

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

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## 2021



Czech National Bank — Analyses of the Czech Republic's Current Economic Alignment with the Euro Area — 2021

# Contents

<b>INTRODUCTION</b>	<b>3</b>
<b>I. OVERALL MESSAGE OF THE ANALYSES</b>	<b>6</b>
<b>II. THEMATIC CHAPTERS</b>	<b>13</b>
II.1. The response of EU labour markets to the pandemic shock from the perspective of the LUCI	13
II.2. The pandemic shock and the external position of European economies	15
II.3. Mortgage and property markets developments in selected EU countries	18
II.4. Current challenges to euro area and EU fiscal policy in the context of the Czech Republic's obligation to adopt the euro	21
II.5. Comparison of selected national recovery and resilience plans	26
II.6. Real convergence and real exchange rate appreciation in the newer EU Member States	29
<b>III. CHARTBOOK</b>	<b>33</b>
III.1. The Czech Republic's cyclical and structural alignment with the euro area	33
III.1.1. Direct alignment indicators	33
III.1.2. Similarity of monetary policy transmission	46
III.2. Adjustment mechanisms of the Czech economy	53
III.2.1. Fiscal policy	53
III.2.2. The labour market and the product market	57
III.2.3. The banking sector and its shock-absorbing capacity	65
III.3. Economic alignment of euro area countries	66
<b>IV. REFERENCES</b>	<b>71</b>

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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 euro<sup>1</sup> 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.<sup>2</sup> 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 pre-condition for euro area entry, are not assessed either.

**The current economic situation is strongly affected by the outbreak of the coronavirus pandemic last year, associated with anti-epidemic measures restricting economic activity.** Although this year has already seen a gradual fading of the pandemic shock, its impacts still affect the overall economic situation. This is also naturally reflected in the evolution of individual indicators analysed in this publication.

The core of this year's document is the **Overall Message of the Analyses**, which is based on the results of the traditional analyses, whose results are summarised in the charts and tables presented in the **Chartbook**. The theoretical foundations, motivations and technical descriptions of each of the analyses are contained in a separate **Methodological Annex**, which is located as an e-document on the CNB website. This year's Alignment Analyses have been supplemented with six **thematic chapters** focusing on the impact of the coronavirus pandemic on the labour market and the external position of the economies under analysis, the evolution of the mortgage and property markets, developments in the area of fiscal policy, national recovery and resilience plans and the real convergence of the newer EU Member States.

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<sup>1</sup> 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/strategic-documents/euro-area-accession/>>.

<sup>2</sup> 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. This document was last published in 2020. It will be prepared again in 2022 in line with Czech government Decree No. 1283 of 7 December 2020.

**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, i.e. unless indicated otherwise in a note, this refers to the EA19:




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 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 Stability 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 and product markets 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 includes the Czech economy's close trade and ownership links with the euro area and the high degree of its openness. These factors create preconditions for the aforementioned benefits of euro adoption. At the same time, strong trade links and a high level of intra-industry trade foster alignment between the Czech and euro area business cycles, although its currently very high level largely reflects the impacts of the common coronavirus shock. The use of the euro in the Czech economy has returned to around its pre-pandemic levels following last year's shock and has long been characterised by a slight upward trend. However, it is concentrated in the trade relations of Czech companies. The Czech koruna also remains aligned with the euro vis-à-vis the dollar, and inflation persistence is not a barrier to joining the euro area either. As regards the adjustment mechanisms of the Czech economy, despite last year's swing, the high level of economic activity of the Czech population and the low long-term unemployment rate can be positively assessed. The domestic banking sector, whose capitalisation has increased further over the past year and whose liquidity position is also robust, remains resilient.

### **Indicators with a neutral message**

This category primarily includes indicators capturing the similarity of monetary policy transmission in the Czech Republic and the euro area. The Czech Republic differs from the monetary union average in some financial indicators such as depth of financial intermediation, private sector debt and the financial assets and liabilities structure of non-financial corporations and households, but this cannot be considered a disadvantage or a fundamental barrier to euro adoption. The convergence of interest rates is also neutral, although its degree has decreased compared to last year due to the start of the domestic monetary policy tightening cycle. The volatility of the koruna-euro exchange rate decreased following an increase in 2020 and is thus returning to pre-pandemic levels. The indicators for the alignment of the Czech and euro area financial cycles and financial markets can also be assessed as neutral. As regards labour market flexibility, the geographical mobility of the labour force in the Czech Republic is rising gradually due to the renewed increase in the share of foreign nationals in the population. Conversely, the share of part-time employees has declined as a result of the coronavirus crisis. The Czech Republic's competitiveness score is also neutral.

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

These include the still unfinished process of economic convergence of the Czech Republic towards the euro area, especially as regards convergence of the price and wage levels. The structural similarity of the Czech economy with the euro area also remains lower due to an above-average share of industry in domestic GDP. The problem with the configuration of the tax and benefit system, which may reduce the incentive for low-income groups in particular to actively seek employment, persists in the Czech labour market. Moreover, the need to stabilise the pandemic-hit economy using fiscal policy tools was reflected in a significant deterioration in the general government balance and an increase in government debt. This phenomenon has further intensified the persistent problem of Czech public finance sustainability stemming, among other things, from an ageing population and the lack of reforms of the pension and health systems.



### Comparison of the similarity of the Czech economy with the euro area

**The economic level of the Czech Republic (as measured by GDP per capita at purchasing power parity) converged further towards the euro area average in 2020. However, there has been no substantial progress in price and wage level convergence.** The unfinished process of convergence of the Czech Republic to the euro area 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.

**Although the Czech Republic has long been showing high correlation of economic activity with the euro area, its cyclical alignment has decreased gradually in previous years.** However, the similar and identically timed economic impacts of the common external shock in the form of the outbreak of the global pandemic have led to a renewed sharp increase in the measured correlation. This change was evident both in GDP growth rates and the sharp rise in the correlation of Czech export growth and economic growth in the euro area. Nonetheless, this sharp increase in cyclical alignment is a temporary consequence of the pandemic and is not necessarily evidence of a strengthening of sustained cyclical alignment.

**Differences in the structures of the Czech and euro area economies persist due to the above-average share of industry in Czech GDP.** As regards euro adoption, the structural differences pose a risk of an asymmetric effect of economic shocks, to which the single monetary policy of the euro area would not be able to respond in full. An example of a potential asymmetric shock of this kind is the current shortages of some parts which are slowing the automotive industry. By international comparison, this sector is strongly above average in domestic industry. The rapidly growing electromobility will also pose a challenge for this sector and the entire domestic economy.

**The Czech Republic's strong trade and ownership links have long been one of the strongest arguments for it joining the euro area.** The Czech Republic's transition to the euro 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.

**The alignment of the Czech and euro area financial cycles increased slightly in 2020.** This is indicated by the positions of the economies in the financial cycle estimated using the simplified financial cycle indicator. The indicator for the Czech Republic increased slightly year on year, while that for the euro area as a whole decreased marginally overall. As a result, the positions of the two economies converged. The correlation between these indicators, which represents another measure of overall alignment, also increased slightly. However, the alignment of the individual components of the financial cycle indicator in the Czech Republic and the euro area decreased.

**Growth in interest rate differentials in 2021 reflected the divergence of monetary policies in the Czech Republic and the euro area.** The turnaround in the CNB's communications in early 2021 led to an increase in the long-term interest rate differential. Short-term rates fully reflected the interest rate differential in mid-2021 after the CNB tightened its monetary policy for the first time after the coronavirus crisis. By contrast, the European Central Bank continues to maintain a very accommodative stance.

**The Czech currency reacts to changes in the environment outside the euro area similarly to the euro.** The correlation of the koruna-dollar exchange rate with the euro-dollar exchange rate has remained relatively high. The volatility of the koruna-euro exchange rate is gradually decreasing following a sharp increase in 2020. This trend, also observed for other Central European currencies, reflects a calming of the financial market situation. However, the volatility of these currencies remains elevated for the time being from the long-term perspective and will probably not return to the pre-crisis level until the pandemic shock fully dissipates. The results of analyses of financial market convergence also suggest a gradual fade-out of the asymmetric impacts of the coronavirus crisis. The alignment of the individual segments of the Czech financial market with the euro area is thus returning to the pre-pandemic level.

**The depth of financial intermediation and the level of private sector debt in the Czech Republic are well below the euro area average.** However, the euro area levels can be regarded as excessive and are thus not representative of the levels to which the Czech financial sector should converge. An excessively large financial sector and overleveraged private sector imply a structural risk, which might exacerbate the cyclical decline in the real economy due to a possible negative shock and limit the room for manoeuvre of economic policy.

**The similarity of the structure of the financial liabilities of Czech and euro area corporations has remained relatively high, while the similarity of the structure of the financial assets of Czech and euro area households is**

**still low despite a slight increase.** The increase in the structural similarity of the financial liabilities of corporations in previous years was due mainly to a downward trend in Czech corporations' other liabilities, whose share in the domestic corporate sector's total liabilities has long been much higher than in the euro area. Debt securities, whose share in the liabilities of Czech corporations has been gradually declining unlike their share in the liabilities of euro area corporations, had the opposite effect in the last two years. The similarity of the structure of the financial assets of Czech households and households in the euro area remains relatively low. The dissimilarity is due mainly to Czech households' preference for cash and deposit holdings, together with holdings of unit certificates and shares, while households in the euro area hold a large part of their balance sheets in insurance and pension schemes. 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.

**Developments were mixed across the individual segments in terms of the interest rate fixation structure of loans in the Czech Republic and the euro area.** Longer fixation periods have increased for loans to non-financial corporations in the Czech Republic and the euro area over the past ten years, but their share declined in the Czech Republic compared to last year due to a drop in investment loans as a result of the coronavirus crisis. However, more than 80% of the volume of loans provided to non-financial corporations in the countries under review still has floating rates or rates fixed for up to one year. The share of these loans exceeds 90% in the Czech Republic. This implies fast transmission of changes in monetary policy rates and, in turn, market rates to rates on loans provided to non-financial corporations. The spread between client rates on loans to non-financial corporations and the overnight interbank market rate in the Czech Republic returned to levels lower than in the euro area in the last year. The structure of this spread still differs significantly in the Czech Republic and the euro area, which implies different intensities of monetary policy transmission through the various channels. 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, although in the Czech Republic this trend has halted in the last year. At the same time, fixation periods of over 10 years predominate in the euro area. In the Czech Republic, by contrast, fixations of five to ten years predominate. Different fixation periods may imply different levels of sensitivity to changes in market and monetary policy rates. A shift towards longer fixations may also lead to a decrease in the sensitivity of client interest rates to changes in financial market rates.

**The use of the euro by Czech corporations has been gradually increasing due to high trade integration with the euro area and natural efforts to hedge against exchange rate risk, while the euroisation of Czech households has long remained very low.** In the case of corporations, euroisation is reflected mainly in drawdown of foreign currency loans. Manufacturing (with its large proportion of exporters) and the real estate sector have the highest shares of euro-denominated loans. However, the growth in euro-denominated loans has been slowing since mid-2020 and their share in total corporate loans has dropped. This has been fostered by a decline in the koruna-euro interest rate differential owing to the easing of the CNB's monetary policy in response to the outbreak of the coronavirus crisis. At the same time, the share of euro-denominated deposits held by Czech corporations has risen slightly further following a drop in 2020, reflecting solid demand for Czech exports abroad and deferred – traditionally import-intensive – investments by domestic corporations. The share of euro payments between Czech firms has been gradually returning to the pre-crisis level after a short-lived decline last year. Export hedging by firms on the financial market has decreased significantly.

### Adjustment mechanisms of the Czech economy

**Fiscal policy fulfilled its countercyclical role last year and this year and contributed significantly to the stabilisation of the Czech economy, while fiscal sustainability remains a challenge in the years ahead.** The Czech Republic recorded a sizeable general government deficit in 2020 owing to the economic downturn and the adoption of numerous fiscal stabilisation measures; it exceeded the 3% Maastricht convergence criterion for the general government deficit and failed to meet the medium-term objective (MTO) for the structural balance (-0.75% of GDP). However, given the need to stabilise the economic situation during the ongoing Covid-19 pandemic using fiscal policy instruments, these developments were justified and in line with EU legislation. A favourable initial level of general government debt also allowed for large-scale countercyclical fiscal stimulus. Therefore, the fulfilment of the Maastricht debt criterion has not yet been jeopardised, and the debt brake has not been exceeded.<sup>3</sup> At the same time, however, attention should be drawn to the fact that some measures with significant (and potentially lasting) fiscal impacts were not directly linked to the pandemic (a reduction in personal income tax, for example) and exerted additional pressure on Czech public finance due to their broad-based nature. Moreover, Czech public finance will face further sustainability challenges in the long run owing to the ageing of the Czech population and the still unresolved reforms of the pension and healthcare systems. It thus seems

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<sup>3</sup> 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 general government institutions if government debt exceeds 55% of GDP (taking into account the government debt financing reserve).



crucial to currently focus our attention on the optimal scope, structure and appropriate timing of the necessary fiscal restriction in the years ahead. Under the current legislation (the amended Act on Budget Responsibility), and in connection with the expected recovery of the Czech economy, public finance consolidation should commence next year. However, the statutory minimum level of consolidation – an improvement of 0.5 percentage point per year in the structural balance – is not very ambitious. In addition, the government had not yet presented the specific content of the fiscal restriction before this year's autumn elections to the Chamber of Deputies of the Czech Parliament. A consolidation strategy is expected to be announced by the new government as part of its government declaration. However, even without active government intervention, the required reduction in the structural deficit can be expected in 2022 due to the unwinding of the impacts of the extraordinary one-off measures adopted in connection with the pandemic alone. In the coming years, active fiscal consolidation and the ability to implement countercyclical fiscal policy even in periods of economic growth – an area where governments often failed in the past – will be crucial. Finally, there is a need to ensure more consistent long-term sustainability of the Czech public finances. Sufficient room for the flexible implementation of fiscal policy in the context of stabilising the economy is particularly necessary if a country loses its independent domestic monetary policy.

**Czech labour market indicators had been improving until the outbreak of the coronavirus pandemic, due mainly to a favourable phase of the business cycle; the coronavirus crisis has only led to a slight cooling in this area.**

This is indicated in a decline in employment, a decrease in the rate of economic activity of the population and a turnaround in the Beveridge curve. Even so, the number of vacancies is still significantly higher than the number of unemployed persons. The still very low long-term unemployment rate also remains a positive for the time being. The growing labour market flexibility is being fostered by a gradually increasing share of foreign nationals in the population. By contrast, the share of part-time jobs decreased during the coronavirus pandemic. The configuration of the tax and social benefit system, which is giving rise to the risk of an “unemployment trap” and a “low-income trap”, remains a negative aspect. This reduces the incentive to return to employment after a period of unemployment or to seek better-paid work. The Czech Republic is one of the better-scoring countries under review as regards overall competitiveness.

**The domestic banking sector developed favourably last year despite the unprecedented economic situation and thus maintained its high resilience to potential adverse shocks.**

Profitability was adversely affected by growth in costs to cover credit risk, and a drop in net interest income but remains high by international comparison. Together with the CNB's recommendation to restrict profit distribution, this has led to a further strengthening of the banking sector's capitalisation, which is among the highest in Europe. Strong capitalisation is creating the right conditions for smooth lending to the real economy and absorption of any further credit losses. The liquidity position remains robust due to a high proportion of liquid assets. The government's stabilisation measures and the flexibility of regulatory and accounting frameworks introduced in response to the pandemic have reduced or postponed the pass-through of credit risk to banks' balance sheets and profits, which remains the main risk to the sector's profitability in the years ahead.

### Situation in the euro area and the European Union

**Macroeconomic developments in all euro area countries were significantly affected by the pandemic, although to very varying degrees.**

Countries that use the euro as their currency experienced the biggest post-war recession, with those countries with excessive debt most badly hit. Many are already showing signs of recovery this year. There was a significant deterioration in the fiscal position of all euro area countries as a result of large-scale government supports during the pandemic. Public finances could not rely on economic growth due to shutdowns of substantial parts of economies, which led a deepening of government debt relative to GDP. Therefore, in 2020, for the first time since the establishment of the euro area, none of the euro area countries met both the debt and deficit criteria. In 2021 Q1, euro area public debt also exceeded 100% of GDP threshold for the first time (EU27 debt rose year on year to almost 93% of GDP).<sup>4</sup> The impact of the pandemic has also contributed to inflation volatility. Following a sharp drop to negative levels last year, inflation has surged in most euro area countries this year owing to a combination of supply factors (problems with supplies of materials and components, higher international freight prices and growth in oil prices) and demand factors (deferred consumption and spending of forced savings coupled with massive fiscal stimuli). The current situation on the labour market varies greatly across euro area countries in terms of both unemployment and wage dynamics (ranging from a drop in wages in Austria and Cyprus to their double-digit growth in Lithuania amid comparable core inflation).

**Owing to the course of the pandemic and a continued need for increased expenditure, the general escape clause of the Stability and Growth Pact (SGP) was not deactivated in 2021 and should remain in effect until at least 2023.**

The escape clause, which has been in place since the outbreak of the first wave of the pandemic in March 2020, allows EU Member States to deviate temporarily from SGP fiscal rules so that their application does not lead to the suspension of support programmes in the short term and thus prolong the economic recession. This approach is strongly supported

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<sup>4</sup> See Eurostat press release of 22 July 2021: <<https://ec.europa.eu/eurostat/documents/2995521/11563191/2-22072021-AP-EN.pdf>>.

by sentiment on capital markets, which differs from that during the global financial crisis. However, the risks of worse conditions for the financing of Member States have certainly not disappeared. Given the high level of debt, it would thus be desirable to start fiscal consolidation as soon as the pandemic situation permits.

**As regards measures aimed at the economic recovery of the Member States, the activation of the Recovery and Resilience Plan (especially its Next Generation programme; NGEU) played a key role in 2021. The final version of NGEU was approved in July 2020.** The plan is financed from funds which the European Commission (EC) raises on the financial markets on behalf of the EU through the issuance of EU bonds.<sup>5</sup> The funds are provided to the Member States in the form of grants or loans and are designed to meet the goals set out in national recovery and resilience plans.<sup>6</sup> In the context of the Covid-19 pandemic, the EU also continued to implement previously approved programmes such as the SURE programme,<sup>7</sup> through which it sought to mitigate the impacts of the crisis on employment.

**The European Commission's assessments of national recovery and resilience plans under this year's European Semester cycle replace the usual Country Reports.** Moreover, outside the recommendations for fiscal policy, the EC will not propose country-specific recommendations for countries drawing funds from the NGEU. However, euro area countries were still obliged to present their stability programmes to the EC by the end of April 2021. The EC also this year published an in-depth assessment of those EU Member States for which it identified the existence of macroeconomic imbalances and an excessive deficit report for all EU Member States, with the exception of Romania for which the EC had initiated an excessive deficit procedure already earlier.

**In 2021, the ECB continued to purchase bonds both under its long-term quantitative easing programmes and the PEPP pandemic programme<sup>8</sup> introduced last year.** It is to purchase bonds under the PEPP until at least March 2022 and reinvest maturing principals until at least the end of 2023.

**When contemplating the future course of the euro area, the ECB's updated monetary policy strategy, adopted in July 2021, should also be taken into account.<sup>9</sup>** The review, which was the first since 2003, is to be assessed in 2025. The most important change concerned the definition of the ECB's inflation target which was modified from the previous "below, but close to 2%" to a symmetric 2% target. This change means that both positive and negative deviations from the 2% target will be perceived as equally undesirable. The ECB also committed itself to taking greater account of sustainability and climate change factors in the conduct of its monetary policy.<sup>10</sup>

**In July 2021, the ECB's Governing Council also decided to launch the investigation phase of the digital euro project.** In doing so, the ECB joined a growing number of central banks exploring the technological possibilities, benefits and risks of the potential introduction of a central bank digital currency (CBDC). In the next two years, the ECB will – in cooperation with other Eurosystem central banks – examine the appropriate technical and security parameters of such a CBDC.<sup>11</sup>

**In June 2021, the European Commission opened proceedings against Germany over a breach of EU law in response to last year's decision by the German Constitutional Court in relation to the ECB's Public Sector Purchase Programme (PSPP).** At the core of the dispute was the issue of whether Germany was in breach of EU law, in particular the principle of the primacy of EU law, and failed to respect the jurisdiction of the European Court of Justice. Somewhat simply put, this dispute can be considered crucial in terms of the principle of delegated powers and the possibility for Member States to assess in their constitutional procedures the exercise of such powers by EU institutions. The German government responded to the EC's objections in a letter in early August, rejecting that Germany would question the binding nature of EU law, and pointed to the division of power, i.e. that it would be impossible for the government to interfere in

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<sup>5</sup> Under NGEU, the EC may borrow up to EUR 750 billion at 2018 prices (more than EUR 800 billion at current prices).

<sup>6</sup> Recovery plans are discussed in more detail in the thematic chapter "Comparison of selected national recovery and resilience plans" in this edition of the Alignment Analyses.

<sup>7</sup> Support to Mitigate Unemployment Risks in an Emergency.

<sup>8</sup> Pandemic Emergency Purchase Programme.

<sup>9</sup> Opinion of the ECB's Governing Council on the change in monetary policy strategy: <[https://www.ecb.europa.eu/home/search/review/html/ecb.strategyreview\\_monopol\\_strategy\\_statement.en.html](https://www.ecb.europa.eu/home/search/review/html/ecb.strategyreview_monopol_strategy_statement.en.html)>.

<sup>10</sup> The ECB's press release on the action plan to include sustainability and climate change factors in the monetary policy decision-making of the ECB's Governing Council: <[https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210708\\_1~f104919225.en.html](https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210708_1~f104919225.en.html)>.

<sup>11</sup> Press release on the digital euro project: <<https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210714~d99198ea23.en.html>>.

decision-making by the judiciary. At the same time, it proposed setting up a platform for “structured dialogue” between the European Court of Justice and the courts of EU Member States.<sup>12</sup>

**The Covid-19 pandemic and the related need to address urgent challenges have resulted in the continued stagnation of further deepening of the Economic and Monetary Union and euro area integration.** Substantial progress was expected on discussions on the completion of the banking union<sup>13</sup> at the Euro Summit in June 2021, where a new roadmap was to be approved for the completion of all the important but as yet unfinished building blocks. However, it emerged that there are still several disagreements among Member States which meant they were unable to reach a consensus on the roadmap on that date. The Euro Summit therefore mandated the Eurogroup to continue in the talks on the work plan. Its presentation planned for December 2021 did not materialise and was postponed. It is now envisaged at the next Euro Summit most likely in June 2022. The content of the discussions focused on the topics relating to modifying the existing crisis management framework for financial institutions, the establishment of a European Deposit Insurance Scheme (EDIS), including the possibility of using a “hybrid model” in the transitional phase, cross-border integration of financial institutions, including the home-host issue, and the regulatory treatment of sovereign exposures (RTSE). In 2021, ratification was underway in individual Member States of the agreement on the reform of the Treaty establishing the European Stability Mechanism (ESM) and the Intergovernmental Agreement on the Transfer and Mutualisation of Contributions to the SRF (IGA), necessary for the option of the earlier use of a common backstop in the form of a credit line from ESM for the SRB.

**Discussions on the banking union have shown the persistence of fundamental diverging interests between the individual euro area Member States.** The division of euro area countries into northern and southern ones is still seen in several areas. Differences in opinion are also evident along the same division line, for example, regarding the issuance of EU bonds to finance the NGEU. In Italy, for example, voices were calling for their permanent establishment as a resolution instrument. By contrast, some of the northern countries disagree (the Czech Republic is also of this opinion). These opposing voices insist the instrument be temporary and also on the need to re-approve any further use on a case-by-case basis. A similar example is the return to the SGP fiscal rules suspended by the activation of the general escape clause. There are calls in some countries (such as France and Italy) for a relaxation of budgetary responsibility rules, with the northern countries again more reluctant to do so. Austria has been an active leader a group of countries rejecting the relaxation of the SGP and seeking an early return to the application of the SGP fiscal rules this year.<sup>14</sup>

**Work is continuing on the project of the Capital Markets Union (CMU).** Although this project has been designed for the EU as a whole, its individual measures often respond to the specific problems of 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. However, only partial progress has been made since the publication of the CMU Action Plan in September 2020.

**Discussions on the future development of the EU may be influenced by the topics addressed at the ongoing Conference on the Future of Europe.** As part of the conference, EU citizens can formulate their ideas on EU institutional reforms or express support for existing projects. The choice of the next steps in the area of deepening economic and monetary union and the further development of the euro area will also be affected by the results of the elections in Germany (in September 2021) and France (in May 2022), and the resulting political representation.

**The number of euro area Member States remained unchanged in 2021.** Countries participating in the exchange rate mechanism (ERM II) include Denmark, which has been a long-time member, and Bulgaria and Croatia which joined ERM II last year, with the latter two countries also joining the banking union. In 2021, Bulgarian and Croatian representatives expressed an interest in these countries adopting the euro relatively soon (in January 2024 and January 2023 respectively).

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<sup>12</sup> The German Federal Constitutional Court has meanwhile received complaints about non-compliance of the ECB’s coronavirus government bond purchase programme (PEPP) with German constitutional law. The complainants object to the programme’s excessive flexibility of bond purchases above the capital keys for individual euro area Member States and believe that the programme might breach the prohibition of monetary financing laid down in Article 123 of the TFEU.

<sup>13</sup> The issue of the possible accession of the Czech Republic to the Banking Union is regularly discussed by the government. The underlying document for the discussions is the “Updated Impact Study of Participation or Non-participation of the Czech Republic in the Banking Union”, which the CNB helps to prepare. Its latest issue, approved by the government on 11 January 2021, confirmed the conclusion of earlier issues that the Czech Republic should not attempt to join the banking union in the current situation. <<https://www.mfcr.cz/cs/soukromy-sektor/bankovnictvi-a-platebni-sluzby/bankovnictvi/aktuality/2015/studie-dopadu-ucasti-ci-neucasti-cr-v-ba-20801>>.

<sup>14</sup> Discussions on the fiscal challenges and a potential review of the SGP is dealt with in more detail in the thematic chapter “Current challenges in euro area fiscal policy in the context of the Czech Republic’s obligation to adopt the euro” in this edition of the Alignment Analyses.

**The impacts of the above developments will have to be taken into account in the Czech Republic's future decision on the timing of joining the monetary union.** The content of the euro adoption obligation assumed by the Czech Republic on acceding to the EU has fundamentally changed in recent years. In addition to a proper assessment of the functioning of EU institutions and regulations, attention should be paid to new circumstances such as the measures adopted in response to the Covid-19 pandemic, the increase in government debt, the results of the ECB's monetary policy review and the deepening of the monetary union. It is evident that the reform of the euro area and building economic and monetary union are a still unfinished process. Likewise, consideration should be given to other implications of potential euro area accession, such as the direct costs of participating in the euro area's rescue mechanisms, including the national contribution to the Single Resolution Fund, the limits imposed on national powers in the banking supervision and resolution areas, and the risks associated with potential fiscal problems in certain euro area Member States and the vulnerability of their financial sectors.

**The current crisis has also highlighted the fact that the euro area has not yet fully dealt with the problems laid bare by the crisis of 2009–2010.** The long-standing problem of insufficient convergence between its individual Member States persists and thus largely predetermines the continuation of heterogeneous economic developments in the euro area. The ambitious measures adopted in response to the coronavirus pandemic (an increase in the budget via the Next Generation EU instrument and the ECB's crisis programme) can contribute to solving this problem to only a limited extent. In addition, there is increased pressure to create a fiscal union due to the approved debt financing of the NGEU, for example. The risks arising from some Member States' high public debt and the weak enforceability of economic and fiscal rules remain unresolved. The system of economic policy coordination in the euro area continues to suffer from a low degree of compliance with legally non-binding – and therefore unenforceable – recommendations. Insufficient compliance with the SGP fiscal rules also remains unsatisfactory.

**In light of the above, it should be noted that not all the potential obligations arising from euro adoption for the Czech Republic in the future are known at present. The potential decision about the timing of joining the monetary union is thus still accompanied by major uncertainties.**

## II. THEMATIC CHAPTERS

### II.1. THE RESPONSE OF EU LABOUR MARKETS TO THE PANDEMIC SHOCK FROM THE PERSPECTIVE OF THE LUCI

*Jan Brůha, Jaromír Gec, Jan Šolc*

*Most of the selected European economies entered the pandemic period with a very tight labour market. Although it cooled after the outbreak of the pandemic, tensions in the labour market remained above average from the long-term perspective. Moreover, the labour market started to rebound as economic activity recovered. The aggregate LUCI has thus remained positive in most countries since the outbreak of the pandemic. The overall alignment of labour markets across the monitored countries remains high from the long-term perspective.*

**The labour market plays an important role in the evolution of domestic inflation pressures in individual EU Member States.** A sufficiently high degree of labour market alignment in the countries which make up the single currency area is important for the successful functioning of the monetary union. An absence of such alignment would mean that using the single currency would result in high macroeconomic and thus social costs, as the ECB's single monetary policy cannot reflect the different cyclical positions of individual euro area Member States.

**We are assessing the cyclical labour market developments in individual countries through the lens of the LUCI aggregate index.** The LUCI is the result of the aggregation of multiple time series into a composite indicator, which reflects the overall cyclical position of the labour market.<sup>15</sup> The CNB compiles and publishes the LUCI for the Czech economy on a regular basis. Moreover, for the purpose of this section, a similar (albeit slightly simplified) index has also been constructed for other selected economies.<sup>16</sup> The simplified index is based on an analysis of 12 time series.<sup>17</sup> When compiling the index, the cyclical components of each time series are identified using a statistical filter. The LUCI index is then calculated as a standardised first principal component using these cyclical components. The first principal component is a variable which explains the most in terms of the co-movement of cyclical components.

**Most countries entered the pandemic with a cyclically overheated labour market.** In 2016–2019, all the monitored countries recorded a decline in the rate and duration of unemployment, an increase in the number of hours worked and solid growth in wages and total labour costs. This was reflected in high levels of the LUCI signalling significant labour market tightness in individual countries.

**The coronavirus pandemic has created an external shock of an unprecedented size.** Fiscal programmes aimed at offsetting the impacts of the restrictions on economic activity and maintaining employment were launched at the same time as lockdowns. Nevertheless, the pandemic shock led to some labour market cooling in the countries under review. Real GDP and the number of hours worked dropped dramatically due to administrative restrictions on economic activity. The depth of the fall in these variables varied between countries due to the different structure of their economies and the different extent and timing of epidemiological restrictions. Unemployment also saw an increase, albeit a smaller one than the depth of the fall in real economic activity would imply based on historical experience. Despite the decline in most of the countries under review, the LUCI thus remained significantly positive, suggesting a continued historically above-average labour market tightness. An explanation for this is the effect of fiscal support measures (especially job retention schemes, the Antivirus programmes in the Czech Republic) on the one hand, and the mostly non-cyclical nature of the pandemic shock consisting in administrative restrictions on aggregate supply on the other.<sup>18</sup>

**After the initial shock subsided, all the countries under review saw a quick rebound in economic activity and a subsequent gradual recovery in the labour market.** The quick recovery in economic activity is consistent with the non-cyclical (supply) nature of the pandemic shock. The labour market usually recovered quickly from the pandemic shock after the anti-epidemic measures were lifted. Most countries recorded a decline in unemployment and a return to buoyant growth in wages and labour costs. This recovery was so significant in some countries that it was reflected in renewed

<sup>15</sup> The LUCI was inspired by Armstrong et al. (2016) and the construction of the index is similar to the approach taken by Craig et al. (2013). The index methodology was presented in a box in Inflation Report IV/2019.

<sup>16</sup> Similarly to the other parts of the document, this section analyses Austria (AT), the Czech Republic (CZ), Germany (DE), Hungary (HU), Poland (PL), Portugal (PT), Slovakia (SK), Slovenia (SI), and the euro area (EA).

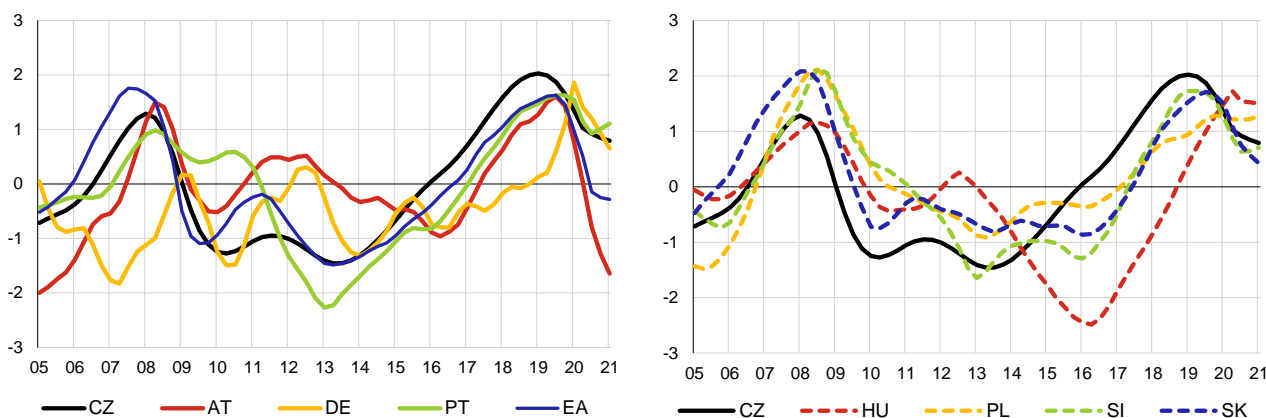
<sup>17</sup> The series include: the employment rate, the participation rate, the harmonised unemployment rate, the harmonised unemployment rate for those aged up to 25 years, wages in industry and services, labour costs in industry and services, the duration of unemployment, compensation of employees, total employment and number of hours worked.

<sup>18</sup> For details, see Brůha et al. (2021).



growth in the LUCI (Poland, Portugal and Slovenia), while the index remained at least positive in other countries (Slovakia, Germany and Hungary, see Chart 1).

**Chart 1: The LUCI**  
(standard deviations)



Note: Positive values of the LUCI indicate periods with historically above-average labour market tightness and *vice versa*. Absolute values of the LUCI are comparable within individual countries (evolution over time) but not across countries.

Source: Eurostat, CNB calculations.

The evolution of LUCIs in recent years reveals that the overall alignment of labour markets in the individual countries under review is relatively high. This is true not only for the period during the coronavirus pandemic but for the entire period under review, i.e. since 2005 (see Table 1). Germany has the lowest correlation of the LUCI with other countries. However, this is because the 2008–2014 crisis did not have a negative cyclical effect on the German labour market due to the reforms implemented (Hartz I–IV).<sup>19</sup> This analysis thus suggests that the synchronisation of labour market development in the Czech Republic does not constitute a barrier to the adoption of the single currency.

**Table 1: Correlation coefficients of LUCIs for the countries under review**

	CZ	AT	DE	PT	HU	PL	SI	SK	EA
CZ	1	0.43	0.35	0.78	0.28	0.68	0.71	0.79	0.89
AT	0.43	1	0.23	0.35	0.32	0.59	0.57	0.54	0.46
DE	0.35	0.23	1	0.33	0.37	0.28	0.27	0.20	0.07
PT	0.78	0.35	0.33	1	0.49	0.77	0.90	0.74	0.75
HU	0.28	0.32	0.37	0.49	1	0.58	0.67	0.70	0.35
PL	0.68	0.59	0.28	0.77	0.58	1	0.89	0.78	0.61
SI	0.71	0.57	0.27	0.90	0.67	0.89	1	0.86	0.73
SK	0.79	0.54	0.20	0.74	0.70	0.78	0.86	1	0.87
EA	0.89	0.46	0.07	0.75	0.35	0.61	0.73	0.87	1

Source: Eurostat, CNB calculations.

<sup>19</sup> The mechanical filtration applied can only partly remove the favourable trend effect of structural reforms. Since 2015, the labour market in Germany has been following a similar path to labour markets in the other countries under review.



## II.2. THE PANDEMIC SHOCK AND THE EXTERNAL POSITION OF EUROPEAN ECONOMIES

*Oxana Babecká Kucharčuková and Jan Brůha*

*The onset of the Covid-19 pandemic represented a major shock not only to economic activity but also to the external position of European economies. However, external macroeconomic imbalances may pose a risk to the macroeconomic stability of European economies and hence also to European economic integration. One of the most important indicators of external imbalance is the current account-to-GDP ratio.<sup>20</sup> Although the impact of the pandemic shock on this indicator was mixed across EU countries, most of them did not record any significant deterioration of external sustainability in terms of their current account.*

**The impact of administrative anti-epidemic measures restricting economic activity was amplified by trade and financial links between economies.** Both industry and services were hit during the first wave of the pandemic in spring 2020, as reflected in a sharp fall in international trade as well as a decline in domestic demand. The effect of the pandemic and the related administrative measures on industry decreased from the second half of 2020 and both industrial production and the international goods trade picked up again.<sup>21</sup>

**Although the current account structure of the balance of payments was heterogeneous in EU countries before the coronavirus pandemic, certain similarities can be found across some countries.** These are identified using the cluster analysis method. To conduct the analysis, we use data on the balance of the main items of the current account in individual countries (goods, services, compensation of employees, investment income)<sup>22</sup> relative to GDP and data on the share of industry in gross value added generated in those countries. The method applied in the analysis identified three main groups of countries with similar current account characteristics and a further group comprising some other countries which could not be included in any of the groups as their current account behaved in an unusual manner.<sup>23</sup> To assess how the pandemic shock affected the current account structure in the countries identified, we compared the values for 2020 to the values for the period before the pandemic (the average for 2017–2019).

**The first group comprises countries whose current account was characterised by high surpluses on trade in goods in the pre-pandemic period** (see Chart 1). These surpluses amounted to around 4% of GDP on average. Most of the countries included in this group also recorded surpluses or only slight deficits on services. Balances on compensation of employees and investment income differed across this group: some countries recorded surpluses, while others had deficits. Most countries in this groups recorded overall current account surpluses in the pre-pandemic period. This group includes mainly industrial countries, specifically the Czech Republic, Denmark, Finland, Italy, Germany, the Netherlands, Slovenia and Sweden. The pandemic shock led to a slight increase in net exports of goods relative to GDP in this group of countries. The services balance and the balance of compensation of employees remained broadly unchanged. The investment income balance rose slightly in most countries in this group (including the Czech Republic), i.e. either the investment income deficit declined (for example, in the Czech Republic) or the income surplus increased. Overall, the average ratio of the current account balance to GDP increased slightly in this group.

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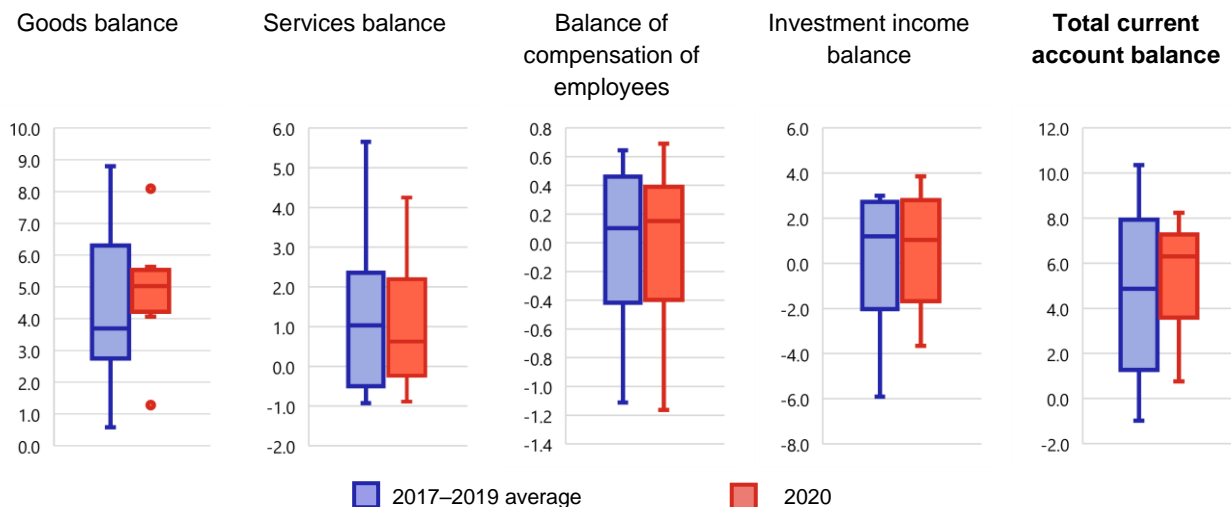
<sup>20</sup> The European Commission, for example, uses the three-year average of the current account to GDP ratio as one of the indicators included in the “Macroeconomic Imbalance Procedure”. In its “External Sector Report”, the IMF regularly assesses the past trend and the future outlook for current accounts, drawing attention to possible risks of external imbalances. Likewise, private institutions such as rating agencies pay close attention to the current account and its dynamics.

<sup>21</sup> Babecká Kucharčuková and Brůha (2020)

<sup>22</sup> These variables are measured at annual frequency.

<sup>23</sup> Ireland, Cyprus, Latvia, Luxembourg and Malta.

**Chart 1: Balances of current account items of EU countries before and after the pandemic shock – first group of countries**  
(% of GDP)

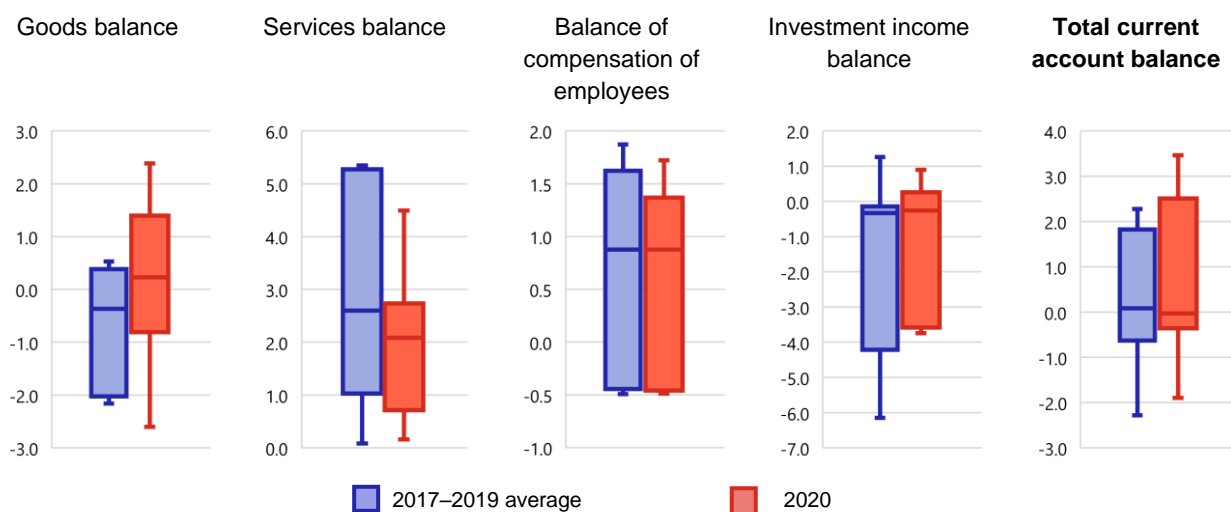


Note: This group comprises: the Czech Republic, Denmark, Finland, Germany, Italy, the Netherlands, Slovenia and Sweden. The boxplot shows the minimum value (with the exception of outliers), the 25% quantile (the lower edge of the rectangle), the 75% quantile (the upper edge of the rectangle) and the maximum achieved value (with the exception of outliers). The line inside the rectangle indicates the median. Outliers are values which are higher (lower) than the 75% quantile (25% quantile) by at least 1.5 times the interquartile deviation. Shown in the chart as a separate point.

Source: Eurostat, CNB calculations.

The second group of countries recorded services surpluses and subdued net exports of goods in the pre-pandemic period (see Chart 2). Most of these countries had investment income deficits. The balance on compensation of employees differed across this group but was mostly positive. Most countries in this group recorded investment income deficits. The current account balance was close to zero in several countries in the pre-pandemic period. This group comprises Austria, Belgium, France, Hungary, Poland, Slovakia and Spain. The outbreak of the pandemic caused only minor movements both in the components reviewed and the overall current account balance in this group. These movements remained within the limits of usual volatility.

**Chart 2: Balances of current account items of EU countries before and after the pandemic shock – second group of countries**  
(% of GDP)

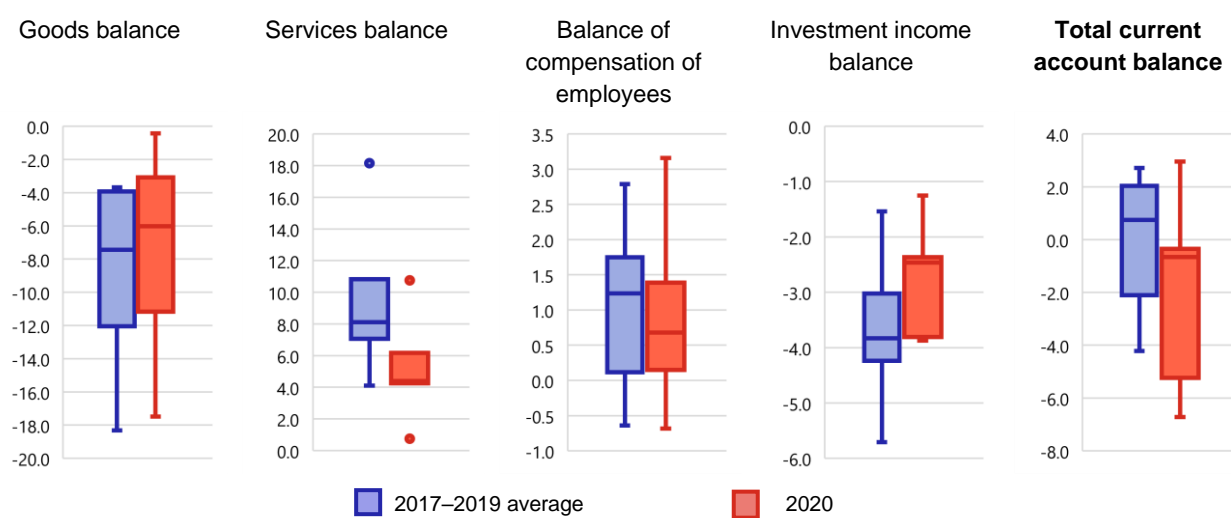


Note: This group comprises: Belgium, France, Hungary, Poland, Austria, Slovakia and Spain. The boxplot shows the minimum value (with the exception of outliers), the 25% quantile (the lower edge of the rectangle), the 75% quantile (the upper edge of the rectangle) and the maximum achieved value (with the exception of outliers). The line inside the rectangle indicates the median. Outliers are values which are higher (lower) than the 75% quantile (25% quantile) by at least 1.5 times the interquartile deviation. Shown in the chart as a separate point.

Source: Eurostat, CNB calculations.

The third group of countries is characterised by deeply negative net exports of goods and investment income deficits in the period before the pandemic (see Chart 3). By contrast, these countries recorded relatively high services surpluses and usually also surpluses on compensation of employees, with most countries in this group showing slight overall current account surpluses. This group comprises Bulgaria, Croatia, Estonia, Lithuania, Portugal, Romania and Greece. The pandemic shock resulted in a sharp fall in the services surplus in these countries, often mainly in travel. At the same time, the goods deficit and the investment income deficit narrowed. In most countries, however, this reduction was not enough to offset the drop in income from services. The current account balances in these countries thus mostly shifted to negative values. Two countries, which had already recorded deficits in the pre-pandemic period, saw a widening of their deficits into significantly negative territory (below -5% of GDP).

**Chart 3: Balances of current account items of EU countries before and after the pandemic shock – third group of countries**  
(% of GDP)



Note: This group comprises Bulgaria, Croatia, Estonia, Lithuania, Portugal, Romania and Greece.

The boxplot shows the minimum value (with the exception of outliers), the 25% quantile (the lower edge of the rectangle), the 75% quantile (the upper edge of the rectangle) and the maximum achieved value (with the exception of outliers). The line inside the rectangle indicates the median. Outliers are values which are higher (lower) than the 75% quantile (25% quantile) by at least 1.5 times the interquartile deviation. Shown in the chart as a separate point.

Source: Eurostat, CNB calculations.

The effects of the pandemic in 2020 did not lead to extreme fluctuations in the current account balance in most countries, yet there are a few countries whose current accounts deviated more significantly from equilibrium. This holds true mainly for some of the countries in the third group and one unclassified country (Cyprus). However, the share of these economies in the EU's GDP (or gross value added) is small.<sup>24</sup> These countries should thus not pose a risk to the macroeconomic stability of the economy of the EU as a whole. However, it is important to note that this analysis relates to 2020. The overloading of global production chains, which only escalated in 2021, may yet affect the external position of export-oriented economies. It is therefore desirable to continue to monitor the external position of EU economies.

<sup>24</sup> The share of GDP of the countries whose current account balance dropped below -5% of GDP in the pandemic year 2020 in total EU GDP is around 3%.

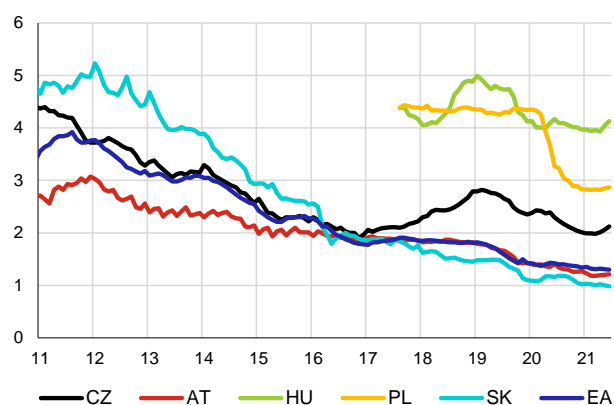
### II.3. MORTGAGE AND PROPERTY MARKETS DEVELOPMENTS IN SELECTED EU COUNTRIES

*Petr Hlaváč, Luboš Komárek and Petr Polák*

Monetary policy affects property prices by influencing the cost of debt financing. It has an impact on financing property purchases together with macroprudential policy including the limits on the mortgage lending indicators for the provision of new mortgages. These are other important factors affecting the price level of residential property. At the same time, the alignment of the business and financial cycles of the Member States is important for optimal functioning of the monetary union. Therefore, residential property prices cannot be disregarded when assessing the evolution of key macroeconomic variables. The ECB is also aware of the importance of property prices in the formulation of monetary policy. This is evident in its latest strategic framework review which stated that owner-occupied housing plays a role in constructing inflation measures. At the same time, in recent years, we have seen a substantial increase in property prices in many EU countries, which differs from the development of other macroeconomic indicators. This is due to a combination of supply and demand factors, including monetary policy, which has been very accommodative for some time now. Given that around 70% of the EU's population lives in their own homes, with most new homeowners financing their purchases in the mortgage market, developments on the property and mortgage markets significantly affect the financial situation of households.<sup>25</sup> Macroprudential institutions across Europe strive to ensure financial stability, among other things, by applying the credit ratio limits, which are designed to limit the risks stemming from mortgage market developments. The following analysis focuses mainly on the Central European countries, i.e. Austria, the Czech Republic, Hungary, Poland and Slovakia.

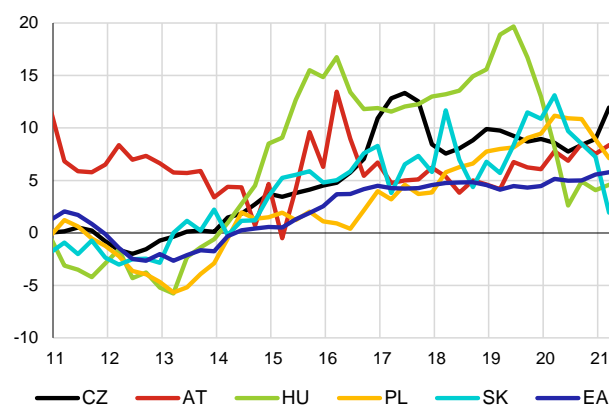
**Property market developments have a major impact on a country's economy and its inhabitants.** The property market is very closely linked to the mortgage market, as a large proportion of property is mortgage-financed. The availability of mortgages has increased greatly in recent years, due to the fall in interest rates, which boosted interest in mortgage loans and activity on the property market. The ECB's very accommodative monetary policy persists in the euro area, which continues to indicate low interest rates on new loans for house purchase. Slovakia and Austria have the lowest mortgage rates (close to 1%, i.e. slightly below the euro area average, see Chart 1). Unlike the euro area, monetary policy rates are positive in the monitored countries which have their own monetary policy (the Czech Republic, Hungary and Poland). This is reflected in higher customer interest rates on mortgage loans. The growth in property prices has accelerated in all the countries under review in the last five years (see Chart 2). However, the pace differs, not only in the selected countries, but in other euro area countries too. Euro area membership does not play a major role in this respect.

**Chart 1: Interest rates on new mortgages (%)**



Note: Average rates.  
Source: OECD.

**Chart 2: Property price growth (y-o-y in %)**



Source: OECD, CNB calculations.

**The relationship between property prices, supply factors and housing financing options is important for housing affordability.** As long as these factors develop in a similar way, the situation on the property market remains stable and property price bubbles and social issues are avoided. In such cases, property price increases do not have to be perceived as problematic. We have mentioned developments in interest rate, where very low interest rates *ceteris paribus* may even

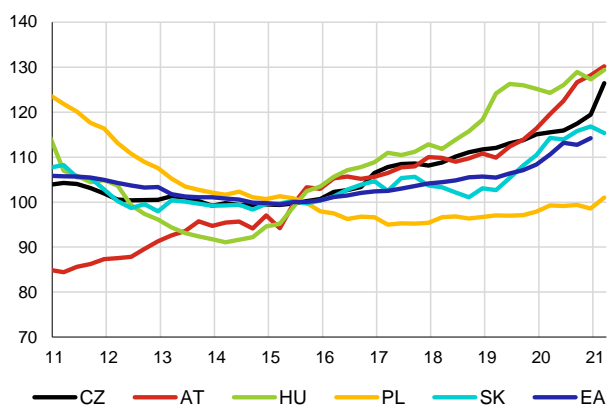
<sup>25</sup> Through imputed rents, residential property prices have recently also significantly affected consumer price inflation in the Czech Republic.

excessively reduce the cost of house purchase financing. However, the primary source of housing finance is the property owner's income. Therefore, in terms of financial stability, property price developments, especially in relation to developments in wages, are of key importance.<sup>26</sup> If the development of these variables is similar, housing affordability remains stable. But when we look at the price-to-income (PTI) indicator in each country, it is evident that Poland is the only country which had a relatively stable PTI indicator in the last five years (see Chart 3). The PTI indicator is increasing in the other countries analysed, which means that the affordability of housing is decreasing in this respect.<sup>27</sup>

**The affordability of housing is not only determined by the cost of owner-occupied housing; prices on the rental market (rents) are also an important factor.** The countries under review differ considerably in terms of the proportion of the population living in owner-occupied housing and rental housing. Slovakia has the largest proportion of the population living in owner-occupied property (almost 91%), while in Austria this share is only around 55%, the second lowest level in the EU. The ratio of owner-occupied housing to rental housing is generally lower in Western than in Eastern Europe which – in addition to historical legacy factors – may reflect the previous period of higher income relative to property prices in less advanced countries. Overall, however, rents in the monitored countries have increased more slowly in relation to property prices and wages in recent years. From this perspective, the situation in rental housing has thus improved for the inhabitants of the countries under review.

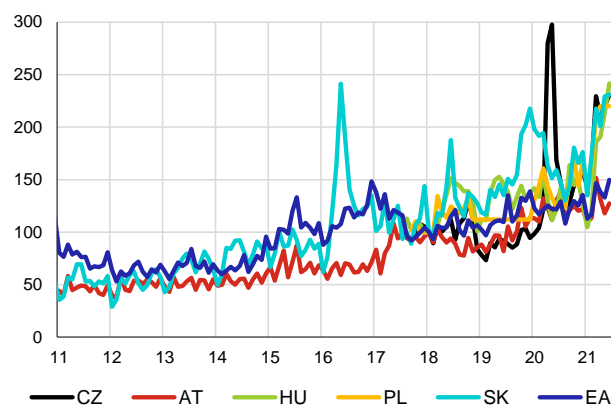
**As property prices have risen, the volume of loans for house purchase has also gone up in the countries under review** (see Chart 4). Macroprudential institutions respond to this interaction between loans and property prices. In order to maintain price stability, they have started to make greater use of borrower-based measures (BBMs) in addition to capital requirements in connection with the property market. Latvia was the first European country<sup>28</sup> to introduce limits. In 2007, it introduced the loan-to-value (LTV) limit; a similar limit started to apply in Norway and Sweden three years later. Generally, in line with the conclusions of academic studies,<sup>29</sup> the introduction or tightening of credit ratio limits reduces demand for loans and property. Without these limits, both the property and mortgage markets would grow more quickly in the countries under review. However, the effectiveness of these limits in curbing property price growth is currently being reduced by extremely low interest rates.

**Chart 3: Affordability of housing based on the price-to-income ratio**  
(index, 2015 = 100)



Source: OECD.

**Chart 4: Volume of new loans for house purchase**  
(index, January 2018 = 100)



Source: Eurostat, CNB calculations.

**European countries are gradually implementing macroprudential rules into national legislation.** The rules are not set at the pan-European level but separately for each country. Therefore, the way in which the rules are implemented is important, as not everywhere the very existence of the BBMs enacted in national legislation. In this case, there is a risk that the rules will not be observed fully or that the macroprudential authority will have difficulties enforcing them. From this perspective, it is positive that these limits are based on current legislation in the vast majority of European countries which apply some form of BBMs. A macroprudential authority (a central bank or another authority) is thus permitted by law to

<sup>26</sup> In a monetary union, the economic performance of countries should be at a very similar level (above all, GDP per capita, price level, wage level). Single monetary policy determines the interest costs of financing and hence also affects property price developments. Both markets are closely linked with labour market mobility (and the current situation on the labour market), which is one of the basic mechanisms of coping with the consequences of asymmetric shocks within the monetary union.

<sup>27</sup> As regards other euro area countries, the PTI increased, for example, in France, Germany and Spain, while declining in Italy.

<sup>28</sup> Hong Kong was the first country in the world to introduce the limits in 1995.

<sup>29</sup> BIS (2012), Igan and Kang (2011), Kuttner and Sim (2016), Carreras et al. (2018).

specify these rules in greater detail by setting specific limits on BBMs. This option is not used in all the countries, as shown on a selected sample of countries in Table 1. As regards the member states of the European Systemic Risk Board (ESRB), most countries limit (through statutory powers or in the form of a recommendation, etc.) the LTV ratio for retail mortgage loans (22 countries), followed by the DSTI ratio (13 countries) and the maximum loan term (12 countries), while the LTI/DTI limit is used the least (5 countries).

**Table 1: Overview of the measures used**

	CZ	AT	HU	PL	SK
<b>LTV (ratio of the loan amount to the value of collateral)</b>	Yes	Yes	Yes	Yes	Yes
<b>LTI (ratio of loan amount to income) / DTI (ratio of total debt to income)</b>	Yes	No	No	No	Yes
<b>DSTI (debt service to income ratio)</b>	Yes	No	Yes	Yes	Yes
<b>Maturity</b>	Yes	No	No	Yes	Yes

Note: The DSTI ratio is not limited by a cap in Poland. The bank is only obliged to inform the client if the level is high but may provide the loan.

Source: ESRB, Overview of national macroprudential measures.

**However, the largest euro area countries almost never use borrower-based instruments.** Germany has fairly recently introduced the option of implementing the LTV ratio into national legislation but is yet to apply it. France has enshrined the possibility of capping the DSTI ratio and maximum maturity in national legislation, which it actually uses. Italy and Spain have not yet been forced to introduce BBMs and their ratios, due to the sharp drop in property prices in the past. No major price increases have been recorded since then. Banking sectors in all these large countries implicitly comply with mortgage lending prudential standards, which seems to weaken the need to introduce BBMs into law.

**The setting of the credit ratio requirements is similar in the Czech Republic to in most smaller ESRB Member States.** The Czech Republic was an exception during the coronavirus crisis as it relaxed these limits on BBMs, which only very few countries did. Until recently, Czech macroprudential policy also differed in that the Czech National Bank was not empowered by law to use these borrower-based instruments and these instruments had been mere recommendations by the Czech National Bank. However, as of 1 August 2021, the CNB can now set the BBM levels in a legally binding manner.

**The single European monetary policy is yet to be accompanied by a single European macroprudential policy in the property and mortgage markets.** On the one hand, there is the price of money, set uniformly by the European Central Bank. On the other, it is backed currently by only a partial use of regulatory measures within the competence of national regulators. It is thus both an economic and political issue for the future how to effectively influence developments in the property and mortgage markets (by setting the level of centralization, the role and powers of national regulators, etc.), which are linked directly with the conduct of the monetary policy of the euro area. As the European Central Bank has started taking greater account of property price developments in its monetary policy decision-making<sup>30</sup>, it is also important to monitor the extent to which property market developments in the euro area are harmonised, as a significantly different situation would impair the proper functioning of single monetary policy.

<sup>30</sup> As part of a review of the monetary policy strategy, it was suggested in July 2021 that the HICP also include owner-occupied housing prices (see <<https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210708~dc78cc4b0d.en.html>>).



## II.4. CURRENT CHALLENGES TO EURO AREA AND EU FISCAL POLICY IN THE CONTEXT OF THE CZECH REPUBLIC'S OBLIGATION TO ADOPT THE EURO

*Marek Benda, Jan Král, Marek Souček, Lena Stránská, Martin Vojta*

*This thematic chapter focuses on three current issues in relation to fiscal policy in EU countries in the broader context of considerations on the consequences of euro adoption: the effect of financing of the Recovery Plan on future EU financing not only in times of crisis, the coordination of economic and fiscal policies within the euro area and the EU, including the differences between euro area and non-euro-area countries, and a possible review of EU fiscal rules (especially the Stability and Growth Pact) in the context of the current economic crisis, which led to their temporary relaxation or de facto non-application.*

**Since its establishment, the concept of the euro area has assumed maintaining economic and fiscal policy powers at Member State level.** However, given the importance of these areas for the functioning of the monetary union, EU law subjects national fiscal and economic policies to joint coordination mechanisms and sets certain common budgetary rules for fiscal policy, including sanctions to enforce them. The aim of these instruments is to ensure that national fiscal policies are sustainable and do not jeopardise the prosperity of the euro area and the stability of the single currency. However, political and economic developments in the 20 years of the monetary union have shown that there are several problems with the initial assumptions that common rules for the coordination of economic and fiscal policies are sufficient for the functioning of the euro area based on single monetary policy.

**In the fiscal area, the discipline of euro area Member States in complying with the rules for a balanced state budget and the level of public debt was low even before the global financial crisis, as was the political willingness of the EU institutions to enforce these rules and to impose sanctions for non-compliance.**<sup>31</sup> Major changes in the functioning of the euro area have been adopted in connection with the impacts of the 2008–2010 crisis. Among other things, the banking union was established, coordination in the area of fiscal rules was strengthened,<sup>32</sup> the European Stability Mechanism was set up, and a system of financial market supervision was created at the EU level. However, even these changes failed to reverse the trend of rising public debt of most euro area Member States and the related risk of a possible need for a shared solution to the fiscal issues faced by some countries.

**The fiscal area, which also includes tax issues, is one of the most politically sensitive areas, as it concerns the very core powers of the Member States.** The discussion on changes to the current division of powers in these areas, enshrined in EU primary law, is thus exceptionally complex and any changes in this area tend to be slow. Although the basic framework laid down in the Treaties remains broadly unchanged,<sup>33</sup> the euro area and the related projects, such as the banking union, are evolving without changes to primary law. The regulatory framework is changed by means of secondary EU legislation, often using an extensive interpretation of the provisions of primary law, a gradual enlargement and enhancement of various coordination mechanisms and, in some cases, through the cooperation of EU Member States completely outside the EU legal framework.<sup>34</sup> Nonetheless, a further reform in fiscal policy coordination seems to be desirable and in principle unavoidable in order to ensure the long-term sustainability and prosperity of the euro area. However, its future shape and the related changes to the content of the Czech Republic's commitment to adopt the euro are very unclear at present, which makes it difficult to decide on the euro adoption date and assess the related benefits and costs. The future shape of the functioning of the euro area may be further affected by, for example, the impacts of the Covid-19 pandemic and the increasing importance of the fight against climate change.

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<sup>31</sup> The Stability and Growth Pact (SGP) was first reformed in 2005, primarily in the context of the excessive deficit procedure, when specific assessment parameters were set. The aim of the reform was to respond to the lack of flexibility of the SGP and to ensure its better enforceability. In practice, however, this meant a significant relaxation of the SGP rules in response to non-compliance with the Pact by some Member States. No sanctions have yet been imposed on a Member State for non-compliance with SGP rules.

<sup>32</sup> The Stability and Growth Pact, a cornerstone of the EU's fiscal policy, was complemented by the European Semester in 2010 and strengthened by several regulations and directives (the "Six-Pack", the "Two-Pack" and an inter-governmental agreement known as the "Fiscal Compact") in 2011 and 2013. For details see the section entitled "Changes in the economic policy coordination framework and steps taken in connection with the escalation of the euro area debt crisis" in the Analyses of the Czech Republic's Current Economic Alignment with the Euro Area 2011, 2012 and 2013.

<sup>33</sup> The only change in primary law so far has been an amendment to Article 136 of the Treaty on the Functioning of the European Union opening up the door to the establishment of the European Stability Mechanism, but which was adopted by a simplified procedure.

<sup>34</sup> For example, the European Stability Mechanism, which was established by a separate intergovernmental treaty, or the above-mentioned Treaty on Stability, Coordination and Governance in the Economic and Monetary Union (also known as the Fiscal Compact).

### Future EU funding in the context of funding the Recovery Plan

**The issuance of EU bonds currently used to finance the Recovery Plan (especially its NextGenerationEU programme, NGEU) is not entirely new in the EU.** The Treaty on the Functioning of the EU (TFEU) allows the EU to provide financial assistance in cases where a Member State is seriously threatened or is facing severe difficulties caused by natural disasters or exceptional occurrences beyond its control and to finance this assistance by issuing EU bonds. New financing instruments were created in response to the current economic crisis, specifically the SURE and NGEU programmes.<sup>35</sup>

**The new instruments differ from those used after the 2008–2010 crisis.** First, they have not only been made available to assist those countries hardest hit by the crisis but are available to all EU Member States. This largely shifts the interpretation of their legal basis (Article 122 of the TFEU) from addressing the current difficulties of one specific Member State to establishing longer-term instruments available to all EU Member States. Second, the new instruments show a much greater level of interconnectedness with the economic policy coordination framework, which can be perceived as a strengthening of the trend towards the establishment of a fiscal union. While the SURE programme<sup>36</sup> is primarily a rescue programme, the comprehensive NGEU measures do not focus on emergency assistance but on the long-term economic recovery of the economies of individual Member States and the implementation of structural reforms in line with the long-term priorities of the European Commission (EC). Third, the new instruments are unprecedented in terms of volume. The NGEU has EUR 807 billion in funds over a six-year period and the SURE programme made EUR 100 billion available in 2020–2021, while the bailout programmes for specific countries after the previous crisis were in the tens or low hundreds of billions of euro over time.<sup>37</sup>

**A major feature of the NGEU, which distinguishes it from previous debt financing instruments, is also the fact that a substantial part of it will be provided to Member States in the form of grants (subsidies), not repayable loans.** As primary law continues to stipulate that the EU budget must be balanced, the NGEU makes it necessary to supplement the EU budget to cover the NGEU-related costs. This was achieved by increasing the budgetary commitments of the individual Member States, while also reviving the discussion about the new own resources of the EU budget.<sup>38</sup>

**This concept of debt financing reflects the longer-running efforts of some countries, especially on the southern periphery of the euro area, to introduce common European bonds on a permanent basis.**<sup>39</sup> The emergence of the infrastructure and apparatus necessary to manage such a large debt (with some bonds with maturity of up to thirty-years) may thus support the notion of establishing a fiscal union. The fiscal union would not only include a permanent mechanism for issuing and managing common bonds to obtain funding for the general budget or some of its instruments, but also for the management of individual financial flows and the related policies at the EU level, with logically closer coordination between euro area countries.

### Coordination of economic and fiscal policies of EU Member States

**In connection with the adoption of the NGEU, the European Semester, a framework for the coordination of economic and fiscal policies among EU Member States was also adapted.** At least for 2021, it includes the national recovery and resilience plans (NRRPs), which contain the reform intentions and measures which the Member States plan to finance from the NGEU. Before their submission to the EU Council, the NRRPs are approved by the European Commission, whose role has in effect grown, without any change to primary law, in proportion to the limited scope available to Member States in creating the NRRPs. The EU institutions have thus been given further scope to de facto influence Member States' policies in areas where corresponding powers have not been transferred to the EU level.

<sup>35</sup> For details on EU debt financing, see the thematic analysis entitled “Bond Issuance by the EU” in the [2020 Alignment Analyses](#).

<sup>36</sup> The programme is aimed at preventing a surge in unemployment.

<sup>37</sup> Greece obtained the largest volume of funds (EUR 148.96 billion) from the EU assistance programmes under Article 122 of the TFEU in 2010–2018. Assistance to other countries was lower.

<sup>38</sup> Tax on non-recycled plastic packaging waste has already been approved. Other proposals planned by the Commission in this area include the taxation of large digital corporations, the Carbon Border Adjustment Mechanism and, in the longer term, the financial transaction tax (after the Multiannual Financial Framework, i.e. after 2027 at the earliest).

<sup>39</sup> The idea of introducing common European bonds, or at least common euro area bonds, is not new and has been the subject of political discussion at EU level under various names (e.g. Eurobonds, European Safe Assets and Sovereign Bond-Backed Securities – SBBS) at least since the global financial crisis. However, until the NGEU was approved, these initiatives had always been rejected by some euro area countries which emphasise fiscal responsibility (e.g. Germany) due to concerns about the consequences of debt sharing in the euro area.

**Moreover, euro area Member States are obliged under the European Semester to send their stability programmes and draft budgetary plans to the European Commission. This, however, may not be perceived as sufficient in the period ahead.** Indeed, there is a growing call in the European debate for a higher degree of coordination of fiscal policies between euro area Member States, not only because of the greater volume of longer-term EU investment commitments, but also as a solution to the “overburdening” of ECB monetary policy and its unconventional instruments, which has been felt by many since the financial and debt crisis.<sup>40</sup> The Commission’s proposals to create a specific euro area budgetary capacity<sup>41</sup> and to appoint an EU “Minister of the Economy and Finance” with the primary task of coordinating the fiscal policies of euro area Member States<sup>42</sup> were ultimately not approved by the Member States. However, the fact that they have been overshadowed does not mean that these considerations cannot be revived in the context of the negotiations on the setting of the future seven-year budgetary framework for the post-2027 period. The first such indication may be the recent activities of the European Parliament’s Committee on Economic and Monetary Affairs, which requested a series of analyses from external specialists on “Euro area fiscal policies and capacity in post-pandemic times” at the start of summer 2021. The studies submitted to the Committee support the establishment of a central fiscal capacity and, for example, the strengthening of the role of the existing EC advisory body for the euro area, the European Fiscal Board (EFB), which would assess the stability programmes of euro area Member States, make formal recommendations to the Commission and the Council of the EU, including opening and closing the excessive deficit procedure, or at least serve as a role model for the work of national budgetary councils of euro area Member States.<sup>43</sup>

**At the same time, it is important to reflect the fact that the Covid-19-related crisis has resulted in the creation of a specific budgetary instrument of unprecedented volume with debt financing of up to 30 years, the administration of which will require the maintenance of a relatively robust apparatus.** Moreover, it is an instrument which serves the EU as a whole, not just the euro area. Although its temporary nature and its focus, at least formally, on addressing the consequences of the crisis prevent it from being identified as the basis of fiscal union, the speed of its creation and the breaking of some previous long-running taboos (massive issuance of EU bonds, a substantial increase in Member States’ budgetary contributions, albeit only in the form of commitments) suggest that when the circumstances so warrant, the situation may change very quickly even in this area.

### Current discussions on the revision of the Stability and Growth Pact

**In addition to considerations about possible instruments aimed at the creation of a fiscal union, attention must also be paid to ongoing debates on the revision of the existing rules for the coordination of fiscal policies.** Discussions on amendments to or relaxations of the SGP rules have a long history.<sup>44</sup> The activation of the general escape clause in response to the impacts of the Covid-19 pandemic has recently given fresh impetus to the discussions. The clause allows the Commission not to require EU Member States to comply with the fiscal rules until 2023. Given the current level of indebtedness of EU countries (most notably those in the euro area) and the pressure by some countries, especially those on the southern periphery, for investment support, it is however likely that the SGP will not be applied in the same manner as in the past even if the deadline for a renewed application of fiscal rules is met. Even some Member States on the northern periphery would not oppose partial adjustments to the SGP rules. However, they believe that the adjusted

<sup>40</sup> See e.g. the interview for Politico on 3 August 2021 with the Governor of the Central Bank of Ireland Gabriel Makhoul in which he supported a higher degree of coordination of fiscal policies within the euro area and the idea of a revision of the Stability and Growth Pact: <<https://www.politico.eu/article/european-fiscal-rules-european-central-bank-ecb-irish-banker/>>.

<sup>41</sup> In 2018–2019, following the negotiations on the Multiannual Financial Framework for 2021–27, legislative work was under way to establish the Budgetary Instrument for Convergence and Competitiveness, i.e. the budgetary capacity of the euro area (work was under way simultaneously on a smaller instrument for non-euro area countries). Although the change in circumstances due to the onset of the Covid-19 pandemic has dampened these specific debates, at least until the negotiations on the next Multiannual Financial Framework, the NGEU is built on a similar principle and its financial volume is far larger than the original instruments discussed. At the same time, given the maturity of the bonds to finance the NGEU, there are questions regarding possible further developments, which might support and revive the initial considerations.

<sup>42</sup> See the Commission’s proposals for the European Monetary Fund, additional budgetary capacity to support reforms and technical support, and the European Minister of Finance, which were submitted on 6 December 2017: <[https://ec.europa.eu/commission/presscorner/detail/en/IP\\_17\\_5005](https://ec.europa.eu/commission/presscorner/detail/en/IP_17_5005)>.

<sup>43</sup> Cottarelli (2021), De Grauwe (2021), Marimon and Wicht (2021).

<sup>44</sup> These discussions have been ongoing in some form and intensity since the SGP was signed in 1997. They were particularly intense in 2003–2005 before the first revision of the SGP, which was prompted by non-compliance with the SGP by France and Germany and the related dispute between these countries and the Commission. At that time, there had already been proposals to set the “golden rule”, according to which public investment expenditure would not be included in the calculation of government expenditure for the purpose of the excessive deficit procedure (see Blanchard and Giavazzi, 2004). The alleged excessive complexity and pro-cyclicality of fiscal rules without an effective enforcement mechanism, even after all the revisions of the SGP since 2005, is also the subject of criticism (see commentary by EFB members in 2018: <<https://voxeu.org/article/reforming-eu-fiscal-framework-proposal-european-fiscal-board>>).

rules should not be more benevolent to government debt *per se*, but simplified, easier to apply and possibly more closely linked to compliance with specific Council recommendations within the European Semester.<sup>45</sup>

**Discussions are likely to take place on changes in related secondary legislation.** The Treaty on the Functioning of the EU and follow-up Protocol No. 12 on the excessive deficit procedure do not set out in detail the rules or penalties (relevant only for euro area Member States).<sup>46</sup> For example, discussions on the rule on the reduction of excessive debt if a Member State's government debt surpasses 60% of GDP could take place under the French Presidency of the EU Council in the first half of 2022.<sup>47</sup> The European Commission also launched a review proposal as regards this and possibly other major changes, such as the exclusion of certain investment expenditures (green and digital transformation) from the deficit calculation in its Communication "The EU Economy after Covid-19: implications for economic governance" of 19 October 2021, which also marked the launch of a public consultation process on the subject. The European Commission should issue fiscal policy guidelines in 2022 Q1 based on the outcome of this consultation.<sup>48</sup> Commissioner for Economy Paolo Gentiloni justifies the possible changes by pointing to the risks of renewed divergence between the north and south of the euro area and the Commission's reluctance to interpret the applicable rules "creatively".<sup>49</sup> It cannot be ruled out that EU fiscal and economic policy actors will return to the ideas presented by the EFB in September 2019 in their discussions on the SGP reform. The EFB proposes, among other things, the *de facto* removal of the rule of a maximum government budget deficit not exceeding 3% of GDP in favour of a cap on government expenditure and an emphasis on productive investment, which should not be sacrificed on the altar of compliance with fiscal rules.<sup>50</sup>

## Conclusion

**The above-described developments and the suggested possible future trends in fiscal policy in the EU indicate that the content of the Czech Republic's obligation to adopt the euro and the ensuing obligations, costs and real impacts differ qualitatively and quantitatively from the situation in 2004 when the Czech Republic joined the EU, and is likely to undergo further developments.**

**On the one hand, the instruments and rules aimed at ensuring the economic coordination and fiscal discipline of Member States – and thus the stability of the euro area – have long seemed insufficient.** Either they are not complied with properly or their compliance is not enforced, and thus they do not prevent the risk of excessive debt in most euro area Member States and the associated negative impacts. This logically puts pressure on strengthening the rules or reforming the entire framework (by amending the setting and functioning of the European Semester of the SGP and on deepening euro area integration towards the fiscal union). This is not reflected in primary law for political reasons but takes the form of gradual amendments to secondary legislation and the strengthening of coordination procedures.

**On the other hand, given the differing and often conflicting positions of Member States, it is currently not at all clear what form the reform of the common rules or a possible fiscal union should take.** This is a source of considerable uncertainty for countries considering entering the euro area in future. While some countries aim to simplify

<sup>45</sup> Austrian Finance Minister Gernot Blümel, who also launched a diplomatic offensive among EU Member States against possible plans to dismantle the SGP, commented on these proposals in summer 2021: <<https://www.politico.eu/article/austria-digs-in-ahead-of-eu-deficit-battle/>>.

<sup>46</sup> This primarily includes Regulation (EU) No 1177/2011 on speeding up and clarifying the implementation of the excessive deficit procedure, where a sanction mechanism based on Regulation (EU) No 1173/2011 on the effective enforcement of budgetary surveillance in the euro area and Regulation (EU) No 1174/2011 on enforcement measures to correct excessive macroeconomic imbalances in the euro area is binding on euro area countries, but not on non-euro area EU Member States.

<sup>47</sup> Specifically, this should be the rule on an annual reduction in debt of 5% of the difference between the size of the Member State's debt level and the 60% of GDP reference value, non-compliance with which is currently one of the preconditions for initiating the excessive deficit procedure by the Commission (see <<https://www.politico.eu/article/the-return-of-austerity-the-fight-over-fiscal-tightening-has-already-been-decided/>>). This provision is only part of EU Regulation No 1177/2011, while the SGP as part of primary law (Article 126(1)(b) of the TFEU) mentions only a sufficient reduction in the ratio of government debt to GDP to the reference value at a satisfactory pace.

<sup>48</sup> See the EC press release of 19 October on the publication of the Communication and the launch of a public consultation: <[https://ec.europa.eu/commission/presscorner/detail/en/ip\\_21\\_5321](https://ec.europa.eu/commission/presscorner/detail/en/ip_21_5321)>.

<sup>49</sup> See Commissioner Gentiloni's statement to the Financial Times of 29 June 2021: "You need common rules that are connected to the economic challenges we have. Otherwise, the risk is that the European Commission will spend the next decade finding creative ways to bypass its own rules, which I think is not the best solution we can have." <<https://www.ft.com/content/f2d7fc03-aad9-4297-9443-129ada32b74e?shareType=nongift>>.

<sup>50</sup> See the Commission's assessment: <[https://ec.europa.eu/info/sites/default/files/2019-09-10-assessment-of-eu-fiscal-rules\\_en.pdf](https://ec.europa.eu/info/sites/default/files/2019-09-10-assessment-of-eu-fiscal-rules_en.pdf)>. The EFB also encourages a revision of the fiscal framework in its assessment of the economic and fiscal condition of the euro area of June 2021 which, according to the EFB should be conducted before the deactivation of the severe economic downturn clause, i.e. in 2022. Otherwise, this would reportedly complicate matters for national economic policymakers in the euro area and there would be a risk of heightened doubt about Member States' government commitment to sustainable public finances and the credibility of the current euro area fiscal framework. See <[https://ec.europa.eu/info/sites/default/files/2021\\_06\\_16\\_efb\\_assessment\\_of\\_euro\\_area\\_fiscal\\_stance\\_en.pdf](https://ec.europa.eu/info/sites/default/files/2021_06_16_efb_assessment_of_euro_area_fiscal_stance_en.pdf)>.

the SGP, which would make it easier to apply and enforce, others prefer an overall easing of the joint fiscal discipline rules. Although proposals to create budgetary capacity in the euro area, the office of the euro area “Finance Minister” and considerations on the formal establishment of the fiscal union have not yet been pushed through, the creation of the EUR 807 billion NGEU debt-financed crisis instrument shows that under certain circumstances there may be a shift even in areas in which it has long been de facto ruled out.

**The facts described in this article clearly confirm the premise that the impacts of joining the euro area are not only of a monetary-policy nature and do not relate exclusively to the areas covered by the formal convergence criteria, but affect a much wider area.** In this context, it is also important to approach the impacts of the Czech Republic’s entry into the euro area, monitor them further and evaluate them very carefully.



## II.5. COMPARISON OF SELECTED NATIONAL RECOVERY AND RESILIENCE PLANS

*Pavla Netušilová*

*The Recovery and Resilience Facility is the centrepiece of the post-coronavirus recovery plan for Europe. It provides EU Member States with funds to finance reforms and investment projects to support the EU's recovery from the pandemic, enhance the resilience of its economies, and foster environmental and digital transformation. It should also facilitate the sustainable functioning of the EU economies themselves and of the monetary union. EU Member States draw funding from the facility in the form of grants and loans, based on their national recovery and resilience plans for the period of 2021–2026.*

**The Recovery Plan for Europe, approved in July 2020, aims to mitigate the impacts of the coronavirus pandemic and transform the EU economy.** It puts emphasis on supporting investment activity to avoid a repeat of its sizeable decline observed during the financial and debt crisis. Besides the traditional source of funding under the Multiannual Financial Framework for 2021–2027, it includes a temporary recovery programme “NextGenerationEU” (NGEU), totalling EUR 807 billion. Under this programme, EU Member States should receive EUR 421 billion in grants and up to EUR 386 billion in loans, making NextGenerationEU the EU's largest-ever stimulation package. Acting on behalf of the EU, the Commission started borrowing the necessary funding for NGEU on financial markets in the second half of last year. European economic integration has thus moved to the next phase, as it is the first time ever the Commission has used an issue of bonds guaranteed by the EU budget to borrow on a massive scale.

**The Recovery and Resilience Facility is the key financial source of the NGEU, covering 90% of the NGEU allocation (i.e. EUR 724 billion).**<sup>51</sup> It aims to support the EU's recovery from the economic and social impacts of the pandemic, to enhance economic and social resilience (including health care resilience) and to address country-specific challenges. In addition, it focuses on meeting European climate goals (especially carbon neutrality) and supporting the digital transition through a fixed threshold for the minimum share of expenditure on environmental and digital projects. Grants and loans from the Recovery and Resilience Facility are disbursed on the basis of National Recovery Plans for 2021–2026. EU Member States have been gradually submitting these plans to the Commission since April 2021. Their approval at various EU levels took place in several waves. The final shape of the plans and conditions for disbursement was approved by the ECOFIN Council. Most of the countries whose national recovery plan has been approved<sup>52</sup> have already received the first payment from the Recovery and Resilience Facility allocation.

**While all the countries have availed in full of the grant allocation of the Recovery and Resilience Facility, they are less interested in loans.** Within the countries under review,<sup>53</sup> Germany, Poland and Portugal have drawn down the largest grants in absolute terms, with Portugal, Slovakia and Slovenia obtaining the highest grants in per capita terms (see Chart 1). Only Portugal, Slovenia and Poland have expressed an interest in drawing loans (totalling less than their national allocations), with Portugal and Slovenia having a lower rating in the financial markets in relation to national bond issuance. However, EU Member States may also apply for financing of the plans through loans additionally until the end of August 2023. The national recovery and resilience plans may be further revised in the context of the recalculation of grant allocation in the first half of 2022 based on actual developments of economies in 2020–2021.<sup>54</sup> Unlike the grant allocations, the loan allocations will not be re-calculated in the future.<sup>55</sup>

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<sup>51</sup> The remaining 10% of the NGEU consists of ReactEU, the Just Transition Fund, the European Agricultural Fund for Rural Development, Horizon Europe, InvestEU and RescEU.

<sup>52</sup> At the end of November 2021, 23 of the 26 submitted national plans were approved. Poland, Hungary and Sweden are still awaiting approval. The only country yet to submit a plan to the European Commission is the Netherlands.

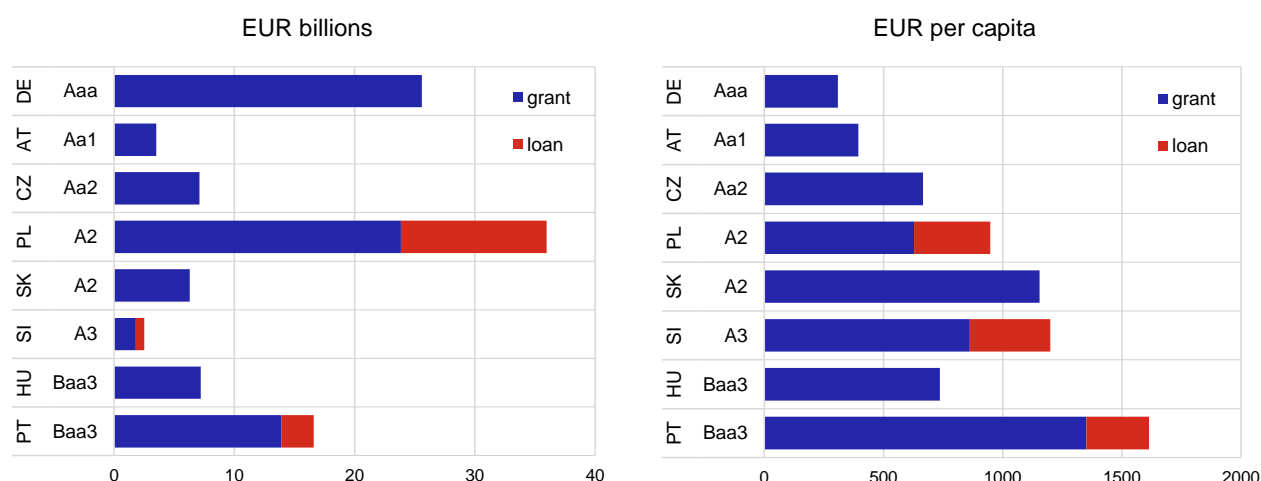
<sup>53</sup> As with the other parts of the document, the countries selected for review in this section are Austria (AT), the Czech Republic (CZ), Germany (DE), Hungary (HU), Poland (PL), Portugal (PT), Slovakia (SK) and Slovenia (SI). A comparison of the national recovery and resilience plans of all EU Member States will be published in the December issue of the CNB's [Global Economic Outlook](#).

<sup>54</sup> The part of the national grant allocation in the Recovery and Resilience Facility assigned on the basis of a predicted drop in GDP will be re-calculated using actual GDP developments in 2020 and 2021.

<sup>55</sup> The national loan allocation in the Recovery and Resilience Facility was determined on the basis of gross national income in 2019.



**Chart 1: Grants and loans in the national recovery and resilience plans in relation to Moody's rating**

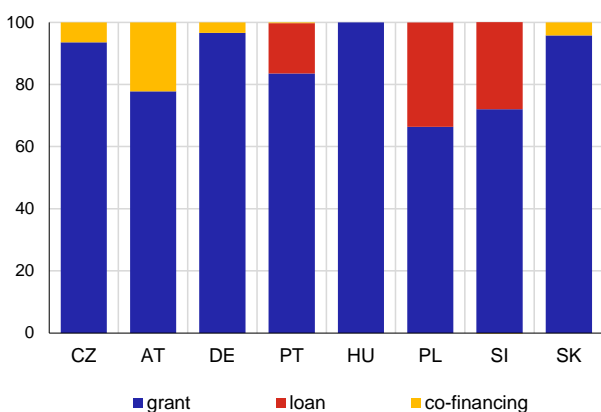


Source: National recovery and resilience plans, countries' sovereign debt ratings by Moody's at the time of submission of the national plans to the Commission (April–June 2021).

**All the countries under review except Hungary submitted projects exceeding their national grant allocation.** Either EU resources (a loan from the Recovery and Resilience Facility) or co-financing from national sources are used to finance the part of the national recovery and resilience plans that exceeds the grant allocation (see Chart 2). However, unlike the drawdown of traditional structural funds, co-financing by the EU Member State is not mandatory. All the plans include projects above the minimum share of expenditure on green projects (37%) and digital projects (20%). Besides green and digital projects, the funding is also directed to other areas identified in the Recovery and Resilience Facility or reflecting the EU Council's country-specific recommendations provided in the context of the 2019 and 2020 European Semester.

**Chart 2: Sources of funding for the national recovery and resilience plans**

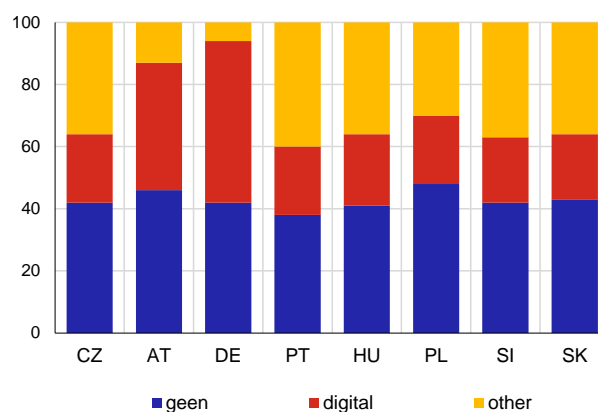
(shares in %)



Source: National recovery and resilience plans.

**Chart 3: Types of projects in the national recovery and resilience plans**

(shares in %)



Source: National recovery and resilience plans.

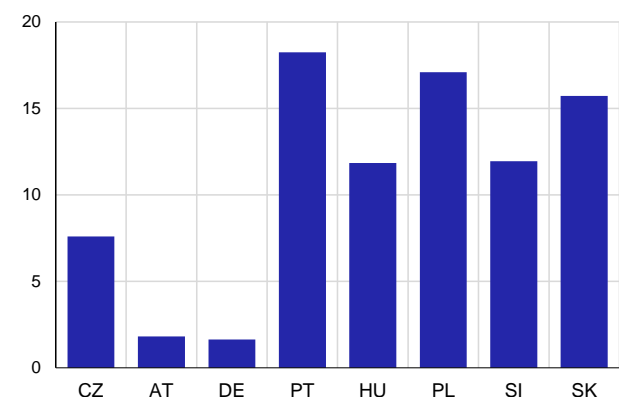
**The share of expenditure on green projects in the national recovery and resilience plans is above average in Poland and in Austria, which together with Germany also have the highest share of digital projects** (see Chart 3). Austria and Germany have had the most experience with green projects so far. In terms of green investment, all the reviewed countries' plans include projects to reduce the energy consumption of existing buildings and support clean sources in transport. In the case of digital projects, all the countries under review are targeting support for digitalisation in business and education, although some of them (the Czech Republic, Germany and Austria) are also targeting the digitalization of the public administration. Portugal and Slovenia have the largest share of projects that do not fall into the green and digital categories in their national plans. Such projects focus, for example, on modernising the health care system (the Czech Republic, Germany, Slovakia and Slovenia), expanding the capacity of pre-school facilities (the Czech Republic, Germany, Austria and Slovakia), improving the business environment (the Czech Republic, Portugal, Slovakia and Slovenia), and tax and pension reforms (Austria, Slovakia and Slovenia). All the investments and reforms of plans

must be in line with the general principle of “no significant harm to the environment” to avoid reducing the climate benefits of the parallel green projects.

**The economic significance of the national recovery and resilience plan, measured by the share of Recovery and Resilience Facility grant and loan allocations in total government expenditure in 2019, is the highest in Portugal, Poland and Slovakia** (see Chart 4). From the fiscal perspective, disbursement of grants is budget-neutral, i.e. it does not affect the general government balance in accrual terms. However, in some countries there will be a more significant increase in government revenue and expenditure as a result of the implementation of the national recovery and resilience plan. Countries will draw their allocations over a longer horizon of up to six years, but the funds will be a significant additional source of funding of economic development, especially for Portugal and Poland. By contrast, these additional funds will not play a significant role in the public budgets of Germany and Austria.

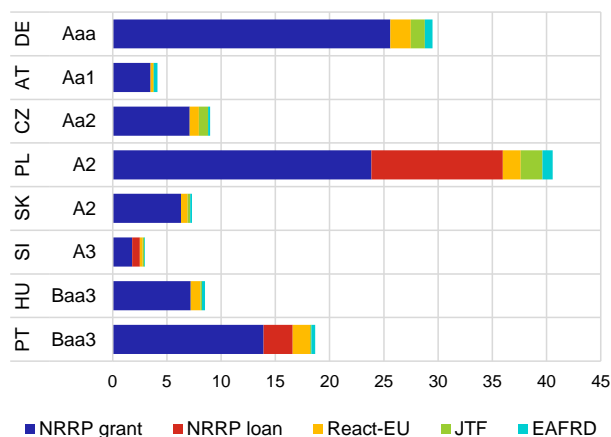
**The grants and loans from the Recovery and Resilience Facility in the national recovery and resilience plans (NRRPs) will be bolstered by other NGEU financial resources, totalling EUR 83 billion.** The most important of these are the Recovery Assistance for Cohesion and the Territories of Europe (REACT-EU), the Just Transition Fund (JTF) and the European Agricultural Fund for Rural Development (EAFRD). However, their drawdown is expected mostly through projects selected on the basis of national calls under the respective operational programmes. In absolute terms, the largest total allocations under these three additional sources of NGEU funds were obtained by Poland, Germany and Portugal (see Chart 5). The ranking of the selected EU countries by total NGEU allocation is thus identical to the ranking according to the Recovery and Resilience Facility allocation.

**Chart 4: Share of grants and loans in the national recovery and resilience plans to government expenditure in 2019 (%)**



Source: National recovery and resilience plans, Eurostat.

**Chart 5: NGEU allocation in relation to Moody’s rating (EUR billions)**



Source: National recovery and resilience plans, European Commission, countries’ sovereign debt ratings from Moody’s at the time of submission of the national plans to the Commission (April–June 2021).

## II.6. REAL CONVERGENCE AND REAL EXCHANGE RATE APPRECIATION IN THE NEWER EU MEMBER STATES

*Martin Kábrt, Luboš Komárek and Martin Motl*

*With a bit of exaggeration, real economic convergence and real exchange rate appreciation can be regarded as two sides of the same coin. Without real convergence, it would be hardly possible to observe a long-term appreciation of the real exchange rate. On the other hand, real exchange rate appreciation – provided that it is in line with other fundamental variables and does not push the real exchange rate away from equilibrium – should correspond to growth in economic development and living standards. This article examines the pace of real convergence of the newer EU Member States over the past two decades (before and after the financial crisis) and how it was reflected in the real appreciation of their currencies.*

**The convergence of a less developed economy to a better-performing group of countries involves catching up in terms of economic performance (real convergence), but also price level convergence (nominal convergence).** Real convergence occurs if the real product or gross disposable income of the converging country per capita is approaching the level observed in the reference area. Real convergence thus reduces differences in the living standards and purchasing power of the population. Nominal convergence takes place if the price level in the converging economy expressed in the currency of the more advanced country rises more quickly than in the latter. This may occur as a result of higher inflation in the converging country than in the more advanced one (the inflation differential channel) amid a stable nominal exchange rate of the two currencies, or via appreciation of the converging country's nominal exchange rate *vis-à-vis* the more advanced country's currency (the exchange rate channel) amid similar inflation in the two countries, or a combination of both channels. Nominal convergence (growth in the relative price level) is thus captured by real exchange rate appreciation.

**In practice, real and nominal convergence usually go hand in hand.** In other words, the relative price level increases as economic development rises. The two variables are largely driven by similar fundamental factors. Less advanced countries typically have lower capital endowment, so capital in these economies is usually more productive and generates higher profits for investors. This provides incentives for an inflow of foreign capital, which rapidly increases the economy's production capacity and drives real convergence. In addition, foreign investors bring more modern technology, innovate domestic products, and increase their (perceived) quality and attractiveness – and hence also price – on world markets. A gradual improvement in the quality of exports, including their reputation and marketing, encourages export growth and an inflow of foreign currency fostering appreciation of the domestic currency. Moreover, higher relative growth in the tradables sector leads to faster wage growth, which in turn exerts upward pressure on wages and prices in the rest of the economy, further contributing to price level convergence (the Balassa-Samuelson effect).<sup>56</sup>

**Economic developments in the new EU Member States<sup>57</sup> observed before the financial crisis confirm a close relationship between real convergence and real exchange rate appreciation** (see Chart 1). In 1999–2008,<sup>58</sup> all the countries under review were clearly approaching the “old” euro area (EA12) country average both in terms of purchasing power per capita (horizontal direction of the arrows in the chart) and the relative price level (vertical direction). At the start and the end of the period under review, most countries were to the left of the line intersecting the chart at an angle of 45°, i.e. their price level was closer to the EA12 average than their purchasing power. The Czech Republic was the most prominent exception – in 1999 the domestic price level was among the lowest in the region, while our purchasing power was among the highest. This imbalance was largely corrected by 2008 (especially through koruna appreciation, see Chart 2), but the Czech Republic remained on the opposite side of the 45° line than most of the other countries under comparison.

**Real convergence continued in the decade following the financial crisis, but nominal convergence slowed visibly.** Some countries even recorded a decline in the relative price level by comparison with the EA12 average. The marked slowdown in nominal convergence in Europe reflects a broader global disinflationary trend due among other things to growth in global production capacity (supply) amid relatively modest growth in world commodity prices (costs). This was reflected in a smaller increase in the price levels of the newer EU Member States, but also a lack of support for nominal

<sup>56</sup> This effect is described in more detail in Box 2 of the 2017 Alignment Analyses:

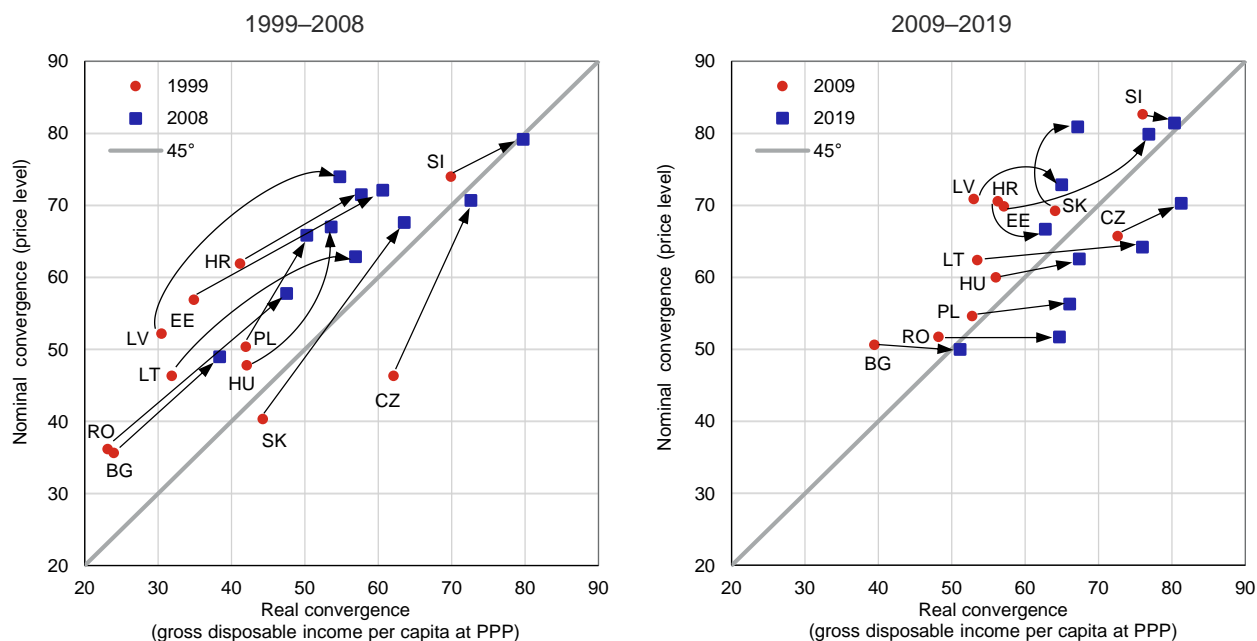
<[https://www.cnb.cz/export/sites/cnb/en/monetary-policy/galleries/strategic\\_documents/analyses\\_of\\_alignment\\_2017.pdf](https://www.cnb.cz/export/sites/cnb/en/monetary-policy/galleries/strategic_documents/analyses_of_alignment_2017.pdf)>.

<sup>57</sup> The analysis covers all EU Member States that acceded in 2004 or later, with the exception of Malta and Cyprus, which are structurally and geographically distant from the rest. This means the countries under comparison are: Bulgaria (BG), Croatia (HR), the Czech Republic (CZ), Estonia (EE), Hungary (HU), Latvia (LV), Lithuania (LT), Poland (PL), Romania (RO), Slovakia (SK) and Slovenia (SI).

<sup>58</sup> This decade is part of the exceptional period called the “Great Moderation” (from the mid-1980s to the onset of the financial crisis) characterised by a decrease in the volatility of the swings in the business cycle in advanced countries compared with previous decades.

appreciation in countries outside the euro area.<sup>59</sup> As a result, most of the economies under review have moved to the “Czech” side of the curve over the past ten years, where they are closer to EA12 in terms of living standards than in terms of the price level.<sup>60</sup>

**Chart 1: Nominal and real convergence of selected “new” EU Member States to the average of the “original” euro area countries (%)**



Note: Real convergence is expressed in the chart using gross (national) disposable income per capita (at purchasing power parity), which measures residents’ living standards (purchasing power) somewhat better than GDP. This is because it adjusts GDP for income transactions with non-residents (e.g. profit outflows from domestic corporations to foreign owners, drawdown of EU funds and wages of cross-border workers). Overall, it is therefore equal to the funds residents may use for consumption, investment and other purposes (e.g. Mandel and Tomšík, 2018). Nominal convergence is expressed using an index of relative prices (Price Level Index), calculated as the ratio of purchasing power parity (PPP) to the exchange rate.<sup>61</sup>

\* The change in the relative price level in Slovakia after 2009 is due to a substantial revision of the weights in the consumer basket in the PPP estimate, which has attached a greater weight to (more expensive) housing since 2016.

Source: Eurostat, DG ECFIN, CNB calculations.

**The slowdown in relative price convergence after 2009 has yet to be explained sufficiently in the literature. However, there are several hypotheses.** Factors underlying nominal convergence from the 1990s to the financial crisis may have partly dissipated. This is also in line with the general idea of a slowing pace of real convergence. For example, the process of removing the psychological perception of goods from the new EU Member States as being second-rate may be almost complete. This probably goes hand in hand with a levelling off of technology in export sectors and a stabilisation of the shares of tradables (which are directly subject to international competition) and non-tradables. Trade arbitrage effects<sup>62</sup> are also weaker than at the start of the convergence process. Gradual price deregulation, which accompanied the transition from a centrally planned to a market economy, seems to be complete too. This was the main contributory factor to the inflation differential at the start of the convergence period. According to other hypotheses, the slowdown in overall price convergence may reflect the long-standing low-inflation environment in the whole of Europe and other

<sup>59</sup> The only country under review where the nominal exchange rate aided nominal convergence in the decade after the financial crisis was the Czech Republic, despite the fact that in this period the exchange rate was used as an additional monetary policy instrument to achieve the inflation target (the CNB’s exchange rate commitment between November 2013 and April 2017).

<sup>60</sup> Slovakia seems to be an exception. However, the nominal convergence observed in the data after 2009 is not related to real appreciation but to a statistical revision of the weights for the calculation of purchasing power parity (PPP). See the note under Chart 1. Similar cases suggest caution when interpreting changes in relative prices over time.

<sup>61</sup> More accurately, these indices are sometimes called Comparative Price Level Indices (CPLI). By inverting their value, we obtain the Exchange Rate Deviation Index (ERDI), which shows how many times weaker the exchange rate of the given currency is compared with the exchange rate derived from purchasing power parity.

<sup>62</sup> These effects are the mechanisms behind shifts in demand to markets with a lower relative price (e.g. consumers shopping in a cheaper foreign region) and concurrent shifts of supply to markets with a higher relative price (e.g. exports to markets enabling producers to sell at a higher price than in the domestic economy).

advanced countries following the financial crisis. To some extent, this has eliminated markedly different patterns of inflation across countries. This may also include the general effects of globalisation and the rising international division of labour, with growth in global production capacity and the economic potential (aggregate supply) pushing prices down amid strengthening international competition. Other explanations may focus on country-specific factors (the structure of the economy and the share of manufacturing, the success and manner of implementation of economic policies, the power of trade unions in wage negotiations, and many others) that cannot be generalised for the entire region. By contrast, one argument in favour of continued real convergence may be the capital stock convergence process (e.g. the growth of domestic capital). However, without technology transfer and other innovations from abroad, this process may no longer drive nominal convergence.

**From the monetary policy perspective, it is important whether nominal convergence occurs through the inflation channel or the exchange rate channel.** The real exchange rate is determined by the movements of its three components: the nominal exchange rate, the foreign price level and the home price level. Real appreciation through a change in relative price levels may affect various economic variables differently from when it takes place through nominal exchange rate movements. The relative importance of the two channels is closely linked to the choice of monetary policy regime.<sup>63</sup> According to the predominant channel of nominal convergence to the euro area, the monitored countries can be divided into three groups.<sup>64</sup>

**The first group includes countries where changes in the real exchange rate are due solely to different inflation rates in the domestic and foreign economies (given the impossibility of changes to the nominal exchange rate).** This group comprises countries with a fixed exchange rate regime and the euro area countries.<sup>65</sup> Bulgaria and Estonia have been in this group since the start of the first monitored period. In these two countries, nominal convergence in the first monitored period took place through markedly higher growth in domestic prices than in the euro area (see Chart 2). After 2009, Estonia maintained the trend of real exchange rate appreciation, whereas the opposite was the case for Bulgaria owing to weaker domestic price pressures. There was also a similar trend in Latvia after 2009. In the other countries with a fixed exchange rate (Lithuania, Slovenia and Slovakia), price developments after 2009 were in line with those in the euro area. In these countries, therefore, the switching off of the exchange rate channel amid an inflation differential of almost zero corresponded to real exchange rate stagnation.

**In the second group of countries, real exchange rate appreciation not only took place via the inflation differential, but was also supported by nominal exchange rate appreciation.** This group consisted of Latvia, Slovakia, the Czech Republic and Poland in the first monitored period (until the end of 2008), with Slovakia indicating the largest real appreciation of all the EU countries during this period. After 2009, real exchange rate appreciation on average was aided by the nominal exchange rate channel only in the Czech Republic. By contrast, the Polish currency weakened slightly in nominal terms, and the other countries lost the exchange rate channel as a result of euro adoption.

**In the third group of countries, real exchange rate appreciation reflected the inflation differential. However, its effect on the relative price level was dampened by nominal exchange rate depreciation.** In 1999–2008, this group comprised mainly Hungary, Romania and, albeit with much lower rates of real appreciation, Croatia and Slovenia. Hungary and Romania also maintained this trend after 2009, albeit at a markedly lower pace of real appreciation. Poland subsequently joined this group after 2009. However, its exchange rate channel (a weakening of the zloty) dampened real exchange rate appreciation only marginally. As a result, the markedly higher growth of Poland's price level compared to the euro area was reflected in a relatively solid pace of real exchange rate appreciation.

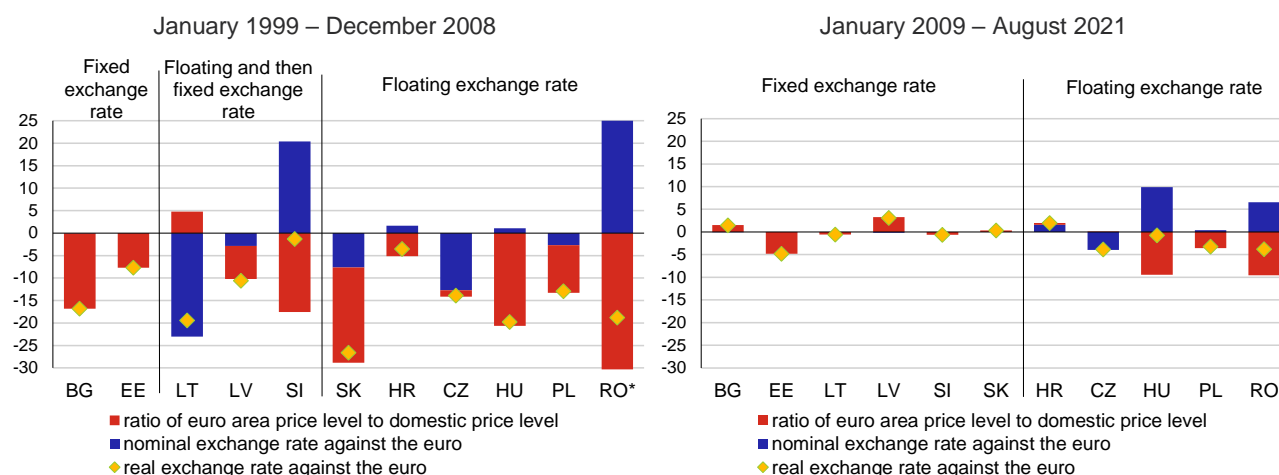
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<sup>63</sup> For details, see Frait and Komárek (2001a, b) and Komárek, Koprnická and Král (2010).

<sup>64</sup> Countries participating in ERM II, which allows for movements within a fluctuation band of  $\pm 15\%$  around central parity, are a specific sub-group. Changes in the nominal exchange rate thus may, even at this stage of euro area accession, make convergence faster or slower within this range. However, a more pronounced and longer nominal exchange rate in the ERM II depreciation band may not subsequently be assessed by EU institutions as meeting the exchange rate criterion for euro area accession. More details on ERM II are available in a CNB blog post (in Czech only): <[https://www.cnb.cz/cs/o\\_cnb/cnblog/Trikrat-ke-kurzu-treti-dil/](https://www.cnb.cz/cs/o_cnb/cnblog/Trikrat-ke-kurzu-treti-dil/)>

<sup>65</sup> Among the countries under comparison, this group comprises countries that have pegged their currencies to the euro under a currency board. Bulgaria (an exchange rate peg to the euro) and Estonia (first an exchange rate peg to the euro; euro area membership since January 2011) have been in this group since the start of the period under review, followed later by Lithuania (an exchange rate peg to the euro from February 2002; euro area membership since January 2015) and Latvia (an exchange rate peg to the euro; euro area membership since January 2014). Slovenia (euro area member since January 2007) and Slovakia (euro area member since January 2009) fixed their exchange rates upon entering the euro area.



**Chart 2: Real exchange rate and its components**  
 (%)


Note: Negative levels of the real and nominal exchange rate denote its appreciation; negative levels of the inflation differential denote relative growth in the national price level vis-à-vis the euro area price level. Price level measured using the HICP, average changes in the exchange rate index and the inflation differential in the period under review in % compared to January 1999 and January 2009, respectively.

\* Romania saw a marked nominal exchange rate depreciation of almost 140% in the first monitored period, with the inflation differential rising by 62%.

Source: Eurostat, Bloomberg, CNB calculations.

**Decompositions of real exchange rates have shown relatively mixed trends in the new Member States (those that have entered the EU since 2004).** Higher rates of real exchange rate appreciation are not surprising in countries with a history of transformation, as they reflect the convergence results of their economies. The nature of this convergence path in the form of real appreciation has also been affected by the choice of exchange rate regime, which, in the case of a fixed exchange rate, deliberately switches off the exchange rate nominal convergence channel – adjustment occurs solely through the inflation differential. Countries with a convergence potential that for various reasons have not shown nominal exchange rate appreciation should therefore face greater upward pressures on the domestic price level than the euro area. This is confirmed by inflation figures in converging new EU Member States that did not experience exchange rate appreciation, especially in the first monitored period, i.e. before the start of the financial crisis. However, developments observed after 2009 do not bear out these conclusions, which may be due to a long-running period of globally relatively low inflation especially in advanced countries, including European countries whose domestic inflation did not deviate much from the euro area owing to strong external factors affecting individual economies in roughly equal measure. However, with the onset of the Covid-19 pandemic, the low inflation period seems to have ended. As inflation rose across advanced countries in 2021, the differentials between the individual countries also increased. However, only the coming years will show whether this phenomenon will lead to a return to the trend appreciation of the real exchange rate in the region undergoing real convergence.

**Another conclusion is that the exchange rate and inflation channels of nominal convergence are not perfect substitutes. Each affects the economy in a slightly different way.** Therefore, as confirmed by the data observed, switching off one channel is not necessarily reflected in the other channel to the same extent in the given period. Pressures on growth in the price level and exchange rate appreciation feed through to the economy via different channels and at different speeds. This is one of the reasons why converging countries with a fixed exchange rate have usually not shown markedly higher inflation rates than countries converging also through the exchange rate channel. With the exception of Estonia, countries with a fixed exchange rate had almost zero or even negative (Bulgaria, Latvia) inflation differentials after 2009. By contrast, the greatest contribution of the inflation differential to real exchange rate appreciation was recorded in this period by some economies with a floating exchange rate such as Hungary and Romania, although this trend led to a latent threat to their price competitiveness, which was reflected in depreciation pressures on their national currencies. Overall, regardless of the choice of monetary policy regime, all the countries under review saw a clear slowdown in real exchange rate appreciation after 2009, with slower rates being recorded above all by countries with a fixed exchange rate. The analysis confirms that the relationship between real and nominal convergence weakened after the great financial and economic crisis. The slowdown after 2009 was more pronounced for nominal convergence than for real convergence.

### III. CHARTBOOK

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

##### III.1.1. Direct alignment indicators

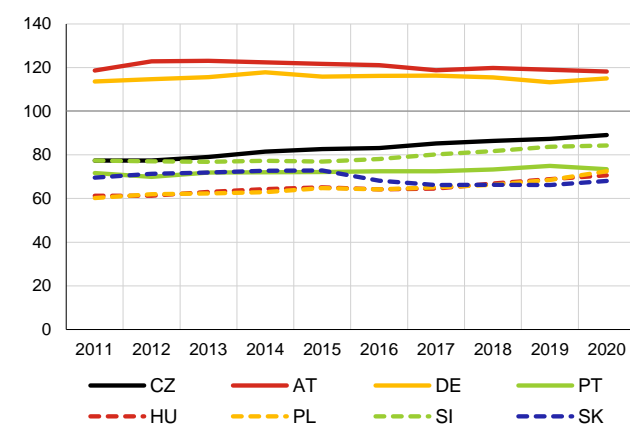
-  Real economic convergence<sup>66</sup>
-  The Czech Republic's cyclical alignment with the euro area
-  Structural similarity of the Czech economy to the euro area economy
-  Trade links with the euro area
-  Intensity of intra-industry trade with the euro area
-  Ownership links with the euro area
-  Financial cycle alignment
-  Interest rate convergence vis-à-vis the euro area
-  Volatility of the Czech currency against the euro
-  Alignment of the Czech koruna with the euro
-  Financial market alignment

#### REAL ECONOMIC CONVERGENCE

**Czech GDP further converged to the euro area average, but the lag behind the more advanced euro area countries remains significant.**

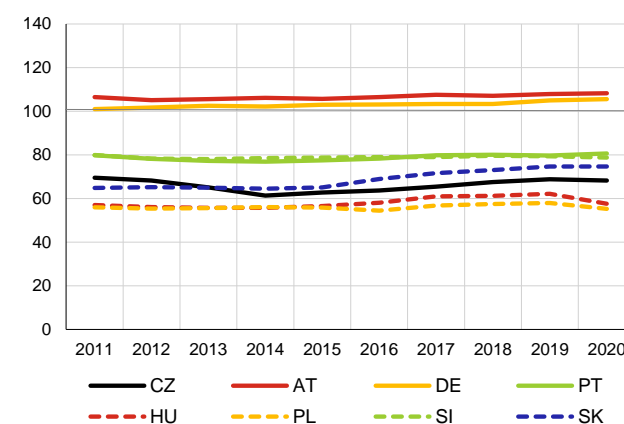
**As regards price level of GDP convergence, the Czech Republic lags even further behind the more advanced countries. Moreover, the Czech Republic's price level convergence to the euro area halted last year.**

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



Source: Eurostat, CNB calculations.

**Price level of GDP**  
(EA = 100)



Source: Eurostat, CNB calculations.

<sup>66</sup> The colours and directions of the arrows are explained in the Introduction to this document.

The year of the pandemic also interrupted the real exchange rate appreciation observed since the exchange rate commitment period.

#### Real exchange rate against the euro (HICP deflated)

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

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>CZ</b>	102.3	101.0	97.8	92.3	93.2	94.4	97.8	100.6	101.9	100.7
<b>AT</b>	102.3	104.0	106.0	106.0	105.9	106.5	109.8	111.6	111.6	109.4
<b>DE</b>	101.8	102.9	100.9	101.0	101.0	100.9	102.2	103.0	104.6	103.3
<b>PT</b>	101.4	102.0	101.8	101.6	100.8	101.2	103.4	104.2	105.2	104.9
<b>HU</b>	99.8	99.3	97.1	93.0	92.5	92.3	93.7	91.9	92.1	86.9
<b>PL</b>	98.0	97.7	96.9	96.8	96.0	91.6	94.0	93.4	93.4	92.3
<b>SI</b>	101.3	102.5	102.7	102.1	101.6	100.9	100.7	101.5	103.1	103.7
<b>SK</b>	99.8	99.4	99.7	100.0	100.5	100.6	100.8	101.0	101.1	100.1

Source: Eurostat, CNB calculations.

Real interest rates in the Czech Republic fell to a significantly negative level in 2020.

#### Real 3M interest rates

(%, ex post, HICP-deflated)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>CZ</b>	-0.9	-2.4	-0.9	-0.1	0.0	-0.4	-2.0	-0.7	-0.5	-2.4
<b>AT</b>	-2.1	-2.0	-1.9	-1.2	-0.8	-1.2	-2.5	-2.4	-1.8	-1.8
<b>DE</b>	-1.1	-1.6	-1.4	-0.6	-0.7	-0.6	-2.0	-2.2	-1.7	-0.8
<b>PT</b>	-2.1	-2.1	-0.2	0.4	-0.5	-0.9	-1.9	-1.5	-0.7	-0.3
<b>HU</b>	2.5	2.3	2.4	2.5	1.5	0.5	-2.2	-2.7	-3.1	-2.6
<b>PL</b>	0.6	1.2	2.2	2.5	2.5	1.9	0.1	0.5	-0.4	-2.8
<b>SI</b>	-0.7	-2.2	-1.7	-0.2	0.7	-0.1	-1.9	-2.2	-2.0	-0.1
<b>SK</b>	-2.6	-3.1	-1.2	0.3	0.3	0.2	-1.7	-2.8	-3.0	-2.4

Source: Eurostat, CNB calculations.

The marked depreciation of the koruna in 2020 interrupted the convergence of Czech wages in euro terms to the euro area average.

#### Average wage per employee in EUR

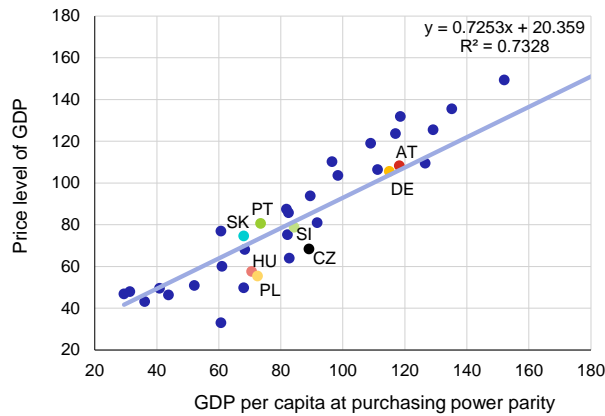
(EA = 100)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>CZ</b>	41.9	41.0	39.0	37.4	38.3	39.7	43.0	46.7	48.6	48.3
<b>AT</b>	104.5	105.3	105.9	106.5	107.1	108.5	108.3	109.1	109.9	109.4
<b>DE</b>	94.7	95.4	95.8	97.3	98.6	99.7	100.5	101.3	102.3	102.1
<b>PT</b>	53.2	50.6	51.5	50.0	49.4	49.5	49.7	50.5	51.3	52.4
<b>HU</b>	31.9	31.1	29.9	28.6	28.6	28.9	30.6	30.9	31.7	30.6
<b>PL</b>	30.6	30.6	30.5	30.8	31.1	30.8	32.9	34.8	36.6	36.8
<b>SI</b>	63.5	61.8	61.1	61.1	61.1	62.3	63.1	64.2	66.0	67.1
<b>SK</b>	36.5	36.7	37.1	37.3	38.2	38.6	39.9	41.4	43.3	44.4

Source: AMECO, CNB calculations.

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

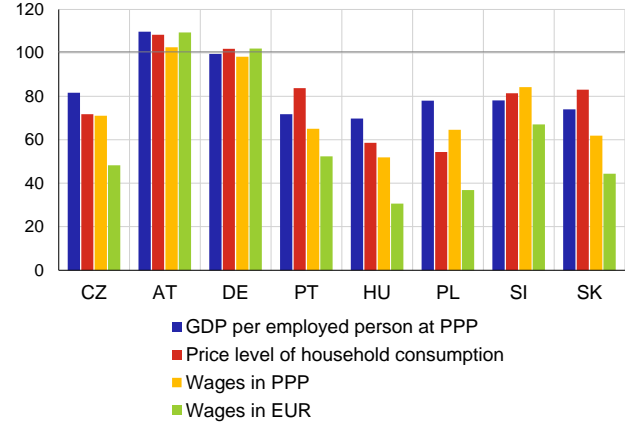
GDP per capita at purchasing power parity versus the price level (2020, EA = 100)



Source: Eurostat, CNB calculations.

Czech wages at purchasing power parity are roughly 71% of the euro area average. In euro terms, they are only around 48%.

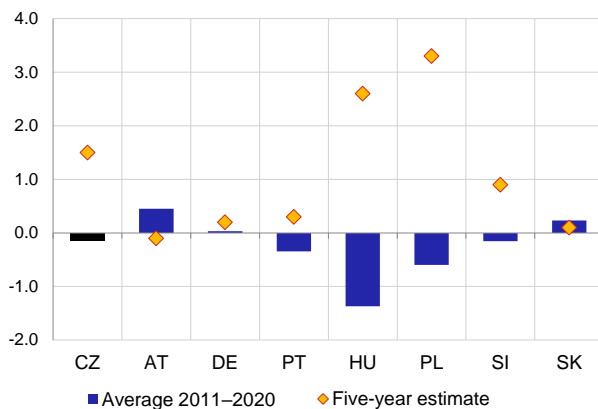
Other indicators of long-term convergence (2020, EA = 100)



Source: Eurostat, EC, CNB calculations.

The real exchange rate of the koruna has depreciated by 0.2% a year on average over the last ten years. Its future annual equilibrium rate of appreciation is estimated at close to 1.5%.

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

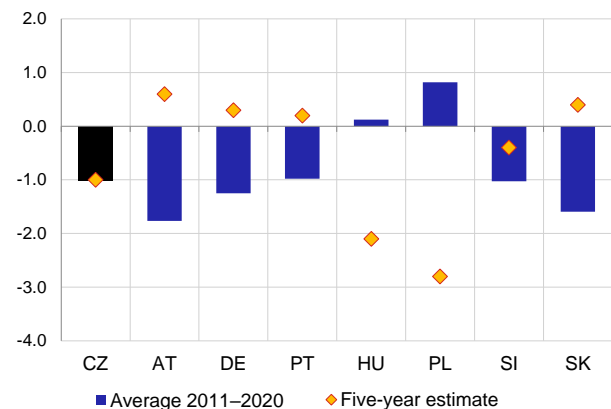


Note: The chart shows the geometric mean for 2011–2020. The estimate of the average pace of equilibrium real exchange rate appreciation for the next five years is based on a panel regression linking the price level of final consumption of households compared to the euro area average with GDP at purchasing 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)



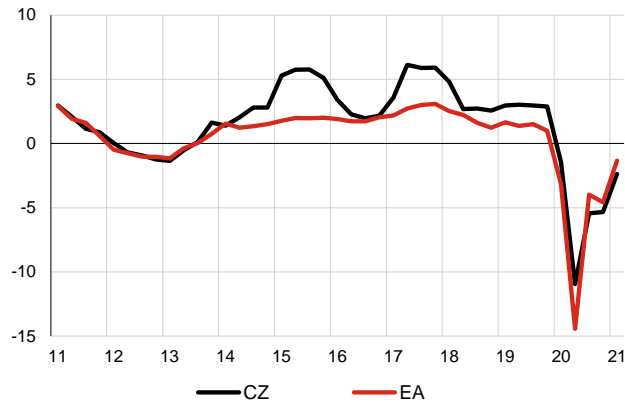
Note: Simple arithmetic mean for 2011–2020. The estimated average equilibrium real average interest rate for the next five years after hypothetical euro adoption is derived from the estimate of the pace of equilibrium real exchange rate appreciation, assuming a zero money market risk premium and an equilibrium real interest rate in the euro area of 0.5%.

Source: Eurostat, CNB calculations.

**CYCLICAL ALIGNMENT OF ECONOMIC ACTIVITY**

Following a prolonged period of comparatively higher growth rates, the growth of the Czech economy came into line with the pace of growth/decline of the euro area economy, due essentially to the coronavirus pandemic.

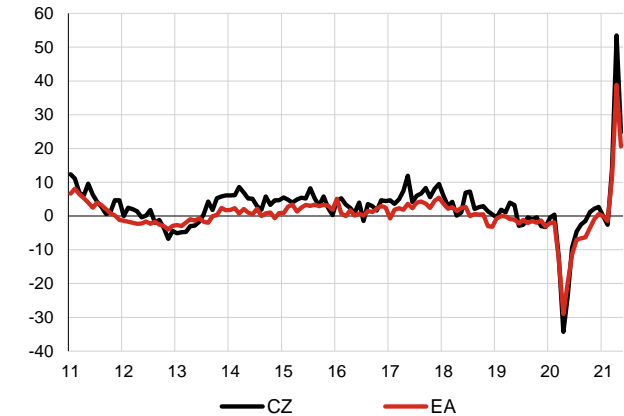
**Real GDP**  
(y-o-y, %)



Source: Eurostat, CNB calculations.

Industrial production growth was also above the euro area average before the coronavirus crisis. It is now reacting to the common shock in the form of the pandemic.

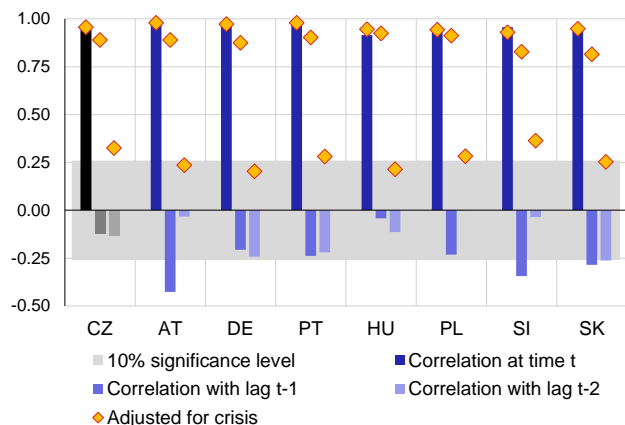
**Industrial production index**  
(y-o-y, %)



Source: Eurostat, CNB calculations.

The reaction of economies to the pandemic is contributing to high business cycle alignment in all the countries under comparison. However, the correlation in the period under review is high even when adjusted for the effects of the crisis.

**Correlation coefficients of GDP with the euro area**

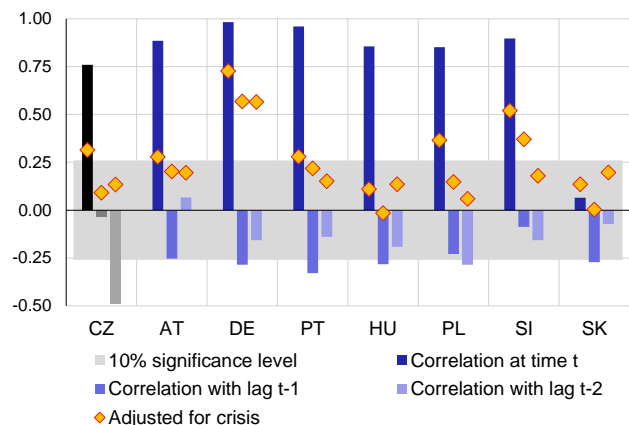


Note: The negative correlations with a lag are the result of a strong negative autocorrelation of GDP in connection with its sharp decline followed by a rapid recovery in quarter-on-quarter terms. The calculation is based on the quarter-on-quarter differences in the logarithms of the seasonally adjusted data. The columns indicate the lag of the euro area time series relative to the given country's time series. For example, t-1 denotes a lag of one quarter. 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). To adjust for the effects of the crisis, the 2020Q1–2021Q1 quarters are excluded from the period under review.

Source: Eurostat, CNB calculations.

However, the correlation between Czech exports to the euro area and euro area GDP points to economic activity possibly being synchronised only temporarily, as it falls markedly when adjusted for the coronavirus crisis.

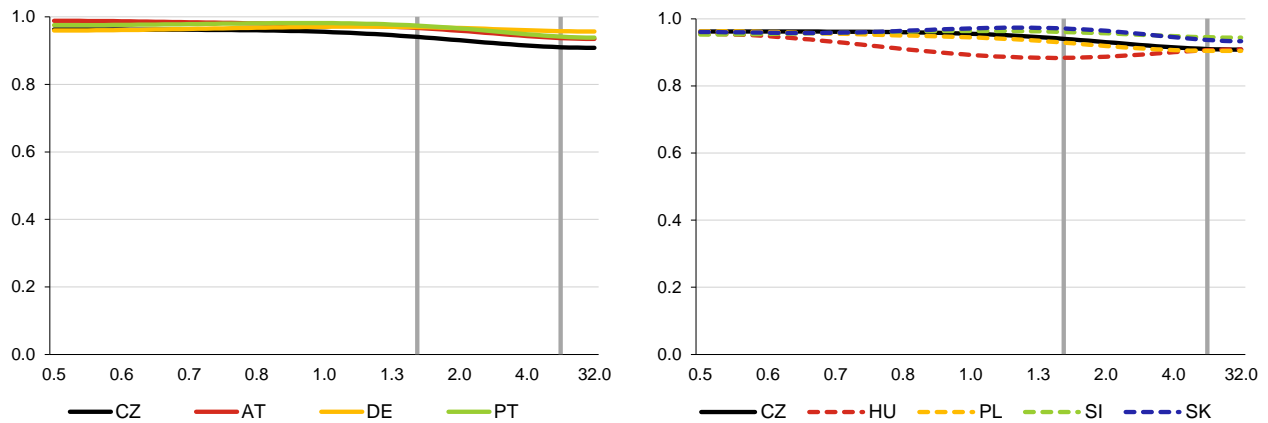
**Correlation coefficients of exports to the euro area with euro area GDP**





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

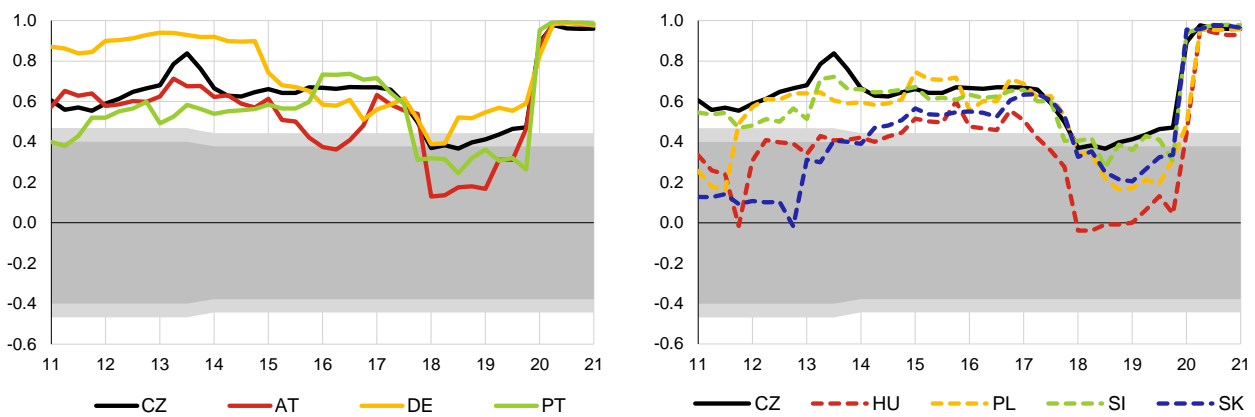
**Dynamic correlations of economic activity with the euro area**



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.  
Source: Eurostat, CNB calculations.

The rolling correlations with euro area economic activity show that the marked increase in correlations over the past year was due to a synchronised decline of the economies as a result of the pandemic. Therefore, it cannot be regarded as proof of long-term alignment. We consider the previous low correlations to be due mainly to structural differences in growth between Central European countries and the EU as a whole.

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



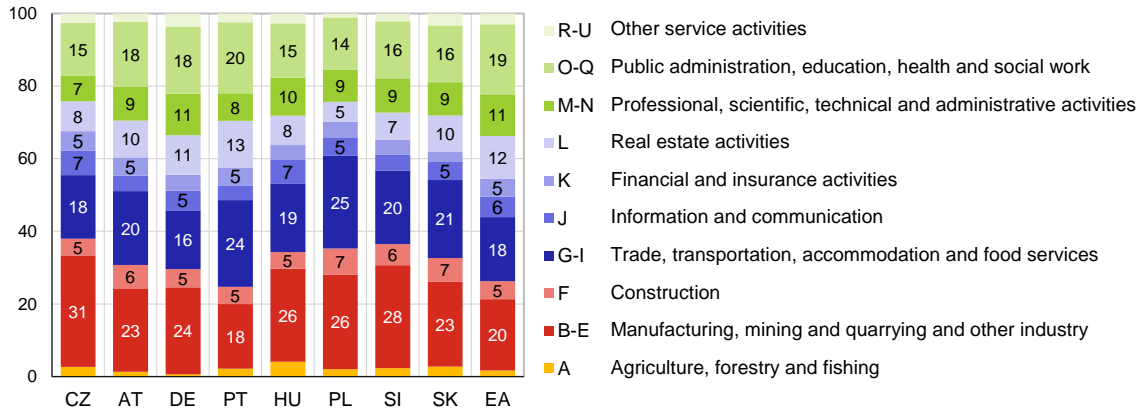
Note: The time data indicate the end of the rolling window of 5 years. The calculation is based on the quarter-on-quarter differences in the logarithms of the seasonally adjusted data. The statistical significance of the correlation coefficients is indicated in the chart: values statistically significant 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.

**STRUCTURAL SIMILARITY OF THE ECONOMIES**

The Czech Republic continues to have an above-average share of industry in GDP compared to the euro area.

**Shares of economic sectors in GDP**

(2020, %)

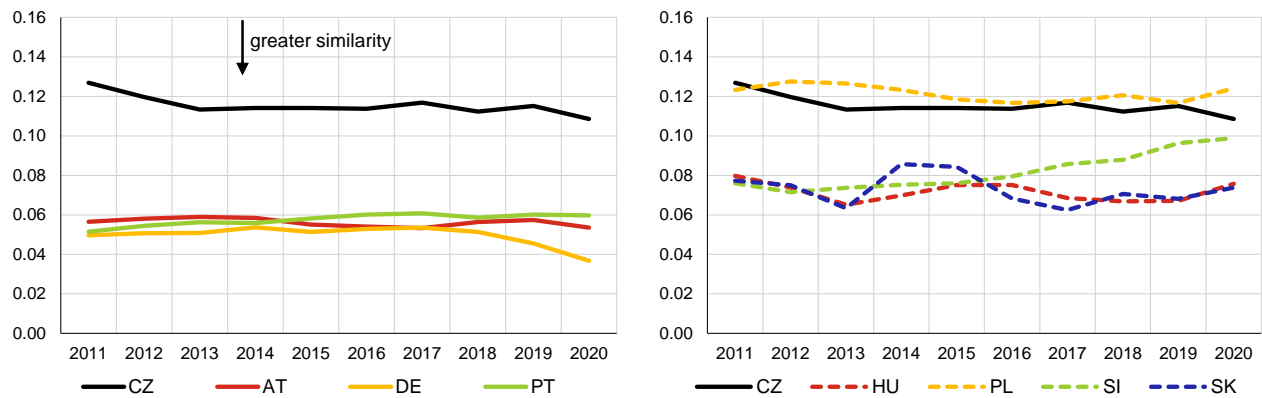


Source: Eurostat, CNB calculations.

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.

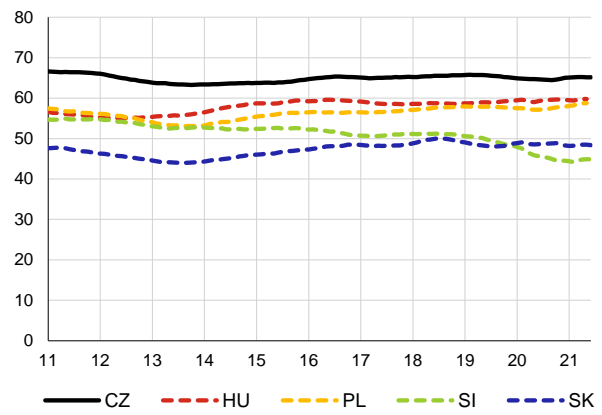
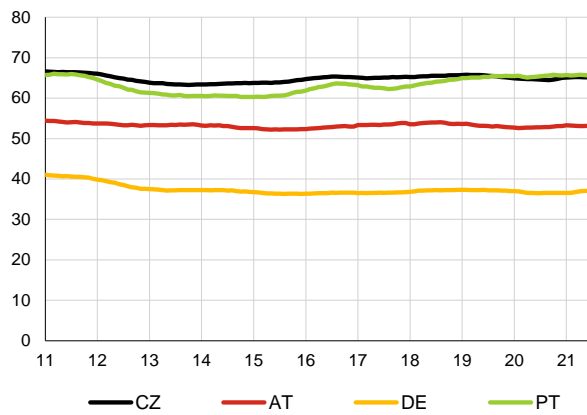
Source: Eurostat, CNB calculations.

**INTEGRATION OF THE ECONOMY WITH THE EURO AREA**

The share of exports to the euro area in total exports has long been high in the Czech Republic...

...remaining constantly above the levels seen in most other countries under comparison.

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

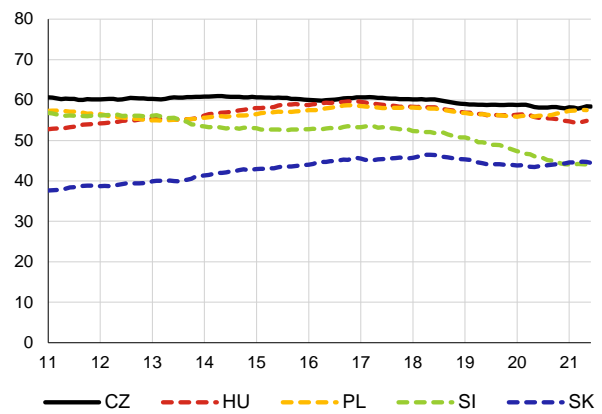
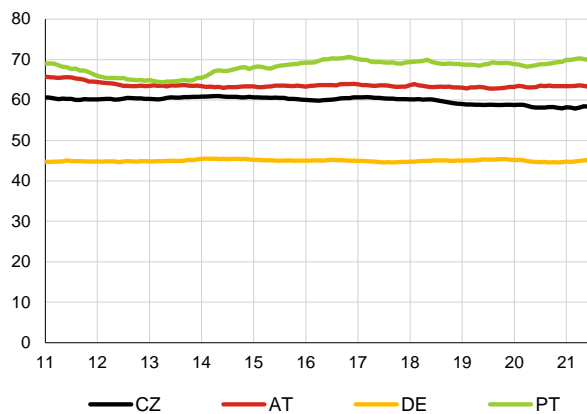


Note: Annual moving total of the monthly data.  
Source: Eurostat, CNB calculations.

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 slightly exceeds the share of imports from the euro area in the other EU Member States of Central and Eastern Europe.

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

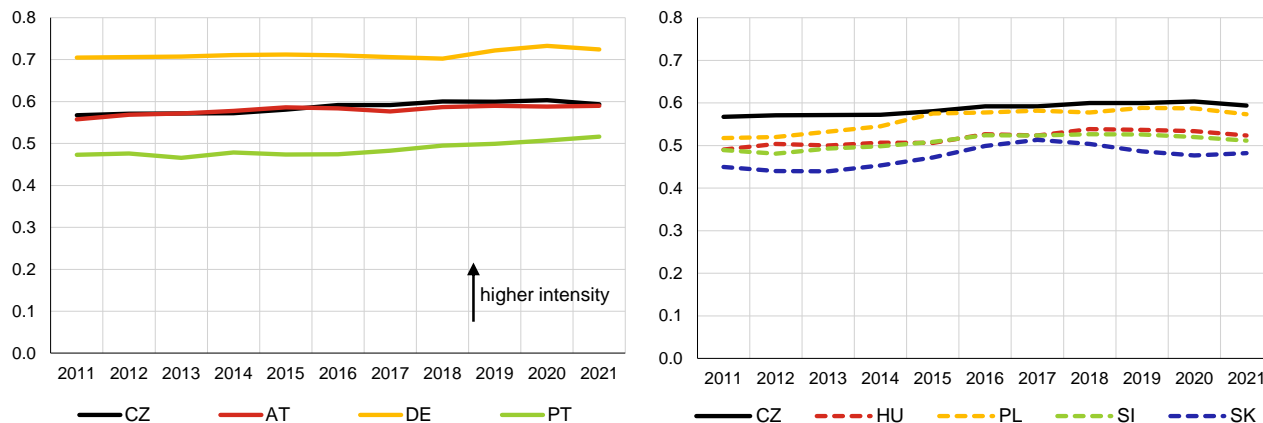


Note: Annual moving total of the monthly data.  
Source: Eurostat, CNB calculations.

The high intensity of intra-industry trade between the Czech Republic and the euro area supports a similar reaction of the two currency areas to economic shocks...

...and its level for the Czech Republic has long been one of the highest among the countries under comparison.

**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 2021 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**  
(%)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>CZ</b>	53.4	60.2	58.6	61.2	62.0	63.1	64.4	63.4	62.3	65.4
<b>AT</b>	35.3	35.6	35.2	36.6	44.5	35.1	39.3	40.0	34.4	34.2
<b>DE</b>	23.6	25.8	27.0	26.3	26.3	26.6	26.7	28.5	28.8	31.1
<b>PT</b>	44.1	58.1	64.6	65.0	63.3	63.3	65.0	61.1	63.5	67.2
<b>HU</b>	48.6	57.9	56.1	55.9	57.1	50.0	45.8	46.2	41.7	42.1
<b>PL</b>	32.8	37.1	39.4	39.7	36.6	39.3	39.6	37.6	36.7	37.3
<b>SI</b>	20.0	20.7	19.6	21.9	23.7	25.6	26.1	27.0	27.1	29.2
<b>SK</b>	49.4	48.2	47.0	44.4	45.1	51.2	49.2	48.6	46.9	47.4

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

(%)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>CZ</b>	12.6	14.8	16.5	17.3	18.5	18.0	21.4	20.4	20.6	24.1
<b>AT</b>	25.1	25.0	26.1	30.0	26.1	30.3	31.2	29.9	31.8	27.8
<b>DE</b>	24.1	26.6	27.4	27.7	28.6	29.3	30.7	32.7	34.2	37.7
<b>PT</b>	25.3	30.3	32.2	28.7	28.6	29.3	27.9	25.6	27.1	27.3
<b>HU</b>	5.9	10.5	10.2	11.2	8.7	9.6	8.2	8.0	7.9	10.3
<b>PL</b>	7.9	8.8	8.7	8.5	8.7	8.6	7.2	7.0	6.8	7.2
<b>SI</b>	4.7	3.9	3.7	4.2	4.3	4.7	5.3	5.6	6.5	6.5
<b>SK</b>	8.0	6.5	7.1	6.7	7.9	11.5	8.9	8.5	7.9	10.3

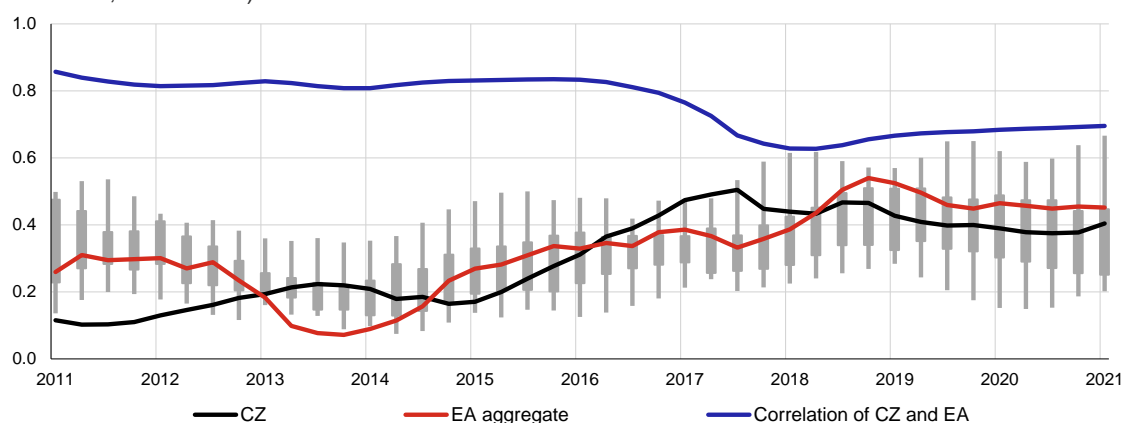
Source: Eurostat, Magyar Nemzeti Bank for Hungary, CNB calculations.

## ALIGNMENT OF FINANCIAL CYCLES

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

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

(0 minimum, 1 maximum)



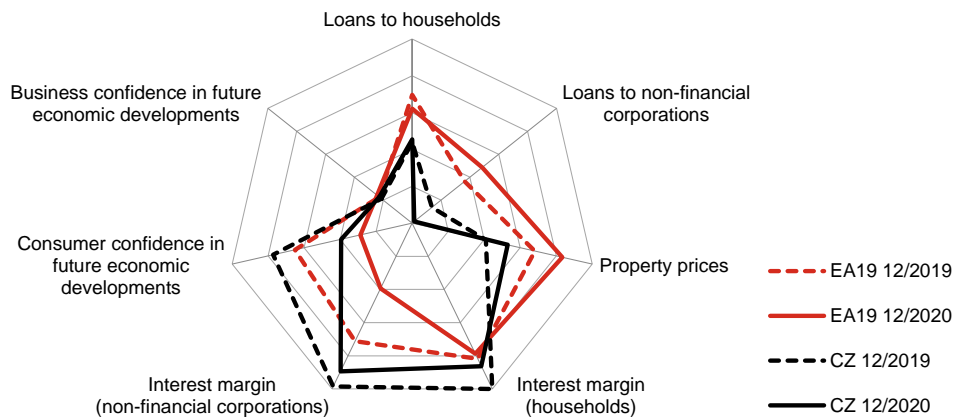
Note: The simplified financial cycle indicator takes values from 0 to 1, with higher values corresponding to an expansionary phase of the financial cycle. The boxplot shows the minimum value, the 25% quantile (the lower edge of the rectangle), the 75% quantile (the upper edge of the rectangle) and the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

Source: ECB, Eurostat, BIS and national central banks, CNB calculations.



...but the alignment of the individual components of the financial cycle indicator in the Czech Republic and the euro area mostly declined.

**Components of the simplified financial cycle indicator**



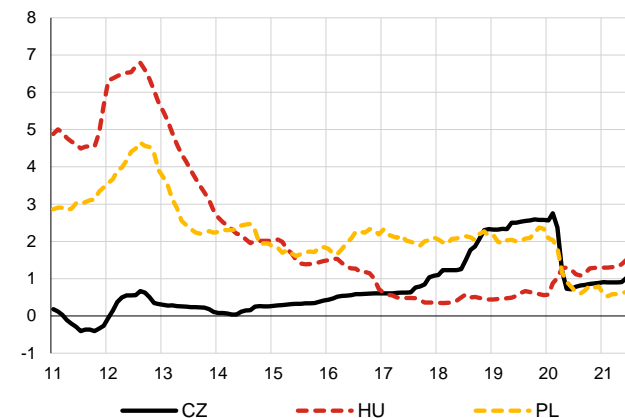
Note: The simplified financial cycle indicator takes values from 0 to 1 (the trough and the peak of the cycle respectively). The same applies to its individual components.  
 Source: ECB, Eurostat, BIS and national central banks, CNB calculations.

**INTEREST RATE CONVERGENCE**

In June 2021, the CNB tightened its monetary policy for the first time following the coronavirus crisis, which was reflected in a slight widening of the short-term differential vis-à-vis euro area interest rates.

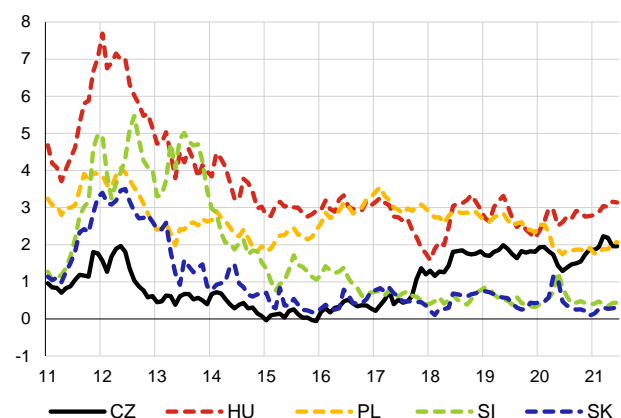
In the case of the Czech Republic, the long-term spread started to rise already at the end of last year, as domestic interest rates reflected, among other things, the CNB's autumn forecast and the related change in its communication.

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



Source: Eurostat, CNB calculations.

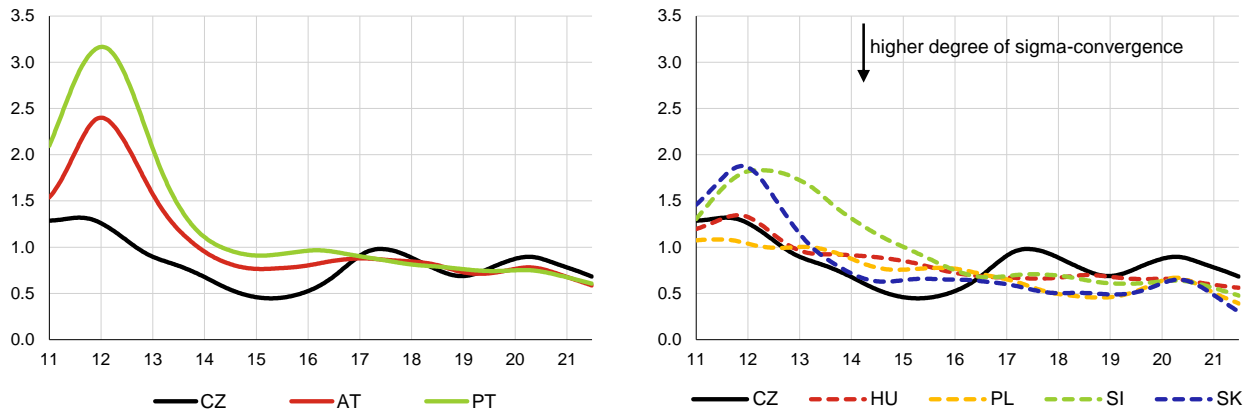
**Differences in 10Y interest rates vis-à-vis Germany (differential vis-à-vis 10Y government bond yield in pp)**



Source: Eurostat, CNB calculations.

**The alignment of the Czech government bond market with the benchmark German market returned to the pre-coronavirus level in 2021.**

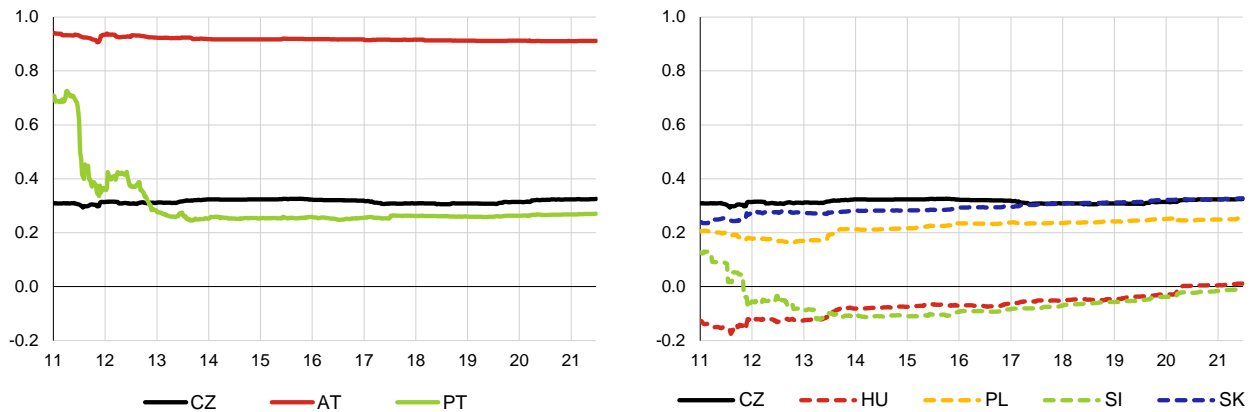
**Degree of convergence of government bonds compared to Germany**  
(sigma-convergence)



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

**The rate of transmission of global news on the domestic government bond market remains relatively high in the Czech Republic.**

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

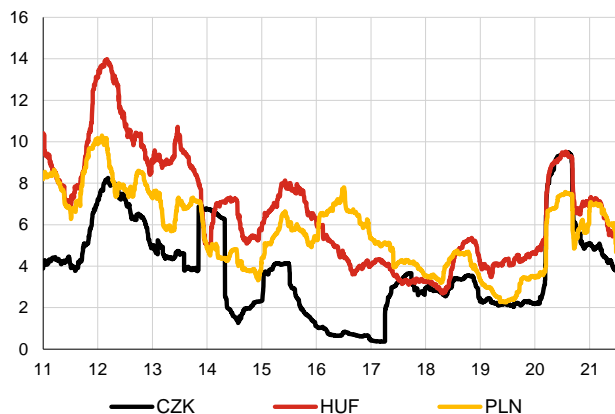


Note: Positive (negative) gamma values close to one express the same (opposite) directional and similarly strong sensitivity to news and hence a higher degree of integration; values close to zero express low integration.  
Source: Bloomberg, Refinitiv, CNB calculations.

**EXCHANGE RATE AND FINANCIAL MARKET VOLATILITY AND ALIGNMENT**

A decrease in the financial market tensions (caused by the coronavirus pandemic) over the past year was reflected in a gradual decline in the historical volatility of all Central European currencies.

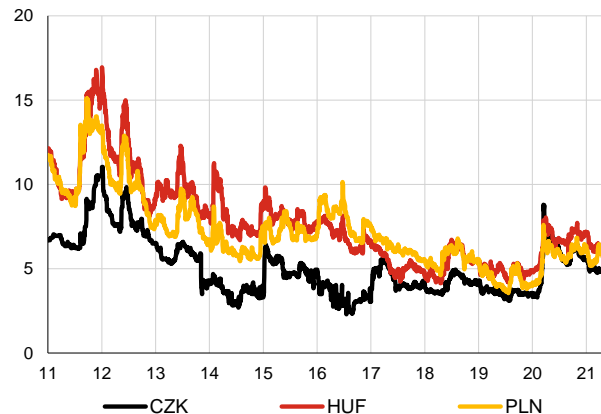
**Historical volatility of exchange rates vis-à-vis the euro (%)**



Source: Refinitiv, CNB calculations.

The implied volatility of these currencies also underwent a correction but has not yet returned to the pre-crisis level. It is currently the lowest for the Czech koruna.

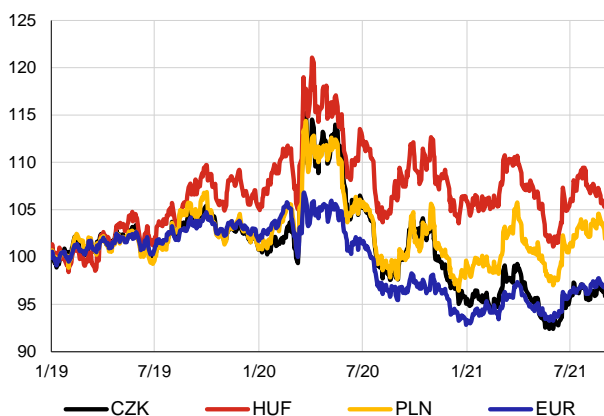
**Implied volatility of exchange rates vis-à-vis the euro (daily data, expected volatilities of exchange rates of national currencies based on prices of options for those currencies, %)**



Source: Refinitiv, CNB calculations.

In 2021 so far, the currencies under review initially depreciated slightly against the dollar but later appreciated gradually.

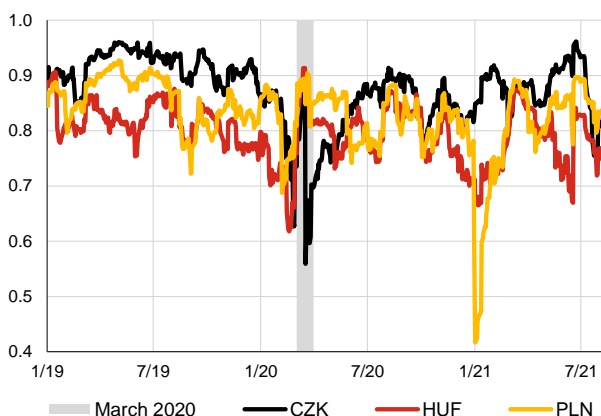
**Exchange rates against the US dollar (index, January 2019 = 100)**



Source: Refinitiv.

The correlation of the koruna-dollar exchange rate with the euro-dollar exchange rate reversed the one-off decline due to the onset of the coronavirus pandemic and the outflow of short-term capital (in March 2020) and remains relatively high.

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

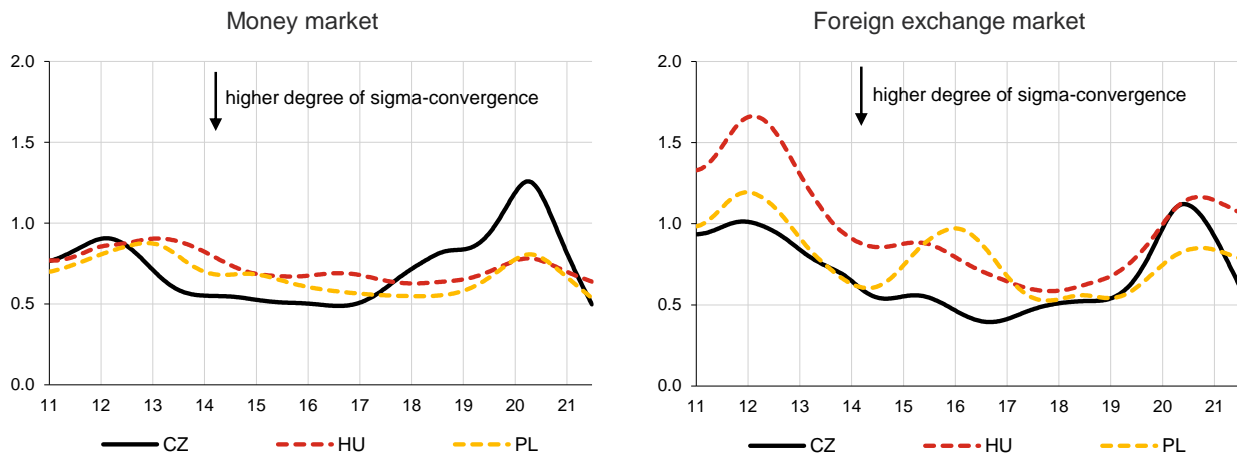


Note: A marked drop in the correlation of the exchange rate of the Polish zloty to the dollar with the euro-dollar exchange rate in late 2020 and early 2021 is due to the zloty weakening as a result of the Polish central bank's foreign exchange market interventions.

Source: Refinitiv, CNB calculations.

**As a result of the coronavirus crisis, the Czech money and foreign exchange market temporarily diverged from the benchmark euro market.**

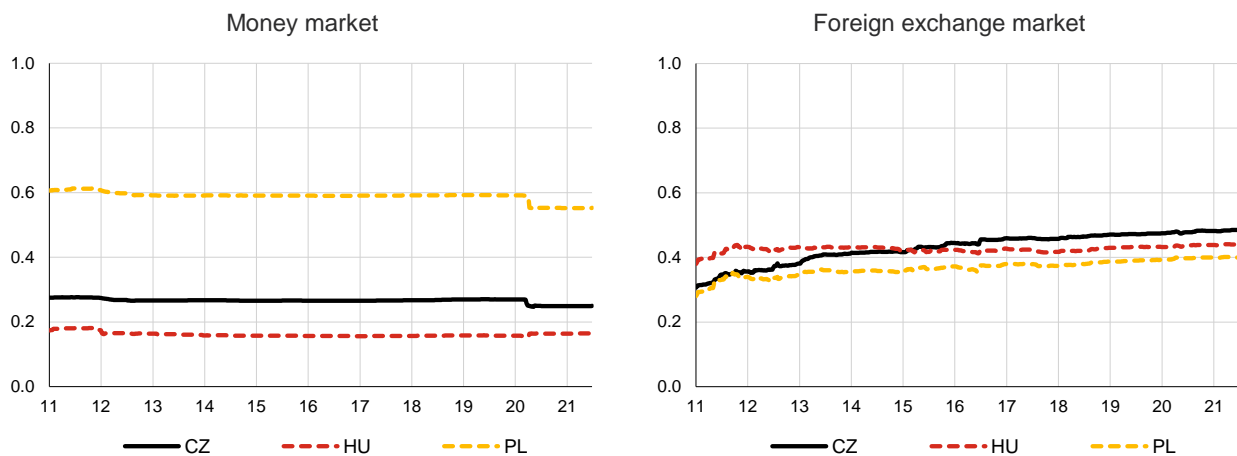
**Degree of convergence of national financial markets to the euro area**  
(sigma-convergence)



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 money market has declined slightly in the Czech Republic... ..while on the foreign exchange market it has remained high.**

**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.

### III.1.2. Similarity of monetary policy transmission

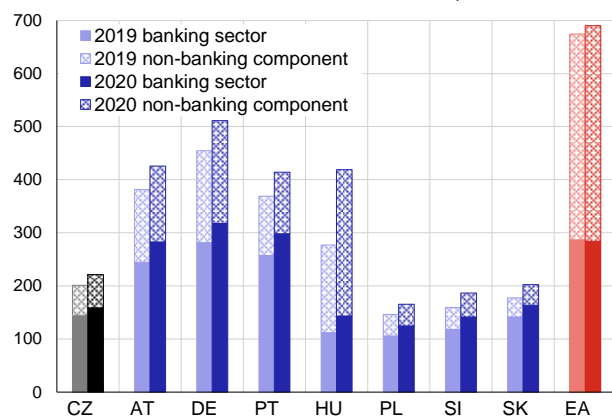
-  Depth of financial intermediation
-  Private sector debt
-  Structural similarity of non-financial corporations' balance sheets in the Czech Republic and the euro area
-  Structural similarity of households' balance sheets in the Czech Republic and the euro area
-  Structural similarity between the 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

(assets of financial institutions as % of GDP)



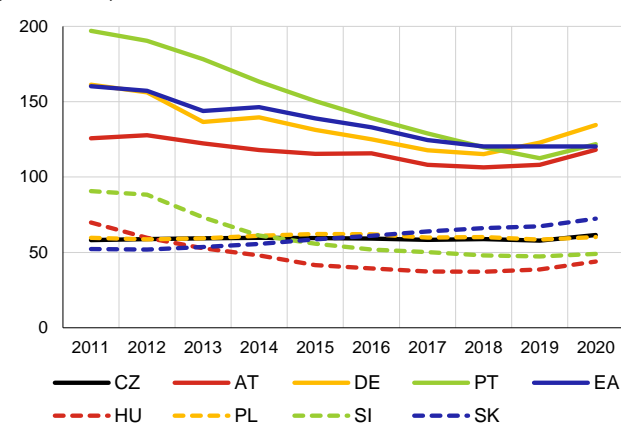
Note: The banking sector's total assets are adjusted for exposures to the central bank. The euro area value exceeds the other countries in the chart due to the large volume of assets of financial corporations in Luxembourg, Ireland, the Netherlands and France both as a percentage of their GDP and in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



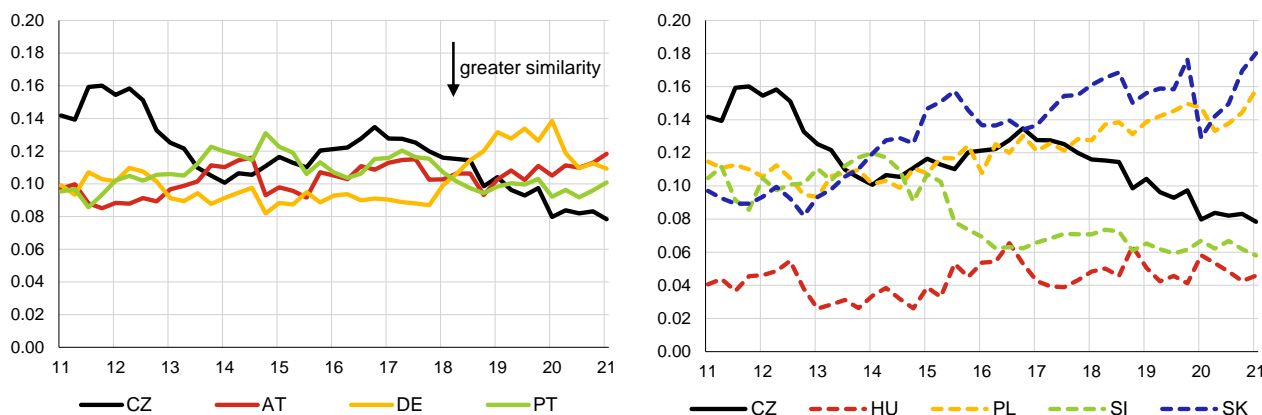
Note: EA represents the average of the euro area member countries weighted by the size of GDP.

Source: IMF, Eurostat.

### 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 remained unchanged over the past year and is higher than in most countries under comparison. In recent years, the similarity has increased mainly as regards other liabilities.

#### Similarity of the structure of the financial liabilities of non-financial corporations (Landesmann index)

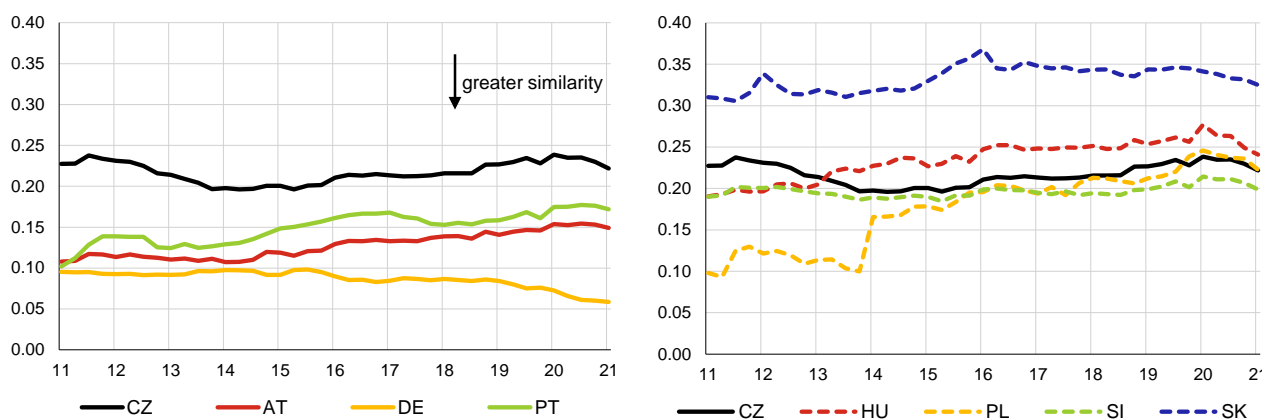


Note: The Landesmann index takes values in the range [0;1]. The closer the index is to zero, the more similar is the structure of the balance sheets under comparison. The shares of the individual categories of liabilities in total liabilities were used for non-financial corporations. The index values 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 dissimilarity is due to Czech households – unlike euro area ones – preferring cash, deposits, unit certificates and shares to insurance and pension schemes.

#### 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.

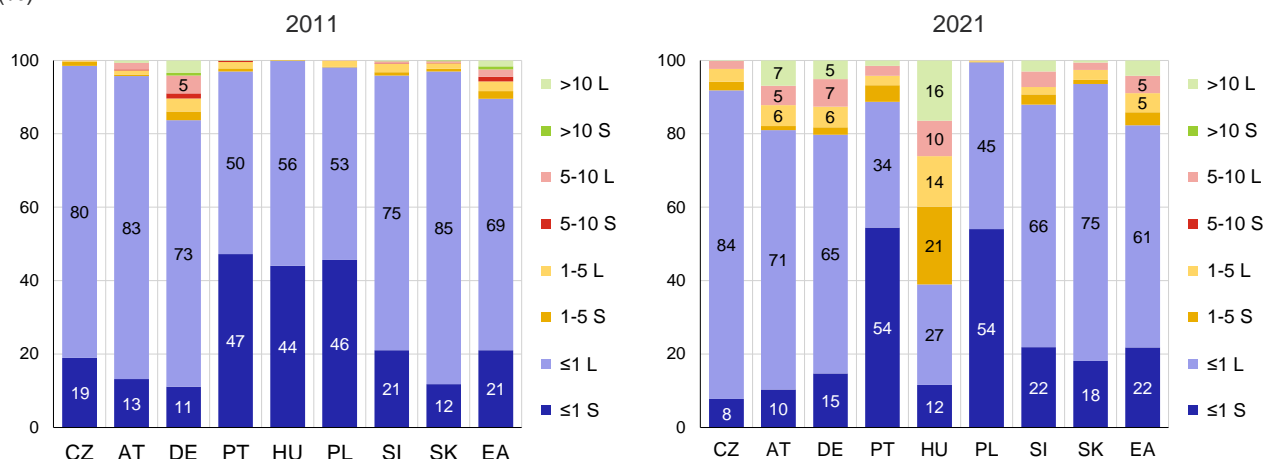
Source: ECB, CNB calculations.



**EFFECT OF MONETARY POLICY ON CLIENT INTEREST RATES**

Most non-financial corporations in the countries under review 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 and subsequently market rates to loan rates in this segment. The share of loans with longer rate fixations in the Czech Republic, which had been rising slightly in previous years, declined in 2021, mainly on account of a decrease in the volume of investment loans owing to the coronavirus crisis.

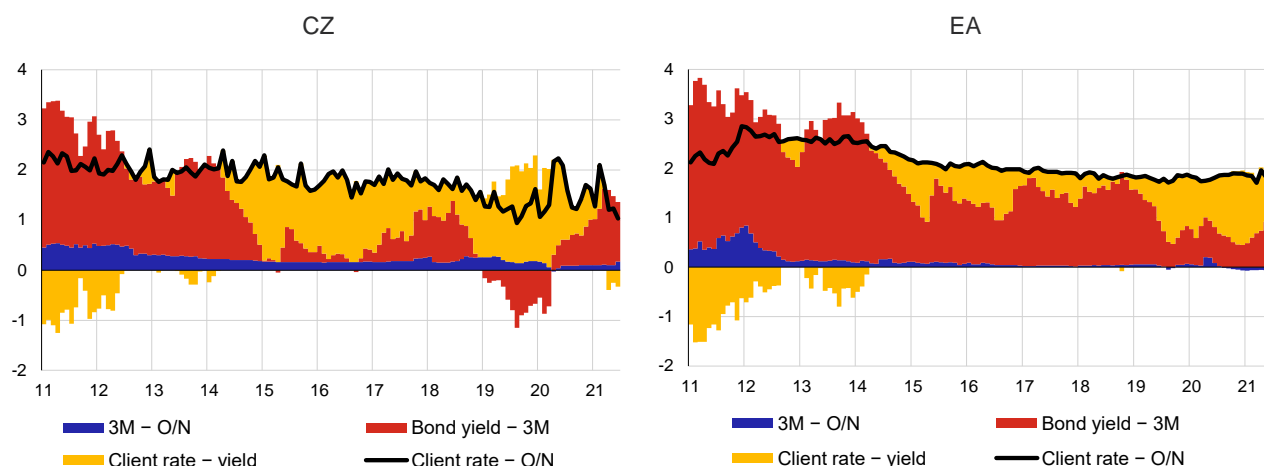
**Structure of new loans to non-financial corporations by interest rate fixation period (%)**



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 1 million) loans, respectively. The structure of the euro area total varies according to the increasing number of countries. The 2021 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 declined in the Czech Republic overall this year and is lower than in the euro area. Client rates in the Czech Republic and in the euro area were comparable in mid-2021, but the structure of the spread differed due to a markedly higher yield on the Czech bond and a negative O/N interbank rate in the euro area.

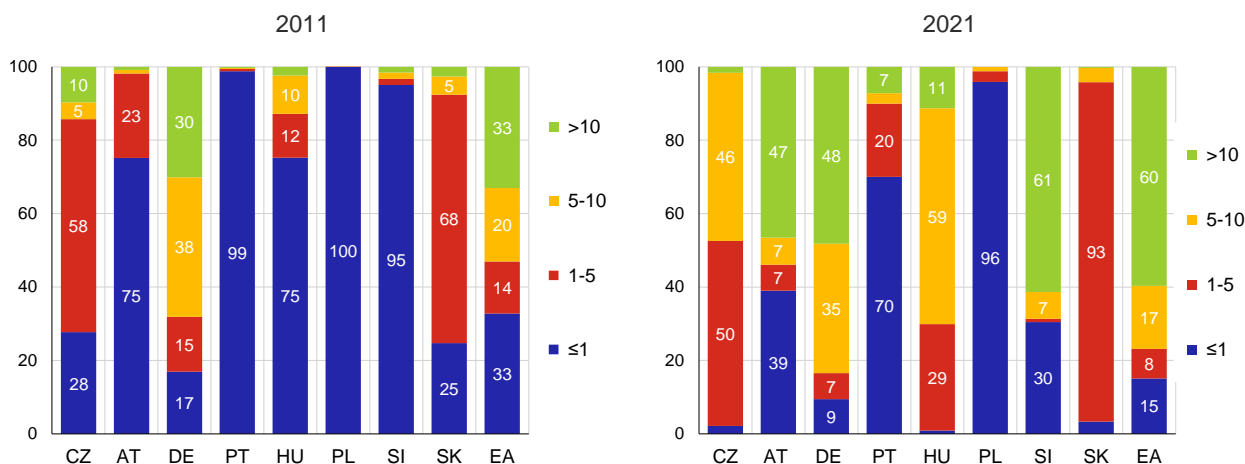
**Decomposition of the spread between interest rates on loans to non-financial corporations and O/N interbank rates (pp)**



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.

As a result of low market interest rates, a shift towards longer fixation periods has long been going on in most of the countries under review. In a number of euro area countries, this even involves fixation periods of over 10 years. However, this process halted in the Czech Republic in the past year and a shift towards shorter – mainly five-year – fixations occurred.

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

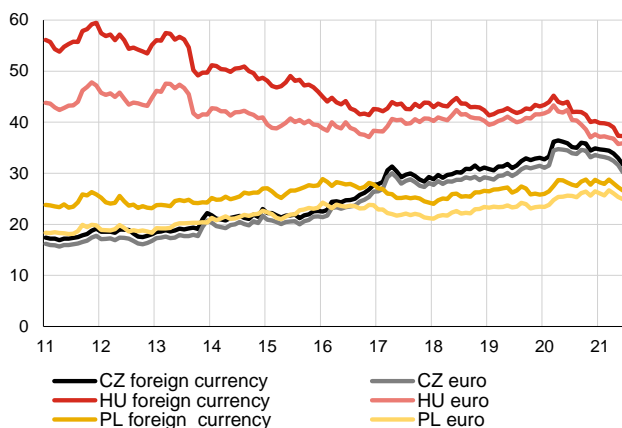


Note: The numbers in the legend stand for the fixation period in years; the ≤1 category also includes loans with a floating interest rate. The structure of the euro area total varies according to the increasing number of countries. The 2021 data are as of June. Source: ECB, CNB calculations.

### SPONTANEOUS EUROISATION

The share of foreign currency loans (mostly euro-denominated), characterised in the case of Czech corporations by a long-running upward trend, picked up immediately after the onset of the coronavirus pandemic but then declined.

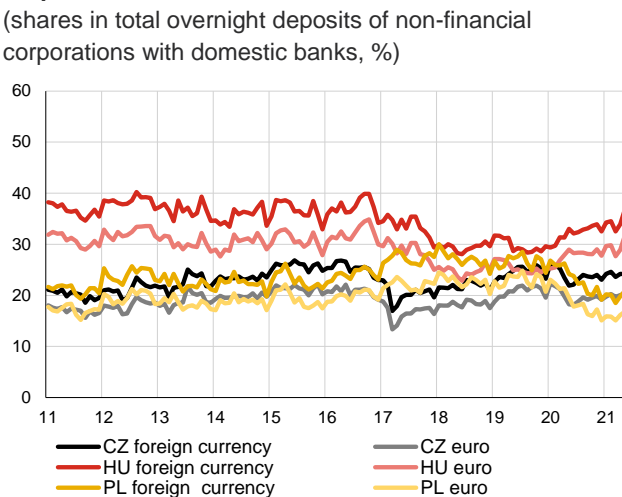
Foreign currency loans of non-financial corporations (shares in total loans to non-financial corporations with domestic banks, %)



Source: ECB, CNB calculations.

Following the decline last year, the share of foreign currency deposits returned close to the long-term level, reflecting solid demand for Czech goods abroad and deferred investment of domestic corporations.

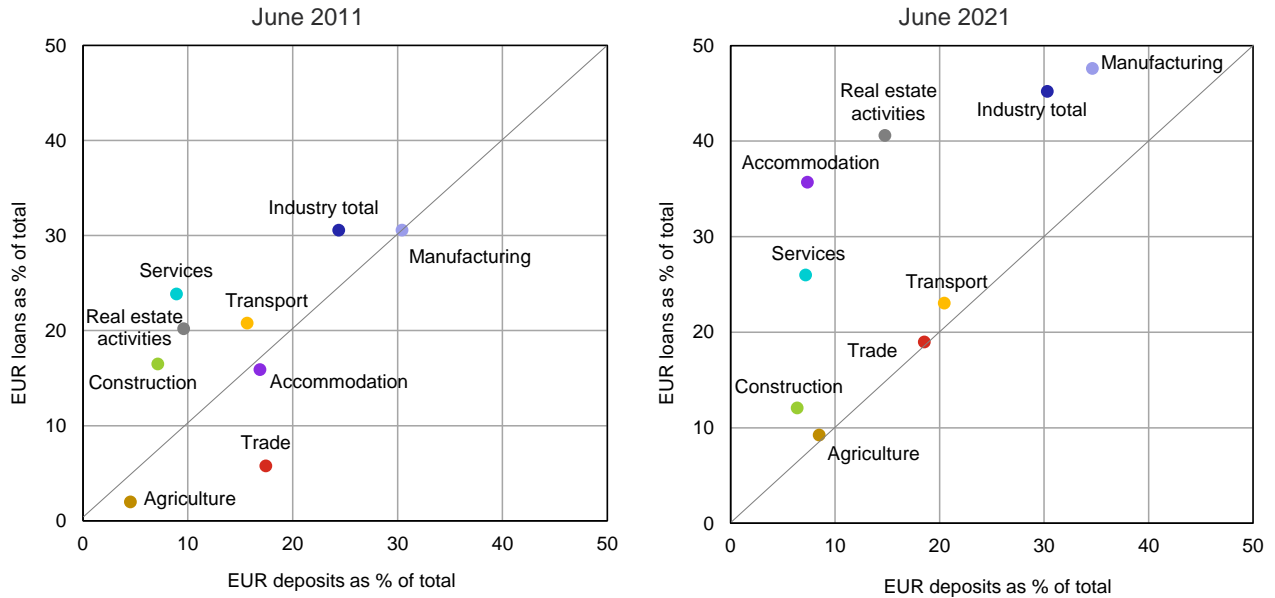
Foreign currency overnight deposits of non-financial corporations (shares in total overnight deposits of non-financial corporations with domestic banks, %)



The euroisation of the Czech economy is asymmetrical in terms of loans and deposits. The share of euro-denominated loans has risen in most sectors over the past ten years, while the share of euro-denominated deposits remains at a lower level.

**Euro-denominated loans and deposits by sector**

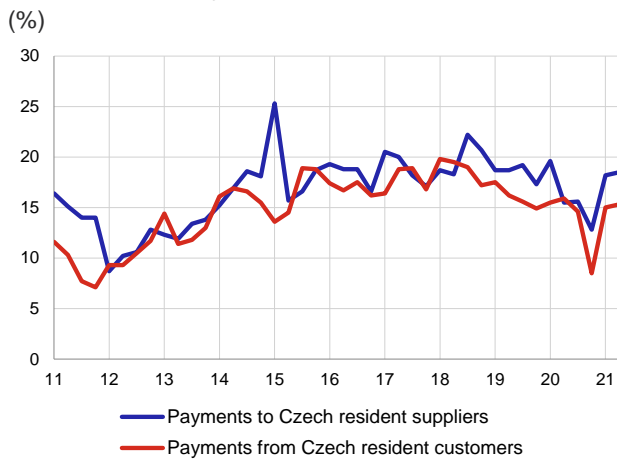
(shares in total loans and deposits in given sector with domestic banks, %)



Source: CNB.

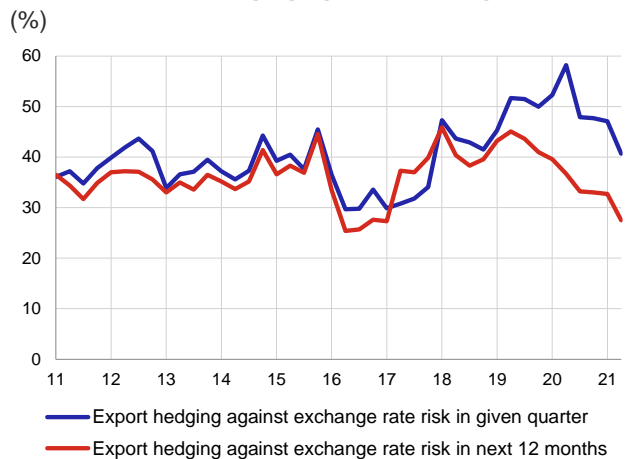
Following a decline last year, the share of euro payments between Czech firms returned to the pre-pandemic levels.

**Shares of euro payments between Czech firms**



Export hedging on the financial market decreased significantly in 2020.

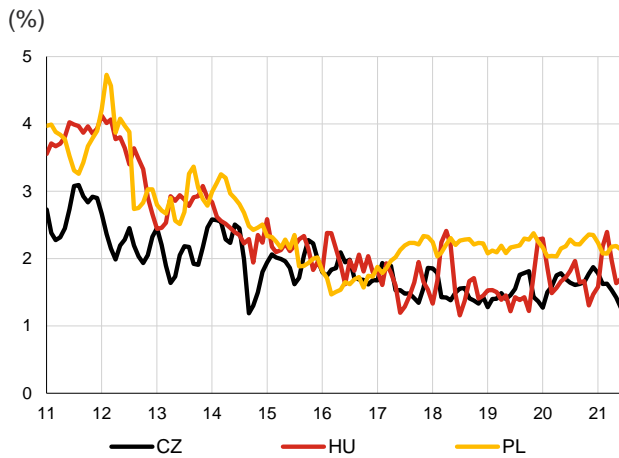
**Shares of export hedging against exchange rate risk**



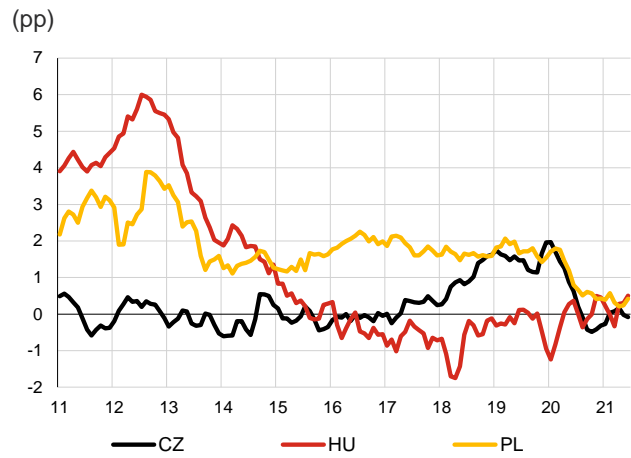
Source: Survey of non-financial corporations conducted by the CNB and the Confederation of Industry of the Czech Republic.

**The interest rate differentials on koruna- and euro-denominated corporate loans in the Czech Republic fell in 2020 owing to the easing of the CNB's monetary policy.**

**Interest rates on euro-denominated loans of non-financial corporations**



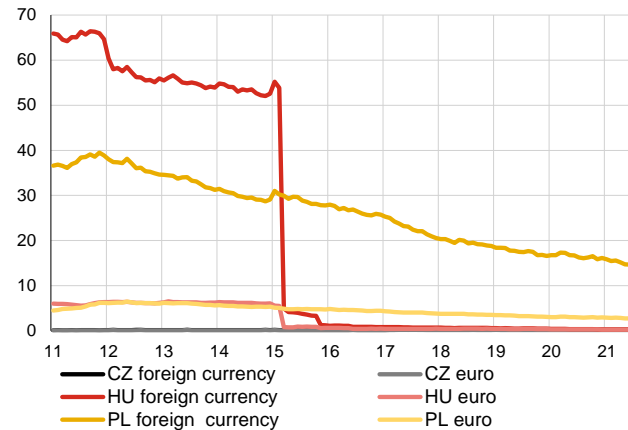
**Interest rate differentials on domestic and foreign currency loans of non-financial corporations**



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

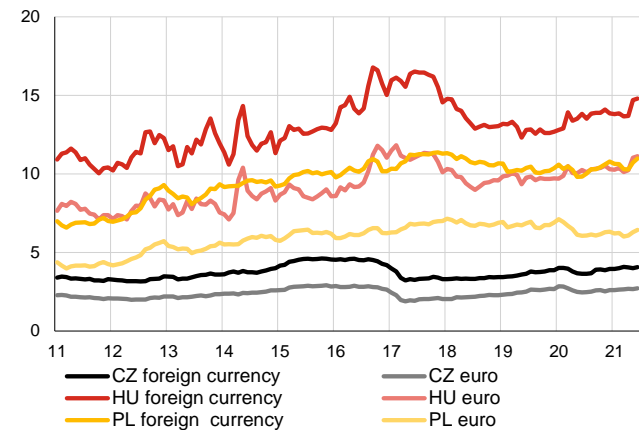
**The euroisation of households has long been low in the Czech Republic: the share of foreign currency deposits is around 4% and the share of foreign currency loans remains virtually zero due to high confidence in the domestic currency.**

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

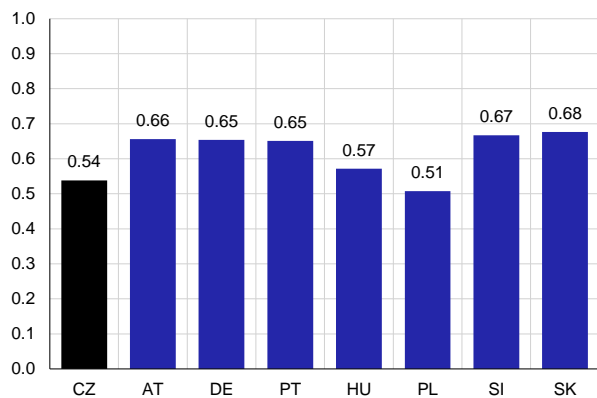


Source: ECB, CNB calculations.

## INFLATION PERSISTENCE

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

### Inflation persistence estimates







Note: Calculation for 2011 Q1–2021 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

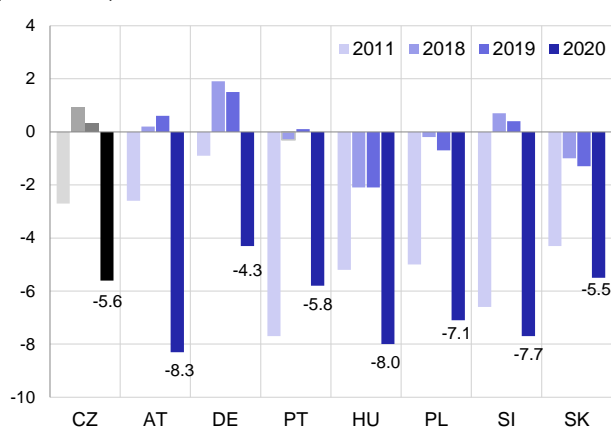
#### III.2.1. Fiscal policy

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

The Czech Republic's general government finances recorded a sizeable deficit last year owing to the pandemic and the impacts of the fiscal stabilisation measures. A similar trend was observed in the other countries under review.

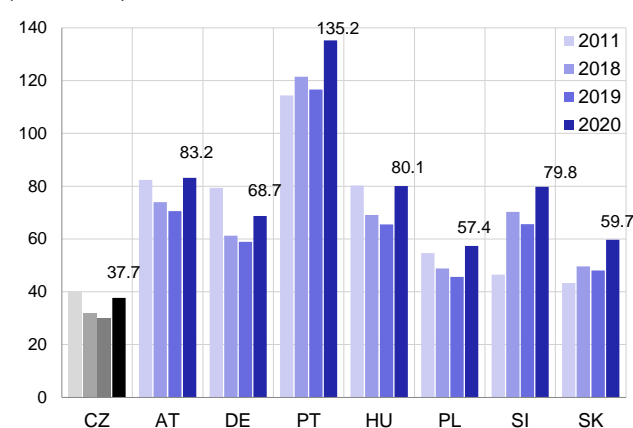
Government debt surged as a result of the high deficits. In connection with persisting general government deficits, the debt level in the Czech Republic will increase further in the next few years. However, it should stay below the debt brake level.

**General government balance**  
(% of GDP)



Source: Eurostat.

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



Source: Eurostat.

The Czech Republic ranks among the countries with low sensitivity of the general government balance to economic developments, i.e. with lower automatic stabilisers.

**Indicators of the sensitivity of the general government balance to economic developments**

	CZ	AT	DE	PT	HU	PL	SI	SK
Total budgetary elasticity	0.45	0.60	0.66	0.54	0.56	0.47	0.45	0.38
Automatic stabilisation of average revenue (in %)	29	45	39	33	34	27	38	31

Note: According to the CNB's internal estimates, total budgetary elasticity in the Czech Republic is even lower, at around 0.35, while the Ministry of Finance estimates it at 0.43. The estimates for the Czech Republic differ due to different estimates of the partial elasticities of individual tax revenues.

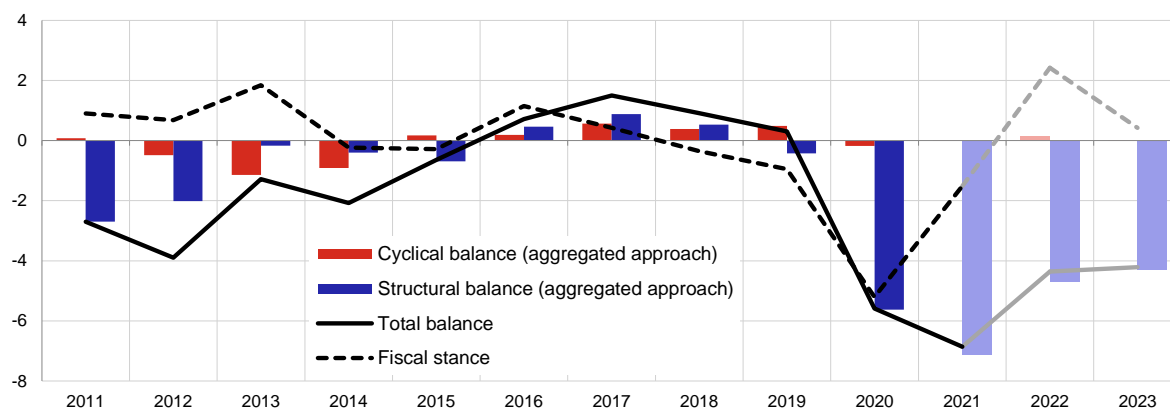
Source: Price et al. (2015), European Commission (2018a).



**Czech fiscal policy has often been procyclical, so the Czech Republic entered the coronavirus 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 (2011-2020), CNB calculations (2021-2023 forecast).

**The total and cyclically adjusted general government balance worsened significantly in 2020 in all the countries under review, including the Czech Republic, due to the impacts and fiscal costs of the pandemic.**

**General government balances, European Commission estimates**

(% of GDP)

	Total balance						Cyclically-adjusted balance					
	2011	2019	2020	2021	2022	2023	2011	2019	2020	2021	2022	2023
<b>CZ</b>	-2.7	0.3	-5.6	-7.0	-4.3	-3.9	-2.5	-0.8	-3.8	-5.7	-3.8	-3.8
<b>AT</b>	-2.6	0.6	-8.3	-5.9	-2.3	-1.3	-2.7	-0.5	-5.0	-4.2	-2.5	-1.7
<b>DE</b>	-0.9	1.5	-4.3	-6.5	-2.5	-0.5	-1.4	0.9	-2.1	-5.0	-2.6	-0.8
<b>PT</b>	-7.7	0.1	-5.8	-4.5	-3.4	-2.8	-6.9	-2.0	-2.6	-2.7	-3.4	-3.1
<b>HU</b>	-5.2	-2.1	-8.0	-7.5	-5.7	-3.8	-3.9	-3.7	-5.8	-6.8	-5.7	-3.6
<b>PL</b>	-5.0	-0.7	-7.1	-3.3	-1.8	-2.1	-5.8	-2.4	-5.9	-2.7	-1.8	-2.4
<b>SI</b>	-6.6	0.4	-7.7	-7.2	-5.2	-4.4	-5.4	-1.3	-6.5	-7.6	-6.2	-5.5
<b>SK</b>	-4.3	-1.3	-5.5	-7.3	-4.2	-3.2	-3.8	-2.2	-4.1	-6.5	-4.3	-3.6
<b>EA</b> <sup>a)</sup>	-4.2	-0.6	-7.2	-7.1	-3.9	-2.4	-3.6	-1.4	-3.7	-5.6	-3.8	-2.7
<b>CZ<sup>a)</sup></b>	-2.7	0.3	-5.6	-6.9	-4.4	-4.2	-2.8	-0.2	-5.4	-6.9	-4.5	-4.2

Note: a) Total balance: data according to the CZSO's statistics and notifications (spring 2021) until 2020, and the CNB's forecast from *Monetary Policy Report – Autumn 2021* for 2021–2023. The cyclically adjusted balance is calculated according to the aggregated approach.

Source: European Commission (2021a, 2021b), CNB.

**Together with Slovakia, Poland and Portugal, the Czech Republic is among the countries with a lower ratio of public expenditures and revenues to GDP compared to the euro area.**

#### Ratios of public revenues and expenditures to GDP

(2020, % of GDP)

	CZ	AT	DE	PT	HU	PL	SI	SK	EA
<b>Total revenues</b>	<b>41.6</b>	<b>48.7</b>	<b>46.5</b>	<b>43.5</b>	<b>43.6</b>	<b>41.5</b>	<b>43.6</b>	<b>40.1</b>	<b>46.6</b>
- taxes	19.9	26.4	23.3	24.7	25.0	22.0	20.6	19.3	26.1
- social contributions	16.0	16.1	18.1	12.8	11.2	14.6	17.2	15.7	15.6
<b>Total expenditures</b>	<b>47.2</b>	<b>57.1</b>	<b>50.8</b>	<b>49.3</b>	<b>51.6</b>	<b>48.7</b>	<b>51.3</b>	<b>45.6</b>	<b>53.8</b>
- compensation of employees	11.1	11.4	8.4	12.0	10.8	11.0	12.9	11.4	10.7
- intermediate consumption	6.1	6.8	6.2	5.7	8.7	5.8	6.1	6.0	6.0
- social payments	14.4	20.4	17.7	18.0	11.2	16.8	17.3	14.9	19.3
- gross fixed capital formation	4.9	3.3	2.6	2.2	6.4	4.5	4.1	3.5	3.0
- interest expenditure	0.8	1.3	0.6	2.9	2.3	1.3	1.6	1.2	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

(%)

	2011	2013	2015	2016	2017	2018	2019	2020	2021	2022
Shares of mandatory expenditure in total SB expenditure	57.2	58.2	54.2	58.2	57.0	55.0	52.6	51.0	53.0	53.4
Shares of quasi mandatory expenditure in total SB expenditure	17.7	17.5	17.5	18.8	20.2	20.6	20.9	20.6	19.7	20.9
Shares of mandatory expenditure in total SB revenue	65.3	62.5	57.0	55.4	57.3	54.9	53.6	63.7	72.1	66.4
Shares of quasi mandatory expenditure in total SB revenue	20.2	18.8	18.4	17.9	20.3	20.6	21.3	25.8	26.8	26.0

Note: Actual data for 2011–2020, state budget projections for 2021–2022.

Source: Ministry of Finance of the Czech Republic (2021).

**The marked rise in general government debt relative to GDP in the Czech Republic in 2020 was accompanied by a comparatively modest rise in debt service costs owing to a drop in financial market yields.**

#### Debt service

(European Commission estimate, % of GDP)

	2011	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>CZ</b>	1.3	1.1	0.9	0.7	0.7	0.7	0.8	0.7	0.7	0.7
<b>AT</b>	2.8	2.3	2.1	1.8	1.6	1.4	1.3	1.1	0.9	0.9
<b>DE</b>	2.5	1.4	1.2	1.0	0.9	0.8	0.6	0.5	0.5	0.4
<b>PT</b>	4.3	4.6	4.1	3.8	3.4	3.0	2.9	2.6	2.3	2.2
<b>HU</b>	4.1	3.4	3.1	2.7	2.3	2.2	2.3	2.3	2.3	2.3
<b>PL</b>	2.5	1.8	1.7	1.6	1.4	1.4	1.3	1.1	1.0	1.0
<b>SI</b>	1.9	3.2	3.0	2.5	2.0	1.7	1.6	1.4	1.3	1.2
<b>SK</b>	1.6	1.8	1.7	1.4	1.4	1.2	1.2	1.2	1.1	1.1
<b>EA</b>	3.0	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.2	1.2

Source: European Commission (2021b).

**Recent adjustments to the Czech pension system have fostered a further deterioration in what was already an adverse outlook for Czech public finance sustainability.**

#### Age-related government expenditures





(% of GDP)

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

Source: European Commission (2021c).

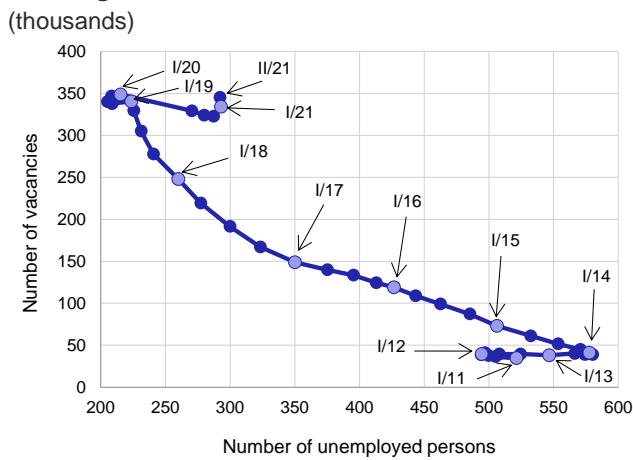
III.2.2. The labour market and the product market

-  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 Czech economy

In previous years, the number of unemployed persons was falling cyclically and the number of job vacancies was rising. Although this trend reversed due to the onset of the coronavirus crisis last year, the number of vacancies is still markedly higher than the number of unemployed persons.

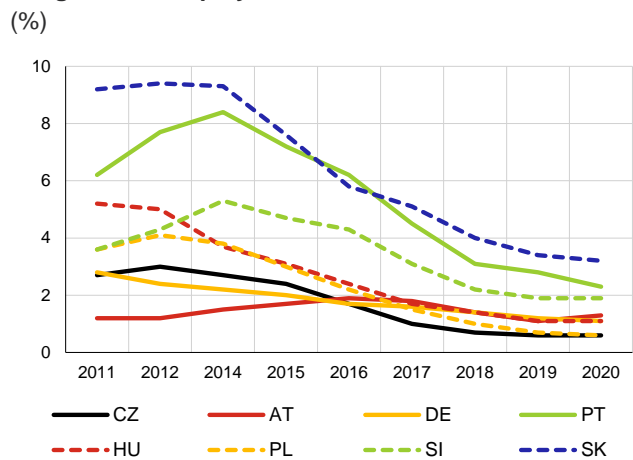
The steady decline in the long-term unemployment rate in the Czech Republic came to a halt last year. However, its level was still one of the lowest among the countries under review.

**Beveridge curve**



Source: Ministry of Labour and Social Affairs.

**Long-term unemployment rate**

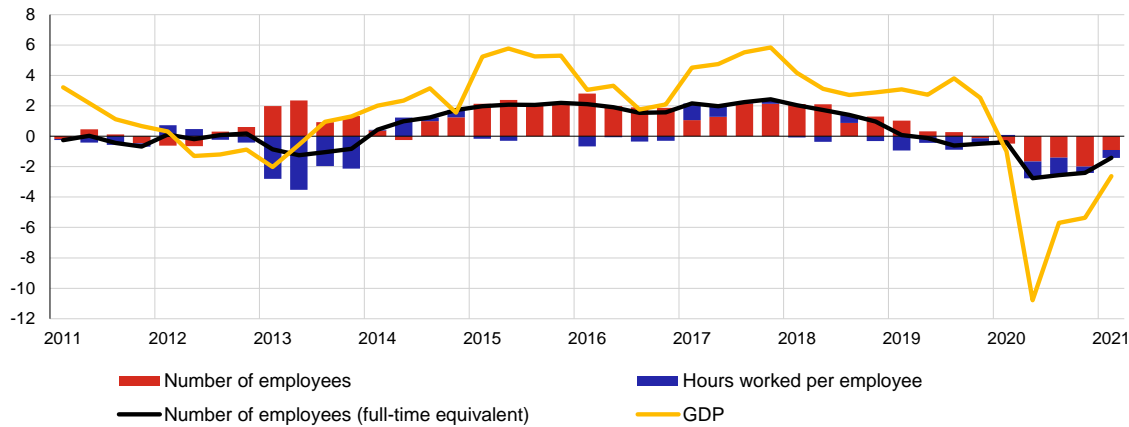


Note: Shares of persons unemployed for 12 months or more in the labour force (under ILO methodology).

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.

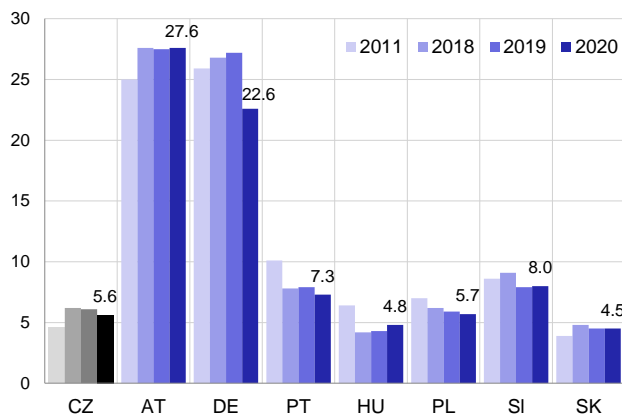
**Average hours worked per employee**  
(annual changes in %, contributions in pp)



Source: CZSO, CNB calculations.

The share of persons working part-time in the Czech Republic fell slightly last year due to the coronavirus crisis, remaining well below the levels in Austria and Germany.

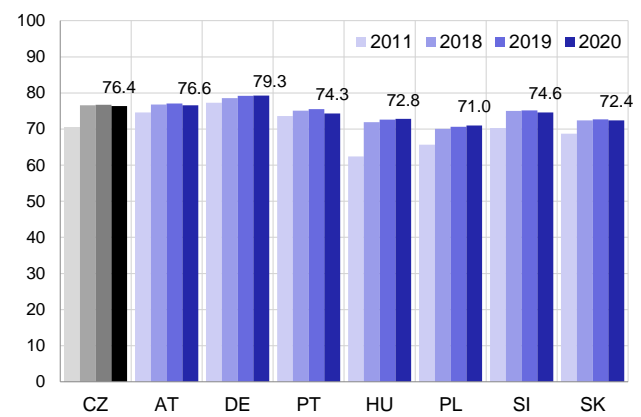
**Part-time employees**  
(%)



Source: Eurostat.

Together with a decrease in the supply of part-time jobs, the coronavirus crisis was reflected in a moderate decline in the rate of economic activity in the Czech Republic. However, the latter remains relatively high.

**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.

Source: Eurostat (LFS).

The regional differences in the unemployment rate in the Czech Republic have risen in recent years and are medium-high compared to the other countries under review.

#### Coefficients of variation of the unemployment rate

(%)

	NUTS II regions										NUTS III regions									
	10	11	12	13	14	15	16	17	18	19	10	11	12	13	14	15	16	17	18	19
<b>CZ</b>	31	28	33	31	30	33	33	30	34	38	32	29	34	32	30	33	34	32	36	41
<b>AT</b>	37	40	43	39	43	45	46	47	56	57	39	42	45	41	45	47	49	49	57	58
<b>DE</b>	36	41	40	39	39	37	32	32	31	28	42	48	47	46	-	-	-	-	-	-
<b>PT</b>	20	13	14	16	13	14	14	13	12	13	-	-	-	-	-	-	-	-	-	-
<b>HU</b>	23	26	23	20	30	33	40	46	44	44	28	30	27	24	34	36	45	51	52	54
<b>PL</b>	14	15	15	19	21	22	26	29	35	29	26	26	27	28	29	30	33	36	43	39
<b>SI</b>	-	-	-	-	-	-	-	-	-	-	22	28	21	19	22	21	21	17	26	24
<b>SK</b>	27	32	31	29	28	26	29	37	41	-	29	33	33	31	30	31	33	42	45	46

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. More recent data are unavailable.

Source: Eurostat (LFS).

The willingness of the domestic population to migrate within the Czech Republic is still declining slightly, at around half the level of Germany and Austria.

#### Internal migration

(per 1,000 inhabitants)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>CZ</b>	22	22	22	23	23	24	23	23	23	22
<b>AT</b>	38	39	39	40	43	44	42	41	40	40
<b>DE</b>	47	47	48	49	53	54	48	48	47	-
<b>HU</b>	20	19	19	22	22	26	27	29	29	27
<b>PL</b>	11	10	11	11	10	10	11	12	12	11
<b>SI</b>	53	55	55	55	53	54	54	50	47	67
<b>SK</b>	16	15	16	17	17	18	18	18	18	16

Note: Migration between municipalities (HU, PL and SI – all changes in permanent residence). Data are not available for Portugal and Germany for 2020. The calculations do not take into account differences in the sizes of territorial units in the chosen countries.

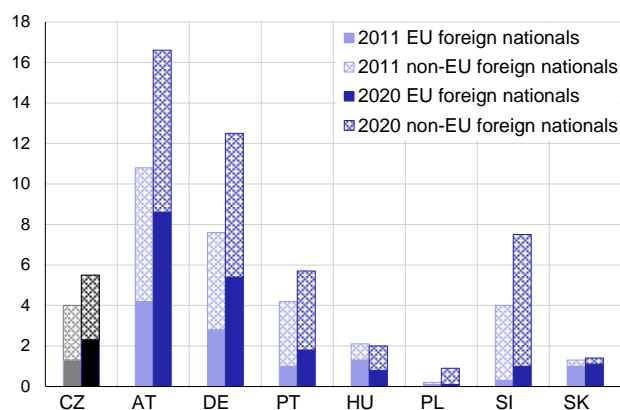
Source: Statistical yearbooks, Eurostat, CNB calculations.



The geographical mobility of the labour force in the Czech Republic is gradually rising via an increasing share of foreign nationals in the population.

**Shares of foreign nationals in the population**

(%)

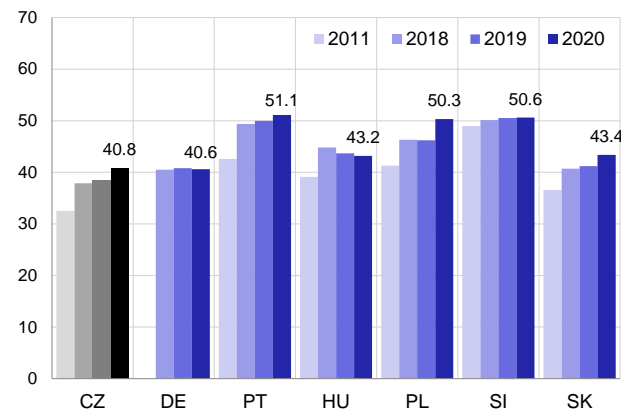


Source: Eurostat, CNB calculations.

The ratio of the minimum wage to the average wage has risen in recent years owing to repeated marked increases in the minimum wage. It is still one of the lowest among the countries under review, but it has already exceeded the German level.

**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.

The ratio of the minimum wage to the wage in the first (lowest) decile of the wage distribution is traditionally high in the Czech Republic in low-skilled occupations. Moreover, it has been rising steadily in recent years owing to repeated marked increases in the minimum wage.

**Ratio of the minimum wage to the gross monthly wage in selected professions**

(%)

Main employment class	Minimum wage / 1st decile									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total for Czech Republic (business sector)	71.6	71.2	71.7	72.9	77.1	77.8	78.6	77.9	79.5	81.1
elementary occupations	90.5	89.4	90.0	93.0	95.6	95.4	95.5	98.1	98.7	99.1
services and shop workers	89.1	88.8	87.5	88.1	91.0	90.8	90.9	88.3	89.2	89.9
qualified workers in agriculture, forestry and fishing	67.2	67.7	67.2	67.8	76.5	78.3	81.3	80.5	81.7	84.4

Note: The table gives the data for the Czech Republic as a whole and for the three professions with the highest figures in 2020. Source: Average Earnings Information System (Ministry of Labour and Social Affairs), CNB calculations.

**Overall labour taxation in the Czech Republic is relatively high, but is nonetheless lower than in advanced neighbouring countries (Germany and Austria). From 2021, tax changes should be reflected in a further decrease in overall taxation in the Czech Republic.**

**Overall labour taxation**

(%)

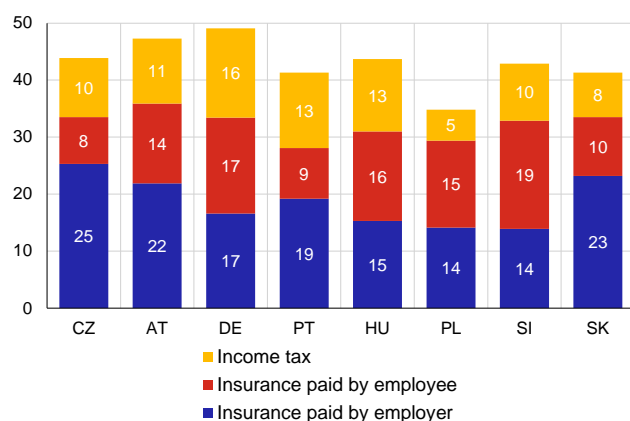
	100% of average wage						67% of average wage					
	2011	2016	2017	2018	2019	2020	2011	2016	2017	2018	2019	2020
<b>CZ</b>	42.6	43.0	43.4	43.8	43.9	43.9	39.6	40.3	40.8	41.4	41.7	41.6
<b>AT</b>	48.5	47.3	47.4	47.6	47.9	47.3	43.8	43.0	43.1	43.3	43.6	42.7
<b>DE</b>	49.8	49.5	49.6	49.5	49.4	49.0	45.6	45.4	45.4	45.4	45.2	45.0
<b>PT</b>	38.0	41.5	41.4	40.8	41.0	41.3	32.2	36.4	36.6	36.5	36.7	37.1
<b>HU</b>	49.5	48.2	46.2	45.0	44.6	43.6	45.2	48.2	46.2	45.0	44.6	43.6
<b>PL</b>	34.3	35.6	35.7	35.8	35.6	34.8	33.3	34.9	35.0	35.1	35.0	34.1
<b>SI</b>	42.6	42.7	42.9	43.2	43.6	42.9	38.6	38.7	40.0	39.8	40.3	40.1
<b>SK</b>	38.8	41.5	41.7	41.8	41.9	41.2	36.0	39.0	39.4	39.6	39.7	38.8

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. Source: OECD.

**The relatively high labour taxation rate in the Czech Republic is due mainly to high insurance contributions paid by employers.**

**Components of labour taxation**

(2020, % of average wage)

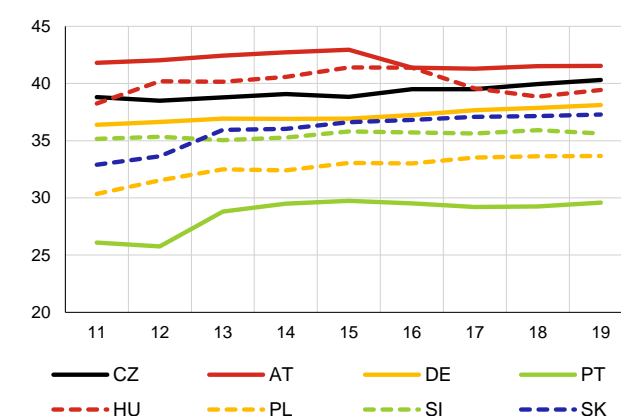


Source: OECD.

**The overall implicit labour taxation rate in the Czech Republic is also one of the highest among the countries under comparison.**

**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. Source: Eurostat.

**The configuration of the Czech tax and social system still leads to a relatively weak incentive to return from unemployment to employment.**

**Unemployment trap**

(%)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>CZ</b>	80.2	80.1	80.1	80.2	80.3	80.4	80.6	80.8	80.9	80.9
<b>AT</b>	74.8	74.8	74.6	74.3	73.9	72.0	72.1	71.7	71.2	70.6
<b>DE</b>	73.3	73.3	73.0	73.1	73.1	73.3	73.3	73.2	73.2	73.1
<b>PT</b>	79.0	79.2	79.9	79.8	80.3	80.3	80.4	80.4	80.5	80.5
<b>HU</b>	79.6	79.5	78.8	78.6	78.4	78.1	78.5	78.5	76.3	76.7
<b>PL</b>	80.1	80.3	80.4	78.9	78.0	77.2	75.8	74.6	73.4	71.7
<b>SI</b>	89.7	89.5	89.8	89.7	89.6	87.2	88.3	89.1	90.8	91.1
<b>SK</b>	69.7	69.7	69.6	69.8	70.0	70.3	70.7	71.1	70.2	70.4

Note: The unemployment trap measures the proportion of additional gross income associated with gaining 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).

**The low wage trap reduces the incentive to seek better-paid work. In the Czech Republic, almost one-half of the additional gross income after a wage increase from 67% to 100% of the average is paid to public budgets due to the configuration of the tax and social system. This is an average level among the countries under comparison.**

**Low wage trap**

(%)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>CZ</b>	35.8	35.5	35.4	23.4	25.0	26.9	29.8	47.3	46.5	46.5
<b>AT</b>	61.7	60.2	58.4	57.2	55.7	48.8	48.4	46.9	44.5	44.5
<b>DE</b>	51.6	47.8	48.4	47.1	45.8	54.0	52.8	50.3	48.9	55.0
<b>PT</b>	24.3	22.8	26.6	25.5	25.5	24.0	25.9	27.2	28.0	29.2
<b>HU</b>	20.9	22.6	22.9	25.9	25.9	33.5	33.5	33.5	33.5	33.5
<b>PL</b>	45.0	44.5	46.7	47.4	53.4	54.6	90.6	86.7	91.4	50.3
<b>SI</b>	61.3	30.6	30.2	30.6	30.9	31.3	32.0	33.1	67.4	70.7
<b>SK</b>	22.0	21.8	21.5	22.5	23.4	24.5	26.0	27.9	28.2	24.8

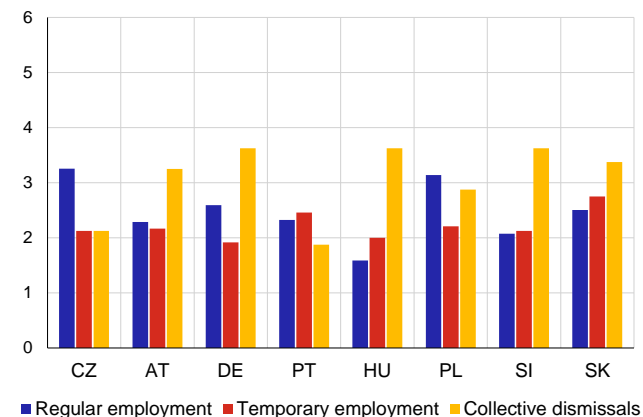
Note: The low wage trap measures the proportion of additional gross income that is paid to public budgets due to the combined impact of income taxes, social security contributions and the loss of benefits when gross income increases from 67% to 100% of the average income of an employee in the business 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)



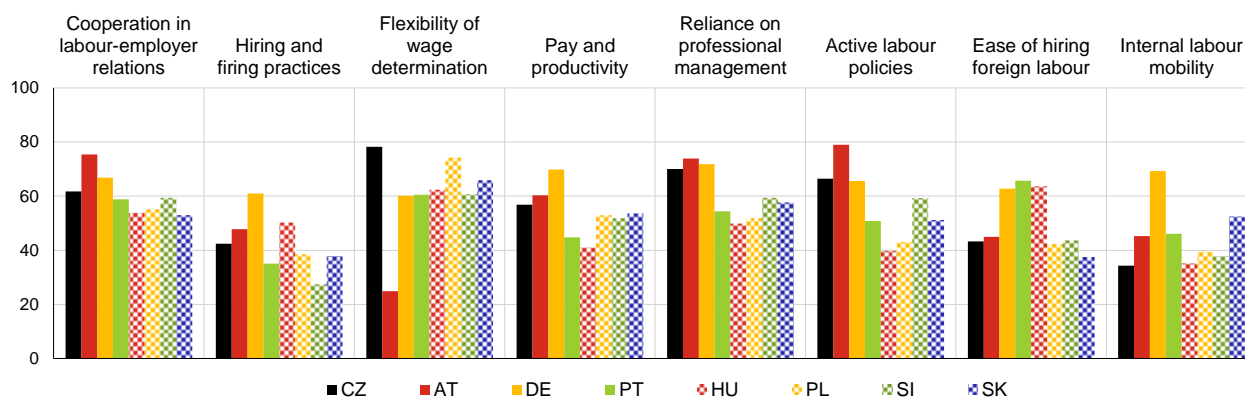
Note: The indices take values ranging from 1 to 6, a higher value meaning greater employment protection. More recent data are not available.

Source: OECD.

In an international GCI comparison, the Czech Republic ranks among the leaders in market competitiveness.

**Global Competitiveness Index – labour market scores**

(2019)

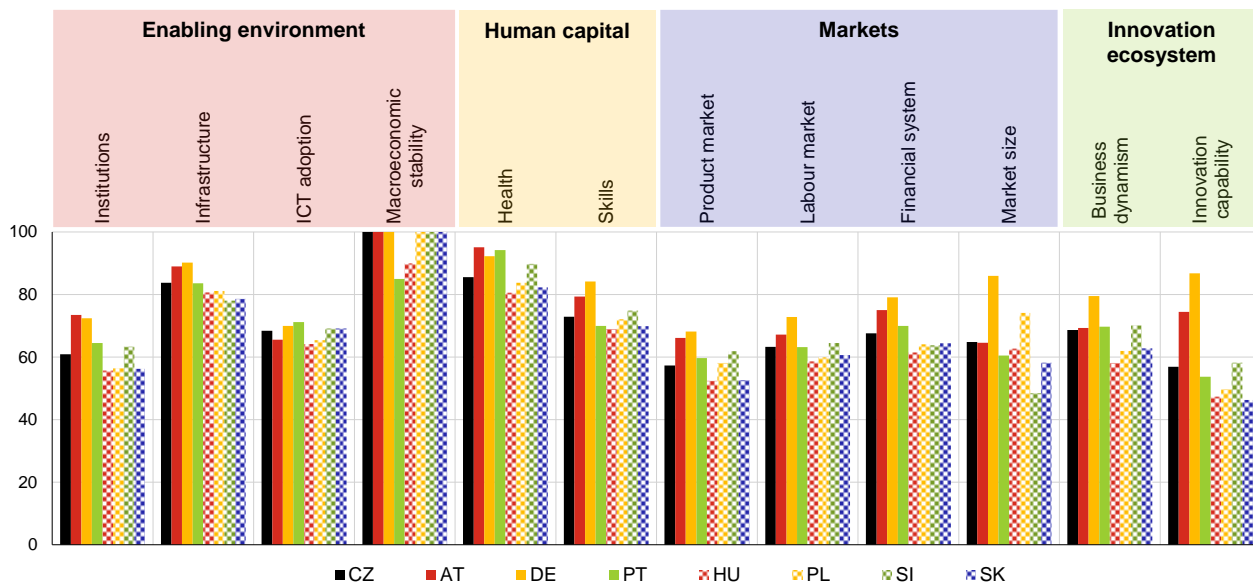


Note: For each labour market category, the GCI index takes values ranging from 0 to 100, where a higher index value means higher competitiveness in the relevant area. More recent data are not available.

Source: World Economic Forum (2019).

The competitiveness of the Czech economy has increased across most of the monitored areas over the last ten years.

**Global Competitiveness Index – overall scores**  
(2019)



Note: For each category, the GCI index takes values ranging from 0 to 100, where a higher index value means higher competitiveness in the relevant area. More recent data are not available.  
Source: World Economic Forum (2019).

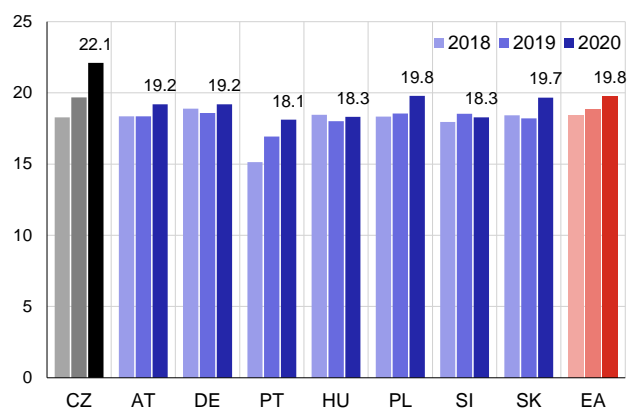
### III.2.3. The banking sector and its shock-absorbing capacity

-  Capital position
-  Profitability
-  Liquidity position
-  Credit risk

**The capital ratio indicates high resilience of the banking sector.**

#### Capital ratios

(%)



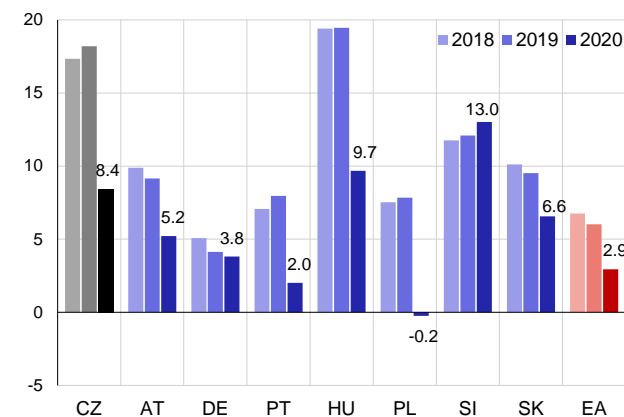
Note: The capital ratio is the ratio of a bank's capital to its risk-weighted assets. EA represents the GDP-weighted average of the euro area member countries.

Source: IMF.

**Return on equity remains high in the Czech Republic.**

#### Return on equity (RoE)

(%)



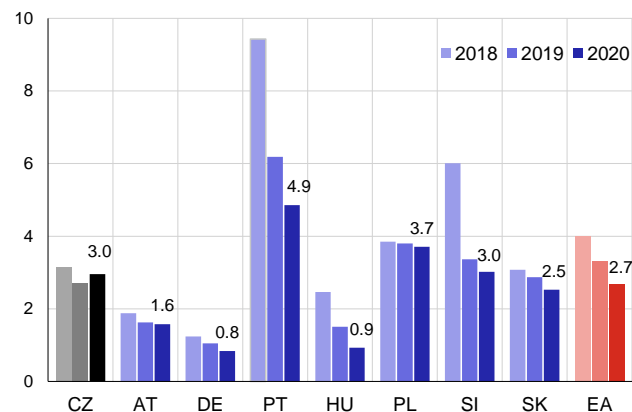
Note: EA represents the GDP-weighted average of the euro area member countries.

Source: IMF.

**The non-performing loan ratio in the Czech Republic remains low despite a slight increase.**

#### Non-performing loans

(% of total bank loans)



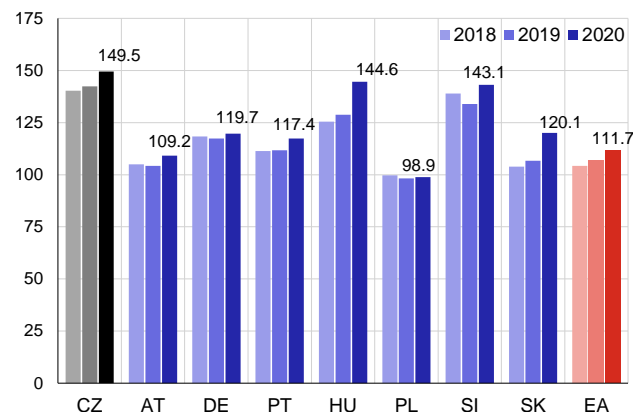
Note: EA represents the GDP-weighted average of the euro area member countries.

Source: IMF.

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

#### Deposit-to-loan ratios

(%)









Note: Deposits/loans to residents. EA represents the GDP-weighted average of the euro area member countries.

Source: ECB.

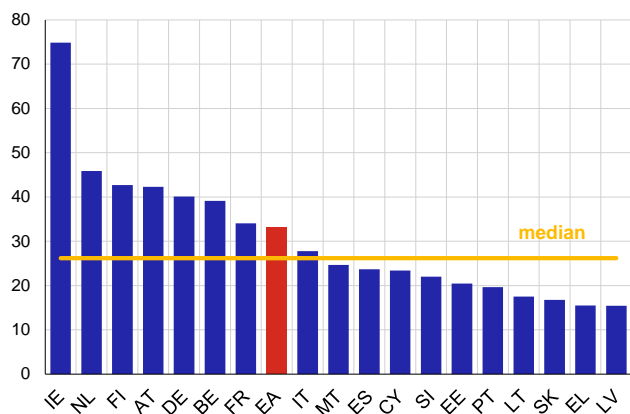


### III.3. ECONOMIC ALIGNMENT OF EURO AREA COUNTRIES

-  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 heterogeneous across euro area countries...**

**GDP per capita in euro area countries**  
(2020, GDP at current prices in EUR thousands)

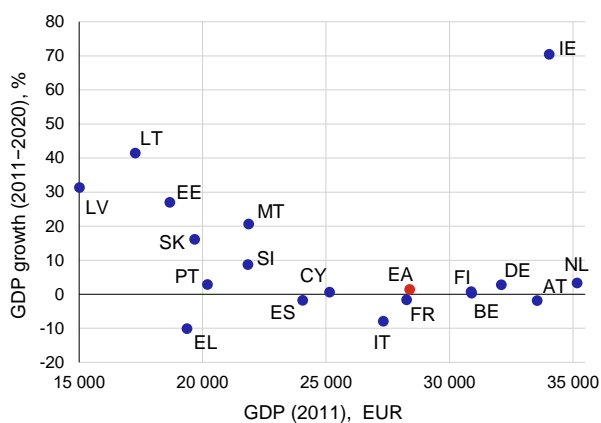


Note: Luxembourg is not included in either of the charts due to the many specificities of its economy, which result in exceptionally high GDP per capita.

Source: Eurostat.

**...with real convergence taking place in the newest (least advanced) euro area countries only.**

**Beta-convergence of real GDP in euro area countries**



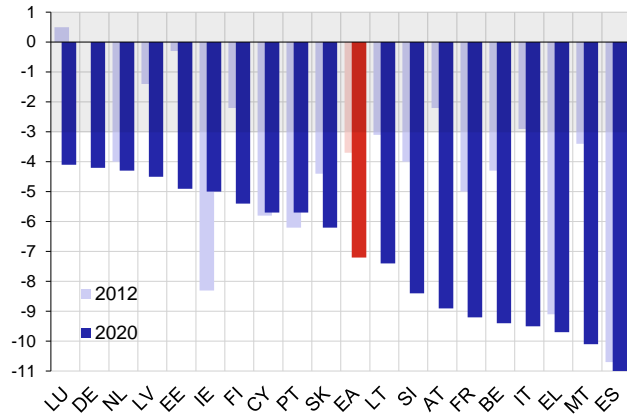
Note: The chart depicts the relation between GDP growth per capita in each country and its initial level (beta-convergence). The x-axis shows GDP per capita in PPS and the y-axis shows real GDP growth.

Source: Eurostat.

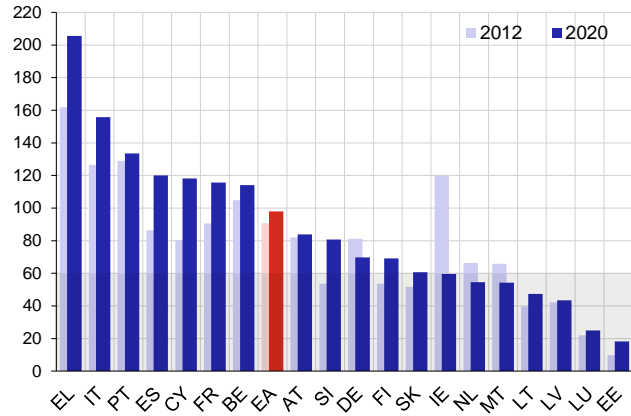
The deepening of public finance deficits in the entire euro area in 2020 reflected government support during the pandemic and worsened tax revenue development. Government debt relative to GDP remains the highest in the southern periphery.

**Fiscal situation of euro area countries**

General government balance (% of GDP)



General government debt (% of GDP)



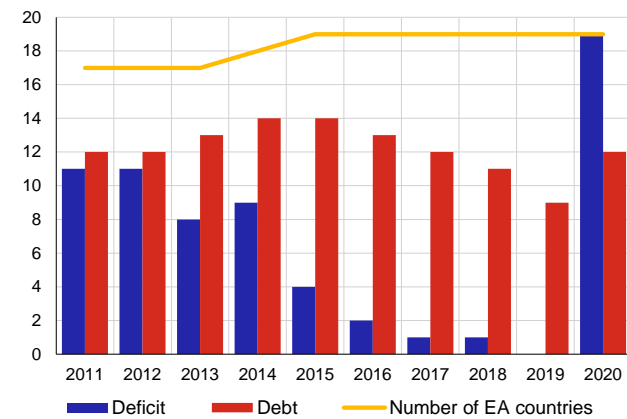
Note: Countries in the grey area are compliant with the Stability and Growth Pact (SGP) criterion. The SGP sets limits on government deficits (3% of GDP) and debt (60% of GDP). The starting point (2012) was chosen to capture the negative fiscal effects of the financial crisis (such as rescue programmes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

Source: Eurostat.

The pandemic further deepened the euro area’s long-standing problem of low fiscal discipline.

**Non-compliance with the fiscal criteria**

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



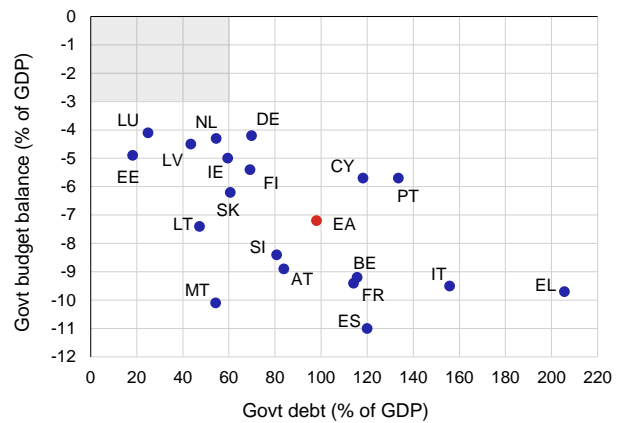
Note: Number of countries non-compliant with the deficit and debt criteria.

Source: Eurostat, European Commission, CNB calculations.

For the first time ever, none of the euro area countries met both the debt and deficit criteria.

**Fiscal positions of euro area countries**

(2020)



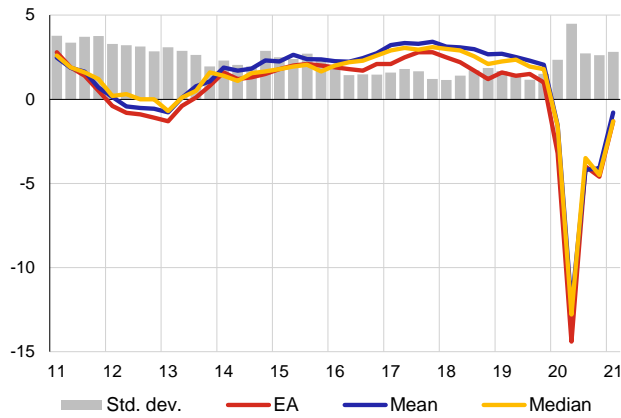
Note: Countries compliant with the Stability and Growth Pact lie in the grey area.

Source: Eurostat.

**Public finances could not rely on economic growth, as the euro area recorded the largest economic downturn in several decades last year owing to the pandemic. Euro area countries already facing high general government debt were hit particularly hard.**

**Real GDP growth in euro area countries**

(y-o-y, %)



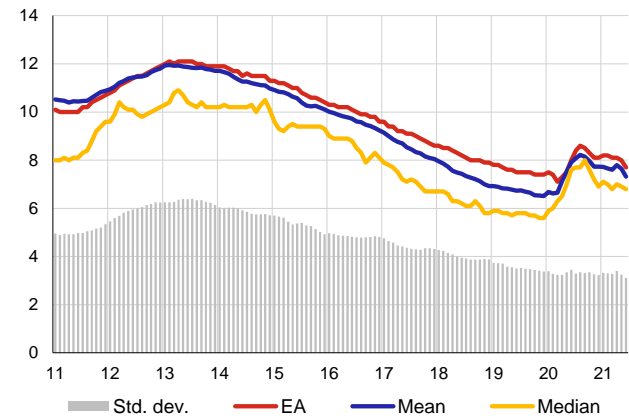
Note: The quarterly mean series depicts the unweighted arithmetic mean of GDP growth in the given quarter across euro area countries. Data for Ireland were not included due to exceptionally high growth in 2015 owing to the relocation of the headquarters of several international corporations to Ireland.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

Source: Eurostat, CNB calculations.

**Previous long-running improvements in the euro area labour market were interrupted by the pandemic in 2020. A more significant increase in unemployment was prevented mainly by support programmes.**

**Unemployment in euro area countries**

(%)

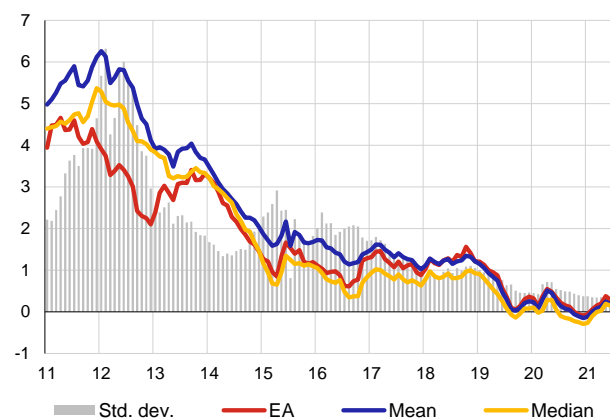


Note: The monthly mean series depicts the unweighted arithmetic mean of unemployment in the given month across euro area countries. The source series are seasonally adjusted. Source: Eurostat, CNB calculations.

**Long-term government bond yields in the euro area fell significantly in the second half of 2020, even turning negative. Above all, the ECB's asset purchase programmes had a significant effect on bond yields.**

**Long-term government bond yields in euro area countries**

(%)



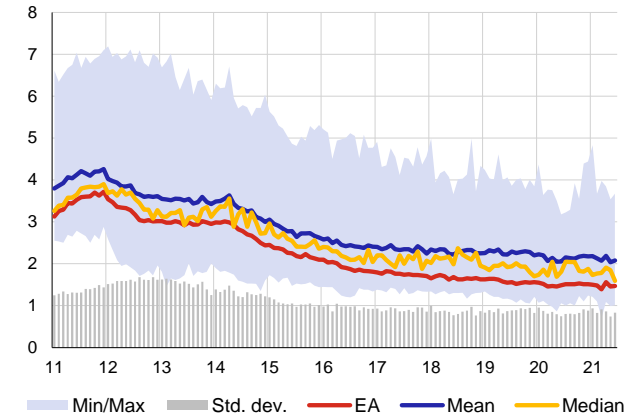
Note: Bond yields for the convergence criteria. The bond maturity is about ten years. Estonia is not included because the time series is not available. The monthly EA series is a weighted average of ten-year euro area government bonds.

Source: ECB (including the EA series), CNB calculations.

**During the pandemic period, interest rates on client loans continue to hover around historical lows.**

**Funding costs of non-financial corporations**

(%)



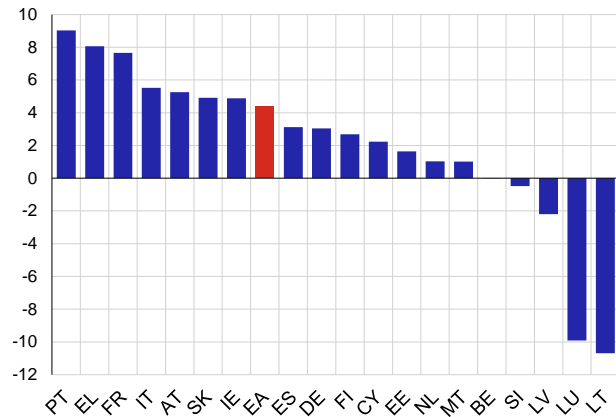
Note: The composite indicator comprises a weighted average of short-term and long-term loans to non-financial corporations. The data are monthly.

Source: ECB (MIR database), CNB calculations.

The volume of bank loans to non-financial corporations increased (albeit heterogeneously) in most euro area countries. However, the increase slowed early this year, owing mainly to the tightening of credit conditions.

**Growth in bank loans to domestic non-financial corporations**

(2021 H1, y-o-y, %)



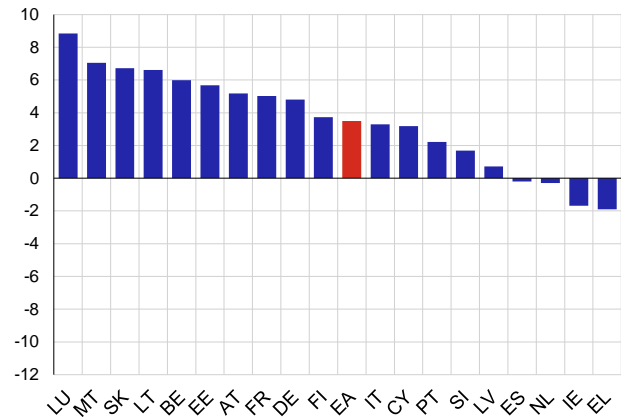
Note: Annual growth in loans provided by monetary financial institutions; average growth rates in the first six months of 2021.

Source: ECB (BSI database), CNB calculations.

The volume of bank loans to households rose in most euro area countries (but also very heterogeneously). An increase in its growth rate in a number of countries reflects a rise in the volume of mortgage loans.

**Growth in bank loans to households**

(2021 H1, y-o-y, %)



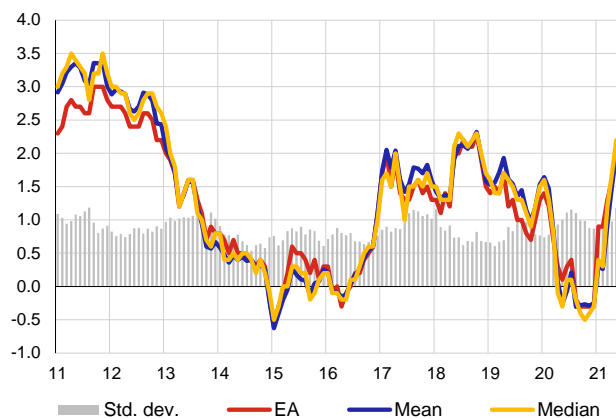
Note: Annual growth in loans provided by monetary financial institutions; average growth rates in the first six months of 2021.

Source: ECB (BSI database), CNB calculations.

Inflation in the euro area fell sharply last year due to the pandemic, turning negative in a large majority of countries. With a few exceptions, a sharp increase in inflation has been observed this year. Prices of oil (and energy) have played a significant role.

**Headline inflation in euro area countries**

(y-o-y, %)



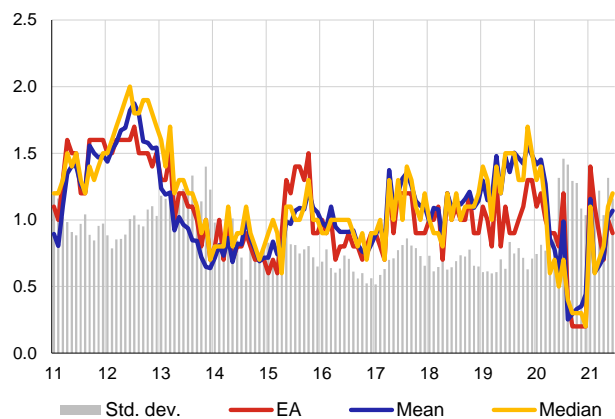
Note: The mean series depicts the unweighted arithmetic mean of inflation in the given year across euro area countries.

Source: Eurostat, CNB calculations.

Core inflation in euro area countries also declined as a result of the coronavirus crisis. It returned to 1% in the first half of this year...

**Inflation excluding energy, food, alcohol and tobacco prices**

(y-o-y, %)



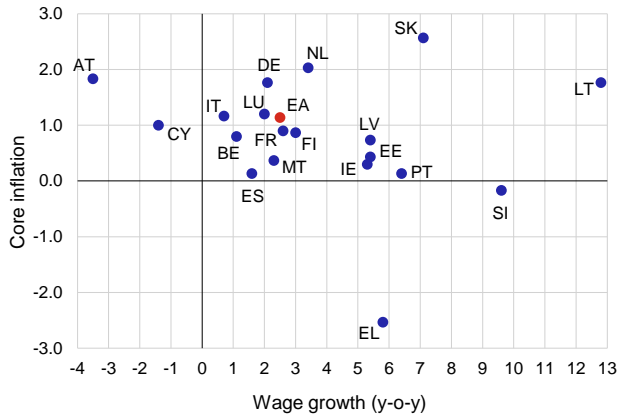
Note: The mean series depicts the unweighted arithmetic mean of inflation in the given year across euro area countries.

Source: Eurostat, CNB calculations.

... while the relationship between core inflation and year-on-year wage growth weakened compared with previous years due to the pandemic.

**Growth in wage costs, core inflation**

(y-o-y growth rates in 2021 Q1, %)



Note: The wage growth series are seasonally adjusted.  
Source: Eurostat.

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