czech Republic.

Export hedging against exchange rate risk on the financial market has not changed much over the past year. Around 34% of exports are hedged at the one-year horizon.

Shares of export hedging against exchange rate risk

(%)

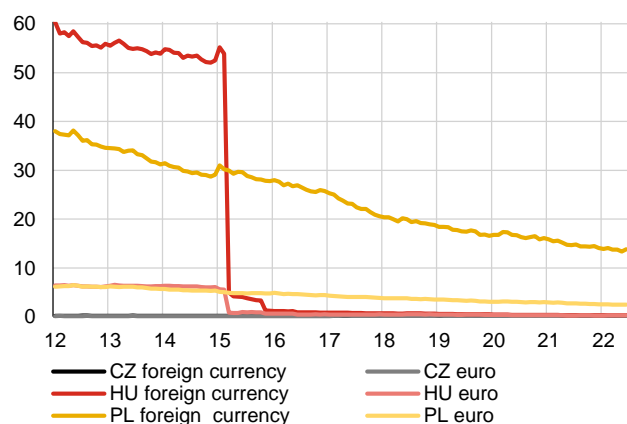


Source: Survey of non-financial corporations conducted by the CNB and the Confederation of Industry of the Czech Republic.

The euroisation of households in the Czech Republic has long been very low: the share of foreign currency loans is 0.2% and the share of foreign currency deposits is around 4%, showing a slight upward trend.

Foreign currency loans of households

(shares in total loans to households with domestic banks, %)

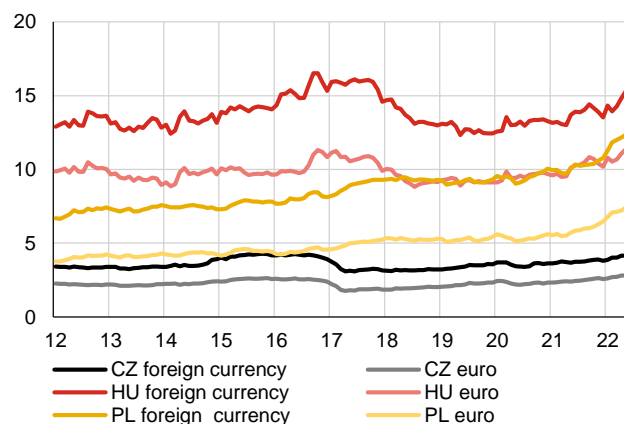


Note: The share of foreign currency loans in Hungary fell to zero in 2015 owing to administrative measures.

Source: ECB, CNB calculations.

Foreign currency deposits of households

(shares in total deposits of households with domestic banks, %)



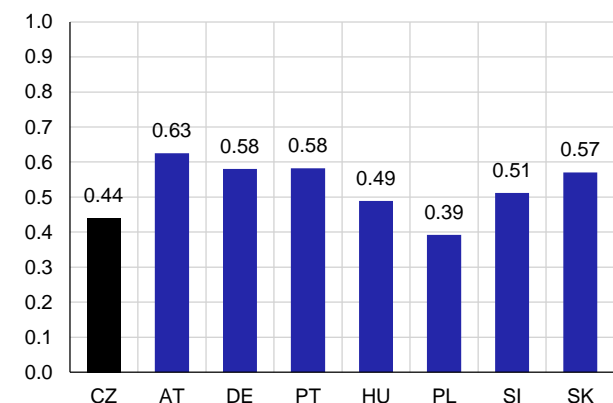
Source: ECB, CNB calculations.

See the [Overall message of the analyses](#).

INFLATION PERSISTENCE

Inflation persistence in the Czech Republic is one of the lowest among the countries under review. However, the difference compared to the euro area countries is not significant, and thus a common monetary policy would have similar impacts on inflation in this respect.

Inflation persistence estimates







Note: Calculation for 2012 Q1–2022 Q2.

The closer the values are to one, the more persistent is inflation.

Source: Eurostat, CNB calculations.

III.2 ADJUSTMENT MECHANISMS OF THE CZECH ECONOMY

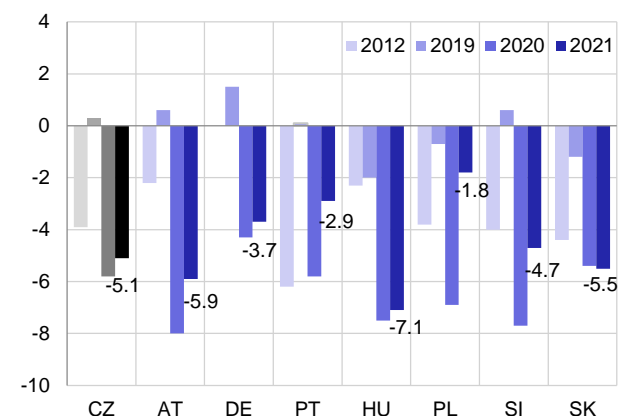
III.2.1 Fiscal policy

-  Cyclically adjusted balance of the general government sector
-  General government debt
-  Countercyclical effect of fiscal policy
-  Long-term sustainability of public finances

In 2021, the Czech Republic’s general government finances recorded a sizeable deficit for the second consecutive year, owing to the pandemic and the impacts of the fiscal stabilisation measures. The situation was similar in most of the other countries under review.

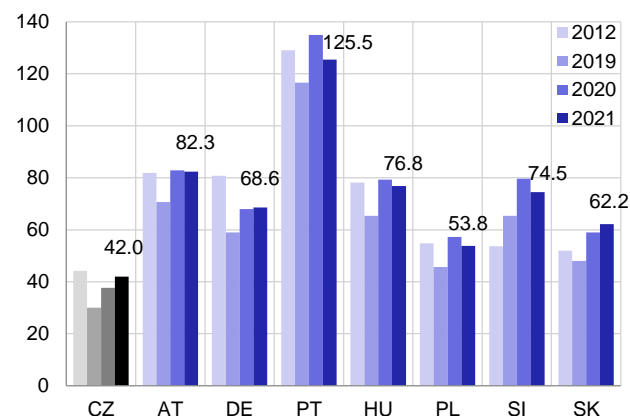
General government debt surged as a result of the high deficits. The debt in the Czech Republic will continue to increase in the next few years owing to persisting general government deficits (due partly to the energy and refugee crisis). However, it should stay below the debt brake level.

General government balance
(% of GDP)



Source: Eurostat.

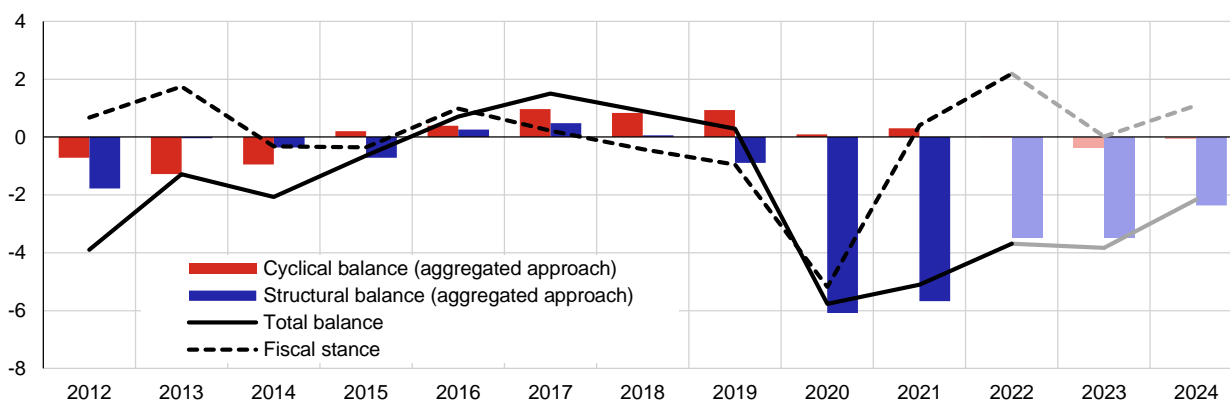
General government debt
(% of GDP)



Source: Eurostat.

Czech fiscal policy has often been procyclical, so the Czech Republic entered the coronavirus crisis and later the energy crisis with limited fiscal space.

The Czech Republic's general government balance, its cyclical and structural components, and the fiscal stance
(% of GDP, pp)



Note: The fiscal stance measures the year-on-year change in the structural balance. The structural balance is the general government balance adjusted for the business cycle and one-off measures.

Source: CZSO (2011–2021), CNB calculations (2022–2024 forecast).

Owing to the impacts and fiscal costs of the pandemic, the overall balance of the general government sector exceeded the Maastricht criterion of 3% in all the countries under review including the Czech Republic in 2020–2021. The cyclically adjusted balance also deteriorated significantly.

General government balances, European Commission estimates
(% of GDP)

	Total balance						Cyclically-adjusted balance					
	2012	2020	2021	2022	2023	2024	2012	2020	2021	2022	2023	2024
CZ	-3.9	-5.8	-5.1	-4.3	-4.1	-3.0	-3.2	-4.3	-4.6	-4.0	-3.1	-2.1
AT	-2.2	-8.0	-5.9	-3.4	-2.8	-1.9	-2.2	-5.0	-4.6	-4.1	-2.9	-1.8
DE	0.0	-4.3	-3.7	-2.3	-3.1	-2.6	-0.1	-2.9	-3.3	-2.3	-2.4	-2.2
PT	-6.2	-5.8	-2.9	-1.9	-1.1	-0.8	-3.9	-2.4	-1.3	-2.8	-1.4	-1.0
HU	-2.3	-7.5	-7.1	-6.2	-4.4	-5.2	-0.5	-5.6	-6.7	-6.7	-3.7	-4.5
PL	-3.8	-6.9	-1.8	-4.8	-5.5	-5.2	-3.7	-5.7	-2.3	-5.2	-4.7	-4.2
SI	-4.0	-7.7	-4.7	-3.6	-5.2	-2.7	-1.2	-6.1	-5.5	-5.8	-6.4	-3.4
SK	-4.4	-5.4	-5.5	-4.2	-5.8	-4.7	-3.5	-4.5	-5.3	-4.3	-5.5	-4.4
EA	-3.8	-7.0	-5.1	-3.5	-3.7	-3.3	-2.4	-3.9	-4.2	-3.7	-3.4	-3.2
CZ *)	-3.9	-5.8	-5.1	-3.7	-3.8	-2.2	-3.2	-5.9	-5.4	-3.7	-3.5	-2.1

Note: *) Total balance: data according to the CZSO's statistics and notifications (spring 2022) until 2021, and the CNB's forecast from Monetary Policy Report – Autumn 2022 for 2022–2024. The cyclically adjusted balance is calculated according to the aggregated approach.

Source: European Commission (2022a, 2022b), CNB (2022b).

The Czech Republic is among the countries with a lower ratio of general government expenditures and revenues to GDP compared to the euro area.

Ratio of general government revenues and expenditures to GDP

(2021, % of GDP)

	CZ	AT	DE	PT	HU	PL	SI	SK	EA
Total revenues	41.4	50.0	47.5	44.9	41.3	42.4	44.6	40.9	47.2
taxes	19.2	27.8	24.7	24.8	23.2	23.6	21.5	20.2	26.8
social contributions	16.6	15.8	17.6	12.7	10.5	14.0	16.8	15.9	15.3
Total expenditures	46.5	56.0	51.3	47.8	48.4	44.2	49.3	46.3	52.3
compensation of employees	11.1	11.0	8.2	11.6	10.6	10.5	12.7	11.5	10.2
intermediate consumption	5.8	7.5	6.3	5.8	8.7	5.9	6.5	5.8	5.9
social payments	14.1	19.5	17.0	17.4	10.8	16.0	16.3	15.2	17.9
gross fixed capital formation	4.7	3.5	2.6	2.6	6.3	4.1	4.7	3.1	3.0
interest expenditure	0.8	1.1	0.6	2.4	2.3	1.1	1.2	1.1	1.5

Source: Eurostat.

A large proportion of state budget expenditures in the Czech Republic are mandatory or quasi-mandatory.

Shares of mandatory and quasi-mandatory expenditures in total expenditures and total revenues of the Czech state budget

(%)

	2012	2014	2016	2017	2018	2019	2020	2021	2022	2023
Shares of mandatory expenditure in total SB expenditure	57.7	57.8	58.2	57.0	55.0	52.6	51.0	51.4	54.6	57.6
Shares of quasi mandatory expenditure in total SB expenditure	17.7	17.3	18.8	20.2	20.6	20.9	20.6	21.6	20.7	20.4
Shares of mandatory expenditure in total SB revenue	63.3	61.7	55.4	57.3	54.9	53.6	63.7	65.9	64.0	66.4
Shares of quasi mandatory expenditure in total SB revenue	19.4	18.5	17.9	20.3	20.6	21.3	25.8	27.7	24.2	23.5

Note: Actual data for 2012–2021, state budget projections for 2022–2023.

Source: Ministry of Finance of the Czech Republic (2022).

Despite a rise in general government debt as a percentage of GDP, debt service costs to GDP remained low in the Czech Republic in 2021 due to relatively low financial market yields. However, the trend is now reversing in the context of a marked rise in yields since the end of last year.

Debt service

(European Commission estimate, % of GDP)

	2012	2016	2017	2018	2019	2020	2021	2022	2023	2024
CZ	1.4	0.9	0.7	0.7	0.7	0.8	0.8	1.1	1.2	1.2
AT	2.7	2.1	1.8	1.6	1.4	1.3	1.1	1.1	1.1	1.2
DE	2.3	1.2	1.0	0.9	0.8	0.6	0.6	0.6	0.7	0.8
PT	4.9	4.1	3.8	3.4	3.0	2.9	2.4	2.1	2.5	2.5
HU	4.6	3.1	2.6	2.3	2.2	2.3	2.3	2.9	3.1	3.4
PL	2.7	1.7	1.6	1.4	1.4	1.3	1.1	1.7	2.8	2.9
SI	2.0	3.0	2.5	2.0	1.7	1.6	1.2	1.1	1.1	1.1
SK	1.8	1.7	1.4	1.3	1.2	1.2	1.1	1.0	1.0	1.1
EA	3.0	2.1	1.9	1.8	1.6	1.5	1.5	1.6	1.8	1.9

Source: European Commission (2022b).

Adjustments to the Czech pension system in recent years have fostered a deterioration in what was already an adverse outlook for Czech public finance long-term sustainability.

Age-related general government expenditures
(% of GDP)

	Pensions		Health care		Long-term care		Total		Change 70-19
	2019	2070	2019	2070	2019	2070	2019	2070	
CZ	8.0	10.9	5.6	6.6	1.5	3.2	15.1	20.7	5.6
AT	13.3	14.3	6.9	8.1	1.8	3.5	22.0	25.9	3.9
DE	10.3	12.4	7.4	7.8	1.6	1.8	19.3	22.0	2.7
PT	12.7	9.5	5.7	7.3	0.4	0.8	18.8	17.6	-1.2
HU	8.3	12.4	4.8	5.6	0.6	1.2	13.7	19.2	5.5
PL	10.6	10.5	4.9	7.4	0.8	2.4	16.3	20.3	4.0
SI	10.0	16.0	5.9	7.4	1.0	2.2	16.9	25.6	8.7
SK	8.3	14.2	5.7	8.2	0.8	2.9	14.8	25.3	10.5
EA	12.1	12.1	6.7	7.6	1.7	2.6	20.5	22.3	1.8








Note: Recent adjustments to the pension system include: a change to the regular increases in old-age pensions (from 2018, the amount by which old-age pensions are increased takes into account one-half of the growth in the real wage instead of the previous one-third, plus inflation for all households or the increase in pensioners' living costs, whichever is the higher), a ceiling on the retirement age at 65 years (in January 2018), an increase in the flat-rate component of pensions from 9% to 10% of the average wage, a bonus of CZK 1,000 a month for senior citizens aged over 85 (from 2019), and a higher-than-usual (i.e. higher than the minimum mandatory) indexation of pensions in recent years.

More recent data are not available.

Source: European Commission (2021).

See the [Overall message of the analyses](#).

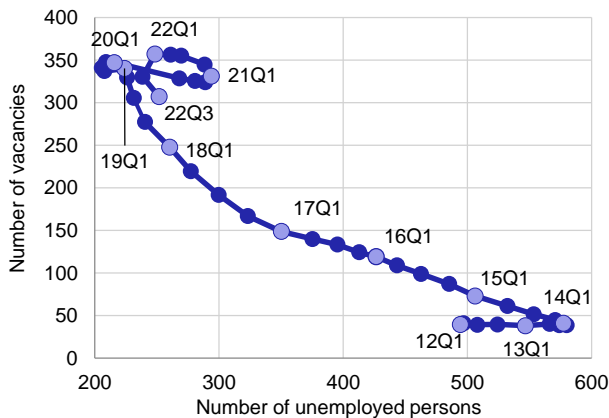
III.2.2 The labour and products market

-  Geographical mobility
-  Rate of economic activity of the population
-  Share of part-time jobs in employment
-  Long-term unemployment rate
-  Unemployment trap
-  Labour market efficiency
-  Competitiveness of the Czech economy

In previous years, the number of unemployed persons was falling and the number of job vacancies was rising. This trend reversed briefly after the onset of the coronavirus crisis, but the number of unemployed persons started to decline again during 2021. There was a further reversal in the second half of 2022 and the number of unemployed persons started to rise again.

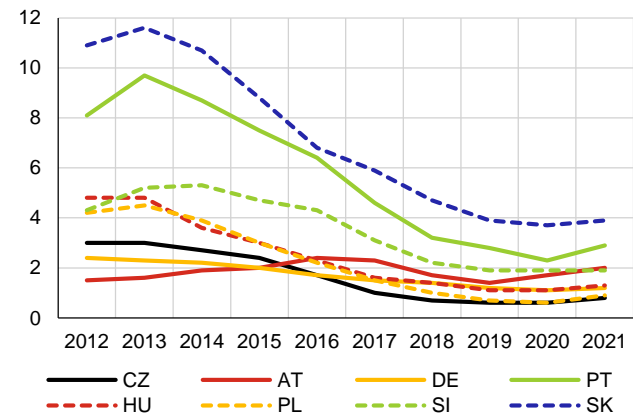
The steady decline in the long-term unemployment rate in the Czech Republic came to a halt in the pandemic year 2020. The rate edged up last year but was still the lowest among the countries under review.

Beveridge curve
(thousands)



Source: Ministry of Labour and Social Affairs, CNB calculations.

Long-term unemployment rate
(%)

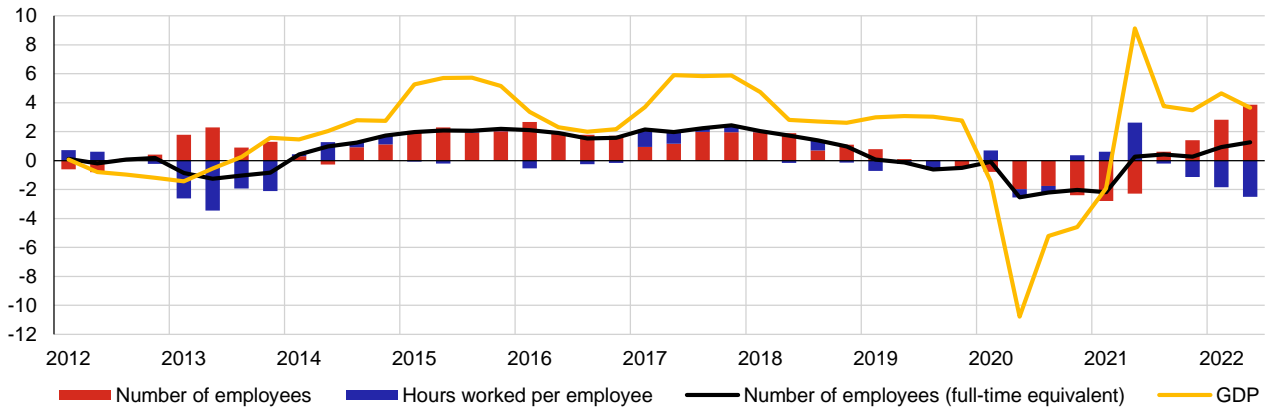


Note: Shares of persons unemployed for 12 months or more in the labour force (under ILO methodology).

Source: Eurostat.

The number of employees was rising from 2014 onwards owing to favourable economic developments, while average hours worked were broadly flat in the same period. The number of employees and average hours worked fell noticeably after the outbreak of the coronavirus crisis. The number of employees started rising again in 2021, with average hours worked per employee rising sharply during the first half of 2021 but declining since then.

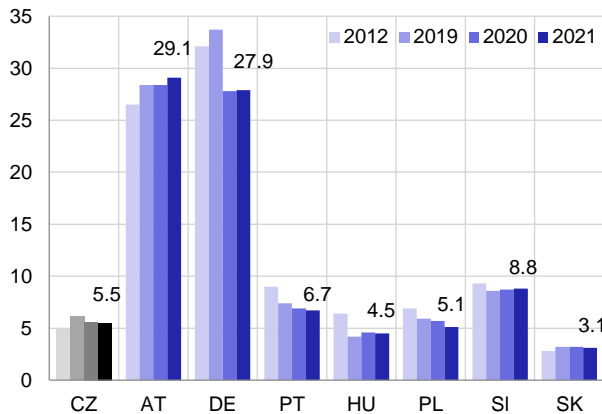
Average hours worked per employee
(annual changes in %, contributions in pp)



Source: CZSO, CNB calculations.

The share of persons working part-time in the Czech Republic was flat last year, remaining well below the levels in Austria and Germany.

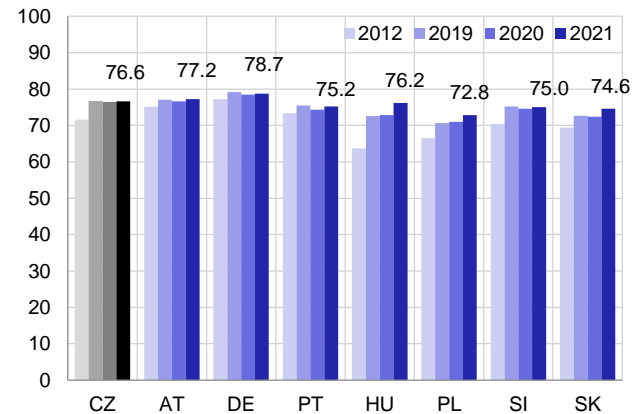
Part-time employees
(%)



Source: Eurostat.

The rate of economic activity of the population has been relatively high in recent years.

Rates of economic activity in the 15–64 age category
(%)



Note: The rate of economic activity is the share of economically active persons (employed and unemployed) in the population in each age category.

Source: Eurostat (LFS).

The regional differences in the unemployment rate in the Czech Republic are medium-high compared to the other countries under review. They have increased in recent years but declined significantly in 2020. In 2021, they increased again, but only slightly.

Coefficients of variation of the unemployment rate
(%)

	NUTS II regions										NUTS III regions									
	12	13	14	15	16	17	18	19	20	21	12	13	14	15	16	17	18	19	20	21
CZ	33	31	30	33	33	30	34	38	26	30	34	32	30	33	34	32	36	41	29	33
AT	43	39	43	45	46	47	56	57	52	51	45	41	45	47	49	49	57	58	54	53
DE	40	39	39	37	32	32	31	28	26	24	47	46	-	-	-	-	-	-	-	42
PT	14	16	13	14	14	13	12	13	13	9	-	-	-	-	-	-	-	-	-	18
HU	23	20	30	33	40	46	44	44	37	43	25	24	34	36	45	51	50	52	42	52
PL	15	19	21	22	26	29	35	29	30	29	27	28	29	30	33	36	43	39	39	42
SI	-	-	-	-	-	-	-	-	-	-	21	19	22	21	21	17	26	24	23	18
SK	31	29	28	26	29	37	41	-	-	-	33	31	30	31	33	42	45	46	43	48

Note: The coefficient of variation is the ratio of the standard deviation weighted by region size to the average unemployment rate in per cent. Higher levels of the coefficient of variation represent greater regional differences in unemployment.

Source: Eurostat (LFS).

The willingness of the domestic population to migrate within the Czech Republic has been roughly stable over the last 10 years, at around half the level of Germany and Austria.

Internal migration
(per 1,000 inhabitants)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CZ	22	22	23	23	24	23	23	23	22	23
AT	39	39	40	43	44	42	41	40	40	41
DE	47	48	49	53	54	48	48	47	45	-
HU	19	19	22	22	26	27	29	29	27	32
PL	10	11	11	10	10	11	12	12	11	-
SI	55	55	55	53	54	54	50	47	67	53
SK	15	16	17	17	18	18	18	18	16	17

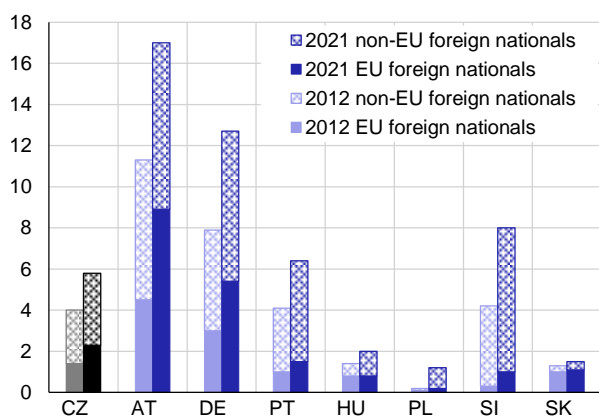
Note: Migration between municipalities (HU, PL and SI – all changes in permanent residence). Data for Portugal are not available over the entire observed horizon. Data for Germany and Poland for 2021 will be available after the publication of this document. The calculations do not take into account differences in the sizes of territorial units in the chosen countries.

Source: Statistical yearbooks, Eurostat, CNB calculations.

The geographical mobility of the labour force in the Czech Republic is gradually rising via an increasing share of foreign nationals in the population. This year's figures can be expected to be strongly boosted by the influx of war refugees from Ukraine.

Shares of foreign nationals in the population

(%)

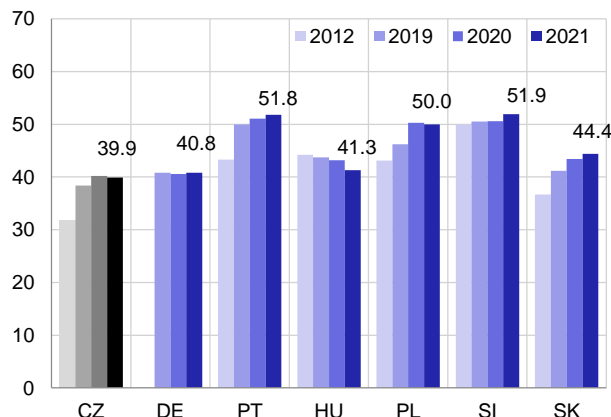


Source: Eurostat, CNB calculations.

Growth in the ratio of the minimum wage to the average wage halted in the Czech Republic last year, but is expected to rise slightly again this year, roughly to the level of Germany.

Minimum wage

(% of average wage)



Note: In Austria the minimum wage is only defined for some specific occupations and represents around 30% of the average wage. No minimum wage was defined at the national level in Germany until 2014; a minimum wage was introduced in January 2015.

Source: Eurostat.

Overall labour taxation in the Czech Republic was relatively high until 2020 but decreased significantly last year after the implementation of tax changes. It is among the lowest in the countries under review.

Overall labour taxation

(%)

	100% of average wage						67% of average wage					
	2012	2017	2018	2019	2020	2021	2012	2017	2018	2019	2020	2021
CZ	42.5	43.4	43.7	44.0	44.0	39.9	39.4	40.8	41.4	41.7	41.8	37.6
AT	48.8	47.4	47.6	47.9	47.5	47.8	44.2	43.1	43.3	43.6	42.9	43.3
DE	49.7	49.5	49.5	49.3	48.8	48.1	45.5	45.4	45.3	45.2	44.7	44.2
PT	37.6	41.4	40.9	41.4	41.5	41.8	32.6	36.6	36.7	37.1	37.3	37.6
HU	49.5	46.2	45.0	44.6	43.6	43.2	47.9	46.2	45.0	44.6	43.6	43.2
PL	35.5	35.7	35.8	35.6	34.8	34.9	34.7	35.0	35.1	35.0	34.1	34.2
SI	42.5	42.9	43.2	43.5	43.1	43.6	38.6	40.0	39.8	40.3	40.2	40.4
SK	39.8	41.7	41.9	41.9	41.3	41.3	37.2	39.4	39.7	39.7	39.0	39.0

Note: Income tax and contributions paid by employees and employers as a percentage of total labour costs. Data for employees (childless individuals) earning 100% (left-hand part of the table) and 67% (right-hand part of the table) of the average wage.

The reduction in labour taxation in the Czech Republic was due mainly to the abolition of the "super-gross wage" as the tax base with effect from 2021.

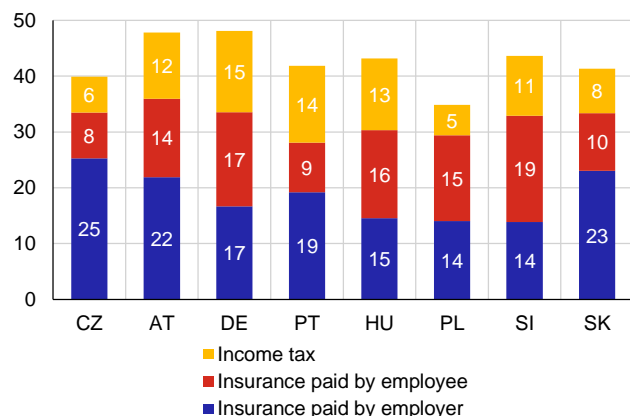
Source: OECD.

Labour taxation in the Czech Republic is due mainly to high insurance contributions paid by employers. The contribution of income tax fell significantly last year due to tax changes.

Before the income tax cuts, the overall implicit labour taxation rate in the Czech Republic was one of the highest among the countries under comparison.

Components of labour taxation

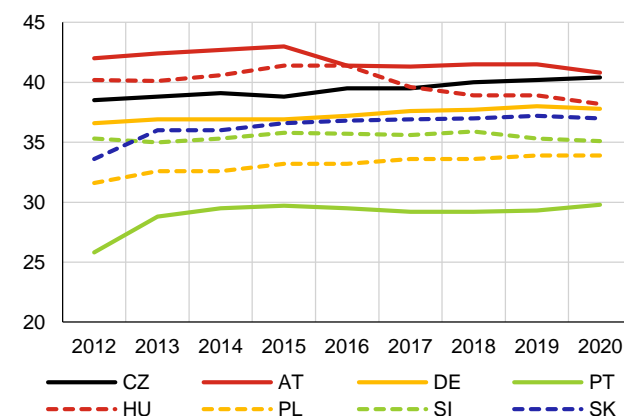
(2021, % of average wage)



Source: OECD.

Implicit labour taxation rates

(%)



Note: The implicit labour taxation rate is defined as the sum of all direct and indirect taxes and social security contributions of employees and employers paid from wages, divided by the total compensation of employees plus income tax. More recent data are not available.

Source: Eurostat.

Despite tax changes and a slight improvement in the unemployment trap indicator last year, the configuration of the Czech tax and social system leads to a relatively weak incentive to return from unemployment to employment.

Unemployment trap

(%)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CZ	80.1	80.1	80.2	80.3	80.4	80.6	80.8	80.9	80.9	79.5
AT	74.8	74.6	74.3	73.9	72.0	72.1	71.7	71.2	70.5	70.0
DE	73.3	73.0	73.1	73.1	73.3	73.3	73.2	73.2	73.0	72.8
PT	79.2	79.9	79.8	80.3	80.3	80.4	80.4	80.6	80.6	80.7
HU	79.5	78.8	78.6	78.4	78.1	78.5	78.5	77.1	76.4	73.6
PL	80.3	80.4	78.9	78.0	77.2	75.8	74.7	73.5	71.8	76.1
SI	89.7	89.8	89.7	89.7	89.7	91.0	91.7	91.6	90.0	86.5
SK	69.7	69.6	69.8	70.0	70.3	70.7	71.1	70.2	70.5	70.8

Note: The unemployment trap measures the proportion of additional gross income associated with finding employment that is paid to public budgets when an unemployed person enters employment due to higher taxes and social security contributions and the loss of unemployment benefit and other social benefits. The figures are based on a model example of an unmarried, childless individual with a wage of 67% of the average wage.

Source: European Commission (Tax and benefits).

After a wage increase from 67% to 100% of the average income, about one-third of the additional gross income is paid to public budgets due to the configuration of the tax and social system, which is much less than in previous years. This is one of the lower levels among the countries under comparison.

Low wage trap

(%)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CZ	35.5	35.4	36.4	37.5	39.0	41.1	47.3	46.2	46.0	34.1
AT	60.2	58.4	57.2	55.7	48.8	48.4	46.9	44.5	44.7	45.1
DE	47.8	48.4	47.1	45.8	54.4	53.1	50.6	48.9	56.8	55.0
PT	22.8	26.6	25.5	25.5	24.0	25.9	27.2	28.3	29.7	30.5
HU	22.6	22.9	25.9	25.9	33.5	33.5	33.5	33.5	33.5	33.5
PL	44.5	46.7	47.4	53.4	54.6	54.6	86.9	91.5	51.4	58.6
SI	49.8	49.7	49.8	36.7	33.2	35.4	38.7	67.8	65.6	53.8
SK	21.8	21.5	22.5	23.4	24.5	26.0	27.9	28.2	27.0	27.9

Note: The low wage trap measures the proportion of additional gross income that is paid to public budgets due to the combined impact of income taxes, social security contributions and the loss of benefits when gross income increases from 67% to 100% of the average income of an employee in the business sector. This indicator is compiled for persons living as a couple, only one of whom earns an income, with two children.

Source: European Commission (Tax and benefits).

In the area of permanent employment, relatively strict legislative conditions for the recruitment and dismissal of employees persist in the Czech Republic, contributing to a decrease in labour market flexibility. The temporary employment protection conditions are usual by international comparison. Collective dismissals are easier for employers in the Czech Republic than in most countries under comparison.

Employment protection legislation (EPL) index

(2019)

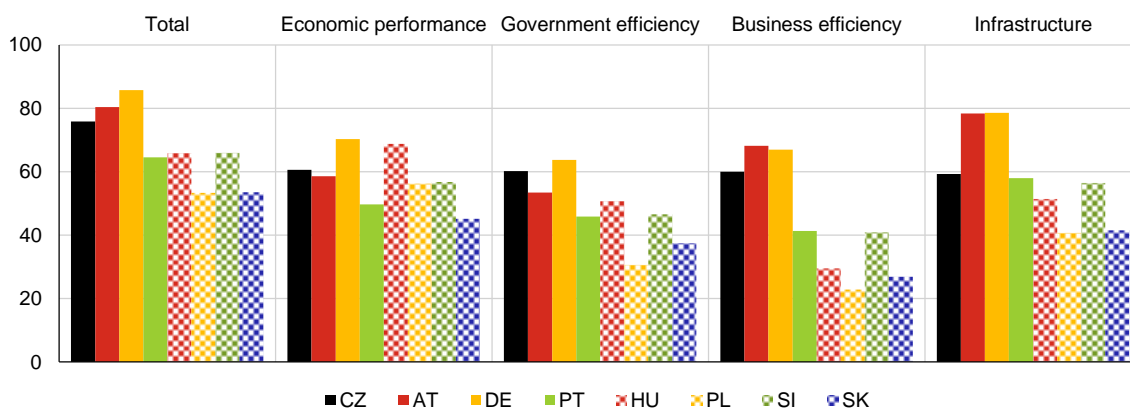


Note: The indices take values ranging from 1 to 6, a higher value meaning greater employment protection. More recent data are not available.

Source: OECD.

According to an international comparison based on the IMD World Competitiveness Booklet, the Czech Republic improved its competitiveness compared to last year and is ranked relatively high.

World Competitiveness Booklet – overall index and main factors of competitiveness (2022)

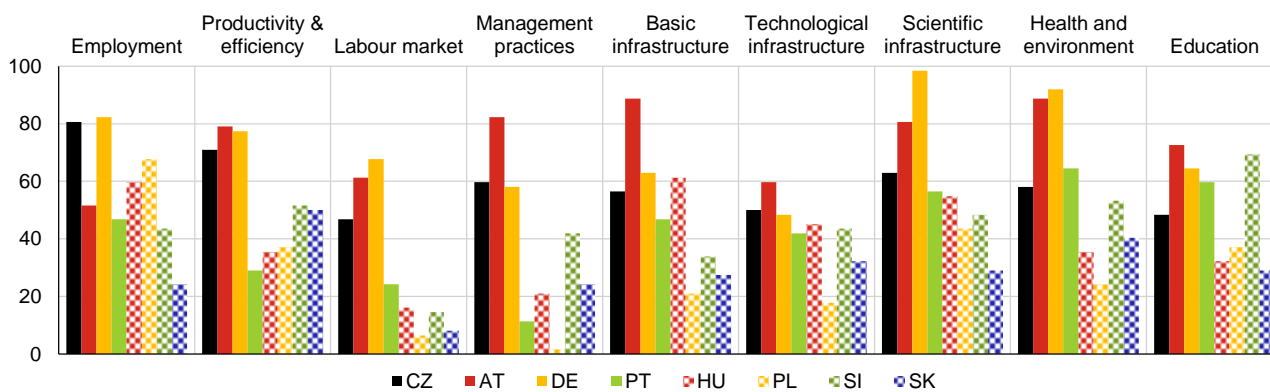


Note: A higher value denotes higher competitiveness in the given area. Official scores by the publisher are shown, with the overall index being normalised to a scale of 0–100 (for this reason, it is higher than the average of the scores for the four factors).

Source: International Institute for Management Development (2022).

In selected subfactors, the competitiveness of the Czech economy is also solid by comparison with the countries under review.

World Competitiveness Booklet – selected subfactors (2022)







Note: The score for each subfactor is derived from the country's ranking in a survey of 63 countries and normalised to a scale of 0–100. A higher value denotes higher competitiveness in the given area (100 denotes rank 1, while 0 denotes rank 63).

Source: International Institute for Management Development (2022), CNB calculation.

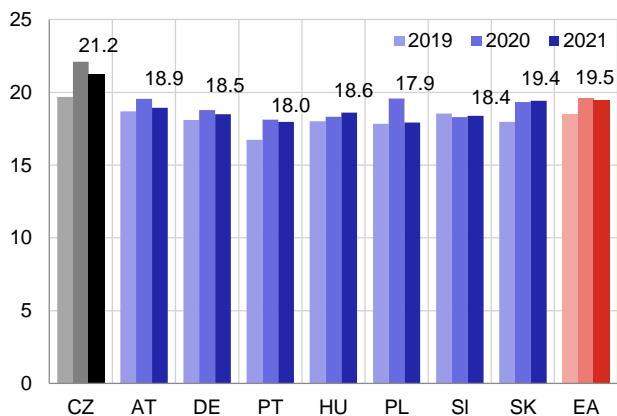
See the [Overall message of the analyses](#).

III.2.3 The banking sector

-  Capital position
-  Profitability
-  Liquidity position
-  Credit risk

The capital ratio indicates high resilience of the banking sector.

Capital ratios
(%)

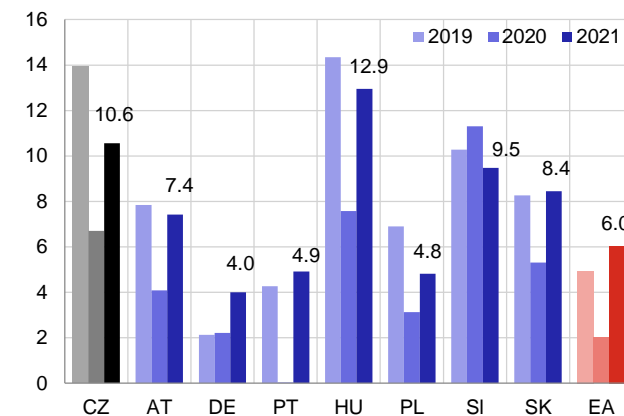


Note: The capital ratio is the ratio of banks' capital to their risk-weighted assets.

Source: ECB.

Return on equity is high in the Czech Republic.

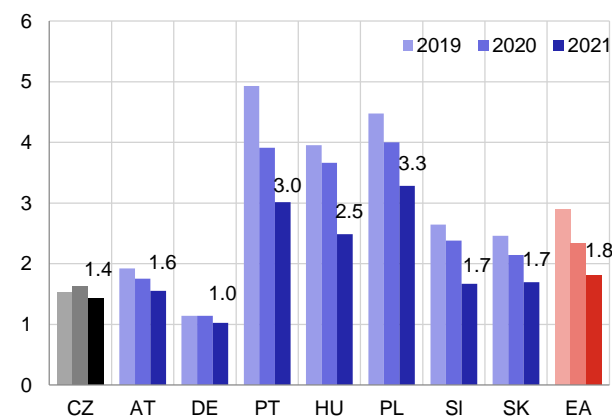
Return on equity (RoE)
(%)



Source: ECB.

The non-performing loan ratio in the Czech Republic remains low.

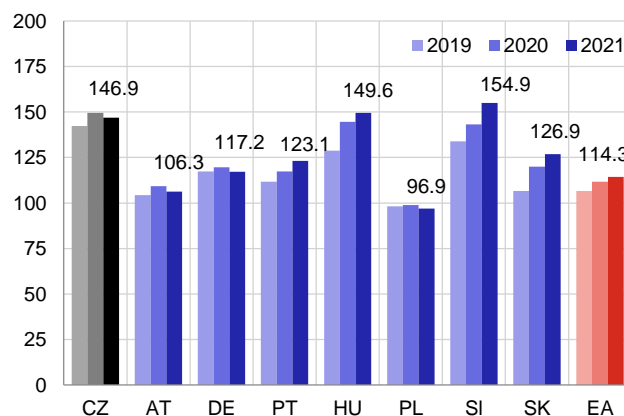
Non-performing loans
(% of total bank loans)



Source: ECB.

The liquidity position remains robust due to a high proportion of liquid assets.

Deposit-to-loan ratios
(%)









Note: Deposits/loans to residents.

Source: ECB.

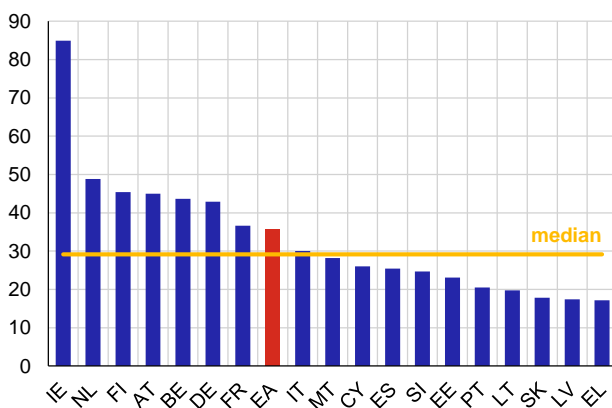
See the [Overall message of the analyses](#).

III.3 ECONOMIC ALIGNMENT OF EURO AREA COUNTRIES

-  Convergence of euro area countries' wealth levels
-  Public finance sustainability
-  Business cycle alignment
-  Monetary policy transmission (interest rate channel)
-  Financial cycle alignment as captured by credit growth
-  Inflation alignment

Economic performance remains very mixed across euro area countries (due partly to the pandemic)...

GDP per capita in euro area countries
(2021, GDP at current prices in EUR thousands)

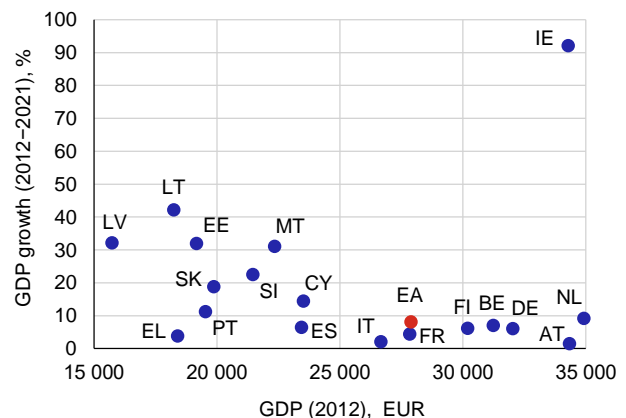


Note: Luxembourg is not included in either of the charts due to the many specificities of its economy, which result in exceptionally high GDP per capita. Ireland's high GDP is largely due to foreign investment, i.e. the relocation of the headquarters of several multinational BigTech and pharmaceutical firms to Ireland as a low-tax environment with a highly educated English-speaking population.

Source: Eurostat.

...with real convergence taking place especially in the Baltic States, i.e. in the newest euro area countries.

Beta-convergence of real GDP in euro area countries

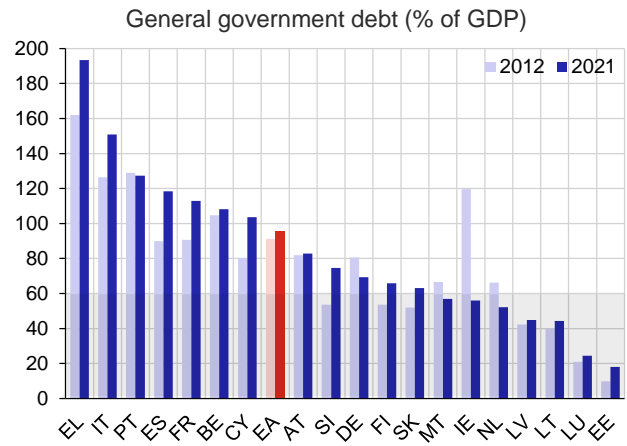
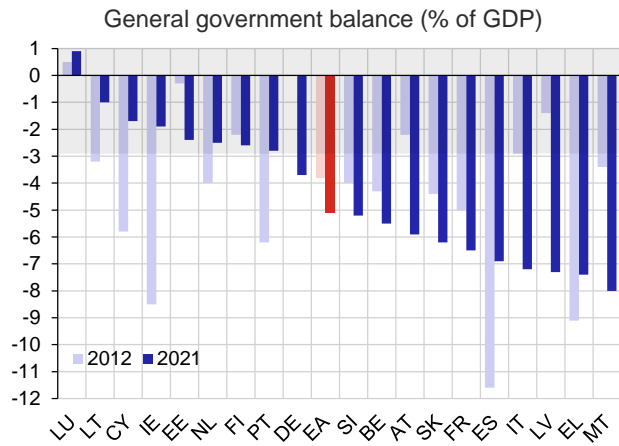


Note: The chart depicts the relation between GDP growth per capita in each country and its initial level (beta-convergence). The x-axis shows GDP per capita in PPS and the y-axis shows real GDP growth.

Source: Eurostat.

Almost all euro area countries recorded public finance deficits in 2021. However, the deficits decreased in most countries compared to 2020, when they were at record highs due to the pandemic (economic decline and government supports). Government debt relative to GDP was still the highest in the southern euro area periphery.

Fiscal situation of euro area countries



Note: Countries in the grey area are compliant with the Stability and Growth Pact (SGP) criterion. The SGP sets limits on government deficits (3% of GDP) and debt (60% of GDP). The starting point (2012) captures the negative fiscal effects of the financial crisis (such as rescue programmes in banking sectors financed from state budgets).

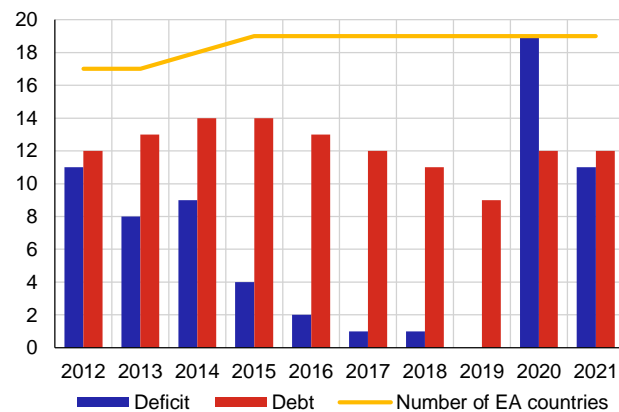
Source: Eurostat.

Low fiscal discipline is a long-standing problem in many euro area countries that has been exacerbated by the pandemic.

Only five euro area countries were compliant with both the debt and deficit criteria in 2021, although this is an improvement on 2020, when none of the countries met the criteria.

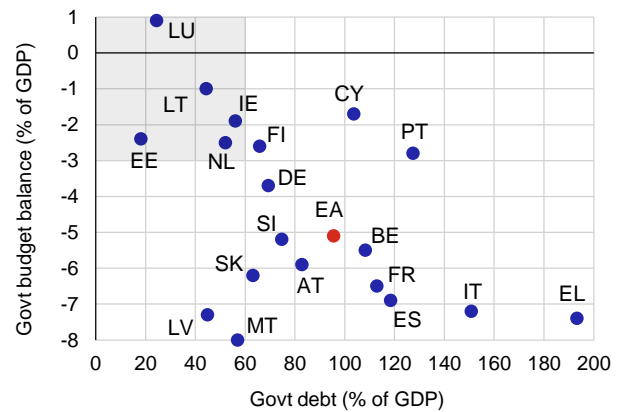
Non-compliance with the fiscal criteria

(number of countries non-compliant with the Stability and Growth Pact)



Fiscal positions of euro area countries

(2021)



Note: Number of countries non-compliant with the deficit and debt criteria.

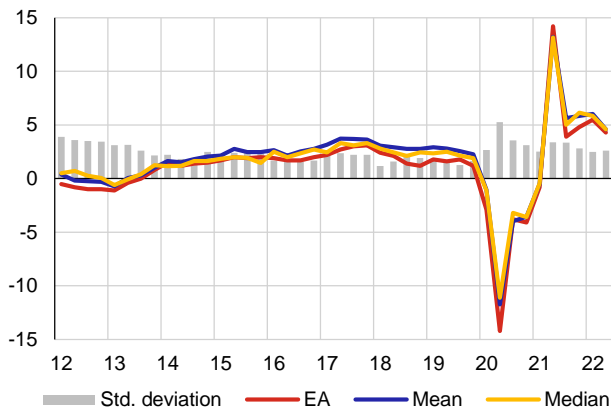
Source: Eurostat, European Commission, CNB calculations.

Note: Countries compliant with the Stability and Growth Pact lie in the grey area.

Source: Eurostat.

Renewed economic growth in 2021 helped to improve the public finance situation slightly. However, the growth remains subdued due to Russia’s invasion of Ukraine, the related energy crisis and persisting problems in global production chains.

Real GDP growth in euro area countries
(y-o-y, %)

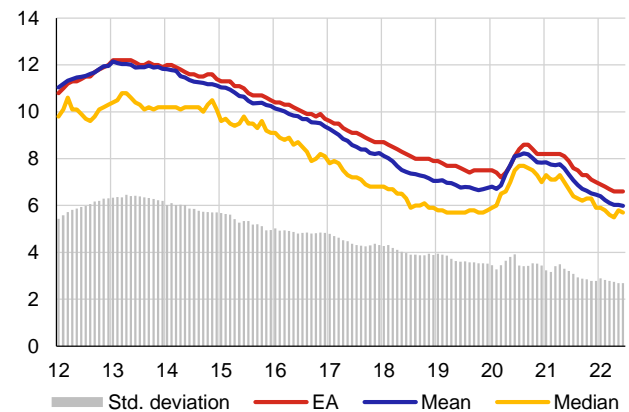


Note: The quarterly mean series depicts the unweighted arithmetic mean of GDP growth in the given quarter across euro area countries. Data for Ireland were not included due to exceptionally high growth in 2015 owing to the relocation of the headquarters of several international corporations to Ireland. The source series are seasonally adjusted.

Source: Eurostat, CNB calculations.

The labour market has recovered over the past year following its cooling during the pandemic. The unemployment rate mostly fell to pre-pandemic levels, but its evolution is mixed across euro area countries.

Unemployment in euro area countries
(%)

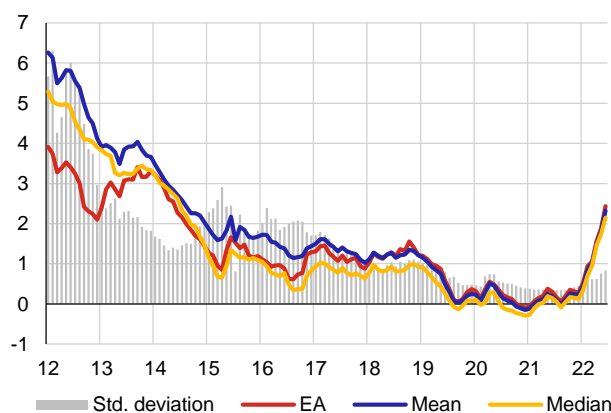


Note: The monthly mean series depicts the unweighted arithmetic mean of unemployment in the given month across euro area countries. The source series are seasonally adjusted.

Source: Eurostat, CNB calculations.

Long-term government bond yields in the euro area turned positive last year and have started rising sharply this year after the ECB announced the end of its asset purchase programmes.

Long-term government bond yields in euro area countries
(%)

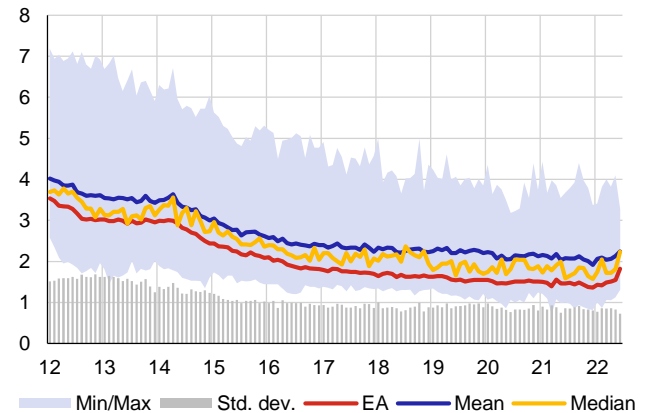


Note: Bond yields for the convergence criteria. The bond maturity is about ten years. Estonia is not included because the time series is not available. The monthly EA series is a weighted average of ten-year euro area government bonds.

Source: Eurostat, ECB (FM database), CNB calculations.

Rates on client loans were still at historical lows in late 2021 and early 2022 but recorded a slight increase in 2022 Q2. However, the dispersion of these rates is not increasing so far, indicating that monetary policy transmission is similar across the euro area.

Funding costs of non-financial corporations
(%)

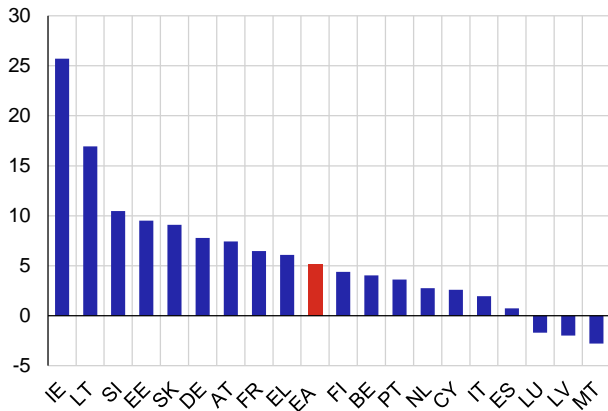


Note: The composite indicator comprises a weighted average of short-term and long-term loans to non-financial corporations. The time series are monthly.

Source: ECB (MIR database), CNB calculations.

Bank loans to non-financial corporations increased (albeit at a mixed pace) in most euro area countries. Increased uncertainty led to a tightening of credit conditions in 2022 Q2.

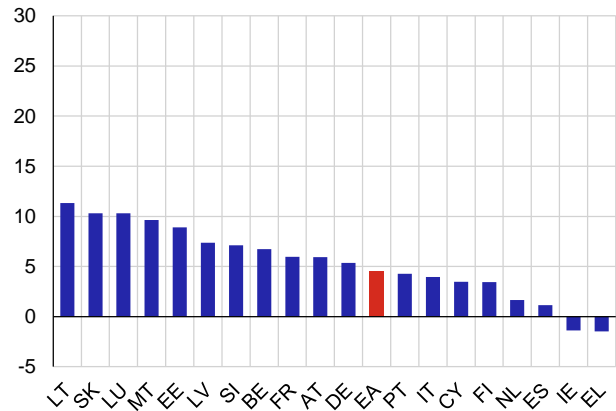
Growth in bank loans to domestic non-financial corporations
(2022 H1, y-o-y, %)



Note: Average annual growth in loans provided by monetary financial institutions in the first six months of 2022.
Source: ECB (BSI database), CNB calculations.

Despite the persisting high economic and geopolitical uncertainty, growth in loans to households has also remained strong (albeit differentiated) so far. The higher growth rates are due mainly to growth in mortgage loans.

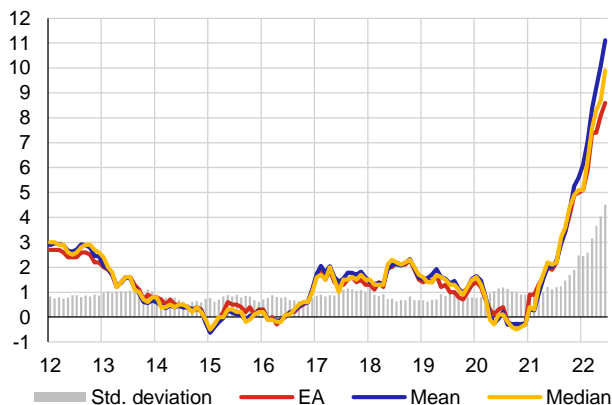
Growth in bank loans to households
(2022 H1, y-o-y, %)



Note: Average annual growth in loans provided by monetary financial institutions in the first six months of 2022.
Source: ECB (BSI database), CNB calculations.

Headline inflation in the euro area rose sharply during 2021 (albeit very unevenly across countries), and the war in Ukraine supported its further significant acceleration this year as well. Energy prices in particular and subsequently also food prices played a significant role.

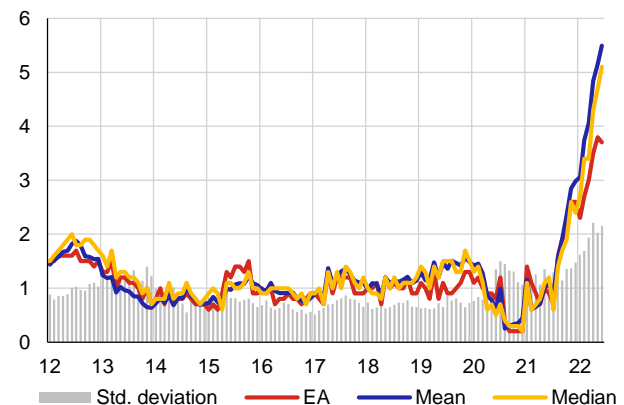
Inflation in euro area countries
(y-o-y, %)



Note: The mean series depicts the unweighted arithmetic mean of inflation in the given year across euro area countries.
Source: Eurostat, CNB calculations.

Core inflation is also unusually high in the euro area countries. From its long-term level of around 1%, it rose well above the ECB's 2% target in 2021 and 2022...

Inflation excluding energy, food, alcohol and tobacco prices
(y-o-y, %)

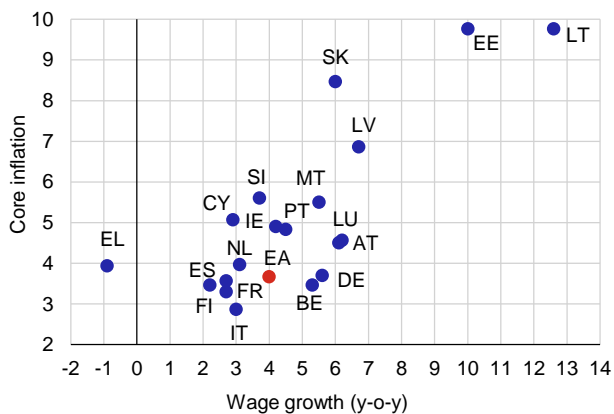


Note: The mean series depicts the unweighted arithmetic mean of inflation in the given year across euro area countries.
Source: Eurostat, CNB calculations.

...and its dispersion across euro area countries reflected differences in wage growth rates, among other factors. However, the relationship between core inflation and wage growth remains looser due to the pandemic.

Growth in wage costs and core inflation

(y-o-y growth rates in 2022 Q2, %)



Note: The wage growth series are seasonally adjusted.

Source: Eurostat.

See the [Overall message of the analyses](#).

IV. THEORETICAL FOUNDATIONS OF THE ANALYSES

The basic theoretical starting point for examining whether individual countries are good candidates for introducing a single currency is the theory of optimum currency areas.⁵⁷ In the context of the creation of the single European currency, knowledge of this theory is often used to assess the appropriateness of the adoption of the euro by the existing euro area countries and the rationality of the same step for the new EU Member States.⁵⁸ Factors that contribute to the benefits of the single currency (compared to a free nominal exchange rate) make up the set of optimum currency area properties.

Economists agree on the general fundamental costs and benefits of introducing a single currency, but the significance of the individual arguments may change over time or depending on the specific features of the economies concerned. The benefits include reduced international trade costs, in particular the elimination of exchange rate risk and the costs of hedging against it, as well as lower transaction costs and easier-to-compare prices. The costs include non-recurring ones stemming from the change of legal tender and long-term ones due to the risk of greater volatility in economic activity and consumption as a result of the loss of independent monetary policy and a reduction in the effectiveness of domestic macroeconomic policy.

The key features determining the suitability of a country's participation in a currency area are similarity of transmission mechanisms and a high degree of economic integration. Similarity of transmission mechanisms ensures that the single monetary policy will not have different macroeconomic impacts in different parts of the monetary union. A high degree of economic integration increases the benefits arising from the single currency, as trade and investment barriers are eliminated. The latest empirical studies do indeed confirm that the introduction of the single currency has a positive effect on international trade.

The original literature was fairly optimistic as regards the effects of the single currency on trade.⁵⁹ However, later studies – such as Baldwin (2006) – were more sceptical, and Havránek (2010) even finds in a meta-analysis that the effect of euro adoption on trade between euro area countries is not statistically significant and with high probability is less than 5%. The latest studies return to positive but somewhat lower estimates.⁶⁰

The latest empirical literature has revealed considerable heterogeneity in the effects of the introduction of the single currency on trade.⁶¹ This heterogeneity pertains to both cross-country and cross-sector impacts. The effects of the single currency on trade are typically lower if a sector or country is already heavily involved in international trade before joining the monetary union. They are also lower for large economies and low or non-existent if the country had a fixed exchange rate before introducing the single currency.⁶² The heterogeneity of effects across countries and sectors can help explain the conflicting findings of previous studies.

Business cycle alignment and similarity of shocks reduce the costs of giving up certain adjustment mechanisms on entering the monetary union. This is because aligned business and financial cycles mean that the single monetary policy is appropriate for all members of the monetary union. Mutual trade and structural similarity align business cycles, while differences in labour market regulation and differences in fiscal and structural policies reduce their alignment.⁶³ A further deepening of coordination of structural policies across countries is therefore important for greater alignment of business cycles in the euro area.⁶⁴

The costs of joining the monetary union also depend on the economy's ability to make use of other adjustment mechanisms. These mechanisms include labour and product market flexibility and countercyclical fiscal policy. A flexible labour market and a mobile labour force can at least partly offset persisting asymmetric shocks in the monetary union. The loss of independent monetary policy can be offset to some extent by the use of fiscal policy. However, the countercyclical

⁵⁷ Mundell (1961), McKinnon (1963) and Kenen (1969) are regarded as the cornerstones of this theory. A newer literature survey can be found, for example, in De Grauwe (2013).

⁵⁸ In addition to economic arguments, the decision to adopt the euro is motivated by political and social demand, as analysed, for example, in Eichengreen (2008) and Spolaore (2013).

⁵⁹ Rose (2000), for example, found effects amounting to hundreds of per cent.

⁶⁰ Glick and Rose (2016), Rose (2016).

⁶¹ Chen and Novy (2018), Vicquery (2021).

⁶² Lalinský and Meriküll (2021).

⁶³ Duran and Ferreira-Lopes (2015), Inklaar et al. (2008).

⁶⁴ Lukmanova and Tondl (2017).

effect of fiscal policy is critically dependent on the shape of public finances, i.e. on whether fiscal policy has the necessary room for manoeuvre.⁶⁵

Temporary effects of euro adoption may also be important for acceding countries. These effects include a fall in the risk premium, an easing of the credit conditions and changes in productivity in the tradable and non-tradable sectors.⁶⁶ Another potential cost for converging countries is a persisting inflation differential,⁶⁷ which may be reflected in a fall in real rates and thus have a temporary destabilising effect on the economy via macrofinancial linkages.⁶⁸

The general principles are confirmed by analyses based on structural macroeconomic models.⁶⁹ The conclusion of the model analyses is that the costs increase as domestic demand shocks (fiscal shocks in particular) grow in importance and decrease as the degree of trade integration increases. For example, a simulation of the costs of euro adoption in Central European countries using a DSGE model concludes that the costs of the loss of independent monetary policy are high for the Czech Republic and Poland relative to Hungary because of the large significance of domestic demand shocks, such as shocks to government consumption.⁷⁰

The attractiveness of entering the monetary union is also related to the effectiveness of its institutions.⁷¹ Studies point out that the main problem in the euro area was weak political integration,⁷² as fiscal rules can only be effective if there is an institution to enforce them (however, the solution does not have to be a full fiscal union).⁷³ On the other hand, some studies argue that the euro area may be functioning and beneficial to all members even without a fiscal union, but only provided that rescue mechanisms are introduced within the banking union.⁷⁴ However, uncertainty about the future functioning of euro area institutions provides a rationale for new Member States to consider their entry thoroughly and to wait at least until the rules of operation of euro area institutions are clarified before joining the monetary union.⁷⁵

⁶⁵ Romer and Romer (2018), Babecká Kucharčuková and Brůha (2017).

⁶⁶ Ahrend et al. (2008) and Lin and Treichel (2012) point out that an excessive decrease in long-term interest rates (compared to that implied by the Taylor rule under independent monetary policy) after the adoption of the single currency in some economies gave rise to bubbles in asset markets, property markets in particular. Overvaluation of the real exchange rate, identified for Greece, Ireland and Portugal by El-Shagi et al. (2016), may also be a risk to macroeconomic stability.

⁶⁷ Brůha and Podpiera (2007).

⁶⁸ Examples for individual countries can be found in Martin (2010), Hampl and Škořepa (2011) and Lin and Treichel (2012).

⁶⁹ For example, Ferreira-Lopes (2010) explores the costs of euro adoption for Sweden and the UK, concluding that the costs of euro adoption would outweigh the benefits in these countries.

⁷⁰ Ferreira-Lopes (2014).

⁷¹ For example, De Grauwe (2010a,b).

⁷² Razin and Rosefielde (2012).

⁷³ Wyplosz (2015).

⁷⁴ Mongelli (2013). Similarly, a study by Neri and Ropele (2015) shows that the ECB's monetary policy helped reduce the impacts of the debt crisis even without fiscal coordination.

⁷⁵ Podpiera et al. (2015).

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