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**Ready for the euro?  
The case of Croatia  
and Bulgaria**

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# Ready for the euro? The case of Croatia and Bulgaria

Zoltan Walko<sup>1</sup>

## Executive summary

- To assess the **potential benefits and risks of euro adoption** for Croatia and Bulgaria, it is expedient to review their past performance in terms of convergence and compare that with the performance of current euro area (EA) countries. To this end, I compare relevant indicators for Croatia and Bulgaria (expressed relative to the EA-12 average) with three comparison groups: (1) seven core EA countries (EA7-core: Austria, Belgium, France, Finland, Germany, Luxembourg, Netherlands), (2) five periphery EA countries (EA5-periphery: Greece, Ireland, Italy, Portugal and Spain) and (3) the seven EA countries which joined from 2007 onward and which are not part of the benchmark (EA7-new: Cyprus, Estonia, Latvia, Lithuania, Malta, Slovakia, Slovenia).<sup>2</sup>
- **From the perspective of the two countries, monetary policy autonomy has been severely constrained (Croatia) or non-existent (Bulgaria) during the past two decades** due to the existing exchange rate regimes. Euro adoption would therefore result in no – or only limited – additional loss of autonomy while eliminating remaining exchange rate risks. Despite the constrained monetary autonomy, the **overall economic policy mix has succeeded in bringing down inflation and stabilizing it at low levels while at the same time promoting economic convergence** to the euro area average. The room for additional interest rate convergence (and related risks) seems to be limited given already low current interest rate differentials to the euro area. Nevertheless, **both countries would benefit from euro adoption, e.g. through increased integration of markets, heightened competition, lower transaction costs, reduced external vulnerabilities and greater economic policy credibility.** The risks associated with euro adoption should be **manageable provided fiscal, income, structural and macroprudential policies are and remain to be sound**, and also thanks to the progress that has been made in the banking union since the global financial crisis.
- **From the perspective of the euro area, both Croatia and Bulgaria are insignificant** in terms of **size**. Their **inclusion in the common currency area would not visibly increase heterogeneity**. In recent years, the **economic performance** of the two countries has been **broadly comparable to that of euro area incumbents at similar stages in the run-up to euro adoption**. Given the

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<sup>2</sup> When I compare developments during the run-up to euro adoption, I use the EA-12 aggregate as a benchmark since economic indicators for this aggregate are available over a longer time period than for the EA-19 aggregate.

level of convergence Croatia and Bulgaria have already achieved and the absence of excessive macroeconomic imbalances in both countries, they currently do not appear to pose significant risks for the conduct of the Eurosystem's common monetary policy, looking forward.

- Nevertheless, **various challenges face both countries, independently of their ambition to adopt the euro:**
  - Both economies record **comparably low levels of productivity and comparatively high levels of unit labor costs.**
  - Similarly, both countries will need to undertake additional efforts to improve the **overall business environment, the level of digital transformation, their innovation capacity and education outcomes.**
  - Room for improvement exists also in terms of product market regulation, and both countries will have to **further enhance the quality of institutions and governance and step up the fight against corruption.**
  - **Maintaining financial stability** (including the nonbank financial sector) **will be equally essential for economic success** both within and outside the euro area.

## 1. Introduction

In this paper, I **reflect on selected economic and institutional indicators** of Croatia and Bulgaria ahead of the countries' potential adoption of the euro in 2023 and 2024<sup>3</sup>, respectively. Our aim is to assess potential benefits and risks from the perspective of (1) the two countries and (2) the euro area.

The **adoption of the euro** is neither a privilege nor an option. It is an **obligation** of each EU member state, as **laid down in the Treaty on the Functioning of the European Union (TFEU)** as soon as a member state sustainably fulfills the convergence criteria. For some countries, euro adoption will represent a significant change in the operating environment of their economies and in the conduct of their economic policies; for others it is a "logical" continuation of the existing monetary policy regime.

I would like to emphasize that **any assessment of "readiness"** for euro adoption can only be a **snapshot at a certain point in time**: national political preferences and balances of power can change rapidly with an impact on national economic policies. It goes without saying

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<sup>3</sup> The newly elected Bulgarian prime minister, Kiril Petkov, confirmed in an interview in early January 2022 that his government remains committed to adopting the euro as planned on January 1, 2024.

that smooth and **successful participation** in the common currency area requires not only a **thorough convergence assessment** in line with the requirements of the TFEU, **but also the continuation of sound economic policies upon euro adoption.**

This has to be **supported by a euro area-/EU-wide institutional framework** which allows for the timely detection of emerging threats for stability and which provides for effective tools to have these threats reversed. Further, this framework needs to strike a balance between **adapting to evolving circumstances and** at the same time **applying the principal of equal treatment**, as it has been applied by the European Commission and the European Central Bank (ECB) in Convergence Reports over the past 25 years.

Let us also emphasize that the **wide range of indicators presented here** – and which may be considered as having a bearing on the adoption of the common currency and future smooth participation in monetary union – should not be confounded with the Maastricht convergence criteria (even if some indicators may overlap). This paper therefore is **complementary to the upcoming regular assessment of convergence with respect to the Maastricht criteria** by Croatia and Bulgaria (including their performance under the Single Supervisory Mechanism). This latter assessment is solely up to the European Commission and the ECB in their respective Convergence Reports. Hence, all the views expressed here are without any prejudice to the formal convergence assessment by these two institutions.

The paper is structured as follows: section 2 gives a comprehensive overview of the main findings the European Commission and the ECB have expressed in their respective Convergence Reports since Croatia and Bulgaria joined the EU. Section 3 reviews the potential benefits and risks of euro adoption from the perspective of Croatia and Bulgaria. Section 4 discusses the inclusion of the two countries in the common currency area from the perspective of the euro area, including a review of the significance of the two countries for the euro area as a whole and potential impacts of their inclusion. I also take into account potential imbalances and deficiencies in the two economies which may be relevant for their successful participation in the euro area. Annex 1 analyzes differences between Croatia and Greece at the time when Greece adopted the euro. Annex 2 reviews Croatia as Austria's economic partner. Annex 3 contains additional charts referred to in the main text.

## 2. Summary assessments of Croatia and Bulgaria in past Convergence Reports

In past Convergence Reports, the European Commission and the ECB arrived at rather positive overall assessments with regard to both countries' compliance with the requirements for adopting the euro – even though neither Bulgaria nor Croatia have to date fulfilled all conditions.

Looking at the two countries' assessments in **Convergence Reports** since their joining the EU (i.e. Bulgaria in two-year steps starting in 2008; Croatia since 2014), the fulfillment of the inflation criterion was generally less problematic: **Bulgaria has complied with the inflation criterion in all reports since 2012, with the exception of 2020** when its

inflation rate was above the reference value mainly due to the strong rise in energy and food prices and strong services inflation on the back of the rapid growth of unit labor costs. **Croatia has fulfilled the price stability criterion in all reports since 2014.**

The review is somewhat more differentiated with respect to the fiscal criteria: **Bulgaria has satisfied the fiscal criterion in all reports since 2008, with the exception of 2010**, because its budget balance deteriorated significantly in 2009 with the onset of the global financial crisis. **Croatia** had been subject to an excessive deficit procedure until mid-2017 but **was found to fulfill the fiscal criterion in the 2018 and 2020 Convergence Reports.**

**Both countries have complied with the criterion on long-term interest rates, with the exception of Bulgaria in the 2010 Report**, when rising inflation differentials, broader concerns about the overheating of the Bulgarian economy, declining global risk appetite and rising country risk premia led to a widening of the long-term interest rate differential to the three inflation best-performers in that report.

Since both Croatia and Bulgaria only joined the exchange rate mechanism ERM II in mid-2020, **neither of the two countries could have formally fulfilled the exchange rate criterion so far.**

Concerning other relevant factors, the economies of **both countries have been found to be highly integrated with the EU**, in particular with respect to trade and foreign direct investment (FDI) relations and the financial sector.

Both Croatia and Bulgaria have participated in the **Single Supervisory Mechanism** through close cooperation since October 1, 2020 (following the ECB's decision in July 2021 to establish close cooperation with the central banks of the two countries and the subsequent completion of a significance assessment process).

**External imbalances** varied over time but in the past few Reports they were found to **have improved substantially** and both countries have recorded substantial surpluses on their combined current and capital account at least since 2015.

In the framework of the **Macroeconomic Imbalance Procedure (MIP)**, **Bulgaria was subject to annual in-depth reviews (IDRs) in the period from 2012 to 2020.** It experienced imbalances mainly in the areas of external indebtedness, corporate deleveraging, nonperforming loans, labor market imbalances and banking practices in the domestically-owned part of the banking sector. In several years, these imbalances were deemed to be excessive, requiring specific monitoring and policy action. **Croatia has likewise been subject to IDRs since its entry into the EU in 2014**, experiencing excessive macroeconomic imbalances. Such imbalances required specific monitoring and strong policy action mainly in the areas of sizable private, public and external debt, declining export performance and weak competitiveness. In a snapshot, **imbalances had been gradually rewound in both countries over the past few years** and were no longer deemed "excessive" in more recent reports (Bulgaria since 2018, Croatia since 2019). Furthermore, the Commission in its **spring 2020 IDR found that Bulgaria was no longer**

**experiencing imbalances and the Alert Mechanism Report in November 2020 did not select Bulgaria for an in-depth review in 2021.** Similarly, the 2022 Alert Mechanism Report in November 2021 found no imbalances in Bulgaria, while **Croatia was again selected for an IDR, the results of which will be available in spring 2022,** in time for the regular 2022 Convergence Reports by the Commission and the ECB. For more details, see section 4.3.

### 3. Euro adoption from the perspective of Croatia and Bulgaria

#### 3.1 Potential benefits

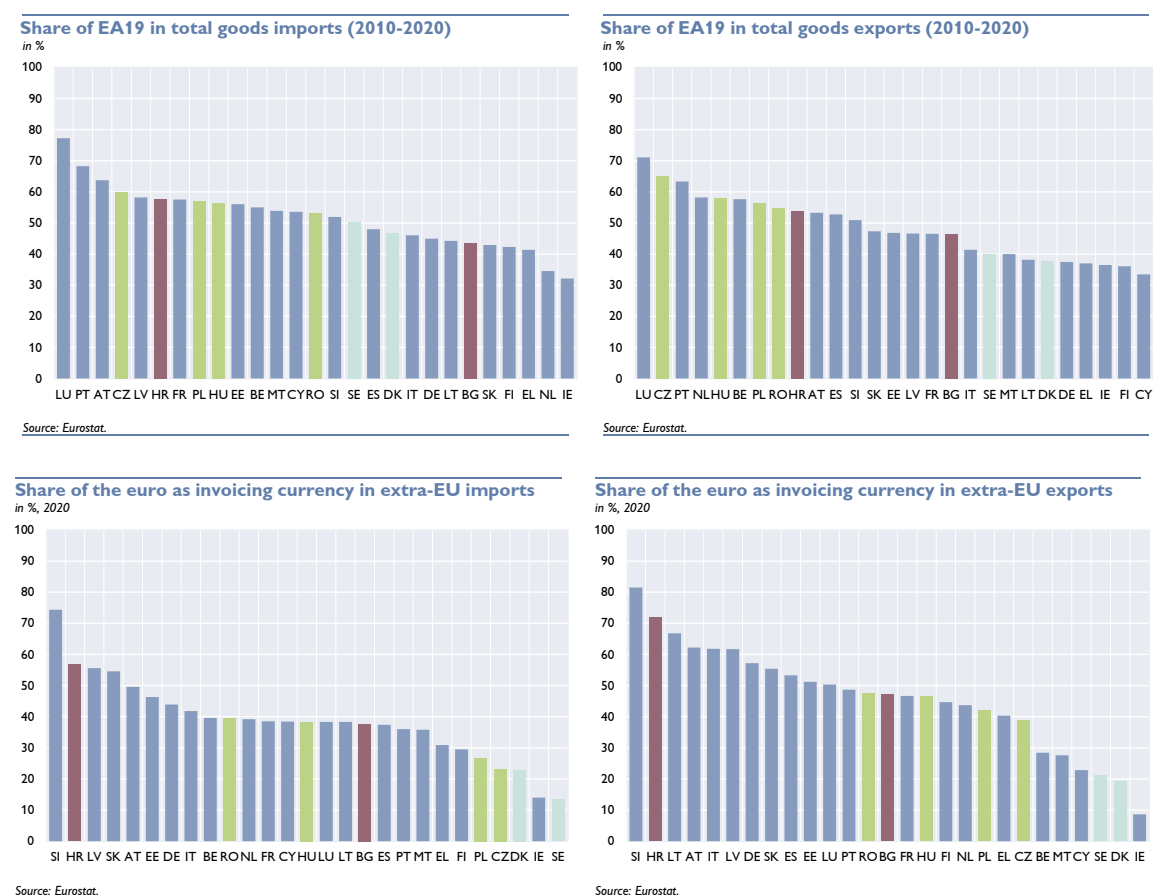
##### 3.1.1 Exchange rate volatility and risks

The exchange rate of the **Croatian kuna** has **fluctuated in a narrow range vis-à-vis the euro** (between HRK 7.1 and HRK 7.8 per euro) for the past twenty years. This stability has been achieved, inter alia, by **temporary interventions by the central bank** on the foreign exchange market, **partly by buying euro** from and **selling euro** to commercial banks. These interventions have been **limited in size but have overall increased over the past decade** to a few hundred million euro per intervention (since 2016 consisting mostly of purchases of foreign exchange from banks). While exchange rate fluctuations have thus been relatively low over the past two decades, the **adoption of the euro is expected to reduce potential exchange rate risks** imminent in the current tightly managed float regime (i.e. credibility risk, especially at times of tension).

The exchange rate of the **Bulgarian lev** has been **fixed to the euro** since 1997 in the framework of a **currency board** (until 1999 to the Deutsche Mark). Given the credibility and robustness of the system during this period, **euro adoption cannot additionally reduce exchange rate volatility but will further eliminate the currently limited exchange rate risk.**

A low level of exchange rate volatility and risk is important for both countries already now as **euro area member states are the major trading partners** and the **euro plays an important role as an invoicing currency** also in their extra-EU trade (chart 1). This is particularly true for Croatia, which compares well to the most integrated euro area countries with respect to both indicators. In addition, **euro area banks accounted for almost 100% of total consolidated foreign claims of all BIS-reporting banks (on an ultimate risk basis) vis-à-vis both Croatia and Bulgaria** in the second quarter of 2021. The euroization of the domestic financial system is substantial in both countries, with **loans denominated in or linked to the euro accounting for 50% of total loans to households and nonbank corporations in Croatia** at end-September 2021 (**Bulgaria: nearly 30%**). The respective figures for deposit euroization were comparable. Upon euro adoption, these loans and deposits will be denominated in the local currency, and the same will be true for a substantial part of balance of payment transactions and of external assets and liabilities. This will reduce currency risk and external vulnerabilities.

**Chart 1:** Trade integration with the euro area (EA-19), 2010-2020 average



### 3.1.2 Monetary policy credibility, price stability

The **monetary policy of the Croatian National Bank (CNB) is based on nominal exchange rate stability** of the kuna vis-à-vis the euro. The CNB stabilizes inflation expectations and ultimately inflation by maintaining nominal exchange rate stability. Given that the **exchange rate of the kuna vis-à-vis the euro has fluctuated in a narrow range** over the past 20 years (between HRK 7.1 and HRK 7.8 kuna per euro) and **inflation has been reduced** from 2% to 6% year on year (1999–2013) to 0% to 2% in recent years, the CNB can be regarded as having **credibly achieved its monetary policy objective**.

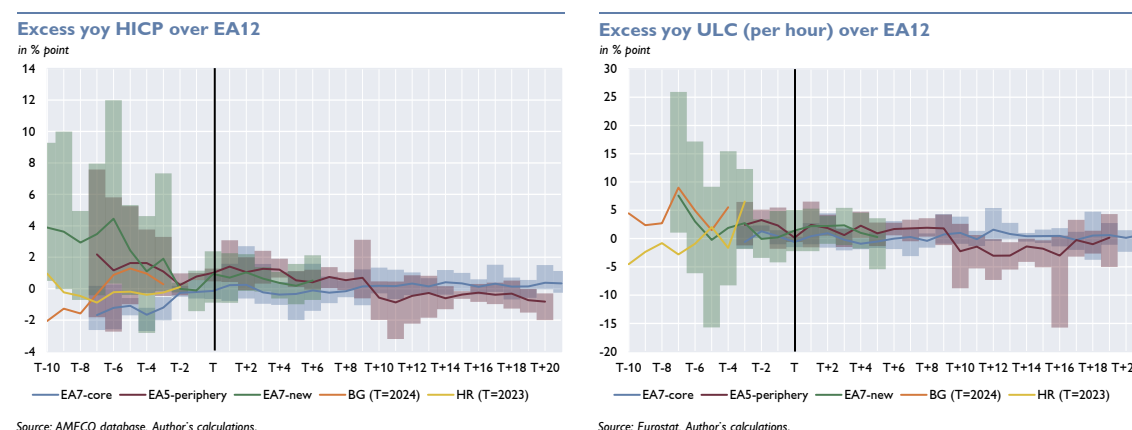
**Bulgaria** has been operating a **currency board since 1997 without noticeable tensions**. During this long period, **inflation decreased** from the 2%–12% year-on-year range (1999–2012) to a range between –1.5% and +2.5% since 2012. As such, **monetary policy has been credible so far** and the common monetary policy of the euro area would prolong this credibility.

As can be seen from chart 2 below, inflation rates have become increasingly aligned for all groups of countries two years ahead of euro adoption. The recent (2020) inflation **differential in Bulgaria is smaller than the inflation differentials which the EA5-periphery and the EA7-new exhibited in the run-up to euro adoption, while Croatia’s inflation differential comes close to the EA7-core countries at that stage**. Moreover, the Croatian inflation rate has been broadly comparable to the inflation rate



in the EA-12 as a whole since 2010. Nominal unit labor cost dynamics (ULC per hour) are also in line with the those observed in current euro area members in the run-up to euro adoption.

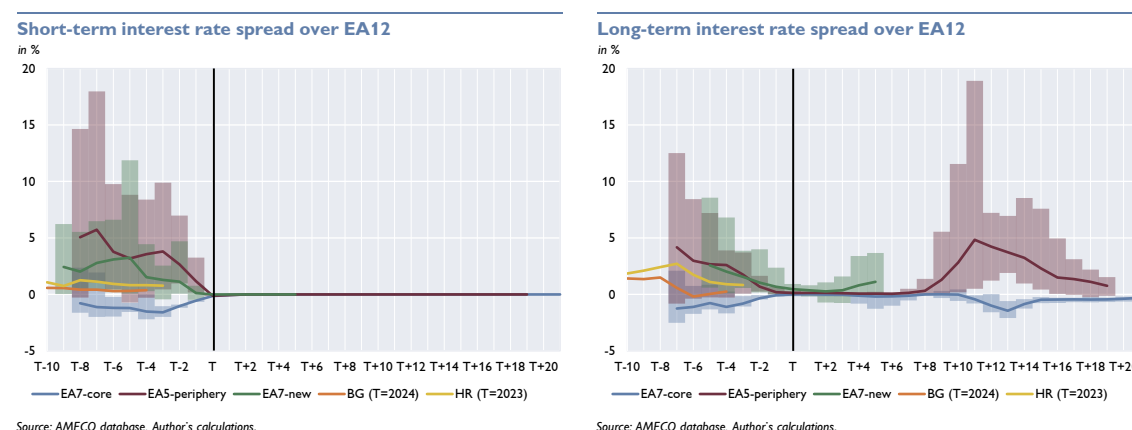
**Chart 2:** Inflation and ULC differential to the euro area (EA-12)<sup>4</sup>



### 3.1.3 Additional interest rate convergence

Both **short-term and long-term interest rates have converged** in Croatia and Bulgaria to the euro area average over the past few years. As shown in chart 3, the **interest rate spread over the EA-12 in both countries was lower in 2020 than in the EA5-periphery and in the EA7-new in the years before their euro adoption**. Therefore, the prospects for Croatia and Bulgaria for **additional interest rate convergence (and connected risks) are limited and smaller than was the case in the majority of current euro area members** at the time they entered the euro area.

**Chart 3:** Interest rate spread over the euro area (EA-12)



### 3.1.4 Other benefits of euro adoption

Further, both countries would reap the **additional benefits** which are commonly associated with being a member of the euro area, such as **increased competition** due to the enhanced comparability of prices, **better integrated financial markets** and **improved economic stability**. The further reduction of exchange rate volatility in Croatia and the elimination of

<sup>4</sup> The columns represent the range of values in the respective country group.

both transaction fees and residual exchange rate (regime change) risks in both countries imply **better predictability** and **cost savings for businesses and households** (which is particularly relevant for the relatively large tourism sector in Croatia) and may additionally benefit trade and financial linkages. Improved economic stability, not least due to the **Stability and Growth Pact's stricter requirements** for euro area members (e.g. draft budgetary plans and council recommendations for the euro area in the framework of the European Semester, stricter adjustment paths in the preventive and the corrective arm of the SGP), may reduce economic uncertainties and thereby **encourage private sector investment**.

### 3.2 Potential risks

One of the **most relevant risks generally associated with euro adoption is that the joining country loses its monetary policy autonomy**. Should the common monetary policy stance prove inappropriate for the respective member country, this can **lead to economic suppression or overheating**, with corresponding risks of insufficient or too rapid income (i.e. GDP per capita at PPS<sup>5</sup>) convergence and deviation of inflation from its desired path (i.e. deflation or excessive inflation). For catching-up economies, overheating risks are more commonly referred to. In this context, it must be underlined that **monetary policy autonomy has been basically non-existent in Bulgaria for the past 25 years and it was severely constrained in Croatia** due to the tightly managed exchange rate policy. However, this has **not endangered economic stability** or a low inflation environment in either of the two countries while it allowed a gradual convergence to the euro area average in terms of GDP per capita at PPS.

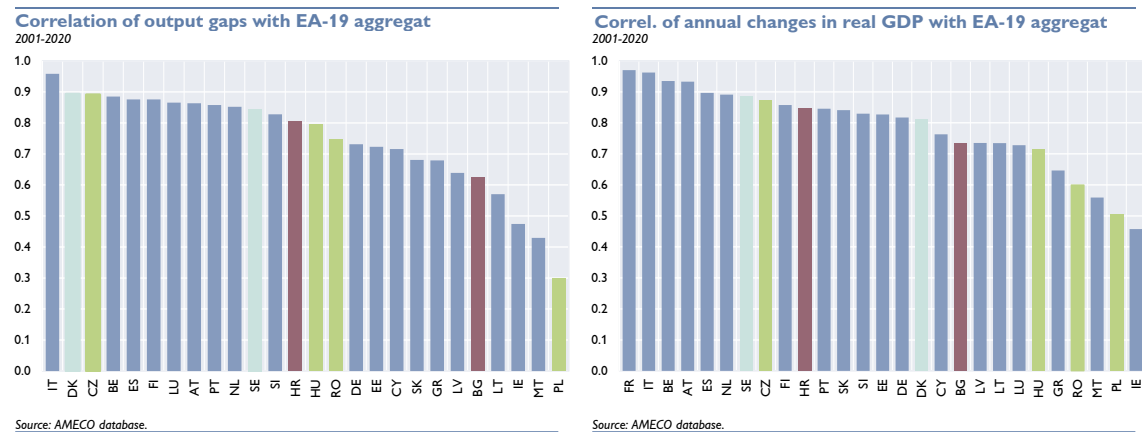
Focusing on the likely impact of euro adoption on the convergence path, the following factors should be recalled:

- First, **economic cycles seem to be relatively well aligned between Croatia and the current EA-19 aggregate**, as suggested by the relatively high correlation of output gaps and annual changes in real GDP over the past two decades in chart 4. The **correlation is lower for Bulgaria, but still higher than for some incumbent euro area countries**. Therefore, risks related to asymmetric shocks appear manageable.

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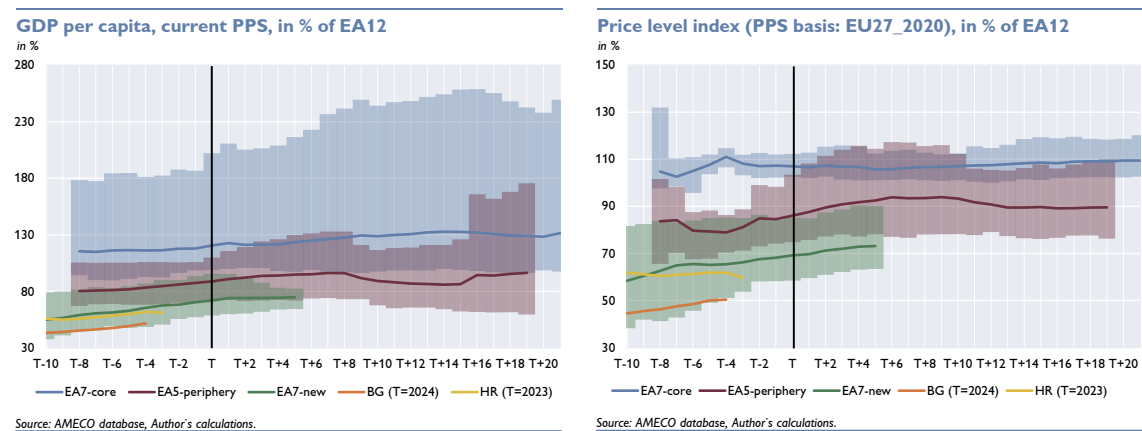
<sup>5</sup> PPS (purchasing power standard) is an artificial currency unit in which economic aggregates (e.g. national accounts aggregates) are expressed when adjusted for price level differences using PPPs (purchasing power parities). Thus, PPPs can be interpreted as the exchange rate of the PPS against the euro.

**Chart 4:** Business cycle correlation with the euro area (EA-19)



- Second, in the long run, the potential for catching-up is high for both countries, as suggested by low **GDP per capita and price levels compared to the euro area** (chart 5). While both indicators recorded **only modestly lower values than the average of the EA7-new a few years before euro adoption in Croatia**, in **Bulgaria they were at the bottom of the range seen for the EA7-new** at the same stage on the road to euro adoption.

**Chart 5:** Income and price level convergence to the euro area (EA-12)



However, **economic convergence does not necessarily require excessive growth**: convergence can take place at moderate per capita real GDP growth rates of a few (e.g. 2 to 3) percentage points in excess of the euro area, which **minimizes the risk of boom-bust cycles**. Moreover, it has to be noted that **over the past three decades the euro area as a whole has not delivered a clear history of income convergence at the country level** as indicated by the lack of a negative relationship between the initial level of GDP per capita (in PPS) at the time of euro adoption and subsequent economic growth in the charts below (see chart A1 in the annex). Yet, when I focus on single countries, there is some evidence of convergence. In particular, the three Baltic countries and Malta show income convergence over the full euro area membership period. Of course, these observations only represent correlations and do not imply any causal relationships.

- Third, the **composition of economic growth matters for both its inflationary effect and its contribution to income convergence**. Growth based primarily on exports or on non-dwelling investments (preferably in innovative, high value-added sectors, digital transformation, high-tech), which raise the growth potential, is presumably less prone to invoke excessive inflation than growth based primarily on consumption. Again, sound fiscal and income policies are important.
- Finally, **it is not the task of monetary policy to lay the foundation for sustainable economic convergence**. Other policy areas, such as fiscal policy, income policy, structural policies, education policy, macroprudential policy or the development of institutions and the economic and political climate of a country in general should pave the way for successful catching-up by focusing on improving the supply side of the economy (e.g. improved education outcomes, labor and product market reforms, measures to boost employment), enhancing productivity growth and competitiveness. In particular, they may also help address concerns about current comparably low levels of labor productivity and unit labor costs in both Croatia and Bulgaria (as identified in section 4.4 below).

**Cautious fiscal, income and macroprudential policies can as well mitigate the effects of a common monetary policy which cannot be aligned to country-specific needs in all circumstances.** For example, with respect to the potential risk of overheating in the context of rapid catching-up, macroprudential tools may be applied to bolster banks' capital buffers, prescribe loan-to-value or payment-to-income ratios, set maximum maturities for loans, or apply stricter risk weights for specific types of loans. Similarly, fiscal policy measures may bring about desired effects e.g. by a borrower-based tax on new lending or, more generally, on new debt, if credit growth threatens to become excessive. Similarly, interest subsidies can be used to prop up credit growth if it "suffers" from a too high common interest rate level in the monetary union.

## 4. Euro adoption in Croatia and Bulgaria from the perspective of the euro area

**Common concerns regarding the introduction of the euro in Croatia and Bulgaria** focus on (1) **possible adverse implications for the conduct of the common monetary policy due to increased heterogeneity inside monetary union** following the inclusion of these two countries and (2) **fears about the two countries' preparedness to join** (beyond the simple fulfillment of the Maastricht criteria).

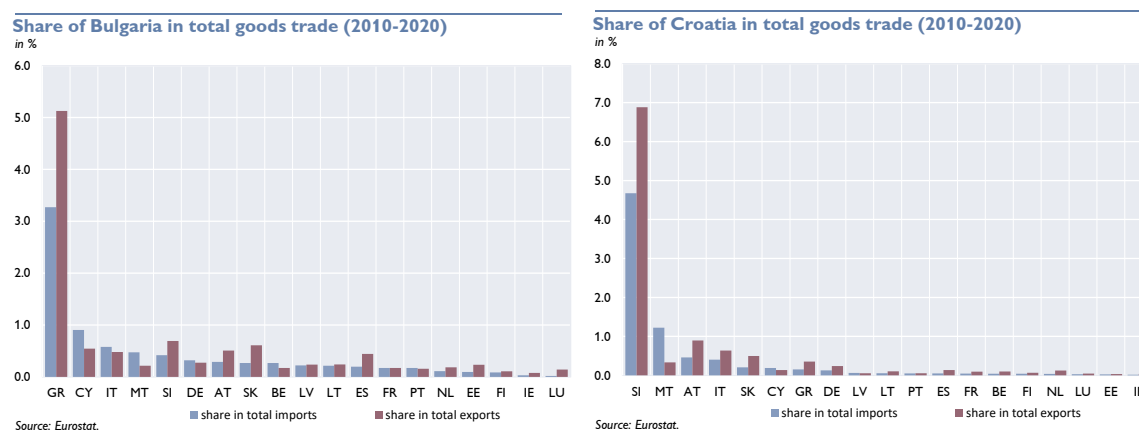
### 4.1 Low significance of Croatia and Bulgaria for the euro area...

As with previous enlargements of the euro area, **the relevance of euro adoption is highly asymmetric between the acceding countries and the euro area: While the euro area is the major economic partner for both countries, Croatia and Bulgaria are of considerably less significance for the euro area.** Croatia accounts for 1.2% of the total **population** of the EA-19, for 0.7% of **GDP at PPS** and for 0.4% of

**GDP in current EUR.** The respective figures for Bulgaria are 2% (population), 1.1% (GDP at PPS) and 0.5% (GDP in current EUR).

The two countries also play **little role for the euro area’s total external trade** (chart 6). Nevertheless, on a bilateral basis, Bulgaria has some significance for the external trade of Greece, while Croatia plays a role for Slovenia.

**Chart 6:** Bilateral trade integration of EA-19 with Bulgaria and Croatia, 2010-2020 average

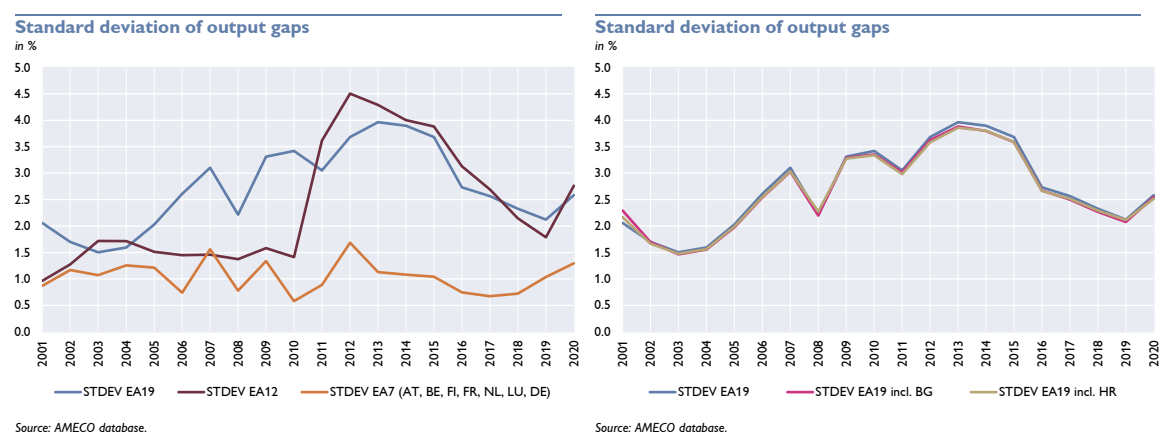


Similarly, according to the BIS consolidated banking statistics, the **two countries taken together account for less than 1% of euro area banks’ consolidated foreign claims** (ultimate risk basis). Somewhat higher shares can be found for individual euro area member countries (e.g. Croatia’s share in Austrian banks’ consolidated foreign claims amounts to around 5%, while Bulgarian residents account for 8% of Greek banks’ consolidated foreign claims).

## 4.2 ...and small impact on euro area-wide heterogeneity

Concerning the heterogeneity issue, chart 7 describes the additional heterogeneity measured by the coefficient of variation or the standard deviation of selected indicators. The chart on the left-hand side shows dispersion in the euro area in its current composition (EA-19) and in two subgroups: the group of 12 members before 2007 (EA-12) and the core countries within these 12 members (EA7-core). On the right-hand side, the current EA-19 aggregate is represented again, this time joined by two hypothetical “enlarged” compositions, including Croatia and Bulgaria, respectively.

**Chart 7:** Heterogeneity in the euro area (EA-19) and hypothetically enlarged euro area



The left-hand panel of chart 7 conveys a **uniform message**: the **seven core countries** (EA7-core) have **constituted a fairly homogenous area** over the past twenty years and this homogeneity has been broadly preserved despite the global financial crisis. Heterogeneity is higher when looking at the complete EA-12 aggregate (i.e. including the EA5-periphery). **Heterogeneity increased especially in the late 2000s/early 2010s as the core and the periphery countries fared differently through the global financial crisis, even though with respect to some indicators** (see chart A2 in the annex), such as productivity, unit labor cost and price levels, such **greater heterogeneity could already be observed since the start of monetary union**. With a few exceptions, **heterogeneity further increases if the EA7-new are included** in the calculation (thus constituting the current EA-19 aggregate). **However, both, heterogeneity within the EA-19 and the difference between the EA-19 and the EA-12 have decreased over time** for the output gap and for most indicators.

The EA7-new did not participate in the common currency over the full period presented in the charts but entered at different points in time between 2007 and 2015. This could be interpreted as an indication that autonomous monetary policy may have supported their convergence prior to euro adoption. This line of reasoning is, however, challenged by the fact that monetary policies of these countries have been aligned with the euro area over most of the twenty years due to specific exchange rate arrangements, such as the currency boards in Estonia and Lithuania and the tightly managed floats in Cyprus and Latvia, or they have become increasingly aligned during participation in ERM II, as in the case of Malta, Slovakia and Slovenia. Concerning periods after euro adoption, increasing homogeneity is worth being noted, even though it does not allow conclusions regarding the causal effect of the common monetary policy.

Turning to the charts on the right-hand side, comparing the standard deviation of the output gap for the two hypothetical enlarged compositions of the euro area aggregate suggests that the **inclusion of neither of the two countries would have increased heterogeneity beyond what we observed over the past twenty years.**<sup>6</sup>

<sup>6</sup> Chart A2 in the appendix suggests that a more noteworthy increase in heterogeneity would have occurred only with respect to the dispersion of relative GDP per capita and price levels if the two countries had been included (due to the comparably

### 4.3 No signs of excessive macroeconomic imbalances in either Croatia or Bulgaria in general...

Looking at **indicators of broader macroeconomic stability** based on values for 2020, the European Commission's Alert Mechanism Report (AMR) of November 2021 in the framework of the Macroeconomic Imbalance Procedure (MIP), also referenced in the regular Convergence Reports under "Other relevant factors," found that **in Bulgaria only one indicator of the scoreboard (the 3-year % change in nominal unit labor costs) was above the indicative threshold**, which is a low number in EU-27 comparison. Overall, the AMR concluded that *"Bulgaria entered the COVID-19 crisis with no identified macroeconomic imbalances, although nonperforming loans and corporate indebtedness were relatively high, albeit declining. With the COVID-19 crisis, the private sector debt-to-GDP ratio increased temporarily in 2020 but is set to decline afterward. Wage compensation is expected to continue its pre-pandemic growth path. Overall, the Commission does not consider it necessary at this stage to carry out further in-depth analysis in the context of the MIP."*

**For Croatia, the AMR identified four indicators to exceed their respective indicative thresholds**, ranging in the mid-field of the EU-27. These indicators were the net international investment position as a percentage of GDP, the 3-year % change in nominal unit labor costs, the annual change in real house prices and the level of the general government debt as a percentage of GDP. Overall, the AMR concluded for Croatia that it *"entered the COVID-19 crisis with vulnerabilities linked to government, private sector and external debt in a context of low potential growth. With the COVID-19 crises, debt ratios have increased. Overall, the Commission finds it opportune, also taking into account the identification of imbalances in June, to examine further the persistence of imbalances or their unwinding."*

**An updated scoreboard with values for most indicators including the third quarter of 2021** (see chart A3 in the annex) shows that Croatia's values for the **3-year % change in nominal unit labor costs and the annual change in real house prices were no longer above the indicative threshold**. With only two remaining indicators above the threshold (with both of them approaching the threshold between end-2020 and the third quarter of 2021), Croatia was **in a better position than the majority of the EU-27 countries**.

Looking more in-depth at various indicators of the scoreboard in the context of euro adoption, **inflation and interest rates of the two countries have converged in line with (or even more than) what we could observe prior to previous enlargement rounds** of the euro area (see also section 3). **Government debt levels and budget balances** of the two countries during the past few years have also been **comparable to** (in Bulgaria even more favorable) than those during previous euro area enlargement episodes (chart 8).

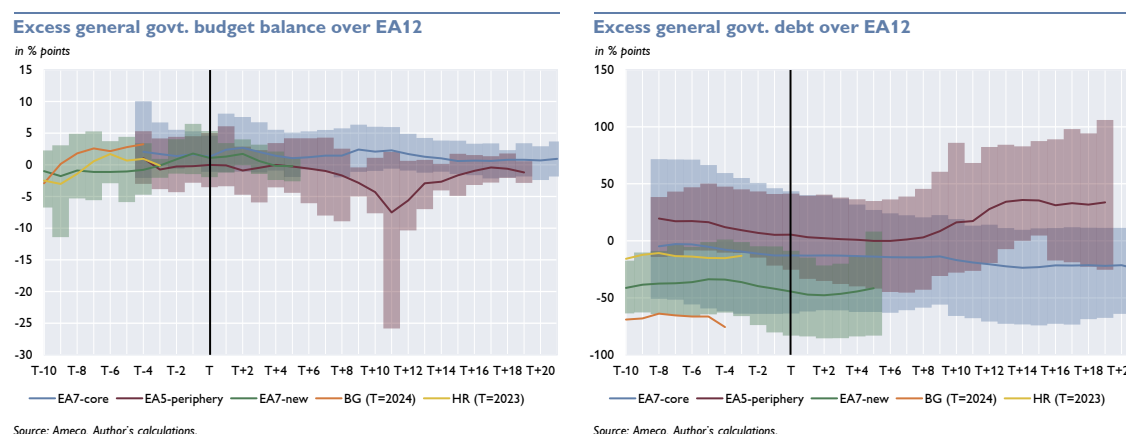
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low levels of both indicators in these two countries). The impact on the cross-country variation in GDP per employed (in PPS) and on the government debt ratio has to be interpreted with care: the inclusion of Bulgaria would have increased dispersion (due to very low relative levels of both indicators compared to the EA-19), while the inclusion of Croatia would have reduced dispersion (Croatia's government debt ratio is closer to the EA-12 than that to the EA7-new) or left it unchanged (with respect to GDP per employed).



Certainly, debt ratios in both countries rose again in 2020 as a result of the COVID-19 crisis, in Croatia even substantially.<sup>7</sup> According to the **European Commission’s Debt Sustainability Monitor 2020**, Bulgaria was found to be at low debt sustainability risk over the short- and medium term and at medium risk over the long term, while Croatia’s debt sustainability risk was assessed at high risk in the short-term and at medium risk over the medium and long term (see chart A4 in the annex).

**Chart 8:** Fiscal convergence to the euro area (EA-12)



In the terms of the **unemployment rate differential to the EA-12**, both Croatia and Bulgaria have lower differentials than the EA5-periphery or EA7-new experienced in the run-up to euro adoption. Following gradual improvement over the past decade, in 2020 the **employment rate** in Bulgaria was comparable to that of the EA-12 as a whole and its relative position was thus in line with the EA7-new and better than in the EA5-periphery countries ahead of euro adoption. The employment rate in Croatia continues to lag behind its peers despite ongoing increase over the past few years, but the gap to the EA-12 has recently moved into the lower part of the range seen for EA5-periphery and EA7-new members of the euro area. (see chart A5 in the annex).

Chart 9 reviews convergence in the financial sector. Both Croatia’s and Bulgaria’s **net lending position against the rest of the world** (i.e. combined current and capital account balance) looks also favorable in such a comparison. In 2020, the size of **private sector credit flow** (as a percentage of GDP) relative to the EA-12, indicating the current dynamics of credit growth, was comparable to the levels seen for current euro area member states a few years prior to euro adoption. The level of financial deepening, measured by the level of **private sector debt** (as a percentage of GDP), was in 2020 in both countries lower than in the EA-12, but the gap was within the range of the EA5-periphery or the EA7-new countries a few years before euro adoption. According to the **IMF’s Financial Development Index**, which consists of a financial institutions subindex and a financial markets subindex and measures the level of development in terms of depth, access and efficiency, Croatia’s latest (2019) relative development level compared to the EA-12 comes close to the upper end of the range seen for the EA7-new and falls into the lower end of the range seen for the EA5-periphery ahead of euro adoption. Bulgaria’s relative financial

<sup>7</sup> Yet, compared to the EA-12 average, the increase was much smaller in Bulgaria and only modestly larger in Croatia.



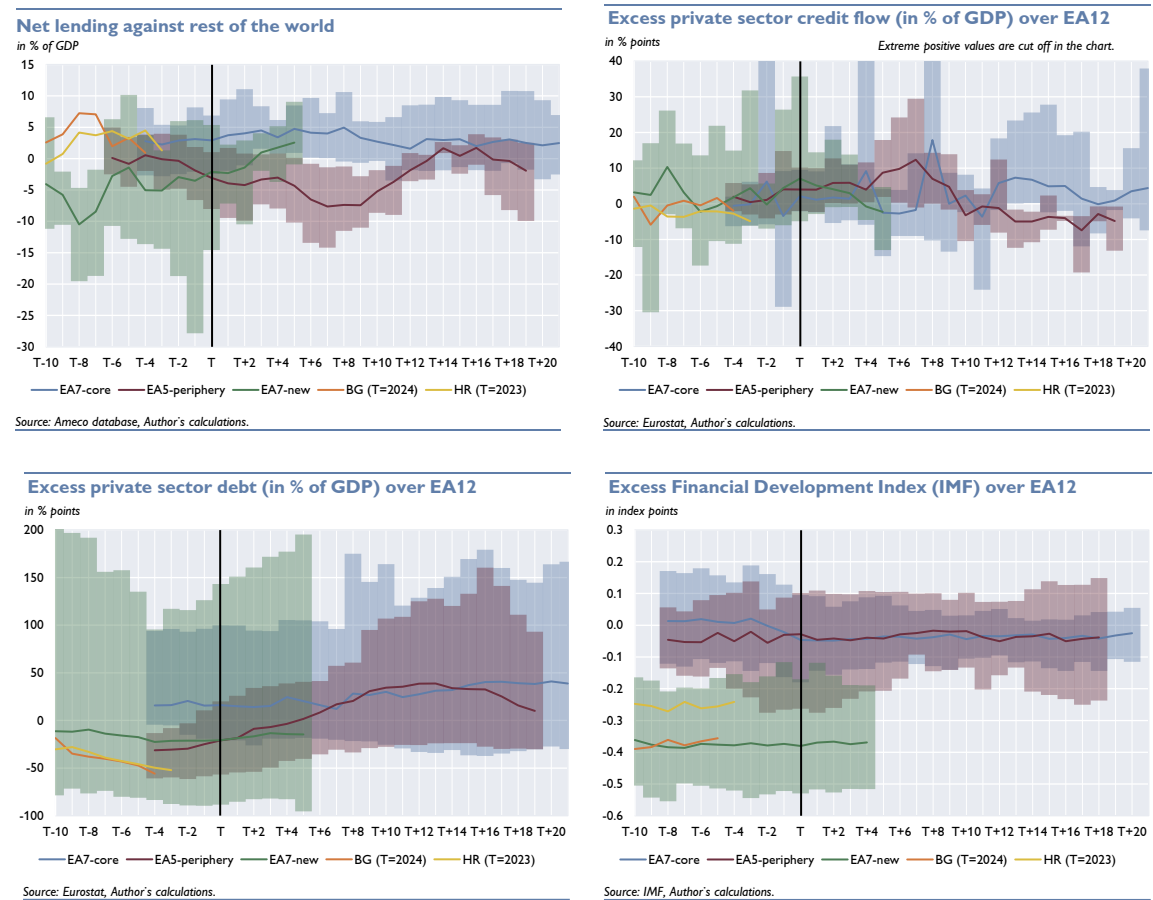
development level is assessed to be lower, matching the average of the EA7-new in the run-up to euro adoption.

As to **banking sector stability** (see chart A6 in the annex), consolidated banking data shows for both Croatia and Bulgaria comparably high levels of profitability and favorable cost efficiency. Capital adequacy is also relatively high compared to most euro area countries, while their loan-to-deposit and liquidity ratios also compare favorably. On a somewhat more negative note, the nonperforming debt ratio is high in comparison with euro area countries, but the ratio has been on a declining path in recent quarters (up to mid-2021). Moreover, the size of net nonperforming debt instruments as a percentage of own funds lies in the mid-field of the EU-27 in Croatia. By contrast, in Bulgaria this ratio is also comparably high albeit decreasing. Maintaining financial stability (including in the nonbank financial sector) will be essential for a smooth and successful participation in the euro area. In preparation for establishing close cooperation between the ECB and the national competent authorities for banking supervision, the ECB conducted a comprehensive assessment of six Bulgarian and five Croatian banks on the basis of data at end-2018 and mid-2019, respectively. The applied asset quality reviews (AQR) and stress tests showed that none of the covered Croatian banks showed any capital shortfalls or fell below relevant thresholds used in the AQR and the stress tests. Among the six Bulgarian banks, four passed the tests, while two banks fell below relevant thresholds both in the test's baseline and adverse scenario. More recent stress tests by the Croatian central bank on the basis of data at end-2020 confirmed that the banking system as a whole was resilient and ready to bear increased credit losses under the adverse scenario. However, there was considerable heterogeneity in the shock-absorbing capacity of individual credit institutions and 11 credit institutions, accounting for 4.8% of total banking sector assets, would fall below the total SREP capital ratio (TSCR) under the adverse scenario.<sup>8</sup>

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<sup>8</sup> No comparable stress test results are available for the Bulgarian banking system.

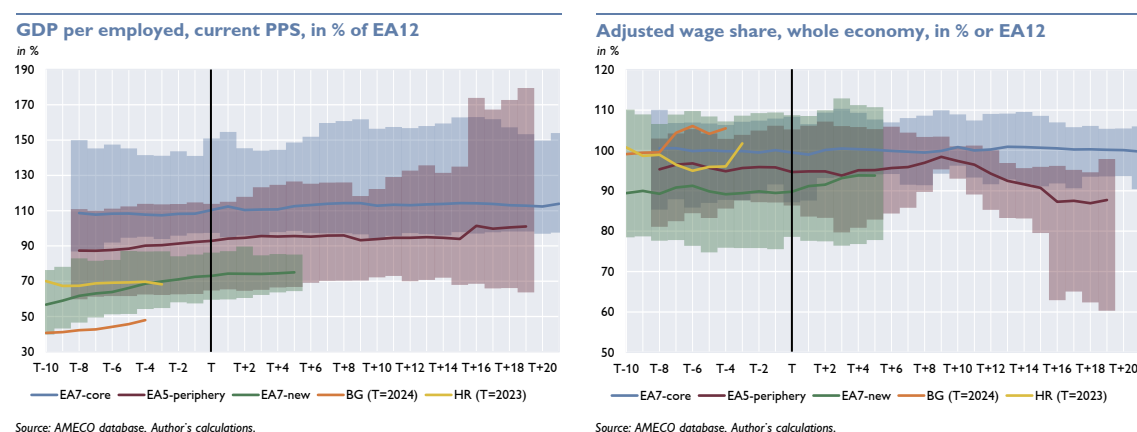
**Chart 9:** Financial sector convergence to the euro area (EA-12)



#### 4.4 ... but room for improvements remains in productivity levels, institutional quality and business environment

From the perspective of competitiveness, though, two indicators deserve particular attention. First, GDP per employed in current PPS as a percentage of the EA-12 stagnated in Croatia over the past few years and in 2020 it reached roughly the same level as the average of the EA7-new three years before euro adoption. Bulgaria's relative productivity level is even clearly below the range seen prior to previous euro area enlargements (chart 10).

**Chart 10:** Convergence in labor productivity and wages to the euro area (EA-12)

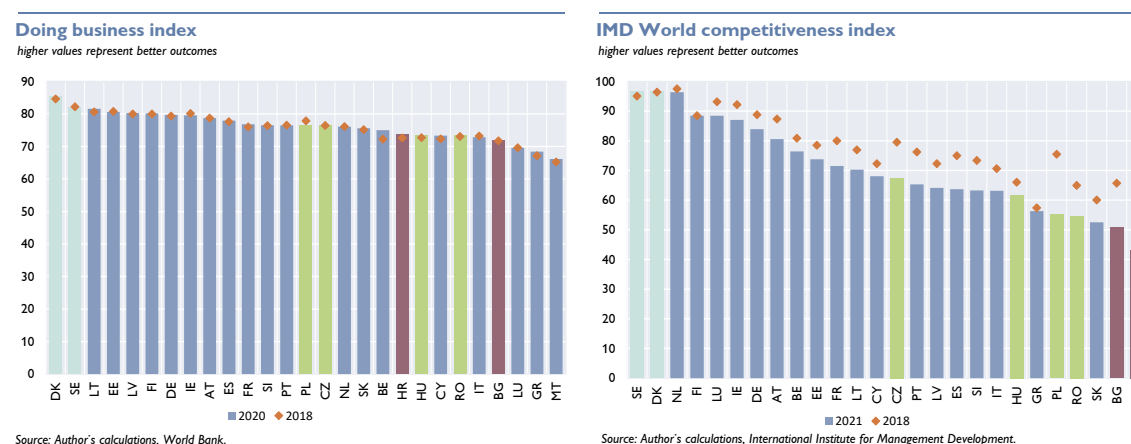


**In Croatia**, this comparably **poor relative productivity level** was roughly matched by a **similarly low level of relative labor costs** (measured by compensation per employee) vis-à-vis the EA-12, as suggested by the **adjusted wage share of close to 100% of the EA-12 average** (right-hand panel in chart 10). This is **broadly in line with the level which the EA5-periphery countries experienced on average before euro adoption, but below labor competitiveness observed in the EA7-new on average.**<sup>9</sup> Even worse, the **adjusted wage share in Bulgaria increasingly exceeded the level of the EA-12 over the past few years and came close to the upper end of the range observed before previous euro adoptions by 2020.** Overall, the **combination of low relative GDP per capita levels and high levels of relative unit labor costs gives rise to concerns about wage competitiveness and the outlook for future economic convergence.**

**Concerning the overall business environment and competitiveness**, chart 11 shows that both countries **rank in the lowest third of EU-27 countries** according to the latest assessment by the World Bank (Doing Business 2020) and the International Institute for Management Development (2021).

<sup>9</sup> The adjusted wage share measures compensation per employee as a percentage of GDP per employed, both in current EUR, whereby here the adjusted wage share in individual countries is expressed as a percentage of the EA-12.

**Chart 11:** Business environment and competitiveness ranking, EU-27



Further indicators of competitiveness are summarized in chart A7 in the annex: The picture is **similar in terms of** the European Commission's **Digital Economy and Society index** and the **European Innovation Scoreboard**. However, with the exception of the IMD index, both countries still rank better than a few incumbent euro area participants. Moreover, Croatia has improved its scores and its rank (with the exception of the IMD index) over the past three years more than most other EU member states. In this context it is also encouraging that gross fixed capital formation excluding dwelling construction and transport equipment, as a percentage of GDP, is in the mid-field of the EU-27. However, both countries would be well advised to strengthen investment in the development of intellectual property, and – as their recent PISA scores and tertiary education attainment levels suggest – in the improvement of education outcomes.

With respect to **product market regulation (PMR)**, available data from the OECD provides a **mixed picture**. In terms of economy-wide PMR, Croatia ranks in the middle of the EU-27, while Bulgaria has the least competition-friendly regulation within the EU. While in Croatia distortions induced by state involvement represent the bigger problem, distortions induced by state involvement and barriers to entry are evenly present in Bulgaria. By contrast, Bulgaria performs much better in terms of the regulation of the network sector, but Croatia also belongs to the middle third of the EU-27.<sup>10</sup>

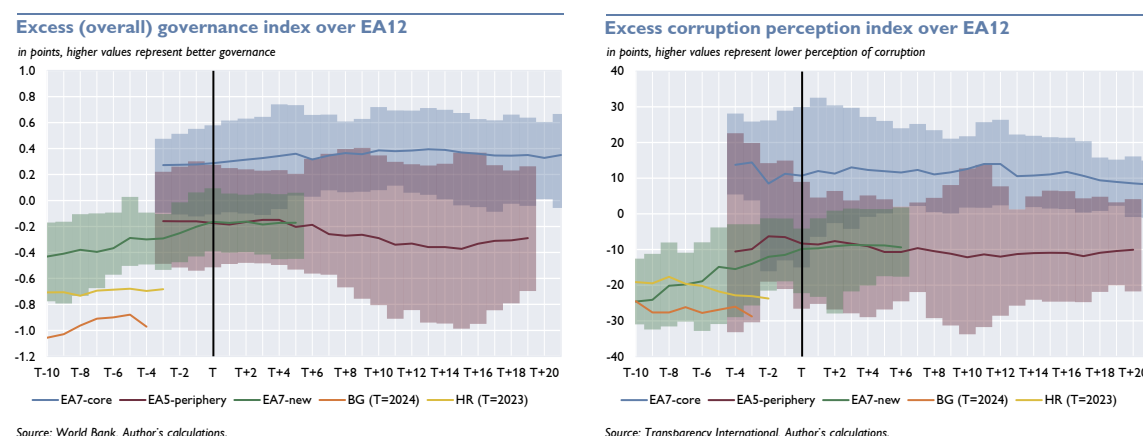
The Croatian economy is characterized by a comparably high **level of product diversification** (measured as the Herfindahl-Hirschman index of the gross value added by 64 NACE Rev. 2 branches), while the Bulgarian economy shows medium levels of diversification. At the same time, the **share of high-tech exports** in total exports is lower in both countries than the (arithmetic) EU average (in line with the above mentioned relatively poor showing of the two countries in terms of digitalization and innovation).

**Some deficiencies seem to exist in both countries with respect to soft indicators of institutional quality** (chart 12). The **gap is particularly large in the case of the World Bank's governance indicator**, where according to latest data (2020) both

<sup>10</sup> Unfortunately, neither of the two countries is included in the OECD's employment protection database to make quantitative assessments.

countries rank well below the EA-12 as a whole and the gap is bigger than it was for incumbent euro area member countries prior to euro adoption. Both economies perform poorly (positioned in the lowest fifth of all EU-27 countries) on almost all subindices (i.e. control of corruption, government effectiveness, regulatory quality, rule of law and voice and accountability) and achieved a better position only in terms of political stability. Bulgaria's overall absolute and relative position (compared to the EA-12) has improved modestly in recent years before a marked deterioration in 2020 due mainly to a worsening of the score for the control of corruption and government effectiveness. Governance in Croatia is suggested to have stagnated over the past few years both absolute and relative to the EA-12. It is of little solace that Croatia's current level of governance gap falls into the lower range of the EA5-periphery countries a decade after euro adoption, following a period of deterioration of governance in those countries after they had joined the monetary union. While governance remains weak according to available indicators, **both Croatia's and Bulgaria's relative position is better in terms of the corruption perception index**. Their most recent positions compared to the EA-12 nonetheless come close to the worst values in the ranges seen for incumbents a few years prior to euro adoption. Moreover, the relative level of perceived corruption in both countries has stagnated for the past few years, in contrast to the improvement which had been experienced by the EA7-new in the run-up to euro adoption.

**Chart 12:** Governance and corruption gaps toward the euro area (EA-12)



Importantly though, it should be noted that **before entering ERM II both countries had undertaken commitments** (Bulgaria in 2018, Croatia in 2019) to improve – inter alia – their governance and anti-corruption framework, and the **implementation** of these commitments was **positively assessed by European Commission and the ECB** ahead of the two countries' joining the ERM II in mid-2020. Furthermore, **upon entry into ERM II, both countries firmly committed themselves to continue reforms** and implement specific policy measures – among others – in these areas.

The **European Commission's 2021 Rule of Law Report (RLR)** of July 2021 commended Bulgaria for the adoption of a dedicated Action Plan in response to the 2020 RLR. Nevertheless, it still noted deficiencies mainly in the areas of (1) judicial independence, (2) the effectiveness of measures related to the integrity of public administration, lobbying and whistleblowing protection, the conviction of high-profile corruption, (3) the transparency of

media ownership, the working environment and safety of journalists and (4) the limited use of impact assessments and public consultation in the legislative process. As for Croatia, the RLR acknowledged improvements in several areas but highlighted (1) still existing serious efficiency and quality challenges in the judicial system, (2) the lack of Codes of Ethics for members of government and parliament and of detailed rules on lobbying activities, the high risk of corruption in public procurement and delays in the conviction of high-level corruption cases, (3) concerns about the political independence of the Agency for Electronic Media, risks to the political independence of the media at the local level due to dependence on state advertising, a high number of strategic lawsuits against journalists and (4) perceptions of an only formalistic rather than substantive participation of citizens in legislative procedures.

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## ANNEX 1: Could Croatia become a “second Greece”?

Among the CESEE EU member states, Croatia has set itself a clear near-term target date for the adoption of the euro, hoping to fulfill the necessary Maastricht convergence criteria for the assessment of its convergence in 2022. However, some economists and politicians, predominantly in incumbent euro area countries, have raised concerns about Croatia’s ability to sustainably fulfill the pre-defined conditions.

Skepticism centers around the comparatively low level of GDP per capita (at PPS) and relative price levels in Croatia (as a percentage of the EU or EA average) compared to Greece even during the 90-ies (i.e. prior to euro adoption). According to critics, this bears the risk of sustained inflation differentials to the euro area during the catching-up period, complicating the conduct of the common monetary policy and risking inadequate real interest rate levels which may lead to boom-bust cycles. In the same vein, Croatia currently displays a lower relative level of productivity (i.e. GDP per employed at PPS) than Greece had prior to euro adoption. Since this is not combined with similarly lower relative wage levels, Croatia has a higher level of the adjusted wage share (i.e. a proxy for unit labor cost levels) than Greece experienced during the 90-ies. Therefore, as critics go, competitiveness may become an issue, with potential adverse implications for external balances and sustainable income convergence. Similarly, critics point to the comparably weak position of Croatia in terms of institutional quality. Indeed, relative levels of governance and corruption point to existing weaknesses.

Although these issues have some justification, the comparability of Croatia with Greece is debatable both from an economic and a political-economy/institutional perspective.

### *The economic perspective:*

**First**, as pointed out in the ECB Occasional Paper No. 203/2017<sup>11</sup>, as the example of the US suggests, persistent differences in GDP per capita do not, per se, adversely affect monetary policy in a currency union. Instead, a much more important pre-condition is symmetry in business and financial cycles of the participating countries. In this respect it is notable that during the period 2001-2020 Croatia’s output gap was substantially more correlated with the output gap of the EA-12 as a whole than Greece’s (and was also somewhat higher than the correlation of the Greek output gap with the EA-12 had been during 1981-2000).

**Second**, the quality of institutions may indeed matter for the success of real income convergence. However, as the same ECB occasional paper points out, this does not necessarily imply the need of convergence toward a single institutional model for all countries; instead, solutions need to be found that are tailored to country-specific situations. Actually, an extended OECD sample does exhibit a positive overall correlation between the level of governance and the level of GDP per capita at PPS in 2020 (both indicators relative to the sample average). However, there are clear clusters, where countries of the same relative income level show widely dispersed levels of governance. In the same vein, while changes in the level of governance during the period 2000-2020 correlated with changes in relative income levels, a similar clustering like in the case of the static relationship can be observed. In

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<sup>11</sup> Diaz del Hoyo et al (2017)

the static relationship Croatia is positioned in the midst of the country sample, while in the dynamic relationship it is among the good performers. Importantly, though, several countries with (much) worse governance performance could achieve similar or even (much) better advances in relative income levels than Croatia during those two decades. Hence, while governance matters for convergence, it is neither a necessary nor a sufficient determinant of economic convergence.

**Third**, with respect to other economic data which are greatly relevant for successful participation in a monetary union, Croatia has been performing better in the last several years than Greece had done prior to euro adoption. For example, since 2010 Croatia has mostly sustained inflation rates comparable to the inflation rate in the EA-12 as a whole, while inflation in Greece had substantially exceeded that benchmark even a couple of years before adopting the common currency. In terms of fiscal data (i.e. budget deficit and government debt as a percentage of GDP), Croatia has performed substantially better in recent years than Greece had before joining the euro area. Similarly, short- and long-term interest rate spreads over the EA-12 have been much smaller (and much more stable) in Croatia in the past several years than they had been in Greece's case of a steep decline within a couple of years during the late nineties. Importantly as well, Croatia has displayed substantial surpluses in its combined current and capital account during the past few years, which is in stark contrast to the (increasing) deficits which Greece had displayed in the run-up to euro adoption.

**Fourth**, it is interesting to extend the comparison to Portugal which is admittedly not an example of "best practices" but has still fared much better since euro adoption than Greece. Portugal's relative income level at the time of euro adoption was smaller than Greece's two years later. Although during the 20 years after euro adoption, Portugal has hardly converged to the EA-12 as a whole, it could at least avoid the disastrous falling behind which Greece experienced. Similarly, Portugal had entered the euro area with a much lower level of productivity than Greece (even lower than Croatia's level in 2020); nevertheless, it could achieve advances until the global economic and financial crisis and maintain its position since then, in contrast to the steep and then further gradual deterioration which Greece has experienced since 2009. In terms of business cycle harmonization with the EA-12, Portugal performed worse than Greece during 1981-2000 but then much better during past twenty years, presumably due to its different crisis experience. Concerning institutional quality, Portugal had achieved much better scores than Greece at the time of euro adoption (in fact, similar to the scores of the EA-12 as a whole). Unfortunately, the good starting point could prevent neither a deterioration of quality in subsequent years nor the negative effects of the economic and financial crisis. Admittedly though, Portugal's institutional quality has remained much better than Greece's over the whole period which may help explain their different performance during the crisis.

#### ***The political-economy and institutional perspective:***

**First**, it is today widely known that Greece's accession to the euro area in 2001 was made possible by the prolonged, deliberate misreporting of fiscal data by the Greek authorities (with the aim of achieving compliance with the fiscal criterion) on the one hand, and by the

intentional manipulation of indirect taxes to steer inflation down by the Greek authorities<sup>12</sup> (which the European Commission failed to take sufficiently into account when assessing sustainable compliance with the inflation criterion) on the other hand. Today, a similar abuse is very unlikely. First, since Eurostat was empowered by new tools and discretionary powers from 2005 onward (e.g. for member states: more stringent reporting rules and fines for data manipulation; for Eurostat: regular data quality assessments, “dialogue visits,” “methodological visits,” “reservations” as to the quality of reported data, unilateral data amendments), fiscal data reported by member states are much more thoroughly assessed by Eurostat than twenty years ago (a lesson learned from the Greek experience in 2004 and 2009). Second, data on financial balance sheets are today collected and published by independent central banks, which allows for a cross-check of fiscal data reported by statistical offices. Third, data on administered prices and HICP on a constant tax basis are now collected and disseminated by Eurostat on a monthly frequency, making government measures with an impact on inflation developments transparent. Fourth, given the strengthening of the monitoring and economic policy coordination mechanisms within the EU over the past decade (e.g. “Six-pack,” “Fiscal Compact,” “Two-pack”), including the improvement in the coverage and analytical depth in the Convergence Reports, it is unlikely that the Commission could again neglect explicit threats to the sustainable fulfillment of convergence criteria.

**Second**, against this background, it does not seem far-fetched to assume that the severity and length of the economic and financial crisis in Greece was partially caused by the fact that Greece could not adapt to the external shock by all economic policy means because it participated in the monetary union without having fulfilled the necessary formal economic conditions for euro adoption beforehand. To make matters worse, Greece entered the crisis in the autumn of 2008 with much worse fiscal data for 2006 and 2007 than it was known at that time. Moreover, close surveillance of the country in the framework of the excessive deficit procedure had ended prematurely already in mid-2007 on the basis of false data. Further, fiscal imbalances continued to be underreported during the crisis as well, providing an improper basis for policy decisions (deficit and debt data for these two years and for 2008 and 2009 were revised substantially upward in 2010).

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<sup>12</sup> In the 2000 Convergence Report of the European Commission, the reference value for inflation was set at 2.4%. The average inflation rate of Greece over the reference period was 2.0%. However, as the Commission explained in its Convergence Report, “*The overall direct impact of the indirect tax rate cuts, under the assumption of a full pass-through to consumer prices, is estimated on an annual basis at 0.7 percentage points in 1998 and 0.95 percentage points in 1999. Part of the impact of the measures adopted in 1999 is still influencing measured inflation rates.*”

Major revisions to Greek budget deficit data													
Data for budget balance in % of GDP													
Reporting date / for	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mar-04	..	..	..	-2.0	-1.4	-1.4	-1.7	..	..	..	..	..	..
Sep-04	-4.0	-2.5	-1.8	-4.1	-3.7	-3.7	-4.6	..	..	..	..	..	..
Nov-04	-6.6	-4.3	-3.4	..	..	..	..	..	..	..	..	..	..
Mar-05	..	..	..	..	-3.6	-4.1	-5.2	-6.1	..	..	..	..	..
Sep-05	..	..	..	..	-6.1	-4.9	-5.7	-6.6	..	..	..	..	..
Apr-06	..	..	..	..	..	-4.9	-5.8	-6.9	-4.5	..	..	..	..
Oct-06	..	..	..	..	..	-5.2	-6.1	-7.8	-5.2	..	..	..	..
Apr-07	..	..	..	..	..	..	-6.2	-7.9	-5.5	-2.6	..	..	..
Oct-07	..	..	..	..	..	..	-5.6	-7.3	-5.1	-2.5	..	..	..
Apr-08	..	..	..	..	..	..	..	-7.4	-5.1	-2.6	-2.8	..	..
Oct-08	-6.0	-3.9	-3.1	-3.7	-4.5	-4.8	-5.7	-7.5	-5.1	-2.8	-3.5	..	..
Apr-09	-6.0	-3.9	-3.1	-3.7	-4.5	-4.8	-5.7	-7.5	-5.1	-2.8	-3.6	-5.0	..
Nov-09	-5.9	-3.8	-3.1	-3.7	-4.5	-4.8	-5.6	-7.5	-5.2	-2.9	-3.7	-7.7	..
May-10	-5.9	-3.8	-3.1	-3.7	-4.5	-4.8	-5.6	-7.5	-5.2	-3.6	-5.1	-7.7	-13.6
Nov-10	-5.9	-3.8	-3.1	-3.7	-4.5	-4.8	-5.6	-7.5	-5.2	-5.7	-6.4	-9.4	-15.4

Note: Data from October 2008 onwards are taken from archive vintages of the AMECO database. Data until April 2008 are taken from bi-annual Eurostat news releases about government deficit and debt in the EU (EDP reporting) and the report by Eurostat on the revision of Greek government deficit and debt figures of November 22, 2004.

Source: AMECO, Eurostat.

**Third**, taking into account the two points above, it seems problematic to depict an economic “crash scenario” for Croatia based on the negative experience of a country which did not fully comply with the prescribed convergence criteria when it joined the currency union and could not have been member of the euro area during the crisis years if its true economic conditions had been known and properly assessed before entry. In fact, based on currently available fiscal data, it was not before 2016 that Greece achieved a budget deficit below 3% of GDP. Its public debt is still running at close to 200% of GDP, having more than doubled since 1999 and showing no signs of a meaningful decline even before COVID-19 hit in 2020.

**Fourth**, as pointed out above, the multilateral mechanisms for the close monitoring, correction and sanctioning of fiscal and macroeconomic imbalances in the EU have been significantly strengthened since the financial crisis, sharply reducing the risk of repeating past mistakes. Looking forward, preserving these mechanisms will be essential to keep member states “on course.” Their stringency should by no means be watered down and – where needed – their effectiveness should be enhanced. This continuous surveillance together with the thorough assessment of the achieved level of economic convergence in the Convergence Reports, in line with what was (mostly) done in the past, should ensure that new members of the euro area are able to cope with the challenges of membership.

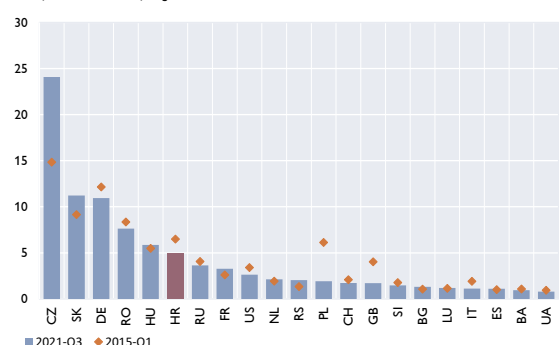
## ANNEX 2: Croatia as Austria's economic partner

Croatia is one of Austria's main economic partners. Austrian banks are heavily involved in Croatia and their total exposure to Croatian counterparties (i.e. Austrian BIS-reporting banks' consolidated foreign claims on ultimate risk basis) stood at around EUR 20 billion in the third quarter of 2021 and accounted for around 5% of their exposure to all nonresidents. This puts Croatia at rank 6 (after Czechia, Slovakia, Germany, Romania and Hungary). In terms of Austrian FDI stocks abroad, Croatia stood at place 14 in 2020 (with around EUR 4.4 billion or 2.3% of total Austrian FDI stocks abroad). The value of average annual external trade in goods and services with Croatia amounted to around EUR 3.3 billion during 2016-2020 (exports: EUR 1.53 billion; imports: EUR 1.73 billion), which accounted for 0.8% of Austria's total external trade.

With its connections to Croatia, Austria stands out in a euro area-wide comparison. With Croatia's share of 5% in their total consolidated foreign exposure, **Austrian banks ranked first** in the euro area at the end of Q3 2021. They were followed by Italian banks, for which exposure to Croatia represented close to 3% of consolidated claims on all nonresidents. In terms of **FDI stocks abroad**, Slovenia takes a special position (probably due to historic reasons) with more than one third of its outward FDI stock being invested in Croatia in 2019. However, **Austria came second**, with Croatia accounting for 2.1% of its total outward FDI stock. The third country (Italy) had only 0.7% of its outward FDI located in Croatia. A similar ranking could be found for average annual **external trade in goods and services** during 2016-2020: In Slovenia's external trade, Croatia had a share of 7-8%, in the case of Austria this share was slightly less than 1% and for Italy and Slovakia it stood at around 0.5%. **Workers from Croatia** are also an important (and fast-growing) source of foreign labor in Austria. In 2021, Croatian workers amounted to 1.1% of total salaried employment in Austria (only surpassed by Germany, Hungary, Romania, Turkey, Bosnia-Herzegovina and Poland).

**Distribution of AT banks' consolidated foreign claims**

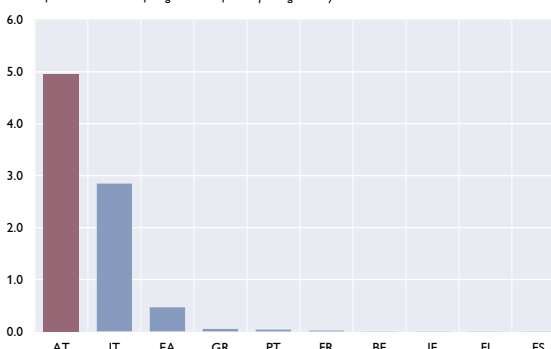
in % of total consolidated foreign claims on all non-residents



Note: Consolidated foreign claims of reporting banks on ultimate risk basis.  
Source: BIS.

**Share of Croatia in BIS reporting banks' claims (2021 Q3)**

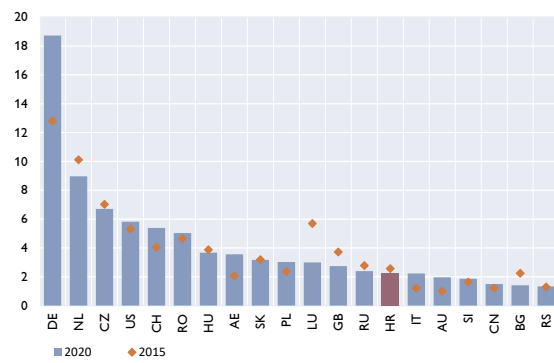
in % of total consolidated foreign claims of the reporting country on all non-residents



Source: BIS.

### Distribution of Austrian outward FDI (20 largest destinations)

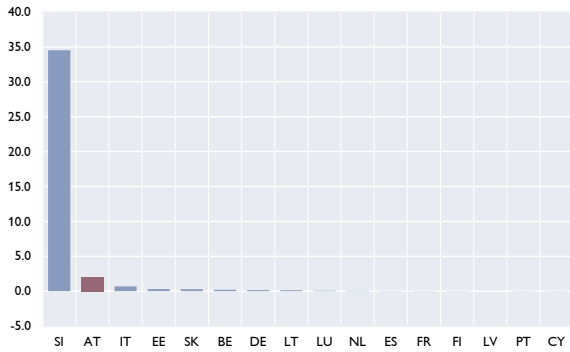
in % of total outward FDI



Source: OeNB.

### Share of Croatia in outward FDI of EA-19 countries (2019)

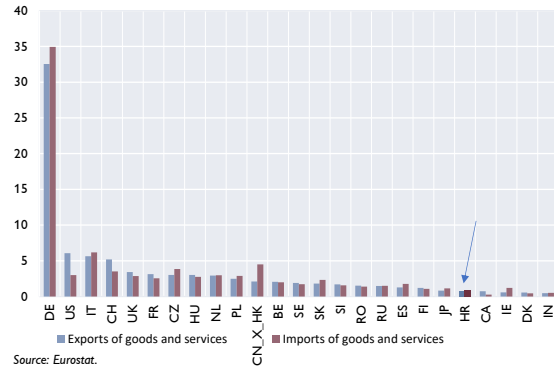
in % of total outward FDI of the reporting country, stocks



Source: Eurostat, OeNB.

### Distribution of Austrian goods and services trade (25 largest partners, 2016-2020)

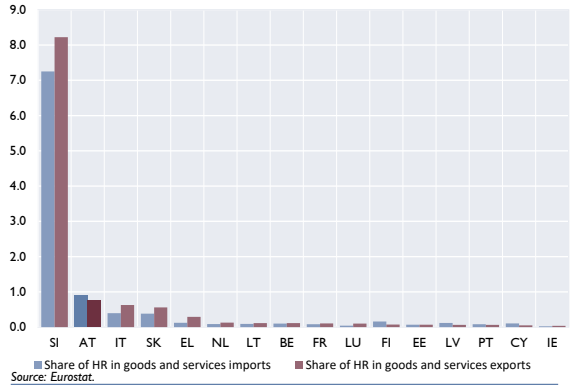
in % of total goods and services exports/imports



Source: Eurostat.

### Share of Croatia in total goods and services trade (2016-2020)

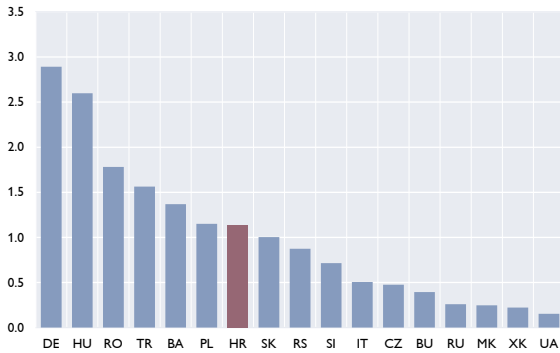
in %



Source: Eurostat.

### Share in total Austrian salaried employment (2021)

in %



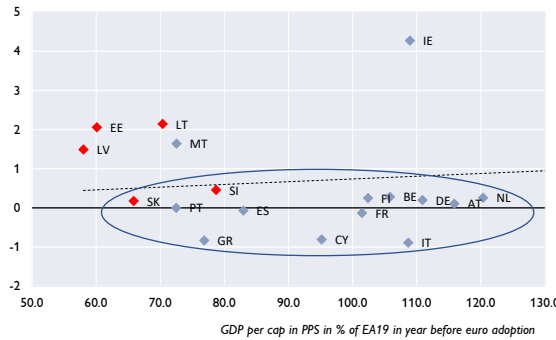
Source: Austrian Ministry of Labor.

## ANNEX 3: Charts & tables

**Chart A1: Historic income convergence in the euro area (EA-19)**

### Initial GDP per capita & change in GDP per capita since euro adoption

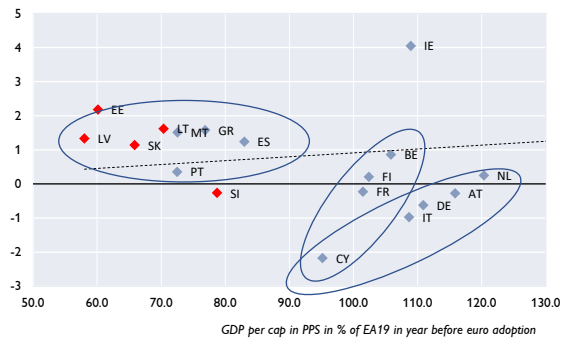
Average annual change in GDP per cap in PPS in % of EA19 in %pt between euro adoption and 2020



Source: AMECO database, Author's calculations.

### Initial GDP per capita & change in GDP per capita during first 5 years after euro adoption

Average annual change in GDP per cap in PPS in % of EA19 in %pt during first five years after euro adoption

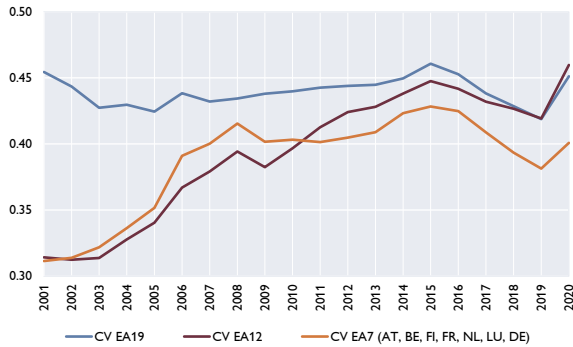


Source: AMECO database, Author's calculations.

**Chart A2: Heterogeneity in the euro area (EA-19) and hypothetically enlarged euro area, various indicators**

### Coeff. of variation of GDP per capita in PPS in % of EA19

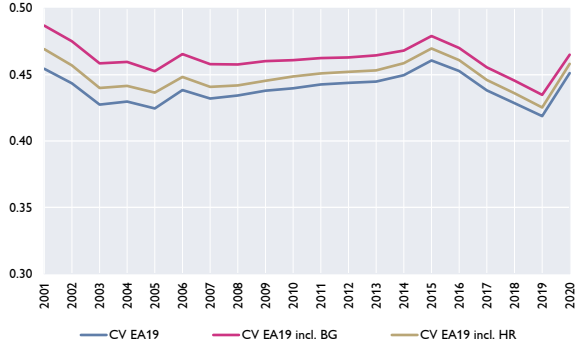
in %



Source: AMECO database.

### Coeff. of variation of GDP per capita in PPS in % of EA19

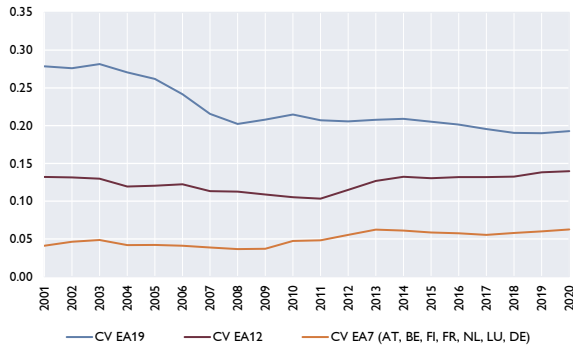
in %



Source: AMECO database.

### Coeff. of variation of price level index in % of EA19

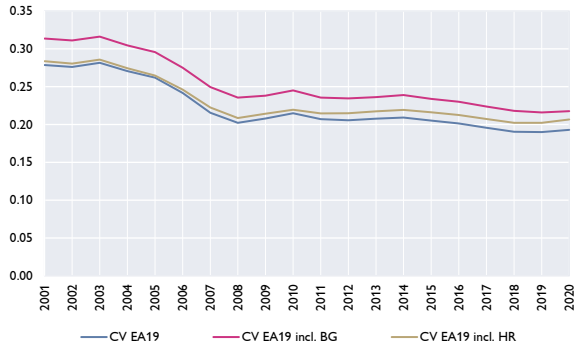
in %



Source: AMECO database.

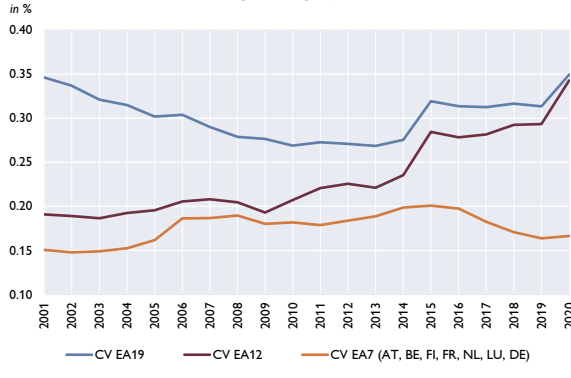
### Coeff. of variation of price level index in % of EA19

in %



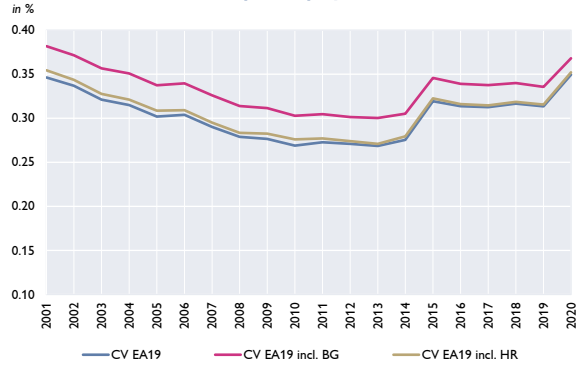
Source: AMECO database.

**Coeff. of variation of GDP per employed in PPS in % of EA19**



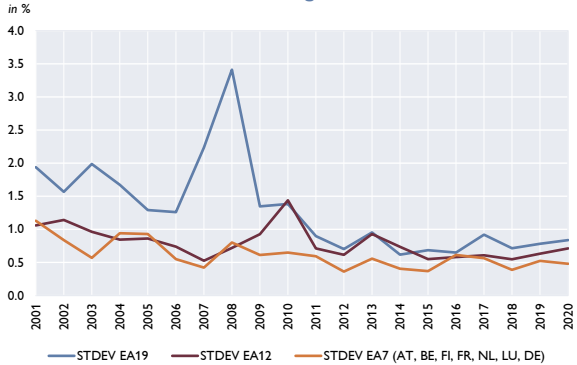
Source: AMECO database.

**Coeff. of variation of GDP per employed in PPS in % of EA19**



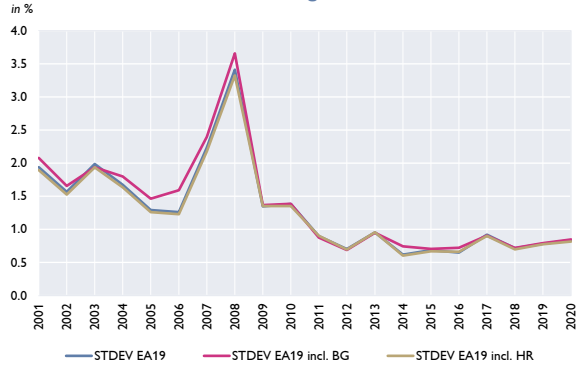
Source: AMECO database.

**Standard deviation of annual changes in HICP**



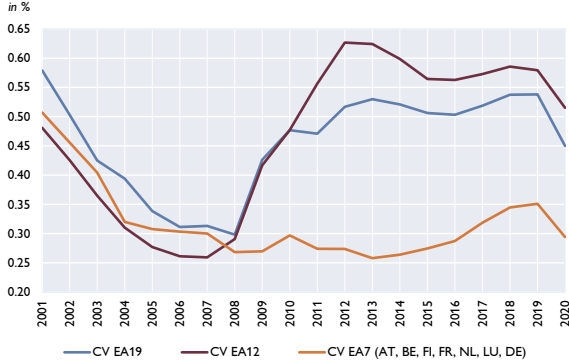
Source: AMECO database.

**Standard deviation of annual changes in HICP**



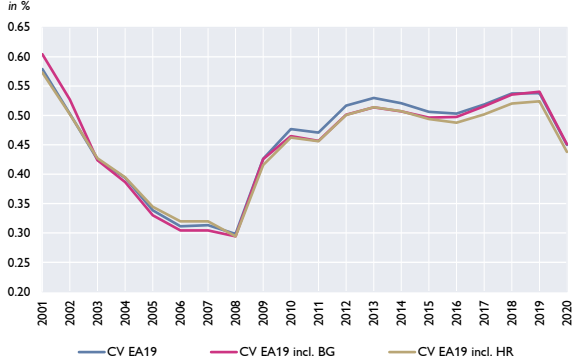
Source: AMECO database.

**Coeff. of variation of unemployment rate**



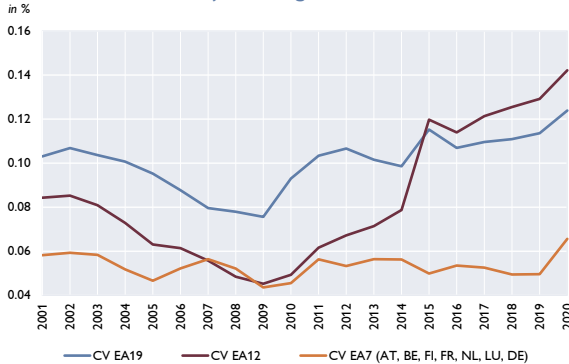
Source: AMECO database.

**Coeff. of variation of unemployment rate**



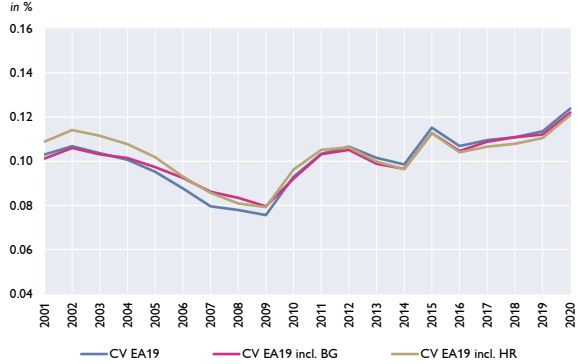
Source: AMECO database.

**Coeff. of variation of adjusted wage share in % of EA19**



Source: AMECO database.

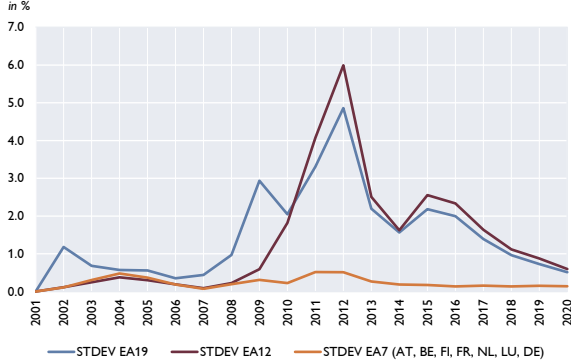
**Coeff. of variation of adjusted wage share in % of EA19**



Source: AMECO database.

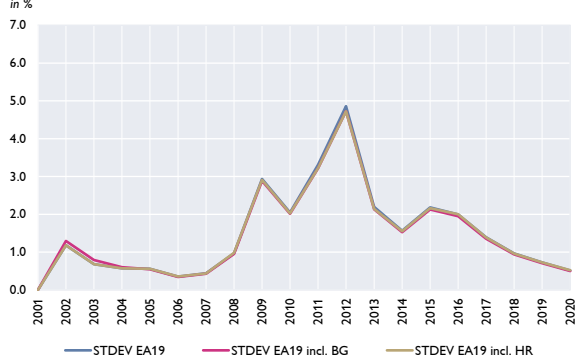


**Standard dev. of long-term interest rate spread over EA19**



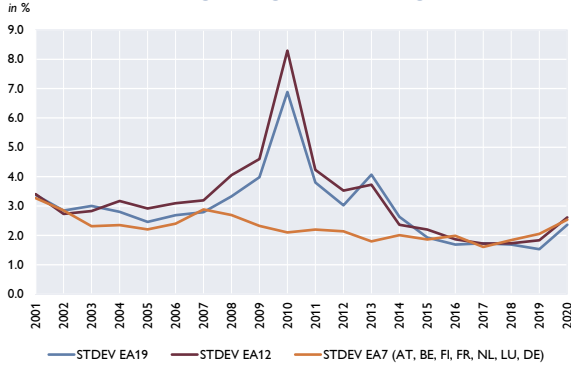
Source: AMECO database.

**Standard dev. of long-term interest rate spread over EA19**



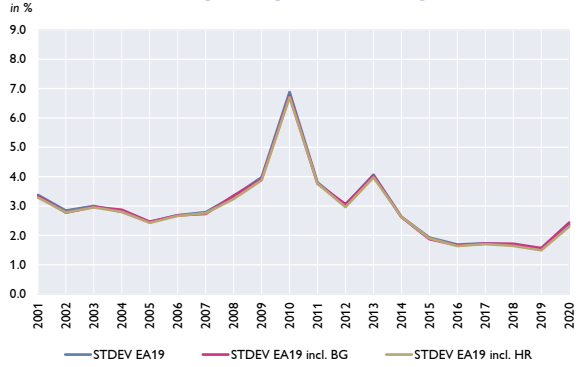
Source: AMECO database.

**Standard deviation of general government budget balance**



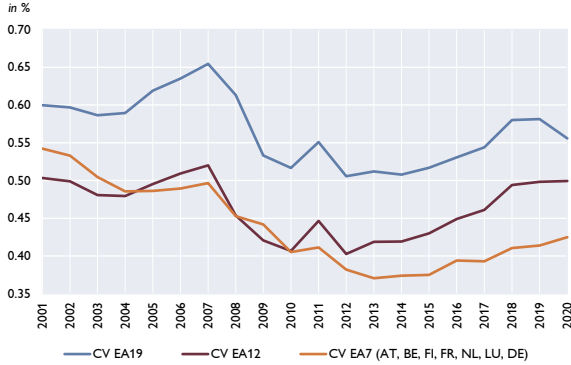
Source: AMECO database.

**Standard deviation of general government budget balance**



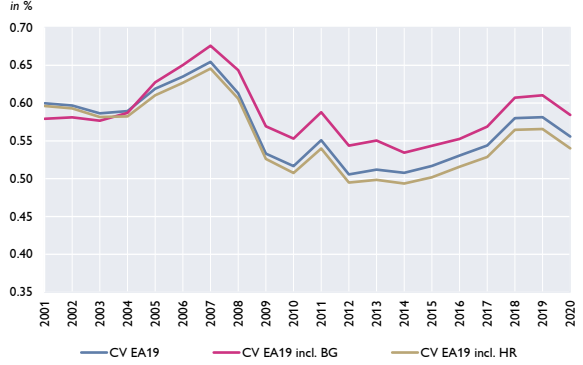
Source: AMECO database.

**Coeff. of variation of general government gross debt**



Source: AMECO database.

**Coeff. of variation of general government gross debt**



Source: AMECO database.

**Chart A3: Scoreboard of the Macroeconomic Imbalance Procedure (with values until 2021Q3)**

	External imbalances and competitiveness					Internal imbalances						Employment indicators			Number of indicators above the indicative threshold
	Current account balance, % GDP (3 year average)	Net international investment position (% GDP)	Real effective exchange rate 42 trading partners, based on HICP/CPI (3 year % change)	Export market shares (5 year % change)	Nominal unit labour cost (3 year % change)	House price index, deflated (1 year % change)	Private sector credit flow, consolidated (% GDP)	Private sector debt, consolidated (% GDP)	General government gross debt, consolidated (% GDP)	Unemployment rate (3 year average)	Total financial sector liabilities, non-consolidated (1 year % change)	Activity rate, % of total population aged 15-64 (3 year change in pp)	Long-term unemployment rate, % of active population aged 15-74 (3 year change in pp)	Youth unemployment rate, % of active population aged 15-24 (3 year change in pp)	
	2021-Q3	2021-Q3	2021-Q3	2020	2021-Q3	2021-Q3	2020	2020	2021-Q3	2021-Q3	2021-Q3	2021-Q3	2021-Q3	2021-Q3	
Threshold	-4	-35	-5	-6	9	6	14	133	60	10	16.5	-0.2	0.5	2	
Threshold non-EA	6		5		12										
BE	0.9	54.5	1.0	10.9	5.5	5.9	1.1	192.0	111.4	5.8	10.6	0.8	-0.3	1.4	
BG	0.2	-18.8	4.8	16.0	19.3	8.3	4.2	94.3	24.2	5.6	9.0	0.6	-0.5	2.4	
CZ	1.5	-10.7	3.8	10.1	16.6	12.7	2.3	81.9	40.5	2.5	12.9	0.1	0.1	1.9	
DK	8.3	72.4	-0.6	11.5	6.5	11.1	4.8	220.9	39.5	5.3	10.6	1.3	0.0	0.6	
DE	7.1	65.6	1.1	1.4	8.4	8.1	6.0	120.1	69.4	3.4	7.0	-0.1	-0.3	0.9	
EE	-0.3	-23.5	2.5	17.6	11.3	9.3	3.6	104.4	19.6	5.8	16.5	0.5	-0.1	5.5	
IE	-3.3	-142.4	-2.4	50.0	-8.3	2.0	-1.8	188.9	57.6	5.7	17.5	0.5	-0.5	1.9	
EL	-4.4	-175.3	-2.2	-10.1	0.6	5.5	5.4	125.3	200.7	17.3	15.3	-1.2	-4.3	-4.2	
ES	1.3	-77.3	-0.1	-6.8	10.2	1.8	4.4	146.4	121.8	14.9	7.1	-0.2	-0.5	1.9	
FR	-0.9	-32.7	0.7	-6.9	3.3	4.9	13.0	173.7	116.0	8.2	8.7	0.8	-1.3	-1.5	
HR	1.8	-39.1	-0.7	0.1	7.4	5.0	1.3	98.0	82.4	7.5	14.4	2.0	-0.7	-3.4	
IT	3.4	6.1	-0.9	-2.8	3.6	1.3	4.1	118.9	155.3	9.7	8.1	-1.4	-1.0	-1.9	
CY	-8.9	-131.4	-1.3	28.5	4.6	-2.3	-2.6	260.5	109.6	7.5	2.7	1.7	-0.3	-3.1	
LV	-0.3	-31.6	3.4	18.2	17.0	6.0	-1.8	66.5	43.6	7.3	9.4	-1.4	-0.8	1.5	
LT	4.2	-9.7	5.0	39.3	20.3	10.8	0.3	54.7	45.1	7.2	18.6	1.2	0.3	4.7	
LU	4.4	40.6	1.0	20.6	8.7	13.2	44.1	316.8	25.3	6.0	7.9	2.9	0.2	4.2	
HU	-1.5	-48.0	-4.4	8.2	12.9	5.5	7.7	76.4	80.3	3.8	15.7	3.5	-0.2	3.0	
MT	-0.4	50.1	-0.2	13.2	15.6	3.6	9.0	138.8	57.2	3.9	6.9	3.2	-0.8	0.5	
NL	9.1	88.3	2.7	7.4	11.9	10.0	-1.3	233.7	52.6	3.8	1.5	3.4	-0.6	1.9	
AT	1.1	12.2	2.0	5.2	11.1	8.5	4.7	131.2	84.1	5.7	8.4	0.3	0.4	1.6	
PL	1.0	-40.8	-0.3	36.9	12.0	4.3	1.4	75.8	56.6	3.4	14.7	2.5	-0.3	0.5	
PT	-0.6	-99.7	-1.9	-0.9	15.6	6.9	4.4	163.7	130.5	6.8	7.5	-0.1	-0.6	2.5	
RO	-5.5	-46.5	1.8	20.6	8.8	-1.0	1.3	48.4	48.5	5.5	15.8	-1.1	0.1	2.0	
SI	5.9	-9.3	0.3	20.2	13.2	7.4	-0.9	69.7	79.6	4.7	17.9	-0.1	-0.6	4.2	
SK	-2.0	-63.0	3.8	8.1	14.0	3.2	3.7	95.3	61.1	6.3	13.6	1.7	-0.8	4.6	
FI	0.5	-2.4	0.6	12.3	6.4	3.0	6.5	154.6	68.7	7.4	17.0	0.9	0.0	1.2	
SE	5.5	21.2	1.3	4.5	5.0	7.3	11.6	215.6	36.1	7.8	15.0	0.2	0.7	7.5	

Note: Pink fields represent values beyond the indicative threshold.  
Source: European Commission, author's calculations.

## Chart A4: Debt sustainability assessment 2020

### Fiscal sustainability risk classifications 2020

(in bracket: 2019, whenever the risk classification has changed)

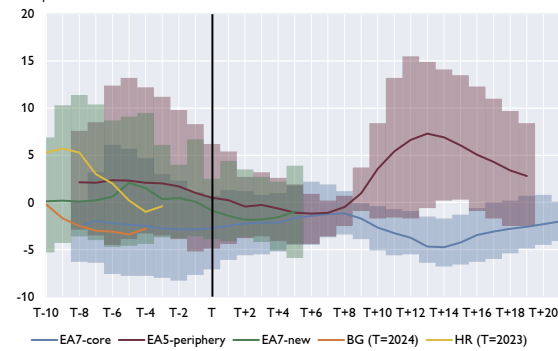
	Overall SHORT-TERM risk	Overall MEDIUM-TERM risk	Overall LONG-TERM risk	OVERALL risk
BE	HIGH (LOW)	HIGH	HIGH	HIGH
BG	LOW	LOW	MEDIUM (LOW)	LOW
CZ	LOW	LOW	MEDIUM	LOW
DK	LOW	LOW	LOW	LOW
DE	LOW	LOW	MEDIUM	LOW
EE	LOW	LOW	LOW	LOW
IE	LOW	LOW	MEDIUM	LOW
ES	HIGH	HIGH	MEDIUM	HIGH
FR	HIGH	HIGH	MEDIUM	HIGH
HR	HIGH	MEDIUM (LOW)	MEDIUM (LOW)	MEDIUM
IT	HIGH	HIGH	MEDIUM (HIGH)	HIGH
CY	HIGH	MEDIUM (LOW)	MEDIUM (LOW)	MEDIUM
LV	HIGH	LOW	LOW	LOW
LT	LOW	LOW	LOW	LOW
LU	LOW	LOW	HIGH	LOW
HU	LOW	MEDIUM (LOW)	MEDIUM	MEDIUM
MT	LOW	LOW	MEDIUM	LOW
NL	LOW	MEDIUM (LOW)	MEDIUM	MEDIUM
AT	LOW	MEDIUM (LOW)	MEDIUM	MEDIUM
PL	LOW	LOW	LOW	LOW
PT	HIGH (LOW)	HIGH	MEDIUM	HIGH
RO	HIGH (LOW)	HIGH	HIGH	HIGH
SI	LOW	HIGH (LOW)	HIGH (MEDIUM)	HIGH
SK	HIGH (LOW)	HIGH (LOW)	HIGH (MEDIUM)	HIGH
FI	HIGH (LOW)	MEDIUM	MEDIUM	MEDIUM
SE	LOW	LOW	MEDIUM (LOW)	LOW

Source: European Commission (Debt Sustainability Monitor 2020).

## Chart A5: Labor market convergence to the euro area (EA-12)

### Excess unemployment rate (15-74 yrs) over EA12

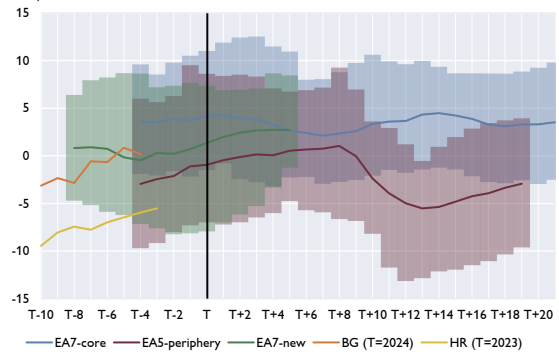
in % points



Source: Ameco database, Author's calculations.

### Excess employment rate over EA12

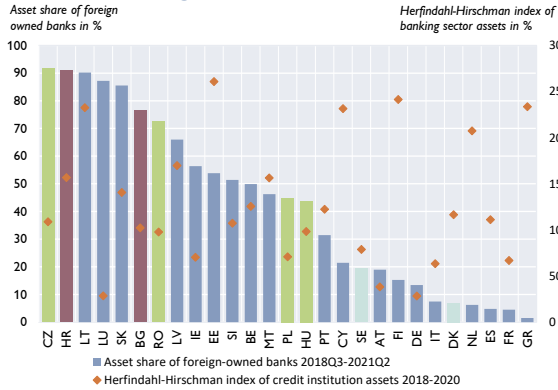
in % points



Source: Eurostat, Author's calculations.

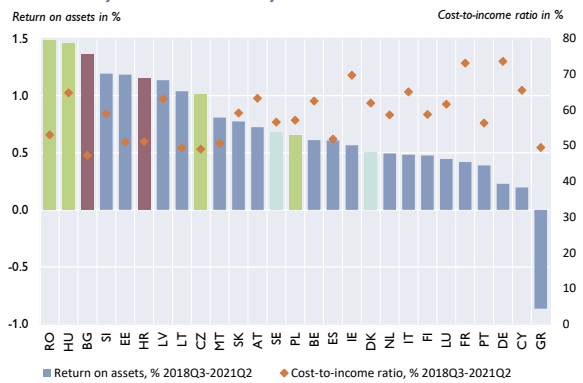
# Chart A6: Banking sector indicators, EU-27

## Asset share of foreign-owned banks and concentration ratio



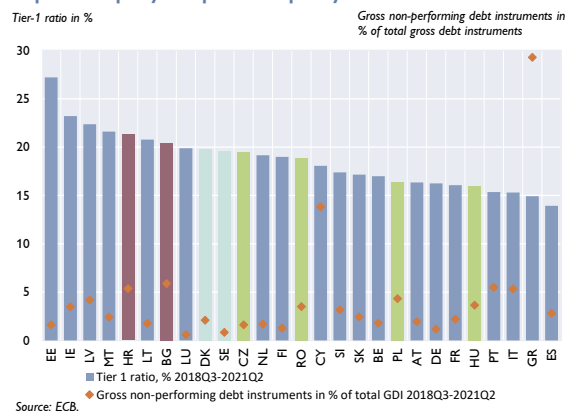
Source: ECB.

## Profitability and cost efficiency



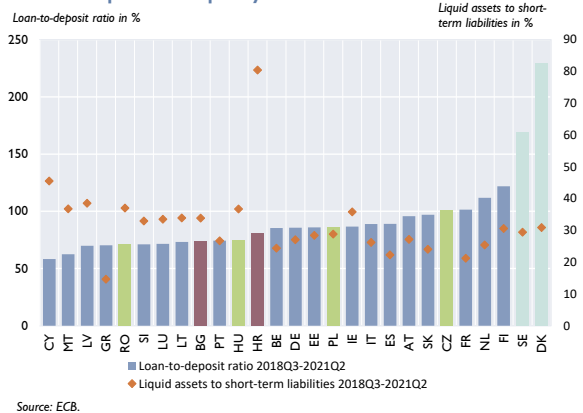
Source: ECB.

## Capital adequacy and portfolio quality



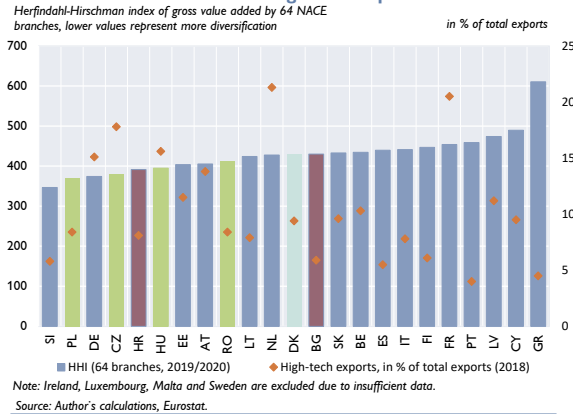
Source: ECB.

## Loan-to-deposit and liquidity ratio



Source: ECB.

## Economic diversification and high-tech exports



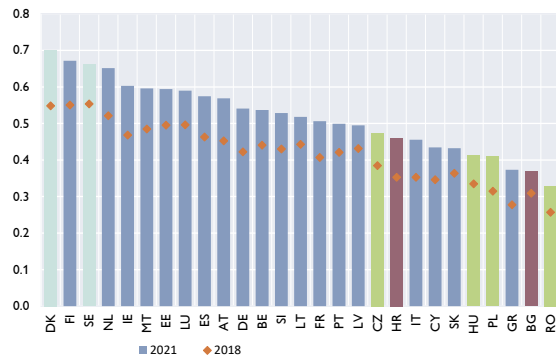
Note: Ireland, Luxembourg, Malta and Sweden are excluded due to insufficient data.

Source: Author's calculations, Eurostat.

# Chart A7: Further indicators of competitiveness, EU-27

## Digital Economy & Society Index

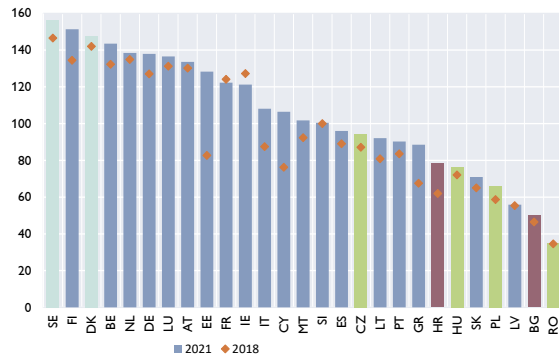
higher values represent better outcomes



Source: Author's calculations, European Commission.

## European Innovation Scoreboard

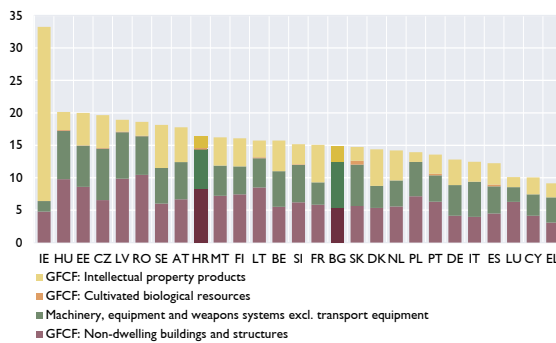
higher values represent better outcomes



Source: Author's calculations, European Commission.

## Gross fixed capital formation excl. dwellings and transport equipment (average 2018-2020)

in % of GDP

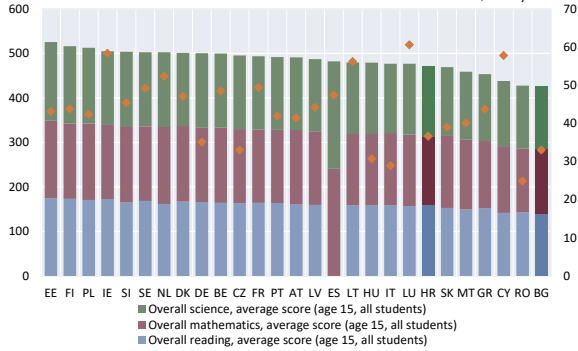


Source: Author's calculations, Eurostat.

## Average PISA scores (2018) and tertiary education attainment

Higher values represent better outcomes.

Share of tertiary education attainment, 25-34 yrs



Source: Author's calculations, OECD.

## Economy-wide product market regulation

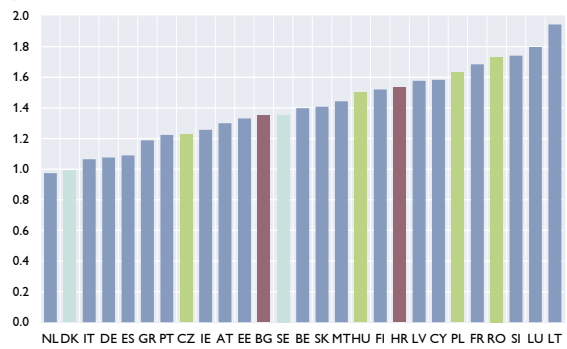
Index scale from 0 to 6, from least to most competition-friendly regulation, 0 represents international best practices.



Source: Author's calculations, OECD.

## Network sector product market regulation

Index scale from 0 to 6, from least to most competition-friendly regulation, 0 represents international best practices.



Source: Author's calculations, OECD.