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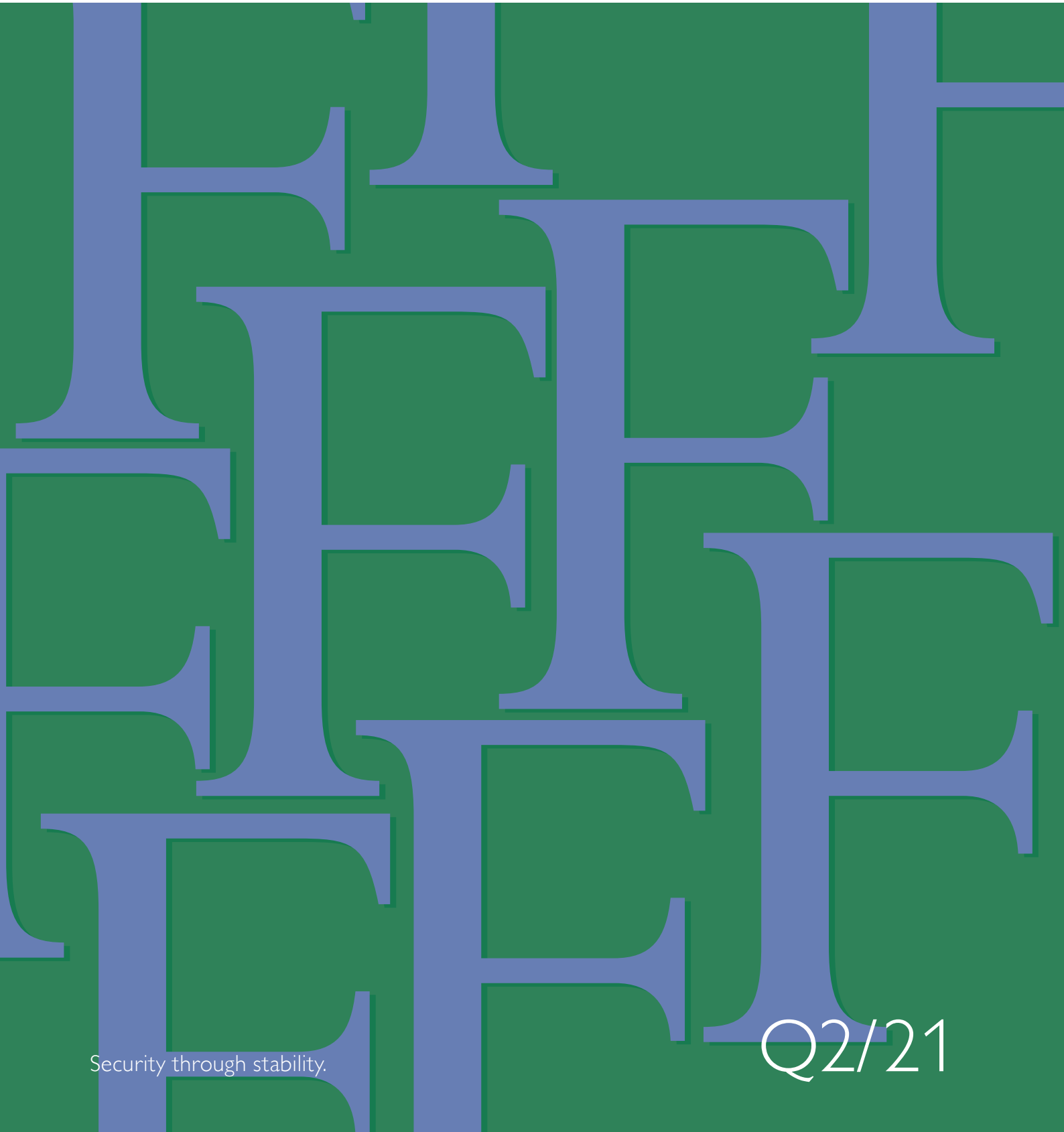

Security through stability.

Q2/21

This publication presents economic analyses and outlooks as well as analytical studies on macroeconomic and macrofinancial issues in Central, Eastern and Southeastern Europe.

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Publisher and editor	*Oesterreichische Nationalbank* *Otto-Wagner-Platz 3, 1090 Vienna* *PO Box 61, 1011 Vienna, Austria* *www.oenb.at* *oenb.info@oenb.at* *Phone (+43-1) 40420-6666* *Fax (+43-1) 40420-046698*
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Design	*Information Management and Services Division*
Printing and production	*Oesterreichische Nationalbank, 1090 Vienna*
Data protection information	*www.oenb.at/en/dataprotection*

ISSN 2310-5291 (online)

Printed according to the Austrian Ecolabel guideline for printed matter.

Please collect used paper for recycling.

EU Ecolabel: AT/028/024

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Call for applications: Klaus Liebscher Economic Research Scholarship

Please e-mail applications to *scholarship@oenb.at* by the end of October 2021. Applicants will be notified of the jury's decision by end-November 2021.

The Oesterreichische Nationalbank (OeNB) invites applications for the "Klaus Liebscher Economic Research Scholarship." This scholarship program gives outstanding researchers the opportunity to contribute their expertise to the research activities of the OeNB's Economic Analysis and Research Department. This contribution will take the form of remunerated consultancy services.

The scholarship program targets Austrian and international experts with a proven research record in economics and finance, and postdoctoral research experience. Applicants need to be in active employment and should be interested in broadening their research experience and expanding their personal research networks. Given the OeNB's strategic research focus on Central, Eastern and Southeastern Europe, the analysis of economic developments in this region will be a key field of research in this context.

The OeNB offers a stimulating and professional research environment in close proximity to the policymaking process. The selected scholarship recipients will be expected to collaborate with the OeNB's research staff on a prespecified topic and are invited to participate actively in the department's internal seminars and other research activities. Their research output may be published in one of the department's publication outlets or as an OeNB Working Paper. As a rule, the consultancy services under the scholarship will be provided over a period of two to three months. As far as possible, an adequate accommodation for the stay in Vienna will be provided.[1]

Applicants must provide the following documents and information:

- a letter of motivation, including an indication of the time period envisaged for the consultancy
- a detailed consultancy proposal
- a description of current research topics and activities
- an academic curriculum vitae
- an up-to-date list of publications (or an extract therefrom)
- the names of two references that the OeNB may contact to obtain further information about the applicant
- evidence of basic income during the term of the scholarship (employment contract with the applicant's home institution)
- written confirmation by the home institution that the provision of consultancy services by the applicant is not in violation of the applicant's employment contract with the home institution

[1] *We assume that the coronavirus crisis will abate in the course of 2021. We are also exploring alternative formats to continue research cooperation under the scholarship program for as long as we cannot resume visits due to the pandemic situation.*

Recent economic developments and outlook

Developments in selected CESEE countries

Strong international momentum bolsters CESEE's industry and prevents further decline of economic activity[1, 2, 3]

1 Regional overview

The spread of coronavirus across the world in spring 2020 brought economic activity in Central, Eastern and Southeastern Europe (CESEE) to a sudden halt. Output in the region shrank by 2.5% on average in 2020, with several countries reporting notably sharper setbacks (see table 1). Thus, 2020 will go down in history as a year with some of the sharpest economic downturns in the region since the transformation years of the early 1990s.

And yet, the recession was less severe than in the euro area (–6.6%). A large part of the positive growth differential was due to the resilience of the CESEE region's two largest economies – Russia and Turkey. Turkey stands out in particular, as it was one of only two countries in Europe that reported an economic expansion in 2020 (the other being Ireland). In the CESEE EU member states, the recession was also somewhat milder than in other European countries, with output declining by an average of 5%.

In the first half of 2020, the more gradual spread of the pandemic eastward in spring and the quick reaction by local authorities prevented the type of public health crises that were observed in e.g. Italy or Spain and enabled CESEE to start

Table 1

Real GDP growth

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Period-on-period change in %								
Slovakia	3.8	2.3	–5.2	0.4	0.6	–5.1	–8.3	11.6	0.2
Slovenia	4.4	3.2	–5.5	0.6	1.1	–4.8	–10.1	12.2	–1.0
Bulgaria	3.1	3.7	–4.2	0.6	0.6	0.4	–10.1	4.3	2.2
Croatia	2.8	2.9	–8.4	1.2	–0.4	–1.1	–15.4	8.2	2.7
Czechia	3.2	2.3	–5.6	0.5	0.4	–3.1	–8.7	6.9	0.6
Hungary	5.4	4.6	–5.0	0.9	0.6	–0.4	–14.5	11.0	1.4
Poland	5.4	4.5	–2.7	1.2	0.2	–0.3	–9.0	7.9	–0.7
Romania	4.5	4.1	–3.9	0.4	1.0	0.6	–11.8	5.6	4.8
Turkey	3.0	0.9	1.8	0.4	1.9	0.1	–11.0	15.9	1.7
Russia	2.8	2.0	–3.0	–1.0	–0.5	–0.6	–2.6	0.6	–0.2
CESEE average[1]	3.4	2.3	–2.5	–0.1	0.4	–0.5	–7.1	6.6	0.6
Euro area	1.9	1.2	–6.6	0.3	0.1	–3.7	–11.8	12.5	–0.7

Source: Eurostat, national statistical offices.

[1] Average weighted with GDP at PPP.

[1] *Compiled by Josef Schreiner with input from Katharina Allinger, Stephan Barisitz, Antje Hildebrandt, Melanie Koch, Mathias Lahnsteiner, Thomas Reininger, Tomáš Slačík and Zoltan Walko.*

[2] *Cutoff date: April 6, 2021. This report focuses primarily on data releases and developments from April 2020 up to the cutoff date and covers Slovakia, Slovenia, Bulgaria, Croatia, Czechia, Hungary, Poland, Romania, Turkey and Russia. The countries are ranked according to their level of EU integration (euro area countries, EU member states, EU candidates and potential candidates and non-EU countries). For statistical information on selected economic indicators for CESEE countries not covered in the main text (Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, Serbia and Ukraine), see the statistical annex in this issue.*

[3] *All growth rates in the text refer to year-on-year changes unless otherwise stated.*

lifting restrictions on public life and the economy at a comparatively early stage. This led to a somewhat smaller contraction of domestic demand (and especially investments) in many countries. At the same time, export volumes of certain key products started to increase already in spring thanks, in part, to the rapid recovery of the Chinese economy.

The third quarter brought about a rather strong rebound, and many CESEE countries reported quarter-on-quarter growth in the double digits after lifting most coronavirus-related restrictions. In the fourth quarter of 2020, GDP growth in CESEE declined again but remained positive and in some countries – especially Romania, but also Bulgaria and Croatia – outpaced euro area growth by a large margin.

Industry fared better than most other sectors

This comparatively strong development in late 2020 was related to a rebound of world trade that allowed industrial dynamics to break away from trends in most other sectors, especially services. Global goods trade recovered more swiftly than during the global financial crisis and its volume already surpassed its pre-pandemic level in November 2020. CESEE – as an internationally integrated and highly open economic area – benefited strongly from this development. Unlike in spring, lockdown measures mainly targeted contact-intensive sectors like services and retail trade, while industrial production remained largely unrestricted. Structural features of CESEE economies (especially a comparatively high share of industry and a comparatively low share of services in gross value added) acted as further stabilizing factors.

GDP data clearly confirm the dichotomy between industry and services. On the production side, the industrial sector was the most important pillar of growth in half of the countries under observation in the review period. At the same time, services dampened GDP growth quite a bit in all countries but Turkey.

Strong external momentum lifts growth

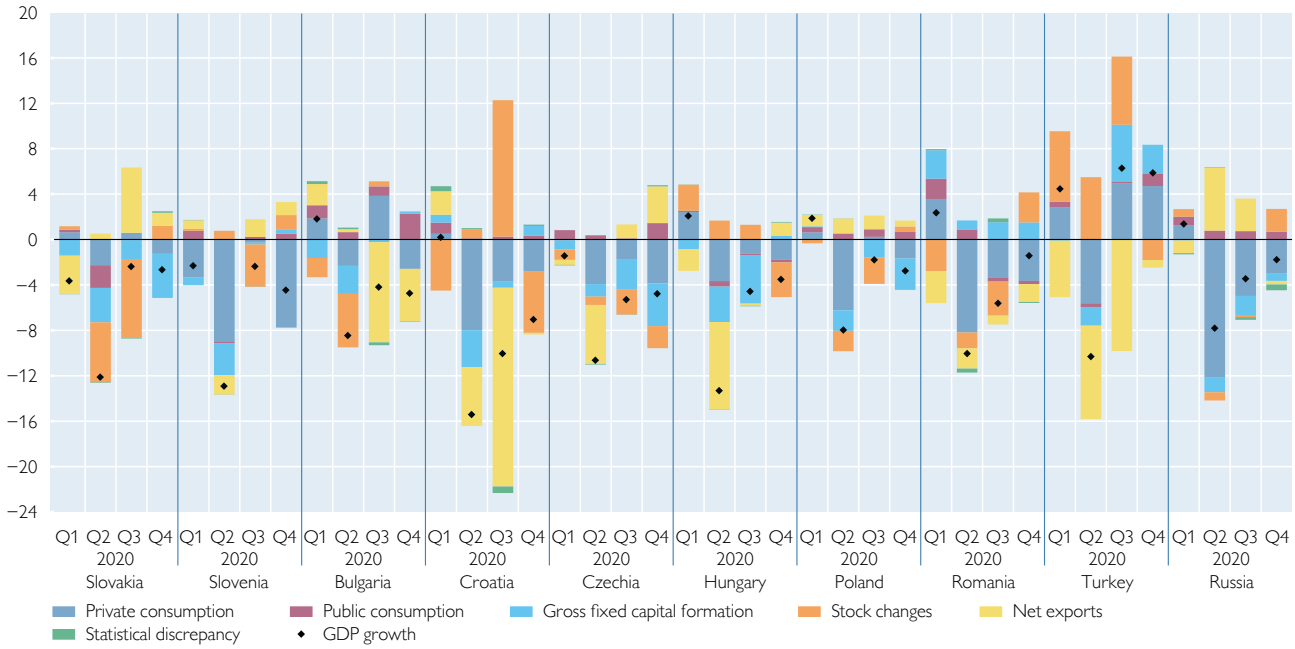
On the expenditure side of GDP, industrial strength was mirrored in a clear revival of exports: Export performance improved throughout the review period and export volumes again embarked on an upward trend in the final quarter of 2020 in half of the CESEE countries. As domestic demand weakness put a brake on imports, this often translated into a positive growth contribution of net exports to GDP growth (see chart 1). It needs to be noted, however, that the external sector also reduced growth to a substantial extent in some parts of CESEE. This is particularly true for the countries that are most reliant on tourism, i.e. Bulgaria, Croatia and Turkey, where a strong reduction of tourist visits given COVID-19-induced travel restrictions weighed on services exports.

While public consumption bolstered economic activity – in part thanks to large-scale fiscal crisis mitigation packages (see below) – the other components of domestic demand remained weak throughout CESEE. The only exception was Turkey, where a large buildup of stocks and a notable credit impulse from state-owned banks fueled domestic economic momentum.

Chart 1

GDP growth and its main components

Percentage points, GDP growth in % (year on year)



Source: Eurostat, national statistical offices.

Private consumption affected by COVID-19 containment measures

COVID-19-induced shutdowns in the services and retail sector, sour sentiment, decelerating credit momentum and weaker labor markets weighed on consumer spending. On average, private consumption reduced GDP growth by some 1.5 percentage points in the second half of 2020, with some countries reporting substantially larger reductions.

Labor market slack has not eased since spring 2020

On the back of public support and more benign general economic conditions than in the first half of 2020, the officially reported unemployment rate according to labor force survey (LFS) methodology declined by 0.7 percentage points from its height in June 2020 and stood at an average 6.9% in February 2021. Also, nominal wage growth recovered somewhat from its trough in the second quarter.[4] A look at unemployment rates alone, however, leads to an underestimation of current slack in the labor market. An indicator of actual labor market slack provided by Eurostat (not available for Russia) reveals that persons with an unmet need for employment[5] accounted for an average of 13.6% of the extended CESEE labor force in the fourth quarter of 2020. This figure has remained virtually unchanged since spring and is twice as high as LFS unemployment. Furthermore, employment

[4] *Wage figures, however, need to be interpreted with caution as emergency measures, such as furlough schemes, substantially limited the explanatory power of wage statistics in the past quarters.*

[5] *This includes unemployed and underemployed persons, persons available for the labor market but not seeking employment, as well as persons seeking employment but not available for the labor market.*

continued to trend downward throughout the region in the second half of 2020, pushing down average annual employment figures to their lowest level in five years.

Cautious recovery of investment activity in late 2020

Uncertainty about the further course of the pandemic kept capital spending low. Apart from Turkey, all CESEE countries reported lower investments than a year earlier, and gross fixed capital formation declined by an average of 2.3% during the second half of 2020. Dynamics, however, picked up somewhat toward the end of 2020, reflecting rising capacity utilization rates amid the recovery of external demand and strengthening industrial production. By the fourth quarter of 2020, investment activity again moderately lifted GDP growth in six of the ten CESEE countries under consideration.

Trends largely unchanged in early 2021

The trends outlined above continued in early 2021: While consumer and retail trade spending remained muted, economic data continue to confirm the resilience of the manufacturing sector to the pandemic as firms face high demand, especially from abroad. Against this backdrop, industrial production has, on average, been growing since October 2020, and did so also in January and February 2021. Industrial output currently stands at a level broadly comparable to its 2019 average (and even notably higher in Turkey and Poland). The pace of recovery in goods trade, however, appears to have been moderating recently as transport capacities and sector-specific production bottlenecks (e.g. semiconductors) weigh on dynamics. Some disruptions in supply chains are also suggested by survey findings within the framework of the Purchasing Managers' Index (PMI): Central European companies are increasingly struggling with growing backlogs of work coupled with longer supplier delivery times. Furthermore, input price growth is accelerating noticeably. These supply-side constraints may weigh on industrial production in the coming months but are in principle also a sign of healthy global demand for industrial produce.

Industrial sentiment has recovered fully from its pandemic-related trough: In March 2021, sentiment in industry in the CESEE EU member states as measured by the European Commission's Economic Sentiment Indicator (ESI) stood at the same level as 12 months earlier. In Turkey, the indicator was even 9.7 points higher than in March 2020. PMIs (available for Czechia, Poland, Russia and Turkey) crossed the threshold of 50 points (indicating an economic expansion) in summer or early fall 2020 and remained above this level throughout the first quarter of 2021. In Czechia, the PMI even reached 58 points in March 2021, which was close to historical highs. PMI developments were clearly driven by future output expectations and – in the case of CESEE EU member states – also export expectations.

In contrast to industrial dynamism, construction output growth remained flat in the review period.

New COVID-19 waves weighed on consumer spending and sentiment in early 2021

Retail sales recovered until October 2020, but then again weakened during the past months. In February 2021, they were largely unchanged compared to the previous year. As many CESEE countries have been hit by new waves of COVID-19 infections since fall 2020 (and some countries reported historically high figures in late March 2021), the deterioration of the pandemic situation has clearly weighed

on consumer spending and sentiment: Consumer, retail and services confidence indicators remained notably below their pre-crisis levels in the review period, despite some moderate improvements seen recently. This points toward an ongoing dichotomy between industry on the one hand and more contact-intensive sectors (retail, services) on the other hand. For more information on prospective developments in 2021 and beyond, please consult the recent GDP growth projections in the OeNB's current Outlook for selected CESEE countries and Russia in this issue of *Focus on European Economic Integration*.

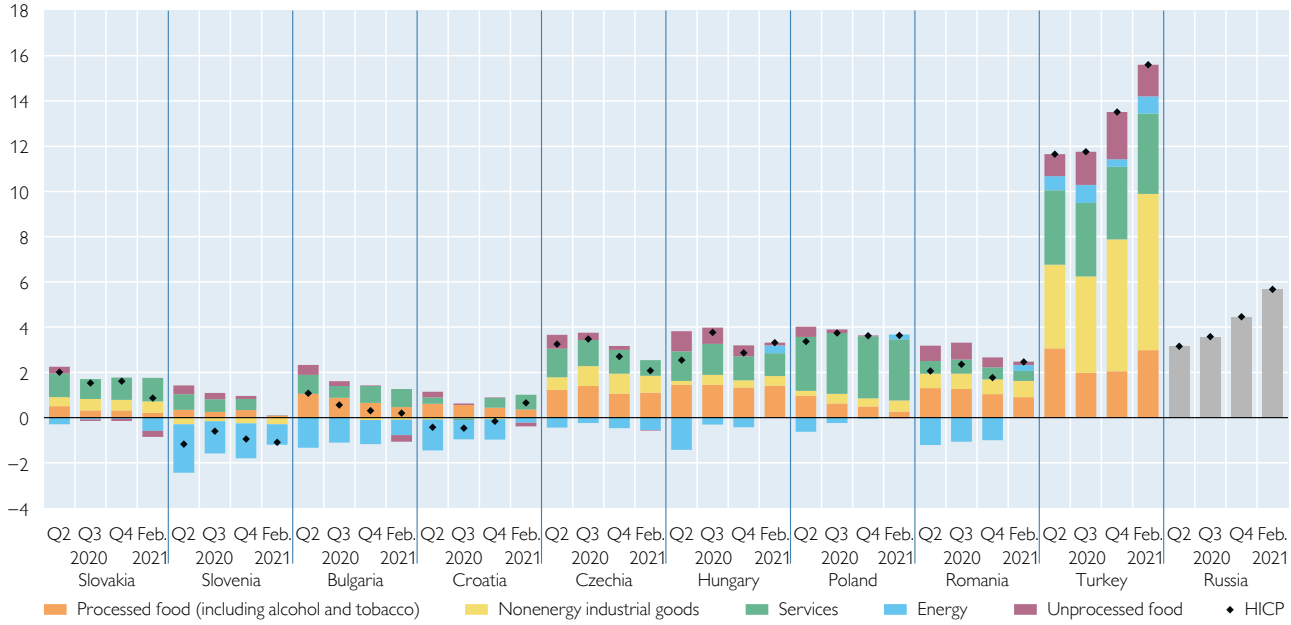
Inflation rates in CESEE EU member states declined only moderately

Despite weak economic activity, inflation has declined only very moderately since the start of the coronavirus pandemic. In the CESEE EU member states, average inflation fell from 3.2% in March 2020 to 2.4% in December 2020. The decline, however, was not evenly spread across the region, and inflation fell more in euro area countries and countries that have pegged their currency against the euro (i.e. in Slovakia, Slovenia, Bulgaria and Croatia; see chart 2). This suggests that the exchange rate pass-through prevented prices from falling more strongly in the countries with a freely floating exchange rate. In the first quarter of 2021, the Czech koruna, the Hungarian forint and the Polish złoty traded 1.7%, 6.1% and 4.9%, respectively, below their corresponding euro values in the same period of the previous year.

Chart 2

HICP inflation and its main drivers

Percentage points, contribution to year-on-year change in HICP; HICP in %



Source: Eurostat.

Note: CPI data for Russia. No breakdown according to COICOP available.

On the level of individual HICP components, lower price growth in the CESEE EU member states was mainly related to lower price pressure from non-core items (i.e. energy and unprocessed food) and processed food. Consequently, core inflation remained constant in the second half of 2020 and stood at an average of 3.3% in December 2020 (3.3% in March 2020). The first two months of 2021 brought about some reacceleration of regional headline inflation (to 2.6% in February 2021) on the back of higher energy prices, while core inflation remained broadly unchanged (3.2% in February 2021).

Price pressures in Russia and Turkey increased notably

Outside the EU, inflation was not only higher, it also accelerated notably in the review period. In February 2021, headline inflation came in at 5.8% in Russia and at 15.6% in Turkey. Both countries have struggled with exchange rate volatility in the past quarters fueled by political uncertainty and – in the case of Russia – oil price developments. In the first quarter of 2021, the Russian ruble and the Turkish lira traded 17.9% and 24.3%, respectively, below their corresponding euro values in the same period of the previous year.

In the course of 2021, we may see further price growth in many CESEE countries and challenges for policymakers owing to base effects, country-specific factors (e.g. a hike in electricity tariffs in Romania), the release of pent-up demand once COVID-19-related restrictions are finally suspended, rising fuel prices, demand-supply frictions as the economy restarts, and rising producer price pressures.

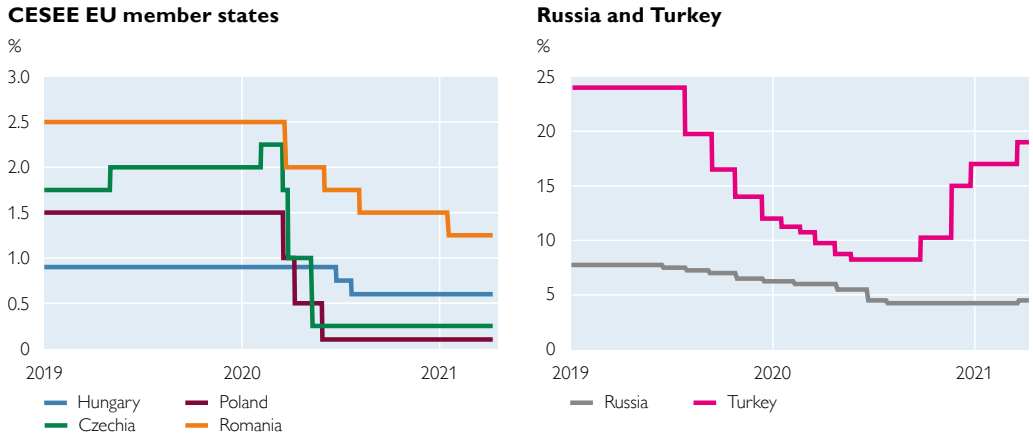
Monetary accommodation and liquidity provision continued in CESEE EU member states

Most inflation-targeting central banks in the CESEE EU member states have already increased their near-term inflation forecasts and/or assume higher volatility in inflation and more upside risks. This could lead to a (temporary) deviation of inflation from its target ranges. So far, however, policy rates have not been raised. On the contrary, the most recent adjustments to monetary policy include a rate cut by 25 basis points in Romania in January 2021 (to 1.25%; see chart 3) and foreign exchange purchases in Poland (Poland's official reserve assets increased from EUR 120.5 billion in November 2020 to EUR 134.8 billion in March 2021). Furthermore, several central banks (e.g. in Croatia, Hungary, Poland, Romania and Turkey) continued the expansion of their balance sheets initiated in spring 2020 as a response to the coronavirus pandemic. As a result, financial conditions remained accommodative.

Crisis-driven additional liquidity-providing measures for the banking sectors (such as adjusted reserve requirements, longer-term refinancing operations, etc.) have been selectively adjusted but largely remained in place. Most existing bilateral euro liquidity lines with the ECB have been extended by nine months to March 2022, including repo facilities with the central banks of Hungary and Romania (EUR 4 billion and EUR 4.5 billion, respectively) and a swap facility with the central bank of Croatia (EUR 2 billion). The swap line with the central bank of Bulgaria was not extended and remained in place until December 31, 2020.

Chart 3

Policy rate developments in CESEE



Source: Macrobond.

Russia and Turkey needed to increase policy rates

Unlike the CESEE EU member states, both Russia and Turkey have tightened their monetary policy in the review period. Russia increased its policy rate by 25 basis points to 4.5% in March 2021, as inflation exceeded the forecast by Russia's central bank (CBR) and ran above its target in the first quarter of 2021. The CBR also cited rising inflation expectations over the course of the pandemic as a reason for its decision.

In Turkey, rates were raised in four steps by a total of 1,075 basis points to 19% between September 2020 and early April 2021, after a loose policy stance and repeated rate cuts in the first half of 2020 had helped economic activity to recover but had contributed to high annual consumer price inflation, a persistent current account deficit, a rapid loss of foreign exchange reserves and a sell-off in the lira. As noted above, the Turkish lira depreciated substantially in the course of 2020 and reached a historical low in early November 2020 against the euro and the US dollar. After rallying markedly between November 2020 and February 2021, it started to weaken again from mid-February onward. Although the lira's latest weaknesses were partly related to global trends – emerging-market currencies have been hit by expectations of higher US interest rates – they may also have reflected renewed concern about the Turkish authorities' commitment to policy tightening.

Spillovers from expectations of higher US interest rates remain limited so far

The announcement of the US fiscal stimulus package amid rising inflation rates in major markets has had limited spillovers for European yields so far. 10-year government bond yields in the CESEE EU member states have increased by between 12 basis points in Romania and 66 basis points in Czechia since the beginning of 2021 (with some moderate decline in Croatia). This was less than the increase in US bond yields (+75 basis points). Furthermore, yields in early April 2021 were lower than in early March 2020 in all CESEE EU member states but Czechia. Central banks' large-scale purchases of government securities in the framework of their quantitative easing programs were probably instrumental in keeping yields low despite increased financing requirements for government budgets. In addition, stepped-up liquidity

provision to banks and decreased credit demand by the private sector also likely helped absorb increased government bond supply.

Stronger increases in 10-year government bond yields, however, were reported for Russia and Turkey (+140 basis points and +578 basis points, respectively, year to date), where domestic (political) factors amplified global trends.

International capital flows have fluctuated in recent months

High-frequency fund flow data show that, from fall 2020, global investment funds started to flock back to CESEE bond markets, helping cumulative flows climb toward pre-pandemic levels (see chart 4). This trend was interrupted in February 2021, when bond flows suddenly declined and eventually dried up. The last two weeks of March 2021, to a certain extent, brought about a reversal of this trend, and especially the CESEE EU member states' bond markets again attracted international capital. The situation remained more strained in Russia and Turkey, however.

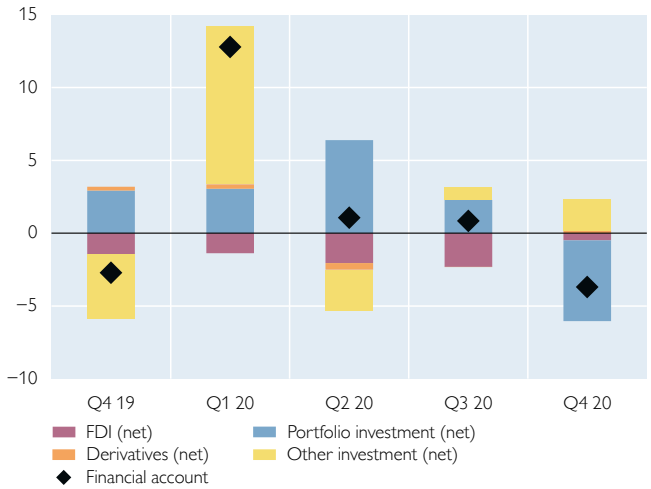
More comprehensive financial account data reveal that net capital outflows spiked in the first quarter but moderated again substantially in the second and third quarters of 2020. In the final quarter of 2020, capital flows again turned positive and amounted to 3.7% of GDP in the CESEE region. On the level of financial instruments, this improvement was mainly driven by portfolio investments. On the country level, Croatia and Hungary reported the most notable improvements. For the whole year of 2020, capital outflows amounted to 2.5% of GDP for the CESEE region (2019: inflows of 0.9% of GDP) and were mainly related to portfolio and other investments. Slovenia, Russia and Czechia reported the largest net outflows, while Bulgaria and Romania managed to attract the highest amount of foreign capital in net terms.

Chart 4

Capital flows to CESEE

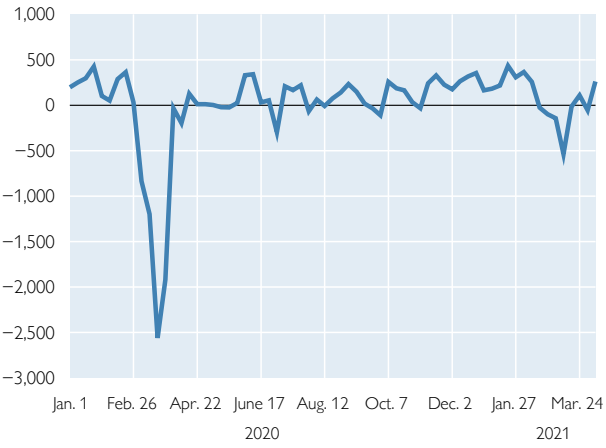
Financial account balance

% of GDP



International fund flows into bond markets

USD million, weekly data



Source: Emerging Portfolio Fund Research (EPFR), Eurostat, national central banks.

Combined current and capital accounts remain clearly in surplus

Aggregate current account balances deteriorated somewhat in the second half of 2020 because of lower goods and services surpluses. This was an especially important factor in tourism-reliant countries (such as Bulgaria, Croatia and Turkey) as well as in Russia (related to global oil and gas demand and price developments). At the same time, the lockdown-induced recession put the brakes on profit outflows via the primary income account. The current account balance for the CESEE region as a whole remained positive and amounted to 0.5% of GDP in 2020 (2019: 1.6% of GDP). The highest surpluses were reported in Slovenia and Poland (6% of GDP and more), while Romania and Turkey reported the largest deficits (3.3% of GDP and 5.2% of GDP, respectively; see chart 5). Capital account balances were largely unaffected by the recession, and the surplus for the CESEE region increased moderately to 0.8% of GDP in 2020 (2019: 0.5% of GDP). EU member states continued to record the highest capital account surpluses, which reflected EU fund disbursements.

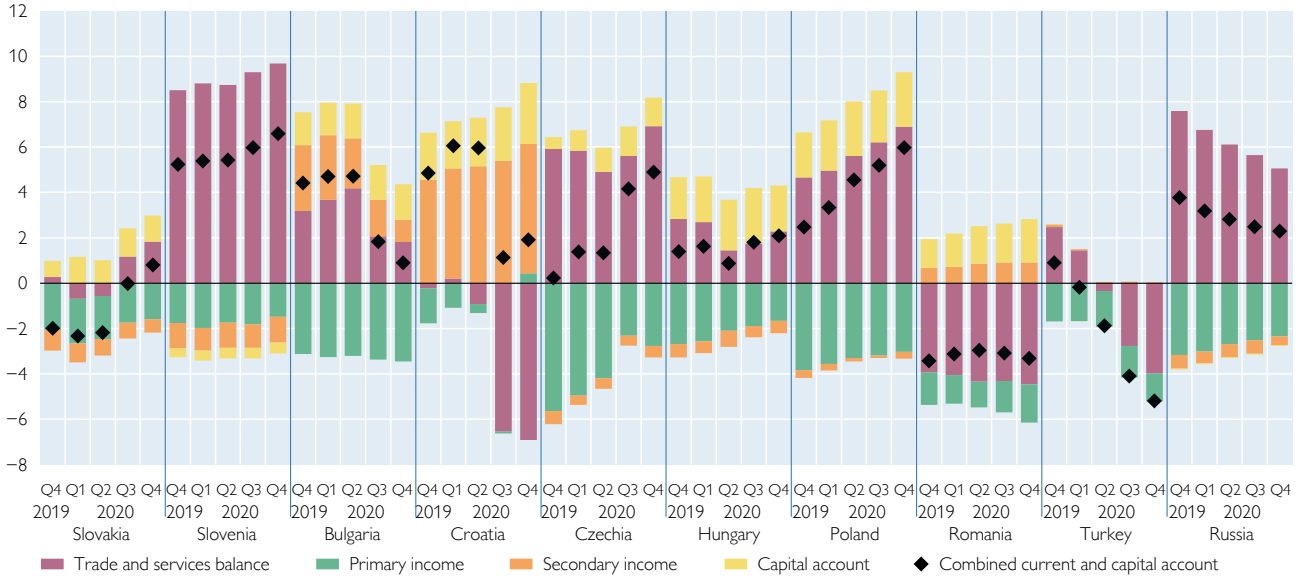
Policy action prevents a more pronounced deterioration of credit dynamics

In the banking sector, the coronavirus pandemic brought about a reversal of previous years' trends. Its impact on banking sector indicators, however, was much weaker than in the global financial crisis of 2008. On the one hand, this was related to the very nature of the shock that sent the region into recession. On the other hand, the region's banking sectors entered the downturn on a much stronger footing than in 2008 (i.e. with stronger capital buffers, no excessive loan growth, a much lower foreign currency-denominated exposure and a strengthened regulatory environment).

Chart 5

Combined current and capital account balance

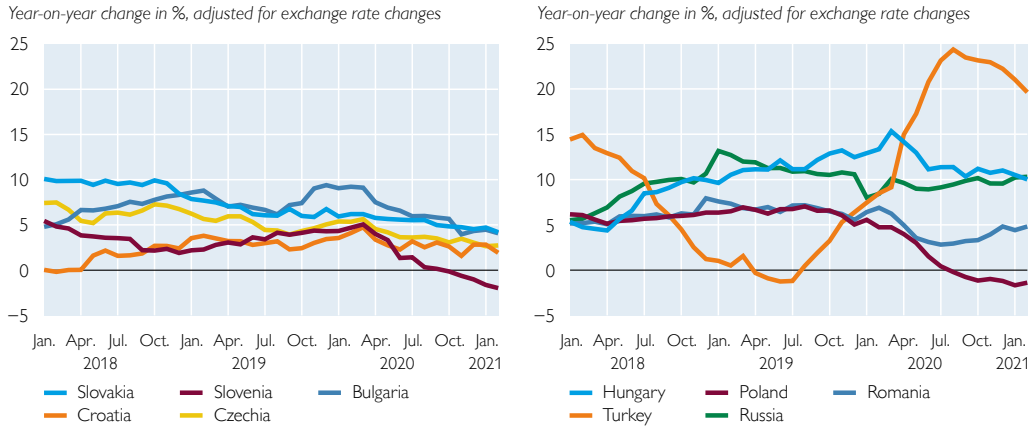
% of GDP, four-quarter moving sum



Source: Eurostat, IMF, national central banks.

Chart 6

Growth of credit to the private sector



Source: National central banks.

Nevertheless, loan growth declined in nearly all countries of the region in the review period, as weaker demand and worsening credit supply conditions impacted on credit dynamics (see chart 6). Demand suffered from faltering domestic demand and souring sentiment. Supply was negatively affected by tightened collateral requirements, groups' limited funding, a weakening local and international environment and nonperforming exposures. The decline in credit expansion, however, was rather moderate in many countries, as the recession turned out weaker than initially expected. Furthermore, surveys suggest that regulatory action (e.g. more flexible treatment of nonperforming loans (NPLs), relaxation of liquidity ratios, various forms of capital relief measures and adjustments of risk weights), monetary policy measures (e.g. long-term liquidity provisions) and public guarantee schemes have supported lending activity.

All countries also introduced moratoria of some sort on the repayment of loans to alleviate financial strains for borrowers. Surveys indicate that no more than 20% of borrowers renegotiated loan repayments in most CESEE countries. Even in countries where blanket moratoria were imposed by law (e.g. Hungary), penetration did not reach higher levels than some 50% of private sector loans. This is a sign that the remaining borrowers were able to service their debt amid falling interest rates and borrowing costs and despite the economic downturn. Against this backdrop, NPLs have not yet embarked on a clear upward trend. Banks, however, expect that the quality of loan applications will deteriorate across the client spectrum and that NPLs will increase notably in the future.

The COVID-19 pandemic has brought about a further remarkable shift in the refinancing structure of CESEE banking sectors toward domestic deposits. A moderate decline in domestic claims was matched by a strong increase in private sector deposits in the year 2020. Apparently, corporations and households increased savings as consumption and investment decisions were postponed in an uncertain environment.

CESEE banks still report profits despite general economic recession

The crisis has had a notable impact on the profitability of the CESEE banking sectors. Throughout the region, the return on assets in 2020 was notably lower than a year earlier and declined by close to 40% on average. The return on assets ranged between 0.3% in Poland and 1.9% in Russia at the end of 2020. Rising loan loss provisions in response to the recession were a main driver of lower profits. Central bank rate cuts put additional pressure on net interest margins and lower loan growth weighed on operating income. Profitability will likely remain under stress, as eased regulatory requirements and loan moratoria only temporarily sheltered banking sectors from some of the COVID-19-related impact. Deteriorating profitability coupled with rising NPLs will likely weigh on banks' capital ratios. At the end of 2020, however, most CESEE banking sectors still reported substantial capital buffers. The overall capital adequacy ratio hovered between 14.1% in Turkey and 24.3% in Croatia. Substantially lower figures were only reported for Russia (9.7%).

Fiscal crisis mitigation measures are driving up budget deficits

Measures to mitigate the economic fallout of the COVID-19 pandemic as well as automatic stabilizers led to a strong increase in public deficits. The average general government balance deteriorated from –0.2% of GDP in 2019 to –5.9% of GDP in 2020 (with a range from –3.4% of GDP in Bulgaria to –9.2% of GDP in Romania). Direct fiscal measures included tax cuts, subsidies for wages and social security contributions, compensation for people in quarantine and for firms affected by shutdown measures, higher allowances (e.g. for children) and bonuses (e.g. workers in health care), higher minimum wages and/or furlough schemes subsidizing wages and shorter work hours. The latter measures were imperative in preventing a sharper deterioration in labor market conditions. Indirect fiscal measures mainly included guarantees and deferrals for tax payments and social security contributions.

According to the IMF, the fiscal measures governments have announced or taken in response to the COVID-19 pandemic, in terms of their amount relative to GDP, range from some 6% in Romania and Russia, some 9% in Bulgaria, Croatia and Slovakia and some 13% to 15% in Hungary, Poland, Slovenia and Turkey to as much as 21.5% in Czechia (these figures cover measures scheduled for implementation in 2020, 2021 and beyond). This compares to an average 29.2% of GDP for the euro area. As these numbers include (sometimes sizable) contingent liabilities (mainly guarantees), the actual fiscal stimulus will crucially depend on the effective utilization of the available funds.

In addition to domestic spending, CESEE EU member states made use of loans provided under the EU's SURE instrument (Support to mitigate Unemployment Risks in an Emergency) that was designed to tackle sudden increases in public expenditure for the preservation of employment. By the end of March 2021, some EUR 15 billion had been disbursed to CESEE EU member states under this heading.

Box 1

Ukraine: recession in 2020 moderate compared with previous crises, but slow progress with vaccinations amid new infection waves; IMF program still on hold

Ukraine's GDP shrank by 4% in 2020, which means that the latest recession turned out relatively moderate compared to the economic plunges recorded during the global financial crisis and the crisis in 2014/2015. After restrictions related to the COVID-19 pandemic had strongly hit economic activity in the second quarter, GDP contracted much less severely in year-on-year terms in the second half of 2020. Private consumption even posted positive year-on-year growth rates, as the easing of containment measures and improved wage growth supported consumption spending. However, year-on-year growth rates of gross fixed capital formation remained deeply negative. Exports continued to decline markedly in the second half of 2020 due to lower crop yields among other factors, while import compression moderated somewhat. The contribution of net exports was clearly positive when looking at full-year data but turned negative in the final quarter. The budget deficit amounted to 5.3% of GDP in 2020, with expenditures rising in the areas of road infrastructure, healthcare and defense, among others. It should be noted that a rise in ceasefire violations at the contact line in Eastern Ukraine was reported by the OSCE special monitoring mission in spring 2021.

COVID-19-related restrictions will negatively affect the economic recovery in early 2021. At the beginning of the year, a country-wide two-week lockdown was implemented with the aim of bringing down the numbers of new infections. Moreover, lockdown measures were taken at the regional level in March 2021 (e.g. in Kyiv) as the spread of coronavirus accelerated once more. Ukraine started to vaccinate its population relatively late (in late February 2021) and at a relatively slow pace, so that Ukraine lags behind other CESEE countries in this respect.

Year-on-year inflation rates averaged 2.4% in the first ten months of 2020 and, thus, inflation was clearly below the central bank target range of 5% ±1 percentage point. However, inflation started to rise markedly toward the end of the year and climbed to 7.5% in February 2021. At the same time, core inflation went up from about 3% in the first ten months of 2020 to 5.6% in February 2021. Against the background of inflationary pressures, the National Bank of Ukraine (NBU) raised its key policy rate by 50 basis points to 6.5% in early March 2021. The NBU expects inflation to peak in mid-2021 before coming down to the target band in the first half of 2022.

Official foreign currency (FX) reserves have held up quite well since mid-2020, even though no further IMF funds have reached Ukraine since the disbursal of the first tranche under the IMF Stand-By Arrangement (SBA) in June 2020. In fact, the level of FX reserves stood at USD 28.5 billion at end-February 2021 (4.6 months of imports) and thus exactly at the same level as at end-June 2020. Official FX reserves were backed by a Eurobond issuance and the disbursal of EUR 600 million to Ukraine under the EU's COVID-19-related macro-financial assistance program in late 2020 as well as by net FX purchases carried out by the NBU. Support also came from the current account surplus (4.1% of GDP over the whole year). This year's external debt repayment schedule shows a spike in public debt repayment volumes at USD 3.8 billion in the third quarter of 2021.

The first review under the IMF SBA, originally scheduled for September 2020, has not been concluded so far. In late 2020/early 2021, a virtual IMF mission was held, but no agreement was reached and thus discussions continue. The IMF repeatedly stressed the importance of central bank independence and sound central bank governance (following changes at the NBU board and related disputes) as well as the significance of independent and effective anti-corruption institutions. Judicial integrity and the gas market (after Ukraine temporarily capped gas prices for households) have been further important issues during the talks.

Box 2

Western Balkans[6]: COVID-19 pandemic significantly left its mark on the Western Balkan economies

The COVID-19 pandemic has continued to determine economic developments in the Western Balkans since our last reporting in fall 2020. All countries have been hit severely by the crisis and have had to cope with renewed waves of COVID-19 infections since February 2021 (see chart 1). Moreover, the reintroduction of containment measures has brought severe headwinds for economic growth. However, at the time of writing, all Western Balkan countries had passed the peak of the latest COVID-19 wave, which occurred between February 2021 in Albania, mid-March in Montenegro and end-March/early April in the remaining countries.

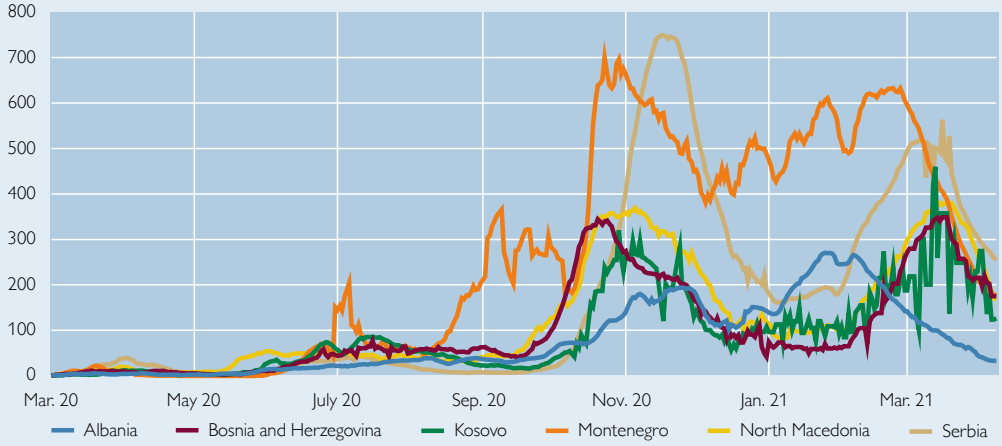
The speed of vaccination differs greatly across the region. Serbia is the frontrunner (also in comparison to EU countries): in mid-April already 25% of the population had received at least one dose of a COVID-19 vaccine. Montenegro has vaccinated 5.5% of the population and North Macedonia 1.2%. No comparable data is available for the other countries, but Albania has started vaccinating on a larger scale. In mid-April the European Commission announced that it will provide 651,000 vaccine doses to the Western Balkan countries until August 2021.

Moving to the economic situation of the region, annual GDP growth remained in negative territory in all Western Balkan countries in the third quarter of 2020 but – amid the easing of lockdown measures, at least to some extent – the growth performance was somewhat better than in the second quarter of 2020 (see chart 2). Only in Montenegro, GDP growth decelerated even more, reaching almost –27% year on year (second quarter of 2020: –20.3%), as the country is particularly dependent on the tourism sector, which was severely hit by travel restrictions. In the final quarter of 2020, economic performance improved in all Western Balkan countries. Notably, annual GDP growth turned positive in Albania with year-on-year growth of 3% (supported by a base effect after the devastating earthquake in fall 2019 that had halted GDP growth in the fourth quarter of 2019) and in Kosovo with 0.7%. Regarding full-year growth, Serbia was least hit by the COVID-19 pandemic in 2020. GDP growth only declined by around 1%, largely due to a very large fiscal support package (see below). Montenegro is at the other end of the scale, where the crisis took a sizable toll, with growth slumping by more than 15%.

Chart 1

New COVID-19 infections over past seven days

Number of new infections per 100,000 inhabitants



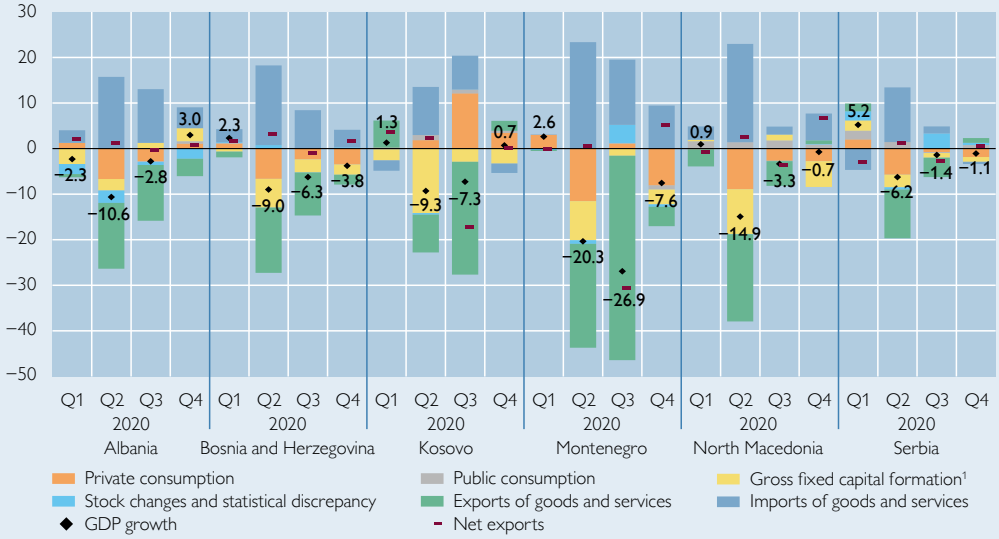
Source: Our World in Data.

[6] *The Western Balkans comprise Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia. The designation "Kosovo" is used without prejudice to positions on status and in line with UNSC 1244 and the opinion on the Kosovo Declaration of Independence.*

Chart 2

GDP growth visibly recovered in H2 20

Percentage points, year-on-year GDP growth in %



Source: National statistical offices.

¹ Gross capital formation for Bosnia and Herzegovina, Kosovo and North Macedonia.

Until the outbreak of the COVID-19 pandemic, private consumption was an important growth contributor generally driven by swift credit expansion, rising wages and remittances and positive developments on the labor market. With the onset of the crisis and the strict containment measures, these supportive factors moved in a less favorable direction, leaving a mark on private consumption. With the (partial) reopening of the economies in the second half of 2020, however, private consumption growth declined less severely compared to the first half of 2020 or even rebounded. In Kosovo, private consumption was particularly strong, owing largely to a greater inflow of remittances. Public consumption growth presented a quite mixed picture in the second half of 2020. In Kosovo and North Macedonia, public consumption accelerated quite strongly year on year in the third quarter of 2020 due to specific support measures such as transfers to the most vulnerable groups.

Due to depressed economic activity and an elevated level of uncertainty, investment activity only improved partially in the second half of 2020, after it had collapsed in all Western Balkan countries with the start of the COVID-19 pandemic. Albania represents a notable exception where gross fixed capital formation accelerated strongly in the second half of 2020, owing to the start of post-earthquake reconstruction.

In the third quarter of 2020, the year-on-year decline of exports of goods and services was less severe than in the second quarter of 2020 in most Western Balkan countries (notable exceptions are Kosovo and Montenegro due to a significant slump in service exports). Nevertheless, the still low demand from the main trading partners (predominately EU countries) and the disruption of global value chains, which are particularly relevant for North Macedonia,[7] negatively impacted export performance. In several countries (Kosovo, North Macedonia and Serbia), export growth, however, rebounded in the final quarter of 2020 for different reasons, such as improving global value chain trade (particularly relevant for North Macedonia), favorable agricultural output (as was the case in Serbia) or increased exports of base metals (Kosovo). Import growth declined strongly in the third quarter of 2020 (but less than in the second quarter of 2020) before improving somewhat in the final quarter of 2020. In all Western Balkan

[7] *See also Reiter, O. and R. Stehrer. 2021. Value Chain Integration of the Western Balkan Countries and Policy Options for the Post-COVID-19 Period. Policy Notes and Report. March 2021. wiiw.*

countries, net exports contributed negatively to GDP growth in the third quarter of 2020, but the growth contribution from the external sector turned positive in the final quarter of 2020.

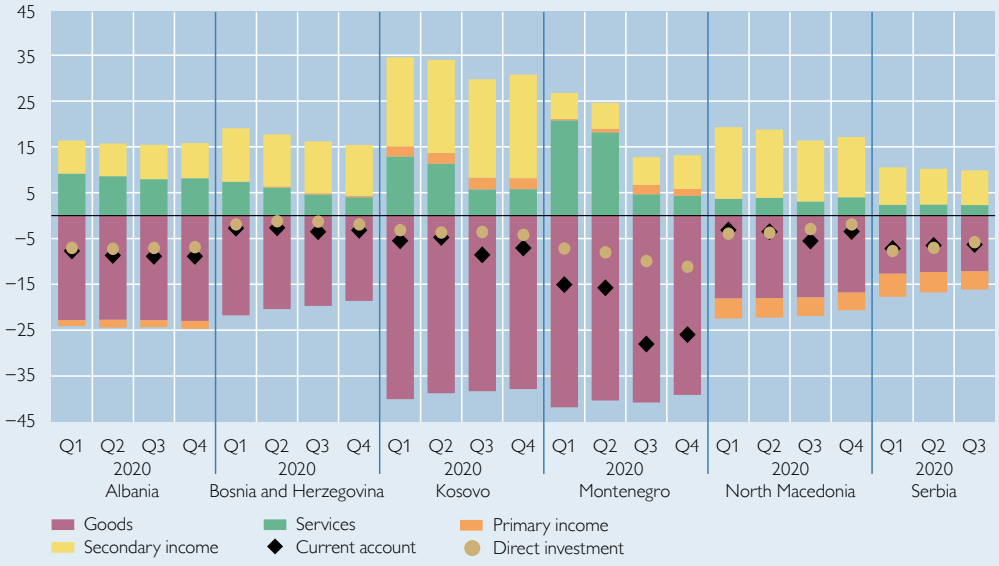
Due to the economic shock caused by the COVID-19 pandemic, labor market figures worsened in many Western Balkan countries, but fiscal measures – in particular wage subsidy schemes[8] – mitigated the negative impact at least to some extent. Albania, Bosnia and Herzegovina, North Macedonia and Kosovo reached an unemployment peak in the second quarter of 2020, with some improvements of employment figures taking place thereafter. The unemployment rate (according to labor force survey data) increased significantly in Montenegro: growing by almost 4 percentage points between the third quarter of 2019 and the same period of 2020,[9] it reached an elevated level of 19.6%. At the same time, employment fell by 8.5 percentage points to below 50% because people left the labor market, possibly shifting to the informal sector or due to retirements. In Serbia, by contrast, the employment rate accelerated in the final quarter of 2020 in an annual comparison, possibly due to very strong support for the business sector accompanied by higher labor market participation.

On a four-quarter moving average basis, current account deficits worsened in most Western Balkan countries in the second half of 2020 compared to the same period of the previous year, largely due to a drop in the services balance (see chart 3). Particularly in Montenegro, the services surplus slumped due to the poor tourist season. Similarly, in Kosovo, the diaspora stayed away in the second half of 2020 mainly because of travel restrictions. The shortfalls of the goods balance narrowed across the board (at least to some extent) due to a strong decline of import growth (weak private consumption, lower investment activity) and a less pronounced drop of exports compared to imports. Remittances presented a quite mixed picture; they even increased in some countries in the second half of 2020 compared to the same period of the previous year. This was particularly the case for Kosovo, where declining informal remittances

Chart 3

Current account deficits more or less stable in most Western Balkan countries

% of GDP, four-quarter moving average



Source: National central banks, national statistical offices.

Note: A positive value in the category of direct investments indicates that net acquisition of assets is higher than net incurrence of liabilities; a negative value indicates the opposite.

[8] *A detailed overview of wage subsidy schemes is provided by the World Bank. 2020. An Uncertain Recovery. Western Balkans Regular Economic Report. No. 18. Fall 2020.*

[9] *For Montenegro, no figures for the last quarter of 2020 are available yet.*

were more than compensated by an accelerating inflow of formal remittances.[10] Foreign direct investment (FDI) decelerated in the second half of 2020 in annual terms in most Western Balkan countries. The COVID-19 pandemic certainly played a key role due to restrictive measures and a high level of uncertainty. In addition, some large infrastructure projects, particularly in Albania, were finalized, leading to smaller inflows of foreign capital.

Inflationary pressure was subdued in most Western Balkan countries owing to low energy prices and a weak propensity to consume as a result of lockdown measures and elevated uncertainty among households. Bosnia and Herzegovina, Kosovo and Montenegro reported negative inflation rates in the third and fourth quarters of 2020. North Macedonia was a notable exception: annual inflation accelerated to 2.2% in the fourth quarter of 2020 and the first quarter of 2021, mainly due to higher prices for food, alcohol and tobacco. Kosovo and Serbia saw accelerating inflation rates in early 2021 as well. Albania and Serbia are the only two countries in the Western Balkans with a flexible exchange rate regime and both exchange rates have remained rather stable against the euro since our last reporting. In the case of Serbia, however, it was to a large extent thanks to interventions by the National Bank of Serbia (NBS) as the dinar faced both depreciation and appreciation pressures. Central banks have implemented a range of measures to support the economy in light of the severe economic disruptions caused by the COVID-19 pandemic. Regarding interest rates, the NBS trimmed its key policy rate in December 2020 for the fourth time since the start of the COVID-19 pandemic, reducing it by 25 basis points to 1%. The NBS, in particular, was very active in providing additional liquidity to the banking sector.[11] For the third time since March 2020, the National Bank of the Republic of North Macedonia (NBRNM) cut its policy rate, from 1.5% to 1.25% in March 2021. The usage of loan moratoria was quite extensive. In North Macedonia, for instance, 44% of the total credit portfolio was under eased repayment conditions in April 2021, according to the NBRNM. Comparing end-2019 with end-2020 growth rates, we find that credit activity generally moderated in the Western Balkan countries due to demand- and supply-side factors. In Bosnia and Herzegovina, credit growth was already weak before the crisis, turned negative in March 2020 and has remained in negative territory since. Serbia, by contrast, has recorded accelerating credit activity, likely related to loan guarantee schemes, cheap loans to most affected sectors or relaxed standards for taking up housing loans. Despite the severe economic crisis, NPL ratios did not accelerate significantly from end-2019 to end-2020 and even declined in some countries (see Statistical annex, table 3). The most notable NPL decline was registered in North Macedonia due to crisis-related changes of reclassification requirements. As a consequence, the full impact of the crisis has not yet come to the fore – as in other areas of the economy – due to measures (particularly loan moratoria) implemented to cushion the immediate impact of the crisis. Apparently, the profitability of the banking sector has worsened since the outbreak of the COVID-19 pandemic in most Western Balkan countries. Return on equity and return on assets dropped most strongly in Montenegro and Serbia.

The COVID-19-induced shock also changed fiscal plans for all Western Balkan countries. Economic disruptions and fiscal support packages to mitigate the negative impact of the crisis are reflected in significant increases of budget deficits and government debt. In 2020, budget deficits reached almost 9% of GDP in Montenegro, North Macedonia and Serbia. The acceleration was strongest in Serbia (budget deficit in 2019: 0.2%). Regarding the debt-to-GDP ratio, the increase was highest in Albania (almost +15 percentage points) and the ratio amounted to almost 80% at the end of 2020. In Montenegro, the debt ratio stood at close to 90% in 2020, the highest in the region. A large share of the debt relates to a Chinese loan of USD 1 billion taken out in 2014 for the construction of a highway. Montenegro has asked the EU for assistance to repay the loan, but so far the European Commission has refused to repay the

[10] *According to the central bank of Kosovo, formal remittances transferred through money-transferring agencies accelerated by more than 54% in annual terms in the fourth quarter of 2020 and formal remittances through banks by almost 30%, whereas informal remittances declined by about 14%.*

[11] *In November 2020, the NBS announced additional FX purchase swap auctions and securities purchase repo auctions. Additional FX swap auctions were stopped in March 2021 but the NBS continues with additional repo purchase auctions of dinar securities on a regular weekly basis.*

debt, offering funding for the completion of the highway projects instead. By contrast, Kosovo reported a debt-to-GDP ratio of just 22% (2019: 17%). Support packages varied in size across the Western Balkan countries. With more than 12% of GDP in 2020 (including loan guarantees, tax deferrals, etc.), Serbia is expected to be the frontrunner, whereas Albania as well as Bosnia and Herzegovina have allocated relief packages of less than 3% of GDP. Since the start of the crisis, several countries have placed Eurobonds on international markets in response to the COVID-19 pandemic.[12] There were some noteworthy rating changes, e.g. for Montenegro – Standard & Poor's downgraded the long-term FX sovereign debt rating from B+ to B in March 2021 due to the country's strained fiscal and balance-of-payments positions. In the case of Serbia, the rating was upgraded by Moody's to Ba2 in March 2021.

International institutions, in particular the European Commission and the IMF, have supported the Western Balkan countries since the start of the pandemic. Most importantly, under its macro-financial assistance (MFA), the EU is providing a total of EUR 750 million to the Western Balkan countries, equaling roughly 1.2% to 1.4% of GDP for each country (except for Serbia). The assistance will be paid out in tranches and the first installment was disbursed to Kosovo, Montenegro and North Macedonia in October 2020 and to Albania in March 2021. The IMF supports the Western Balkan countries[13] under its Rapid Financing Instrument (RFI), which is comparable in size with the MFA. As a backstop facility, the ECB granted repo lines to Albania (EUR 400 million), North Macedonia (EUR 400 million) and Serbia (EUR 1 billion). The repo lines will expire in June 2022. According to the Central Bank of Montenegro (CBCG), Montenegro is allowed to apply for systemic liquidity support of up to EUR 250 million under the Eurosystem repo facility for central banks, and the deadline for using this tool was extended until March 2022. After the EU finally gave the green light for starting accession negotiations with Albania and North Macedonia in March 2020, the EU member state Bulgaria is blocking the actual start of negotiations over some historical issues. The EU member states have to decide unanimously to start accession negotiations with a candidate country. In December 2020, the IMF discussed the resumption of a new three-year Extended Fund Facility (EFF) with the authorities from Bosnia and Herzegovina but no consensus has been reached due to disagreements regarding some reform items that should be part of the program (for instance, improved economic cooperation at the different state and entity levels or the strengthening of the financial stability framework).

[12] *Albania (7-year Eurobond of EUR 650 million in June 2020), Montenegro (7-year Eurobond of EUR 750 million in December 2020), North Macedonia (7-year Eurobond of EUR 700 million in June 2020) and Serbia (7-year Eurobond of EUR 2 billion in May 2020, 10-year Eurobond of EUR 1 billion in November 2020 and 12-year Eurobond of EUR 1 billion in February 2021). Furthermore, Republika Srpska, one of the two entities of Bosnia and Herzegovina, issued a 5-year Eurobond of EUR 300 million.*

[13] *From 2018, Serbia had made use of the IMF Policy Coordination Instrument (PCI), which does not provide any funding. The PCI expired in January 2021. Talks between the IMF and Serbian authorities on a new nonfinancial arrangement are currently ongoing.*

2 Slovakia: recession moderated after economic plunge in spring

The coronavirus pandemic and the ensuing large-scale lockdown led to a deep recession in the first half of 2020. As COVID-19 infections receded and containment measures were loosened during the summer of 2020, Slovakia's economy experienced its strongest quarter-on-quarter GDP growth on record (+12% in the third quarter of 2020). Yet, the fall of 2020 brought about a renewed massive surge in coronavirus cases which peaked in early January and March 2021. While the country's industry has been spared from the re-tightening of containment measures, the retail and services sectors have suffered from fierce restrictions. As a result, even though the massive economic downturn of the second quarter of 2020 could be stopped, the economy continued to shrink in the second half of the year. However, at –5.2%, real GDP developments in 2020 fared better than the euro area average (–6.6%), the level recorded during the trough in 2009 (–5.5%) and, in particular, much better than the projections made at the onset of the COVID-19 pandemic. In the six months to December, all domestic demand components but government consumption put a significant drag on economic output. The slightly positive contribution of private consumption to GDP growth in the third quarter turned back into noticeably negative territory following the reintroduction of containment measures in the final quarter of 2020. Firms' investment in machinery and equipment as well as housing investment contributed to the recovery of fixed capital formation in the third quarter of 2020. Nonetheless, the contribution of fixed capital formation to growth remained negative and worsened further in the fourth quarter of 2020 on the back of the deteriorating pandemic situation and resulting uncertainty. Despite accelerated stock-building toward year-end, inventories made the single most negative contribution to GDP growth in the second half of 2020. Net exports had a significant positive impact on economic growth in the second half of last year, benefiting largely from a fast recovery of the automotive industry.

Following a marked increase in unemployment from 5.6% in December 2019 to 7.2% in August 2020, the jobless rate has been broadly stable since (7.3% in February 2021). Moreover, the positive impulse to economic activity in the second half of 2020 triggered a renewed rise in wages. Driven by food, some services, transport and energy prices, headline inflation had come down from 3.2% in December 2019 to 1.4% in August 2020, and stayed at about that level until the end of the year. Early 2021 saw some further moderation of inflation (0.7% in January and 0.9% in February) owing to a reduction in food and regulated energy prices.

To cushion the impact of the pandemic, Slovakia's "first-aid" package has been extended repeatedly in terms of size, eligible recipients and duration (currently in place until June 2021). It encompasses measures worth some 4.3% of 2020 GDP figures and focuses on employment support, sickness and nursing benefits as well as subsidized rents. In addition, several state guarantee schemes totaling 4.4% of last year's GDP were put in place. According to Národná banka Slovenska (NBS), the utilization rate of the "first-aid" program fell from almost 90% of the potential at the beginning of the pandemic to 68% at end-2020. Actual payouts in 2020 thus amounted to 3.5% of GDP only. The general government fiscal deficit, which was originally targeted to reach 0.5% of GDP in 2020, eventually came in at 6.2% of GDP. For 2021, a deficit of 7.4% of GDP has been approved. Consequently, public debt is projected to go up from 48.2% of GDP in 2019 to roughly 65% of GDP in 2021. The NBS has continued its accommodative monetary stance, including keeping the countercyclical capital buffer rate at 1.0%.

Table 2

Main economic indicators: Slovakia

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Year-on-year change of the period total in %								
GDP at constant prices	3.8	2.3	–5.2	1.4	2.0	–3.6	–12.1	–2.4	–2.7
Private consumption	4.1	2.3	–1.1	1.9	2.6	1.1	–4.1	1.1	–2.2
Public consumption	0.2	4.7	–2.3	4.3	4.7	1.2	–10.4	–0.3	0.1
Gross fixed capital formation	2.6	5.8	–11.9	7.3	7.2	–7.5	–15.1	–8.2	–15.4
Exports of goods and services	5.2	0.8	–7.2	–0.5	–1.8	–5.6	–26.0	0.7	1.8
Imports of goods and services	4.9	2.1	–8.5	2.7	–2.0	–2.3	–26.8	–6.0	0.6
	Contribution to GDP growth in percentage points								
Domestic demand	3.4	3.5	–6.3	4.2	1.8	–0.2	–12.6	–8.2	–3.8
Net exports of goods and services	0.3	–1.2	1.1	–2.8	0.2	–3.4	0.5	5.8	1.1
Exports of goods and services	4.9	0.7	–6.7	–0.4	–1.8	–5.7	–23.7	0.6	1.7
Imports of goods and services	–4.6	–2.0	7.8	–2.3	2.0	2.3	24.2	5.2	–0.5
	Year-on-year change of period average in %								
Unit labor costs in the whole economy (nominal, per person)	4.1	5.2	5.6	5.9	4.0	9.1	6.7	2.1	4.5
Unit labor costs in manufacturing (nominal, per hour)	3.5	5.7	4.1	7.6	8.7	8.6	21.0	–5.0	–6.4
Labor productivity in manufacturing (real, per hour)	4.7	1.3	1.2	–2.4	–2.0	–0.7	–11.8	7.6	9.4
Labor costs in manufacturing (nominal, per hour)	8.4	6.9	4.7	5.0	6.5	7.9	6.8	2.2	2.5
Producer price index (PPI) in industry	2.4	1.8	–0.5	1.1	0.7	1.7	–1.4	–1.3	–1.0
Consumer price index (here: HICP)	2.5	2.8	2.0	3.0	3.1	2.9	2.0	1.5	1.6
	Period average levels								
Unemployment rate (ILO definition, %, 15–64 years)	6.6	5.8	6.8	5.9	5.7	6.0	6.7	7.3	7.0
Employment rate (%, 15–64 years)	67.6	68.4	67.5	68.5	68.5	68.0	66.8	67.5	67.8
Key interest rate per annum (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Nominal year-on-year change in the period-end stock in %								
Loans to the domestic nonbank private sector[1]	8.4	6.8	6.8	6.8	6.8	6.2	5.6	5.0	4.5
of which: loans to households	11.3	8.0	8.0	8.1	8.0	7.9	7.0	6.5	6.1
loans to nonbank corporations	3.4	4.4	4.4	4.4	4.4	3.0	3.0	2.1	1.4
	%								
Share of foreign currency loans in total loans to the nonbank private sector	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.1
Return on assets (banking sector)	0.8	0.8	0.5	0.8	0.8	0.3	0.3	0.5	0.5
Tier 1 capital ratio (banking sector)	16.6	16.6	18.1	16.6	16.6	17.3	18.0	18.0	18.1
NPL ratio (banking sector)	3.0	2.8	2.4	2.8	2.8	2.8	2.7	2.5	2.4
	% of GDP								
General government revenues	40.7	41.4	41.8	..	..	..	..	..	..
General government expenditures	41.7	42.7	48.0	..	..	..	..	..	..
General government balance	–1.0	–1.3	–6.2	..	..	..	..	..	..
Primary balance	0.4	–0.1	–5.0	..	..	..	..	..	..
Gross public debt	49.6	48.2	60.6	..	..	..	..	..	..
	% of GDP								
Debt of nonfinancial corporations (nonconsolidated)	54.2	53.2	..	..	..	..	..	..	..
Debt of households and NPISHs[2] (nonconsolidated)	42.5	43.7	..	..	..	..	..	..	..
	% of GDP (based on EUR), period total								
Goods balance	–0.3	–1.0	0.7	–3.4	–0.4	–3.5	0.1	2.9	2.5
Services balance	1.0	1.3	1.2	1.7	0.6	1.3	1.3	2.0	0.1
Primary income	–1.8	–2.1	–1.6	–2.2	–2.5	–0.7	–2.0	–1.7	–1.9
Secondary income	–1.2	–0.9	–0.6	–0.9	0.1	–1.4	–0.8	–0.8	0.5
Current account balance	–2.2	–2.7	–0.4	–4.8	–2.2	–4.2	–1.5	2.4	1.2
Capital account balance	1.0	0.7	1.2	–0.2	2.3	1.7	0.3	0.6	2.0
Foreign direct investment (net)[3]	–1.3	–2.2	2.1	–2.0	–6.9	–1.6	3.9	6.3	–0.5
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	114.7	112.4	121.8	113.9	112.4	112.8	123.8	122.1	121.8
Gross official reserves (excluding gold)	3.8	5.3	6.6	5.6	5.3	5.6	6.7	7.1	6.6
	Months of imports of goods and services								
Gross official reserves (excluding gold)	0.5	0.7	0.9	0.7	0.7	0.7	0.9	1.0	0.9
	EUR million, period total								
GDP at current prices	89,506	93,865	91,105	24,513	24,177	21,452	21,132	24,440	24,081

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiw, OeNB.

[1] *Foreign currency component at constant exchange rates.*
[2] *Nonprofit institutions serving households.*
[3] *+ = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).*
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

3 Slovenia: pandemic continues to weigh on economy in late 2020

Slovenia's GDP contracted by 5.5% in 2020, hence to a lesser extent than expected in the most recent official forecasts (between –6% and –8%). The sharp drop in output during the second quarter of 2020 was followed by a recovery in the third quarter. However, the reintroduction of selected lockdown measures led to an even sharper decline in GDP in the final quarter of the year. Net real exports were supportive in the second half of 2020, as imports continued to contract more than exports. Investments gradually recovered during the second half of the year, mainly owing to the recovery of construction activity. The reintroduction of lockdown measures in the fourth quarter of 2020 left a clear mark on private consumption, which contracted almost as much as in the second quarter of 2020. Consumer confidence almost fell back to its spring lows, despite the decrease in unemployment figures and increase in real wages (supported also by HICP deflation). By contrast, public consumption expanded in the second half of 2020 in connection with measures taken by the government in response to the pandemic (e.g. salary bonuses, COVID-19-related medical expenditure). High-frequency indicators improved at the beginning of 2021, but new restrictions imposed in early April are likely to further delay a sustained economic recovery.

The general government budget deficit reached 8.4% of GDP in 2020 and public debt rose to 80.8%. This increase was attributable to the decline in economic activity, the workings of automatic stabilizers, and government measures put in place to mitigate the economic impact of the coronavirus pandemic. According to the Fiscal Council of Slovenia, the direct effects of COVID-19-related measures on the general government budget balance amounted to around 6.3% of GDP in 2020 (including measures with indirect effects), which was substantially lower than the estimated size of the seven anti-crisis packages introduced thus far. At the beginning of February 2021, Slovenia's parliament adopted an eighth package with an estimated size of some EUR 320 million, which is mainly aimed at helping companies shoulder the minimum wage rise by nearly 9% in early 2021 and at extending the furlough and short-time work schemes. According to the country's draft budgetary plan for 2021, the budget deficit should fall to 6.6% of GDP, mainly due to the expected economic rebound (GDP is expected to grow by 5.1% in 2021) and smaller discretionary COVID-19-related spending.

Annual consumer price index (CPI) growth remained negative from August 2020 up to February 2021, coming in at –1.1% in February 2021. Deflation was partly the result of the still prevailing base effect caused by the sharp fall in energy prices in March and April 2020 and the considerable deceleration in unprocessed food price inflation. At the same time, core inflationary pressures remained low and even turned negative in February 2021.

Growth in credit to households and corporates moderated between July 2020 and February 2021, with corporate credit growth becoming increasingly negative from August 2020 onward (despite the extension of state guarantees for corporate liquidity loans in November 2020) and household credit growth turning negative in January 2021 (despite the favorable impact of the loan moratorium on outstanding loan amounts). These developments were likely driven by both demand factors and the tightening of banks' lending standards in each client segment. According to the assessment of Banka Slovenije, risks to financial stability remained greatly elevated at the beginning of 2021 due to the economic impact of the pandemic. Income and credit risks are the most prominent ones, weighing severely on bank profitability.

Table 3

Main economic indicators: Slovenia

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Year-on-year change of the period total in %								
GDP at constant prices	4.4	3.2	–5.5	3.1	2.0	–2.3	–12.9	–2.4	–4.5
Private consumption	3.6	4.8	–9.7	5.8	2.3	–6.4	–17.2	–0.5	–14.4
Public consumption	3.0	1.7	1.8	2.5	–0.3	4.1	–1.1	1.3	2.8
Gross fixed capital formation	9.6	5.8	–4.1	4.8	–1.2	–3.5	–13.8	–0.8	2.0
Exports of goods and services	6.3	4.1	–8.7	4.9	1.1	–0.8	–23.4	–9.5	–0.4
Imports of goods and services	7.2	4.4	–10.2	7.6	–0.3	–1.9	–24.0	–12.5	–2.0
	Contribution to GDP growth in percentage points								
Domestic demand	4.5	3.1	–6.0	4.6	0.9	–3.1	–11.2	–3.9	–5.6
Net exports of goods and services	–0.1	0.1	0.4	–1.5	1.1	0.7	–1.5	1.6	1.2
Exports of goods and services	5.2	3.5	–7.3	4.1	0.9	–0.8	–20.0	–7.9	–0.3
Imports of goods and services	–5.3	–3.4	7.7	–5.7	0.3	1.5	18.5	9.4	1.5
	Year-on-year change of period average in %								
Unit labor costs in the whole economy (nominal, per person)	2.8	4.2	7.4	4.2	3.9	6.8	9.8	3.8	9.1
Unit labor costs in manufacturing (nominal, per hour)	–2.7	0.0	7.1	–1.8	0.4	2.0	21.4	4.8	1.7
Labor productivity in manufacturing (real, per hour)	6.5	4.0	–3.9	3.7	2.3	2.4	–14.4	–2.7	–0.6
Labor costs in manufacturing (nominal, per hour)	3.6	3.9	2.8	1.8	2.7	4.5	3.9	2.0	1.1
Producer price index (PPI) in industry	2.1	0.6	–0.3	0.3	0.4	–0.1	–0.6	–0.3	–0.2
Consumer price index (here: HICP)	1.9	1.7	–0.3	2.1	1.6	1.6	–1.2	–0.6	–0.9
	Period average levels								
Unemployment rate (ILO definition, %, 15–64 years)	5.2	4.5	5.0	4.8	4.0	4.6	5.2	5.2	5.1
Employment rate (%, 15–64 years)	71.1	71.9	70.9	72.1	71.6	71.5	70.0	70.8	71.1
Key interest rate per annum (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Nominal year-on-year change in the period-end stock in %								
Loans to the domestic nonbank private sector[1]	1.9	4.3	4.3	3.9	4.3	5.1	1.3	0.1	–1.0
of which: loans to households	6.4	5.8	5.8	5.7	5.8	4.1	1.6	1.2	0.1
loans to nonbank corporations	–2.2	2.8	2.8	2.1	2.8	6.1	1.1	–1.0	–2.2
	%								
Share of foreign currency loans in total loans to the nonbank private sector	2.0	1.7	1.4	1.8	1.7	1.6	1.6	1.5	1.4
Return on assets (banking sector)	1.3	1.3	1.0	1.6	1.3	0.6	0.6	1.2	1.0
Tier 1 capital ratio (banking sector)	17.6	17.8	16.7	17.7	17.8	16.3	17.7	18.2	16.7
NPL ratio (banking sector)	2.3	1.1	1.1	1.5	1.1	1.1	1.2	1.0	1.1
	% of GDP								
General government revenues	44.3	43.7	43.6	..	..	..	..	..	..
General government expenditures	43.5	43.3	52.0	..	..	..	..	..	..
General government balance	0.7	0.4	–8.4	..	..	..	..	..	..
Primary balance	2.8	2.1	–6.8	..	..	..	..	..	..
Gross public debt	70.3	65.6	80.8	..	..	..	..	..	..
	% of GDP								
Debt of nonfinancial corporations (nonconsolidated)	51.5	48.5	..	..	..	..	..	..	..
Debt of households and NPISHs[2] (nonconsolidated)	26.9	26.9	..	..	..	..	..	..	..
	% of GDP (based on EUR), period total								
Goods balance	2.8	2.7	5.4	1.6	2.2	5.2	5.4	6.0	5.1
Services balance	5.7	5.8	4.3	6.7	5.9	4.5	3.6	4.4	4.5
Primary income	–1.8	–1.8	–1.5	–1.9	–2.2	–1.0	–1.8	–2.2	–1.0
Secondary income	–0.9	–1.1	–1.1	–1.1	–0.6	–1.5	–1.3	–0.8	–1.0
Current account balance	5.8	5.6	7.1	5.3	5.3	7.3	5.9	7.4	7.6
Capital account balance	–0.5	–0.4	–0.5	–0.2	–1.0	–0.5	–0.2	–0.2	–1.0
Foreign direct investment (net)[3]	–2.0	–1.5	0.0	–1.0	–0.9	–1.5	–1.0	–0.9	3.5
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	91.9	90.5	104.1	93.1	90.5	94.7	102.1	102.3	104.1
Gross official reserves (excluding gold)	1.5	1.6	2.0	1.6	1.6	1.7	1.8	1.9	2.0
	Months of imports of goods and services								
Gross official reserves (excluding gold)	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	EUR million, period total								
GDP at current prices	45,863	48,393	46,297	12,489	12,462	11,283	10,915	12,164	11,935

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiw, OeNB.

[1] *Foreign currency component at constant exchange rates.*
[2] *Nonprofit institutions serving households.*
[3] *+ = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).*
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

4 Bulgaria: fiscal measures contain surge in unemployment

Bulgaria was hit extremely hard by the second and third waves of COVID-19 infections in fall 2020 and the first quarter of 2021, respectively. In spite of this, the government continued to ease restrictions until March 2021. Vaccination roll-out started in coordination with the other EU members on December 27, 2020. Still, by April 2021, less than 1.5% of the population had received full vaccination.

Real GDP contracted in the third and fourth quarters of 2020. In sum, GDP declined by 4.2% in 2020 compared to the previous year. Exports were on a ten-year low by the end of 2020, while imports had slightly recovered. Consumption gained momentum in the summer months, before being depressed again amid lockdown restrictions during the second wave. On the production side of GDP, this was mostly visible in the large negative contributions from wholesale and retail trade, transportation, accommodation and food services as well as from the arts, entertainment and recreation services. Due to the strong drop in energy prices, HICP inflation fell to 0.3% in the fourth quarter of 2020 and, with a further decrease in unprocessed food prices, to –0.3% in January 2021.

Labor market support measures continued to dampen the negative effect of the COVID-19 pandemic on employment. The unemployment rate stood at 5.3% in the last quarter of 2020, 1.2 percentage points higher than a year before. Youth unemployment increased even more drastically. The largest support measure, the 60:40 job retention scheme, was extended until at least May 2021 and further measures were implemented for 2021. Partially because of the pay raise for public sector and health workers, real wage growth rebounded to over 9% in the third and fourth quarters of 2020.

The banking sector's loan-to-deposit ratio for private sector exposures declined in the review period and stood at 71.4% in February 2021, exclusively driven by a steady increase in deposits. While the loan volume was rather constant for the first three quarters of 2020, it slowly started to increase in fall 2020. The NPL ratio came to 4.3% in the final quarter of 2020 and has remained stable since then. However, a large batch of loan moratoria expired in March 2021, with unknown consequences so far. The macroprudential measures passed by the Bulgarian National Bank (BNB) in 2020 remained in place. The countercyclical capital buffer was kept at 0.5% for 2021 and banking sector profits earned in 2020 must not be distributed in order to increase banks' resilience to possible future losses.

At –3.4% of GDP, the general government deficit turned out lower than previously expected by the Bulgarian government. In spite of the pandemic and the reduction of VAT rates, tax and social security revenues increased in 2020, which might be due to increased government efforts to collect taxes. At the same time, public consumption rose notably compared to the previous year.

Parliamentary elections were held on April 4, 2021, which saw GERB, the main party in Bulgaria's ruling coalition, win. However, GERB won less than 30% of seats and lacks support from other parties to form a majority in parliament. The formation of the next government was still uncertain at the time of writing. Before the elections, Bulgaria's accession to the euro area was still planned for 2024. So far, no significant disruptions in interest rates or exchange rates have been observed following Bulgaria's exchange rate mechanism II (ERM II) accession, which saw the Bulgarian lev included with a central exchange rate of 1.9558 levs per euro. Close cooperation was established between the ECB and the BNB and since October 2020, five Bulgarian banks have been directly supervised by the ECB.

Table 4

Main economic indicators: Bulgaria

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Year-on-year change of the period total in %								
GDP at constant prices	3.1	3.7	–4.2	3.1	3.2	1.8	–8.5	–4.2	–4.7
Private consumption	4.4	5.5	0.2	5.9	6.3	2.9	–4.0	7.1	–4.3
Public consumption	5.3	2.0	7.5	2.1	4.2	6.3	3.9	5.8	12.5
Gross fixed capital formation	5.4	4.5	–5.1	3.2	8.0	–10.2	–11.8	–1.4	0.9
Exports of goods and services	1.7	3.9	–11.3	6.5	2.2	3.2	–19.0	–17.7	–9.3
Imports of goods and services	5.7	5.2	–6.6	7.2	5.8	0.4	–19.5	–6.1	–1.2
	Contribution to GDP growth in percentage points								
Domestic demand	5.6	4.4	–0.9	2.9	5.4	–0.3	–8.8	4.8	–0.1
Net exports of goods and services	–2.5	–0.7	–3.2	0.3	–2.1	1.9	0.3	–8.8	–4.6
Exports of goods and services	1.1	2.5	–7.3	4.5	1.3	2.2	–11.8	–12.3	–5.3
Imports of goods and services	–3.6	–3.3	4.0	–4.2	–3.4	–0.3	12.1	3.5	0.7
	Year-on-year change of period average in %								
Unit labor costs in the whole economy (nominal, per person)	6.3	3.5	7.6	2.2	3.7	3.1	8.9	8.5	10.5
Unit labor costs in manufacturing (nominal, per hour)	4.9	3.5	2.9	6.0	4.8	7.3	9.6	–3.1	–2.3
Labor productivity in manufacturing (real, per hour)	3.7	7.7	2.5	3.6	7.6	1.5	1.1	1.2	5.8
Labor costs in manufacturing (nominal, per hour)	8.8	11.6	5.2	9.8	12.8	9.0	10.9	–1.9	3.3
Producer price index (PPI) in industry	4.0	3.0	–2.0	3.4	2.8	1.4	–4.4	–2.8	–2.1
Consumer price index (here: HICP)	2.6	2.5	1.2	2.2	2.3	3.0	1.1	0.6	0.3
EUR per 1 BGN, + = BGN appreciation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Period average levels								
Unemployment rate (ILO definition, %, 15–64 years)	5.3	4.3	5.2	3.7	4.1	4.6	6.0	4.9	5.3
Employment rate (%, 15–64 years)	67.7	70.1	68.5	71.4	70.0	68.1	67.4	69.6	68.8
Key interest rate per annum (%)[1]	..	..	..	..	..	..	..	..	..
BGN per 1 EUR	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	Nominal year-on-year change in period-end stock in %								
Loans to the domestic nonbank private sector[2]	8.3	9.4	9.4	7.2	9.4	9.1	6.6	5.8	4.3
of which: loans to households	11.2	9.5	9.5	9.1	9.5	9.9	8.0	7.5	6.6
loans to nonbank corporations	6.6	9.3	9.3	6.0	9.3	8.7	5.7	4.7	2.9
	%								
Share of foreign currency loans in total loans to the nonbank private sector	34.9	33.2	31.9	33.1	33.2	32.7	32.6	31.6	31.9
Return on assets (banking sector)	1.7	1.5	0.7	1.6	1.5	1.0	0.9	0.8	0.7
Tier 1 capital ratio (banking sector)	19.4	19.5	22.1	20.2	19.5	19.8	22.5	22.3	22.1
NPL ratio (banking sector)	5.1	4.2	4.3	5.0	4.2	4.2	5.2	4.9	4.3
	% of GDP								
General government revenues	38.6	38.5	39.5	..	..	..	..	..	..
General government expenditures	36.6	36.3	42.9	..	..	..	..	..	..
General government balance	2.0	2.1	–3.4	..	..	..	..	..	..
Primary balance	2.7	2.8	–2.8	..	..	..	..	..	..
Gross public debt	22.3	20.2	25.0	..	..	..	..	..	..
	% of GDP								
Debt of nonfinancial corporations (nonconsolidated)	83.5	79.5	..	..	..	..	..	..	..
Debt of households and NPISHs[3] (nonconsolidated)	23.0	23.1	..	..	..	..	..	..	..
	% of GDP (based on EUR), period total								
Goods balance	–4.8	–4.7	–3.1	–2.9	–5.6	–3.1	–1.3	–2.4	–5.3
Services balance	7.3	7.9	4.9	14.7	4.6	5.5	4.5	6.2	3.4
Primary income	–4.8	–3.1	–3.5	–3.4	–2.3	–3.9	–3.5	–4.0	–2.6
Secondary income	3.2	2.9	1.0	2.5	1.7	3.6	1.1	0.3	–0.5
Current account balance	0.9	3.0	–0.7	10.9	–1.5	2.2	0.9	0.1	–4.9
Capital account balance	1.1	1.5	1.6	1.6	1.2	1.4	2.0	1.6	1.3
Foreign direct investment (net)[4]	–1.4	–1.4	–3.2	–2.1	–0.7	–2.1	–2.0	–9.6	1.0
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	66.3	62.3	66.1	64.8	62.3	61.0	62.0	66.6	66.1
Gross official reserves (excluding gold)	42.1	37.7	47.5	39.3	37.7	39.8	42.8	47.7	47.5
	Months of imports of goods and services								
Gross official reserves (excluding gold)	8.0	7.4	10.4	7.6	7.4	7.9	8.9	10.3	10.4
	EUR million, period total								
GDP at current prices	56,112	61,240	60,643	16,198	17,014	13,290	14,201	16,196	16,956

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiw, OeNB.

[1] *Not available in a currency board regime.*
[2] *Foreign currency component at constant exchange rates.*
[3] *Nonprofit institutions serving households.*
[4] *+ = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).*
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

5 Croatia: domestic demand supported by policy measures, tourism revenues plummet

Croatia's GDP contracted by 8.5% in the second half of 2020, leading to a GDP contraction of 8.4% in 2020. GDP growth was somewhat weaker in the second half of the year compared to the first half due to the substantial negative contribution of net exports. Exports contracted more than imports, driven by the drop in service exports from tourism. Tourist arrivals dropped by some 60% compared to the second half of 2019. This also led to Croatia's first current account deficit since 2014 (0.8% of GDP in 2020). Of the other GDP components, private consumption contracted by 5.9% in the review period, while investments grew by 0.7%. Changes in inventories made a large positive contribution to growth, reflecting a buildup of inventories in the third quarter of 2020. On the output side of GDP, the construction, agriculture and ICT sectors grew in the second half of 2020, while all other sectors contracted. Wholesale and retail trade, transport, accommodation and food services as well as taxes (less subsidies on products) accounted for most of the drop in GDP.

According to the Croatian National Bank (HNB), the Croatian government provided roughly 4.4% of GDP in policy support for companies in 2020. Roughly half of this amount was attributable to wage subsidies, which were slowly scaled back in the second half of 2020. In December, 96,179 employees were still benefiting from the scheme (down from a peak of around 550,000 in May). Additional support was provided through tax exemptions and deferrals as well as public loans and guarantees. The measures helped support the labor market, and the unemployment rate increased only moderately in 2020. However, the government's budget deficit soared to 6.5% of GDP, as government expenditures increased by nearly 18% year on year. Government debt increased to 86.6% of GDP at end-2020, up from 72.8% at end-2019. Croatia's gross external debt also increased substantially to 82.7% of GDP, mostly due to an increase in external government debt. By contrast, net external debt declined by 1.2 percentage points to 16.7% of GDP.

There were only few monetary policy interventions in the second half of 2020. The precautionary currency agreement (swap line) with the ECB was prolonged until March 2022. International reserves grew over the review period, totaling EUR 19.7 billion (roughly equaling 11 months of imports) in January 2021. HICP inflation was –0.3% in the second half of 2020, while core inflation stood at 0.7%. Strong energy price deflation led to the wedge between the two measures.

Croatian banking sector profits halved, with return on assets dropping from 1.4% in 2019 to 0.6% in 2020. This drop was mostly due to lower operating income and – to a lesser extent – attributable to higher provisions. The tier 1 capital ratio of the banking system stood at 24.3% at end-2020. The NPL ratio remained roughly unchanged at 5.4%. Regulatory easing and moratoria continued to prevent a rise in NPLs, but loans with higher credit risk (IFRS 9 "stage 2" loans) kept increasing during the second half of 2020. At end-2020, 11% of the banking sector's credit volume, mostly consisting of corporate exposures, was covered by a moratorium, according to HNB data.

In July, the Croatian kuna was included in the ERM II with a central exchange rate of 7.5345 kuna per euro. The ECB and the HNB established close cooperation and since October 2020, eight Croatian banks have been directly supervised by the ECB. Croatia has to successfully participate in the ERM II for two years and fulfill all additional convergence criteria as well as post-ERM-II commitments before it can adopt the euro.

Table 5

Main economic indicators: Croatia

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Year-on-year change of the period total in %								
GDP at constant prices	2.8	2.9	–8.4	2.8	2.3	0.2	–15.4	–10.0	–7.0
Private consumption	3.3	3.5	–6.2	3.0	4.0	0.8	–13.8	–7.3	–4.4
Public consumption	2.3	3.4	2.0	2.7	3.3	4.7	0.5	1.5	1.6
Gross fixed capital formation	6.5	7.1	–2.9	5.0	4.0	3.1	–14.7	–3.0	4.2
Exports of goods and services	3.7	6.8	–25.0	7.9	6.9	–2.0	–40.7	–32.3	–9.8
Imports of goods and services	7.5	6.3	–13.8	5.2	2.5	–5.0	–27.5	–14.1	–7.6
	Contribution to GDP growth in percentage points								
Domestic demand	4.6	2.7	–2.6	0.4	0.5	–2.3	–10.3	8.0	–7.0
Net exports of goods and services	–1.8	0.2	–5.8	3.2	1.5	2.1	–4.6	–17.5	–0.1
Exports of goods and services	1.9	3.4	–13.0	5.7	2.8	–1.1	–19.8	–24.2	–4.1
Imports of goods and services	–3.7	–3.2	7.2	–2.4	–1.3	3.2	15.2	6.7	4.0
	Year-on-year change of period average in %								
Unit labor costs in the whole economy (nominal, per person)	..	..	..	..	..	..	..	..	..
Unit labor costs in manufacturing (nominal, per hour)	6.4	11.5	2.5	12.2	14.5	4.9	6.5	1.2	–2.4
Labor productivity in manufacturing (real, per hour)	2.1	–7.2	–2.4	–8.1	–10.3	–4.9	–6.1	–1.6	3.0
Labor costs in manufacturing (nominal, per hour)	8.9	3.6	0.0	3.2	2.7	–0.3	0.0	–0.4	0.5
Producer price index (PPI) in industry	2.2	0.8	–3.2	–0.2	0.3	–0.1	–5.4	–4.2	–2.9
Consumer price index (here: HICP)	1.6	0.8	0.0	0.7	0.9	1.2	–0.4	–0.5	–0.2
EUR per 1 HRK, + = HRK appreciation	0.6	0.0	–1.6	0.3	–0.3	–0.9	–2.1	–1.8	–1.6
	Period average levels								
Unemployment rate (ILO definition, %, 15–64 years)	8.6	6.7	7.6	5.8	7.3	7.1	6.5	7.5	9.2
Employment rate (%, 15–64 years)	60.7	62.1	62.0	63.0	62.2	61.4	62.2	63.0	61.5
Key interest rate per annum (%)	..	..	..	..	..	..	..	..	..
HRK per 1 EUR	7.4	7.4	7.5	7.4	7.4	7.5	7.6	7.5	7.6
	Nominal year-on-year change in the period-end stock in %								
Loans to the domestic nonbank private sector[1]	2.4	3.4	3.4	2.3	3.4	4.7	2.3	3.0	2.8
of which: loans to households	4.7	6.7	6.7	6.3	6.7	5.3	3.0	3.2	1.6
loans to nonbank corporations	–0.8	–1.3	–1.3	–3.3	–1.3	3.9	1.2	2.8	4.8
	%								
Share of foreign currency loans in total loans to the nonbank private sector	54.7	51.5	52.0	51.9	51.5	51.5	51.4	51.1	52.0
Return on assets (banking sector)	1.2	1.4	0.6	1.4	1.4	1.0	0.8	0.7	0.6
Tier 1 capital ratio (banking sector)	22.1	24.0	24.3	22.0	24.0	22.7	24.0	24.3	24.3
NPL ratio (banking sector)	7.5	5.5	5.4	6.0	5.5	5.3	5.4	5.5	5.4
	% of GDP								
General government revenues	46.3	47.4	48.8	..	..	..	..	..	..
General government expenditures	46.0	47.0	55.3	..	..	..	..	..	..
General government balance	0.2	0.4	–6.5	..	..	..	..	..	..
Primary balance	2.5	2.6	–4.2	..	..	..	..	..	..
Gross public debt	74.3	72.8	86.6	..	..	..	..	..	..
	% of GDP								
Debt of nonfinancial corporations (nonconsolidated)	91.7	85.9	..	..	..	..	..	..	..
Debt of households and NPISHs[2] (nonconsolidated)	33.9	34.5	..	..	..	..	..	..	..
	% of GDP (based on EUR), period total								
Goods balance	–18.6	–19.3	–17.6	–15.8	–18.2	–20.8	–17.2	–15.7	–16.9
Services balance	17.7	19.0	10.7	43.5	8.1	3.2	6.1	26.5	5.0
Primary income	–1.6	–1.6	0.4	–1.6	–0.4	0.6	0.2	–0.6	1.6
Secondary income	4.2	4.6	5.7	3.6	5.9	5.1	6.4	4.3	7.2
Current account balance	1.8	2.8	–0.8	29.8	–4.6	–12.0	–4.5	14.5	–3.0
Capital account balance	1.4	2.1	2.7	1.5	2.3	1.9	3.1	2.2	3.6
Foreign direct investment (net)[3]	–1.6	–1.9	–1.9	–2.3	–1.9	–2.5	–1.2	–2.4	–1.4
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	82.3	75.1	82.7	80.8	75.1	74.5	80.1	82.4	82.7
Gross official reserves (excluding gold)	33.6	34.1	38.6	38.1	34.1	30.4	33.3	36.5	38.6
	Months of imports of goods and services								
Gross official reserves (excluding gold)	7.9	7.8	9.3	8.7	7.8	7.1	8.0	8.8	9.3
	EUR million, period total								
GDP at current prices	51,956	54,244	49,108	15,312	13,350	12,068	11,242	13,471	12,328

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiw, OeNB.

[1] *Foreign currency component at constant exchange rates.*
[2] *Nonprofit institutions serving households.*
[3] *+ = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).*
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

6 Czechia: deepest economic crisis in thirty years

With one of the highest numbers of confirmed coronavirus cases and deaths per million people, Czechia has been one of the most severely hit countries worldwide. Because of the pandemic and ensuing containment restrictions, the country has lived through the worst economic slump since the beginning of transition. While real GDP growth plummeted to –5.6% in 2020, the slump was somewhat less severe than in the EU on average (–6.2%) and less dramatic than initially expected.

Following the easing of COVID-19-related measures in summer, GDP recovered notably in the third quarter of 2020 (+7.1% quarter on quarter). Then, however, a dire second wave of infections hit the country in fall, with infections peaking in October 2020 as well as in January and March 2021. Consequently, the country has operated under a state of emergency and tight measures have been brought in, including extensive shutdowns in retail and services for most of the time since early October 2020. Yet, in contrast to the first wave, these restrictions have had a less devastating economic impact, as Czechia's export-oriented industry has been spared from lockdown measures and has benefited from relatively crisis-resilient global industrial production, trade and global value chains. As a result, the economic contraction moderated in the second half of the year, mainly on the back of net exports whose contribution to GDP growth turned significantly positive. A slightly positive contribution also came from public consumption boosted by extraordinary spending on healthcare. Other domestic demand components further increased their drag on GDP despite continued accommodative monetary and fiscal policies.

Even though the primary income deficit, which had been unusually low due to a significantly lower outflow of dividends, widened toward the end of the year, the surge in the goods balance in 2020 led to the highest current account surplus (3.6% of GDP) since the transformation years. The originally envisaged general government fiscal deficit of 0.7% of GDP for 2020 was revised three times and eventually came in at 6.2% of GDP (nearly twice as high as in 2009). For 2021, government revenues are estimated to exceed expenditures by roughly CZK 400 billion. Public debt rose from 30.3% of GDP in 2019 to 38.1% of GDP in 2020. Actual crisis support in 2020 turned out to be only a fraction of the originally announced fiscal package worth more than 20% of GDP. In 2020, employees and firms received about 58% of overall direct support previously announced by the government (according to the Czech Chamber of Commerce). Of the additional guarantee program, only about 5% were used. The overall fiscal package thus effectively amounted to about 3% to 4% of GDP, barring deferrals of taxes, loans and rents, which will have to be paid at a later stage.

Owing to government support schemes, the harm done to the labor market during the pandemic has been contained (so far). While inflation averaged 3.5% in the first seven months of 2020, it has continuously decreased since, reaching 2.1% in February 2021, which is well within the Czech National Bank's (CNB) tolerance band (2% ±1 percentage point). This is because the previously predominant inflation drivers, such as increased food and administered prices, have wound down. Earlier this year, the CNB signaled readiness to start normalizing its monetary policy. Yet, according to the CNB's most recent assessments, uncertainties and risks have again become more substantial, suggesting that monetary conditions might remain accommodative for longer. Banking sector profits halved in 2020 on the back of lower interest income and higher provisioning needs.

Table 6

Main economic indicators: Czechia

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Year-on-year change of the period total in %								
GDP at constant prices	3.2	2.3	–5.6	3.0	1.7	–1.4	–10.6	–5.3	–4.8
Private consumption	3.5	3.0	–5.2	3.3	2.9	–0.1	–8.4	–3.7	–8.1
Public consumption	3.8	2.2	3.5	3.0	1.4	4.3	2.0	0.5	6.8
Gross fixed capital formation	10.0	2.3	–8.1	2.0	4.2	–3.4	–4.5	–10.1	–12.7
Exports of goods and services	3.7	1.3	–5.9	4.3	–1.7	–1.5	–23.1	–3.5	4.7
Imports of goods and services	5.8	1.4	–6.1	2.2	0.7	–1.1	–18.2	–5.6	0.3
	Contribution to GDP growth in percentage points								
Domestic demand	4.4	2.3	–5.3	1.3	3.5	–1.0	–5.4	–6.5	–8.1
Net exports of goods and services	–1.2	0.0	–0.3	1.6	–1.8	–0.3	–5.1	1.2	3.2
Exports of goods and services	2.9	1.0	–4.4	3.1	–1.3	–1.2	–17.4	–2.5	3.5
Imports of goods and services	–4.1	–1.0	4.2	–1.5	–0.5	0.9	12.4	3.7	–0.2
	Year-on-year change of period average in %								
Unit labor costs in the whole economy (nominal, per person)	6.1	4.2	7.4	3.2	4.2	5.3	9.1	5.9	9.2
Unit labor costs in manufacturing (nominal, per hour)	4.7	7.9	3.1	7.2	8.4	2.6	15.7	–0.9	–4.2
Labor productivity in manufacturing (real, per hour)	3.9	–0.8	3.1	–0.1	–1.7	4.2	–7.5	4.1	11.6
Labor costs in manufacturing (nominal, per hour)	8.8	7.0	6.0	7.1	6.6	6.9	7.0	3.1	7.0
Producer price index (PPI) in industry	0.7	1.7	0.6	1.2	0.1	0.1	1.0	0.1	1.1
Consumer price index (here: HICP)	2.0	2.6	3.3	2.6	3.0	3.7	3.3	3.5	2.7
EUR per 1 CZK, + = CZK appreciation	2.7	–0.1	–3.0	–0.1	1.1	0.3	–5.1	–2.8	–4.1
	Period average levels								
Unemployment rate (ILO definition, %, 15–64 years)	2.3	2.1	2.6	2.2	2.1	2.0	2.4	2.9	3.1
Employment rate (%, 15–64 years)	74.8	75.1	74.4	75.2	75.3	74.8	74.1	74.4	74.3
Key interest rate per annum (%)	1.1	1.9	0.8	2.0	2.0	2.0	0.6	0.3	0.3
CZK per 1 EUR	25.6	25.7	26.5	25.7	25.6	25.6	27.1	26.5	26.7
	Nominal year-on-year change in period-end stock in %								
Loans to the domestic nonbank private sector[1]	6.8	5.0	5.0	3.9	5.0	5.6	3.6	3.5	3.0
of which: loans to households	7.5	6.1	6.1	6.3	6.1	6.3	6.1	6.3	6.5
loans to nonbank corporations	5.8	3.8	3.8	1.2	3.8	4.8	0.7	0.1	–1.3
	%								
Share of foreign currency loans in total loans to the nonbank private sector	14.1	14.5	14.6	15.3	14.5	16.9	16.0	16.1	14.6
Return on assets (banking sector)	1.1	1.2	0.6	1.2	1.2	0.7	0.7	0.6	0.6
Tier 1 capital ratio (banking sector)	19.1	20.8	23.6	19.8	20.8	20.9	22.5	22.6	23.6
NPL ratio (banking sector)	3.1	2.4	2.6	2.5	2.4	2.3	2.4	2.2	2.6
	% of GDP								
General government revenues	41.5	41.7	41.3	..	..	..	..	..	..
General government expenditures	40.6	41.4	47.5	..	..	..	..	..	..
General government balance	0.9	0.3	–6.2	..	..	..	..	..	..
Primary balance	1.6	1.0	–5.4	..	..	..	..	..	..
Gross public debt	32.1	30.3	38.1	..	..	..	..	..	..
	% of GDP								
Debt of nonfinancial corporations (nonconsolidated)	59.8	57.3	..	..	..	..	..	..	..
Debt of households and NPISHs[2] (nonconsolidated)	31.6	31.9	..	..	..	..	..	..	..
	% of GDP (based on EUR), period total								
Goods balance	3.7	4.1	5.1	3.4	2.3	4.9	2.2	5.4	7.3
Services balance	2.2	1.8	1.9	1.4	0.9	2.7	2.1	2.1	0.6
Primary income	–4.8	–5.6	–2.8	–8.3	–4.9	–0.3	–2.8	–1.0	–6.7
Secondary income	–0.7	–0.6	–0.5	–0.7	0.2	–1.1	–0.2	–0.7	–0.1
Current account balance	0.5	–0.3	3.6	–4.2	–1.6	6.2	1.3	5.8	1.2
Capital account balance	0.2	0.5	1.3	0.4	1.0	1.5	1.5	1.3	0.8
Foreign direct investment (net)[3]	–0.9	–1.1	–1.3	–1.8	–0.1	0.5	–2.6	1.5	–4.4
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	81.3	77.0	76.7	78.2	77.0	72.7	74.8	74.2	76.7
Gross official reserves (excluding gold)	58.9	59.4	63.1	59.8	59.4	58.6	61.6	61.9	63.2
	Months of imports of goods and services								
Gross official reserves (excluding gold)	9.9	10.4	11.7	10.3	10.4	10.4	11.3	11.5	11.7
	EUR million, period total								
GDP at current prices	210,881	223,961	213,678	57,146	59,015	52,884	49,531	54,909	56,282

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiw, OeNB.

[1] *Foreign currency component at constant exchange rates.*
[2] *Nonprofit institutions serving households.*
[3] *+ = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).*
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

7 Hungary: sustained recovery hinges on progress with vaccinations

Hungarian GDP contracted by 5% in 2020. The slump in GDP in the second quarter of 2020 was followed by a sharp recovery in the third quarter, which lost speed due to the reintroduction of some lockdown measures in the final quarter of the year, however. Net real exports, which had been the single biggest drag on GDP during the first half of 2020, turned neutral in the second half, as exports improved more than imports. Investments contracted substantially, but less than during the first half of the year, supported by a favorable base effect and investments in dwellings. Private consumption recovered in the third quarter of 2020, before worsening again in the fourth quarter following the reintroduction of various lockdown measures. Despite increased government outlays, public consumption growth remained negative in the review period. High-frequency indicators improved somewhat into 2021, but a sustained recovery has been delayed by additional lockdown measures imposed in March 2021 and despite a comparatively rapid vaccination rollout.

The budget deficit shot up to 8.1% of GDP in 2020 as a result of the economic slump, the workings of automatic stabilizers and various fiscal measures taken to mitigate the impact of the crisis. Consolidated state debt had risen to 80.4% of GDP by end-2020. To cushion the impact of lockdown measures, the government stepped up support for companies. In addition, the debt repayment moratorium for companies and households has been extended until mid-2021. In February 2021, pensioners received one fourth of the extra 13th month pension payment. VAT on new home sales has been slashed to 5%, subsidies for families for home purchases have been further expanded, and a new home reconstruction subsidy has been created. Those under age 25 on low income (below the average wage) will be exempted from personal income tax from 2022 onward. Thus, fiscal policy remains supportive for growth, presumably also with an eye to parliamentary elections in spring 2022.

Headline inflation decreased over the reporting period from 4% in August 2020 to 2.8% at end-2020, before edging up to 3.3% in February 2021. Core inflation was fairly stable at around 3.5%. The National Bank of Hungary (MNB) expects headline inflation to temporarily approach 5% in the second quarter of 2021 due to base effects, the increase in fuel prices, consumption tax hikes and the asymmetric development of demand and supply conditions once lockdown measures are lifted. Thereafter, inflation should move toward the target range (3% $\pm$1 percentage point). The MNB has remained committed to providing sufficient liquidity to the economy, while keeping on fine-tuning the structure of its monetary policy instruments. In January 2021, it decided to gradually tone down its long-term covered loans to banks and expand its government bond purchases. In parallel, it increased the overall volume of its corporate bond purchase program (and extended secondary market purchases to include public nonfinancial companies in March 2021), after having already substantially increased the overall volume of its "F4G Go!" program for SMEs in November 2020. These liquidity injections have mitigated the impact of tightening corporate lending standards. Growth in loans to corporates remained broadly unchanged compared to early 2020. Despite some moderation, lending to households continued to benefit from the government's various loan programs for families. The profitability of banks fell well below its 2019 level, mainly due to increased provisioning. The NPL ratio, which had risen during the first half of 2020, was marginally lower at end-2020 compared to 2019. However, NPLs are widely expected to start rising once the moratorium is lifted in mid-2021.

Table 7

Main economic indicators: Hungary

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Year-on-year change of the period total in %								
GDP at constant prices	5.4	4.6	–5.0	4.7	4.2	2.3	–13.4	–4.6	–3.6
Private consumption	5.1	4.5	–2.3	4.3	4.9	4.8	–7.5	–2.6	–3.3
Public consumption	1.7	3.5	–1.2	3.0	8.3	0.3	–2.8	–1.0	–1.1
Gross fixed capital formation	16.4	12.2	–7.3	14.2	4.0	–4.1	–10.9	–13.7	1.2
Exports of goods and services	5.0	5.8	–6.7	10.2	2.3	0.5	–23.8	–4.8	1.7
Imports of goods and services	7.0	7.5	–3.9	11.0	6.0	3.0	–15.1	–4.5	0.9
	Contribution to GDP growth in percentage points								
Domestic demand	6.6	5.7	–2.6	5.0	6.9	4.4	–5.3	–4.3	–4.3
Net exports of goods and services	–1.2	–1.1	–2.4	–0.3	–2.7	–1.6	–7.7	–0.3	0.6
Exports of goods and services	4.3	4.9	–5.5	8.1	1.9	–0.5	–20.3	–3.8	1.3
Imports of goods and services	–5.5	–6.0	3.1	–8.4	–4.6	–1.1	12.6	3.5	–0.7
	Year-on-year change of period average in %								
Unit labor costs in the whole economy (nominal, per person)	3.4	1.8	8.4	1.8	2.1	4.7	15.2	6.8	6.9
Unit labor costs in manufacturing (nominal, per hour)	7.3	6.4	8.5	3.6	6.1	5.9	25.5	2.0	0.9
Labor productivity in manufacturing (real, per hour)	1.6	4.3	–0.2	6.7	3.1	2.7	–11.9	2.4	5.8
Labor costs in manufacturing (nominal, per hour)	9.0	10.9	7.6	10.6	9.4	8.7	10.5	4.5	6.7
Producer price index (PPI) in industry	5.6	2.2	4.3	1.2	2.1	4.1	2.8	4.0	6.1
Consumer price index (here: HICP)	2.9	3.4	3.4	3.1	3.5	4.4	2.5	3.8	2.9
EUR per 1 HUF, + = HUF appreciation	–3.0	–2.0	–7.4	–1.2	–2.7	–6.3	–8.2	–7.2	–7.9
	Period average levels								
Unemployment rate (ILO definition, %, 15–64 years)	3.8	3.5	4.3	3.5	3.4	3.8	4.7	4.5	4.2
Employment rate (%, 15–64 years)	69.3	70.1	69.7	70.3	70.3	69.7	68.7	70.2	70.2
Key interest rate per annum (%)	0.9	0.9	0.8	0.9	0.9	0.9	0.9	0.6	0.6
HUF per 1 EUR	318.8	325.2	351.2	328.2	331.9	339.1	351.7	353.6	360.5
	Nominal year-on-year change in period-end stock in %								
Loans to the domestic nonbank private sector[1]	9.9	12.5	12.5	12.2	12.5	15.3	11.1	10.3	11.0
of which: loans to households	5.8	15.5	15.5	12.7	15.5	18.0	18.5	14.9	14.1
loans to nonbank corporations	13.1	10.4	10.4	11.8	10.4	13.5	6.2	7.1	8.8
	%								
Share of foreign currency loans in total loans to the non-bank private sector	24.0	23.8	22.3	24.0	23.8	25.6	24.4	23.4	22.3
Return on assets (banking sector)	1.4	1.2	0.4	1.3	1.2	0.2	0.3	0.5	0.4
Tier 1 capital ratio (banking sector)	17.8	16.4	16.7	15.8	16.4	15.6	15.7	15.8	16.7
NPL ratio (banking sector)	2.2	2.6	2.4	3.0	2.6	2.5	2.9	2.8	2.4
	% of GDP								
General government revenues	43.8	43.6	43.5	..	..	..	..	..	..
General government expenditures	45.9	45.7	51.6	..	..	..	..	..	..
General government balance	–2.1	–2.1	–8.1	..	..	..	..	..	..
Primary balance	0.2	0.1	–5.7	..	..	..	..	..	..
Gross public debt	69.1	65.5	80.4	..	..	..	..	..	..
	% of GDP								
Debt of nonfinancial corporations (nonconsolidated)	64.7	61.8	..	..	..	..	..	..	..
Debt of households and NPISHs[2] (nonconsolidated)	17.6	18.1	..	..	..	..	..	..	..
	% of GDP (based on EUR), period total								
Goods balance	–1.2	–2.1	–0.6	–3.3	–3.1	–0.7	–2.8	–0.2	0.8
Services balance	5.7	4.9	2.9	5.9	3.6	4.1	1.9	4.1	1.7
Primary income	–3.7	–2.7	–1.7	–2.5	–2.5	–1.6	–1.6	–1.8	–1.7
Secondary income	–0.4	–0.6	–0.5	–1.0	–0.1	–1.2	–0.7	–0.1	–0.3
Current account balance	0.3	–0.5	0.1	–0.9	–2.0	0.6	–3.1	1.9	0.5
Capital account balance	2.3	1.8	2.0	1.3	3.6	1.7	2.1	2.1	2.1
Foreign direct investment (net)[3]	–2.1	–0.6	0.0	–0.3	–2.1	–1.9	–1.2	–0.6	3.3
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	78.9	71.7	78.8	75.7	71.7	70.0	76.0	78.8	78.8
Gross official reserves (excluding gold)	19.3	18.5	23.7	18.8	18.5	16.7	20.4	22.2	23.7
	Months of imports of goods and services								
Gross official reserves (excluding gold)	2.9	2.8	3.7	2.8	2.8	2.5	3.1	3.4	3.7
	EUR million, period total								
GDP at current prices	135,804	145,933	135,404	37,237	39,705	32,494	30,762	34,601	37,547

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiw, OeNB.

[1] *Foreign currency component at constant exchange rates.*
[2] *Nonprofit institutions serving households.*
[3] *+ = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).*
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

8 Poland: export performance contains GDP contraction

Poland's GDP contracted by 2.7% in 2020, with the contraction accelerating from the third quarter to the fourth quarter. Domestic demand shrank by 4%, while exports declined only slightly on the back of strong positive growth in the final quarter of 2020. With imports declining considerably stronger and at roughly the same pace as total final demand, and hence GDP, the contribution of net exports to GDP growth remained positive at 1 percentage point. In parallel, the goods and services balance increased by about 2 percentage points to almost 7% of GDP. Coupled with a lower primary balance deficit, the current account surplus rose by 3 percentage points to 3.6% of GDP. The capital account surplus and net FDI inflows remained at about 2.5% and 1.5% of GDP, respectively, in the review period. Within domestic demand, public consumption registered robust growth despite the COVID-19 pandemic, albeit at a markedly slower rate than in 2019. While growth in public fixed investment was moderately positive in the first half of the year and roughly stagnant in the second half, private sector fixed investment posted negative growth rates throughout the year which accelerated from the third quarter to the fourth quarter, dragged down above all by investment in machinery and equipment, particularly transport equipment. The decline of inventory buildup lowered GDP growth by about 1 percentage point. Private consumption growth was again negative in the fourth quarter, after having slumped in the second quarter and stabilized in the third quarter. These developments stemmed from renewed lockdown measures, a general loss of confidence and precautionary savings. By contrast, the real wage sum and real pension payments registered accelerated positive growth.

In manufacturing, the production volume fell less than employment (measured by total hours worked), resulting in an increase in labor productivity. The opposite was true for developments in the euro area. However, the growth differential in hourly labor costs implied slightly stronger average growth of nominal unit labor costs in Poland than in the euro area. This was more than offset, though, by the moderate decline in the złoty's value against the euro. However, after having depreciated in early 2020, the złoty roughly ranged between 4.40 and 4.60 per euro in the period from April 2020 to March 2021. Headline inflation declined from 3.7% (HICP) and 2.9% (national CPI) in August to 3.6% and 2.4%, respectively, in February 2021. Core inflation declined in parallel from 4.6% (HICP excluding energy and unprocessed food) and 4.0% (CPI excluding energy and all food) to 4.2% and 3.7%, respectively. Services continued to be the main driver of inflation.

The Monetary Policy Council (MPC), pursuing an inflation target of 2.5% ±1 percentage point (CPI), has maintained an asymmetric band by keeping its main policy rate at 0.1%, the deposit rate at 0.0%, and the lombard rate at 0.5%. It increased the volume of its open-ended outright purchases of government(-guaranteed) debt securities on the secondary market (with flexible scale to ensure the liquidity of these markets and to strengthen monetary transmission) from July to December 2020 and – yet only to a modest extent – for early 2021. At the same time, the MPC helped maintain the ten-year sovereign yield below 1.5%. In 2020, the volume totaled 4.6% of GDP, with purchases mainly occurring in the first half of 2020.

Regarding fiscal policy, the general government budget deficit rose from 0.7% of GDP in 2019 to 7% of GDP in 2020, as revenues increased by 0.6 percentage points and expenditures by 6.9 percentage points. Public debt rose from about 45.6% of GDP at end-2019 to about 57.5% at end-2020.

Table 8

Main economic indicators: Poland

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Year-on-year change of the period total in %								
GDP at constant prices	5.4	4.5	–2.7	4.6	3.7	1.9	–8.0	–1.8	–2.8
Private consumption	4.5	3.9	–3.1	4.1	3.9	1.0	–10.6	0.4	–3.3
Public consumption	3.5	6.2	3.2	7.1	4.6	2.6	3.0	3.7	3.5
Gross fixed capital formation	9.4	7.2	–8.4	3.9	6.1	0.6	–10.8	–8.8	–10.8
Exports of goods and services	6.9	5.1	–0.5	5.5	3.0	2.0	–14.4	1.6	8.2
Imports of goods and services	7.4	3.3	–2.6	3.9	–0.4	0.4	–18.3	–0.6	7.9
	Contribution to GDP growth in percentage points								
Domestic demand	5.3	3.4	–3.7	3.6	2.0	0.8	–9.3	–3.0	–3.2
Net exports of goods and services	0.0	1.1	1.0	1.0	1.7	0.4	1.3	1.2	0.5
Exports of goods and services	3.8	2.8	–0.3	3.0	1.6	0.4	–8.2	0.9	4.2
Imports of goods and services	–3.8	–1.7	1.3	–2.1	0.2	0.0	9.5	0.3	–3.7
	Year-on-year change of period average in %								
Unit labor costs in the whole economy (nominal, per person)	3.2	3.4	7.6	3.7	4.2	5.1	10.8	5.8	8.8
Unit labor costs in manufacturing (nominal, per hour)	4.7	4.2	4.8	5.5	4.3	6.2	15.3	–1.1	–1.0
Labor productivity in manufacturing (real, per hour)	3.1	2.4	1.7	1.7	2.1	2.1	–7.8	4.8	7.3
Labor costs in manufacturing (nominal, per hour)	8.0	6.8	6.1	7.3	6.6	8.5	6.3	3.7	6.2
Producer price index (PPI) in industry	2.1	1.3	–0.5	0.8	0.3	0.3	–1.2	–1.0	–0.1
Consumer price index (here: HICP)	1.2	2.1	3.7	2.5	2.6	3.9	3.4	3.7	3.6
EUR per 1 PLN, + = PLN appreciation	–0.1	–0.9	–3.3	–0.4	0.3	–0.5	–4.9	–2.7	–4.9
	Period average levels								
Unemployment rate (ILO definition, %, 15–64 years)	3.9	3.4	3.2	3.2	2.9	3.2	3.2	3.3	3.2
Employment rate (%, 15–64 years)	67.4	68.2	68.7	68.9	68.5	68.4	67.9	69.0	69.4
Key interest rate per annum (%)	1.5	1.5	0.5	1.5	1.5	1.4	0.4	0.1	0.1
PLN per 1 EUR	4.3	4.3	4.4	4.3	4.3	4.3	4.5	4.4	4.5
	Nominal year-on-year change in period-end stock in %								
Loans to the domestic nonbank private sector[1]	6.4	5.0	5.0	6.6	5.0	4.7	1.5	–0.8	–1.2
of which: loans to households	5.6	5.6	5.6	6.1	5.6	5.1	2.9	2.1	1.6
loans to nonbank corporations	7.6	4.1	4.1	7.3	4.1	4.1	–0.9	–5.6	–6.0
	%								
Share of foreign currency loans in total loans to the nonbank private sector	20.8	19.2	19.6	20.0	19.2	20.2	19.8	19.6	19.6
Return on assets (banking sector)	0.7	0.7	0.3	0.8	0.7	0.3	0.3	0.4	0.3
Tier 1 capital ratio (banking sector)	17.1	17.0	18.8	17.0	17.0	16.3	18.0	18.4	18.8
NPL ratio (banking sector)	6.8	6.6	6.9	6.8	6.6	6.7	6.9	7.0	6.9
	% of GDP								
General government revenues	41.3	41.1	41.7	..	..	..	..	..	..
General government expenditures	41.5	41.8	48.7	..	..	..	..	..	..
General government balance	–0.2	–0.7	–7.0	..	..	..	..	..	..
Primary balance	1.2	0.7	–5.7	..	..	..	..	..	..
Gross public debt	48.8	45.6	57.5	..	..	..	..	..	..
	% of GDP								
Debt of nonfinancial corporations (nonconsolidated)	46.0	45.4	..	..	..	..	..	..	..
Debt of households and NPISHs[2] (nonconsolidated)	34.7	34.8	..	..	..	..	..	..	..
	% of GDP (based on EUR), period total								
Goods balance	–1.2	0.2	2.4	–0.1	0.7	0.9	3.1	2.4	3.1
Services balance	4.3	4.4	4.5	4.5	4.1	5.1	4.4	4.4	4.1
Primary income	–4.0	–3.8	–3.0	–4.6	–3.8	–1.5	–3.2	–4.1	–3.2
Secondary income	–0.3	–0.3	–0.3	–0.3	–0.1	–0.6	0.4	–0.2	–0.7
Current account balance	–1.3	0.5	3.6	–0.5	1.0	3.9	4.8	2.5	3.3
Capital account balance	2.1	2.0	2.4	1.9	3.0	1.8	3.0	1.4	3.5
Foreign direct investment (net)[3]	–2.6	–1.6	–1.4	–2.6	0.0	–4.1	–1.4	–1.3	0.8
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	63.6	59.2	58.1	60.6	59.2	56.3	57.0	57.3	58.1
Gross official reserves (excluding gold)	19.6	19.6	21.9	19.3	19.6	18.4	19.6	20.4	21.9
	Months of imports of goods and services								
Gross official reserves (excluding gold)	4.5	4.6	5.4	4.5	4.6	4.4	4.8	5.1	5.4
	EUR million, period total								
GDP at current prices	497,645	532,403	521,416	131,570	149,283	128,680	117,302	131,154	144,279

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiw, OeNB.

[1] *Foreign currency component at constant exchange rates.*
[2] *Nonprofit institutions serving households.*
[3] *+ = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).*
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

9 Romania: EU funds support economy and balance of payments as current account gap widens

After investments had cushioned the economic plunge in the first half of 2020, Romania's economy recovered strongly in the second half of the year. All in all, GDP contraction was limited to 3.9% in 2020 despite weak agricultural output. In fact, the lifting of containment measures favored consumption spending from May 2020 onward. Continued recovery trends translated into vivid quarter-on-quarter growth in the third quarter of 2020. Labor support measures (in particular furlough schemes) prevented a more pronounced rise in unemployment and, with workers returning from furlough, wage growth picked up again over the summer. Despite the reintroduction of some containment measures in the fourth quarter of 2020, GDP continued to expand briskly. A 19% increase in child benefits in August and a 14% pension hike in September supported disposable income. Backed by public investments and better EU fund absorption as well as state-guaranteed loans for investments, gross fixed capital formation continued to play the key role on the GDP demand side. After movement restrictions and disruptions in international supply chains had put a brake on production in important export industries (such as the automotive industry), exports – supported by recovering external demand – bounced back in the second half of the year. Yet, as imports recovered as well, the GDP contribution of net exports remained negative.

Amid new infection waves accompanied by containment measures in early 2021, policy support was extended, but is expected to have a lower fiscal impact than in 2020. In general, the budget plan for 2021 avoids abrupt fiscal tightening despite a high structural deficit, which the government projects to decline slightly from 7.8% of GDP in 2020 to 7.4% of GDP in 2021. To reduce the deficit, the government opted for freezing public sector wages and pensions, while allowing for a further increase in public investments. With respect to the excessive deficit procedure, the European Commission requested Romania to avoid introducing new measures which might have a permanent negative impact on the budget, but emphasized that corrective action should not undermine efforts to support the health system and the economy. The European Commission also announced that the budgetary situation would be reassessed in spring 2021.

The National Bank of Romania (NBR) decided to cut its key policy rate further by 25 basis points to 1.25% in January 2021, citing disinflationary developments. In fact, the monetary policy-relevant consumer price inflation declined to 2.1% year on year at the end of 2020, and thus stood clearly below the mid-point of the target range of 2.5% ±1 percentage point. In early 2021, headline inflation moved up to 3.2% in February, but core inflation slightly declined to 3.1%, down from 3.3% at end-2020. The repo line with the ECB, set up in May 2020 to address possible euro liquidity needs during the COVID-19 crisis, was extended once more until March 2022.

Romania's current account deficit widened somewhat to 5.2% of GDP in 2020, while net FDI inflows declined markedly. Yet, better EU fund absorption, manifesting itself in a higher capital account surplus, led to a marginal improvement in the net borrowing position from current and capital accounts. As regards external price competitiveness, unit labor cost increases in the manufacturing sector were again not fully compensated by the exchange rate when looking at full-year data. But the relation between unit labor cost increases and nominal depreciation of the leu vis-à-vis the euro (both in year-on-year terms) improved noticeably in the second half of 2020.

Table 9

Main economic indicators: Romania

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Year-on-year change of the period total in %								
GDP at constant prices	4.5	4.1	–3.9	3.0	4.3	2.4	–10.0	–5.6	–1.4
Private consumption	7.6	4.0	–4.7	2.4	5.2	3.8	–12.7	–4.3	–5.5
Public consumption	4.6	7.3	1.4	2.5	9.3	3.9	4.0	3.5	–1.2
Gross fixed capital formation	–1.0	12.8	5.9	19.3	9.8	17.6	2.3	2.7	6.5
Exports of goods and services	5.3	4.0	–9.9	3.6	6.3	–1.7	–28.6	–5.2	–3.1
Imports of goods and services	8.7	7.1	–6.6	7.7	6.2	2.1	–22.9	–4.3	0.0
	Contribution to GDP growth in percentage points								
Domestic demand	6.1	5.3	–2.5	5.2	4.4	4.7	–8.1	–5.3	–0.2
Net exports of goods and services	–1.6	–1.2	–1.4	–1.7	0.1	–2.6	–2.4	–0.6	–1.2
Exports of goods and services	2.2	1.9	–4.1	1.9	2.3	–0.4	–11.9	–2.6	–1.7
Imports of goods and services	–3.8	–3.1	2.7	–3.6	–2.2	–2.2	9.5	2.0	0.5
	Year-on-year change of period average in %								
Unit labor costs in the whole economy (nominal, per person)	8.5	6.3	8.9	5.3	7.4	6.5	11.6	12.2	5.5
Unit labor costs in manufacturing (nominal, per hour)	7.0	13.2	5.9	14.7	14.6	11.5	8.1	2.9	1.7
Labor productivity in manufacturing (real, per hour)	5.5	–0.8	0.4	–2.3	–2.6	–1.7	–5.0	1.7	6.8
Labor costs in manufacturing (nominal, per hour)	12.8	12.4	6.4	12.1	11.6	9.6	2.7	4.7	8.6
Producer price index (PPI) in industry	5.0	4.0	0.0	3.5	3.2	2.7	–1.4	–0.8	–0.5
Consumer price index (here: HICP)	4.1	3.9	2.3	3.9	3.7	3.1	2.1	2.4	1.8
EUR per 1 RON, + = RON appreciation	–1.8	–1.9	–1.9	–1.8	–2.2	–1.3	–1.9	–2.3	–2.1
	Period average levels								
Unemployment rate (ILO definition, %, 15–64 years)	4.3	4.0	5.2	4.0	4.0	4.4	5.5	5.4	5.4
Employment rate (%, 15–64 years)	64.8	65.8	65.6	66.7	66.0	65.4	65.2	66.0	65.8
Key interest rate per annum (%)	2.4	2.5	1.9	2.5	2.5	2.4	1.9	1.6	1.5
RON per 1 EUR	4.7	4.7	4.8	4.7	4.8	4.8	4.8	4.8	4.9
	Nominal year-on-year change in period-end stock in %								
Loans to the domestic nonbank private sector[1]	7.9	5.5	5.5	6.8	5.5	6.2	3.1	3.2	4.8
of which: loans to households	9.1	6.7	6.7	6.6	6.7	7.1	5.3	4.8	4.2
loans to nonbank corporations	6.6	4.2	4.2	7.1	4.2	5.3	0.6	1.4	5.5
	%								
Share of foreign currency loans in total loans to the nonbank private sector	34.0	32.4	30.5	33.4	32.4	32.8	32.2	31.4	30.5
Return on assets (banking sector)	1.6	1.4	1.0	1.5	1.4	1.3	1.1	1.2	1.0
Tier 1 capital ratio (banking sector)	18.6	20.1	21.3	17.9	20.1	18.5	20.7	20.8	21.3
NPL ratio (banking sector)	5.0	4.1	3.8	4.6	4.1	3.9	4.4	4.1	3.8
	% of GDP								
General government revenues	31.9	31.8	33.1	..	..	..	..	..	..
General government expenditures	34.9	36.2	42.4	..	..	..	..	..	..
General government balance	–2.9	–4.4	–9.2	..	..	..	..	..	..
Primary balance	–1.9	–3.2	–7.9	..	..	..	..	..	..
Gross public debt	34.7	35.3	47.3	..	..	..	..	..	..
	% of GDP								
Debt of nonfinancial corporations (nonconsolidated)	32.9	32.3	..	..	..	..	..	..	..
Debt of households and NPISHs[2] (nonconsolidated)	15.8	15.4	..	..	..	..	..	..	..
	% of GDP (based on EUR), period total								
Goods balance	–7.2	–7.8	–8.8	–7.3	–7.8	–10.1	–9.5	–8.0	–8.2
Services balance	4.1	3.9	4.3	3.4	3.8	4.9	4.8	4.2	3.7
Primary income	–1.8	–1.4	–1.7	–2.6	–0.9	2.2	–2.8	–3.5	–1.9
Secondary income	0.6	0.7	0.9	0.7	1.2	0.7	0.8	0.8	1.2
Current account balance	–4.4	–4.7	–5.2	–5.9	–3.8	–2.2	–6.6	–6.5	–5.2
Capital account balance	1.2	1.3	1.9	0.9	1.7	2.6	1.7	1.0	2.4
Foreign direct investment (net)[3]	–2.4	–2.2	–0.9	–2.8	–0.7	0.9	–3.0	–0.9	–0.5
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	48.8	49.2	57.9	49.7	49.2	48.6	51.9	54.5	57.9
Gross official reserves (excluding gold)	16.2	14.7	17.2	16.3	14.7	15.2	15.9	15.0	17.2
	Months of imports of goods and services								
Gross official reserves (excluding gold)	4.3	4.0	4.9	4.4	4.0	4.1	4.5	4.3	4.9
	EUR million, period total								
GDP at current prices	204,493	222,921	217,655	61,194	66,924	44,770	46,599	58,692	67,594

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiw, OeNB.

[1] *Foreign currency component at constant exchange rates.*
[2] *Nonprofit institutions serving households.*
[3] *+ = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).*
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

10 Turkey: low level of reserves, strong depreciation and high inflation challenge monetary policy

Turkey's GDP growth accelerated to 1.8% in 2020, on account of positive annual rates since the third quarter. This acceleration resulted from very low growth in 2019 and extraordinarily large stock-building in 2020. Even excluding this buildup, domestic demand rendered a positive contribution to growth in 2020 after a negative one in 2019. Fixed investment was strongly supported by massive state-bank credit. By contrast, exports fell by 15.4% in 2020, with year-on-year growth being negative in each quarter and quarter-on-quarter growth being negative in the first half of 2020, but highly positive thereafter. As opposed to exports, imports benefitted from the correction of previous compression and then from sharply rising volumes of non-monetary gold imports. Hence, net exports' contribution to annual GDP growth was negative at almost −6 percentage points. Correspondingly, at 4% of GDP, the goods and services balance was negative, after a surplus of 5% of GDP in 2019, and the current account deficit reached 5.2% of GDP, after a surplus of 1% of GDP in 2019. The tourism-related decline in the services surplus contributed 3.5 percentage points to this deterioration, and the rise in net imports of non-monetary gold another 2 percentage points.

Exchange rate uncertainty boosted gold demand, which fueled currency depreciation. This, in turn, provoked further gold imports, preventing imports from falling despite depreciation. The lira depreciated against the euro throughout the year by 32% until end-October 2020, while official FX reserves declined to the FX amount borrowed via swaps for periods of up to 3 months. However, cumulative sizeable lira depreciation had not translated into higher annual inflation by October 2020, with both annual headline and core HICP inflation close to their December 2019 levels, at about 12%. Still, in early November 2020, the Turkish President appointed a new head of the Central Bank of the Republic of Turkey (TCMB) who intensified the tightening that had begun in August 2020. The TCMB abolished remaining liquidity-providing facilities other than the one-week repo transaction, hiked the repo rate to 15% (from 10.25%) in November and further to 17% in December, and raised the reserve requirement ratios for lira, and particularly for FX deposits, in November. Moreover, regulatory measures aimed at strengthening loan growth had been abolished by year-end 2020. In response, the lira appreciated until March 2021. At the same time, however, annual inflation accelerated to 15.6% (headline inflation) and 16.6% (core inflation) in February 2021, strengthening views that interest rates are the cause of inflation. After the TCMB had hiked the key rate further to 19% in March 2021, the President dismissed the bank's governor.

Several COVID-19 measures were extended into 2021, e.g. less stringent regulatory rules for banks and short-time work payments for registered workers. In 2020, the general government deficit rose by 3.2 percentage points to 6.2% of GDP, and the primary deficit by 1.5 percentage points to 2% of GDP. The increase of the deficit mainly reflected COVID-19-related discretionary measures (2 percentage points, of which 0.8 percentage points were accounted for by short-time work and 0.3 percentage points by VAT reductions). Apart from this direct budgetary support, the total COVID-19-related economic support package amounting to about 12% of GDP consisted, i.a., of guarantees for loans to firms and households (6.8% of GDP), loan service deferrals by state-owned banks (1.5%), tax deferrals for businesses (1.5%), and equity injections into public banks (0.5%).

Table 10

Main economic indicators: Turkey

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Year-on-year change of the period total in %								
GDP at constant prices	3.0	0.9	1.8	1.0	6.4	4.5	–10.3	6.3	5.9
Private consumption	0.5	1.6	3.2	2.0	8.2	4.7	–9.6	8.5	8.2
Public consumption	6.6	4.4	2.3	6.3	1.6	3.2	–2.1	0.8	6.6
Gross fixed capital formation	–0.3	–12.4	6.5	–14.0	0.6	–0.4	–6.6	21.9	10.3
Exports of goods and services	9.0	4.9	–15.4	4.7	0.6	–1.8	–36.9	–22.1	0.0
Imports of goods and services	–6.4	–5.3	7.4	3.6	27.8	21.4	–7.7	16.4	2.5
	Contribution to GDP growth in percentage points								
Domestic demand	1.2	–2.0	3.8	–1.8	5.1	3.2	–7.6	10.1	8.3
Net exports of goods and services	3.9	2.6	–5.9	0.5	–6.2	–5.0	–8.2	–9.8	–0.7
Exports of goods and services	2.2	1.3	–4.1	1.3	0.2	–0.5	–9.9	–6.2	0.0
Imports of goods and services	1.7	1.3	–1.7	–0.8	–6.3	–4.5	1.7	–3.6	–0.7
	Year-on-year change of period average in %								
Unit labor costs in the whole economy (nominal, per person)	..	..	..	..	..	..	..	..	..
Unit labor costs in manufacturing (nominal, per hour)	18.0	21.9	10.0	22.5	15.6	16.0	13.6	3.5	7.0
Labor productivity in manufacturing (real, per hour)	1.8	1.6	8.3	0.8	3.4	3.9	13.5	7.0	8.3
Labor costs in manufacturing (nominal, per hour)	20.5	23.7	18.9	23.4	19.6	20.5	28.9	10.7	15.9
Producer price index (PPI) in industry	27.0	17.6	12.2	12.0	4.4	8.9	6.1	11.4	22.2
Consumer price index (here: HICP)	16.3	15.2	12.3	13.5	10.3	12.1	11.7	11.8	13.5
EUR per 1 TRY, + = TRY appreciation	–27.7	–10.4	–21.0	4.7	–2.1	–9.4	–12.7	–25.5	–31.8
	Period average levels								
Unemployment rate (ILO definition, %, 15–64 years)	11.1	14.0	13.4	14.3	13.5	13.9	13.1	13.4	13.0
Employment rate (%, 15–64 years)	52.0	50.3	47.5	51.0	50.2	47.6	45.9	48.8	47.7
Key interest rate per annum (%)	15.5	20.6	10.2	20.3	14.3	11.0	8.8	8.4	12.5
TRY per 1 EUR	5.7	6.4	8.0	6.3	6.4	6.7	7.6	8.5	9.4
	Nominal year-on-year change in period-end stock in %								
Loans to the domestic nonbank private sector	12.0	11.0	36.3	–2.2	11.0	15.2	29.1	41.3	36.3
of which: loans to households	3.2	15.9	40.1	3.7	15.9	23.4	36.4	48.4	40.1
loans to nonbank corporations	15.0	9.5	35.0	–3.8	9.5	12.9	27.0	39.1	35.0
	%								
Share of foreign currency loans in total loans to the nonbank private sector	38.5	35.1	30.9	35.5	35.1	34.9	31.6	32.0	30.9
Return on assets (banking sector)	1.5	1.1	1.0	1.1	1.1	1.3	1.2	1.2	1.0
Tier 1 capital ratio (banking sector)	13.4	13.9	14.1	13.9	13.9	13.3	14.8	14.5	14.1
NPL ratio (banking sector)	4.1	5.7	4.4	5.3	5.7	5.3	4.7	4.4	4.4
	% of GDP								
General government revenues	31.9	32.9	31.4	..	..	..	..	..	..
General government expenditures	34.7	35.9	37.6	..	..	..	..	..	..
General government balance	–2.8	–3.0	–6.2	..	..	..	..	..	..
Primary balance	0.1	0.5	–2.0	..	..	..	..	..	..
Gross public debt	30.4	32.8	41.3	..	..	..	..	..	..
	% of GDP								
Debt of nonfinancial corporations (nonconsolidated)	..	..	..	..	..	..	..	..	..
Debt of households and NPISHs[1] (nonconsolidated)	..	..	..	..	..	..	..	..	..
	% of GDP (based on EUR), period total								
Goods balance	–5.1	–2.2	–5.3	–2.1	–2.6	–5.5	–5.8	–5.6	–4.4
Services balance	3.9	4.7	1.3	7.2	4.0	2.0	–0.6	1.8	1.8
Primary income	–1.5	–1.7	–1.2	–1.5	–1.6	–1.4	–1.9	–0.8	–1.0
Secondary income	0.1	0.1	0.0	0.1	0.2	–0.2	0.0	0.2	0.1
Current account balance	–2.7	0.9	–5.2	3.7	0.0	–5.0	–8.2	–4.4	–3.5
Capital account balance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign direct investment (net)[2]	–1.2	–0.8	–0.7	–0.6	–0.8	–1.2	–0.1	–0.6	–0.7
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	57.8	54.7	53.9	58.6	54.7	53.8	52.9	52.8	53.9
Gross official reserves (excluding gold)	9.6	10.3	6.5	10.6	10.3	8.1	6.3	5.0	6.5
	Months of imports of goods and services								
Gross official reserves (excluding gold)	3.6	4.1	2.4	4.2	4.1	3.2	2.5	1.9	2.4
	EUR million, period total								
GDP at current prices	662,351	679,154	625,420	183,630	188,394	159,211	136,850	167,156	162,203

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiw, OeNB.

[1] *Nonprofit institutions serving households.*

[2] *+ = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).*
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

11 Russia: relatively mild recession in 2020 because of small services sector, limited restrictive measures and well-targeted fiscal stimulus

Russia's coronavirus-triggered recession softened in the third and fourth quarters, resulting in a relatively mild annual GDP contraction of 3% in 2020. The rather strict lockdown of spring 2020, followed by reopening measures in the summer, which were replaced by new but much milder restrictions in the fall and winter, may explain part of the overall contraction and growth variations over the year. Accordingly, swiftly shrinking private consumption was the driving force of the economic contraction. Fixed investment also decreased markedly, while inventories grew somewhat. Other recessionary factors included the sharp drop of the oil price (–34% on average in 2020 against 2019) and the OPEC+ production ceiling agreement in force from May 2020 onward. Contrary to the past, government consumption expanded and boosted growth. Exports – supported by still expanding Chinese demand – declined less than expected, while imports contracted sharply.

Import contraction was partly due to the impact of intermittent sanction risks and oil price volatility that caused the ruble to slide further in the second half of the year (by 5% against the US dollar, and by 13% against the euro). This slide, combined with price spikes for some food items against the backdrop of a mediocre harvest, pushed up CPI inflation to 5.8% in March 2021, substantially surpassing the CBR's target of 4.0%. In response to the price pressures, President Putin initiated some selective food price controls and grain export quotas from early to mid-2021. After having kept its key rate unchanged at a record low of 4.25% since mid-2020, the CBR raised the rate to 4.5% in March 2021. The CBR pointed to continued elevated inflation expectations, swifter than expected domestic economic recovery tendencies that are running up against some labor market rigidities, as well as to lingering geopolitical uncertainties that put pressure on the exchange rate.

The federal budget deficit reached about 3.8% of GDP in 2020. As a fiscal crisis response, while federal revenues shrank by 12% in real terms, federal expenditures expanded by 19%. A large part of this expansion is accounted for by targeted health and social spending as well as by subsidies to enterprises. While the vulnerable services sector is relatively small in Russia, the network of large state-owned firms was successfully supported. Moreover, tax deferrals and benefits have played an important role. The budget shortfall is largely being financed by placement of domestic debt. The National Welfare Fund (NWF) was not tapped into.

The much lower prices and quantities of oil and gas exports drove down Russia's current account surplus to 2.3% of GDP in 2020. Meanwhile, private net capital outflows more than doubled to USD 47.8 billion in 2020, largely due to stepped-up deleveraging by banks and corporations. While Russia's gross foreign debt consequently declined to EUR 389 billion (30.1% of GDP) at end-2020, the country's much larger international reserves (including gold) also declined somewhat to EUR 486 billion at end-2020. Russia's international reserves are now the fourth-largest in the world, following those of China, Japan, and Switzerland.

The coronavirus crisis and temporary regulatory forbearance are reflected in a still relatively high, but not increasing NPL ratio. In the course of 2020, loans to enterprises continued to grow at around 7%, while retail lending was stronger but losing momentum, partly due to CBR regulatory restrictions against unsecured consumer credit. As of late 2020, about 12% of total loans had been restructured.

Table 11

Main economic indicators: Russia

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
	Year-on-year change of the period total in %								
GDP at constant prices	2.8	2.0	–3.0	2.6	2.9	1.4	–7.8	–3.5	–1.8
Private consumption	4.2	3.1	–8.5	3.2	3.2	2.2	–21.5	–9.0	–5.7
Public consumption	1.3	2.4	4.0	2.5	2.4	3.6	4.1	4.2	4.1
Gross fixed capital formation	0.6	1.5	–4.3	–0.9	3.4	–0.5	–6.7	–7.9	–2.1
Exports of goods and services	5.6	0.7	–4.3	2.0	0.1	–2.4	0.1	–8.1	–6.5
Imports of goods and services	2.7	3.4	–12.0	4.6	10.0	1.8	–22.6	–19.9	–5.5
	Contribution to GDP growth in percentage points								
Domestic demand	2.1	2.9	–4.5	3.4	5.3	2.6	–13.4	–6.1	–0.9
Net exports of goods and services	0.8	–0.6	1.7	–0.6	–2.2	–1.1	5.5	2.9	–0.3
Exports of goods and services	1.5	0.2	–1.2	0.5	0.0	–0.7	0.0	–2.1	–1.7
Imports of goods and services	–0.6	–0.8	2.9	–1.1	–2.3	–0.4	5.5	5.0	1.3
	Year-on-year change of period average in %								
Unit labor costs in the whole economy (nominal, per person)	..	..	..	..	..	..	..	..	..
Unit labor costs in manufacturing (nominal, per hour)	1.8	3.9	8.3	3.7	4.9	5.9	11.1	9.3	6.5
Labor productivity in manufacturing (real, per hour)	4.8	3.7	–2.0	4.1	2.9	1.9	–6.2	–3.4	–0.6
Labor costs in manufacturing (nominal, per hour)	6.6	7.8	5.9	8.0	8.0	8.0	4.1	5.6	6.2
Producer price index (PPI) in industry	12.1	2.3	–3.7	–1.0	–5.7	–2.4	–12.1	–1.9	1.6
Consumer price index (here: HICP)	3.0	4.6	3.4	4.4	3.5	2.5	3.2	3.6	4.5
EUR per 1 RUB, + = RUB appreciation	–11.0	2.2	–12.3	6.2	7.7	1.6	–8.9	–16.8	–22.4
	Period average levels								
Unemployment rate (ILO definition, %, 15–64 years)	4.8	4.6	5.8	4.4	4.6	4.7	6.0	6.3	6.1
Employment rate (%, 15–64 years)	..	..	..	..	..	..	..	..	..
Key interest rate per annum (%)	7.4	7.3	5.0	7.3	6.6	6.1	5.5	4.3	4.3
RUB per 1 EUR	74.1	72.5	82.6	71.8	70.5	73.7	79.7	86.3	90.9
	Nominal year-on-year change in period-end stock in %								
Loans to the domestic nonbank private sector[1]	10.7	10.6	10.6	10.6	10.6	10.1	8.9	9.9	9.6
of which: loans to households	21.8	19.0	19.0	21.1	19.0	16.8	12.0	12.9	12.9
loans to nonbank corporations	6.6	7.1	7.1	6.4	7.1	7.1	7.5	8.5	8.0
	%								
Share of foreign currency loans in total loans to the nonbank private sector	14.6	11.8	12.6	12.3	11.8	13.5	12.4	13.3	12.6
Return on assets (banking sector)	1.5	2.2	1.9	2.1	2.2	2.4	1.6	1.8	1.9
Tier 1 capital ratio (banking sector)	8.9	9.2	9.7	9.4	9.2	10.1	10.6	10.5	9.7
NPL ratio (banking sector)	18.0	17.1	17.1	17.7	17.1	16.9	17.4	17.1	17.1
	% of GDP								
General government revenues	35.9	36.2	35.4	..	..	..	..	..	..
General government expenditures	33.0	34.2	39.4	..	..	..	..	..	..
General government balance	2.9	1.9	–4.0	..	..	..	..	..	..
Primary balance	..	..	..	..	..	..	..	..	..
Gross public debt	12.1	12.4	17.8	..	..	..	..	..	..
	% of GDP								
Debt of nonfinancial corporations (nonconsolidated)	..	..	..	..	..	..	..	..	..
Debt of households and NPISHs[2] (nonconsolidated)	..	..	..	..	..	..	..	..	..
	% of GDP (based on EUR), period total								
Goods balance	11.8	9.8	6.2	8.7	8.7	8.9	5.0	4.9	5.9
Services balance	–1.8	–2.2	–1.2	–2.7	–2.1	–1.8	–0.6	–1.0	–1.3
Primary income	–2.4	–3.2	–2.3	–3.2	–3.2	–0.6	–3.6	–2.6	–2.8
Secondary income	–0.5	–0.6	–0.4	–0.4	–1.0	–0.3	–0.4	–0.4	–0.3
Current account balance	7.0	3.8	2.3	2.4	2.3	6.2	0.4	0.9	1.5
Capital account balance	–0.1	0.0	0.0	0.0	–0.1	0.0	–0.1	0.0	–0.1
Foreign direct investment (net)[3]	1.4	–0.6	–0.2	–1.6	–0.1	1.2	–0.5	–1.4	–0.2
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	28.4	29.5	30.1	30.0	29.5	27.9	30.4	29.3	30.1
Gross official reserves (excluding gold)	23.8	26.2	28.8	26.4	26.2	26.7	27.0	27.6	28.8
	Months of imports of goods and services								
Gross official reserves (excluding gold)	13.7	15.0	16.8	15.3	15.0	15.2	15.6	16.2	16.8
	EUR million, period total								
GDP at current prices	1,399,811	1,510,646	1,293,140	393,148	423,479	335,903	297,025	319,507	340,705

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiw, OeNB.

[1] Foreign currency component at constant exchange rates.
[2] Nonprofit institutions serving households.
[3] + = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

Outlook for selected CESEE countries and Russia

CESEE-6: fighting back from the pandemic roller coaster – recovery to take hold only from mid-2021 onward; Russia poised for recovery amid exceptionally large risks[1, 2]

At 4.0%, economic growth in the CESEE-6 countries[3] will show a moderate economic recovery in 2021, which will increase to 4.8% in 2022, before returning to 3.9% in 2023. Overall, the recovery will be rather evenly spread across countries, with Romania and Hungary exhibiting somewhat stronger growth dynamics, and Czechia and Bulgaria finding themselves bottom of the league in 2021. Along with reviving external demand, private consumption will be first to recover in mid-2021, once lockdown measures end. Investments will follow suit and strengthen further in 2022, supported by EU funds. Exports will rebound strongly in 2021 and 2022, reflecting strong external demand. Imports will strengthen with some delay on the back of reviving domestic demand. Over the projection horizon, we expect a roughly neutral contribution of net exports. The slump in 2020, which was less severe compared to that observed in the euro area, resulted in a notable positive growth differential (+3 percentage points) during the recession. We do not expect to see a positive growth margin in 2021, but the growth differential will re-emerge in 2022, and widen in 2023 (+0.7 and +1.8 percentage points, respectively). One year into the pandemic, our projections continue to be surrounded by a high degree of uncertainty, with the balance of risks being tilted to the downside, depending on pandemic developments.

The impact of the coronavirus pandemic on Russia has, so far, been less severe than anticipated. We have revised our economic forecast from last fall upward to reflect the increase of oil prices and price expectations,[4] projecting Russia's GDP to grow almost 3% this year and next, before declining to about 2% in 2023. Significant uncertainties surround the outlook. Russia and the rest of the world may struggle longer with the coronavirus, oil markets remain sensitive, and as with many other economies, Russia's incipient recovery is fragile.

[1] *Cutoff date for data underlying this outlook: March 24, 2021. The projections for the CESEE-6 countries were prepared by the OeNB, those for Russia by the Bank of Finland in cooperation with the OeNB. In our projections, we assume economic developments in the euro area as set out in the March 2021 ECB staff Macroeconomic Projection Exercise (MPE), according to which real annual GDP growth in the euro area is projected to amount to 4.0% in 2021, 4.1% in 2022, and 2.1% in 2023.*

[2] *Compiled by Julia Wörz, with input from Katharina Allinger, Stephan Barisitz, Melanie Koch, Mathias Lahnsteiner, Thomas Reininger, Tomáš Slačík and Zoltan Walko.*

[3] *CESEE-6: Bulgaria, Croatia, Czechia, Hungary, Poland, Romania.*

[4] *Forecast oil prices based on the average for oil futures contracts for the ten days preceding March 16, 2021, yield the following oil prices per barrel: USD 65 in 2021, USD 61 in 2022, and USD 58 in 2023.*

Table 1

OeNB-BOFIT GDP projections for 2021 to 2023 compared with the IMF forecast

	Eurostat/ Rosstat	OeNB-BOFIT projections April 2021			IMF WEO forecast April 2021		
	2020	2021	2022	2023	2021	2022	2023
	Year-on-year growth in %						
CESEE-6	**–3.9**	**4.0**	**4.8**	**3.9**	**4.3**	**4.7**	**3.9**
Bulgaria	–3.8	3.2	4.1	3.0	4.4	4.4	3.9
Croatia	–7.7	4.2	4.9	3.1	4.7	5.0	4.2
Czechia	–5.6	3.0	3.9	2.9	4.2	4.3	3.7
Hungary	–5.1	4.7	5.2	3.1	4.3	5.9	3.8
Poland	–2.7	3.9	5.2	4.4	3.5	4.5	4.0
Romania	–3.7	4.9	4.5	4.3	6.0	4.8	3.8
Russia	–3.1	2.7	3.1	2.0	3.8	3.8	2.1

Source: IMF World Economic Outlook (WEO) of April 2021, Rosstat, OeNB-BOFIT projections.

1 CESEE-6: private consumption picks up in 2021, and gross fixed capital formation will boost GDP growth further in 2022

While we do not expect COVID-19-related restrictions to be eased significantly in the first half of 2021, we base our projections on the assumption that progress with vaccinations over the next couple of weeks will help avoid further widespread lockdowns during the summer months and thereafter. In economic terms, we expect economic activity to accelerate markedly from the third quarter onward.

This will translate into an average (GDP-weighted) growth rate of 4% in 2021, mainly driven by private consumption growth. The recovery will strengthen further in 2022. CESEE-6 growth will peak at 4.8% on average, backed by a strong revival in gross fixed capital formation and carry-over effects from 2021. Romania is the only country whose GDP growth will peak in 2021 already, given investment spending fueled by EU funds from the 2014 to 2020 multiannual financial framework (MFF) and a base effect following the weak harvest in 2020. In 2023, we expect annual GDP growth in the CESEE-6 to return to almost 4%, mostly thanks to the continued strong performance of the Polish economy.

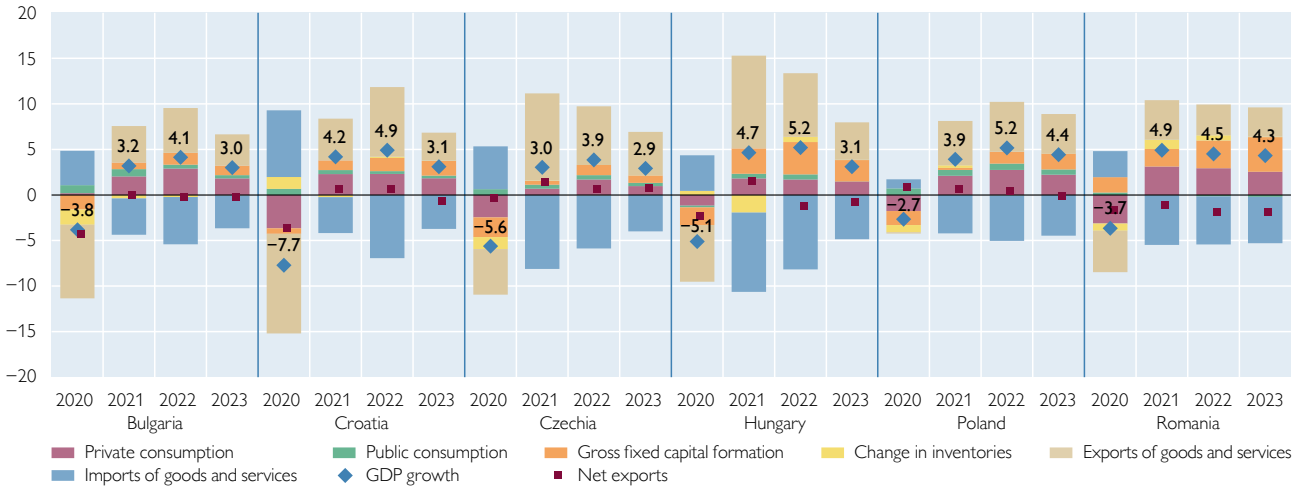
Throughout the projection horizon, the differences in the individual economies' growth performance are not overly large. Overall, Czechia and Bulgaria are expected to show somewhat weaker growth dynamics. By contrast, Hungary (in 2021 and 2022), Poland (in 2022 and 2023) and Romania (in 2021 and 2023) will be the growth engines in the region. Poland and Romania will attain pre-crisis GDP levels by end-2021 already; all other economies will reach their 2019 GDP levels in the course of 2022.

The sizable growth differential of the CESEE-6 region vis-à-vis the euro area (of +3 percentage points) that was observed in the recession year 2020 will vanish in 2021, but – unlike in 2010 after the recession triggered by the financial crisis – the differential will not turn negative. A positive growth margin will re-emerge in 2022 and 2023, and sustain the convergence process, albeit to varying degrees across countries.

Chart 1

CESEE-6: GDP and GDP components

GDP contributions in percentage points, year-on-year GDP growth in %



Source: Eurostat, OeNB.

Note: Realized data for 2020, projections for 2021 to 2023.

Private consumption will lead the recovery

Private consumption will recover ground in the second half of 2021 and post full-year growth of 3.5% on average in the CESEE-6, after –3.5% in 2020. In all countries, governments made strong use of wage support, worker retention schemes and tax deferrals (or outright tax reductions/exemptions) to soften the impact of the crisis on households and corporates. The EU's SURE program further supported labor markets. Saving rates have gone up and the expected easing of COVID-19 restrictions will release pent-up demand. Wage growth is assessed to be robust overall over the projection horizon, even though increases will considerably fall short of the high rates seen before the pandemic. While minimum wages will increase in nominal terms in many countries, this will not always translate into real increases, given that inflation is expected to pick up. In line with a sustained recovery of contact-intensive service sectors, private consumption growth is projected to accelerate further and peak at 4.3% in 2022, before returning to 3.4% in 2023.

Public consumption will continue to expand robustly by around 2.4% in both 2021 and 2022, even though no further impetus can be expected from public sector wages, with Croatia, Poland and Romania having announced wage freezes and partial cuts. In most countries, the fiscal stance will remain supportive in both years, encompassing allowances and tax reliefs that often benefit families and younger people and support housing demand. Elections in Bulgaria (2021) and Hungary (spring 2022) will most likely trigger (or have already triggered) some extra spending in these two countries. Some gradual consolidation is expected for Croatia and Romania, whereby governments in both countries will make as much use of their fiscal space as possible. Only in Czechia will we observe a more restrictive fiscal stance, as most fiscal stabilization measures will be discontinued in the course of 2021. Furthermore, the marked decline in labor taxation will only have a limited effect, as households are expected to save a large share of the extra

income (for country-specific details, see section 2). In 2023, public consumption growth will slow in all countries of the region, averaging 1.5% per annum.

Investments will pick up from 2022 onward, backed by EU funds

While gross fixed capital formation will recover in 2021, not least due to a strong base effect, both pandemic-related uncertainty and capacity utilization that is still somewhat low will weigh on investment dynamics in 2021. Overall, gross fixed capital formation will expand by almost 4% in the region. A notable boost of annual growth to above 8% is only expected to be seen in 2022, building on the availability of funds from the 2021 to 2027 MFF and the NextGenerationEU (NGEU) recovery instrument from mid-2021 onward. EU funds will strongly support high investment rates over the entire projection horizon. We expect that in particular Bulgaria and Croatia are among the largest recipients of MFF and NGEU funds. Romania also ranks among the main beneficiaries depending on its absorption rate. While support from EU funds will be strong in Hungary, it will not exceed the already high funding of previous years. Besides a short-term fiscal stimulus, NGEU funds also offer the potential to boost productivity, and thus long-term growth, through investments in strategically important areas, such as infrastructure, digitalization and the greening of the economy.

With demand conditions improving over the projection horizon, gross fixed capital formation growth will accelerate further in 2023, reaching almost 9%. Credit guarantee schemes will support growth of credit to corporates in addition to further policy measures, with the latter often related to housing and construction (green renovations in Bulgaria; housing subsidy program, infrastructure investment and earthquake reconstruction in Croatia; tax cuts and home subsidies in Hungary; SME support in Poland and the IMM Invest program in Romania). The phasing-out of loan moratoria will partially run counter to these supportive measures, and credit growth developments in individual countries will strongly depend on pre-pandemic corporate debt levels.

External demand provides continued support to growth over projection horizon

Following a rather moderate decline in exports in 2020 (of 5.4% on average in the region), exports will rebound by 9.6% in 2021, thus showing a revival in line with our assumption about euro area import growth. The region's integration into global value chains has proven to be a factor of resilience during the pandemic. Especially in Czechia and Hungary, the rebound in the automotive industry – coupled with ongoing new investments, e.g. in battery production in Hungary – will lead to double-digit export growth in 2021. Vigorous external demand will clearly outweigh deteriorating nominal price competitiveness in Bulgaria, Croatia and Poland. In all other countries, productivity is expected to grow in sync with wages. In contrast to the strongly diverging export performance during the downturn, export growth will be somewhat more homogeneous across countries in 2021 (ranging from 6.5% in Bulgaria to 11.6% in Czechia). In 2022, export growth will soften somewhat in all countries except Poland and Croatia (where we do not expect a full recovery of the tourism industry in 2021 already). Region-wide export growth will amount to 8.5% in 2022 and 6.3% in 2023.

Imports will also rebound notably, with their growth reaching 9.2% in 2021, softening slightly to 8.9% in 2022, and edging down to 7.2% in 2023. Import growth will be fueled by both recovering domestic demand and the strong export-import nexus due to the region's integration into international production networks. The recovery in imports that was initially somewhat weaker compared with export growth will thus result in a small positive contribution of net exports to overall GDP growth in 2021 (+0.5 percentage points). The more sustained demand for imports along with firming domestic demand in 2022 and 2023 will result in a slightly negative growth contribution (–0.2 and –0.4 percentage points, respectively).

Risks to CESEE-6 projections continue to be on the downside

The major risk to our projections continues to be grounded in the further development of the pandemic; much will in particular depend on the race between new virus strains and vaccination progress. In light of the generally slow progress in the vaccine rollout, risks are currently tilted to the downside, as a delay in the full opening-up of the economy cannot be ruled out at the current juncture. Vice versa, a sudden, unexpected boost in vaccine production or availability in Europe cannot be ruled out either, but for 2021 we assess this upside risk to be smaller than the downside risks. Over the projection horizon, these risks will become more balanced.

A second downside risk relates to the economic fallout from the crisis. So far, mitigation measures have prevented widespread bankruptcies and an increase in nonperforming loans. Thus, while liquidity risks have been well addressed, solvency risks will become visible only over the projection horizon. Given rather strong leverage in the banking sector, it remains to be seen to what extent existing and newly adopted/extended guarantee programs will succeed in addressing these risks. These programs further encompass the risk of adversely affecting public debt, which potentially restricts the policy space going forward. While we do not see an imminent risk arising from developments in public debt levels in the region, especially as long as the escape clause of the Stability and Growth Pact is activated, some indirect risks may prevail in individual cases, with regard to financial market access, and related to the euro area accession process in the case of Croatia.

A further downside risk might stem from the multispeed recovery across the globe and a potential monetary policy tightening in the USA leading to spillovers on financial conditions, which might also affect CESEE-6 economies.

The strongly rebounding export sector is also subject to some downside risks: the shortage of silicon chips caused a standstill of conveyor belts in the automotive industry in late January this year. Strong demand coupled with supply bottlenecks may at any time cause disruptions in supply chains and expose the vulnerability of just-in-time production models used by some manufacturers active in the region. As always, economic growth in the CESEE-6 depends largely on the economic growth of its trading partners. Therefore, should the world economy, and in particular the euro area, grow at a faster or slower pace than that we assumed in our baseline scenario, the growth prospects of the CESEE-6 countries would improve or deteriorate accordingly. On the upside, positive spillovers from the Biden Plan would lift our growth projections upward.

Further, political and geopolitical risks have not abated during the pandemic and trade tensions continue to exist despite the political change seen in the USA

since our last projections. In political terms, closer cooperation between the new US administration and Europe could potentially aggravate tensions between the EU and Russia. Within the EU, political trenches between the EU and some CESEE-6 countries as well as remaining legal uncertainties over the 2021 to 2027 MFF and the Recovery and Resilience Facility continue to exist at the time of writing, thus potentially weakening the EU's capacity to act both internally and as a global player.

Overall, uncertainty remains higher than before the pandemic and we assess the balance of risks to be on the downside in particular at the start of the projection period, even though we cannot rule out a turn for the better. Risks will become more balanced toward the end of the projection horizon.

2 Projections for Bulgaria, Croatia, Czechia, Hungary, Poland and Romania

Bulgaria: despite severe third wave, consumption heralds recovery

Bulgaria's contraction in real GDP was smaller than expected for 2020. However, given ongoing measures to contain the pandemic worldwide and lower than expected vaccination rates across Europe, a full rebound of the economy will still not happen before 2022, if that soon. Nevertheless, investment and both private and public consumption will support a partial recovery in 2021. Private consumption will have recovered by the second quarter of 2021, and gross fixed capital formation will even gain more momentum in 2022. In 2023, GDP growth will return to 3% on the back of a continued strong positive contribution of gross fixed capital formation. Net exports' contribution will be zero or negative over the entire forecast horizon. While imports will rebound to pre-crisis levels by the end of 2021, exports will take longer to recover.

Based on less restrictive measures and a rising vaccination rate, we expect a gradual increase in private consumption over 2021. As spending opportunities unfold, households will catch up on foregone consumption. The government plans to officially open the tourist season on May 1, 2021, first concentrating on domestic tourism. Additionally, in a general election year, public sector wages, minimum wages, and pensions continue to grow. In January 2021, minimum pensions and wages increased by 19.5% and 6.4%, respectively, with minimum pensions supposed to grow by at least 5% in both 2022 and 2023 year on year. All other pensions are expected to increase by 5% in July 2021. The most important job retention schemes will be in place at least until the end of May.

Gross fixed capital formation is expected to grow considerably over the next years. As planned, investments in health care infrastructure began this year by constructing and renovating emergency care centers. Driven mostly by NGEU funds and the Recovery and Resilience Facility, proposed investments in an "innovative, green, connected, and fair" Bulgaria could strengthen productivity and competitiveness. These investments pose an upside risk for exports that will fully unfold after the projection horizon only. Still, investments in water management and digital agriculture are intended to be completed already by 2023.

Given the European Commission's proposal to introduce digital green certificates, we also expect cross-national tourism to go up already in the summer months of 2021. Downside risks are that the proposal might be dismissed and

vaccine rollouts in the largest arrival countries (Germany, Greece, and Romania) might be delayed further. Overall, we do not expect economic activity to reach its pre-crisis trajectory before 2023.

Croatia: slow vaccination rates dampen outlook

After a very sharp year-on-year contraction of –8.1% in 2020, we expect annual GDP to grow by 4.2% in 2021, 4.9% in 2022, and 3.1% in 2023. We thus expect the Croatian economy to reach pre-crisis GDP levels by the end of 2022.

Our projections are to a large extent determined by the outlook for the tourism sector. So far, vaccination campaigns in the EU have progressed slowly and, as we are entering the second quarter, many European countries are again tightening containment measures. The outlook for Croatia's 2021 tourist season is therefore becoming increasingly dim and we assume that it will again fall noticeably short of pre-pandemic seasons. We therefore split the recovery of exports and imports to pre-pandemic levels between 2021 and 2022 and project moderately positive contributions of net exports to overall growth in both years.

Over the entire forecast horizon, growth will be largely driven by domestic demand. Private consumption is projected to grow by around 4% in 2021, supported by government measures, such as the income tax decrease and minimum wage increase effective from January 1, 2021, and the continuation of short-time work schemes. We expect investment to grow by around 4.5% per annum in 2021, and to pick up speed over the forecast horizon. Uncertainty and potentially tightening credit standards amidst rising NPLs and high corporate debt will weigh on private investments, particularly in the short term. However, Croatia is among the countries with the highest allocation of funds in percent of GDP from the EU's MFF and the Recovery and Resilience Facility. These funds, coupled with efforts to improve the business environment, and credit guarantee schemes should support investments.

Public consumption will make mildly positive contributions to growth over the projection horizon. Regarding the broader fiscal stance, Croatia has to balance the need for fiscal support to spur the country's recovery with the need for fiscal prudence in light of high public debt levels and the convergence criteria it has to meet to adopt the euro as planned. A tightening of the overall fiscal stance over the forecast horizon can therefore be expected.

Despite our cautious assumptions regarding the tourist season, the risks to our projections remain to the downside. This is due to the highly uncertain trajectory of the pandemic and the difficult task faced by governments to get both the timing and scale of gradually reducing policy support right.

Czechia: unspectacular recovery from last year's unprecedented plunge in the long shadow of the pandemic

In spite of some improvement in the second half of last year, the Czech economy experienced the deepest dive since the beginning of transformation. As a result of long-tailed aftermaths of the pandemic, we expect the economy to recuperate only gradually over the forecast horizon.

Highly accommodative fiscal and monetary policy will keep mitigating the economic impact of the crisis on domestic demand well into 2021. Nonetheless, the effect will gradually fade away in the medium term. Moreover, in the wake of

the discontinuation of government support measures and the (resulting) increase in firms' bankruptcies, unemployment is expected to keep rising for most of the remainder of this year, even though the presumably solid demand for labor in retail and service sectors – once re-opened – will alleviate the situation somewhat.

Before strengthening in the medium run, private consumption will experience but relatively moderate growth this year, subject to various contradicting forces. On the one hand, private spending will benefit from the release of pent-up demand and a likely improvement in consumer sentiment once restrictions start loosening as well as – to some extent – from the tax reduction implemented in January. On the other hand, a more robust revival in consumer spending will be precluded by subdued wage growth, rising unemployment and the phase-out of government support measures. These factors along with rising borrowing costs are projected to act as a brake on growth in households' investment in dwellings. Overall, investment will accelerate gradually over the projection horizon, on the back of strengthening foreign and domestic demand, the receding pandemic as well as the influx of EU (recovery) funds.

On the upside, Czechia's highly export-oriented and pivotal manufacturing industry has not been locked down since the first COVID-19 wave in spring 2020. It has, in fact, benefited from the relative crisis-resilient industrial sector and the broadly upheld functioning of global value chains. However, industrial production – particularly in the key automotive industry – is affected by a global shortage of silicon chips, which is expected to prevail in the first half of the year.

Overall, we thus expect a decent, albeit not exuberant, economic recovery in 2021, which will gain momentum next year and stabilize toward the end of the forecast horizon. This year's economic growth will be driven in a broadly balanced way by both domestic demand and net exports. However, looking further ahead, the contribution of domestic demand to economic expansion is projected to gain importance relative to net exports. With exports gathering steam on the back of more robust external demand, imports will likewise be on the increase again.

Apart from the further development of the pandemic, downside risks to the projections stem mainly from possible (structural) damage to the economy, which will be the more pronounced, the longer the pandemic and the ensuing restrictions and uncertainty drag on.

Hungary: significant economic recovery postponed into the second half of 2021 despite vaccination progress

Hungary's GDP contracted by 5.1% year on year in 2020, hence to a lesser extent than we had expected in our last projections (–6.3%). As a result of the more protracted nature of the crisis, we now expect a notable economic recovery from mid-2021 at the earliest. Consequently, we have revised our growth projections for 2021 down, but have become significantly more optimistic regarding 2022.

We expect macroeconomic policies to remain supportive for growth in 2021 and to gradually abate from the second half of 2022 onward. At the end of 2020, the government raised its budget deficit target for 2021, from the originally planned 2.9% to 6.5% of GDP. Apart from expenditure to mitigate the economic and social impact of the pandemic, the government has recently increased transfers to pensioners and introduced additional support to households (for further details, see the section on developments in selected CESEE countries). The central bank

also remains committed to supplying sufficient liquidity, while keeping on fine-tuning its monetary policy instruments.

The adverse impact of the pandemic on private consumption during the first half of 2021 will continue to be mitigated by the government's wage compensation measures as well as the automatic and undifferentiated loan moratorium (in place at least until mid-2021), which has also contributed to the continued strong expansion of credit to households. Various factors are expected to accelerate private consumption growth from the second half of 2021 onward. Households' net financial assets have risen to record highs and we expect pent-up demand to be unleashed once the restrictions are eased. Banks envisage an easing of consumer credit conditions during the first half of the year, in addition to the government measures to underpin households' disposable financial resources mentioned above. Less positively, however, we expect the increase in labor market slack to lead to substantially lower wage growth at least in 2021, as already reflected in the relatively moderate increase in minimum wages (by 4% in February 2021, half of the rate seen in the previous three years).

Despite additional COVID-19-related expenditure, public consumption decreased in 2020. Going forward, we expect it to recover and gain momentum in the run-up to crucial parliamentary elections in spring 2022 – as witnessed ahead of the last two parliamentary elections – especially with the opposition coalition and the ruling government parties being neck and neck in some recent polls.

Gross fixed capital formation suffered from the collapse in demand and the jump in economic uncertainty in 2020. We expect investment activity to recover once pandemic-related restrictions are lifted, economic prospects to brighten up at home and abroad, and capacity utilization to start to climb. While banks continued to modestly tighten corporate credit conditions in the final quarter of 2020 and are expected to continue doing so in the first half of 2021, the various programs of the central bank are expected to support business investments. In addition, nonfinancial corporations have piled up savings at banks since mid-2020, creating a basis for future investments. Household investments should benefit from expanded state support to families and the reduction in the VAT rate for new home sales. Importantly, investments should be aided by the influx of EU funds (including the new MFF and NGEU funds) from the second half of 2021, and public investment activity additionally by the electoral cycle.

We expect export growth to bounce back after the decline in 2020 in line with the economic recovery of Hungary's main trading partners. Also, past and ongoing investments in main export industries and the weaker exchange rate in combination with slowing wage growth should aid exports. Imports will rebound in 2021, though to a somewhat lesser extent than exports, partly due to their smaller contraction in 2020, which leads to a positive contribution of real net exports in 2021. However, as import demand will be fueled by accelerating domestic demand later on, we expect the contribution of real net exports to turn negative in 2022 and 2023.

Poland: 2021 – is the glass half empty or half full?

In Poland, GDP is projected to grow by 3.9% year on year in 2021, following a contraction by 2.7% in 2020. Foreign demand growth will contribute more strongly than domestic demand to total final demand and GDP growth. Exports,

having a weight of about 37% in total final demand, shrank by only 0.6% in 2020 and thus contributed substantially to the overperformance of the Polish economy. In 2021, annual exports will expand substantially, namely by about 8.5%, on the back of significant carry-over effects and the fact that goods export-oriented branches, particularly manufacturing, are generally less affected by the pandemic. Domestic demand, which shrank by 3.9% and thus considerably more strongly than foreign demand in 2020, is expected to grow by 3.4%, thus lagging behind growth of foreign demand in 2021. Our projections that the 2021 recovery in domestic demand will not fully offset the previous year's decline rest mainly on subdued fixed investment. In 2022, economic growth is projected to accelerate to 5.2%. While exports will grow at an only marginally higher rate, domestic demand growth will accelerate significantly, to more than 5%, and thus contribute almost as much as foreign demand to overall GDP growth in 2022.

After imports shrank more strongly than exports in 2020 due to domestic demand contraction, the recovery of both exports and domestic demand will lead to strong import growth in 2021. The growth rate of imports is, however, expected to remain below that of exports on account of subdued fixed investment. Thus, there will be a positive contribution of net exports to GDP growth. In 2022, import growth is projected to exceed export growth, given further acceleration of domestic demand, particularly of fixed investment. However, starting from a sizable external surplus, the growth differential is not expected to turn the contribution of net exports to GDP growth into negative territory.

Within domestic demand, the impact of the pandemic will continue to prevail in the first half of 2021, preventing private consumption from growing. However, anti-crisis measures extended into 2021, including wage subsidies, exemptions from social security contributions, support to the self-employed and childcare allowance, will help contain the damage, as will the increase in minimum wages. On the other hand, continued wage freezes and bonus cuts in the public sector will hurt mainly better-off income segments and are likely to have an only marginal adverse impact on consumption. In contrast, the decline of consumer loans reflects not only heightened reluctance to supply credit but also subdued loan demand. In the second half of 2021 and during 2022, post-pandemic private consumption is expected to thrive on the back of pent-up demand and accumulated extra savings, which more than offset economic hysteresis effects, such as still higher unemployment rates and hence also weaker wage growth than before the crisis. Public consumption will continue to grow steadily on account of, inter alia, pandemic-related spending beyond transfers. Fixed investment will be held back by the pandemic in the first half of 2021, as anti-crisis measures extended into 2021, including substantial nonrepayable support from the Polish Development Fund to SMEs, mainly aim at keeping companies afloat. Moreover, less EU funds are available for public investment from the previous MFF in 2021 than in 2020, while new EU funds are not yet available in the first half of the year. In the second half of 2021 and in 2022, both public and corporate sector fixed investment will benefit from an overlap of old and new MFF funding cycles and from the EU's NGEU recovery instrument. In addition, markedly improved foreign and domestic demand will strengthen corporate investment, and residential housing investment will benefit from a crisis-induced higher saving rate and supportive monetary

conditions for loan supply. Moreover, both private consumption and fixed investment growth rates in 2022 will be lifted by the favorable base effect.

Romania: investment-led growth during period of gradual fiscal consolidation

After the Romanian economy recovered relatively quickly in the second half of 2020, considerable carry-over effects as well as the agreement on the EU's NGEU recovery instrument triggered an upward revision of our projections. Moreover, as has become evident in the meantime, fiscal consolidation envisaged by the new government will be gradual, with a rather limited impact on growth in 2021. We now project GDP to grow by 4.9% in 2021, before moderating somewhat in 2022 and 2023. With regard to the pandemic, we expect containment measures to remain at least partially in place in the first half of 2021. While there might be even further episodes of tightening, we assume that a full-fledged lockdown hitting also industrial production as seen in spring 2020 can be avoided. With economic developments projected to remain restrained until mid-2021, annual growth is expected to be high in the second quarter due to the low base.

An easing of containment measures – inter alia enabled by progress with vaccinations – will presumably be possible in Romania and in its main trading partner countries toward the end of the second quarter. Hence, we expect the economic recovery to accelerate markedly during summer. Rebounding private consumption, increasing external demand and a further speeding-up of investment activity will contribute to a strong economic recovery in the second half of the year. In addition, after relatively weak agricultural output in 2020, positive production side effects might come from this sector in 2021. Looking beyond 2021, we expect investment-led growth to continue. Growth rates will moderate, however, as the impact of fiscal consolidation will increase in 2022 and 2023.

As soon as restrictions on consumption possibilities are lifted, consumer confidence will rise, and many consumers can resort to savings accumulated during the pandemic to satisfy their backlog demand. After this initial pickup, private consumption will not play a key role in the recovery, as real income advances will be limited by restrictive fiscal and income policies (freezing of public sector wages and pensions as well as small 3.1% minimum wage hike in January 2021). Yet, the 14% pension hike enacted in September 2020 will entail positive carry-over effects into 2021. Moreover, the economic recovery is most likely to positively affect the labor market via declining unemployment and rising wages in many sectors of the economy.

Gross fixed capital formation will be the main growth driver over the forecast horizon. Substantial support will come from the continued influx of funds from the 2014 to 2020 MFF (in particular in 2021) as well as from funds allocated to Romania under the 2021 to 2027 MFF and the NGEU recovery instrument (in particular in 2022 and 2023). Among other things, partially EU-funded highways will be built over the next few years. In this respect, it is worth mentioning that the budget plan for 2021 envisages increasing public investments despite the overall fiscal consolidation strategy. At the same time, there is nonnegligible uncertainty about effective EU fund absorption and the exact timing of investment projects. Moreover, state-guaranteed loans and investment grants for corporates (both of which were introduced in the context of the COVID-19 crisis) will support investment growth.

After exports took a strong hit in 2020 due to temporary disruptions in supply chains and faltering external demand, exports will also recover in 2021 and beyond, in line with our external assumptions. Yet, global semiconductor shortages will dampen automotive production and exports for a while. The contribution of net exports will remain negative, however, as the projected pickup in domestic demand will entail a considerable rise in imports.

3 Russia poised for recovery amid exceptionally large risks

Russia's recovery has been supported by the relaxation of restrictive measures against the coronavirus pandemic from the third quarter of 2020. In contrast to the situation in some other countries, in the winter of 2020/2021 no new tight lockdown was imposed in Russia. The authorities had pushed ahead with a comprehensive fiscal spending stimulus in 2020 (including social support to households, subsidies to firms, and procurements), which continues to have an impact in the first months of 2021.

After returning to positive growth in 2021, the Russian economy should accelerate slightly in 2022, buoyed by the expected increase of Russia's oil production after the OPEC+ agreement expires. Growth will then slow toward the end of the projection period, getting closer to its future long-term trajectory. Global economic growth is expected to remain solid. If Russian government sector spending develops as planned, it should decline slightly in real terms. Structural/institutional reforms that would clearly benefit economic growth – such as cutting corruption, strengthening the rule of law, adjusting the state's economic footprint – are not expected to materialize during the projection period.

Private consumption will recover this year, and in 2023 should reach a level comparable to the peaks of 2014 and 2019. Higher consumption is supported by reviving employment and income growth. Savings set aside during the crisis will possibly support a consumption recovery this year. The same applies to the possible return of Russians to foreign travel. While fixed investment is also expected to recover, its recovery will first be confined by very low use of production capacity and will likely continue to be burdened by lingering economic uncertainty and stubborn investment risks.

Uncertainties are also connected with the expected recovery of Russian energy exports and of tourism in Russia in 2021. However, total export growth should be supported next year by the planned expiration of the OPEC+ agreement on production ceilings. Growth expectations for exports in the coming years are limited by projections for the energy sector, which currently see the level of petroleum product exports remaining largely unchanged and natural gas exports expanding rather moderately.

After plunging in 2020, Russia's total imports are expected to recover partly this year, with the timing of the resurgence of Russian tourism abroad strongly impacting the pace of the recovery. While the revival of imports is supported by higher oil price-induced export earnings (compared to 2020), it may be dampened by the ruble's relatively weak exchange rate (the real exchange rate was down 7% last year from 2019). The real rate is not expected to appreciate, as Russian inflation is moderate and oil prices will probably soon start to slide down gradually. Russia's current account surplus, which shrank to around 2% of GDP last year, is expected to remain solid this year and in the next few years.

Following the government's strong anti-cyclical fiscal stance (resulting in a consolidated budget shortfall of 4% of GDP) in 2020, growth of government spending slowed down in the fall of last year. Last fall's plan to reduce the budget deficit through slight spending cuts in real terms in 2021 and 2022 still holds. Higher oil prices should help trim the deficit, as the prices are expected to exceed those assumed in the government budget plan, which should boost oil tax revenues. Apart from that, there is still ample fiscal room for maneuver, as the level of government debt last year was still below 20% of GDP. Moreover, the state reserve fund (National Wealth Fund) holds liquid assets equivalent to about 8% of GDP.

The balance of risks to economic growth in Russia continues to be tilted to the downside

Of the many risks surrounding the current projections, the biggest is a prolonging of the coronavirus pandemic due to slow vaccination rollouts and (renewed) coronavirus restrictions. Economic recovery in Russia and the world could turn out to be weaker or more hesitant than expected. Any significant weakening of oil prices would press down both private and public sectors of the Russian economy and compress imports. The speed of recovery in oil and gas production from last year's dip is a major factor that will influence the pace of GDP recovery. The government's currently tightened stance as regards budget spending could be relaxed swiftly if the need to provide support arose from, for instance, a weakening economy. Elections, e.g. the upcoming parliamentary poll, may also have an impact here. Renewed geopolitical tensions and sanctions could (further) dampen capital inflows, while once again putting pressure on the ruble and (further) cutting imports. Overall, downside risks are dominating the picture.

Studies

What do central banks talk about? A European perspective on central bank communication

Martin Feldkircher, Paul Hofmarcher, Pierre Siklos[1]

In this paper, we apply a structural topic model (STM) to analyze over 7,000 speeches delivered by European central bankers and ECB staff over the period from 1996 to 2019. Our findings indicate that neither the size of an economy nor its monetary policy regime appear to be related to how frequently a country's central bank communicates through speeches with the public. We moreover find that the following four topics dominate in central bank speeches: (1) European integration, (2) monetary policy and price stability, (3) financial stability, and (4) "outside the box" content, subsuming rhetoric on issues beyond central banks' core responsibilities. While coverage of monetary policy topics has been stable over time, European integration has been discussed less in central bank speeches since the early days of the euro and at least up until the Brexit referendum. Speeches on financial stability surged in the aftermath of the global financial crisis. When examining the regional distribution of topic prevalence, we find that speeches given by central bankers from non-euro area countries broadly follow the trends described above. Interestingly, many speeches delivered by central bank staff from Central, Eastern and Southeastern Europe (CESEE) fall under the "outside the box" category, suggesting that CESEE central banks cover a broader range of topics than the rest of their European counterparts.

JEL classification: E52, E58
Keywords: communication, central banks, monetary policy, text analysis

Central banks have been at the forefront of business cycle stabilization for almost four decades. In the aftermath of the global financial crisis of 2008/2009 and the euro area sovereign debt crisis, central banks eventually came to be called "the only game in town" (El-Erian, 2016). This perception is attributable to three developments: First, institutional reforms of central banks lead to greater autonomy, transparency and accountability (e.g., Siklos, 2002; Bordo and Siklos, 2019). Second, the dramatic reduction in policy rates following the global financial crisis and the euro area sovereign debt crisis also played a role. A reversal in policy rates continues to be delayed due to the economic fallout from the ongoing COVID-19 pandemic. Third, both economic theory and accumulated empirical evidence increasingly point to the critical role central bank communication plays for market expectations (e.g., Woodford, 2003; Blinder et al., 2018). Putting greater emphasis on communication means recognizing the power of narratives to drive expectations (Shiller, 2019). Central bankers are also well aware of the fact that central bank communication in crisis times differs from that in normal times (e.g., Carney, 2009).

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Speeches represent the most consistent format through which senior central bank staff inform the public about central bank decisions and the economic outlook. In our empirical analysis, we thus focus on speeches, even though central bank communication, of course, takes place along several dimensions (see, e.g., De Haan and Sturm, 2019).

The remainder of the paper is structured as follows: Section 1 provides a brief literature survey outlining methodological innovations in assessing the quality and impact of central bank communication. In section 2, to illustrate the role of central bank communication in monetary policy, we construct a dataset consisting of approximately 7,000 speeches given by European central bankers and ECB staff. The speeches were taken from the speech repository compiled by the Bank for International Settlements (BIS),[2] which covers the period from 1996 to date. In Section 3, we then present the methodological framework used to quantify the content of speeches. Following analysis of the results in section 4, section 5 concludes.

1 A brief introduction to central bank communication

1.1 The theory and practice of central bank communication

Central bank communication is often linked to central bank transparency and accountability (see, e.g., Dincer et al., 2019). Both follow directly from the provision of greater autonomy. Greater autonomy has theoretically been linked to the avoidance of the time-inconsistency problem that may lead to undesirably high inflation, as was prominently shown by Kydland and Prescott (1987).

Diagrams of monetary policy transmission mechanisms as published by many central banks do not explicitly mention communication as a separate instrument in the toolkit of central banks (see Reid and Siklos, 2020). Instead, one is left to assume, for example, that inflation expectations allow to draw some conclusions about central bank communication or that, more generally, communication may serve as a complement or substitute for policy rate changes.

Still, carving out a separate role and function for central bank communication is seen as essential by central banks,[3] and there are at least three reasons why central bank communication can play a distinct role in monetary policy transmission mechanisms. First, inflation expectations are not the only expectations that matter. Expectations of future interest rates, that is, forward guidance, is also on the minds of investors, households and firms.[4] Second, central banks provide information not only about inflation but also about a wide variety of issues and challenges. Accordingly, academic studies have begun to examine the relationship between the remit of central banks and the topics covered in speeches and other forms of central bank communication. Third, since the global financial crisis and the euro area sovereign debt crisis, the emphasis of central bank communication has shifted toward topics related to ensuing implications for financial stability (e.g., Born et al., 2014; Lombardi and Siklos, 2016).

[2] *See https://www.bis.org/cbspeeches/index.htm.*

[3] *At least from a strategic perspective, communication can also impact how monetary policy is perceived by the public (see, e.g., Bernanke, 2004; 2015).*

[4] *Short- and long-run interest rates are linked to beliefs about future inflation.*

If central bank communication has not yet become as important a tool for enhancing monetary policy transmission as other tools, this may be because theory continues to lag behind empirical work (see, e.g., Blinder et al., 2008). Additionally, economics has been slow to adopt what can be learned from other disciplines (e.g., psychology or political science). The following examples moreover illustrate an apparent heterogeneity in communication strategies across central banks. The Bank of Canada states that communication serves to "enhance the effectiveness of monetary policy;" the Sveriges Riksbank's communication policy, by contrast, aims at ensuring that "target groups not only understand but are able to predict the monetary policy deliberations." At the Bank of England communication is a device to "promote the reputational integrity of the Bank," while the Fed sees communication as a means to "reinforce the public's confidence in the transparency and integrity of the monetary policy process."[5]

Monetary policy is usually decided by a monetary policy committee (MPC). Since not all MPC members share the same opinion, there can be an element of noise in communication. Such issues have spawned a separate literature (see, e.g., Visser and Swank, 2007; Swank et al., 2006; Eijffinger and Raes, 2018).

Another source of cacophony in central bank communication stems from governance structures. At the Bank of England, for example, MPC members do not represent entire groups or areas – they are independent. In the United States, some members of the Federal Open Market Committee (FOMC) are appointed regionally, while others are nominated by the President and subject to Congressional approval. Consequently, loyalties potentially differ across regions or even between the financial sector and other constituencies. In the euro area, even if the ECB's mandate pertains to the single currency area, individual committee members may, at times, voice opinions influenced by member states' national priorities (James, 2012; Mody, 2018).

Taken together, it is clear that communication about monetary policy serves a multitude of purposes. It must also make sure that financial markets and the public do not think of central banks as being solely concerned with inflation, which may possibly be to the detriment of central bank policies and their real economic outcomes.[6]

1.2 The "how" and "what" of central bank communication

How do central banks communicate? Several decades ago, the primary means of central bank communication were annual reports and the occasional speech typically given by the central bank's governor and, occasionally, by senior central bank staff. Since the 1990s, the number of speeches has grown tremendously, as has the number of central bank decision makers delivering these speeches. The number and types of central bank publications have mushroomed as well, ranging from inflation or monetary policy reports to publications aimed at the general

[5] *The quotes listed here are drawn from statements on central bank communication published on the respective central bank's website. For further details, see Reid and Siklos (2020), the Bank of Canada (2017) and the US Federal Reserve Board of Governors (2017).*

[6] *This is well captured by Friedman (2003): "By forcing participants in the monetary policy debate to conduct the discussion in a vocabulary pertaining solely to inflation, inflation targeting fosters over time the atrophication of concerns for real outcomes." Another apt characterization – coming from former Governor of the Bank of England, Mervyn King – is that central bankers are not "inflation nutters" (King 1997).*

public and, more recently, educational materials for all ages on monetary policy and the financial system. In addition, central banks now publish information regarding financial stability risks (e.g., Horváth and Vasko, 2016; Oosterloo et al., 2007). Last but not least, central banks pay keen attention to the statements accompanying the decisions taken by MPCs by increasingly relying on press conferences following MPC decisions. The ECB acts a pioneer in this respect.

To shed light on the "what" of central bank communication, a variety of methodologies has been applied. We will discuss the following four approaches adopted in the literature so far: (1) specifying dummy variables to determine whether central bank communication is predominantly "dovish" or "hawkish;" (2) quantifying the tone and content of central banks' verbal and written communications by collecting data on word frequencies (a convenient and intuitive way to communicate the resulting findings is via word clouds; for details, see below); (3) conducting surveys in which data from different groups of respondents, ranging from central bankers to the general public, are collected; and (4) analyzing central bank communication by examining the topics senior central bankers cover, e.g., in their speeches. In the following, we briefly summarize each approach.

The most convenient way to interpret the content of central bank communication is by reading central bank documents and assigning values ranging from, e.g., –1 to +1 to a variable in order to determine whether central banks' messages are "dovish" (–1), neutral (0), or "hawkish" (+1). The coding need not be limited to the categories of "dovish" or "hawkish" or to the numerical interval between –1 and +1 in case finer distinctions seem more practicable (see, e.g., Balke and Petersen, 2002; Rosa, 2016; Ehrmann and Fratzscher, 2007; Hayo et al., 2015). An obvious concern is the possibility of human error when interpreting and/or numerically scoring the documents. To counter this possibility, several researchers may be tasked with assessing the same material prior to assigning values to the variables in question.

The "bag of words" approach analyzes the entire corpus of text and builds a dictionary of all words that convey some meaning about the content or tone of central bank communication. The methodology of this approach ranges from simple word counts to more sophisticated algorithms[7] for more accurate analyses of the underlying data. An intuitive way to summarize the content of a given document is by using word clouds (see, e.g., Bholat et al., 2015; Hansen and McMahon, 2016). The "bag of words" approach is particularly useful for identifying the words used most frequently in a document, and hence the most relevant topics. At least two concerns emerge from this line of research, however. First, as pointed out by Loughran and McDonald (2011), developing a dictionary that is suited to the kind of language used in central bank publications can be challenging. Second, it may prove difficult to capture word combinations (e.g., high versus low unemployment or inflation) using word counts. Nevertheless, several studies have used this methodology (e.g., Bligh and Hess, 2007; Lombardi et al., 2019; Siklos, 2020).[8]

[7] *Algorithms range from open source algorithms to "black box" algorithms. For further details, see Schonhardt-Bailey (2013), Holmes (2014) and Siklos (2017, 2020).*

[8] *To apply this methodology, the documents need to be preprocessed to remove "stop words" (e.g., "a," "the," "and") from the corpus. While beyond the scope of this paper, another less explored issue pertains to the impact of texts that are translated into English from the central bank's official language.*

Other attempts to capture the tone or sentiment of central bank publications focus on the readability of documents. Clearly, any message published by central banks will require its recipients to have a certain level of understanding of monetary policy. Several studies have therefore relied on readability indicators,[9] which are considered a function of education (e.g., Davis and Wynne, 2019).

Surveys may be more instructive to get a sense of the impact central bank communication may have on the public. As a case in point, the Eurobarometer survey, which has been conducted twice a year since 1999, asks respondents whether or not they trust the ECB (see, e.g., Ehrmann et al., 2013; Siklos, 2017, 215–217). A criticism of surveys is that the questions may be too general to allow for direct conclusions to be drawn between the aims of the survey and the effectiveness of communication strategies. While surveys on inflation expectations may help reveal to what extent central banks may drive expectations of the general public, it remains difficult to determine to what extent central banks' communication efforts – as opposed to their actions (e.g., interest rate changes) – may explain the findings (see, e.g., Coibion et al., 2020).

A more recent methodology recognizes that taking a closer look at the topics or themes covered in central bank communication may be just as illuminating as examining the words used.[10] By estimating a probabilistic distribution of words over topics and, in addition, words over topics by type of document (e.g., minutes or speeches), one can further refine the assessment of central bank communication. Applications include Hansen et al. (2018), Jegadeesh and Wu (2017), Oshima and Matsubayashi (2018) as well as Siklos et al. (2018).

Undoubtedly, other methodologies, as well as combinations of existing ones, will be developed. One risk will remain, however. As central banks themselves engage in evaluating the content and tone of their communications, it is possible that the more emphasis we put on the quantification of communication, the fewer insights we may gain. In other words, Goodhart's law, applied to central bank communication, may come into play. Language is rich and complex, and central banks may not always find their communication efforts to be entirely successful. Finally, central banks are faced with the challenging task of adjusting communication strategies to both normal and crisis times – a critical ingredient in the success of a policy regime.

2 Data and descriptive statistics

To shed light on the role of central bank communication in monetary policy, we collected data on central bankers' speeches (i.a. through web scraping) from the BIS speech repository,[11] a global archive consisting of over 16,500 speeches dating back to 1996. We collected both the text (in PDF format) and the metadata of each speech, with the latter containing information on the speech's title, the speaker's

[9] *E.g., the Flesch-Kincaid grade level readability metric, the Gunning-Fog index, the Coleman-Liau index, the SMOG readability formula and other automated readability indices. See, for example, Deslongchamps (2018) and DuBay (2004).*

[10] *Siklos and Bohl (2007) have been among the first to recognize the importance of topics, as opposed to words, in deciphering central bank communication.*

[11] *Available at: https://www.bis.org/cbspeeches/index.htm. The ECB also offers a speech dataset which is only available for a subsample of our study (euro area), however. For further information, see https://www.ecb.europa.eu/press/key/date/2019/html/index.en.html.*

name and affiliation and the occasion at which the speech was delivered. Unfortunately, most of the metadata cannot be obtained through web scraping from the BIS website; rather, the metadata need to be extracted from the PDF files, which increases the probability of wrongly assigned speeches, since these files are not consistently formatted. Hence, we had to manually verify the speakers' affiliation, which led to a correction of about 10% of all speeches considered.

We then singled out speeches delivered by European central bankers from both euro area countries and non-euro area countries. The euro area countries were further divided into two blocks: euro area core countries (i.e. Austria, Belgium, Finland, France, Germany, the Netherlands and Sweden) and euro area periphery countries (i.e. Greece, Italy, Ireland, Malta, Portugal and Spain). Since it is a priori unclear to which block the "new" euro area member states (i.e. the countries that joined the euro area in or after 2007) belong, we created a third category: new euro area countries (i.e. Estonia, Latvia, Lithuania, Slovakia and Slovenia). The estimations made for the latter will reveal whether central bank representatives from these countries deliver speeches on topics comparable with those addressed in other regions. Malkin and Nechio (2012) previously used a similar approach to compare the conduct of monetary policy at the regional level within the euro area and the US.

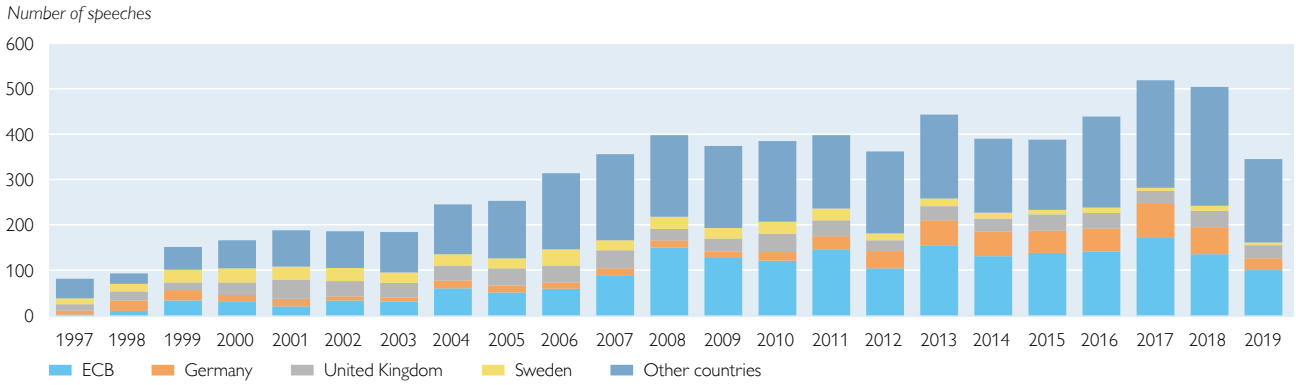
Next, we set up a fourth category – non-euro area countries – regrouping more advanced economies that do not belong to the euro area (i.e. Denmark, Iceland, Luxembourg, Norway, Switzerland and the UK). Last but not least, the fifth group comprises the CESEE countries, that is, emerging economies in Central, Eastern and Southeastern Europe (CESEE) that are not (yet) part of the euro area (i.e. Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Hungary, North Macedonia, Poland, Romania, Russia, Serbia, Ukraine and Turkey). The last group is quite heterogeneous, covering countries that are at different stages of development and differ in their economic size. Some of these countries have fixed, others have flexible, exchange rate regimes; some are in the process of adopting the euro, while others are candidate countries for EU membership.

Our analysis aims to identify whether the topics covered by central banks from non-euro area countries and CESEE differ from those covered by euro area countries' central banks, and, if so, in what ways. Most speeches of our dataset were delivered by ECB representatives (2,040 speeches over the sample period) and by central bank staff from euro area core countries (1,831) and non-euro area countries (1,579). The ECB is one of the largest central banks globally; the two regions mentioned before include the Deutsche Bundesbank and the Bank of England. Central banks from euro area periphery countries follow with 962 speeches and CESEE central banks with 705. Central bank staff from new euro area countries contributed 53 speeches. This adds up to a total of 7,170 speeches delivered by ECB staff and by central bankers from the regions listed above. Chart 1 displays the number of speeches per year, highlighting those countries whose central bank representatives delivered more than 35 speeches in any given year from 1997 to 2019.

As can be seen in chart 1, the number of central bank speeches rose steadily, particularly after crisis events. Central bankers saw a need to communicate more often with the public after 2007, 2012 and 2016. During the global financial crisis of 2008/2009, central bankers had to explain more frequently newly implemented

Chart 1

Number of central bank speeches over time



Source: Authors' calculations.

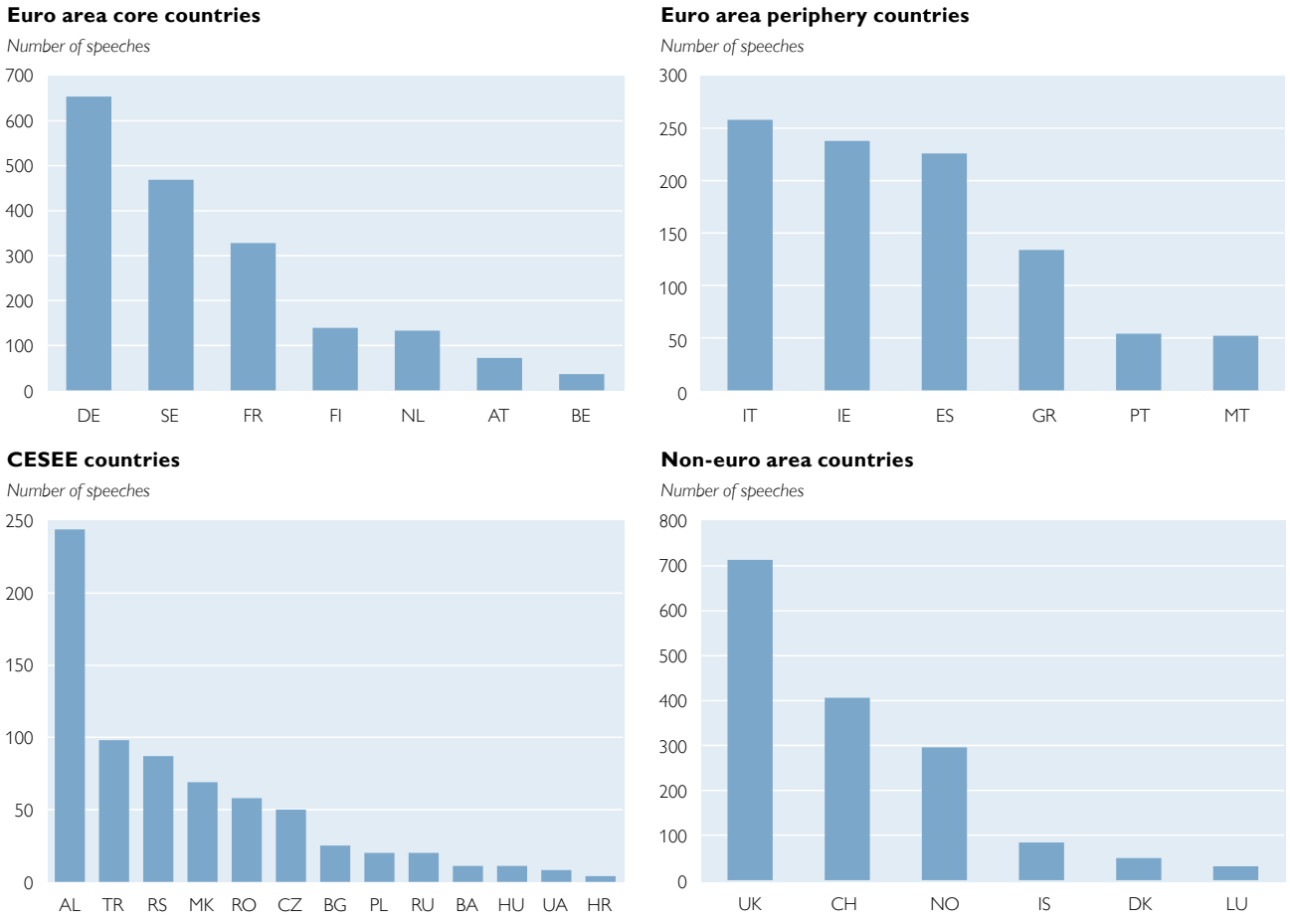
monetary policy measures, such as quantitative easing or other forms of unconventional monetary policy. In 2012, Deutsche Bundesbank staff delivered more speeches than in the years before. In 2017, the number of speeches given by Deutsche Bundesbank and ECB staff increased markedly. A considerable number of speeches were devoted to economic challenges including the architecture of monetary policy and banking regulation in Europe. The correlation between the number of speeches and economic uncertainty can also be assessed by adopting a more empirical approach. When using the economic policy uncertainty index for Europe,[12] the correlation between economic policy uncertainty and the number of speeches per month over the sample period is about 0.5, with the largest spikes in uncertainty occurring in 2008, 2012 and late 2016. This finding suggests that central banks communicate more during times of financial stress or, more generally, heightened uncertainty.

The regional distribution of central bank speeches is displayed in chart 2. For the sake of brevity and due to the small number of speeches, new euro area countries are not shown.

[12] *Available at www.policyuncertainty.com.*

Chart 2

Number of central bank speeches by country in selected European regions



Source: Authors' calculations.

Chart 2 reveals two very active central banks whose representatives delivered some 700 speeches, respectively, over the sample period – the Deutsche Bundesbank among the central banks of euro area core countries and the Bank of England as part of the central banks of non-euro area countries. The Sveriges Riksbank and the Schweizerische Nationalbank come in third and fourth with more than 400 speeches each. These simple descriptive statistics tell us that the frequency of communication need not depend on the (economic) size of a country, nor on whether the country pursues an independent monetary policy or is part of a monetary union. Looking at the CESEE region, our data show that the Bank of Albania frequently communicates with the public, while other central banks from the CESEE region lag far behind. Speeches delivered by central bank staff from non-euro area member states, such as Bulgaria, Croatia, Czechia, Hungary and Poland, are far less frequent. Again, our findings show that the number of speeches does not correlate with the size of the economy. Rather, the frequency of communication seems to be driven by differences in central banks' overall views on economic conditions.

However, there is also a common factor that may influence the number of and topics covered in speeches, namely the state of the business cycle. It is fairly straightforward to quantify the extent to which business cycles in the regions considered are synchronous. The indicator used to this effect is based on a technique originally proposed by Bry and Boschan (1971) as well as Harding and Pagan (2002), according to which we identify and quantify turning points in series such as real GDP. This approach relies on observable economic performance, while closely mimicking the methodology used by the National Bureau of Economic Research (NBER).[13] Next, we combine the cross-country estimates by asking how often the indicator sends the same signal about overall economic conditions. The resulting indicator ranges between 0 and 1, with 1 representing complete business cycle synchronicity.[14] Our results indicate that the global financial crisis developed into a recession in all regions reviewed in this paper. The euro area sovereign debt crisis, by contrast, emerged as a recession period in the euro area only, but not in the other regions analyzed, including CESEE.

3 Methodological framework

Automated textual analysis has a long tradition in the social sciences (Gentzkow et al., 2019) of evaluating, e.g., partisanship in political debates, analyzing consumer sentiment or quantifying contents by topic for a collection of text documents. To perform such a content analysis, researchers often use so-called topic models. Intuitively, given that each document is about a particular topic, one would expect certain terms to appear more often in a given document than others. The most prominent topic model is the Latent Dirichlet Allocation (LDA), a generative statistical model. It assumes (1) that each text document potentially covers not only a single topic, but a larger number of a priori unknown topics (think of "themes" such as economic growth or financial crises), and (2) that each topic is defined by how often specific sets of words occur (e.g., in connection with the topic "financial crisis," the words "bankruptcy" or "debt" are likely to occur more often; see Blei et al., 2003). For the purposes of our analysis, we use structural topic models (STMs; see Roberts et al., 2016). STMs extend LDA models in two ways: first, by allowing the occurrence ("prevalence" in the following) of topics in documents to depend on document-specific covariates such as the documents' time stamp; second, by taking into account that the distribution of words in the vocabulary of a given topic might also depend on external covariates such as metadata (including, e.g., the author of the document). In the context of central banking, this would allow for a comparison of texts on a certain topic in which the authors adopted either a "hawkish" or "dovish" tone. Still, as with LDA models, the underlying assumption of STMs is that every document can be represented by a statistical mix of topics and that each topic can be described by a distribution of words.

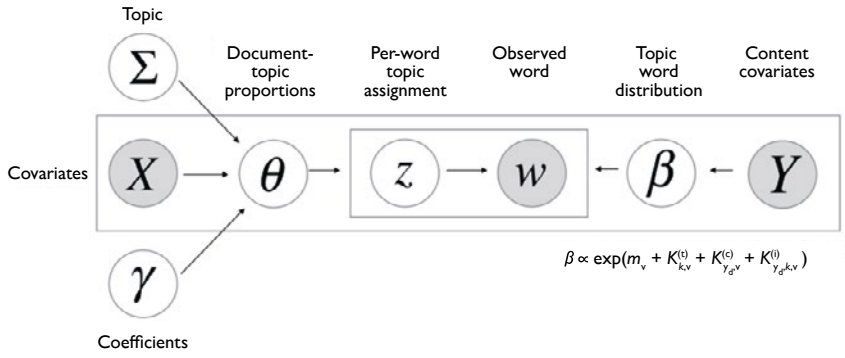
More formally, an STM can be divided into three components: (1) a *topic prevalence model,* which controls how words are allocated to topics as a function of covariates; (2) a *topical content model,* which controls the frequency of the terms in

[13] *The similarity between the Bry-Boschan algorithm and NBER business cycle chronologies is considered a strength of the approach adopted in this paper and helps explain its wide applicability in dating business cycles.*

[14] *Estimates are combined using a "wiring ratio," defined as the frequency with which two (or more) business cycle chronologies generate the same signal of a downturn in economic activity. For further details, see, e.g., Berge (2012).*

Figure 1

Graphical representation of a structural topic model



Source: Roberts et al. (2016).

each topic as a function of covariates; and (3) a *language model,* which combines (1) and (2) to model the words in each document.

Figure 1 illustrates the data generating process of an STM using plate notation (see Roberts et al., 2016). Each document d can cover multiple topics, which is indicated by the topical prevalence parameter Θ_d. If we denote the number of different topics by K, Θ_d is a $Kx1$ dimensional vector and sums up to unity. Θ_d may depend on document-level covariates X_d, which is modeled by $\theta_d \sim LogisticNormal_{K-1}(\Gamma' x_d, \Sigma)$, and $\Gamma = [\gamma_1 | \ldots | \gamma_K]$ is a matrix of coefficients for the topic prevalence model, which is used to estimate Θ_d. For our purposes, we solely use the date of the speech as well as the country of the speaker's affiliation as determinants of topical prevalence (i.e. X_d). Those single γ_K are usually drawn from a multivariate normal distribution. Σ denotes the variance-covariance matrix of the topic proportions. In this paper, we use a simplified STM, which does not allow us to model the distribution of words for a topic as a function of covariates (i.e. Y). Given Θ_d, we draw for each word in a document a topic z from a K-dimensional multinomial distribution, i.e. $z \sim Multinomial(\theta_d)$. Finally, we draw a word w conditional on the topic assignment z from the appropriate distribution over terms depending on β: $w \sim Multinomial\_V(\beta_d)$.

4 Results

In a first step, we fit the STM to the 7,170 speeches contained in our sample. We opt for a pragmatic approach to fix the maximum number of topics fitting STMs, which comes to 3, 5, 10, 15 or 20 topics (Krippendorf, 2013). To be able to interpret the final set of topics, we examine the characteristics of every topic in two ways. First, we create word clouds that represent the words used most frequently in connection with certain topics. The more frequent a word appears in our data, the bigger it will become. Thus, by looking at the clouds in figure 2, we can identify the big words and hence the top topics. Second, we manually analyze those speeches that were assigned, with high probability, to the respective topics.

Word cloud 1, which represents topic 1 covers structural economic policies, economic growth as well as monetary and economic integration. In the speeches

Figure 2

Topic assignment via word clouds

Topic 1

Topic 2

Topic 3

Topic 4

Source: Authors' compilations.

that were, to a high degree, assigned to topic 1 central bankers talk about the introduction of the euro or euro area enlargement. Examples include Mario Draghi's (ECB) statement about stability and prosperity in Monetary Union (January 2, 2015), Jean-Claude Trichet's (ECB) speeches on the introduction of the euro in Slovakia (January 8, 2009) and the enlargement of the euro area (January 15, 2007), as well as Willem Duisenberg's (ECB) address on the coordination of structural policies in Europe (May 9, 2003). Topic 2 is defined by inflation, inflation expectations, price stability and monetary policy. Many speeches that belong, with a high probability, to this topic are about monetary policy tools, such as forward guidance or quantitative easing, and, more generally, about central banking in a low interest rate environment. Central banks in Europe implemented these

policies with the aim of raising inflation. Typical speeches comprise Peter Praet's (ECB) speech on the assessment of quantitative easing and challenges of policy normalization (March 14, 2018) as well as his statement on forward guidance and the ECB (August 6, 2013), Benoît Cœuré's (ECB) speech on the usefulness of forward guidance (September 26, 2013), and Philip R. Lane's (Central Bank of Ireland) remarks on the macroeconomics of price and wage-setting (June 19, 2018). For topic 3, we find speeches that deal with financial stability risks as well as the banking sector and banking regulation, such as speeches by Benoît Cœuré (ECB) on central counterparty recovery and resolution (November 24, 2014), Luis M. Linde (Banco de España) on new challenges for a new era (November 26, 2015), Andreas Dombret (Deutsche Bundesbank) on systemic risks of shadow banking (August 20, 2013), and Andrew Gracie (Bank of England) on making resolution work in Europe and beyond – the case for gone concern loss absorbing capacity (July 17, 2014). Topic 4 consists of "outside the box" content, i.e. speeches related to technological innovation, education and other issues not directly associated with the remit of central banks. Exemplary speeches include Andrew Haldane's (Bank of England) remarks on the diversity project, i.e. reflections on the lack of diversity in financial services (November 8, 2016), his speech on the creative economy (November 2, 2018), as well as Krzysztof Rybiński's (National Bank of Poland) address on a day in the life of Homo Sapiens Globalus (September 21, 2006). The findings are summarized in table 1.[15]

Our analysis also allows us to assess how frequently central bankers address each of the four topics in their speeches over time. This is displayed in chart 3, with topic prevalence ranging from 0 to 1.

Table 1

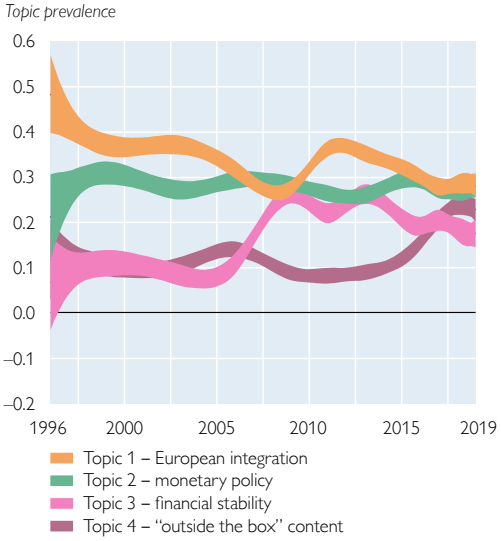
Topics covered in central bank speeches

Nr.	Topics
1	Economic integration and structural policy
2	Monetary policy and price stability
3	Financial stability, financial stability risks, banking sector and banking regulation
4	"Outside the box" content, including education, creativity, the economy of the future and payment systems

Source: Authors' compilations.

Chart 3

Topic prevalence in central bank speeches over time



Source: Authors' calculations.

Note: The width of the bands displays the 95% confidence intervals.

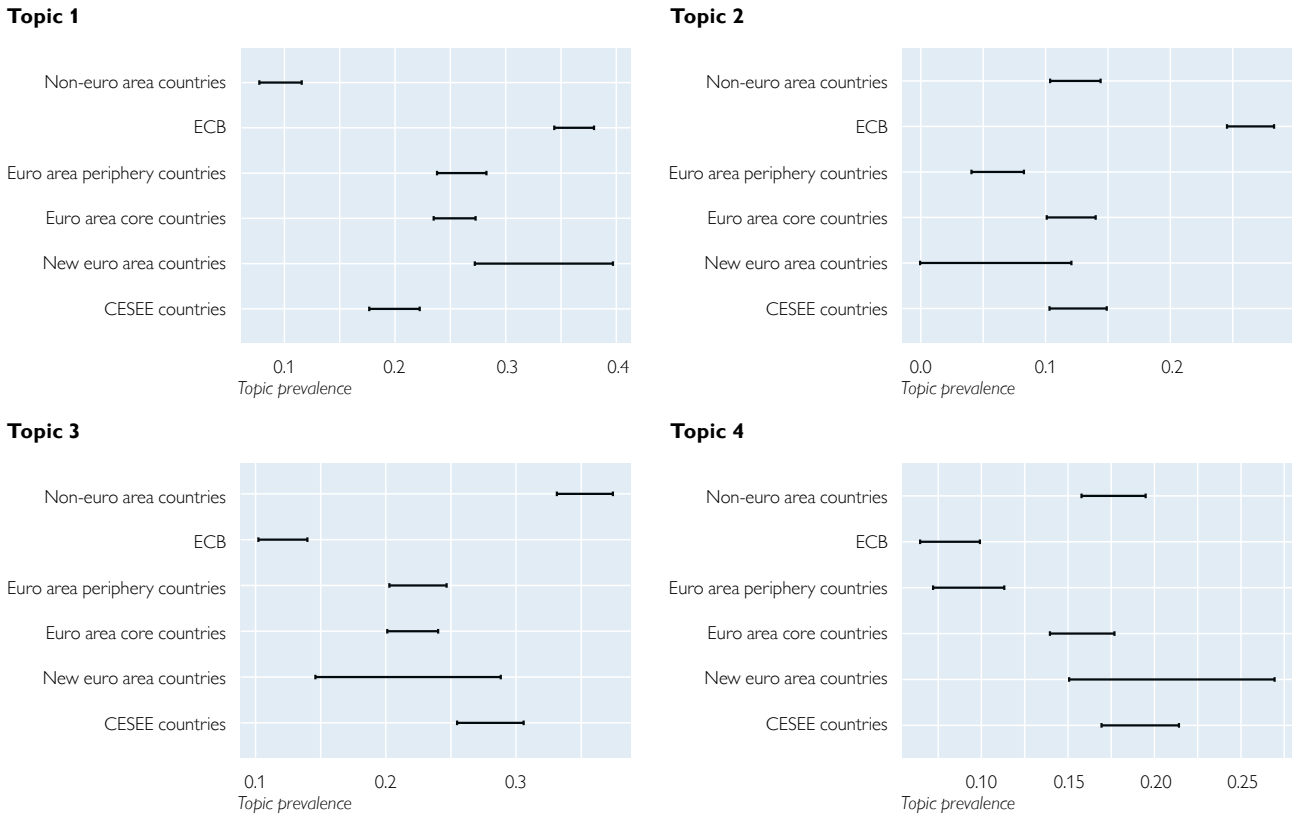
[15] *Our sample also yielded a fifth, residual topic which is ignored in our analysis.*

Chart 3 shows some striking differences in topic prevalence over time. Topic 1 – European integration – was the subject of many central bankers' speeches in the early 1990s and in the run-up to monetary union. With the mid-2000s, a declining trend in the proportion of speeches addressing economic integration set in; this trend reversed with the onset of the euro area sovereign debt crisis and when talk of a euro area break-up emerged. Topic 2 – monetary policy – is much more time-invariant over our sample period, while topic 3 – financial stability – gained a certain momentum with the onset of the global financial crisis. Topic 4 has received more coverage in recent years, which could imply that central bankers increasingly addressed issues beyond their usual remit toward the end of the sample.

We furthermore analyze whether there are substantive differences in topic prevalence across central banks, examining, e.g., where CESEE central banks and their euro area peers differ. We do this in chart 4, which shows the distribution of topics covered in central bank speeches by region. Even though some countries in the CESEE region are in the process of adopting the euro, chart 4 indicates that CESEE central banks talk comparatively seldom about European integration (topic 1). The leading central banks in this respect are the ECB and national euro area central banks. Monetary policy (topic 2) dominates in speeches delivered by ECB staff, which is also due to new forms of monetary policy implemented since 2008. CESEE central banks do not differ from their peers in euro area core countries, nor from their peers outside the euro area as regards the coverage of monetary policy in their speeches. Interestingly, within the euro area, central bank communication in euro area periphery countries is less geared toward monetary policy and price stability. Financial stability (topic 3) features most frequently in speeches given by central bankers from euro area periphery countries, such as Spain and Greece, which experienced particularly strong booms in their housing markets. Moreover, their banks came under severe pressure during the euro area sovereign debt crisis, which might explain why this topic became a particular focus. Central banks from other regions, including the CESEE region, devote about the same proportion of their speeches to financial stability. When turning to "outside the box" content (topic 4), we see some striking cross-regional differences. "Outside the box" content is very prominent in speeches by central bank staff from CESEE and non-euro area countries as well as from new euro area member states. The latter are made up of CESEE countries that adopted the euro during our sample period. "Outside the box" content is of lesser concern to the ECB, which thus suggests that the range of topics central bankers talk about is broader in the CESEE region and more narrowly defined at the ECB level.

Chart 4

Topic prevalence in central bank speeches by selected European regions



Source: Authors' calculations.

Note: The graphs show the 95% credible interval of topic prevalence by region.

For the CESEE region, we further break down the distribution of topics to the country level, with table 2 displaying the mean distribution of topics by CESEE country.

Structural convergence and European integration (topic 1) are addressed in speeches by central bank staff from two countries that are in the process of euro adoption, namely Bulgaria and Croatia, as well as by central bankers from Bosnia and Herzegovina and Romania. In some of these countries, financial stability (topic 3) also plays an important role, with the share of speeches addressing financial stability exceeding 30% in Bosnia and Herzegovina as well as in Bulgaria. Financial stability also accounts for the lion's share of speeches delivered by central bankers from Albania and Russia. Monetary policy and price stability (topic 2) are particularly important in Turkey. Here, the mean probability of topic assignment comes to about 25%, which might be explained by the historically high rate of inflation witnessed in the country. With the exception of Russia and Turkey, a surprisingly high number of central bank speeches in all CESEE countries was assigned to "outside the box" content (topic 4). Exploring the reasons for the relative importance of topic 4 seen in the data (e.g., monetary policy strategy reviews or societal pressures) might be an interesting avenue for future study, especially since many central banks have taken on additional responsibilities since the global financial crisis (e.g., in the realm of financial stability and digitalization).

Central bank communication is about explaining to the public the actions taken by central banks which have increasingly come to affect certain areas of public life in recent years. That said, and with interest rates remaining the principal instrument of policy, the general public follows with interest the decisions taken by central banks. Nevertheless, in an era of historically low and unchanged policy rates over long periods of time, communication serves as a means to guide expectations regarding the stance of monetary policy. In academic and policy circles, the stance of central banks may, i.a., be assessed by applying policy rules which seek to describe the interest rate-setting behavior of monetary policy committees. The best-known rule is associated with John Taylor (1999).

Table 2

Topic prevalence in central bank speeches by CESEE country

Country	Topic 1	Topic 2	Topic 3	Topic 4
Albania	0.10	0.13	**0.28**	0.22
Bosnia and Herzegovina	0.28	0.05	**0.30**	0.26
Bulgaria	0.26	0.05	**0.40**	0.25
Croatia	0.31	0.11	0.09	**0.35**
Czechia	0.21	0.15	0.14	**0.43**
Hungary	**0.23**	0.18	0.19	**0.23**
North Macedonia	0.19	0.10	0.25	**0.29**
Poland	0.17	0.13	0.09	**0.39**
Romania	**0.31**	0.10	0.15	0.30
Russia	0.04	0.13	**0.27**	0.13
Serbia	0.15	0.08	0.20	**0.29**
Ukraine	0.04	0.17	0.11	**0.33**
Turkey	0.10	**0.25**	0.21	0.12

Source: Authors' calculations.

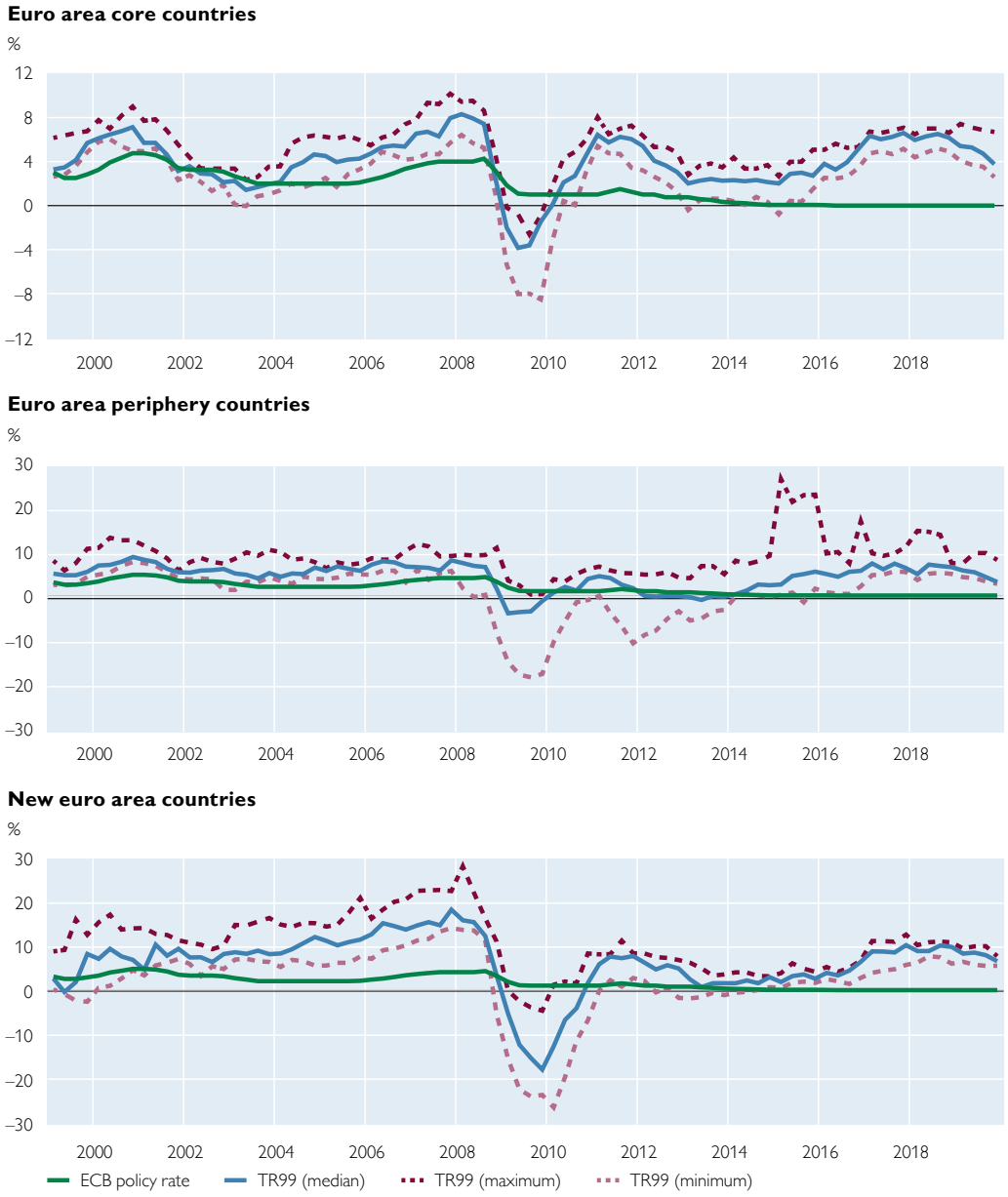
Note: The table shows the probability of topic assignment (θ), averaged over documents per central bank. The highest mean probability per central bank is marked in bold.

If communication serves to manage expectations and explain why central banks act by changing the policy rate, differences between the actual policy rate and the one predicted by a policy rule might indicate, e.g., the relative importance of the topic "inflation." Of course, one has to bear in mind that all policy rules include unobservable variables subject to considerable disagreement. Nevertheless, central bankers themselves have, for a long time, used the Taylor rule as a communication tool. Poole (1999) was among the first to do so; many others have followed since. Chart 5 plots the ECB's policy rate against a range of policy rates predicted by the Taylor rule. This is repeated for the CESEE countries (not shown in chart 5).[16] The resulting findings show that financial stability concerns have become far more important since the global financial crisis and the euro area sovereign debt crisis, which may be reflected in more persistent deviations from the Taylor rule prescription as central banks adhere less to such rules. Turning to the CESEE countries, we find that the heterogeneity in the policy rates implied by the Taylor rule is much larger than that observed for the euro area core countries, particularly around the peak of the euro area sovereign debt crisis. This heterogeneity is also reflected in the topics covered in speeches by central bankers from the CESEE region (see table 2). Otherwise, the policy rates observed for the CESEE countries hew fairly closely to the median policy rates advocated by the Taylor rule, perhaps mirroring the efforts of central bankers in the region to follow best practice in the conduct of monetary policy which covers a wide variety of aspects.

[16] *We also estimated many variants for other regions and for individual countries of our dataset. As space limitations do not allow for a full discussion of the resulting findings, please see the annex for additional information.*

Chart 5

Taylor rule by selected European regions



Source: Authors' calculations.

Note: Individual country estimates are based on a modification of the standard Taylor rule (TR99; Taylor 1999). A version augmenting the Taylor rule with the rate of change of the real exchange rate is also considered. The range of estimates and the median across all estimates are captured by the TR99-implied maximum, minimum and median policy rate. The ECB's policy rate reflects the official EONIA rate. For further details, see the annex.

5 Conclusions

Speeches are an important tool for central bankers to communicate with the public. In our paper, we fit topic models to central bankers' speeches collected by the BIS over the period from 1996 to 2019. Our analysis reveals that central banks mainly focus on four topics: (1) European integration, (2) monetary policy, (3) financial stability, and (4) "outside the box" content, subsuming a broad range of subtopics

often discussed at academic conferences. We find that some of these four topics were regularly addressed by central bankers in Europe over our sample period, while others gained momentum as a result of certain economic events. Naturally, there is always a certain proportion of central bank speeches that deal with monetary policy proper. Speeches on economic integration and structural policies figured prominently before the establishment of the euro area and then dropped off in numbers, before regaining some momentum in the aftermath of the euro area sovereign debt crisis. Unsurprisingly, the global financial crisis triggered a surge in speeches on financial stability.

Moreover, we find that the frequency of communication across central banks is unrelated to the size of the underlying economy. Both the Schweizerische Nationalbank and the Bank of Albania, for example, are very active compared to their European counterparts despite their country's small population. Communication frequency does not depend on the monetary regime either: Some central banks that are part of the euro area contribute to the same extent as other central banks that pursue their own, independent monetary policy. Rather, it appears that the frequency of delivering speeches is part of a central bank's overall monetary policy strategy.

Finally, we delve deeper into the regional distribution of speech topics, putting a particular focus on the CESEE region. Our findings suggest that the ECB, CESEE central banks and other non-euro area central banks devote much of their communication to issues related directly to monetary policy and price stability. Speeches given by ECB staff and central bankers from euro area countries also frequently address issues related to European integration and monetary union enlargement. Central bankers from the CESEE region, by contrast, address these topics very rarely, with the exception of central bank staff from countries in the process of adopting the euro. Modern central banking, with fairly autonomous institutions, is a far more recent experience in most CESEE countries. Hence, central banks in the region are seen to cover a wider array of topics than their euro area counterparts, perhaps as a means of educating policymakers and the general public about the role and influence of monetary policy.

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Annex

Table A1

Measuring deviations from the Taylor rule

Country/region	Mean deviation (full sample)	Mean deviation (recessions)	
	%		
Switzerland	–2.44 –2.58	–2.04 –3.61	 39
Germany	–2.20 –2.33	–1.72 –2.63	 44
Spain	–2.65 –2.94	–1.91 –3.25	 36
France	–1.94 –2.24	–1.93 –1.92	 37
United Kingdom	–1.86 –1.71	–1.76 1.13	 27
Ireland	–3.71 –3.73	–2.27 –3.02	 37
Italy	–1.92 –2.09	–1.92 –2.26	 35
Netherlands	–2.46 –2.70	–2.20 –3.34	 39
Norway	–2.79 –2.69	–2.73 –3.13	 38
Sweden	–1.52 –1.80	–0.73 –1.49	 32
Euro area countries	–2.29 –2.54	–2.01 –2.68	 34
New euro area countries	–4.62 –4.38	–4.04 –7.27	 7
Non-euro area countries	–3.01 –3.08	–2.16 –0.58	 7
Euro area core countries	–2.17 –2.46	–0.59 –1.65	 15
Euro area periphery countries	–2.72 –2.98	0.88 –2.12	 8
CESEE countries	–3.07 NA	NA NA	NA
Euro area (shadow policy rate) United Kingdom (shadow policy rate)	–0.89 –0.64	–1.07 –0.46	34 27

Source: Authors' calculations.

Note: Deviations refer to the difference between actual policy rates and those prescribed by the Taylor rule (Taylor, 1999) as specified below. To ensure comparability of findings, we used OECD recession dates for the sample period from Q4 1996 to Q4 2019. Data are quarterly. For the regions listed in the table, recessions are the intersection of recession dates registered in the individual countries of each region. The last two lines refer to the mean difference between observed policy rates and Krippner's estimates of shadow policy rates (Krippner, 2013). Estimates of the output and real exchange rate gaps (see below) are means of three proxies: H-P filter, Hamilton filter, and annualized growth rates. Estimates of the inflation objective (see below) represent the trend from the Hamilton filter or the H-P filter. The results shown in table A1 are for the H-P filter. Results for the Hamilton filter are very similar. The Taylor rules are:

$$i_t = 2 + \pi_t + 0.5(\pi_t - \pi_t^*) + \tilde{y}_t$$

$$i_t = 2 + \pi_t + 0.5(\pi_t - \pi_t^*) + \tilde{y} + \tilde{\varepsilon}_t$$

where i is the prescribed policy rate, π actual inflation, and π^* the central bank's inflation objective, and where $\tilde{y}, \tilde{\varepsilon}$ are the estimates of the output gap and the real exchange rate gap, respectively. A negative deviation means that the observed policy rate is, on average, below the Taylor rule prescription. Please note that the real exchange rate version of the Taylor rule could not be estimated for Albania, North Macedonia and Serbia as the data were either not available or based on too few observations. NA means not applicable; series were unavailable.

Bank productivity in CESEE countries

Ivan Huljak, Reiner Martin and Diego Moccero[1]

This paper looks at the performance of commercial banks in Central, Eastern and Southeastern Europe (CESEE). More specifically, we investigate the productivity growth components and capacity utilization in 11 CESEE EU member states as well as six non-EU countries in the Western Balkans during the period 2011 to 2019. First, we apply the methodology of Kumbhakar et al. (2014) to explain the components of total factor productivity (TFP) growth. Our results suggest that TFP growth is positive in the Western Balkan countries and negative in the CESEE EU member states, largely owing to differences in economies of scale and technical change. When controlling for heterogeneity between banks in these two regions and disentangling permanent and time-varying inefficiency, banks from CESEE Western Balkans countries still appear to be more efficient; the differences are, however, much smaller. Finally, we apply the dual cost approach by Berndt and Fuss (1986) to estimate the capacity utilization of banks. We find that banks in the CESEE EU member states have a lower capacity utilization than banks in the Western Balkans. However, cost-to-income ratios across the two regions are comparable, as Western Balkan banks generate far lower assets per employee and per fixed assets. We also find significant differences between smaller and larger banks in the two regions, with smaller banks apparently catching up with larger ones. Based on these findings we provide some policy recommendations. Overall, given the expected worsening of asset quality due to the COVID-19 pandemic and increasing competition by fintech companies, banks in both regions need to increase their efforts to move closer to the efficiency frontier.

Keywords: CESEE region, banking sector, productivity, capacity utilization, panel data
JEL classification: C23, D24, G21

Introduction and literature review

Having efficient and productive banks is very important for the countries of Central, Eastern and Southeastern Europe (CESEE). First, banks remain by far the largest providers of credit to companies and households in these countries while capital markets remain generally underdeveloped. Sufficient loan supply at reasonable lending rates and sustainable lending standards thus play a key role for economic growth in the region. Second, effective and productive banks are more likely to be profitable and well capitalized, making them more resilient to adverse shocks such as the financial and economic fallout from the COVID-19 pandemic. In addition, banking sector efficiency improves the transmission of monetary policies (Jonas and King, 2008). Traditional accounting indicators for banking sector efficiency such as the average cost (AC) of a bank and the cost-to-income ratio (CIR) are easy to compute but ill-equipped to capture banking sector efficiency in a meaningful way, given that they are largely determined by a range of bank- and country-specific

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aspects. In this paper, we thus use a different approach to calculate bank productivity growth, technical efficiency and capacity utilization.[2]

Banking systems in CESEE countries share many common features. First, the banking systems are relatively young. Although all countries in the region or their respective predecessors such as the Soviet Union or Yugoslavia had banks for basic financial services as well as specialized purposes such as import-export banks, modern, (mostly) private banking systems emerged only after the transformation in the late 1980s and early 1990s. In fact, many CESEE countries were severely underbanked until the first decade of the 21st century. Second, although the share of foreign ownership differs across the covered countries, CESEE banking systems are largely foreign-owned. Mainly Western and Northern European parent banks either acquired nascent and/or privatized local banks or launched greenfield banking operations. Third, accession to the European Union (EU), whether already achieved or not, has a major impact on banks' operating environment such as capital market liberalization and banking regulation. Finally, notwithstanding the enormous progress made in financial development and financial deepening, CESEE banking systems are still relatively basic, focusing on the provision of loans to households and corporate clients. No major international institutions (G-SIBs) are domiciled in the region, and the impact of market-based finance or fintech companies is still relatively limited.[3]

These common features notwithstanding, there are also significant differences between the various CESEE banking sectors, which complicate cross-country comparisons. In this paper, we are therefore looking specifically at two subgroups of CESEE countries: First, 11 countries that already joined the EU (subsequently called CESEE EU) and second, 6 Western Balkan countries that are in different stages of the EU accession process (CESEE WB).[4] While there is also considerable heterogeneity within these CESEE subgroups, the differences *between* these groups in terms of their EU accession pace arguably had a considerable impact on the speed of banking sector development, both via the evolution of the legal framework conditions as well as the country groups' relative attractiveness for banking sector FDI.

Since the turn of the century, the evolution of CESEE banking sectors can be divided into three different phases. The period until 2008 was characterized by rapid financial deepening and strong bank profitability. International risk aversion was very low and banks were often aggressively competing for market shares in the then very fast-growing economies. Foreign parent banks and foreign wholesale funding enabled rapid credit growth (often in foreign currency). At the same time,

[2] *Huljak, Martin and Moccero (2019) use the same approach to investigate cost-efficiency and productivity growth in the euro area banking sector.*

[3] *On the current state and the potential for further development of capital markets in CESEE countries, see e.g. Reininger and Walko (2020). On market-based finance in the CESEE EU countries, see e.g. ESRB (2019); on fintech, see e.g. Raiffeisen Bank International (2020).*

[4] *CESEE EU countries are: Bulgaria, Czechia, Estonia, Croatia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia; CESEE WB countries are: Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia. Other CESEE countries (notably Belarus, Moldova, Russia and Ukraine) are not covered in this paper, given their significant structural differences compared to CESEE EU and CESEE WB as well as data gaps.*

leverage in the banking sector, the indebtedness of firms and households and asset prices increased rapidly.[5]

After the global financial crisis (GFC) starting in 2008, the CESEE region experienced a deep recession. Although the pre-crisis concern that foreign-owned banks would withdraw from the CESEE region in a crisis did not materialize[6], the banking sectors experienced a major contraction, with collapsing profits and a substantial deterioration in asset quality. By 2012/13 the acute period of crisis in the CESEE region ended, economies rebounded – although generally to lower growth rates than before the GFC – and asset quality improved, mainly via an increase in sales of nonperforming loans (NPLs).

During our observation period (2011–2019), some CESEE countries saw a decrease in currency risk (Croatia and Hungary) as the share of foreign currency loans declined. At the same time, the funding structure shifted from external liabilities to domestic deposits (Lahnsteiner, 2020). However, the profitability of banks did not return to pre-crisis levels, due to, for example, the general trend toward decreasing interest rates, lower credit growth and – in some jurisdictions – a significant tightening of micro- and macroprudential supervision.[7] Given this new and less supportive operating environment, bank profitability in the CESEE region increasingly depends on banks' operational efficiency and their business models.

Considering the shortcomings of accounting-based indicators of banking efficiency like average cost or the cost-to-income ratio, we use a different approach to calculate bank productivity growth, technical efficiency and capacity utilization. In a first step, we use the empirical approach by Kumbhakar et al. (2014) to compute total factor productivity (TFP) growth. In the next step, we calculate the overall technical efficiency of banks during the 2011–2019 period, decomposing it into its main driving factors and differentiating between CESEE EU and CESEE WB countries. More specifically, we use a trans-log cost function to capture banks' relative ability to convert inputs (financial capital, labor and fixed assets) into outputs (loans and investments), while minimizing costs. In addition, we distinguish between persistent and time-varying efficiency. This is important because hysteresis effects in inefficiency are often neglected. In the next step, in order to derive TFP growth, we calculate other elements of productivity growth: scale effect, technical change and fixed input (capital) effect, using the same trans-log function. Finally, we add an additional element to our productivity analysis by calculating capacity utilization using the dual cost approach.

There are already a number of papers estimating cost functions of banks in Europe and abroad based on frontier analysis.[8] Altunbas et al. (2001) model cost efficiency, scale economies and technological change in the German banking market

[5] *See e.g. CESEE Deleveraging and Credit Monitor, June 11, 2020, Vienna Initiative: https://www.imf.org/external/np/pp/eng/2020/DCM2020.pdf*

[6] *The Vienna Initiative, bringing together private banks, international institutions and national authorities, proved to be instrumental in preventing such a scenario. See e.g. Hameter, Lahnsteiner and Vogel (2012) as well as http://vienna-initiative.com/. It is worth noting that NPL ratios in some CESEE countries, like Latvia or Romania, peaked well above 20%.*

[7] *For more details on bank profitability in CESEE, see e.g. Allinger and Wörz (2020).*

[8] *For a more detailed review of the relevant literature, see Huljak, Martin and Moccero (2019).*

between 1989 and 1996, differentiating between state-owned, mutual and private institutions. They find beneficial effects from economies of scale and technological progress across all types of banks, with public and mutual banks having slight cost advantages over their private sector competitors. Bonin et al. (2005) use a stochastic frontier and conclude that privatization by itself is not sufficient to increase bank efficiency; however, they find that foreign-owned banks are more cost-efficient than other banks and that they also provide better service, in particular if they have a strategic foreign owner. Boucinha et al. (2013) use a cost function to estimate TFP in the Portuguese banking system between 1992 and 2006, disentangling the impact of cost efficiency, return to scale and technological progress. Like Altunbas et al. (2001) they also find positive effects of technological progress and scale effects, whereas efficiency remained unchanged.

Other studies link inefficiency estimates to other banking variables. For example, Altunbas et al. (2007) and Fiordelisi et al. (2011) apply stochastic frontier analysis to estimate the efficiency of European banks and subsequently use time series econometric techniques to assess the intertemporal relationship between bank efficiency, capital and risk. The two papers find opposite results regarding the relationship among these variables.

Particularly relevant findings for the CESEE region are provided by Niţoi and Spulbar (2015). The authors use a heteroscedastic stochastic frontier model to investigate banks' cost efficiency in six Central and Eastern European Countries over the period from 2005 to 2011. They find that banks in all six countries increased their efficiency until 2008. However, they notice that efficiency either stagnated or declined after 2009.

A caveat associated with most earlier studies is that they do not distinguish between persistent and time-varying inefficiency. Some more recent papers, however, disentangle these two components of banking sector inefficiency. Badunenko and Kumbhakar (2017) concluded, among other things, that state banks in India were able to improve their cost efficiency, while Indian private banks were lagging behind. The authors find that persistent efficiency is higher than the time-variant one. Huljak et al. (2019) calculated the average efficiency for euro area banks to be 84% in the 2006–2017 period, with inefficiency being mostly persistent. Fungačova et al. (2020), however, using a sample of 166 Chinese banks during the 2008–2015 period, find similar contributions of persistent and residual inefficiency.

This paper builds on the existing literature on bank efficiency and productivity by implementing a holistic framework for describing efficiency and productivity while including capacity utilization concerns. To the authors' best knowledge, this is the first attempt to perform this kind of analysis for a panel of CESEE countries. The main findings of this paper are as follows: Banking sector TFP growth was negative for most CESEE EU countries, reaching –1.4% for the median bank. However, there is a strong divergence between smaller and larger institutions, with smaller banks recording growth of 3.4% and larger ones recording a decrease of 2.2%. By contrast, the majority of CESEE WB countries recorded positive TFP growth, reaching 0.4% for the median bank. Smaller CESEE WB institutions recorded an increase of 4.3% on average while TFP growth for larger institutions

stagnated. The differences between the two regions stem mostly from economies of scale and technical change. When controlling for bank heterogeneity across regions by utilizing the methodology of Kumbhakar et al. (2014), we confirm that CESEE WB banks are technically more efficient, even when controlling for size differences. Overall, average cost efficiency reached around 69% for the median CESEE EU bank and 73% for the median CESEE WB bank. In other words, if the median bank were to operate on the technical efficiency frontier, it could produce the same level of output in CESEE EU and CESEE WB with 69% and 73% of the current costs, respectively. In the last five years of our sample, the difference in efficiency between the median banks in the two regions increased as the efficiency in CESEE EU countries decreased, while it stayed stable in CESEE WB countries. Empirical evidence presented in this paper shows that bank inefficiency in the CESEE countries stems from both persistent and residual inefficiency, suggesting that structural, long-term factors (such as location, client structure, macroeconomic environment, regulation, etc.) should be examined together with potential efficiency gains from management. Regarding capacity utilization, we find that CESEE EU banks have suffered more from excess capacity in recent years. However, both regions currently record similar cost-to-income ratios, given that CESEE WB banks generate fewer assets per employee and fixed asset unit.

The rest of the paper is organized as follows: Section 1 presents key structural features of the banking systems in the two CESEE subregions. Section 2 presents the descriptive data and our methodology. Section 3 presents the empirical results of the paper and section 4 concludes.

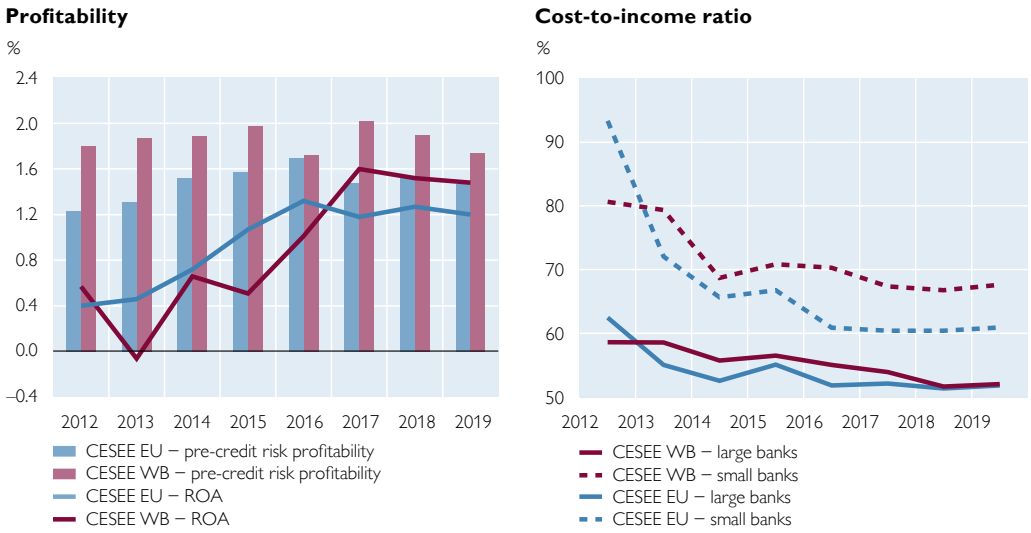
1 Stylized facts

In this section, we are looking at some standard accounting indicators for banking sector profitability and productivity in the CESEE region, in order to set the scene for the subsequent, more in-depth analyses.

After 2015, when credit risk decreased, returns on assets for both CESEE subregions increased more or less in tandem. Operating (pre-credit risk) profitability, however, remained more subdued in CESEE EU countries. In fact, banking sectors in the CESEE WB countries outperform their peers in the CESEE EU countries in both profitability measures. With the new credit risk cycle starting in 2020 due to the economic consequences of COVID-19, bank profitability is likely to witness significant pressure. At the same time, the cost-to-income ratio (CIR) remained fairly stable in both regions, declining noticeably only for smaller institutions (see chart 1).

Chart 1

Profitability and cost-to-income ratio of CESEE banks



Source: Authors' calculations based on BankFocus data.

Note: Values refer to the regional weighted average in the CESEE EU and CESEE WB regions. Pre-credit risk profitability is return on assets (ROA) before loan loss provisions. Due to the lower data count on loan loss provisions, 2011 has been omitted.

Looking at levels of competition, the Boone indicator[9] (presented in chart 2[10]) suggests that banks in both CESEE EU and CESEE WB countries have been facing gradually increasing competition since 2013/2014. However, CESEE EU banks appear to face more intense competition by comparison, which could explain some of the operating profitability differential presented above. This competition comes mainly from other EU banks. Shadow banks and fintech companies are, however, also more likely to compete with banks in the CESEE EU countries rather than the – more traditional – financial markets of the CESEE WB countries.

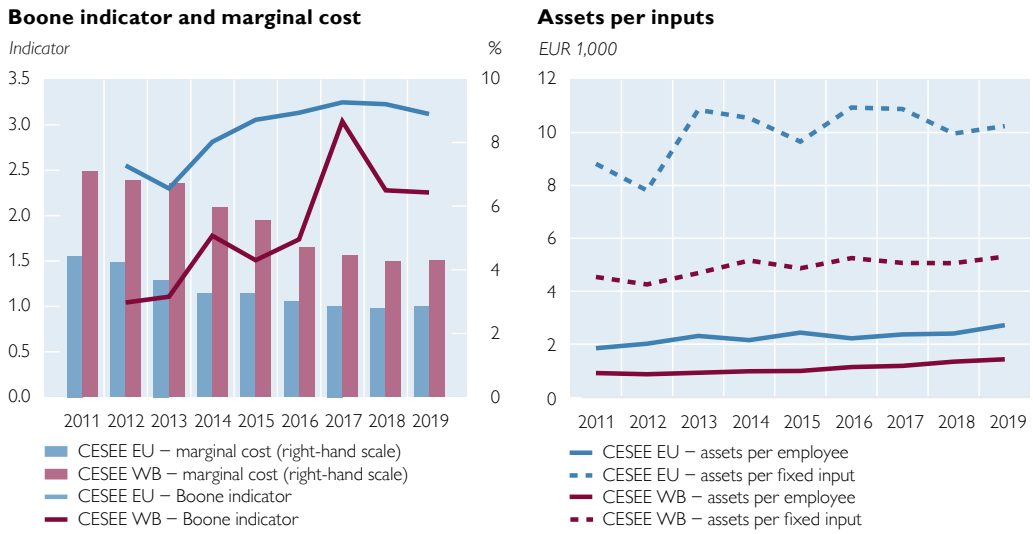
There are also significant differences between the productivity of inputs in the two regions. With CESEE WB banks being significantly smaller, they have fewer assets per employee and per fixed assets, which negatively influences their cost-to-income ratios. More specifically, CESEE WB banks are still more focused on a traditional "brick and mortar" banking approach, using physical, branch-based outreach toward clients. By contrast, CESEE EU banks are already more advanced in their digitalization efforts, partly due to stronger competition. However, due to

[9] *The Boone indicator of market competition is based on the idea and theoretical background that more efficient firms (the ones with lower marginal costs) should record higher profits and market shares. More specifically, we are looking at the elasticity of bank profits to marginal costs. The expected sign of this relationship is negative with more negative elasticity indicating higher competition. We calculate the Boone indicator for every year using the following formula: $ln(\pi) = \alpha + \beta * ln(mci) + \varepsilon$, where π is profit, mc is marginal cost and β the Boone indicator.*

[10] *Even though all measures of competition assume that markets are in equilibrium, the loan markets could be in continuous disequilibrium due to the bailout of banks and the zero-bound interest rates (Xu, Van Leuvensteijn and Van Rixtel, 2016). The Lerner index is additionally distorted due to usage of implicit instead of market prices for loans that are more inert than deposit rates, which can lead to seemingly increasing market power in the environment of decreasing interest rates. We therefore use the Boone indicator (Boone, 2008), which is less sensitive to these distortions.*

Chart 2

Boone indicator, marginal cost and assets per inputs



Source: Authors' calculations based on BankFocus data.

Note: Marginal cost and Boone indicator are calculated according to Van Leuvensteijn et al. (2008).

Source: Authors' calculations based on BankFocus data.

Note: Fixed input is the sum of fixed and nonearning assets.

the COVID-19 pandemic all CESEE banks have sped up their digitalization process in order to support client outreach.[11]

2 Data and methodology

2.1 Data

We are estimating the cost function of a panel of commercial banks from 11 CESEE EU countries and 6 CESEE WB countries during the 2011–2019 period, using data gathered from BankFocus. Commercial banks are typically active in retail, wholesale and private banking. In other words, they are universal banks. This is by far the most important type of bank in both the CESEE EU and the CESEE WB countries. Other types of banks such as savings, cooperative or investment banks play only a minor role, both in terms of the number of banks as well as their share in the overall bank balance sheets.[12]

After applying certain rules to remove banks with unreliable or low-quality data and banks that might have been misclassified, our sample consists of an unbalanced panel of between 91 and 265 banks (depending on the year) in 17 CESEE countries (see table 1).[13]

[11] *CESEE Bank Lending Survey, Autumn 2020 (European Investment Bank, 2020).*

[12] *The only exception to this rule is Poland, which had up to 60 savings banks during the sample period. Even in Poland, however, the combined balance sheet share of these banks is relatively minor.*

[13] *We remove the banks with extreme indicators: negative products, nonintermediation business model (less than 20% of assets in loans), average costs over 50%.*

Table 1

CESEE EU and CESEE WB banks included in the sample

	CESEE EU											
	BG	CZ	EE	HR	HU	LT	LV	PL	RO	SI	SK	Total
Number of banks (min./max.)	2/16	4/14	1/2	17/25	1/9	3/6	1/13	5/68	3/17	3/12	5/9	45/191

	CESEE WB						
	AL	BA	KV	ME	MK	RS	Total
Number of banks (min./max.)	4/9	12/21	3/5	8/9	9/11	14/20	46/74

Source: Authors' calculations based on BankFocus data.

Note: The table shows the minimum and maximum number of banks in our sample for each country during the 2011–2019 period. Data availability changed during the observed period with the number of banks increasing over time.

2.2 Methodology

In this section, we go beyond traditional accounting-based indicators of efficiency and use frontier analysis to estimate technical efficiency (TEC) in the banking sector. We adopt the intermediation approach of Sealey and Lindley (1977), viewing banks as firms that use labor, fixed assets and liabilities to produce loans and other earning assets.[14] More specifically, we consider banks' liabilities as inputs and banks' assets (loans and other earning assets) as outputs.[15] This specification of outputs and inputs is similar to most previous studies on banking efficiency and productivity. In fact, most of the literature has estimated cost functions with the same inputs as used in this paper, while the number of outputs has varied between two and five.[16] In addition, we follow Berger and Mester (1997), Fiordelisi et al. (2011) and Hughes and Mester (2013) in using equity to total assets to control for differences in risk preferences.

We compute the price of labor as labor expenses over the number of employees. For the price of fixed assets, we use the ratio of non-labor administrative costs to fixed assets. The price of funds is computed as the ratio between interest expenses and total liabilities. Total cost is computed as the sum of these three components.

Since CESEE banking sectors are often fragmented, consisting of heterogeneous groups of larger, often foreign-owned banks, and smaller, often domestic banks, the distribution of banking sector assets is skewed, a feature more obvious in CESEE EU than in CESEE WB banks. We therefore provide separate results for small banks with average assets below EUR 250 million and larger banks.

[14] *This approach is different from the value added approach, which considers deposits as another output because they contribute to creating value added in the banking sector. Also, banks devote sizable resources to gather and manage deposits. See Berger et al. (1987) and Camanho and Dyson (2005).*

[15] *There is a long-standing discussion in the literature regarding the distinction between bank outputs and inputs. We adopt the intermediation approach of Sealey and Lindley (1977).*

[16] *A few studies that have estimated a cost function with the same inputs are Altunbas et al. (1999), Altunbas et al. (2001), Maudos et al. (2002), Altunbas et al. (2007), Feng and Serleis (2009), Fiordelisi et al. (2011), Boucinha et al. (2013) and Tsionas and Kumbhakar (2014). Altunbas et al. (2001) focus on five outputs, namely mortgage loans, public loans, other loans, aggregate securities and off balance sheet items.*

2.2.1 Efficiency and productivity

Traditional panel data econometric models often cannot separate individual heterogeneity from unobserved, time-invariant inefficiency, as the model will tend to include all time-invariant inefficiency into heterogeneity, captured by a single bank-specific effect (Greene, 2005).[17] However, inefficiency might be partly persistent and partly time-varying. In fact, persistent inefficiency is likely to be important in the banking industry because there are large sunk costs associated with starting a bank and it requires several years of deposit base formation to succeed in the business. Moreover, it tends to be very costly to restructure a bank (downsize the number of staff, merge the bank with another institution, etc.).

In this paper, we thus apply the generalized true random-effects (GTRE) model proposed by Kumbhakar et al. (2014) and applied for the euro area banking sector by Huljak et al. (2019). This model makes it possible to decompose the persistent bank-specific effect into a random bank-specific effect (capturing unobserved heterogeneity à la Greene, 2005) and a persistent technical inefficiency effect, originally developed by Colombi et al. (2011). More specifically, this model decomposes the error term of the stochastic cost function into four components, namely: (1) short-term (time-varying) inefficiency; (2) persistent (time-invariant) inefficiency; (3) a bank-specific effect, capturing heterogeneity across banks; and (4) a pure random component (Greene, 2005).[18]

This stochastic cost function can be written as follows:

$$lnTC_{it} = \alpha_0 + lnTC(y_{it}, w_{it}; \beta) + \psi_i + v_{it}^{+} + \eta_i^{+} + u_{it} \quad (1)$$

where α_0 is a constant, i refers to banks and t to time, TC_{it} represents total costs, $TC(y_{it},w_{it},\beta)$ is a function of outputs and input prices, y_{it} are outputs produced by bank i at time t, w_{it} are input prices, β is a vector of parameters, ψ_i and $\eta_i^{+}>0$ are a bank-specific effect and persistent (time-invariant) inefficiency, respectively. $v_{it}^{+}>0$ and u_{it} are residual inefficiency and the random error, respectively. Given that we include a bank-specific effect in this equation (ψ_i) we do not use environmental variables as additional explanatory variables for efficiency. Finally, *ln* denotes the natural logarithm.

The function $TC(y_{it},w_{it},\beta)$ represents the cost frontier while the sum of the constant (including the bank-specific effect), the function $TC(y_{it},w_{it},\beta)$ and the idiosyncratic error represent the stochastic frontier. The difference between total costs and the stochastic frontier is the measure of cost inefficiency.

Equation (1) can be rewritten as:

$$lnTC_{it} = \alpha_{0*} + lnTC(y_{it}, w_{it}; \beta) + \alpha_i + \epsilon_{it} \quad (2)$$

where $\alpha_{0*}=\alpha_0 + E(\eta_i^{+}) + E(v_{it}), \alpha_i = \psi_i + \eta_i^{+} - E(\eta_i^{+})$ and

$\epsilon_{it} = u_{it} + v_{it}^{+} - E(v_{it}^{+})$.

[17] *Berger (1993 and 1995) shows that bank-specific effects tend to include differences in bank size with inefficiency.*

[18] *Kumbhakar (1991), Kumbhakar and Heshmati (1995) and Kumbhakar and Hjalmarsson (1995) proposed models with three components, namely a firm effect capturing only persistent inefficiency, a random component capturing time-varying technical inefficiency and a pure random error. The problem with these studies is that part of the persistent inefficiency might include unobserved firm effects.*

To operationalize the calculation of the efficiency scores, we follow the three-step approach recommended by Kumbhakar et al. (2014): (1) We run the standard random-effects panel regression model to estimate β and to predict the values of α_i and ϵ_{it}. (2) We estimate the time-varying technical efficiency, υ_{it}^{+} using the predicted values of ϵ_{it} from the first step. In particular, for $\epsilon_{it} = u_{it} + \upsilon_{it}^{+} - E(\upsilon_{it}^{+})$, we apply standard stochastic frontier analysis (SFA) using maximum likelihood by assuming that u_{it} is i.i.d. $N(0,\sigma_{\mu}^{2})$ and υ_{it}^{+} is $N^{+}(0,\sigma_{\nu}^{2})$. (3) We apply a similar approach as in the second step for $\alpha_i = \psi_i + \eta_i^{+} - E(\eta_i^{+})$. In particular, we apply standard SFA cross-sectionally assuming that ψ_i is i.i.d. $N(0,\sigma_{\psi}^{2})$ and η_i^{+} is $N^{+}(0,\sigma_{n}^{2})$ in order to obtain estimates of the persistent technical inefficiency component η_i^{+}. Finally, overall technical efficiency is computed as the product of persistent technical efficiency and residual technical efficiency.

We use a trans-log cost function for $TC(y_{it},w_{it},\beta)$ with three inputs and two outputs, while including both a linear and a quadratic time trend[19] and the bank capital ratio to capture techological progress and risk considerations, respectively. As a result, equation (2) can be written as follows:

$$\begin{aligned} lnTC_{i,t} = {} & \alpha_0 + \sum_{h=1}^{2} \alpha_h lny_{h,i,t} + \sum_{j=1}^{3} \beta_j lnw_{j,i,t} + \tau_1 lnE_{i,t} + t_1 T \\ & + \frac{1}{2}\left[\sum_{h=1}^{2}\sum_{k=1}^{2} \delta_{hk} lny_{h,i,t} lny_{k,i,t} + \sum_{k=1}^{3}\sum_{j=1}^{3} \gamma_{kj} lnw_{k,i,t} lnw_{j,i,t} + \varphi_1 lnE_{i,t} lnE_{i,t}\right. \\ & \left. + t_{11} T^2\right] + \sum_{h=1}^{2}\sum_{j=1}^{3} \rho_{hj} lny_{h,i,t} lnw_{j,i,t} \\ & + \sum_{h=1}^{2} \omega_h lny_{h,i,t} lnE_{i,t} + \sum_{h=1}^{2} \varphi_h T lny_{h,i,t} + \sum_{j=1}^{3} \theta_j lnw_{j,i,t} lnE_{i,t} \\ & + \sum_{j=1}^{3} \vartheta_j T lnw_{j,i,t} + \psi_i + v_{it} + n_i + u_{it} \end{aligned} \tag{3}$$

where i denotes the cross-sectional unit and t denotes the time period, y_h $(h=1,2)$ is output, w_j $(j=1,2,3)$ are input prices, lnE_t is the natural logarithm of the capital ratio, and T is a time trend.

In order to guarantee linear homogeneity in factor prices, we assume the following:

$$\sum_{j=1}^{3} \beta_j = 1 ; \sum_{j=1}^{3} \gamma_{kj} = 0 \ \forall k; \sum_{j=1}^{3} \rho_{hj} = 0 \ \forall h \tag{4}$$

To implement linear homogeneity into the trans-log cost function, it is necessary and sufficient to apply the following standard symmetry restrictions:

$$\delta_{hk} = \delta_{kh} \ \forall h,k \text{ and } \gamma_{kj} = \gamma_{jk} \ \forall j,k \tag{5}$$

[19] *Maudos et al. (2002), Lensink et al. (2008) and Lozano-Vivas and Pasiouras (2010) did not include a trend in the cost function. This would assume that the frontier is constant over time and consequently all the productivity changes would be attributed to changes in cost efficiency or changes in economies of scale.*

Therefore, to impose linear homogeneity restrictions, we normalize the dependent variable and all input prices by the price of labor (w_1).[20]

We define TEC as the relative ability of a bank to convert inputs (financial capital, labor and fixed assets) into outputs (loans and investments), while minimizing costs.[21] The most efficient bank is the one that incurs the lowest cost while generating a given amount of output for given input prices.[22] Therefore, the efficiency results here are relative (to the best practice bank), rather than absolute.

For calculating other elements of TFP growth, we use the above-explained trans-log function as suggested by Huljak et al. (2019). In the first step, we calculate technological progress defined as the effect of time on total costs and compute it as the partial derivative of total costs with respect to time $(TPROG = \partial lnTC_h / \partial t)$.[23] In the next step, we calculate the effect of equity (our fixed input) change on costs defined as the shadow cost of equity times equity growth. The shadow cost of equity is computed as the partial derivative of the cost function with respect to the equity ratio and shows the cost savings associated with an increase in the equity ratio.[24] Finally, the fourth component of TFP growth is the scale effect, computed as the product between economies of scale and (weighted) output growth. This component captures the importance of operating at the optimal scale (Kumbhakar et al., 2015). Indeed, economies of scale are per se not enough to guarantee an increase in bank productivity. For a bank to benefit from economies of scale, it needs to deliver a higher amount of outputs. Economies of scale are typically computed as the inverse of the output cost elasticity based on the trans-log cost function. The output cost elasticity shows the sensitivity of total costs to changes in output (i.e., the sum of the partial derivatives of total costs with respect to each of the outputs; $E_{cy}=\sum_{h=1}^{2} \partial lnTC/(\partial lny_h)$.[25]

When estimating trans-log cost functions for large groups of banks, the question arises whether to estimate a common frontier for all banks or rather country-specific frontiers. The latter is usually justified when country-specific circumstances

[20] *The econometric results are according to expectations and are available upon request.*

[21] *Farrell (1957) pioneered the work on firm inefficiency and defined it as a waste of resources, measured by the ratio between minimal (derived from a benchmark firm) and observed production costs. This provided the groundwork for the future development of frontier methods.*

[22] *The quality of risk management is not included in this definition of cost efficiency although, empirically, more efficient banks are usually better risk managers as well.*

[23] *In particular, if technological progress is, say 1% per year, the most efficient banks in the euro area would record a 1% reduction in total costs per year, while providing the same amount of output and facing the same input prices.*

[24] *Hughes et al. (2001) emphasize that larger institutions tend to post a higher shadow cost of equity, potentially due to the underutilization of equity (i.e., they post lower equity relative to its cost-minimizing value) as a result of safety nets, like deposit insurance schemes or too-big-to-fail. Omitting the equity ratios from the cost function may result in biased efficiency estimates, since: (1) equity is a source of funding and should be considered a specific, quasi-fixed input; (2) the new regulatory regime requires higher capital requirements, influencing the production and cost profile of banks; and (3) holding more equity could lead to lower total costs, as creditors could reward better-capitalized banks by charging them lower interest on other liabilities (therefore, this cost reduction should not be confused with technical efficiency; see Hughes et al., 2001). Altunbas et al. (1999 and 2007) and Altunbas et al. (2001) estimate a trans-log cost function for European and German banks, respectively, but omit equity from the estimated equation. Other studies that include the equity ratio in the cost function are Maudos et al. (2002), Koetter and Poghosyan (2009), Fiordelisi et al. (2011) and Boucinha et al. (2013).*

[25] *If the output cost elasticity equals one, a unit increase in output will result in the same increase in total costs and therefore the average cost will remain unchanged. If the output cost elasticity is below (above) one, the average cost decreases (increases) with an increase in output. For the trans-log cost function that we use in this analysis, the output cost elasticity is observation-specific (i.e., it varies by bank and over time).*

affect the best-practice banks. However, estimating country-specific frontiers for most CESEE countries is almost impossible, given that there are not enough data for a meaningful estimation using the parametric approach.[26] Aditionally, the presence of a small number of Italian and Austrian banking groups in most of these countries additionally supports the single frontier approach.

2.2.2 Capacity utilization

When estimating capacity utilization, we follow Morisson (1985) and – at micro-level – Berndt and Fuss (1986) and calculate capacity utilization as a short-run cost function. This dual cost approach was also applied to the banking industry by Davis and Salo (1998) and Chaffai and Dietsch (1999). In this approach, potential output – also called capacity output – is the output at which the short-run average cost is tangent to the long-run average cost. We therefore modify our cost function to its short-run version, as presented in table 2.

From the short-run cost function, we derive the shadow price of the fixed input, according to the following formula:

$$w3_{sh} = \partial lnTC / \partial ln\mathrm{FI} \tag{6}$$

where $w3_{sh}$ is the shadow price of fixed input, *TC* is total cost and *FI* is the fixed input.

Provided that banks minimize costs, the shadow prices should be equal to the market prices of fixed input. However, if the shadow price of fixed assets ($w3_{sh}$) is lower than the observed price ($w3$) there is excess capacity. The rate of excess capacity is calculated the following way:

$$CU = \frac{\mathrm{VC+FI}*w3_{sh}}{\mathrm{VC+FI}*\mathrm{w3}} \tag{7}$$

where VC are variable costs (labor and funds), FC are fixed costs (non-labor administrative costs) and *w3* is the market price of fixed input.

Table 2

Short-run vs. long-run cost function

Trans-log function	Short run	Long run
Output	Loans and investments	Loans and investments
Variable input (implicit market prices)	Funds and labor	Funds, labor and fixed input
Fixed input (shadow prices)	Equity and fixed input	Equity and time

Source: Authors' compilation.

[26] *See Fiordelisi and Molyneux (2006) for a discussion on common versus country-specific frontier analysis. Our results are robust to removing single countries from the equation.*

3 Empirical results

In late 2019, the endpoint of the sample, banks in the CESEE EU countries had, on average, significantly larger balance sheets than banks in the CESEE WB countries. Banks in the two regions were, however, rather similar in terms of e.g. the loan-to-asset and customer deposit-to-asset ratios. The price of labor was significantly higher for CESEE EU banks whereas average costs were slightly higher for CESEE WB banks. Overall, the key structural features of banks in the two country groups were relatively similar at the end of the sample period.[27]

Based on the empirical approach described above, we estimate TFP growth in the CESEE EU and CESEE WB banking sectors, i.e., we estimate the growth in output not explained by input growth. Table 4 presents the different components of TFP growth in the two groups of countries over the period 2012–2019.

Table 3

Key structural features of CESEE EU and CESEE WB banks

		CESEE EU				CESEE WB			
(Data for end-2019)	Unit	Mean	Standard deviation	Min.	Max.	Mean	Standard deviation	Min.	Max.
Trans-log function									
Dependent variable									
Total costs	*EUR million*	124.8	229.8	0.4	2,134.8	28.9	36.8	2.0	491.1
Outputs									
Gross loans	*EUR million*	2,480.0	4,654.5	1.5	32,335.1	399.1	467.9	6.5	3,279.4
Other earning assets	*EUR million*	1,204.2	2,690.6	1.4	26,581.9	144.2	240.4	0.7	1,664.8
Prices									
Personnel costs per employee	*EUR 1,000*	26.9	9.1	10.3	55.1	15.8	4.8	6.4	37.4
Interest expenses to total liabilities	%	1.4	1.0	0.2	5.5	1.9	1.1	0.3	5.7
Other overheads to nonearning assets	*Index*	1.8	1.6	0.2	7.1	1.5	1.3	0.2	6.3
Semi-fixed input									
Total equity to total assets	%	10.7	3.5	4.3	19.1	15.7	5.7	7.1	32.7
Other indicators									
Total assets	*EUR million*	5,206.8	9,619.9	8,663.9	54,846.4	870.1	1,019.3	25.5	5,537.1
Loans to assets	%	57.0	14.8	20.1	92.8	61.5	12.5	24.0	89.1
Other earning assets to assets	%	32.7	14.9	4.5	75.8	21.2	12.3	2.8	61.9
Customer deposits to assets	%	89.9	12.7	13.3	99.7	86.8	9.6	63.3	97.8
Average cost	%	3.1	0.9	1.8	5.2	3.8	1.3	2.3	7.1

Source: Authors' calculations based on BankFocus.

Note: The price of labor is calculated as personnel expenses over the number of employees; the price of physical capital is calculated as the ratio of other overhead costs to nonearning assets; and the price of funds is computed as the ratio of interest costs to total liabilities.

[27] *These structural features were quite stable during the period under review.*

Table 4

TFP growth in the CESEE EU and CESEE WB banking sectors

	CESEE EU								
	2012	2013	2014	2015	2016	2017	2018	2019	Average
Median	*Median and average for groups in %*								
Scale effect	0.00	0.30	0.10	0.00	0.00	0.00	–0.10	–0.50	–0.03
Technical change	–1.10	–1.40	–1.20	–1.20	–1.80	–1.80	–1.40	0.20	–1.21
Efficiency change	0.10	0.00	0.30	–0.50	0.00	0.00	0.50	–1.40	–0.13
Equity effect	–0.10	–0.10	–0.10	0.00	0.00	0.00	–0.10	0.00	–0.05
TFP growth	**–1.10**	**–1.20**	**–0.90**	**–1.70**	**–1.80**	**–1.80**	**–1.10**	**–1.70**	**–1.41**
Small banks									
Scale effect	0.00	2.30	1.30	0.70	0.40	0.40	0.30	0.00	0.68
Technical change	0.50	0.80	0.70	1.20	1.10	1.10	1.30	1.70	1.05
Efficiency change	1.30	1.60	0.60	0.40	2.10	0.50	1.70	2.00	1.28
Equity effect	0.70	1.70	0.10	0.20	0.00	0.10	0.50	0.10	0.43
TFP growth	**2.50**	**6.40**	**2.70**	**2.50**	**3.60**	**2.10**	**3.80**	**3.80**	**3.43**
Large banks									
Scale effect	0.00	0.20	0.30	–0.20	0.00	–0.10	–0.20	–0.50	–0.06
Technical change	–1.70	–1.40	–1.60	–1.50	–1.70	–1.90	–1.90	–1.50	–1.65
Efficiency change	0.60	–0.50	0.60	–2.70	0.40	–0.70	0.60	–1.30	–0.38
Equity effect	–0.30	–0.50	–0.20	0.20	0.10	0.00	–0.30	–0.10	–0.14
TFP growth	**–1.40**	**–2.20**	**–0.90**	**–4.20**	**–1.20**	**–2.70**	**–1.80**	**–3.40**	**–2.23**

	CESEE WB								
	2012	2013	2014	2015	2016	2017	2018	2019	Average
Median	*Median and average for groups in %*								
Scale effect	0.30	0.40	0.30	0.10	0.50	0.40	0.50	0.50	0.38
Technical change	–0.40	–0.10	0.20	0.20	–0.20	–0.10	0.00	0.80	0.05
Efficiency change	0.90	0.60	0.30	–2.40	0.50	–0.20	0.60	–0.30	0.00
Equity effect	–0.10	0.10	0.00	0.10	0.00	0.00	–0.10	–0.10	–0.01
TFP growth	**0.70**	**1.00**	**0.80**	**–2.00**	**0.80**	**0.10**	**1.00**	**0.90**	**0.41**
Small banks									
Scale effect	2.20	1.90	0.80	1.20	1.90	1.30	1.30	1.10	1.46
Technical change	0.60	0.20	0.60	1.10	1.10	1.00	1.30	1.60	0.94
Efficiency change	2.30	3.30	0.70	2.80	1.50	0.00	0.40	1.90	1.61
Equity effect	0.60	0.60	0.30	0.20	0.20	0.00	0.30	0.20	0.30
TFP growth	**5.70**	**6.00**	**2.40**	**5.30**	**4.70**	**2.30**	**3.30**	**4.80**	**4.31**
Large banks									
Scale effect	0.90	0.50	0.50	0.40	0.60	0.40	0.70	0.50	0.56
Technical change	–1.10	–0.70	–0.40	–0.40	–0.50	–0.80	–0.80	–0.60	–0.66
Efficiency change	0.90	0.80	–0.90	–2.50	–0.30	–0.80	1.80	–0.40	–0.18
Equity effect	0.40	0.30	–0.10	0.20	0.10	–0.10	–0.10	–0.10	0.08
TFP growth	**1.10**	**0.90**	**–0.90**	**–2.30**	**–0.10**	**–1.30**	**1.60**	**–0.60**	**–0.20**

Source: Authors' calculations based on BankFocus data.

The TFP estimations for the two groups of countries show a rather different picture. Looking first at banks in the CESEE EU countries, TFP growth appears to be consistently negative during the observation period except for the small banks. These results are mainly due to negative technical change that is not countered with other elements of productivity change. These findings suggest that the subdued profitability of CESEE EU banks since 2012 may be at least partly due to relatively poor productivity growth.

The situation is different for banks in the CESEE WB countries. Overall TFP growth is mostly positive with TFP growth for the median bank amounting to 0.4% on average. Average TFP growth for large CESEE WB banks is only mildly negative and, for small banks, it is strongly positive. Looking in more detail at the various components, a positive scale effect is the largest contributor to positive TFP growth in the CESEE WB. This is not surprising, given that the larger banks in this region are still relatively small compared with their CESEE EU peers and considering that their growth of assets was generally faster.

The standard single equation methodology does not take into account the heterogeneity between banks. In reality, there are structural reasons why some banks are consistently more or less efficient. After including the latent bank heterogeneity, captured by new error term component, ψ_i, and distinguishing between persistent (structural, time-invariant) and residual (time-variant) inefficiency, the results are less unfavorable for CESEE EU banks. Table 5 reports the technical efficiency results for banks in the CESEE EU and CESEE WB countries, together with the estimation of persistent and residual efficiency.

In the CESEE EU countries, average persistent efficiency amounted to about 76.0%, while residual efficiency amounted to about 91.0% on average in 2019. These figures remained quite stable after 2013 and suggest that the median bank in the CESEE EU countries uses around 24% and 9% more resources due to permanent and time-varying factors, respectively, than a bank that operates at the efficiency frontier. Structural long-term factors (such as location, client structure, macroeconomic environment, regulation, etc.) thus seem to play a bigger (negative) role for bank efficiency in these countries than short-term effects. Overall bank efficiency, computed as the product of persistent (time-invariant) and residual (time-variant) efficiency, for the CESEE EU banking sector, was around 69% to 72% over the period 2013 to 2019.[28] In other words, our findings suggest that the median CESEE EU bank could produce the same level of output with around 69% to 72% of current costs if it would operate on the efficiency frontier. Again, there seem to be significant differences between the size classes, as the mean for small banks (75%) is considerably higher than for large banks (65%). In the CESEE WB countries, persistent efficiency amounted to about 79% on average, while the residual component amounted to about 92% on average. Also for these countries, the figures remained rather stable during the observation period. Overall bank efficiency for the CESEE WB median bank was around 73% on average, 3 percentage points closer to the efficiency frontier than banks in the CESEE EU countries. Like in CESEE EU banks, average overall efficiency for small banks is higher than for large institutions (75% vs. 69%; see table 5).[29]

[28] *These findings are broadly in line with those for US commercial banks (Feng and Serletis, 2009), Portuguese banks (Boucinha et al., 2013), German banks (Altunbas et al., 2001), a sample of European banks (Maudos et al., 2002), euro area banks (Huljak et. al., 2019) and large Chinese banks (Fungačova et. al., 2020). By contrast, Fiordelisi et al. (2011) find much lower efficiency scores for European commercial banks over the period 1995–2007 (between 37% and 59%).*

[29] *In both regions the equity effect is relatively small. However, this is not surprising since the equity-to-asset ratio was stable in the observed sample.*

Table 5

Efficiency broken down by bank size

	CESEE EU								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Median	*Median and average for groups in %*								
Persistent efficiency	82.4	82.4	78.0	77.5	77.0	75.6	75.9	75.2	76.0
Residual efficiency	92.0	91.9	91.9	92.3	91.6	92.0	92.5	93.6	91.0
Overall efficiency	**75.8**	**75.7**	**71.7**	**71.5**	**70.5**	**69.5**	**70.2**	**70.4**	**69.2**
Small banks									
Persistent efficiency	86.7	86.7	85.0	84.5	84.3	82.4	82.2	80.5	80.5
Residual efficiency	91.8	90.9	92.5	89.8	91.9	90.8	88.9	93.2	90.9
Overall efficiency	**79.6**	**78.8**	**78.6**	**75.9**	**77.5**	**74.8**	**73.0**	**75.1**	**73.2**
Large banks									
Persistent efficiency	78.7	79.0	73.5	73.4	73.6	73.0	73.7	73.0	73.2
Residual efficiency	91.9	91.5	91.2	91.7	90.7	91.6	92.1	92.6	90.0
Overall efficiency	**72.3**	**72.3**	**67.0**	**67.4**	**66.8**	**66.8**	**67.9**	**67.6**	**65.9**
	CESEE WB								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Median	*Median and average for groups in*								
Persistent efficiency	79.1	78.8	78.7	78.7	78.8	78.5	78.6	78.8	78.7
Residual efficiency	92.5	92.3	92.7	93.0	91.8	92.0	91.8	93.0	92.7
Overall efficiency	**73.1**	**72.7**	**73.0**	**73.2**	**72.4**	**72.3**	**72.1**	**73.3**	**72.9**
Small banks									
Persistent efficiency	80.9	80.9	81.6	82.3	81.9	82.1	82.5	82.3	82.3
Residual efficiency	91.8	90.9	92.5	89.8	91.9	90.8	88.9	93.2	90.9
Overall efficiency	**74.2**	**73.5**	**75.4**	**74.0**	**75.3**	**74.5**	**73.3**	**76.7**	**74.8**
Large banks									
Persistent efficiency	76.2	75.4	76.0	76.0	76.4	75.6	75.9	76.1	76.3
Residual efficiency	92.0	89.8	92.2	91.3	89.8	91.1	91.3	92.5	91.0
Overall efficiency	**70.0**	**67.7**	**70.0**	**69.4**	**68.7**	**68.9**	**69.3**	**70.4**	**69.4**

Source: Authors' calculations based on BankFocus data.

Note: The relative distance to the frontier for persistent and time-varying inefficiency is computed based on v_{it} and n_i, respectively (as described in equation 3).

To explain the differences in productivity growth between the two regions, we look also at capacity utilization, using the dual cost approach, where we define fixed input as nonearning assets. As expected, CESEE WB banks and in particular small banks in this region have a higher share of nonearning assets, around twice the share of banks in the CESEE EU countries. This is likely to be due to the more traditional banking business model of these banks, which is still primarily based on physical outreach. On the other hand, CESEE EU banks face higher market prices for fixed input. This may for example be connected with increases in real estate prices or increased investments in IT (to a certain extent driven by regulatory compliance).

The difference between the banks in the two regions also comes from the difference between market and shadow prices of fixed inputs. In CESEE WB banks, this difference remained relatively stable after 2015 as banks managed to increase the utilization of fixed input proportionally to its market price increase. By contrast, CESEE EU banks seem less able to increase the utilization of their fixed inputs in line with market price increases (see table 6).

Table 6

Capacity utilization

	CESEE EU								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Median	*Median and average for all groups in %*								
Fixed input to total assets	11.4	12.8	9.2	9.5	10.4	9.1	9.2	10.0	9.8
Market price of fixed input	16.8	12.4	14.2	14.5	12.6	13.1	12.0	12.5	13.8
Shadow price of fixed input	7.6	6.3	5.8	5.2	3.9	3.4	2.8	2.5	2.7
Market price – shadow price of fixed input	9.2	6.1	8.4	9.3	8.7	9.7	9.2	10.0	11.1
Capacity utilization	**79.9**	**85.5**	**84.3**	**79.3**	**74.3**	**70.0**	**65.7**	**60.5**	**62.4**
Small banks									
Fixed input to total assets	12.0	13.1	10.2	8.7	8.6	8.7	8.3	9.4	9.8
Market price of fixed input	22.3	18.4	18.1	21.0	23.2	20.3	20.5	20.4	19.0
Shadow price of fixed input	10.8	9.2	8.7	8.7	8.2	6.2	5.9	3.6	3.4
Market price – shadow price of fixed input	11.5	9.2	9.4	12.3	15.0	14.1	14.6	16.8	15.6
Capacity utilization	**82.8**	**83.7**	**80.6**	**78.3**	**70.5**	**66.5**	**66.0**	**56.9**	**56.7**
Large banks									
Fixed input to total assets	11.1	11.6	11.2	12.1	13.5	13.6	15.0	15.6	14.2
Market price of fixed input	20.0	17.1	18.5	15.4	14.1	14.0	13.2	13.2	13.9
Shadow price of fixed input	8.8	7.8	8.1	6.1	5.0	4.7	3.8	3.4	3.9
Market price – shadow price of fixed input	11.2	9.3	10.4	9.3	9.1	9.3	9.4	9.8	10.0
Capacity utilization	**81.1**	**82.7**	**79.3**	**74.2**	**70.9**	**68.8**	**63.1**	**61.0**	**63.7**
	CESEE WB								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Median	*Median and average for all groups in %*								
Fixed input to total assets	22.0	23.5	21.4	19.4	20.5	19.0	19.7	19.7	18.9
Market price of fixed input	10.4	10.0	9.9	9.5	10.3	10.0	9.8	8.7	9.3
Shadow price of fixed input	4.8	4.6	5.1	4.1	3.9	3.5	3.4	2.8	2.6
Market price – shadow price of fixed input	5.6	5.4	4.8	5.4	6.4	6.5	6.4	5.9	6.7
Capacity utilization	**83.8**	**82.7**	**83.4**	**80.7**	**73.0**	**70.8**	**69.9**	**70.0**	**65.3**
Small banks									
Fixed input to total assets	27.8	29.2	25.6	24.4	25.1	25.6	23.8	24.8	24.4
Market price of fixed input	19.6	16.7	14.2	11.6	11.9	12.0	12.3	10.9	11.0
Shadow price of fixed input	6.5	5.3	5.7	4.8	4.4	3.9	3.9	3.6	3.6
Market price – shadow price of fixed input	13.1	11.4	8.5	6.8	7.5	8.1	8.4	7.3	7.4
Capacity utilization	**67.5**	**68.0**	**73.3**	**77.6**	**73.3**	**67.2**	**66.2**	**66.5**	**65.9**
Large banks									
Fixed input to total assets	22.0	22.3	20.3	20.1	20.2	18.2	18.8	18.9	18.7
Market price of fixed input	13.2	11.3	10.6	11.6	11.9	12.4	12.4	10.0	10.1
Shadow price of fixed input	5.5	5.1	5.0	5.0	4.2	3.9	3.7	2.9	2.8
Market price – shadow price of fixed input	7.7	6.2	5.6	6.6	7.7	8.5	8.7	7.1	7.3
Capacity utilization	**76.0**	**78.1**	**80.9**	**75.7**	**69.2**	**66.1**	**63.3**	**64.1**	**61.8**

Source: Authors' calculations based on BankFocus data.

4 Conclusion

With this paper, we contribute to the empirical literature on CESEE banking sector performance by using techniques from industrial organization literature. In the first step, we use a single trans-log cost function to assess TFP growth in the two regions during the 2011–2019 period and find rather different productivity developments. To control for the heterogeneity between banks in our multi-country sample and to differentiate between persistent and residual inefficiency, we use the approach put forward by Kumbhakar et al. (2014) and the four-component error term already applied to banks by Huljak et al. (2019). Finally, we show the capacity utilization for both regions.

Our results show that if the median bank in the CESEE EU region were to operate on the efficiency frontier in 2019, it could produce the same level of output with around 69% of current costs. The level of technical efficiency in the CESEE WB banking sectors was higher, at around 73% in 2019. Bank inefficiencies stem equally from structural long-term factors as well as time-varying factors. These findings relate to a couple of structural and business model features of banking in the two CESEE subregions. CESEE WB banks typically operate on a significantly smaller scale. This requires larger amounts of labor and fixed assets to produce a unit of assets, which in turn increases average costs and the cost-to-income ratio. At the same time, CESEE WB banks typically have a relatively simple business model and rely more on a "brick and mortar" approach. Technically, they appear more efficient, possibly because smaller institutions are easier to manage, but also due to a catching-up effect, given that they generate far fewer assets per input used than CESEE EU banks. Compared with the results of Huljak et al. (2019) for the euro area, who found stable but positive TFP growth and higher efficiency scores, we derive somewhat smaller technical efficiency and only find a positive rate of technical change for smaller banks. However, lower efficiency scores could result from overall larger differences between banks in the still evolving CESEE banking sector compared with the more saturated euro area sector.

Being somewhat larger, CESEE EU banks generate more assets per unit of fixed input and labor. However, the prices of labor and fixed input for these banks are higher than for their CESEE WB peers and increasing. Since CESEE EU banks recorded lower growth in recent years, they failed to benefit from economies of scale. Also, the negative impact of technical change on productivity growth of these banks could be related to longer amortization periods for IT investments. Finally, the capacity utilization of CESEE EU banks is declining as the difference between the market price and the shadow price of fixed input is increasing. Lower capacity utilization is creating pressure on cost-to-income ratios.

In both regions, CESEE EU and CESEE WB, smaller banks record higher efficiency and higher TFP growth than larger ones due to a catching-up effect. In addition, there may be a "survival bias" – smaller banks facing higher pressure from fixed costs are more likely to leave the market or to be acquired by a larger institution.

The differences in productivity and capacity utilization between banks in the two regions suggest that they are facing differences in their operating environment. CESEE EU banks continue to reduce their fixed input share and are therefore decreasing excess capacity. In addition, these banks have faced a lot of compliance costs in recent years, which is often treated as other administrative costs and not

attributed to labor but fixed input. While CESEE banks continue to invest more in the digitalization of their business, it is also possible that cost reductions for members of foreign banking groups result from group-level cost optimization strategies. Digitalization efforts are usually long-term projects, and their benefits may not be visible yet whereas their costs immediately impact banks' profitability. Digitalization is also likely to increase competition among banks, which is likely to materialize faster in the CESEE EU than the CESEE WB banking sectors.

Based on these findings we provide some policy recommendations for banks in the CESEE region. CESEE WB banks have seemingly more favorable market positions, given that they face less competition, also from shadow banks and fintech companies. Looking forward, however, especially CESEE WB banks will need to make stronger efforts in the field of digitalization. Moreover, the pandemic is likely to have a significant negative impact on asset quality, and the EU accession process is likely to result in higher regulatory costs. Combined, these challenges require further efforts to move closer to the efficiency frontier in order to maintain profitability. CESEE EU banks appear to be further advanced in their digitalization efforts and have already dealt with all EU regulatory requirements in the past. At the same time, they also face the prospect of worsening asset quality due to the COVID-19 pandemic and they face tougher competition, including from shadow banks and fintech companies. Preserving and improving their productivity and hence their profitability will thus also be a key challenge in the years to come. In the coming years, banks – and banking supervisors – throughout the region will need to balance cost and income pressures resulting from necessary investments, declining asset quality, regulatory requirements and compressed interest rate spreads with the need to maintain prudent lending standards.

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Statistical annex

Statistical annex

This section provides tables detailing selected economic indicators for Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, Serbia and Ukraine, i.e. CESEE countries not covered in the "Recent economic developments and outlook" section.

Table 1

Output, unemployment and prices

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
Gross domestic product	*Annual real change in %*								
Albania	4.1	2.2	–3.3	4.2	0.0	–2.3	–10.6	–2.8	3.0
Bosnia and Herzegovina[1]	3.7	2.8	–4.3	3.4	1.9	2.3	–9.0	–6.3	–3.8
Kosovo	3.8	4.2	–3.9	4.4	3.9	1.3	–9.3	–7.3	0.7
Montenegro	5.1	4.1	–15.2	5.2	3.7	2.6	–20.3	–26.9	–7.6
North Macedonia	2.9	3.2	–4.5	3.6	3.3	0.9	–14.9	–3.3	–0.7
Serbia	4.5	4.2	–1.0	4.9	6.3	5.2	–6.2	–1.4	–1.1
Ukraine	3.4	3.2	–4.0	3.8	1.4	–1.2	–11.2	–3.5	–0.5
Industrial production	*Annual real change in %*								
Albania	18.7	–1.1	–6.3	2.1	14.9	–1.6	–22.6	–3.1	3.2
Bosnia and Herzegovina[2]	1.6	–5.3	–6.4	–5.7	–6.9	–4.0	–14.0	–7.0	–0.5
Kosovo	2.4	4.7	10.1	7.9	4.7	4.1	19.8	6.7	8.4
Montenegro	22.4	–6.3	–1.0	0.1	–1.6	12.8	–15.9	–2.8	0.6
North Macedonia	5.4	3.7	–9.6	7.2	–1.3	–3.7	–25.0	–7.5	–2.3
Serbia	1.3	0.3	0.4	2.0	3.3	4.2	–7.7	3.4	1.7
Ukraine	3.0	–0.5	–4.5	1.1	–5.1	–4.3	–10.8	–3.5	0.4
Average gross wages – total economy	*Annual change in %*								
Albania	3.1	3.8	2.7	3.7	2.2	3.3	2.9	1.8	2.8
Bosnia and Herzegovina	3.1	4.3	4.0	4.5	4.3	4.7	3.6	3.9	3.7
Kosovo	5.1	5.3	2.3	..	..	..	..	..	..
Montenegro	0.1	0.8	1.3	1.0	1.3	2.2	1.2	1.1	0.8
North Macedonia	5.8	5.1	8.3	5.3	5.7	11.4	5.7	9.1	7.3
Serbia	4.0	10.5	9.5	10.8	11.9	10.4	8.7	9.5	9.3
Ukraine	24.8	18.5	10.4	18.4	16.3	14.3	4.0	9.5	13.9
Unemployment rate[3]	%								
Albania	12.8	12.8	12.0	11.8	11.6	11.9	12.5	12.1	12.3
Bosnia and Herzegovina	18.9	18.9	16.4	..	..	17.0	16.3	14.5	16.9
Kosovo	29.5	29.5	25.7	24.5	25.9	25.0	27.2	24.6	..
Montenegro	15.5	15.5	15.4	15.6	16.1	16.6	15.7	19.6	21.5
North Macedonia	21.0	21.0	17.5	17.3	16.8	16.4	16.9	16.7	16.3
Serbia	13.3	13.3	10.9	10.0	10.2	10.2	7.7	9.5	10.5
Ukraine	9.1	9.1	8.6	7.6	9.2	8.9	10.3	9.9	10.5
Consumer price index	*Period average, annual change in %*								
Albania	2.0	1.4	1.6	1.4	1.3	1.6	1.9	1.4	1.6
Bosnia and Herzegovina	1.4	0.6	–1.1	0.4	0.2	0.4	–1.6	–1.4	–1.6
Kosovo	1.1	2.7	0.2	2.6	1.7	1.1	0.2	–0.3	–0.1
Montenegro	2.6	0.4	–0.3	–0.3	0.7	0.8	–0.7	–0.3	–0.8
North Macedonia	1.5	0.8	1.2	0.6	0.1	0.6	0.5	1.5	2.2
Serbia	2.0	1.9	1.6	1.3	1.4	1.8	1.0	1.9	1.6
Ukraine	11.0	7.9	2.7	8.5	5.2	2.6	2.1	2.4	3.8

Source: Eurostat, Macrobond, national statistical offices, wiiw.

[1] *Expenditure-side data.*
[2] *Value added in the national accounts.*
[3] *Labor force survey.*

Table 2

External accounts

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
Trade balance	*% of GDP*								
Albania	–22.4	–23.0	–23.0	–23.5	–24.5	–21.5	–21.1	–23.8	–25.0
Bosnia and Herzegovina	–22.5	–22.6	–18.6	–21.0	–22.3	–19.9	–17.9	–18.3	–18.3
Kosovo	–40.7	–40.1	–37.8	–38.6	–41.7	–40.4	–34.1	–36.9	–39.9
Montenegro	–43.9	–41.7	–39.1	–34.6	–40.2	–46.4	–44.8	–34.1	–34.3
North Macedonia	–16.2	–17.6	–16.8	–15.2	–20.4	–20.9	–15.1	–14.5	–16.6
Serbia	–11.9	–12.2	–11.2	–10.8	–14.5	–14.4	–9.3	–10.2	–11.1
Ukraine	–9.8	–9.2	–4.2	–10.1	–9.4	–4.8	–1.7	–5.1	–4.9
Current plus capital account balance	*% of GDP*								
Albania	–5.9	–7.4	–7.8	–4.5	–9.3	–6.8	–11.4	–4.6	–8.4
Bosnia and Herzegovina	–2.4	–2.2	–2.3	0.1	–2.6	–3.0	–2.2	–2.8	–1.2
Kosovo	–7.7	–5.8	–6.8	7.5	–14.1	–4.8	–8.7	–5.3	–8.1
Montenegro	–17.0	–15.0	–26.0	14.6	–27.0	–35.1	–35.7	–17.9	–19.6
North Macedonia	0.0	–3.2	–3.4	5.8	–9.7	–6.0	–3.8	–1.9	–2.3
Serbia	–4.9	–7.1	–4.3	–5.0	–9.6	–8.9	–2.9	–4.1	–1.7
Ukraine	–4.9	–2.6	4.1	–8.4	3.2	6.4	6.3	1.2	3.2
Foreign direct investment[1]	*% of GDP*								
Albania	–8.0	–7.6	–6.9	–7.2	–7.2	–7.3	–7.2	–6.5	–6.5
Bosnia and Herzegovina	–3.0	–2.0	–1.9	–0.9	0.6	–2.9	–1.9	–1.1	–1.8
Kosovo	–3.4	–2.7	–4.2	–3.7	–1.3	–6.7	–3.7	–3.2	–3.5
Montenegro	–6.9	–6.2	–11.2	–2.4	–6.2	–14.6	–13.9	–7.1	–10.5
North Macedonia	–5.6	–3.2	–1.9	–2.9	–6.4	–5.2	0.3	0.3	–2.8
Serbia	–7.4	–7.7	–6.2	–7.4	–7.7	–7.2	–5.7	–2.4	–9.5
Ukraine	–3.4	–3.4	0.6	–4.5	–2.0	4.6	–3.8	0.2	1.2
Gross external debt	*End of period, % of GDP*								
Albania	65.1	60.4	65.8	61.2	60.4	60.2	68.3	68.4	65.8
Bosnia and Herzegovina	66.0	63.4	65.4	64.6	63.4	62.4	64.9	64.0	65.4
Kosovo	30.3	30.7	37.2	30.7	30.8	31.1	33.0	35.2	37.2
Montenegro	164.7	167.9	..	..	..	..	..	..	..
North Macedonia	73.0	72.7	80.2	77.1	72.7	73.7	81.1	84.7	80.2
Serbia	83.0	82.7	86.4	84.5	82.7	82.5	86.9	86.2	86.4
Ukraine	90.1	78.1	75.8	83.5	78.1	76.4	77.1	75.6	75.8
Reserve assets excluding gold	*Period average, annual change in %*								
Albania	26.0	23.7	29.3	24.7	23.7	23.5	30.8	30.9	29.3
Bosnia and Herzegovina	34.1	34.8	40.0	35.1	34.8	34.5	36.8	38.0	40.0
Kosovo[2]	11.4	12.2	13.2	15.2	12.2	11.9	13.0	13.0	13.2
Montenegro	22.5	26.6	41.0	17.9	27.2	18.6	25.2	24.3	41.0
North Macedonia	24.4	26.4	28.0	25.4	26.4	23.9	30.4	29.1	28.0
Serbia	24.5	26.2	25.2	27.6	26.2	24.9	26.7	24.5	25.2
Ukraine	15.6	15.4	16.6	14.3	15.4	15.0	17.1	15.5	16.6

Source: National central banks, national statistical offices, wiiw.

[1] *+ = net accumulation of assets larger than net accumulation of liabilities (net outflow of capital).*
– = net accumulation of assets smaller than net accumulation of liabilities (net inflow of capital).

[2] *Reserve assets (including gold).*

Table 3

Banking sector indicators

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
Bank loans to the domestic nonbank private sector	*End of period, annual change in %*								
Albania[1]	–0.3	6.9	5.9	6.5	6.9	6.2	4.9	4.0	5.9
Bosnia and Herzegovina[1]	5.7	6.7	–2.5	6.1	6.7	3.6	0.4	–0.5	–2.5
Kosovo	10.9	10.0	7.1	10.3	10.0	9.2	6.4	6.4	7.1
Montenegro	9.6	6.8	3.0	6.2	6.8	5.6	7.1	7.3	3.0
North Macedonia[1]	6.4	5.2	4.3	4.7	5.2	4.6	5.7	7.1	4.3
Serbia[1]	8.4	8.1	10.9	8.7	8.1	9.6	12.4	14.0	10.9
Ukraine[1]	6.5	–3.6	–10.5	–3.9	–3.6	–2.4	–3.9	–7.8	–10.5
Share of foreign currency loans[2]	*End of period, %*								
Albania	50.4	48.8	48.3	49.8	48.8	50.6	49.4	48.0	48.3
Bosnia and Herzegovina	59.0	52.6	52.2	52.7	52.6	52.1	52.2	52.0	52.2
Kosovo	..	..	..	..	..	..	..	..	..
Montenegro[3]	5.7	3.1	..	3.4	3.1	2.7	2.9	2.8	..
North Macedonia	40.4	41.5	41.5	41.3	41.5	41.4	41.3	41.4	41.5
Serbia[4]	66.3	66.1	62.1	65.9	66.1	66.1	64.8	62.8	62.1
Ukraine	42.9	37.0	37.1	37.7	37.0	39.8	39.0	38.2	37.1
NPL ratio	%								
Albania	11.1	8.4	8.1	10.6	8.4	8.2	8.1	8.3	8.1
Bosnia and Herzegovina	8.8	7.4	6.1	7.7	7.4	6.6	6.7	6.6	6.1
Kosovo	2.7	2.0	2.7	2.3	2.0	2.5	2.6	2.7	2.7
Montenegro	6.7	4.7	5.5	4.7	4.7	5.1	5.3	5.6	5.5
North Macedonia	4.8	3.8	3.2	4.1	3.8	4.0	4.4	3.4	3.2
Serbia	5.7	4.1	3.7	4.7	4.1	4.0	3.7	3.4	3.7
Ukraine	52.9	48.4	41.0	48.9	48.4	48.9	48.5	45.6	41.0
Tier 1 capital ratio	%								
Albania	17.0	17.1	17.2	17.6	17.1	17.9	17.0	17.5	17.2
Bosnia and Herzegovina	16.5	17.5	18.1	17.1	17.5	16.7	17.3	17.3	18.1
Kosovo[5]	17.0	15.9	16.5	16.5	15.9	15.1	16.7	16.9	16.5
Montenegro[5]	15.6	17.7	18.5	17.7	17.7	17.4	19.6	19.3	18.5
North Macedonia	15.0	14.8	15.3	15.4	14.8	15.0	15.5	15.5	15.3
Serbia	21.1	22.4	21.6	22.5	22.4	21.9	21.8	21.5	21.6
Ukraine	10.5	13.5	15.7	13.1	13.5	13.0	15.8	16.1	15.7

Source: National central banks.

[1] *Foreign currency component at constant exchange rates.*
[2] *In total loans to the nonbank private sector. As far as available, including loans indexed to foreign currencies.*
[3] *Share in total loans to all sectors.*
[4] *Including securities.*
[5] *Overall capital adequacy ratio.*

Table 4

Monetary and fiscal policy indicators

	2018	2019	2020	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
Key interest rate	*End of period, %*								
Albania (one-week repo rate)	1.0	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5
Bosnia and Herzegovina[1]	..	..	..	..	..	..	..	..	..
Kosovo[1]	..	..	..	..	..	..	..	..	..
Montenegro[1]	..	..	..	..	..	..	..	..	..
North Macedonia (28/35-day central bank bills)	2.5	2.3	1.5	2.3	2.3	2.0	1.5	1.5	1.5
Serbia (one-week repo rate)	3.0	2.3	1.0	2.5	2.3	1.8	1.3	1.3	1.0
Ukraine (discount rate)	18.0	13.5	6.0	16.5	13.5	10.0	6.0	6.0	6.0
Three-month interbank rate	*Period average, %*								
Albania	1.8	1.4	1.5	1.5	1.5	1.5	1.5	1.4	1.4
Bosnia and Herzegovina	..	..	..	..	..	..	..	..	..
Kosovo	..	..	..	..	..	..	..	..	..
Montenegro	..	..	..	..	..	..	..	..	..
North Macedonia	1.5	1.5	1.4	1.5	1.5	1.4	1.4	1.4	1.4
Serbia	3.0	2.5	1.2	2.3	1.8	1.6	1.2	1.0	1.0
Ukraine	13.7	14.8	10.0	15.0	14.8	12.6	11.0	8.4	8.1
Exchange rate	*Period average, national currency per EUR*								
Albania	127.6	123.0	123.8	121.6	122.7	122.8	124.5	123.9	123.8
Bosnia and Herzegovina	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Kosovo	..	..	..	..	..	..	..	..	..
Montenegro	..	..	..	..	..	..	..	..	..
North Macedonia	61.5	61.5	61.7	61.5	61.5	61.6	61.7	61.7	61.7
Serbia	118.3	117.9	117.6	117.7	117.5	117.6	117.6	117.6	117.6
Ukraine	32.1	28.9	30.8	28.1	26.8	27.6	29.6	32.3	33.7

	2018	2019	2020	2018	2019	2020
	General government balance			General government debt		
	End of period, % of GDP					
Albania	–1.6	–2.0	–6.3	64.9	63.9	78.8
Bosnia and Herzegovina	2.2	1.9	–4.0	34.2	32.8	38.5
Kosovo	0.4	1.0	–2.0	16.3	16.9	21.9
Montenegro	–3.9	–1.9	–8.8	70.0	76.5	87.3
North Macedonia	–1.8	–2.0	–8.7	40.4	40.7	51.7
Serbia	0.6	–0.2	–8.9	54.4	52.9	61.5
Ukraine	–1.9	–2.2	–5.3	60.9	50.2	60.8

Source: European Commission (Ameco), Macrobond, national central banks, wiiw.

[1] *No policy rate available (unilateral euroization or currency board).*

Conventions used

.. = data not available.

Discrepancies may arise from rounding.