

# FOCUS ON EUROPEAN ECONOMIC INTEGRATION

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<b>Publisher and editor</b>	Oesterreichische Nationalbank Otto-Wagner-Platz 3, 1090 Vienna PO Box 61, 1011 Vienna, Austria <a href="http://www.oenb.at">www.oenb.at</a> <a href="mailto:oenb.info@oenb.at">oenb.info@oenb.at</a> Phone (+43-1) 40420-6666
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<b>Design</b>	Information Management and Services Division
<b>Printing and production</b>	Oesterreichische Nationalbank, 1090 Vienna
<b>Data protection information</b>	<a href="http://www.oenb.at/en/dataprotection">www.oenb.at/en/dataprotection</a>

**ISSN 2310-5291 (online)**

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## Economic trends and outlook

# Economic trends in CESEE

Unexpected resilience to the war in Ukraine but economic cooling is visible on the horizon<sup>1, 2, 3</sup>

## 1 Regional overview

It has now been more than eight months since Russia invaded Ukraine on February 24, 2022. This has already profoundly altered the political, economic and security situation in Europe. While the outlines of a new equilibrium have yet to emerge, a return to the status quo is becoming more and more inconceivable.

### War as a turning point for the European economy

In the medium term, the war could spark substantial structural shifts in the world economy. The decoupling from the Russian economy will impact trade and global value chains. Russia was – at least before the war – the 11<sup>th</sup>-largest economy world-wide in terms of GDP at current USD and an important provider of energy and other commodities. Trends toward fragmentation in world trade will amplify. Those trends have been around for some time already and made renewed headlines during the Trump administration and later during the COVID-19 pandemic, when governments around the globe discussed possibilities of near-shoring and strategic autonomy. Russia's invasion of Ukraine will also fragment the world monetary system as the weaponization of finance threatens to erode the US dollar's role as the world's dominant currency. The fragmentation of world trade and of the world monetary system could pave the way for two economic blocs – one aligned with the US and the other with China –, putting a brake on the free flow of goods, capital and ideas that characterized much of the past decades. In any case, basing a growth model on a deep economic integration of authoritarian regimes needs serious reconsideration. For Europe and the economies of Central, Eastern and Southeastern Europe (CESEE), this reconsideration implies an end to relying on Russian energy on the one hand. On the other hand, it implies the need to reduce the central importance of China for European value chains – both in terms of final demand for European produce and as a provider of important inputs.

All these considerations have direct implications for the highly open CESEE economies that based their economic success on an ever-deeper integration into the world economy over the past three decades, guided by liberal principles of openness and international exchange. Aside from basic economic parameters, the political narrative across the EU has also changed profoundly. Political discussions in the years to come will strongly revolve around defense capabilities, decarbonizing the economy and Western unity but also around the reach of great powers on infrastructure development, investments and political players in certain parts of CESEE. Yet, CESEE countries are in many ways also driving forces behind the coordinated European response to the war in Ukraine. This will likely give them a bigger say in

<sup>1</sup> Compiled by Josef Schreiner with input from Katharina Allinger, Stephan Barisitz, Mathias Lahnsteiner, Thomas Reiningner, Thomas Scheiber, Tomáš Slačák and Zoltan Walko.

<sup>2</sup> Cut-off date: October 14, 2022. This report focuses primarily on data releases and developments from April 2022 up to the cut-off date and covers Slovakia, Slovenia, Bulgaria, Croatia, Czechia, Hungary, Poland, Romania, Türkiye and Russia. The countries are ranked according to their level of EU integration (euro area countries, EU member states and non-EU countries).

<sup>3</sup> All growth rates in the text refer to year-on-year changes unless otherwise stated.

European decision-making in the future, shifting some political leverage from the West to the East. Finally, geopolitical and security considerations will without doubt gain more influence on economic decision-making in the years to come.

### **Invasion brought about several unexpected consequences**

In the short term, it has once again become apparent that the course and the consequences of a war are largely unpredictable. Many things in and surrounding the war turned out differently than initially expected. Most importantly, Ukraine still exists as an independent country. Since late summer, the tide has been turning even more in favor of the Ukrainian troops: The Russian army had to stop its advances, retreated from several strategically important positions and ceased control over large swaths of land. Yet, the politics and the rhetoric off the battlefield keep on escalating.

### **Russian economy initially proved largely resilient to sanctions**

The initial resilience of the Russian economy came as a surprise. The international sanctioning regime imposed on the country as a response to the invasion caused little more than a short-lived stir in Russian markets. A mix of clever macrofinancial management, a positive terms-of-trade shock and large gaps in the sanction packages kept the Russian economy largely afloat until early summer.

After depreciating by some 40% against the US dollar within the first week after the invasion, the Russian ruble recovered rather quickly. It was buoyed by a huge hike in the Russian key policy rate (from 9.5% to 20%), several measures targeted at the foreign exchange market (including the obligation of exporters to sell large parts of foreign exchange receipts) and a large current account surplus. Russia's current account surplus swelled to a whopping 16.3% of GDP in the first half of 2022, as (1) energy exports from Russia remained largely unsanctioned during the review period – at least on the part of the EU –, (2) energy prices rose strongly, (3) Russia managed to increase commodity exports to some big emerging markets (i.e. China and India) and (4) Russian imports plummeted due to Western trade restrictions. As a result, the ruble was 20% more expensive than prior to the invasion in early October 2022, and capital controls could be eased (see chart 1).

Chart 1

#### **Russia: exchange rate and policy rate**



Source: Macrobond.

The ruble's recovery and subdued domestic demand brought back consumer price growth from its peak of 17.8% in April to 14.3% in September and allowed Russia's central bank to reduce its policy rates to 7.5% in mid-September, back to its level of November 2021.

Yet, the war and the sanctions did impair growth: In the second quarter of 2022, the Russian economy shrank by 4.1% year on year. However, the economic contraction two years earlier, i.e. at the height of the COVID-19 pandemic, was way more severe (−7.4% year on year). Especially private consumption suffered from weak sentiment, high inflation, tightening financing conditions and broader economic uncertainty. At the same time, gross fixed investment held up comparatively well and net exports presumably contributed strongly to economic dynamics. Furthermore, budgetary balances are increasingly burdened by a combination of ruble appreciation, declining import tax revenues and a sizable spending increase; and the fiscal surplus has already narrowed substantially in recent months. Sanctions will start to bite more strongly in the medium term, as more and more sectors of the Russian economy are running out of vital Western supplies and as sanctions are set to become more binding in the coming months (e.g. with respect to the planned EU embargo on Russian tanker-transported oil from late 2022 onward).

### Most other CESEE countries are weathering the storm reasonably well too

In the face of the biggest geopolitical disruption in Europe since the second world war, most other CESEE economies did surprisingly well. Growth moderated somewhat throughout the first half of the year but remained by and large solid in most countries. Second quarter readings – i.e. for the first full quarter after the start of the war – even beat expectations in several cases (see table 1).

Pandemic-related legacies, such as pent-up demand and abundant deposits, mobility normalization, substantial corporate financial surpluses as well as tight labor markets, shielded CESEE countries from some of the effects of faltering external demand, of deteriorating sentiment and of energy market disruptions on output growth (see chart 2).

Table 1

### Real GDP growth

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Period-on-period change in %</i>									
Slovakia	2.6	−4.4	3.0	−1.4	1.8	0.4	0.4	0.4	0.5
Slovenia	3.5	−4.3	8.2	1.6	1.9	1.4	5.2	0.7	0.8
Bulgaria	4.0	−4.4	4.2	1.7	1.0	1.0	1.2	0.9	0.8
Croatia	3.5	−8.1	10.2	5.9	1.0	1.8	1.1	2.8	2.0
Czechia	3.0	−5.5	3.5	−0.5	1.4	1.7	0.8	0.6	0.5
Hungary	4.9	−4.5	7.1	1.2	2.6	1.1	2.3	1.8	1.1
Poland	4.7	−2.2	5.9	1.4	2.0	2.6	1.8	2.5	−2.1
Romania	4.2	−3.8	6.0	1.1	3.2	−2.9	1.0	5.1	2.1
Türkiye	0.8	1.9	11.4	2.6	2.0	2.7	1.6	0.7	2.1
Russia	2.2	−2.7	4.7	1.6	2.6	−0.9	0.5	−0.3	−1.9
CESEE average <sup>1</sup>	2.5	−2.2	6.9	1.7	2.3	0.6	1.1	0.8	−0.4
Euro area	1.6	−6.1	5.2	−0.1	2.0	2.2	0.5	0.7	0.8

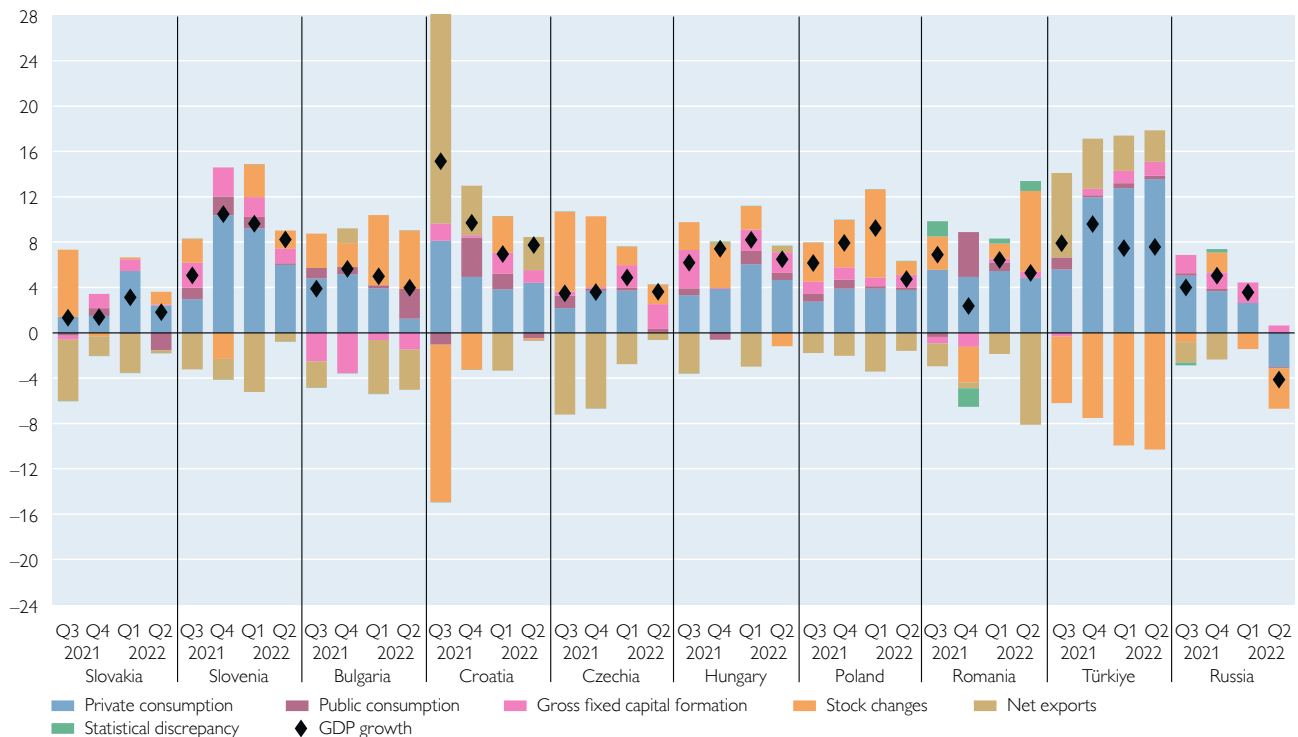
Source: Eurostat, national statistical offices.

<sup>1</sup> Average weighted with GDP at PPP.

Chart 2

## GDP growth and its main components

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



Source: Eurostat, national statistical offices.

## Labor markets performed better than in the pre-pandemic period

Labor market developments deserve special attention. Labor markets not only fully recovered from the lockdown-induced disruptions of 2020 and 2021, but they performed better than in the pre-pandemic period in many ways. The average unemployment rate in the CESEE EU member states declined to 3.6% in August 2022, on a par with the December 2019 reading. A broader measure of the labor market slack – i.e. the share of persons with an unmet need for employment<sup>4</sup> in the extended labor force – even beat its end-2019 reading by a full 0.4 percentage points. At 6.3% in the second quarter of 2022, it reached the lowest level since the start of the time series in 2009. At the same time, trends in employment rates and activity rates were also favorable, with both rising to close to or even above historical heights in the second quarter of 2022.

Labor markets are again becoming very tight, and companies are reporting rising labor shortages, especially in services but also in manufacturing and construction. Thus, problems with insufficient labor supply amid skill mismatches and labor market bottlenecks, which have plagued CESEE labor markets for many years, again came to the fore and resulted in robust nominal wage growth. Despite deteriorating economic sentiment and a dim outlook, wage growth accelerated to an

<sup>4</sup> 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.



average of 9.3% in the second quarter of 2022, with Bulgaria, Hungary, Poland and Romania reporting wage advances firmly in the double digits.

### **Fixed capital formation still strong, but inventory cycle is turning**

Private consumption was the main pillar of output dynamics, but fixed capital formation also contributed positively to growth in many countries. While nominal financing conditions tightened notably throughout CESEE, real interest rates remained firmly in the negative and high profitability provided sources for internal financing. Investments were channeled mainly into new machinery, as capacity utilization stood some 3 percentage points above its long-term average and possibly also in an effort to save (increasingly scarce) labor. At the same time, the inventory cycle turned. Throughout most of the pandemic, inventories were built up as lingering supply chain issues delayed the completion and sale of semifinished industrial goods and companies stocked up on vital supplies whenever they were available on international markets. As supply chain pressures started to ease in spring, stock changes only moderately lifted growth in mid-2022, if at all. In Poland, for example, stock changes were solely responsible for the marked slowdown in annual output growth observed in the second quarter.

### **Unclogging of supply chains and currency depreciation sustain export growth**

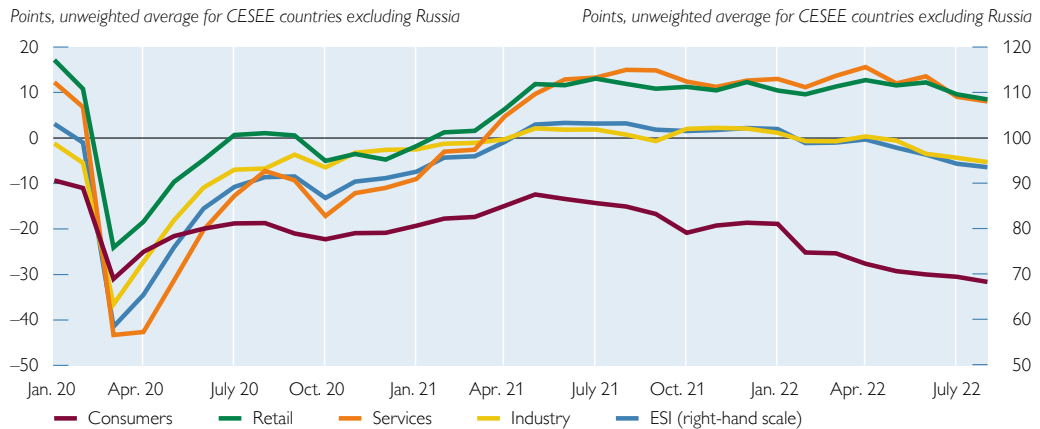
The unclogging of supply chains amid order backlogs from the past and currency depreciation helped sustain export growth despite the incipient moderation in global economic momentum. Real export growth accelerated modestly from the first to the second quarter of this year throughout the region, especially in countries with strong tourist arrivals. In Türkiye and Croatia, for example, tourist arrivals in the second quarter of 2022 were about twice as high as in the previous year. At the same time, import growth continued unabated, reflecting robust domestic demand. On balance, the external sector's contribution to real GDP growth improved somewhat in the second quarter of 2022. However, it only lifted growth notably in Croatia and Türkiye.

### **Resilience to the fallout from the war is gradually weakening**

Looking forward, high-frequency data signal that resilience to the fallouts from the war in Ukraine is gradually weakening.<sup>5</sup> Industrial production growth has been declining steadily since spring 2022. In July, it reached its lowest point so far this year at an average of 5.5% in the CESEE EU member states (3.1% in Türkiye). Almost all manufacturing sectors have been affected by the downturn recently, especially the export-oriented industries that depend on raw materials and imported components and industries with a high dependence on fossil energy carriers. This trend is expected to continue, as forward-looking surveys in CESEE fell to new lows in September 2022. In Poland, Czechia and Türkiye, for example, purchasing managers' indices moderated to levels last seen at the height of the COVID-19 pandemic in spring 2020. The decline was driven by weaker order intake, higher input prices and deteriorating future output expectations, while supplier delivery times again

<sup>5</sup> For the OeNB's most recent forecast, please consult *Outlook for selected CESEE countries and Russia* in this issue of *Focus on European Economic Integration*.

Chart 3

**Economic sentiment indicator and subcomponents**

Source: European Commission.

embarked on an upward path. The accumulated order backlog, by contrast, has largely returned to pre-pandemic levels.

Consumer sentiment has also been declining over the past months, reflecting rising economic uncertainty amid strong inflation and the associated downward pressure on real wages and purchasing power. While overall economic sentiment as measured by the European Commission's economic sentiment indicator declined by an average of 8.6 points between January and September 2022, consumer sentiment was lower by a full 13 points (see chart 3). Consumer sentiment in September 2022 was even weaker than at the height of the COVID-19 pandemic in March 2020. This stands in stark contrast to the rather moderate deterioration in retail and services sentiment (−3.8 and −4.6 points, respectively).

Annual retail sales growth in September 2022 was only a third of its January 2022 reading and amounted to an average of 4.3% in the CESEE EU member states and 2.8% in Türkiye. This represents the worst performance since early-2021, a time when pandemic restrictions were in full force. Retail sales growth is increasingly driven by daily necessities, while sales of durable goods and fuels are weakening. At the same time, the pent-up demand created by the pandemic now appears to have been used up.

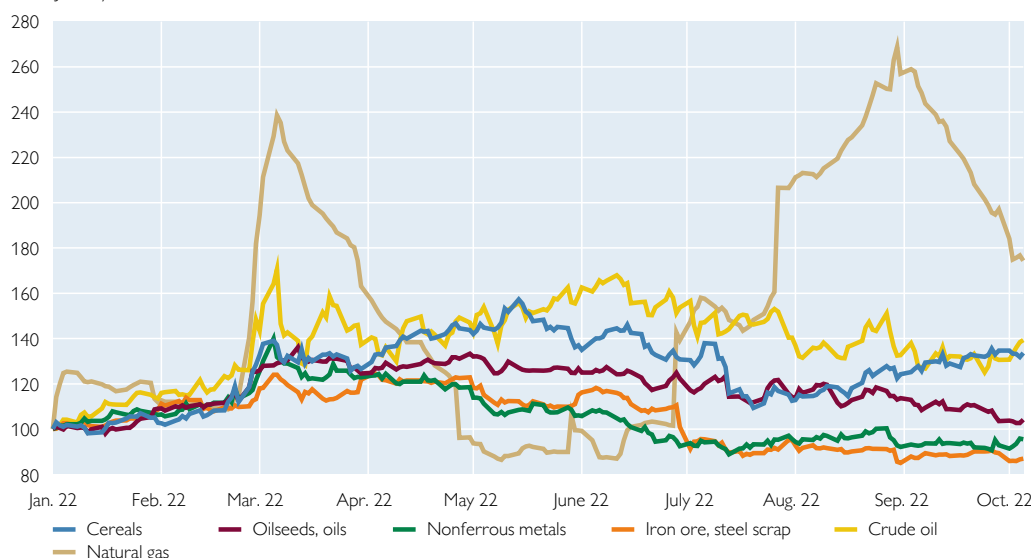
**War is disrupting international commodity markets**

While – as mentioned above – some events triggered by the war did not turn out as expected, some other events unfortunately did. This applies in particular to the amount of human suffering and the humanitarian crisis that unfolded after February's events. On the economic front, the war tore Ukraine's economy into pieces (see box 1) and sent shock waves across the global economy. The latter applies in particular to oil, gas and food markets, where Russia and/or Ukraine were important suppliers to the global economy in the past. Prices skyrocketed and, in many instances, reached historically high levels against a combination of reduced supplies, efforts to isolate Russia from the world markets, constant saber rattling and the associated high uncertainty. Undoubtedly, commodity supplies were used as a strategic weapon to test the West's resolve in its support for Ukraine and to impose a heavy toll on Europe's political system and economy if it chooses to stand with Ukraine.

Chart 4

### Price developments for selected commodities

Index: January 3, 2022 = 100



Source: Hamburg Institute of International Economics (HWWI).

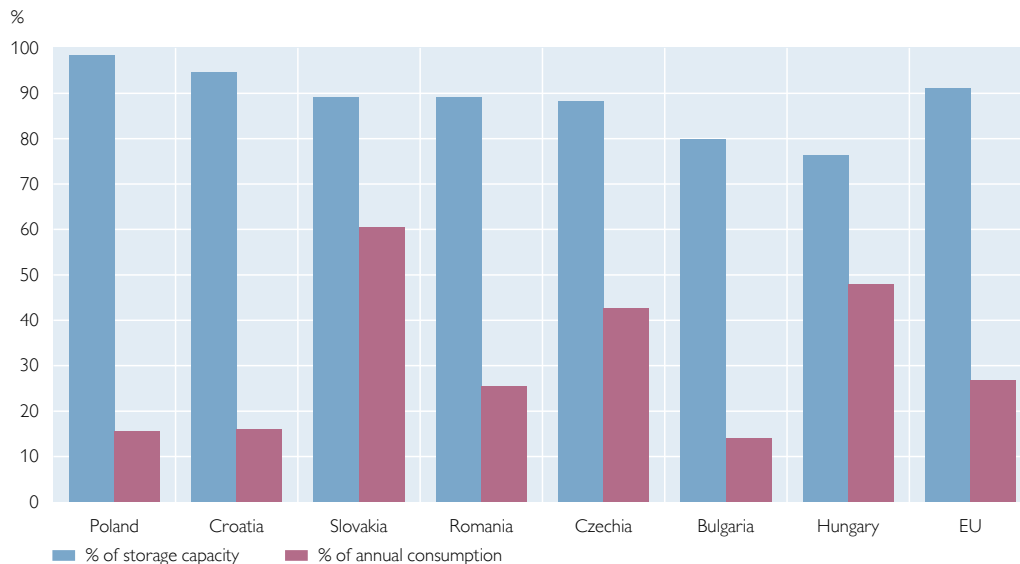
Commodity price developments can serve as a kind of fever curve, mirroring the heat of the conflict. After notable increases already in 2021, prices increased at an unparalleled pace across different segments between the beginning of the year and early March 2022: iron +25%, oilseeds +30%, cereals and nonferrous metals +40%, crude oil +70% and gas +240% (see chart 4). Markets, however, stabilized to some extent after it became clear that Russia lost the battle of Kiev and had to retreat from its maximalist goals for the war. Since July 2022, prices embarked on a broader downward trend. By early October, oil seeds and nonferrous metals traded at about their January prices, and iron was even some 10% cheaper. Cereals and crude oil prices remained somewhat elevated, however, and were up by 30% and 40% against January 2022.

### Gas prices are especially volatile and CESEE countries increasingly renounce Russian gas

Gas and – linked via the merit order system – electricity price developments remained very volatile. After prices quickly came back to their levels from early 2022, price dynamics accelerated markedly from July onward, as gas supplies from Russia became increasingly unreliable and erratic. Some CESEE countries were cut off from Russian gas altogether (Bulgaria, Poland), and Russia also stopped its gas deliveries to Europe via the important Nord Stream 1 pipeline. After gas prices peaked at an astronomically high level in late August 2022, they once again collapsed from an index value of 270 to about 170 in the subsequent weeks. This not only underlines the unpredictability in today's energy markets, it is possibly also a sign of an increasingly successful decoupling of European economies from Russian energy carriers.

By October 9, 2022, CESEE EU member states – which historically showed a high dependence on Russian gas – managed to fill between 76% (Hungary) and 98% (Poland) of their available gas storage capacities for winter, mostly well ahead

Chart 5

**Gas storage in selected CESEE countries**

Source: AGSI.

Note: Reference date = October 9, 2022.

of their targets. This translates to gas storages covering between 15% (Bulgaria, Croatia, Poland) and 60% (Slovakia) of annual gas consumption (see chart 5). This is on average higher than the coverage in Western European countries. Furthermore, those lagging behind within CESEE are countries with access to the sea and can therefore be more easily supplied with liquefied natural gas (LNG). Croatia, for instance, opened a large LNG terminal in 2021, allowing even exports of gas to Hungary. CESEE countries also managed to reduce total gas demand by quite a bit: In the first nine months of the year 2022, Bulgaria, Czechia, Poland and Romania cut gas consumption by around 10% compared to 2019–21 averages; Hungary and Slovenia achieved a 5% reduction. Only Croatia and Slovenia reported an increase in gas demand in the year to date (by 8% and 4%, respectively). However, also in those two countries, gas demand has embarked on a downward trend more recently, and gas consumption was reduced by 10% in Slovenia and 28% in Croatia in September 2022 vis-à-vis the 2019–21 average.

**Gas prices started to increase already long before the war**

The turbulences on international energy and commodity markets are often cited as evidence for the sanctions being more harmful to Western economies than to the Russian economy. This, however, is based on an incomplete reading of the facts and the data. When it comes to gas, for example, gas deliveries never were subject to EU sanctions, and gas prices started rising already long before Russia's invasion of Ukraine (see chart 6). By mid-February 2022, gas prices were already six times as high as at the beginning of 2020 (i.e. pre-pandemic). During this time, Russia – the most important supplier of gas to Europe – did not use its free capacities to

Chart 6

### European gas prices

Index: January 2, 2020 = 100



Source: Hamburg Institute of International Economics (HWWI).

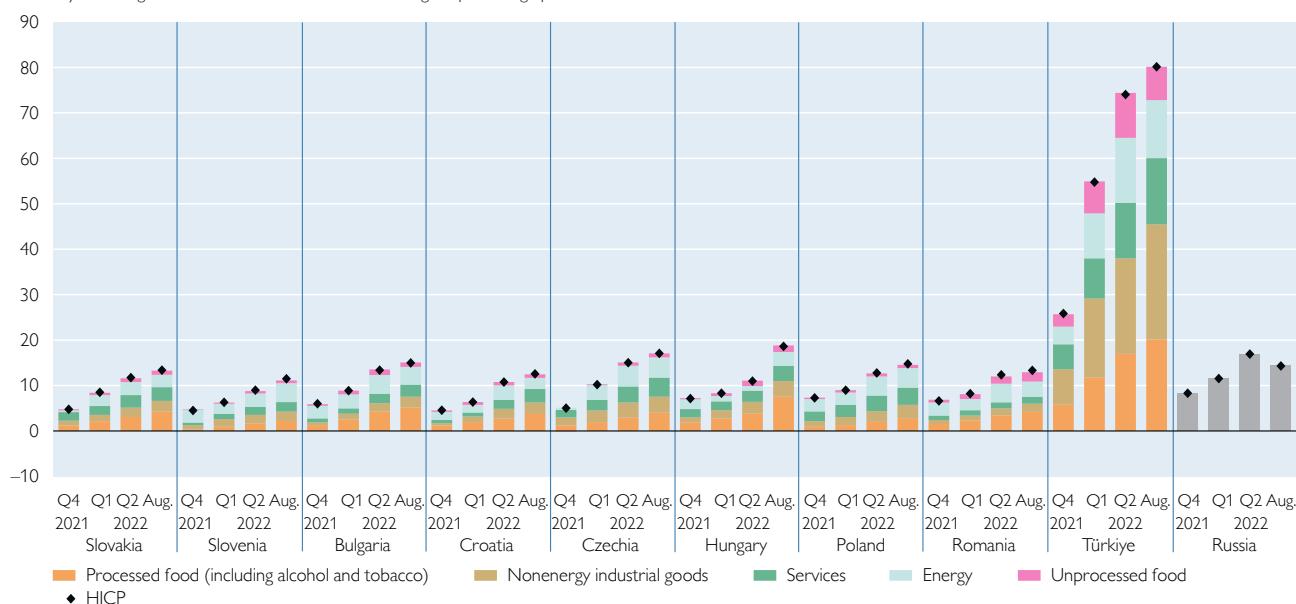
counter price increases. This not only ran contrary to earlier years' practice but also to usual business-oriented behavior, suggesting misuse of market power and political motivations. It led to unusually low levels of gas storage, uncertainty and further price increases. Moreover, already before the war, Russian gas export companies held much smaller storage volumes in the EU than at the same time in previous years. Effectively, Russia gave up its role as a "reliable supplier" of gas already quite a long time before the start of the war and not just in response to any international economic sanctions due to its attack. Gas imports from Russia plunged over the course of 2022 from some 2,500 million cubic meters per week in March to a mere 500 million cubic meters per week in early October 2022. In 2021, on average around 3,000 million cubic meters of Russian gas reached Europe every week. Imports via Nord Stream and Yamal stopped completely, while some minor quantities have reached Europe via Turkstream and Ukraine transit in recent weeks (around 250 million cubic meters per week each).

### Inflation reaches new heights, but lower energy prices have recently dampened the increase

Inflation has continued to rise inexorably in recent months. In August 2022, it averaged 15% in the CESEE EU member states and a whopping 80.1% in Türkiye, once again hitting new heights (see chart 7). At the same time, however, price increases seem to have moderated somewhat at least over the summer months, i.e. July and August. Despite currency weakness in several countries, lower world market prices for crude oil and country-specific relief packages for household energy exerted some dampening impact on energy prices. A certain stabilization was also observed in the development of prices for unprocessed food. As a flip side, however, price pressure in the core components remained very high and contributed increasingly strongly to inflation.

## HICP inflation and its main drivers

Year-on-year change in HICP in %; contribution to this change in percentage points



Source: Eurostat, The Vienna Institute for International Economic Studies.

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

### Some further push of HICP inflation might well be in the offing

Concerning the future path of inflation, two opposing trends are currently at work. At a disaggregated level, it can be observed that the share of items with rising inflation rates in the overall consumption basket has been declining somewhat since May 2022 (albeit from a very high level). Therefore, price increases have become less broad-based. It remains to be seen to what extent this trend will persist, however. In any case, three countries – Czechia, Slovenia and Croatia – already reported a moderate decline in inflation in August 2022.

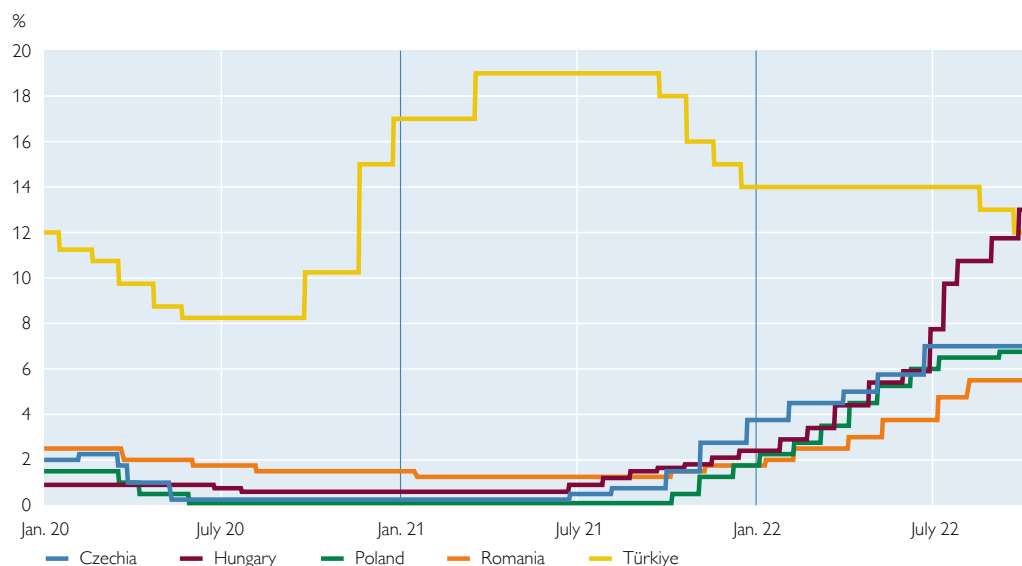
Inflation expectations have moderated recently as well. Surveys among consumers on the expected price trends over the next 12 months indicated record price expectations in spring 2022. Yet, over the review period, the situation eased notably. By September 2022, survey responses converged to the values reported in summer 2021. Similar trends were observed for industry, retail and services, but price expectations in those sectors remained far above pre-war levels.

At the same time, however, there may well be further inflationary pushes ahead in the coming months. This is directly related, above all, to the fact that wholesale gas and electricity price increases are reflected in household price structures and hence in the HICP, only with a certain time lag. In Hungary, for example, recent increases in regulated prices for household energy have already added more than 2 percentage points to August's inflation (propelling Hungarian inflation to the highest level among CESEE EU member states).

Furthermore, pressures upstream the price chain remain strong. In August 2022, producer prices for the domestic market increased by 45.7% on average in the CESEE EU member states and by 144.6% in Türkiye, with the upward trend

Chart 8

### Policy rates in selected CESEE countries



Source: Macrobond.

largely unabated. Within the producer price index, the energy component showed the strongest price rises, followed by consumer goods (the component most closely linked to consumer prices). At the same time, inflation in intermediate and capital goods has moderated recently.

### Monetary policy has been tightened significantly

Skyrocketing inflation and the associated risks of second-round effects, as well as the lingering danger of an unanchoring of inflation expectations, have prompted central banks in the CESEE region to tighten their monetary policy significantly and notably earlier than most advanced economies. Since the start of the tightening cycle in mid-2021, central banks in the following CESEE countries have increased their policy rate: Hungary from 0.6% to 13%, Czechia from 0.25% to 7%, Poland from 0.1% to 6.75% and Romania from 1.25% to 6.25% (see chart 8).

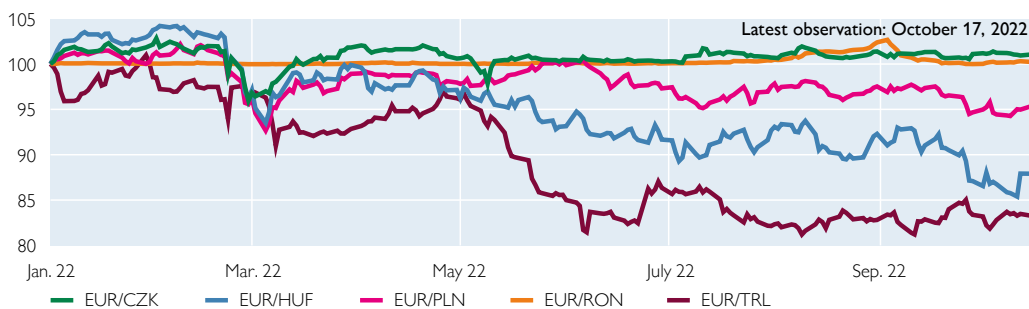
### Further rate hikes have to be weighed against the incipient economic slowdown

Throughout the review period, however, the environment for monetary policy has become increasingly challenging, as any further interest rate moves have to be weighed against the incipient economic slowdown. In its most recent decision from October 2022, the Polish central bank has already refrained from raising rates further. The Czech National Bank (CNB) kept rates unchanged in two subsequent sessions in August and September 2022. If high inflation, pressure on the foreign exchange markets or an unexpectedly strong further tightening of monetary policy by the Fed and the ECB make further interest rate steps necessary, these could possibly be lower overall than in the past.

In contrast to Poland and Czechia, the Hungarian central bank (MNB) has recently even accelerated the pace of monetary policy tightening. The key interest rate and the interest rate for one-week deposits were combined in June 2022 and have since been raised from 5.9% to 13%. In addition to the interest rate hikes, further measures

### Exchange rates of selected CESEE currencies vs. euro

January 3, 2022 = 100, rise = appreciation



Source: Macrobond.

were adopted to reduce interbank liquidity (higher reserve ratios, longer-term deposit instrument, regular central bank discount bond auctions) and to increase the effectiveness of the transmission mechanism (daily tenders providing foreign currency liquidity). Those steps were initially meant to put an end to the MNB's tightening cycle, but they did not put an end to the depreciation of the forint: The currency reached an all-time low against the euro on October 13, 2022, at 430 HUF per EUR. The following day, the MNB called an emergency meeting where it decided to hike the upper end of its interest corridor by 950 basis points to 25%, to introduce an overnight deposit tender at 18% and to launch a one-day foreign exchange swap with an interest rate of 17%. For the time being, these measures stabilized the currency, and the forint again reached 418 HUF per EUR on October 17, 2022.

Even after this appreciation, the forint remains the worst performer of the free-floating currencies in the CESEE EU member states. Year to date, it depreciated by 12% against the euro. This compares to a depreciation of 5% of the Polish złoty and a largely stable development of the Romanian leu and the Czech koruna (see chart 9). Especially the latter, however, was buoyed by exchange rate interventions by the Czech National Bank (CNB), which depleted some 6 percentage points of GDP of its foreign currency reserves. The CNB, however, has ample firepower, given the large foreign currency reserves it amassed during the “intervention floor policy” several years ago.

### Turkish central bank opts for further rate cuts despite lira weakness and record inflation

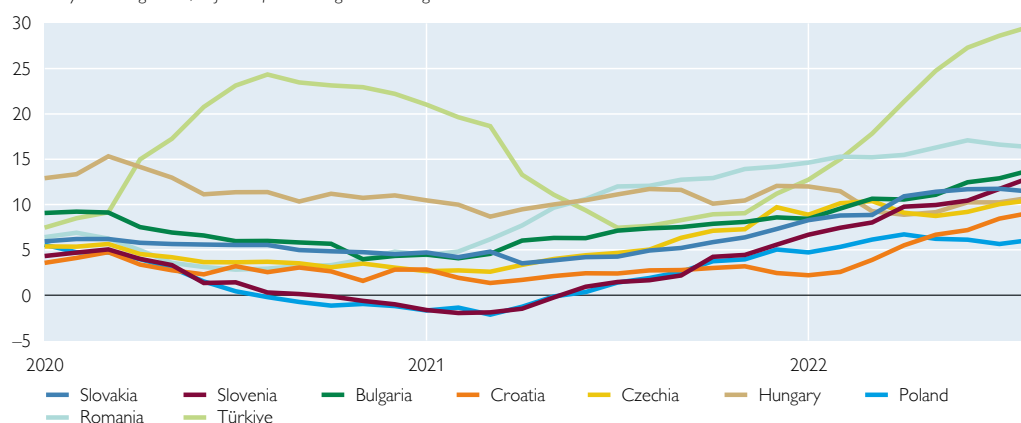
The Turkish lira lost substantial value against the euro and traded some 17% below its January 2022 level in early October 2022. This came against the backdrop of an unorthodox monetary policy built around low interest rates. The Turkish central bank (TCMB) had already cut its main policy rate repeatedly in late 2021 and continued to do so in the review period. Despite ongoing currency weakness and massive price increases, the TCMB reduced its policy rate to 12%, shaving off 100 basis points in August and September, respectively. The authorities sought to combat the immediate risks accompanied by low interest rates with liquidity, prudential measures to constrain bank lending and with a series of regulations, including subsidized “foreign-exchange-protected” deposits to encourage households and companies to keep some of their savings in lira. Bank rates in Türkiye subsequently fell and regulatory precautions only slowed the increase in credit to the private sector.



Chart 10

### Growth of credit to the private sector

Year-on-year change in %, adjusted for exchange rate changes



Source: National central banks, ECB.

### Tightening financing conditions are already somewhat impairing credit growth

In other CESEE countries, rising policy rates were quickly passed through to market interest rates. Average interest rates on bank lending doubled between January 2021 and August 2022 in Czechia, Hungary and Poland and were up by a third in Romania. In the euro area countries Slovakia and Slovenia as well as in Bulgaria and Croatia, dynamics were more muted, but some upward trend has also been observable more recently (especially in rates on short-term loans).

Rising rates – in tandem with increasing uncertainty – have already notably dampened the growth of loans to households in Hungary, Czechia and Poland. In Poland, credit to households started to decline in July 2022 (in annual comparison), which was the first recorded contraction since the start of the time series in 1997. Credit growth to corporates, however, was more resilient to tightening financing conditions due to firms' rising liquidity needs and demand for working capital against the backdrop of rising input prices. For the private sector as a whole, this translated into broadly constant credit growth rates in Czechia, Hungary, Poland and Romania, a moderate increase in Slovakia and a stronger increase in Slovenia, Bulgaria and Croatia in the review period (see chart 10).

### Surveys hint to a possible turning point in credit activity

Surveys show that CESEE banks are increasingly signaling a turning point where geopolitical uncertainty and the dim economic outlook are negatively influencing future business expectations. Demand from banks' clients is expected to deteriorate in line with the general economic momentum, and some credit tightening on the supply side could be in the offing as well. Such deterioration of credit supply expectations is widespread across segments but appears more relevant for small to medium-sized enterprises and large corporates. Funding conditions, which were supported by strong corporate and retail funding in the past (CESEE banks are self-funded in most cases), are expected to become less favorable.

Credit quality improved further in the first half of 2022, as nonperforming loans (NPLs) trended down across the region. Furthermore, the drop in NPLs was visible both in the retail and corporate segments, with particularly strong dynamics

among the latter (possibly still reflecting some earlier pandemic-related support measures). However, following the incipient cooling of the economy and rising rates, banks are expecting a deterioration of credit quality going forward, significantly affecting both the retail and corporate segments.

### Current account balances turn red for the first time in a decade

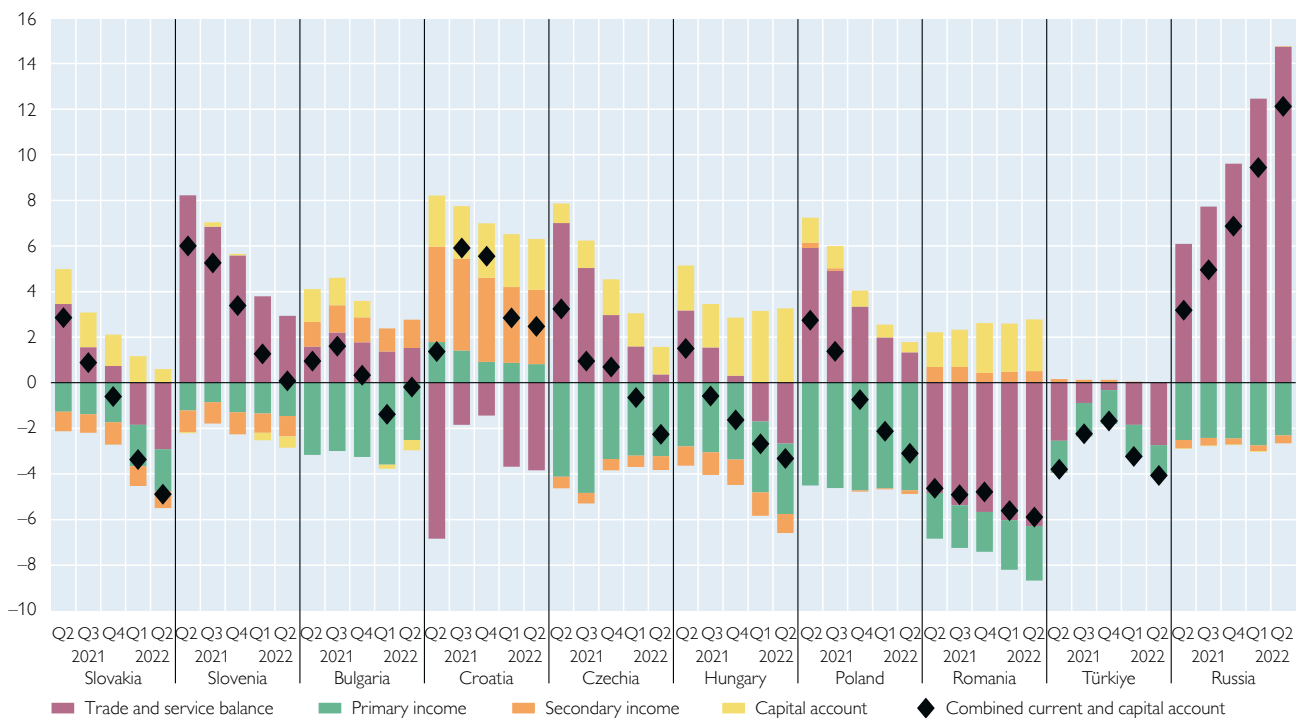
The war in Ukraine and the ensuing spike in energy prices had a visible impact on the CESEE countries' external balances. The terms of trade shock amid cooling international momentum sent trade balances southward. This effect was compounded by currency weakness. Depreciation increased the price for (largely demand-inelastic and usually foreign currency-invoiced) energy imports further, while offsetting the negative impact of rising labor costs on competitiveness only to some degree. By the second quarter of 2022, combined current and capital account balances deteriorated by between  $-0.3$  percentage points of GDP in Türkiye and  $-7.7$  percentage points of GDP in Slovakia (four-quarter moving sums compared to the respective period of the previous year). Only Croatia reported an improvement (1.1 percentage points of GDP), given strong tourism-related services exports (see chart 11). Against this background, current account surpluses disappeared in all countries but Croatia, and the CESEE region's aggregate external balance slipped into deficit for the first time since the European sovereign debt crisis in 2011/2012.

Sufficient foreign direct investment (FDI) and other investment inflows covered large parts of the current account shortfalls over the past four quarters. However,

Chart 11

### Combined current and capital account balance

% of GDP, four-quarter moving sum



Source: Eurostat, IMF, national central banks.

tighter financial conditions around the globe and increased risk aversion have recently been accompanied by a deterioration in market conditions in some CESEE economies. Even though the sharp contraction in portfolio inflows at the onset of the war in Ukraine has subsided, nonresidents have been net sellers of securities, especially of bonds. Accordingly, sovereign bond spreads over German bonds have risen in most countries under observation, led by Hungary with a plus of more than 300 basis points within the first nine months of 2022. In Hungary, this was partly related to home-grown problems, such as the temporary halt of EU fund disbursement to the country due to disputes with the European Commission concerning rule of law requirements. In a broader comparison, Romanian spreads widened just as much as Italian spreads did. Polish and Hungarian spreads widened even more.

Box 1

### **Ukraine: war is hitting the economy hard – continued international support vital**

*Russia's war of aggression has resulted in loss of life, human suffering and enormous economic losses for Ukraine, inter alia through the massive damage caused to Ukraine's infrastructure and housing stock as well as the displacement of a large number of people inside and outside the country. Real GDP dropped by 37.2% year on year in the second quarter of 2022 after having declined by 15.1% year on year in the first quarter. As exports were hit by the destruction of production capacities and the blockage of important export routes, the trade deficit widened considerably to USD 10.4 billion (for goods and services) in the period from January to July 2022. Yet, due to large surpluses in the income balances (largely thanks to grants received from abroad), the current account balance recorded a surplus. The reopening of seaports under the Black Sea Grain Initiative (agreed until November 19, 2022) helped revive agricultural exports from early August.*

*At the beginning of June 2022, the National Bank of Ukraine (NBU) decided to raise its key policy rate to 25% from 10%. In addition to containing inflationary trends, this move was aimed at raising the attractiveness of hryvnia assets and reducing the pressure on the foreign exchange market. Yet, after fixing the hryvnia exchange rate vis-à-vis the US dollar at the onset of the war and introducing capital controls, the NBU opted for a devaluation of 25% in July and refixed the official exchange rate at UAH/USD 36.6. The inflation rate rose from 10% at end-2021 to 24.6% in September 2022, reflecting war effects, rising food prices and the devaluation of the Ukrainian hryvnia. News coming from Russia in September implying a further escalation of the war contributed to a temporary increase in foreign currency demand and a widening of the spread between the cash market rate and the official market rate.*

*After Ukraine's international reserves had declined from USD 27.5 billion at end-February 2022 to USD 22.4 billion at end-July, the downward trend was interrupted in August but resumed in September. At end-September, international reserves amounted to USD 23.9 billion. The development of international reserves has been mainly driven by the timing of international financial support flows (from the EU, the IMF, the USA and other multilateral and bilateral donors), the extent of NBU interventions on the foreign exchange market and repayments made to international lenders such as the IMF. To ease foreign exchange liquidity needs, the Ukrainian authorities reached agreement on a two-year debt freeze with Eurobond holders and official bilateral external creditors (G7 and Paris Club) over summer.*

*In addition to stabilizing the balance of payments, international assistance in the form of grants and loans plays a vital role in covering an important part of Ukraine's large state budgetary expenditure needs. In the period from March to August 2022, the state budget deficit amounted to about USD 15 billion, and without grants it would have exceeded USD 23 billion (compared to a nominal GDP level of about USD 198 billion in 2021). Until end-September, the NBU covered about USD 10 billion of deficit financing with direct purchases of war bonds. Hence, continued and sufficient international financial support remains vital to limit the extent of monetary financing.*

## 2 Slovakia: economy torn between choked-off recovery and epic inflation

The performance of the Slovak economy was rather lackluster in the first half of 2022, when annual GDP growth averaged some 2.5%. The supportive effect of fading antipandemic measures was counteracted by the Russian invasion in Ukraine and its second-round repercussions, previous and new frictions in the supply chains as well as soaring prices. GDP growth was driven by relatively robust domestic demand, while the negative contribution of net exports more than doubled compared to 2021 as a whole. However, a more granular look at the domestic demand components unveils a rather mixed picture. While private consumption remained strong and served as the most important growth driver in the six months to June, it has been losing steam owing to soaring prices and the depletion of households' pandemic savings. As a result, consumers' confidence has plummeted in parallel with the savings rate, which is approaching its historic lows. Despite expenditures related to the refugees arriving from Ukraine, public consumption contracted sharply in the first half of 2022. This was largely owed to the base effect as pandemic-related support measures were withdrawn. Government consumption thus dragged GDP growth down by almost 1 percentage point in the period under study. Fixed investment remained subdued and contributed only half a percentage point to GDP growth. Investment activity, not least on a government level, has been held back by steeply rising prices of materials and inputs, cooling foreign demand, a high level of uncertainty and lackluster absorption of EU funds. Accumulation of inventories has again been providing a notable contribution to growth this year owing to continued supply chain disruptions that have hindered the completion and sale of industrial goods, particularly cars. In addition to the mentioned supply-side frictions, Slovakia's exports have taken a hard hit as the war has caused significant harm to foreign demand.

The unemployment rate continuously fell while employment kept on rising in the first eight months of 2022. The notorious skills mismatch and lack of (skilled) labor have been somewhat mitigated as refugees from Ukraine have filled many long-vacant jobs, particularly in the trade and services sectors. Nonetheless, the still tight labor market is exerting strong upward pressure on wages. Since a trough of 0.7% in January 2021, headline inflation has been continuously heading upward and came in at 13.4% in August 2022, levels unseen since mid-2000. Towering food and energy prices aside, annual core inflation has most recently climbed to about 12% as well. Hence, the lofty price hikes have been bloated by nearly all components, most notably food, housing, services and skyrocketing energy prices.

After the general government deficit climbed up to 6.2% of GDP in 2021 in the wake of the response measures to the pandemic, a deficit of 4.9% of GDP was approved for 2022. However, despite additional expenditures related to the energy crisis, Slovakia's independent Council for Budget Responsibility currently expects the deficit to come in at 3.5% of GDP. The more positive outcome results particularly from higher tax revenues and social contributions as high inflation has boosted the tax base. Moreover, the lower than expected absorption of EU funds has reduced cofinancing expenditures. Consequently, public debt is projected to decrease by about 1.5 percentage points from just above 63% in 2021. In light of the sustained strong growth of credit to both firms and households, Národná banka Slovenska raised the countercyclical capital buffer rate from 1.0% to 1.5% as of August 2023.

Table 2

## Main economic indicators: Slovakia

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	2.6	-4.4	3.0	0.2	9.6	1.3	1.4	3.1	1.8
Private consumption	2.7	-1.3	1.2	-5.5	5.0	2.5	2.7	9.3	4.2
Public consumption	4.6	0.9	1.9	-1.7	8.1	-1.0	2.1	-0.4	-7.2
Gross fixed capital formation	6.7	-11.6	0.6	-9.3	5.6	-1.9	6.0	6.4	0.4
Exports of goods and services	0.8	-7.3	10.2	10.8	39.3	-3.0	1.6	-4.5	-0.3
Imports of goods and services	2.1	-8.2	11.2	6.0	39.2	3.5	3.5	-1.3	0.0
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	3.8	-5.2	3.8	-5.9	11.9	6.6	3.4	7.5	0.9
Net exports of goods and services	-1.2	0.9	-0.8	4.6	0.4	-5.4	-1.7	-3.4	-0.3
Exports of goods and services	0.8	-6.7	8.7	9.8	28.8	-2.4	1.2	-4.5	-0.3
Imports of goods and services	-2.0	7.6	-9.5	-5.2	-28.5	-3.0	-2.9	1.0	0.0
<i>Year-on-year change of period average in %</i>									
Unit labor costs in the whole economy (nominal, per person)	5.2	6.4	2.1	0.9	-1.3	4.4	4.6	5.5	6.3
Unit labor costs in manufacturing (nominal, per hour)	5.6	3.0	-3.1	-9.0	-17.9	9.9	7.2	9.6	12.9
Labor productivity in manufacturing (real, per hour)	1.3	1.1	10.1	10.6	23.5	1.7	7.0	1.0	-1.9
Labor costs in manufacturing (nominal, per hour)	6.8	3.6	7.4	0.7	1.3	11.9	14.7	10.8	10.8
Producer price index (PPI) in industry	1.8	-0.5	6.8	-0.8	4.3	9.3	14.5	24.4	30.6
Consumer price index (here: HICP)	2.8	2.0	2.8	1.0	2.1	3.4	4.8	8.5	11.8
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	5.8	6.8	6.9	7.2	7.0	6.8	6.6	6.4	6.2
Employment rate (%, 15–64 years)	68.4	67.5	69.5	67.9	68.8	70.3	70.8	70.6	71.4
Key interest rate per annum (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Nominal year-on-year change in period-end stock in %</i>									
Loans to the domestic nonbank private sector <sup>1</sup>	6.8	6.8	6.8	4.8	4.2	5.2	7.3	8.9	11.7
of which: loans to households	8.0	8.0	8.0	6.0	7.2	8.0	8.8	10.5	11.3
loans to nonbank corporations	4.4	4.4	4.4	2.5	-1.8	-0.2	4.3	5.5	12.6
%									
Share of foreign currency loans in total loans to the nonbank private sector	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Return on assets (banking sector)	0.8	0.5	0.7	0.5	0.8	0.8	0.7	0.5	0.7
Tier 1 capital ratio (banking sector)	16.6	18.1	18.3	18.8	19.2	18.8	18.3	18.1	17.8
NPL ratio (banking sector)	2.8	2.3	1.9	2.2	2.1	1.9	1.9	1.9	1.9
%									
General government revenues	39.4	39.9	40.7	..	..	..	..	..	..
General government expenditures	40.7	45.3	46.8	..	..	..	..	..	..
General government balance	-1.3	-5.5	-6.2	..	..	..	..	..	..
Primary balance	-0.1	-4.2	-5.0	..	..	..	..	..	..
Gross public debt	48.1	59.7	63.1	..	..	..	..	..	..
%									
Debt of nonfinancial corporations (nonconsolidated)	53.9	55.2	53.4	..	..	..	..	..	..
Debt of households and NPISHs <sup>2</sup> (nonconsolidated)	43.7	47.2	48.5	..	..	..	..	..	..
<i>% of GDP (based on EUR), period total</i>									
Goods balance	-1.2	1.1	-0.1	4.0	-0.3	-2.5	-0.9	-6.9	-4.1
Services balance	1.3	1.2	0.8	0.7	0.7	1.5	0.4	0.5	0.1
Primary income	-2.3	-1.2	-1.7	-0.4	-1.8	-1.6	-2.9	-0.9	-1.9
Secondary income	-1.1	-0.8	-1.0	-1.9	-1.0	-0.8	-0.4	-1.3	-0.5
Current account balance	-3.4	0.4	-2.0	2.4	-2.4	-3.4	-3.8	-8.7	-6.3
Capital account balance	0.7	0.8	1.4	0.9	3.7	0.2	0.8	0.1	1.3
Foreign direct investment (net) <sup>3</sup>	-2.3	2.1	0.3	3.0	-1.0	-1.3	0.7	-1.8	-2.2
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	112.7	121.4	137.0	119.0	117.6	118.6	137.0	143.5	130.6
Gross official reserves (excluding gold)	5.3	6.6	7.1	6.8	6.5	7.2	7.1	8.9	9.7
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	0.7	0.9	0.9	1.0	0.9	1.0	0.9	1.1	1.2
<i>EUR million, period total</i>									
GDP at current prices	94,048	92,079	97,123	21,819	24,078	25,637	25,589	23,843	26,486

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

<sup>1</sup> Foreign currency component at constant exchange rates.<sup>2</sup> Nonprofit institutions serving households.<sup>3</sup> + = 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: new government is focusing on short-term issues, long-term reforms not yet addressed

Despite some moderation from the first to the second quarter of 2022, Slovenia's GDP expanded by nearly 9% during the first half of the year. Growth was driven by household consumption, which benefited from an apparently good start of the tourist season, accelerating employment growth, tax relief and rising incomes, although the latter was diminished by the sharp rise in inflation, which also contributed to the worsening of consumer confidence. Investment growth was healthy but slowed significantly from the double-digit rates recorded in 2021. High capacity utilization in industry, sharply negative real interest rates, strong and accelerating growth in loans to companies and households (in particular for house purchase) were supportive factors. On the back of strong domestic demand, imports continued to grow more strongly than exports and the negative contribution of net real exports to the overall GDP growth rate remained at 3 percentage points in the first half of 2022.

Following parliamentary elections in April 2022, a new center-left coalition government took office at the beginning of June. The main priorities of the new government in the short term include measures to address the rise of energy and food prices and to implement an exit strategy from the coronavirus crisis. The government has already implemented various measures to mitigate the impact of global energy price increases for both households and businesses (e.g. various energy price caps, cuts in excise duties and VAT on energy, one-off payment). With respect to rising food prices, the government has launched public price monitoring but has not ruled out more rigorous measures at a later point. As for the medium term, reforms in the areas of healthcare, pensions and the labor market, hikes in wages and pensions, better access to housing, green transition and digital transformation rank high on the government's agenda. The government announced, however, in mid-July 2022, that the start of the implementation of the long-term care reform will be postponed from early 2023 to April 2024 in order to make amendments.

To take into account the changed macroeconomic developments during the first half of 2022, accommodate the recently introduced inflation-alleviating measures and reflect the medium-term policy priorities of the new administration, the government has adopted a supplementary budget for 2022 (increasing revenues more than expenditures). It is also drafting changes to the 2023 state budget and putting together the budget for 2024. According to Slovenia's Fiscal Council, the 2022 budget amendment increases the risk of unnecessary spending and additional revenue should have been used to reduce public debt. The Fiscal Council was also critical about the medium-term budgetary plans of the government (as set out in the coalition agreement), noting the general vagueness in terms of size and timing of measures.

During the reporting period, inflation rose from 7% in February to 11.7% in July before falling back to 11.5% in August. Energy and food prices (processed and unprocessed) rose the most dynamically, but price pressures fed through into the inflation rate of services and industrial goods. Globally rising prices for energy and other raw materials left their footprint on the current account as well. The surplus on the goods and services balance melted to 2.9% of GDP by the second quarter of 2022 (on a four-quarter moving sum basis) as the goods balance turned into a deficit on the back of soaring imports fueled by buoyant domestic demand and worsening terms of trade. Combined with a deterioration in the capital account, net lending to the rest of the world decreased to 0.1% of GDP (from 3.4% at end-2021).



Table 3

## Main economic indicators: Slovenia

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	3.5	-4.3	8.2	1.6	16.2	5.1	10.5	9.6	8.2
Private consumption	5.3	-6.9	9.5	-2.9	14.2	5.8	21.2	19.3	12.2
Public consumption	1.8	4.1	5.8	3.4	6.0	5.4	8.3	4.5	0.7
Gross fixed capital formation	5.1	-7.9	13.7	8.7	21.5	11.8	13.2	8.6	6.5
Exports of goods and services	4.5	-8.6	14.5	2.4	32.4	12.6	13.8	8.0	7.9
Imports of goods and services	4.7	-9.6	17.6	0.8	35.4	19.5	18.1	16.0	9.7
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	3.2	-4.3	9.0	0.2	15.4	8.3	12.3	14.9	9.0
Net exports of goods and services	0.2	0.0	-0.8	1.4	0.9	-3.2	-1.8	-5.2	-0.8
Exports of goods and services	3.8	-7.2	11.3	1.8	23.5	9.5	11.1	6.8	6.6
Imports of goods and services	-3.6	7.2	-12.0	-0.4	-22.7	-12.7	-12.9	-12.1	-7.4
<i>Year-on-year change of period average in %</i>									
Unit labor costs in the whole economy (nominal, per person)	4.0	7.6	0.9	6.6	-2.6	5.0	-4.3	-5.0	-2.5
Unit labor costs in manufacturing (nominal, per hour)	0.1	8.1	-2.7	3.3	-15.8	4.0	-0.8	-2.0	2.7
Labor productivity in manufacturing (real, per hour)	3.9	-4.4	9.6	3.1	24.0	2.9	10.2	8.5	6.7
Labor costs in manufacturing (nominal, per hour)	4.0	3.1	6.9	6.5	4.4	7.0	9.3	6.4	9.5
Producer price index (PPI) in industry	0.6	-0.3	5.5	1.1	3.6	7.5	9.9	15.6	21.7
Consumer price index (here: HICP)	1.7	-0.3	2.0	-0.6	2.1	2.3	4.5	6.3	9.0
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	4.5	5.0	4.8	5.7	4.4	4.5	4.5	4.3	4.2
Employment rate (%, 15–64 years)	71.9	70.9	71.5	68.1	71.9	73.4	72.4	72.5	73.1
Key interest rate per annum (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Nominal year-on-year change in period-end stock in %</i>									
Loans to the domestic nonbank private sector <sup>1</sup>	4.3	4.3	4.3	-1.9	0.9	2.2	5.6	8.0	10.4
of which: loans to households	5.8	5.8	5.8	0.8	2.9	3.6	5.0	6.7	7.9
loans to nonbank corporations	2.8	2.8	2.8	-4.5	-1.1	0.7	6.2	9.4	13.2
<i>%</i>									
Share of foreign currency loans in total loans to the nonbank private sector	1.7	1.4	1.1	1.3	1.2	1.2	1.1	1.0	1.0
Return on assets (banking sector)	1.3	1.0	1.1	0.8	1.0	1.0	1.1	0.7	0.8
Tier 1 capital ratio (banking sector)	17.8	16.7	16.9	16.5	17.0	17.0	16.9	15.7	15.7
NPL ratio (banking sector)	2.2	1.9	0.8	1.8	1.0	0.9	0.8	0.9	0.8
<i>% of GDP</i>									
General government revenues	43.8	43.5	43.9	..	..	..	..	..	..
General government expenditures	43.3	51.3	49.1	..	..	..	..	..	..
General government balance	0.4	-7.8	-5.2	..	..	..	..	..	..
Primary balance	2.2	-6.2	-3.9	..	..	..	..	..	..
Gross public debt	65.6	79.8	74.7	..	..	..	..	..	..
<i>% of GDP</i>									
Debt of nonfinancial corporations (nonconsolidated)	47.9	47.8	46.1	..	..	..	..	..	..
Debt of households and NPISHs <sup>2</sup> (nonconsolidated)	26.8	27.8	26.4	..	..	..	..	..	..
<i>% of GDP (based on EUR), period total</i>									
Goods balance	2.7	5.0	1.0	4.7	1.6	-0.3	-1.3	-3.4	-4.4
Services balance	6.0	4.2	4.6	4.3	3.8	5.2	4.9	4.7	6.4
Primary income	-1.7	-0.9	-1.3	-0.9	-1.0	-1.5	-1.7	-1.1	-1.5
Secondary income	-1.0	-1.0	-1.0	-1.6	-0.8	-0.7	-0.9	-1.0	-1.0
Current account balance	6.0	7.4	3.3	6.5	3.6	2.7	1.0	-0.9	-0.4
Capital account balance	-0.4	-0.5	0.1	1.2	-0.1	0.7	-1.4	-0.5	-0.7
Foreign direct investment (net) <sup>3</sup>	-1.6	0.6	-1.0	-1.6	-4.0	-2.0	3.3	-2.8	-1.9
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	91.2	101.6	96.7	106.4	101.5	102.8	96.7	96.4	93.0
Gross official reserves (excluding gold)	1.6	1.9	3.5	2.0	2.0	3.4	3.5	3.5	3.5
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	0.3	0.3	0.5	0.4	0.3	0.5	0.5	0.5	0.5
<i>EUR million, period total</i>									
GDP at current prices	48,533	47,021	52,208	11,606	13,110	13,483	14,009	13,290	15,044

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

<sup>1</sup> Foreign currency component at constant exchange rates.<sup>2</sup> Nonprofit institutions serving households.<sup>3</sup> + = 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: economy surprised on the upside in the first half of 2022 despite high inflation and political uncertainty

Bulgaria's real GDP grew by 4.5% year on year in the first half of 2022, turning out better than expected, but high-frequency indicators suggest that momentum has declined since then. Private and public consumption and particularly inventories contributed positively to growth, while net exports and investments had a dampening impact.

Private consumption – which added 2.5 percentage points to growth in the first half of 2022 – was fueled by strong demand for durable goods, decreasing unemployment (down to 4.6% by August) and downward-trending deposit growth. Yet, high inflation and falling consumer confidence turned retail sales growth negative from April 2022. Government consumption contributed 1.5 percentage points to growth in the first half of 2022.

Industrial production growth peaked in the first half of 2022, at 17.8%, and manufacturing output expanded by 10.2%. Exports, however, expanded at a lower pace, driving up inventories, which contributed 5.7 percentage points to real GDP growth in the first half of the year. Moreover, mounting import prices kept net exports and the current account in negative territory. Uncertainty regarding energy supplies in the coming months, deteriorating prospects for euro area growth and tighter financing conditions have already translated into a sharp decline of investments. Gross fixed capital formation also suffered from the ongoing political crisis, which has been delaying the second disbursement of the EU's Recovery and Resilience Facility.

HICP inflation increased from 10.5% in March to 15.0% in August 2022, with energy and food prices as main drivers of inflation. Core inflation excluding the volatile components energy, food, alcohol, and tobacco rose by 8.8%.

The stronger than expected rise in inflation is putting downward pressure on real wages, particularly for the group of income-poor households who suffer from even higher inflation due to the high weight of energy and food items in their consumption basket. Moreover, minimum wages are lagging behind inflation because they are traditionally adjusted once a year on January 1. The government's main measures to alleviate rising energy costs for households are regulated prices and an increase of pensions by 10%. Furthermore, firms are currently fully compensated for energy bills above EUR 125/MWh. The interim finance minister warned in September 2022 that Bulgaria's fiscal deficit might escalate to 6.8% of GDP in 2023 unless corrective measures are taken by the next government.

Bulgaria went to the polls on October 2, its fourth parliamentary election in 18 months. The historically low turnout of 30% reflects voters' frustration with political instability. Political observers expect the post-election coalition-building process to drag on because of dissent concerning the fight against corruption and relations with Russia. The next government needs to secure gas supplies at affordable prices and speed up the greening of the economy – as laid out in the Recovery and Resilience Plan. Russia cut Bulgaria off from gas deliveries in April 2022 over its refusal to pay for gas in Russian ruble. According to official sources, Azerbaijan will provide 19% of Bulgaria's gas demand until the end of 2022. A new natural gas pipeline (IGB) started operations on October 3 and has brought some relief. The IGB allows the transfer of natural gas from Greece to Bulgaria and further to Romania, Moldova, Ukraine and even Central Europe – which highlights its geostrategic significance beyond Bulgaria. It will be connected to the new Greek LNG terminal at Alexandropolis, which will start operations in 2023.



Table 4

## Main economic indicators: Bulgaria

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	4.0	-4.4	4.2	0.2	6.5	3.9	5.6	5.0	4.0
Private consumption	6.0	-0.4	8.0	5.4	9.3	8.3	8.7	6.4	2.1
Public consumption	2.0	8.3	4.0	6.2	1.4	6.3	2.7	1.1	13.1
Gross fixed capital formation	4.5	0.6	-11.0	-6.1	-4.8	-14.5	-15.5	-4.4	-8.1
Exports of goods and services	4.0	-12.1	9.9	-2.0	22.0	7.9	13.8	7.4	10.7
Imports of goods and services	5.2	-5.4	12.2	4.6	21.8	12.5	10.9	14.1	16.6
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	4.7	0.1	5.2	4.0	6.4	6.2	4.4	9.8	7.5
Net exports of goods and services	-0.7	-4.4	-1.1	-3.8	0.1	-2.3	1.3	-4.8	-3.5
Exports of goods and services	2.6	-7.7	5.5	-2.0	11.7	4.4	7.2	5.7	7.0
Imports of goods and services	-3.3	3.3	-6.5	-1.8	-11.5	-6.7	-5.9	-10.4	-10.6
<i>Year-on-year change of period average in %</i>									
Unit labor costs in the whole economy (nominal, per person)	3.1	9.4	5.4	5.9	3.0	7.9	5.0	11.3	19.6
Unit labor costs in manufacturing (nominal, per hour)	6.6	-0.1	0.9	-5.2	-4.6	7.8	6.6	2.4	-2.5
Labor productivity in manufacturing (real, per hour)	4.8	5.2	6.1	3.7	6.7	7.3	6.4	15.2	18.3
Labor costs in manufacturing (nominal, per hour)	11.9	4.9	7.2	-1.7	1.8	15.6	13.4	18.0	15.4
Producer price index (PPI) in industry	3.0	-2.0	15.5	3.6	12.1	17.4	28.9	33.9	40.2
Consumer price index (here: HICP)	2.5	1.2	2.8	0.2	2.2	2.9	6.0	8.9	13.4
EUR per 1 BGN, + = BGN appreciation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	4.3	5.2	5.3	6.4	5.7	4.6	4.6	5.0	4.7
Employment rate (%, 15–64 years)	70.1	68.5	68.2	66.9	67.8	69.5	68.5	68.4	69.8
Key interest rate per annum (%) <sup>1</sup>	..	..	..	..	..	..	..	..	..
BGN per 1 EUR	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<i>Nominal year-on-year change in period-end stock in %</i>									
Loans to the domestic nonbank private sector <sup>2</sup>	9.4	9.4	9.4	4.6	6.3	7.5	8.6	10.6	12.5
of which: loans to households	9.5	9.5	9.5	7.1	10.4	11.8	13.4	14.1	14.7
loans to nonbank corporations	9.3	9.3	9.3	3.0	3.7	4.8	5.5	8.4	10.9
<i>%</i>									
Share of foreign currency loans in total loans to the nonbank private sector	33.2	31.9	29.3	31.6	30.9	30.2	29.3	29.0	28.4
Return on assets (banking sector)	1.5	0.7	1.1	1.1	1.0	1.1	1.1	1.6	1.5
Tier 1 capital ratio (banking sector)	19.5	22.1	22.0	21.9	22.3	21.8	22.0	21.4	20.7
NPL ratio (banking sector)	4.2	4.3	3.7	4.1	4.0	3.8	3.7	3.3	3.1
<i>% of GDP</i>									
General government revenues	38.4	38.1	39.0	..	..	..	..	..	..
General government expenditures	36.3	42.0	43.1	..	..	..	..	..	..
General government balance	2.1	-4.0	-4.1	..	..	..	..	..	..
Primary balance	2.7	-3.4	-3.6	..	..	..	..	..	..
Gross public debt	20.0	24.7	25.1	..	..	..	..	..	..
<i>% of GDP</i>									
Debt of nonfinancial corporations (nonconsolidated)	78.5	77.5	72.5	..	..	..	..	..	..
Debt of households and NPISHs <sup>3</sup> (nonconsolidated)	23.0	24.4	24.9	..	..	..	..	..	..
<i>% of GDP (based on EUR), period total</i>									
Goods balance	-4.7	-3.2	-4.9	-3.7	-4.0	-3.6	-7.5	-5.4	-3.2
Services balance	7.9	5.0	6.6	5.4	6.7	9.1	5.1	5.4	6.3
Primary income	-4.2	-3.5	-3.3	-3.6	-3.4	-2.1	-4.0	-5.0	0.6
Secondary income	2.9	1.5	1.1	2.2	1.9	1.1	-0.4	1.7	2.6
Current account balance	1.8	-0.1	-0.4	0.3	1.3	4.5	-6.8	-3.3	6.3
Capital account balance	1.4	1.5	0.7	1.6	1.4	0.7	-0.4	-2.4	0.0
Foreign direct investment (net) <sup>4</sup>	-2.0	-4.5	-1.7	-1.5	-1.9	-1.9	-1.4	-7.3	3.3
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	61.3	64.9	61.8	63.1	62.5	63.3	61.8	58.7	55.7
Gross official reserves (excluding gold)	37.5	47.0	47.9	43.3	43.6	46.5	47.9	43.4	41.7
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	7.4	10.4	9.2	9.4	8.9	9.3	9.2	8.0	7.5
<i>EUR million, period total</i>									
GDP at current prices	61,558	61,331	67,872	13,813	15,941	18,475	19,643	16,775	19,921

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

<sup>1</sup> Not available in a currency board regime.<sup>2</sup> Foreign currency component at constant exchange rates.<sup>3</sup> Nonprofit institutions serving households.<sup>4</sup> + = 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: green light for euro adoption and continued strong growth

In terms of international integration, 2022 has been a very important year for Croatia. In July, the country got the green light to join the euro area on January 1, 2023, after it fulfilled all necessary convergence criteria. Euro adoption is widely regarded as a positive step for Croatia, as it will eliminate the currency (mismatch) risks stemming from the high levels of euroization of loans, deposits and external debt. International rating agencies have reacted with several upgrades of Croatia's sovereign ratings. Moreover, at the end of 2021 the Council of the EU concluded that Croatia fulfilled all the necessary conditions to join the Schengen area in 2023. The European Parliament is expected to give its opinion on the matter in autumn. Finally, in January, the OECD Council decided to open accession discussions with Croatia.

These successes come against the backdrop of continued strong growth, despite the challenges posed by the pandemic, war and inflation. GDP expanded by 7.4% year on year in the first half of 2022, maintaining the strong momentum seen in 2021. On the output side, all sectors except arts and recreation expanded, with particularly high growth of the largest sector, wholesale and retail trade. The sector of professional, scientific and technical activities also grew strongly. Looking at the expenditure side, growth in the first half of 2022 was broad-based. The largest contributions came from private consumption growth, followed by net exports. Both exports and imports expanded strongly, partially fueled by a strong tourist season that came close to pre-pandemic records. Gross fixed capital formation also expanded strongly and contributed positively to overall growth.

Amidst accelerating CPI inflation – 12.6% year on year in August – domestic demand was supported by a policy package (EUR 634 million, about 1.1% of 2021 GDP) that entered into force on April 1. It included energy price caps, a VAT reduction on selected products and subsidies for vulnerable sectors and groups, among other measures. In September, the government revealed a second and considerably larger package (EUR 2.8 billion, about 5% of 2021 GDP), which includes one-off payments to several subgroups of the population, electricity price caps and a cap on the price of gas for households and other measures. To finance the package, the government announced that it was sending a proposal to the parliament for a special tax on excessive profits of certain companies. Despite supporting measures, declining unemployment and a strong tourist season, consumer confidence indicators have been dropping throughout 2022 and have almost reached the lows observed at the start of the pandemic.

Croatia's public sector indebtedness remains high, which increases Croatia's vulnerability to rising interest rates. Government borrowing costs already increased during the first half of 2022, particularly at the long end. However, government debt continued to decrease and stood at 77.3% in March 2022 and the state budget deficit for the first six months of 2022 improved relative to 2021. The Croatian government projects a general government deficit of 2.8% of GDP for 2022 – after a slight upward revision of the deficit in May.

Regarding the banking system, a noteworthy development was the fast growth of credit to nonfinancial corporations during the first half of 2022. It was most likely driven by higher financing needs due to higher input prices and an anticipation of rising borrowing costs. Banks' return on assets increased slightly in the first half of 2022 to 1.2%. This was mostly due to lower provisions, which overcompensated a fall in (net) interest income. Banks' tier 1 capital ratio declined a little from a high level and stood at 24.6% in June 2022. The NPL ratio continued to decrease and was reported at 3.8% in June.

Table 5

## Main economic indicators: Croatia

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	3.5	-8.1	10.2	-0.6	16.4	15.1	9.7	7.0	7.7
Private consumption	4.1	-5.3	10.0	-0.2	17.9	15.8	7.6	6.2	7.5
Public consumption	3.3	4.1	3.1	-5.8	8.5	-4.5	14.4	5.9	-2.2
Gross fixed capital formation	9.8	-6.1	7.6	5.0	18.1	7.6	0.8	7.9	5.0
Exports of goods and services	6.8	-22.7	33.3	-1.0	43.0	48.8	31.7	29.4	41.9
Imports of goods and services	6.5	-12.3	14.7	-0.7	32.2	13.9	16.4	25.0	28.6
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	3.4	-2.8	3.4	-0.7	15.9	-5.3	5.3	10.3	4.8
Net exports of goods and services	0.1	-5.3	6.8	0.1	0.6	20.4	4.4	-3.3	2.9
Exports of goods and services	3.4	-11.5	14.0	-0.2	15.3	26.7	12.9	10.2	18.3
Imports of goods and services	-3.3	6.3	-7.2	0.4	-14.7	-6.3	-8.5	-13.6	-15.4
<i>Year-on-year change of period average in %</i>									
Unit labor costs in the whole economy (nominal, per person)	..	..	..	..	..	..	..	..	..
Unit labor costs in manufacturing (nominal, per hour)	11.4	2.0	-0.6	-1.5	-8.1	2.9	5.2	4.7	7.4
Labor productivity in manufacturing (real, per hour)	-7.2	-2.4	4.0	4.9	9.6	2.2	-0.4	3.7	1.2
Labor costs in manufacturing (nominal, per hour)	3.6	-0.6	3.5	3.3	0.7	5.1	4.7	8.5	8.6
Producer price index (PPI) in industry	0.8	-3.2	11.7	0.9	8.0	13.1	24.6	25.1	32.5
Consumer price index (here: HICP)	0.8	0.0	2.7	0.7	2.2	3.1	4.6	6.4	10.8
EUR per 1 HRK, + = HRK appreciation	0.0	-1.6	0.1	-1.1	0.7	0.4	0.6	0.4	-0.1
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	6.7	7.6	7.6	10.0	7.9	6.3	6.3	7.2	7.4
Employment rate (%, 15–64 years)	62.1	62.0	63.4	61.4	63.6	64.6	64.1	64.2	64.9
Key interest rate per annum (%)	..	..	..	..	..	..	..	..	..
HRK per 1 EUR	7.4	7.5	7.5	7.6	7.5	7.5	7.5	7.5	7.5
<i>Nominal year-on-year change in period-end stock in %</i>									
Loans to the domestic nonbank private sector <sup>1</sup>	3.4	3.4	3.4	1.3	2.4	2.8	2.4	3.9	7.2
of which: loans to households	6.7	6.7	6.7	1.9	3.7	4.5	4.1	4.0	5.1
loans to nonbank corporations	-1.3	-1.3	-1.3	0.4	0.5	0.2	-0.1	3.7	10.4
<i>%</i>									
Share of foreign currency loans in total loans to the nonbank private sector	51.5	52.0	52.2	52.1	51.8	51.5	52.2	52.1	52.5
Return on assets (banking sector)	1.4	0.6	1.2	0.9	1.1	1.1	1.2	1.2	1.2
Tier 1 capital ratio (banking sector)	24.0	25.0	25.4	24.6	25.0	25.2	25.4	25.2	24.6
NPL ratio (banking sector)	5.5	5.4	4.3	5.3	5.1	4.7	4.3	4.2	3.8
<i>% of GDP</i>									
General government revenues	46.3	47.2	46.4	..	..	..	..	..	..
General government expenditures	46.1	54.5	49.2	..	..	..	..	..	..
General government balance	0.2	-7.3	-2.9	..	..	..	..	..	..
Primary balance	2.4	-5.3	-1.3	..	..	..	..	..	..
Gross public debt	71.1	87.3	79.8	..	..	..	..	..	..
<i>% of GDP</i>									
Debt of nonfinancial corporations (nonconsolidated)	84.5	93.5	84.8	..	..	..	..	..	..
Debt of households and NPISHs <sup>2</sup> (nonconsolidated)	34.0	37.9	34.8	..	..	..	..	..	..
<i>% of GDP (based on EUR), period total</i>									
Goods balance	-18.9	-17.6	-18.6	-20.7	-19.0	-17.5	-17.6	-28.8	-26.5
Services balance	18.5	10.6	17.2	3.5	9.6	41.5	8.5	4.1	17.3
Primary income	0.1	2.5	0.9	1.8	0.1	-0.8	2.8	1.5	0.0
Secondary income	3.1	4.1	3.7	5.1	3.3	3.4	3.2	3.4	3.1
Current account balance	2.8	-0.5	3.2	-10.4	-6.0	26.6	-3.1	-19.8	-6.0
Capital account balance	1.6	2.1	2.4	2.1	2.5	2.1	2.9	1.8	2.2
Foreign direct investment (net) <sup>3</sup>	-6.2	-1.4	-4.9	-4.5	-2.8	-7.1	-4.5	-6.5	-4.9
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	72.2	79.9	77.9	87.0	84.5	80.6	77.9	77.3	76.0
Gross official reserves (excluding gold)	33.3	37.8	43.7	42.2	41.2	44.3	43.7	40.8	41.0
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	7.8	9.3	9.8	10.3	9.7	10.3	9.8	8.5	8.1
<i>EUR million, period total</i>									
GDP at current prices	55,577	50,192	57,216	12,331	14,037	16,415	14,434	14,072	16,586

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

<sup>1</sup> Foreign currency component at constant exchange rates.<sup>2</sup> Nonprofit institutions serving households.<sup>3</sup> + = 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: domestic demand still defying post-pandemic and war-induced shocks, including inflation

Czechia's GDP expanded by 4.2% in the first half of 2022. Growth was driven by domestic demand, while net exports continued to provide a negative contribution, though this contribution halved compared to 2021. Again, additions to inventories due to persisting disruptions to supply chains were the most powerful driver of economic expansion by far. Unfinished products have thus been produced on stock and are waiting for completion upon arrival of missing components. Household consumption was another important contributor to growth. Apart from a low base in the first half of 2021, it profited from remaining pandemic savings and resilient nominal disposable income on the back of labor market tightness. However, a look at the quarterly profile suggests that accelerated inflation and the resulting tightened monetary policy have started to bite. Private consumption nearly came to a halt in the second quarter of 2022, which is echoed in some of the lowest levels of consumer sentiment in two decades. In contrast, business sentiment remains relatively favorable despite skyrocketing input prices, strongly increased rates on corporate loans and unprecedentedly high uncertainty. Hence, fixed investment recorded rather solid growth in the first half of 2022 on the back of foreign demand and ongoing automation. In addition, public investment benefited from the absorption of EU funds. Government consumption continued to show rather firm growth too, supported by defense spending, expenditures to cope with Ukrainian refugees and growing public sector wages and pensions.

Owing to lower exports of goods and a wider primary income deficit, the current account deficit deepened significantly, while net foreign direct investment turned markedly negative in the first half of 2022. Gross official reserves declined by more than 6 percentage points of GDP between end-2021 and mid-2022. This was, inter alia, the result of CNB's interventions in favor of the koruna, which got under pressure in the wake of the weaker current account balance, the outbreak of the war and new appointments to CNB's board.

The Czech Ministry of Finance originally projected the general government deficit at CZK 280 billion in 2022, about 4.5% of GDP. Yet, owing to rising costs from surging energy prices and the war, the Czech parliament approved an increase of the annual deficit to CZK 330 billion in October. Public debt is expected to surpass 42% of GDP in 2022, up from 30.1% in 2019, but broadly in line with 2021.

The labor market situation improved somewhat further in the first half of 2022. Despite the influx and quick integration of Ukrainian refugees into the labor market and a recent uptick in unemployment, the jobless rate remains very low both by historical and international standards. Significant shortages of (skilled) labor remain a challenge.

Apart from a marginal decline in August, inflation has been steadily rising since mid-2021 to historical records. Consumer prices increased by more than 17% in September, well above CNB's target ( $2\% \pm 1$  percentage point). Inflation has been broad-based as high core inflation has ballooned further driven by soaring food, energy, fuel but also housing prices. Clearly, the war in Ukraine has exacerbated inflation pressure through various channels. In response to rising inflation, the CNB board continued its tightening cycle: In May and June, it raised the key interest rate further in two steps, by 200 basis points in total, to 7%. In the two subsequent meetings and in a new composition, the board left the rates unchanged.

Table 6

## Main economic indicators: Czechia

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	3.0	-5.5	3.5	-2.3	9.5	3.5	3.6	4.9	3.6
Private consumption	2.7	-7.2	4.1	-6.2	9.3	4.8	8.5	8.4	0.1
Public consumption	2.5	4.2	1.5	-0.3	0.4	5.4	0.8	1.4	1.5
Gross fixed capital formation	5.9	-6.0	0.7	-3.7	4.2	1.5	0.5	8.2	8.6
Exports of goods and services	1.5	-8.0	6.9	4.0	34.8	-1.7	-3.4	1.1	1.7
Imports of goods and services	1.5	-8.2	13.3	5.6	36.0	9.8	6.1	5.1	2.7
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	3.0	-5.1	7.1	-1.6	8.8	10.7	10.3	7.6	4.2
Net exports of goods and services	0.0	-0.4	-3.6	-0.7	0.7	-7.2	-6.7	-2.8	-0.6
Exports of goods and services	1.1	-5.9	4.8	2.9	21.5	-1.1	-2.7	1.0	1.3
Imports of goods and services	-1.1	5.6	-8.4	-3.6	-20.8	-6.1	-4.0	-3.7	-2.0
<i>Year-on-year change of period average in %</i>									
Unit labor costs in the whole economy (nominal, per person)	4.3	7.2	1.8	0.4	1.8	3.8	1.2	4.3	2.9
Unit labor costs in manufacturing (nominal, per hour)	9.1	2.9	-2.6	-4.9	-15.0	5.1	5.7	8.1	8.7
Labor productivity in manufacturing (real, per hour)	-0.8	4.5	4.7	5.7	16.1	-0.1	-0.8	-1.2	-1.2
Labor costs in manufacturing (nominal, per hour)	8.2	7.1	2.4	0.5	-1.3	4.9	4.8	6.8	7.4
Producer price index (PPI) in industry	1.7	0.6	6.2	2.3	3.3	8.1	11.0	16.4	21.3
Consumer price index (here: HICP)	2.6	3.3	3.3	2.2	2.8	3.3	5.0	10.2	15.0
EUR per 1 CZK, + = CZK appreciation	-0.1	-3.0	3.2	-1.7	5.6	3.8	5.1	5.8	4.1
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	2.1	2.6	2.9	3.4	3.1	2.8	2.3	2.5	2.4
Employment rate (%, 15–64 years)	75.1	74.4	74.4	73.6	73.7	75.0	75.3	75.0	75.2
Key interest rate per annum (%)	1.9	0.8	0.9	0.3	0.3	0.7	2.4	4.2	5.6
CZK per 1 EUR	25.7	26.5	25.6	26.1	25.6	25.5	25.4	24.6	24.6
<i>Nominal year-on-year change in period-end stock in %</i>									
Loans to the domestic nonbank private sector <sup>1</sup>	5.0	5.0	5.0	2.6	4.4	6.3	9.7	10.4	9.2
of which: loans to households	6.1	6.1	6.1	6.9	8.1	9.1	9.9	10.3	8.3
loans to nonbank corporations	3.8	3.8	3.8	-2.7	-0.3	2.8	9.4	10.5	10.5
%									
Share of foreign currency loans in total loans to the nonbank private sector	14.5	14.6	14.6	14.8	13.5	14.1	14.6	15.6	17.3
Return on assets (banking sector)	1.2	0.6	0.8	0.5	0.7	0.8	0.8	1.0	1.2
Tier 1 capital ratio (banking sector)	20.8	23.6	22.8	23.4	23.9	23.2	22.8	21.7	20.9
NPL ratio (banking sector)	2.4	2.6	2.3	2.6	2.6	2.5	2.3	2.2	2.0
%									
General government revenues	41.4	41.6	40.5	..	..	..	..	..	..
General government expenditures	41.1	47.3	46.4	..	..	..	..	..	..
General government balance	0.3	-5.8	-5.9	..	..	..	..	..	..
Primary balance	1.0	-4.9	-5.2	..	..	..	..	..	..
Gross public debt	30.1	37.7	41.9	..	..	..	..	..	..
%									
Debt of nonfinancial corporations (nonconsolidated)	55.2	55.2	53.4	..	..	..	..	..	..
Debt of households and NPISHs <sup>2</sup> (nonconsolidated)	31.7	34.0	35.7	..	..	..	..	..	..
<i>% of GDP (based on EUR), period total</i>									
Goods balance	4.1	4.9	1.2	6.6	2.7	-2.0	-1.7	0.5	-2.4
Services balance	1.8	1.8	1.8	1.7	2.1	1.9	1.6	1.6	2.1
Primary income	-5.0	-4.2	-3.3	-1.9	-3.6	-4.7	-2.9	-1.5	-3.6
Secondary income	-0.6	-0.5	-0.5	-1.6	0.2	-0.5	-0.2	-1.4	-0.4
Current account balance	0.3	2.0	-0.9	4.8	1.3	-5.3	-3.3	-0.9	-4.3
Capital account balance	0.4	1.2	1.6	-0.1	1.6	2.4	2.1	-0.3	0.7
Foreign direct investment (net) <sup>3</sup>	-2.4	-2.6	-0.1	2.4	-2.1	-0.7	0.3	-1.0	-2.3
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	76.5	76.3	75.5	76.6	73.6	73.8	75.5	76.7	71.9
Gross official reserves (excluding gold)	59.0	62.5	64.1	64.6	62.1	62.8	64.1	62.9	57.8
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	10.4	11.9	11.0	12.1	11.1	11.0	11.0	10.7	9.6
<i>EUR million, period total</i>									
GDP at current prices	225,624	215,824	238,349	53,083	59,957	61,830	63,479	62,420	68,946

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

<sup>1</sup> Foreign currency component at constant exchange rates.<sup>2</sup> Nonprofit institutions serving households.<sup>3</sup> + = 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: stagflation seasoned with a twin-deficit

Hungary's GDP grew by 7.3% in the first half of 2022, but dynamics decelerated from the first to the second quarter. Household consumption was the main driver of growth, benefiting from various fiscal measures (e.g. 13<sup>th</sup> month pension, tax rebate for families, tax exemption for those under the age of 25, bonuses and wage hikes in the public sector), a generous minimum wage hike and continued employment growth. However, inflation increasingly reduced the real value of incomes, which likely contributed to the sharp worsening of consumer confidence. Investment growth was supported by private sector activity and accelerating investments in machinery and equipment. Driven by domestic demand, import growth outpaced export growth during the first half of 2022, which pushed the contribution of net real exports into negative territory.

Following heavy overspending during the first four months of the year (up until parliamentary elections in April), the government has since then undertaken various policy measures to ensure that the budget deficit targets for 2022 and 2023 (4.9% and 3.5% of GDP, respectively) are met. Initial revenue measures consisted of a temporary windfall profit tax plus hikes of some small taxes on consumption. Together with the delay of public investments and across-the-board cuts in spending by budgetary units, the announced package was worth around 3.7% of expected 2022 GDP. Facing sustained fiscal risks, the government later on introduced substantial limitations on the use of the preferential small business tax and a significant reduction in energy price subsidies for households.

Despite progress in negotiations about the unlocking of EU funds, the European Commission, in mid-September, recommended to the Council of the EU to withhold EUR 7.5 billion in cohesion funds (and all funds under the Recovery and Resilience Facility) until Hungary implements concrete measures to fight corruption by mid-December at the latest.

Inflation rose to 18.6% in August, mainly due to food and energy price increases, but price pressures have also fed through to industrial goods and services. Price caps on staple foods and fuel are still preventing the worst, and households continue to pay substantially less than the market price for electricity and gas even after the tightening of the subsidy scheme from early August. Inflation concerns, coupled with fears of an economic slowdown, a continuously widening deficit in the combined current and capital account amid persistent uncertainty around the future of EU funds, caused recurring currency weakness.

To combat these developments, Magyar Nemzeti Bank (MNB) further hiked the base rate from 4.4% in March 2022 to 13% in September. In addition, it has introduced euro liquidity-providing overnight swaps on a daily basis and has decided to reduce banking sector liquidity further (with effect from October) by raising banks' minimum reserve rate, regularly holding discount bond auctions and introducing a long-term deposit facility for banks. Despite these measures, the forint reached new all-time lows during the first half of October. Thus, the MNB implemented a 5 percentage point hike in its operational rate in mid-October (to 18%), started to provide foreign currency swaps and announced that it would cover foreign currency liquidity needs in connection with energy imports from its reserves.

Higher interest rates have led to a noticeable slowdown in lending to households (in particular for consumption loans). Lending to nonfinancial corporations accelerated during the reporting period despite higher interest rates, worsening economic prospects and the expiry of the MNB's preferential F4G and corporate bond purchase programs.



Table 7

## Main economic indicators: Hungary

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	4.9	-4.5	7.1	-2.2	17.8	6.2	7.4	8.2	6.5
Private consumption	5.0	-1.2	4.9	-5.0	9.9	6.9	8.0	12.0	9.6
Public consumption	5.8	-0.5	2.0	8.2	0.5	3.2	-2.9	4.8	3.1
Gross fixed capital formation	12.8	-7.1	5.2	-3.3	9.6	11.8	0.2	10.6	6.2
Exports of goods and services	5.4	-6.1	10.3	5.5	36.1	2.8	2.6	5.1	7.6
Imports of goods and services	8.2	-3.9	9.1	2.9	27.2	7.7	2.1	8.4	7.0
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	6.8	-2.6	6.0	-4.6	11.9	9.8	7.0	11.2	5.9
Net exports of goods and services	-2.0	-2.0	1.1	2.4	5.8	-3.6	0.5	-3.0	0.6
Exports of goods and services	4.5	-5.0	8.1	4.6	25.8	2.2	2.1	4.8	6.3
Imports of goods and services	-6.5	3.1	-7.0	-2.2	-19.9	-5.8	-1.6	-7.8	-5.7
<i>Year-on-year change of period average in %</i>									
Unit labor costs in the whole economy (nominal, per person)	3.1	6.7	2.2	7.9	-3.9	2.8	2.2	12.6	6.6
Unit labor costs in manufacturing (nominal, per hour)	6.3	8.3	0.2	-0.7	-15.8	9.3	11.3	7.1	7.6
Labor productivity in manufacturing (real, per hour)	4.3	-0.2	5.8	4.6	20.6	0.2	0.4	3.8	2.5
Labor costs in manufacturing (nominal, per hour)	10.9	7.4	6.8	3.9	1.5	9.5	11.7	11.2	10.3
Producer price index (PPI) in industry	2.2	4.3	13.5	8.0	10.9	14.4	20.7	23.4	32.0
Consumer price index (here: HICP)	3.4	3.4	5.2	3.3	5.3	5.0	7.1	8.3	11.0
EUR per 1 HUF, + = HUF appreciation	-2.0	-7.4	-2.0	-6.1	-0.8	-0.1	-1.0	-0.9	-7.9
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	3.5	4.3	4.1	4.5	4.1	3.9	3.7	3.8	3.2
Employment rate (%, 15–64 years)	70.1	69.7	73.1	71.8	72.8	73.6	74.1	74.0	74.3
Key interest rate per annum (%)	0.9	0.8	1.1	0.6	0.6	1.3	2.0	3.1	5.3
HUF per 1 EUR	325.2	351.2	358.5	361.0	354.7	353.9	364.3	364.1	385.3
<i>Nominal year-on-year change in period-end stock in %</i>									
Loans to the domestic nonbank private sector <sup>1</sup>	12.5	12.5	12.5	8.7	10.5	11.6	12.1	9.3	10.2
of which: loans to households	15.5	15.5	15.5	13.4	15.5	16.0	14.9	11.0	8.9
loans to nonbank corporations	10.4	10.4	10.4	5.4	6.8	8.3	9.9	7.9	11.3
%									
Share of foreign currency loans in total loans to the nonbank private sector	23.8	22.3	20.3	21.9	20.0	20.3	20.3	21.3	22.3
Return on assets (banking sector)	1.2	0.4	0.9	1.1	1.3	1.2	0.9	1.1	0.6
Tier 1 capital ratio (banking sector)	16.4	17.4	18.1	17.3	17.2	16.6	18.1	17.3	16.7
NPL ratio (banking sector)	2.6	2.4	1.6	2.3	2.2	1.8	1.6	1.6	1.9
<i>% of GDP</i>									
General government revenues	43.9	43.4	41.1	..	..	..	..	..	..
General government expenditures	46.0	51.2	47.9	..	..	..	..	..	..
General government balance	-2.1	-7.8	-6.8	..	..	..	..	..	..
Primary balance	0.1	-5.5	-4.5	..	..	..	..	..	..
Gross public debt	65.5	79.6	76.8	..	..	..	..	..	..
<i>% of GDP</i>									
Debt of nonfinancial corporations (nonconsolidated)	62.8	68.7	76.0	..	..	..	..	..	..
Debt of households and NPISHs <sup>2</sup> (nonconsolidated)	18.2	20.1	20.4	..	..	..	..	..	..
<i>% of GDP (based on EUR), period total</i>									
Goods balance	-2.5	-1.0	-3.0	3.3	-1.7	-6.6	-5.3	-7.0	-6.7
Services balance	4.8	2.9	3.3	2.2	3.6	4.2	2.9	3.2	4.5
Primary income	-2.5	-2.5	-3.4	-2.8	-3.2	-3.7	-3.6	-1.9	-3.1
Secondary income	-0.6	-0.5	-1.1	-1.3	-1.7	-0.7	-0.8	-0.8	-0.9
Current account balance	-0.8	-1.1	-4.2	1.3	-3.0	-6.8	-6.8	-6.5	-6.2
Capital account balance	1.8	2.0	2.6	2.0	1.7	1.9	4.4	4.7	2.2
Foreign direct investment (net) <sup>3</sup>	-0.8	-1.7	-1.8	1.4	-0.5	-2.4	-4.9	3.9	-1.2
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	73.1	81.0	84.6	87.1	84.9	87.5	84.6	86.2	84.3
Gross official reserves (excluding gold)	18.4	23.3	21.8	20.2	18.2	22.7	21.8	19.8	19.7
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	2.8	3.6	3.2	3.1	2.8	3.4	3.2	2.9	2.7
<i>EUR million, period total</i>									
GDP at current prices	146,395	137,683	153,756	31,846	38,778	39,746	43,387	37,914	42,502

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

<sup>1</sup> Foreign currency component at constant exchange rates.<sup>2</sup> Nonprofit institutions serving households.<sup>3</sup> + = 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: strong growth coupled with policy support against jumping inflation

Poland's GDP growth reached 9.2% year on year in the first quarter of 2022, then sharply declined to 4.7% in the second quarter. Quarter-on-quarter growth amounted to 2.5% in the first quarter, then turned negative to –2.1%. In the first quarter, growth resulted almost exclusively from domestic demand (including a substantial contribution from inventory buildup). In the second quarter, the contribution of domestic demand continued to be more important than that of foreign demand for year-on-year growth, but it was clearly negative for quarter-on-quarter growth due to markedly slower buildup of inventory, which includes semifinished fixed investment. With annual growth of domestic demand outpacing that of foreign demand, import growth exceeded export growth considerably, implying a negative contribution of net exports to GDP growth. In balance of payment terms, the goods and services balance deteriorated in the first half of 2022 compared to a year earlier but remained positive. With the primary balance deficit rising to 5.6% of GDP in the second quarter of 2022, the combined current and capital account deficit came in at 2.6% of GDP, compared to a surplus of 1.7% of GDP a year earlier. It was, however, more than covered by net FDI inflows. Within domestic demand, quarter-on-quarter growth of private consumption even accelerated to 1.7% in the second quarter from 1.2% in the first. Rising employment coupled with nominal wage growth matching inflation more than offset deteriorating consumer confidence.

In contrast, gross fixed capital formation contracted sharply quarter on quarter in the second quarter after expanding at a double-digit rate in the first quarter. Still, annual growth even accelerated in the second quarter, thanks to a favorable base effect. While industrial confidence was moderately weaker in the second quarter than at the end of 2021, factors supporting investment remained strong, e.g. sales profitability, the share of profitable enterprises, corporate liquidity and capacity utilization. Within total fixed investment, residential investment was only marginally higher than a year earlier in the second quarter.

In manufacturing, nominal unit labor costs were slightly higher in the second quarter than a year earlier but the increase was less pronounced than in the euro area, while the złoty's value in euro was weaker by 2.5%. From February to August, the złoty's value in euro depreciated by 3.5%. According to the HICP (and national CPI) definition, inflation rose from 8.1% (8.5%) in February to 14.8% (16.1%) in August. In parallel, core inflation rose from 6.9% (6.7%) to 11.5% (9.9%) in August. Within core HICP, nonenergy industrial goods inflation amounted to 8.7% in August. The Monetary Policy Council (MPC), pursuing a CPI inflation target of  $2.5\% \pm 1$  percentage point, hiked its main policy rate from 2.75% to 6.75% in monthly steps from February to September. In September 2022, the MPC stated that its recent hike served to reduce the persisting risk of inflation running above target in the medium term and to curb inflation expectations. The MPC stated that it would take all necessary actions to ensure stability, including above all to reduce the risk of inflation remaining elevated.

In May, the European Commission forecast that Poland's general government deficit would rise from 1.9% of GDP in 2021 to 4.0% in 2022 and 4.4% in 2023, while general government debt would decline from 53.8% of GDP at end-2021 to 50% at end-2023. The deficit increase stems from the decline of the revenue-to-GDP ratio as a result of cuts in indirect tax rates under the “anti-inflationary shield” and direct tax rates, particularly the basic personal income tax rate, under the Polish Deal.



Table 8

## Main economic indicators: Poland

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	4.7	-2.2	5.9	-1.1	10.9	6.2	7.9	9.2	4.7
Private consumption	3.9	-2.8	6.0	-0.4	13.0	4.7	7.7	6.3	6.6
Public consumption	6.5	4.9	3.4	1.9	3.9	3.6	4.0	1.1	1.3
Gross fixed capital formation	6.1	-4.9	3.8	-1.2	2.8	6.3	5.4	5.2	7.1
Exports of goods and services	5.2	0.0	11.8	6.8	29.4	7.4	6.9	2.4	5.0
Imports of goods and services	3.0	-1.1	15.9	9.2	33.8	12.0	12.0	8.3	8.3
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	3.5	-2.7	7.1	-0.5	10.7	8.0	10.0	12.6	6.3
Net exports of goods and services	1.3	0.6	-1.2	-0.7	0.1	-1.8	-2.0	-3.4	-1.6
Exports of goods and services	2.9	0.0	6.6	3.9	15.5	4.1	3.9	1.9	3.4
Imports of goods and services	-1.6	0.6	-7.8	-4.5	-15.4	-5.9	-5.9	-5.3	-5.0
<i>Year-on-year change of period average in %</i>									
Unit labor costs in the whole economy (nominal, per person)	2.4	8.0	0.6	5.6	-2.5	-0.8	0.4	2.7	10.7
Unit labor costs in manufacturing (nominal, per hour)	4.3	4.8	-4.6	-4.1	-12.9	0.6	-0.8	-1.2	1.6
Labor productivity in manufacturing (real, per hour)	2.4	1.8	12.9	10.2	22.9	9.2	10.3	12.3	10.3
Labor costs in manufacturing (nominal, per hour)	6.7	6.2	8.0	5.7	7.1	9.8	9.4	10.9	12.1
Producer price index (PPI) in industry	1.4	-0.5	8.1	2.6	6.6	9.6	13.6	18.5	25.3
Consumer price index (here: HICP)	2.1	3.7	5.2	3.9	4.6	5.1	7.3	9.0	12.8
EUR per 1 PLN, + = PLN appreciation	-0.9	-3.3	-2.6	-4.9	-0.6	-2.8	-2.4	-1.6	-2.5
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	3.4	3.2	3.4	4.1	3.6	3.1	2.9	3.2	2.7
Employment rate (%, 15–64 years)	68.2	68.7	70.3	69.2	70.0	71.0	71.0	71.0	71.4
Key interest rate per annum (%)	1.5	0.5	0.3	0.1	0.1	0.1	1.1	2.7	5.1
PLN per 1 EUR	4.3	4.4	4.6	4.5	4.5	4.6	4.6	4.6	4.6
<i>Nominal year-on-year change in period-end stock in %</i>									
Loans to the domestic nonbank private sector <sup>1</sup>	5.0	5.0	5.0	-2.2	0.3	2.6	5.0	6.1	6.1
of which: loans to households	5.6	5.6	5.6	1.3	3.0	4.0	4.2	3.1	0.4
loans to nonbank corporations	4.1	4.1	4.1	-8.0	-4.4	-0.1	6.5	11.7	16.9
%									
Share of foreign currency loans in total loans to the nonbank private sector	19.2	19.6	17.5	19.3	18.1	18.0	17.5	17.6	17.7
Return on assets (banking sector)	0.7	0.0	0.2	0.4	0.5	0.5	0.2	1.0	0.9
Tier 1 capital ratio (banking sector)	17.0	18.5	17.3	18.6	18.6	18.0	17.3	16.6	16.9
NPL ratio (banking sector)	6.6	7.0	5.8	6.7	6.5	6.3	5.8	5.7	5.6
<i>% of GDP</i>									
General government revenues	41.0	41.3	42.3	..	..	..	..	..	..
General government expenditures	41.8	48.2	44.2	..	..	..	..	..	..
General government balance	-0.7	-6.9	-1.9	..	..	..	..	..	..
Primary balance	0.6	-5.6	-0.8	..	..	..	..	..	..
Gross public debt	45.6	57.1	53.8	..	..	..	..	..	..
<i>% of GDP</i>									
Debt of nonfinancial corporations (nonconsolidated)	44.7	44.7	43.5	..	..	..	..	..	..
Debt of households and NPISHs <sup>2</sup> (nonconsolidated)	34.7	33.7	32.1	..	..	..	..	..	..
<i>% of GDP (based on EUR), period total</i>									
Goods balance	-0.8	1.3	-1.3	0.9	0.7	-2.8	-3.5	-4.7	-3.3
Services balance	4.5	4.4	4.7	4.9	5.1	4.6	4.1	4.8	6.1
Primary income	-4.2	-3.8	-4.7	-5.2	-5.3	-5.6	-3.1	-4.8	-5.6
Secondary income	0.2	0.5	-0.1	-0.4	0.2	0.2	-0.3	-0.3	-0.3
Current account balance	-0.2	2.4	-1.4	0.2	0.7	-3.5	-2.7	-5.0	-3.1
Capital account balance	1.5	1.4	0.7	-0.1	1.0	1.0	0.7	-0.5	0.5
Foreign direct investment (net) <sup>3</sup>	-2.0	-2.4	-4.1	-6.1	-1.7	-5.9	-2.8	-7.9	-3.2
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	59.2	58.1	55.8	58.8	56.8	57.1	55.8	55.1	54.8
Gross official reserves (excluding gold)	19.6	21.7	23.5	23.6	22.6	23.9	23.5	21.8	22.1
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	4.8	5.5	5.2	5.9	5.3	5.5	5.2	4.6	4.5
<i>EUR million, period total</i>									
GDP at current prices	533,674	526,350	574,131	129,958	137,110	143,563	163,500	148,605	154,836

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

<sup>1</sup> Foreign currency component at constant exchange rates.<sup>2</sup> Nonprofit institutions serving households.<sup>3</sup> + = 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: rising inflation, weak fiscal position and increasing current account deficit

Romania's GDP grew by 5.8% year on year in the first half of 2022. With a seasonally adjusted quarter-on-quarter growth rate of 5.1%, GDP expansion was particularly strong in the first quarter of the year. Growth slowed down in the second quarter but stayed relatively brisk.

In the first half of 2022, GDP growth was mainly driven by private consumption and changes in inventories (particularly in the second quarter). Private consumption benefited from the lifting of COVID-19 restrictions and the release of pent-up demand. Due to rising inflation, real wage growth turned negative in April 2022 with nominal wage growth remaining above 10% until mid-2022. The unemployment rate declined from 5.9% in the fourth quarter of 2021 to 5.3% in the second quarter of 2022. After contracting in the second half of 2021, gross fixed capital formation increased again and showed mildly positive year-on-year growth rates. An increase in construction output as well as investment in equipment supported this development. Growth of domestic credit to nonfinancial corporations accelerated noticeably in the first half of 2022. As export growth declined in the second quarter, while import growth picked up, the negative contribution of net exports widened markedly. Industrial production shrank by 2.6% in the second quarter reflecting weakening external demand and supply chain bottlenecks.

Consumer price inflation climbed to 15.3% in August 2022 from 8.2% at end-2021, moving further away from the upper bound of the inflation target variation band of  $2.5\% \pm 1$  percentage point as defined by the National Bank of Romania (NBR). Inflationary trends were fueled by electricity, gas, fuels and food items amid supply-side shocks.

The revision of the price capping schemes for electricity and gas prices to a more restrictive form in April led to an increase in the inflation rate in the subsequent months. Nevertheless, the capping scheme continued to have an important disinflationary effect. Without this scheme, inflation would have run about 5 percentage points higher in recent months. In addition to this price capping scheme, social support measures to vulnerable households were implemented (such as one-off payments to recipients of small pensions, vouchers to low-income earners). Moreover, public sector wages were hiked somewhat in August. Romania's fiscal council expects the budget deficit (in cash terms) to reach 7% of GDP in 2022 compared to the 5.8% target stipulated in the budget revision enacted in August. In response to rising inflation, the NBR raised its key policy rate in four steps from 3% in April to 6.25% in early October. According to the current NBR inflation forecast, inflation will decline to 13.9% in the fourth quarter of 2022 and further to 7.5% in the fourth quarter of 2023.

The current account deficit widened markedly in the first half of 2022 and reached 9.5% of GDP, compared to 7% of GDP recorded in the first half of 2021. The widening was caused by a rising trade in goods deficit (due to volume and price effects) and a growing deficit in the primary income balance related to outflows of reinvested earnings and distributed dividends. The net borrowing position from current and capital accounts worsened too (reaching 8% of GDP), as the capital account surplus only increased to a small extent. Net FDI inflows covered less than half of the net borrowing position in the first half of 2022. Meanwhile, unit labor costs in the manufacturing sector rose considerably, while the Romanian leu remained nearly stable vis-à-vis the euro.

Table 9

## Main economic indicators: Romania

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	4.2	-3.8	6.0	-0.1	15.4	6.9	2.4	6.4	5.3
Private consumption	3.8	-4.8	7.6	0.9	11.7	9.0	9.4	7.2	8.0
Public consumption	8.0	1.5	5.3	-4.3	2.1	-2.4	12.5	5.4	-0.4
Gross fixed capital formation	12.7	4.4	2.5	11.3	12.9	-1.3	-6.0	1.7	2.5
Exports of goods and services	4.6	-9.3	12.8	1.0	41.7	7.2	7.8	8.6	4.9
Imports of goods and services	8.8	-5.9	15.0	3.1	42.0	11.2	8.2	10.8	19.1
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	5.8	-2.3	7.3	0.3	16.9	6.0	3.7	7.9	4.2
Net exports of goods and services	-1.6	-1.5	-1.4	-0.7	-2.9	-2.0	-0.5	-1.9	-8.1
Exports of goods and services	2.2	-3.8	4.7	0.2	14.7	2.5	2.7	4.7	2.3
Imports of goods and services	-3.9	2.3	-6.1	-1.0	-17.6	-4.5	-3.3	-6.6	-10.4
<i>Year-on-year change of period average in %</i>									
Unit labor costs in the whole economy (nominal, per person)	6.5	4.5	1.3	4.7	-3.4	-0.1	4.2	5.0	5.3
Unit labor costs in manufacturing (nominal, per hour)	13.3	7.6	4.2	0.5	-4.9	9.3	12.6	11.8	15.1
Labor productivity in manufacturing (real, per hour)	-0.8	0.4	3.1	5.4	11.6	0.3	-4.0	-0.1	-2.5
Labor costs in manufacturing (nominal, per hour)	12.5	8.0	7.5	5.9	6.1	9.6	8.1	11.7	12.2
Producer price index (PPI) in industry	4.0	0.0	14.9	2.3	10.1	16.4	30.8	46.2	47.3
Consumer price index (here: HICP)	3.9	2.3	4.1	2.3	3.1	4.3	6.6	8.2	12.4
EUR per 1 RON, + = RON appreciation	-1.9	-1.9	-1.7	-1.7	-1.7	-1.8	-1.6	-1.4	-0.4
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	4.0	5.2	5.6	6.1	5.1	5.3	5.9	6.0	5.3
Employment rate (%, 15–64 years)	65.8	65.6	61.9	60.8	62.4	62.3	62.1	62.4	63.5
Key interest rate per annum (%)	2.5	1.9	1.4	1.3	1.3	1.3	1.6	2.3	3.4
RON per 1 EUR	4.7	4.8	4.9	4.9	4.9	4.9	4.9	4.9	4.9
<i>Nominal year-on-year change in period-end stock in %</i>									
Loans to the domestic nonbank private sector <sup>1</sup>	5.5	5.5	5.5	6.2	10.6	12.7	14.2	15.2	17.1
of which: loans to households	6.7	6.7	6.7	4.6	7.5	8.8	9.3	9.3	8.6
loans to nonbank corporations	4.2	4.2	4.2	7.9	14.3	17.3	19.8	21.7	26.4
<i>%</i>									
Share of foreign currency loans in total loans to the nonbank private sector	32.4	30.5	27.6	29.9	28.9	28.4	27.6	27.3	28.0
Return on assets (banking sector)	1.4	1.0	1.4	1.3	1.4	1.5	1.4	1.2	1.5
Tier 1 capital ratio (banking sector)	20.1	23.2	20.9	22.7	22.1	21.4	20.9	19.0	18.9
NPL ratio (banking sector)	4.1	3.8	3.4	3.9	3.8	3.7	3.4	3.3	3.0
<i>% of GDP</i>									
General government revenues	31.9	32.7	32.8	..	..	..	..	..	..
General government expenditures	36.2	42.0	39.9	..	..	..	..	..	..
General government balance	-4.3	-9.3	-7.1	..	..	..	..	..	..
Primary balance	-3.2	-7.9	-5.7	..	..	..	..	..	..
Gross public debt	35.3	47.2	48.8	..	..	..	..	..	..
<i>% of GDP</i>									
Debt of nonfinancial corporations (nonconsolidated)	32.2	33.3	33.3	..	..	..	..	..	..
Debt of households and NPISHs <sup>2</sup> (nonconsolidated)	15.3	16.1	15.8	..	..	..	..	..	..
<i>% of GDP (based on EUR), period total</i>									
Goods balance	-8.0	-8.7	-9.6	-10.9	-9.3	-9.5	-9.3	-12.1	-11.4
Services balance	3.9	4.3	4.0	4.6	3.8	3.6	4.1	4.3	4.8
Primary income	-1.4	-1.5	-1.7	0.3	-3.1	-2.8	-1.1	-1.9	-3.8
Secondary income	0.7	0.9	0.4	0.1	0.6	0.8	0.2	0.3	0.7
Current account balance	-4.9	-5.0	-7.0	-5.9	-8.0	-7.8	-6.2	-9.4	-9.6
Capital account balance	1.3	1.9	2.2	1.1	1.4	1.5	4.2	0.9	2.1
Foreign direct investment (net) <sup>3</sup>	-2.2	-1.3	-3.0	-4.5	-2.7	-4.2	-1.3	-5.2	-2.4
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	49.1	58.0	56.1	56.3	56.4	57.0	56.1	54.8	52.7
Gross official reserves (excluding gold)	14.7	17.1	16.9	16.3	16.1	17.6	16.9	16.1	16.1
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	4.0	4.9	4.3	4.7	4.4	4.7	4.3	4.1	4.0
<i>EUR million, period total</i>									
GDP at current prices	223,085	218,706	239,991	46,743	55,871	65,172	72,205	55,359	67,785

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

<sup>1</sup> Foreign currency component at constant exchange rates.<sup>2</sup> Nonprofit institutions serving households.<sup>3</sup> + = 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 Türkiye: widening external deficit despite restrictive measures to substitute for interest rate hikes

Published figures show that Türkiye's GDP growth remained strong in the first half of 2022, amounting to more than 7% in both quarters. Quarter-on-quarter growth accelerated from 0.7% in the first quarter to 2.1% in the second. Main driving forces were private consumption and real exports, which both showed double-digit year-on-year growth in both quarters and a strong acceleration of quarter-on-quarter growth in the second quarter. By contrast, published real import growth rates were far smaller so that net exports made a substantial positive contribution to growth. However, the sum of the growth contributions of all published demand components amounted to annual GDP growth of more than 15% in the first half of 2022, far above the published rate. The difference could partly stem from a very large negative contribution of inventory change, for which no figures have been published, or from an underreporting of real imports. The latter argument is supported by very high import growth recorded in the balance of payments (in USD). Import growth outpaced export growth by far so that both the goods and services deficit and the current account deficit widened to about 7% and 8% of GDP, respectively, in the first half of 2022. Net FDI inflows remained at close to 1% of GDP and, together with net other investment inflows, offset portfolio investment outflows. Net errors and omissions amounted to 5% of GDP, limiting the decline of gross official reserves during the first half of 2022 to 3% of GDP. As a result, reserves stood at 2.2 monthly imports in mid-2022 (including gold: 3.8), down from 2.7 (4.6) a year earlier. At the same time, off-balance sheet net short positions due within one year amounted to 120% of official FX reserves, with about half being attributable to FX swaps with domestic banks and the other half to swap agreements with Arabian and Asian central banks.

Inflation accelerated further from February to August, with both the headline rate and the core rate rising markedly to 80% and 75%, respectively. However, the Turkish central bank (TCMB) delivered two policy rate cuts in August and September (to 12%), implying a large negative real key rate. On average, in the first half of 2022, the Turkish lira's value measured in euro was 5% lower than a year earlier (in CPI-deflated terms), as double-digit real depreciation in the fourth quarter of 2021 was followed by double-digit real appreciation in the first half of 2022.

Lira stabilization resulted from measures aimed to substitute for interest rate hikes, including the offer to convert FX or gold deposits to central bank-guaranteed exchange rate-linked lira deposits, higher reserve requirements for banks' FX deposits where only a small share of FX deposits was converted, and an increase of the share of FX revenues that exporters were required to sell to the central bank to 40% in April (from 25% since January 1, 2022). These measures were aimed at increasing lira demand and reducing banks' negative on-balance sheet net FX position so that banks have less need for entering into swaps with the central bank by selling FX initially. As a result, households' FX deposits declined by 20% from end-2021 to mid-2022 and banks' negative on-balance net FX position was lower by 30%. Corporations succeeded in reducing their negative on-balance net FX position inter alia by moderately increasing their FX deposits with domestic banks. However, in mid-2022, the Turkish supervisory authority announced that any corporation will only have access to new lira loans if it has FX holdings (including gold) below a low ceiling. Moreover, to contain lira loan growth, the central bank introduced and gradually raised reserve requirement ratios on selected commercial lira loans and added such ratios for banks with high loan growth or relatively high loan interest rates.

Table 10

## Main economic indicators: Türkiye

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	0.8	1.9	11.4	7.5	22.2	7.9	9.6	7.5	7.6
Private consumption	1.5	3.3	15.3	7.7	24.2	9.4	20.4	21.3	22.4
Public consumption	3.8	2.5	2.6	-1.8	3.1	8.0	1.4	3.1	2.3
Gross fixed capital formation	-12.5	7.4	7.4	12.1	21.1	-1.3	2.1	4.2	4.7
Exports of goods and services	4.2	-14.4	24.9	3.2	60.0	25.9	21.6	14.8	16.4
Imports of goods and services	-5.0	6.7	2.4	-0.8	20.5	-8.7	3.1	2.2	5.8
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-2.1	4.1	11.4	7.3	20.5	6.3	12.7	14.3	15.1
Net exports of goods and services	2.3	-5.4	5.0	1.0	6.8	7.4	4.4	3.1	2.8
Exports of goods and services	1.1	-3.8	5.6	0.8	11.4	5.3	5.2	3.6	4.1
Imports of goods and services	1.3	-1.6	-0.6	0.2	-4.6	2.1	-0.8	-0.5	-1.3
<i>Year-on-year change of period average in %</i>									
Unit labor costs in the whole economy (nominal, per person)	..	..	..	..	..	..	..	..	..
Unit labor costs in manufacturing (nominal, per hour)	21.9	10.0	19.1	9.0	13.1	29.2	26.7	47.8	53.3
Labor productivity in manufacturing (real, per hour)	1.7	8.3	-0.2	4.5	-6.8	-1.1	3.3	2.5	3.1
Labor costs in manufacturing (nominal, per hour)	23.8	18.9	19.1	13.9	5.4	27.8	30.9	51.6	58.0
Producer price index (PPI) in industry	17.6	12.2	43.9	28.2	38.8	44.8	60.6	104.7	131.0
Consumer price index (here: HICP)	15.2	12.3	19.6	15.6	17.1	19.2	25.9	54.8	74.1
EUR per 1 TRY, + = TRY appreciation	-10.4	-21.0	-23.2	-24.3	-25.2	-15.9	-26.4	-43.1	-39.8
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	14.0	13.4	12.2	13.8	12.0	11.9	11.2	11.8	10.4
Employment rate (%, 15–64 years)	50.3	47.5	50.3	48.0	49.7	51.6	51.7	50.8	53.0
Key interest rate per annum (%)	20.6	10.2	17.8	17.3	19.0	18.9	15.9	14.0	14.0
TRY per 1 EUR	6.4	8.0	10.5	8.9	10.1	10.1	12.8	15.7	16.8
<i>Nominal year-on-year change in period-end stock in %</i>									
Loans to the domestic nonbank private sector <sup>1</sup>	11.0	36.3	36.1	31.9	20.7	14.5	36.1	45.1	60.4
of which: loans to households	15.9	40.1	20.4	35.4	24.9	15.9	20.4	22.7	37.5
loans to nonbank corporations	9.5	35.0	41.9	31.3	20.1	14.7	41.9	52.4	67.4
<i>%</i>									
Share of foreign currency loans in total loans to the nonbank private sector	35.2	30.9	38.1	32.4	32.7	32.2	38.1	37.0	33.9
Return on assets (banking sector)	1.1	1.0	1.3	1.0	1.0	1.1	1.3	2.6	3.3
Tier 1 capital ratio (banking sector)	13.9	14.1	13.2	13.4	13.3	12.9	13.2	15.4	13.6
NPL ratio (banking sector)	5.7	4.4	3.4	4.1	3.9	3.8	3.4	3.0	2.7
<i>% of GDP</i>									
General government revenues	31.0	31.2	30.7	..	..	..	..	..	..
General government expenditures	35.5	35.9	33.4	..	..	..	..	..	..
General government balance	-4.5	-4.7	-2.7	..	..	..	..	..	..
Primary balance	-1.9	-1.6	0.4	..	..	..	..	..	..
Gross public debt	32.7	39.7	42.0	..	..	..	..	..	..
<i>% of GDP</i>									
Debt of nonfinancial corporations (nonconsolidated)	..	..	..	..	..	..	..	..	..
Debt of households and NPISHs <sup>1</sup> (nonconsolidated)	..	..	..	..	..	..	..	..	..
<i>% of GDP (based on EUR), period total</i>									
Goods balance	-2.2	-5.3	-3.6	-3.7	-3.4	-3.2	-4.2	-11.7	-9.1
Services balance	4.5	1.6	3.3	1.2	1.9	5.4	4.0	2.7	4.4
Primary income	-1.7	-1.3	-1.5	-1.6	-1.9	-1.2	-1.3	-1.4	-1.3
Secondary income	0.1	0.0	0.1	0.1	0.3	0.1	0.1	-0.2	-0.1
Current account balance	0.7	-5.0	-1.7	-4.0	-3.1	1.2	-1.4	-10.7	-6.2
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) <sup>2</sup>	-0.9	-0.6	-0.9	-0.7	-0.7	-1.5	-0.7	-0.3	-1.0
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	52.4	51.3	51.4	53.8	53.0	53.1	51.4	52.2	51.4
Gross official reserves (excluding gold)	10.3	6.5	9.3	6.5	7.5	10.7	9.3	8.3	7.5
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	4.1	2.4	3.2	2.4	2.7	3.8	3.2	2.6	2.2
<i>EUR million, period total</i>									
GDP at current prices	677,821	625,392	686,913	156,572	157,253	191,802	181,287	159,999	202,875

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

<sup>1</sup> Nonprofit institutions serving households.<sup>2</sup> + = 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: continued war in Ukraine and slide into sanctions-triggered recession

Struck by severe Western sanctions, which were further tightened in the late spring and early summer of 2022, Russia's GDP growth rate turned negative in the second quarter (−4%) and remained so in July and August, which pulled down the growth rate for the first eight months to about −1.5%. After some other Russian banks had already been excluded from the international financial messaging system SWIFT, Russia's largest bank, Sberbank, followed in May. A number of renowned Western firms withdrew or curtailed their activities in the country. Russia has, in turn, been imposing some punitive countermeasures culminating in the suspension of the overwhelming share of its gas deliveries to the EU.

While economic activity in the first quarter was still supported by private consumption and fixed investment, the upsurge of inflation in March and April soon dampened demand. The second quarter brought a slump in private consumption, while fixed investment slowed down, but still expanded. While real export and import figures have so far not been published for 2022, Russian imports have doubtlessly plummeted due to Western trade restrictions, while exports have held up better than expected due to some successful redirecting of oil deliveries to big emerging markets (e.g. China, India, Türkiye). The result was a spike in net exports in the first eight months of 2022. After recouping its initial sharp depreciation against the US dollar in April, the ruble, as of late September, was even 20% more expensive than prior to the invasion, largely due to a combination of high energy prices, the large current account surplus and the authorities' remaining capital controls (even after some easing). The jobless rate reached a post-Soviet low of 3.9% in July and August. The sharp key rate hike in late February as well as the ruble's recovery and subdued demand brought back consumer price growth from its peak of 17.8% in April to 13.7% in September. Declining inflation and inflation expectations allowed the monetary authority to continue to cut its key rate from 17% in early April to 7.5% in mid-September.

Buoyed by further rising oil prices (average Urals price in January to August 2022: USD 82.1 per barrel, i.e. 26% more than in the same period of the previous year), Russia still achieved a fiscal surplus in the first eight months of 2022, but this surplus has narrowed substantially in recent months (to about 0.2% of pro rata GDP in the mentioned period). This narrowing was because of hefty shortfalls recorded in July and August against the backdrop of a combination of ruble appreciation (with oil sales remaining USD-denominated), declining import tax revenue and sizable spending increases. Due to the allocation of substantial saved budgetary means of 2021, the assets of the National Wealth Fund expanded by 8% over the first eight months of 2022 to USD 196.6 billion (or about 9% of GDP).

Banks are currently doing business in a regime of regulatory lenience, flanked by subsidized lending programs. The initially high interest rate level coupled with weak demand and continuing uncertainty, pushed growth of loans to enterprises and households to −3% (year on year, in real terms and exchange rate adjusted) by end-August 2022. In the meantime, deposits of enterprises continued to expand (+9% year on year), while retail deposits strongly declined (−7%). According to the Bank of Russia, Russia's banks lost around RUB 1,500 billion (or about USD 25 billion) in the first half of 2022, which corresponds to about 12% of the sector's regulatory capital as of end-2021. Losses are expected to increase further in the second half of 2022.



Table 11

## Main economic indicators: Russia

	2019	2020	2021	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	2.2	-2.7	4.7	-0.3	10.5	4.0	5.0	3.5	-4.1
Private consumption	3.8	-7.3	9.5	-2.1	27.2	9.5	7.1	4.5	-5.4
Public consumption	2.4	1.9	1.5	1.2	2.6	1.3	1.1	0.0	-0.4
Gross fixed capital formation	1.0	-4.6	6.8	1.8	12.2	8.2	5.2	11.1	3.2
Exports of goods and services	0.7	-4.1	3.5	-0.6	-1.1	8.7	7.1	..	..
Imports of goods and services	3.1	-11.9	16.9	0.0	32.2	19.2	17.7	..	..
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	3.0	-4.7	7.4	-0.3	17.1	6.0	7.1	3.0	-6.1
Net exports of goods and services	-0.5	1.7	-2.7	-0.2	-6.9	-1.8	-2.4	..	..
Exports of goods and services	0.2	-1.1	0.9	-0.2	-0.3	2.1	1.7	..	..
Imports of goods and services	-0.7	2.9	-3.7	0.0	-6.5	-3.9	-4.1	..	..
<i>Year-on-year change of period average in %</i>									
Unit labor costs in the whole economy (nominal, per person)	..	..	..	..	..	..	..	..	..
Unit labor costs in manufacturing (nominal, per hour)	3.9	7.6	3.2	6.1	-0.4	3.2	4.3	12.0	14.7
Labor productivity in manufacturing (real, per hour)	3.7	-1.4	7.3	1.1	12.3	7.9	8.2	4.8	-3.2
Labor costs in manufacturing (nominal, per hour)	7.8	5.9	10.9	7.3	11.9	11.3	12.8	17.7	11.0
Producer price index (PPI) in industry	2.3	-3.7	24.6	10.6	31.2	28.2	28.3	25.6	21.6
Consumer price index (here: HICP)	4.6	3.4	6.7	5.5	6.0	6.9	8.3	11.5	16.9
EUR per 1 RUB, + = RUB appreciation	2.2	-12.3	-5.3	-17.9	-11.0	-0.3	9.3	-8.7	24.3
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	4.6	5.8	4.8	5.6	5.0	4.4	4.3	4.2	3.9
Employment rate (%, 15–64 years)	..	..	..	..	..	..	..	..	..
Key interest rate per annum (%)	7.3	5.0	5.7	4.3	5.0	6.3	7.5	12.7	13.9
RUB per 1 EUR	72.5	82.6	87.2	89.7	89.5	86.6	83.1	98.3	72.0
<i>Nominal year-on-year change in period-end stock in %</i>									
Loans to the domestic nonbank private sector <sup>1</sup>	10.6	10.6	10.6	9.4	12.7	13.9	15.3	15.6	11.7
of which: loans to households	19.0	19.0	19.0	13.5	20.3	20.7	22.1	20.3	12.2
loans to nonbank corporations	7.1	7.1	7.1	7.5	9.3	10.8	12.2	13.3	11.4
%									
Share of foreign currency loans in total loans to the nonbank private sector	11.8	12.6	10.8	12.3	10.8	10.8	10.8	11.2	7.3
Return on assets (banking sector)	2.2	1.9	2.4	2.4	2.5	2.6	2.4	..	..
Tier 1 capital ratio (banking sector)	9.2	9.7	9.6	10.8	10.3	9.8	9.6	..	..
NPL ratio (banking sector)	17.0	17.1	15.1	17.0	16.2	15.8	15.1	..	..
%									
<i>% of GDP</i>									
General government revenues	36.0	35.6	36.7	..	..	..	..	..	..
General government expenditures	34.1	39.6	35.9	..	..	..	..	..	..
General government balance	1.9	-4.0	0.8	..	..	..	..	..	..
Primary balance	..	..	..	..	..	..	..	..	..
Gross public debt	12.4	17.6	16.0	..	..	..	..	..	..
%									
<i>% of GDP</i>									
Debt of nonfinancial corporations (nonconsolidated)	..	..	..	..	..	..	..	..	..
Debt of households and NPISHs <sup>2</sup> (nonconsolidated)	..	..	..	..	..	..	..	..	..
<i>% of GDP (based on EUR), period total</i>									
Goods balance	9.8	6.3	10.7	7.9	9.3	11.6	12.8	..	..
Services balance	-2.2	-1.1	-1.1	-0.8	-0.9	-1.4	-1.1	..	..
Primary income	-3.2	-2.3	-2.4	-0.4	-4.0	-2.2	-2.7	-2.1	-2.1
Secondary income	-0.6	-0.4	-0.3	-0.5	-0.1	-0.3	-0.2	-0.3	-0.5
Current account balance	3.8	2.5	6.9	6.2	4.2	7.6	8.7	17.7	15.0
Capital account balance	0.0	0.0	0.0	0.1	-0.1	0.0	0.0	0.0	0.1
Foreign direct investment (net) <sup>3</sup>	-0.6	-0.2	1.4	0.9	0.8	0.9	2.8	0.0	1.3
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	29.4	29.9	28.2	31.5	30.6	30.8	28.2	26.2	26.8
Gross official reserves (excluding gold)	26.1	28.7	29.1	30.3	29.6	30.3	29.1	..	..
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	15.1	16.8	16.4	17.4	16.6	16.8	16.4	..	..
<i>EUR million, period total</i>									
GDP at current prices	1,515,749	1,298,180	1,509,221	301,956	345,451	395,248	466,566	352,338	481,607

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

<sup>1</sup> Foreign currency component at constant exchange rates.<sup>2</sup> Nonprofit institutions serving households.<sup>3</sup> + = 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

Economic growth slows sharply in the CESEE-5 region despite initial resilience; war and sanctions are triggering a protracted recession in Russia<sup>1,2</sup>

In the first half of 2022, the economies of *Bulgaria, Czechia, Hungary, Poland and Romania (CESEE-5)*<sup>3</sup> weathered the sharply deteriorating external environment caused by the war in Ukraine better than initially anticipated. Compared to our spring projections, we revise our aggregate GDP growth forecast for the CESEE-5 upward by 0.8 percentage points to 4.1% year on year in 2022. Only Poland already recorded weakening economic activity in the second quarter of the year, leading us to revise the country's projected growth down by 0.5 percentage points. Over the remainder of the year, GDP growth will slow considerably in all economies and drop to a meager 1.2% per annum in 2023 for the CESEE-5 aggregate before stabilizing at 3% in 2024. While domestic demand held up well until mid-2022, its contribution will fade, and even turn negative in 2023 in Bulgaria and Hungary. As a result, going forward, import growth will diminish more strongly than export growth, thus rendering the negative contribution of net exports smaller in 2023 and 2024. Like all previous global shocks, this crisis will delay income convergence. The positive growth differential compared to the euro area of 1 percentage point in 2022 will shrink notably in 2023, to only 0.3 percentage points, before

Table 1

## OeNB-BOFIT GDP projections for 2022 to 2024 compared with the IMF forecast

	Eurostat/ Rosstat	OeNB-BOFIT projections October 2022			IMF WEO forecast October 2022		
	2021	2022	2023	2024	2022	2023	2024
	Year-on-year growth in %						
<b>CESEE-5</b>	<b>5.4</b>	<b>4.1</b>	<b>1.2</b>	<b>3.0</b>	<b>4.0</b>	<b>1.5</b>	<b>3.4</b>
Bulgaria	3.9	3.1	1.9	3.0	3.9	3.0	4.1
Czechia	3.5	1.8	0.8	3.9	1.9	1.5	3.9
Hungary	7.1	5.6	0.9	3.4	5.7	1.8	2.8
Poland	5.8	4.0	1.1	2.0	3.8	0.5	3.1
Romania	5.2	5.5	2.0	4.2	4.8	3.1	3.8
Russia	4.7	−4.0	−4.0	1.0	−3.4	−2.3	1.5

Source: IMF World Economic Outlook (WEO) of October 2022, Rosstat, OeNB-BOFIT projections.

<sup>1</sup> Cutoff date for data underlying the CESEE-5 outlook: September 28, 2022. The projections for the CESEE-5 countries were prepared by the OeNB, those for Russia by the Bank of Finland in cooperation with the OeNB. CESEE-5 projections are based on the assumptions of the September 2022 ECB staff macroeconomic projection exercise for the euro area, according to which real annual GDP growth in the euro area is projected to amount to 3.1% in 2022, 0.9% in 2023 and 1.9% in 2024.

<sup>2</sup> Compiled by Julia Wörz with input from Stephan Barisitz, Mathias Lahnsteiner, Thomas Reiningner, Tomáš Slačík, Thomas Scheiber and Zoltan Walko.

<sup>3</sup> Since Croatia will join the euro area on January 1, 2023, it will be part of the euro area aggregate for most of the forecast horizon. We therefore decided to switch to the new aggregate of CESEE-5 countries for our semiannual projections. This aggregate includes the EU members in Central and Eastern Europe that have not yet adopted the euro.

recovering again to 1 percentage point in 2024. Our projections hinge crucially on the external environment and in particular on developments in the euro area. Uncertainty remains exceptionally high, and the balance of risks continues to be tilted to the downside.

Russia's war in Ukraine and severe Western sanctions have caused Russia to plunge into recession. We project that GDP will decline by about 4% in 2022 and by another 4% in 2023, before growth will bounce back to about 1% in 2024. The factors shaping the continuing slide of the Russian economy differ from 2022: In 2023, net exports will likely turn strongly negative because Russia is not likely to find new buyers for the amount of oil deliveries affected by the EU oil embargo; domestic demand drivers will marginally weaken, while imports are expected to recover at least slightly.

### **1 CESEE-5: all demand components will continue to weaken well into 2023, EU funds keep supporting investments**

The first two quarters of the year 2022 surprised with strong growth in all countries except for Poland, where quarterly GDP growth turned negative in the second quarter of the year. Households continued to profit from savings accumulated during the pandemic, stable labor markets and double-digit nominal wage growth in the first six months of 2022 (except in Czechia), which sustained purchasing power despite rapidly rising inflation rates. Investment activity provided a stable contribution to economic growth. However, high-frequency indicators signal that the economies' resilience in the face of the sharply deteriorating external environment shaped by high inflation and the war in Ukraine is dwindling. Industrial production growth is slowing in all sectors, especially in export-oriented sectors, and expectation surveys reached new lows in August. Purchasing managers' index readings available for Poland and Czechia reached a low last seen at the height of the COVID-19 pandemic in spring 2020. Fewer new orders and increasing delivery times for inputs were cited as factors for these low readings.<sup>4</sup>

We base our forecast on the assumption that the status quo concerning the war in Ukraine will remain more or less unchanged over the projection horizon. While a diplomatic solution is out of sight given the most recent developments, a further escalation may occur any time but does not form part of our baseline. This assumption implies that sanctions will remain in place, with the EU import embargo on Russian oil taking effect at the end of this year. We also assume that gas deliveries from Russia to Europe will remain at their currently negligible levels. Hence, the CESEE-5 economies will be forced to reduce their dependency on oil and gas imports in general, and particularly on those from Russia, much faster than anticipated some months ago.

#### **Outlook depends crucially on future inflation path**

The rise in inflation has continued unabated since our last projections. Going forward, two factors in particular may lead to renewed inflation pressures: Further price hikes in wholesale energy markets may occur, and country-specific measures to shield households from the most severe price effects will have to be terminated sooner or later. Clearly, inflation remains one of the decisive factors shaping our

<sup>4</sup> For further details, see *Economic trends in CESEE in this issue of Focus on European Economic Integration*.

forecast. We do not expect inflation to recede notably before mid-2023 for the CESEE-5 aggregate. Yet, despite this extended period of high inflation, strong nominal wage growth and minimum wage rate hikes expected for the beginning of 2023 will compensate households so that we expect real wages to rise again from mid-2023 onward in most countries.

Despite recent employment growth, labor markets will remain tight as firms in the region increasingly cite labor as a factor limiting production. Further, skill mismatches will not dissipate soon.

As mentioned before, energy will remain a decisive factor shaping inflation dynamics even if the impact of different energy sources is currently changing. The focus has clearly shifted from oil to gas: While oil price developments have normalized again, gas prices will remain an important source of inflation and may per se impact on the operation of companies in certain sectors. While we do not expect crucial shortages of supply or gas rationing, record-high gas prices may render business operations economically unviable for some companies, especially smaller and medium-sized firms in branches heavily dependent on gas. On the other hand, high gas prices will also leave their imprint on demand, thus alleviating price pressures to some extent. Overall, high gas prices will leave their mark on economic activity over most of our projection horizon as the situation is unlikely to relax notably anytime soon. Much will depend on how quickly firms can reduce gas demand and/or switch gas suppliers and energy carriers.

### **No further support from monetary policy, fiscal policy remains overall supportive**

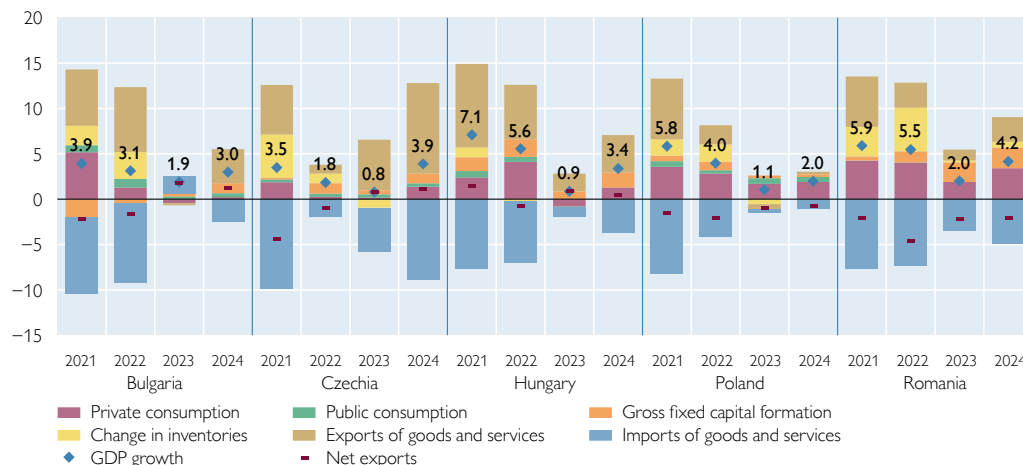
Monetary policy will be challenged to find the right balance between keeping inflation expectations well anchored while not dampening economic activity too much. After pronounced rate hikes throughout the first half of 2022, the monetary policy committees in Romania and Poland have opted for lower rate increases in their recent sittings, and the Czech National Bank (CNB) has kept rates constant in its last two meetings. Yet, high inflation, exchange rate pressures or the expected further tightening by major global central banks such as the Fed and the ECB could necessitate further rate hikes. In contrast, Magyar Nemzeti Bank has further stepped up its rate hikes recently and accompanied the tightening by liquidity measures.

Unlike monetary policy, fiscal policy will continue its overall supportive stance. Given that inflation is still more elevated in CESEE compared to Western European countries and against the background of a higher share of energy and food in CESEE consumption baskets, all CESEE-5 countries are under pressure to prolong their support to households. Measures to shield the population from the effects of extraordinarily high inflation include income support to vulnerable households, minimum wage hikes, tax reductions, energy subsidies and direct transfers. Since the general escape clause in the Stability and Growth Pact remains activated until end-2023, there is little pressure on the governments to withdraw these various forms of support to households too soon. Hence, we expect that these measures will remain in place for some time and will be financed by dedicated taxes where necessary. In addition to support for households, all countries have increased their military expenses, which has partly resulted in higher public employment supporting output growth. But higher military spending has also led to additional imports, with a consequently negative contribution to GDP growth.

Chart 1

**CESEE-5: GDP and GDP components**

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



Source: Eurostat, OeNB.

Note: Realized data for 2021, projections for 2022 to 2024.

**Notable slowdown in private consumption**

The second half of 2022 will be marked by a notable weakening in all demand components. Private consumption growth will drop from 4.7% year on year in 2022 to 1.8% in 2023. A combination of factors will cause private consumption growth to be notably lower in 2023 than in 2022: Pent-up demand from the pandemic has mostly been satisfied. In addition, strongly increased uncertainty, rising energy and food bills and hence lower disposable incomes are increasingly translating into lower demand for durables. This has already been observed to some extent since mid-2022 and will continue into mid-2023 as we do not expect inflation pressures to ease much before then. At the country level, the picture is mixed: Private consumption will hold up better in Poland and Romania, the two largest countries in the aggregate. In both countries comprehensive support measures for households play a cushioning role; in Poland, consumption by immigrants and refugees will also play a role in 2023. In contrast, Bulgaria and Hungary will record a decline in private consumption in 2023. In both countries, we expect household support to be scaled back considerably while, in Hungary, also a base effect is playing a role. In Czechia, private consumption will almost stagnate in both, 2022 and 2023, as consumer confidence has reached a record low and inflation is weighing strongly on disposable incomes. In Czechia, and to a lesser degree also in Hungary, we do not expect an overcompensation of inflation by nominal wage growth despite tight labor markets. With inflation pressures fading from mid-2023 onward, we expect private consumption growth to regain ground and accelerate again in all countries. Yet, at 3.3% annually in 2024, aggregate consumption growth will remain below the pre-war level.

**Public consumption provides small but steady support to growth**

Public consumption will show a constant but small positive contribution (of about 0.3 percentage points) to GDP growth over the entire projection horizon in the

CESEE-5 aggregate. Pre-election spending will have supported growth in Hungary in 2022, with public consumption growth and its contribution turning negative in 2023. In Poland and Romania, we expect to see some pre-election spending in 2023. Due to the ongoing excessive deficit procedure in Romania, this will translate into an increased growth contribution only in Poland.

### **EU funds back investments**

On aggregate, gross fixed capital formation is the demand component that is holding up best against the growth slowdown. For the CESEE-5 on aggregate, growth will weaken from 4.8% in 2022 to 3.4% in 2023 before recovering somewhat to 4.3% year on year in 2024. This is the result of counteracting factors at play for all countries: the sharp slowdown in growth in major advanced economies, coupled with the projected weakness of the Chinese economy, signals a clear deterioration in external demand that will accompany falling domestic demand. Currently high capacity utilization rates will therefore soften in response to overall lower new orders and bleaker expectations. In addition, financing conditions are being significantly tightening in all countries. On the other hand, strong EU fund inflow will counteract these dampening factors. As always, aggregate figures mask greatly diverging developments at the country level: For Bulgaria and Romania, we expect investment growth to accelerate over the entire projection horizon. In Bulgaria, this means that growth in gross fixed capital formation will become positive again after negative growth in 2022. In both countries, EU fund inflows play a particularly strong role despite uncertainty over fund utilization (not least related to the political uncertainty in Bulgaria). Romania may also benefit from firms' relocation plans given the ongoing war in Ukraine. The other three countries will see a sizable decrease in investment growth. Czechia is particularly exposed to ongoing or newly emerging supply interruptions in global value chains. The Czech automotive sector is currently at a crossroads and it remains to be seen if Czechia will embark on the electrification track and thus attract sizable investments in battery production. While gigafactories for battery production have already been established in Poland and Hungary, and plans for new investments have been announced for Hungary and Romania, it is to date unclear if Czechia will follow suit in this direction. Finally, prospects for Hungary are overshadowed by the uncertainty related to its eligibility for Next Generation EU (NGEU) funds.

### **External demand will weaken considerably**

The outlook for exports is clearly dim: As mentioned before, external demand will weaken considerably. The number of export markets is diminished by Russia having left the scene already some months ago. The repercussions of the war imply a notable growth slowdown in major Western export markets as well, such as Germany. In addition, China is struggling with a property market crisis and the authorities are not shying away from imposing severe local lockdowns in pursuit of the zero-COVID strategy. This will continue to have global economic implications. While direct exports to China do not feature prominently in overall exports of the CESEE-5, final demand from China constitutes an important factor for European value chains (especially in the automotive industry). Hence, weaker demand from China has severe repercussions on the CESEE-5. Apart from weaker external demand, also supply disruptions will reappear and affect varying production lines at different

stages in the production. Yet, even more than outright shortages, soaring input prices will constitute a growing problem for many exporters. With commodity and energy prices raging high, smaller producers may even be forced to leave the market, which will impair overall exports at the country level. The further weakening of real effective exchange rates can provide a small cushion via rising price competitiveness and lower imports, yet weak external demand will dominate the picture. Overall, CESEE-5 export growth will take a deep dip and fall from 4.4% in 2022 to 1.3% in 2023, before – based on the external assumptions of a recovery in the euro area – regaining ground and expanding by 4% year on year in 2024.

### **Imports will almost stagnate in 2023**

The decline in import growth will be even more pronounced: the expected 7.4% annual growth rate in 2022 already implies a substantial growth slowdown compared to the previous year, yet the 2.5% annual growth rate which we project for 2023 implies that imports will almost stagnate next year. In line with our assumptions on external demand and given still muted domestic demand, import growth will reach 5% year on year in 2024. These weak readings for 2023 and 2024 will reduce the negative contribution of net exports in both years to around half a percentage point (down from –2.3 percentage points in 2022).

### **CESEE-5 projection risks still tilted to the downside as uncertainty remains high**

The extremely high level of uncertainty has not abated since our last projections and geopolitics continue to dominate economics. Hence, the *major risks* are: *developments in major trading partners*, the *evolution of the Russian war in Ukraine* and *future inflation developments* (increasingly including second-round effects arising from a prolonged high-inflation period).

We would like to emphasize that, even more so than in previous rounds, our projections crucially depend on our external assumptions on economic growth in the euro area, in particular in Germany. So far, these assumptions do not imply a recession in the euro area and only a mild recession in Germany. However, a more pronounced or more protracted economic slump in the euro area constitutes a major risk to our forecast. While, in general, this high dependence on the external environment would imply both, up- and downside risks, overall, we think the probability of downside risks materializing is much higher at the moment – especially given the greatly increased uncertainty about the future of Russian gas supplies to Europe in 2023 and beyond.

An intensification of the war in Ukraine or an extension of war or warlike operations beyond Ukraine is a worst-case scenario, forming part of the downside risks to this forecast. At the same time, a pacification of the situation poses a strong upside risk; however, we attach a rather low probability to such a development within our forecast horizon.

Inflation may remain high for longer than anticipated. Especially elevated gas prices could trigger more severe effects on a wider range of firms than envisaged in our projections, thus eliciting more firm failures and ultimately driving nonperforming loans up. This could cause some strain on the banking sector, especially when higher than expected inflation dynamics cause a sharper than expected monetary policy tightening thus further worsening financing conditions for firms. Also, additional energy and food price shocks cannot be ruled out. Such a negative



spiral could, in the worst case, result in financial market turmoil and lead to a financial crisis on top of the current geopolitical and energy crisis. Ultimately, the energy crisis could impair climate policy cooperation and delay policy action against global warming with severe negative medium- to long-run consequences, not least via an intensification of food price inflation.

While renewed large-scale lockdowns appear unlikely from the current perspective, possibly lasting (structural) supply chain disruptions pose a further major risk on top of the currently already extreme level of uncertainty.

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

### **Bulgaria: prospects for 2023 clouded by weakening external demand, high inflation and political uncertainty**

Bulgarian GDP growth surprised on the upside, with 4.5% year on year in the first half of 2022. In spring, we basically expected a stagnation, assuming a slower recovery of private consumption, less government support and a rebound of investments. Actual growth dynamics turned out differently, with private and public expenditures increasing as a reaction to high inflation. Moreover, inventories contributed particularly strongly to real GDP growth, while net exports and gross fixed capital formation had a dampening effect – reflecting a boom in durable goods demand amid heightened (geo)political uncertainty. We expect these growth impulses to fade out in the second half of 2022, and consequently a slowdown of real GDP growth will drag on into 2023.

As a result, we have revised our GDP growth forecast for 2022 up to 3.1% (+0.2 percentage points) and that for 2023 and 2024 down to 1.9% (–1.6 percentage points) and 3.0% (–0.2 percentage points). Headline inflation is expected to stay in double digits at least until the second quarter of 2023, reflecting our assumptions on energy and food prices as well as second-round effects.

Domestic demand will contribute 4.7 percentage points to GDP growth in 2022, which breaks down as follows: inventories will contribute 2.9 percentage points, followed by private and public consumption, which will contribute roughly 1 percentage point each. Net exports will contribute –1.6 percentage points to GDP growth in 2022, because of deteriorating terms-of-trade and stronger import dynamics (by comparison). Furthermore, the number of international tourists remained well below pre-pandemic levels in 2022 again. The war in Ukraine and the rapid increase in the number of COVID-19 cases in July, as well as the situation at airports in Europe with canceled flights, have had an unprecedented impact and will continue to have a negative effect on the travel industry in Bulgaria.

Looking ahead, the contribution of domestic demand to GDP growth is expected to fall to almost zero in 2023, while net exports will improve and will be the key contributor to GDP growth. Although external demand, particularly from the euro area, will slow down substantially, the expected correction of imports will outweigh the effect and contribute to a narrowing of the current account deficit.

We assume that the election outcome of October 2 will prolong the political stalemate in Bulgaria into 2023. This stalemate will add to uncertainty and delay the disbursement of NGEU funds and hence associated investments in the health and education sector and basic infrastructure. As a consequence, gross fixed capital formation is expected to decline again by 2.4% in 2022 (after –9.7% in 2021) and



roughly stagnate in 2023. Moreover, political instability is delaying a comprehensive policy response to mitigate the impact of high inflation on vulnerable groups and industries. Consumer confidence has deteriorated since April 2022. We expect that the steep fall in real wages will translate into a moderate decline of private consumption in 2023. A failure to tame inflation and control the fiscal deficit could endanger Bulgaria's plans to adopt the euro in 2024.

**Czechia: inflation is holding back the recovery, frictions caused by the pandemic and the war are becoming more palpable**

While foreign demand continued to put a significant drag on economic growth in the first half of 2022, strong household consumption and gross capital formation backed by post-pandemic tailwinds drove a rather robust recovery. However, we expect these drivers of economic growth to start losing steam in the second half of this year amid lingering supply chain frictions, high inflation and elevated uncertainty in the wake of the pandemic and the war in Ukraine. The latter two events have brought about a massive shock, not only cyclical in nature but also structural in many respects, which will slash global growth and demand, further feed surging inflation rates and hamper supply chains over the medium-term horizon. Hence, even under the assumption that the war will not be significantly escalated and/or drawn out, a period of subdued growth and high inflation lies ahead. The economic slack in Czechia is projected to last for most of 2023 before GDP growth regains speed toward the end of the forecasting horizon.

So far, household consumption this year has benefited from a low base in the first half of 2021, remaining pent-up savings and buoyant nominal disposable income amid a tight labor market, rising wages and pensions. Yet, the forced pandemic savings have been depleted and real household income is increasingly suffering from ballooning living costs. In addition, households face rising interest rates and tightening credit conditions. As a result, consumer sentiment indicators have dropped to some of the lowest levels in two decades, which will soon be reflected in cooling private consumption. In fact, household consumption is projected to start shrinking in year-on-year terms in the second half of 2022 and keep contracting well into 2023 before it resumes gradual growth in the medium term on the back of decelerating inflation.

In contrast, public consumption will maintain steadfast growth over the forecast horizon bolstered by increased expenses related to Ukrainian refugees, military equipment, rising public sector wages as well as government compensation for high energy prices.

Fixed investment recorded rather solid growth in the first half of 2022 despite partially skyrocketing input prices and tightening monetary policy. However, against the background of persistently high prices of energy, raw materials and other inputs, these frictions will become increasingly crippling. In addition, fixed investment growth will be more and more dampened by cooling domestic and external demand and value chain disruptions. Housing investment will cool down noticeably on the back of tightened financing conditions and elevated prices for property, labor and raw materials. In contrast, rising labor costs as well as structural changes (e.g. vehicle electrification) are likely to boost investment in automation and robotization. Overall, despite some slowdown in the remainder of the year, fixed capital formation will remain relatively solid in 2022 but lose more steam next year.

Whereas the notorious shortage of some inputs, particularly semiconductors, has gradually faded, other supply side frictions and bottlenecks have obstructed production. As a result, additions to stocks (of unfinished products waiting for completion) were the single most prominent driver of economic growth in the first six months of this year. Companies will be gradually finishing off the products currently piled up in these forced stocks so that their contribution to growth should turn negative in the months ahead.

Growth of exports will remain subdued over the first half of the forecasting horizon owing to persistent supply chain disturbances and a notable slowdown of foreign demand, particularly in the euro area but also in other markets such as Russia, which was, for instance, the third-biggest sales market for the car producer Skoda. Yet, as growth of imports will slow down too because of cooling domestic demand, the contribution of net exports to growth is forecast to turn positive in the medium term and strengthen thereafter.

Following a change in the composition of the board, the CNB has paused its monetary policy tightening cycle for now. Nonetheless, the policy rate remains at its highest level since 1999 and CNB board members have signaled vigilance and readiness to resume rate hikes if necessary. Despite increased government expenditures on military equipment, support to refugees and measures to offset the impact of high energy prices, the fiscal stance is expected to be slightly restrictive in 2022 due to the earlier termination of pandemic support programs. Continued higher expenditure will turn the fiscal stance slightly supportive in 2023.

### **Hungary: dynamic start into 2022 but consequences of war started to bite from mid-year on**

Hungarian GDP growth in the first half of 2022 amounted to 7.2% year on year, substantially exceeding our expectation of 4.5%. Private consumption grew by nearly 12%, more than twice the growth rate we had expected. Investment growth (9.5%) was also substantially stronger than expected, whereas surprisingly buoyant domestic demand resulted in a worse than expected contribution of net real exports.

Following the strong start into the year, we expect the economy to slow substantially in the second half of 2022, with the weakness extending into 2023. As a result, we have changed our GDP forecasts for 2022 (up from 3.4% to 5.6%) and for 2023 (down from 3.0% to 0.9%). We broadly maintain our expectation for 2024 (3.4%).

Heavy payouts by the government and the nearly 20% rise in minimum wages boosted private consumption during the first half of 2022. We expect private consumption growth to slow markedly in the second half of 2022 and to turn negative in 2023. Accelerating inflation is increasingly eroding strong nominal income growth. Moreover, from August 2022 the government has tangibly scaled back gas and electricity price subsidies for households and tightened the eligibility criteria for its preferential small business tax (equaling a substantial income tax hike). Interest rate hikes by the central bank have translated into markedly rising interest rates on new loans to households. All these factors have contributed to a sharp worsening of consumer confidence. Weak household consumption will likely extend into 2023, as we expect price caps (on fuel and staple foods), the mortgage interest rate cap and the limited debt repayment moratorium to be lifted and real wages to decrease in 2023. We expect a recovery to start in the second half of 2023 or early 2024, with slowing inflation and improving overall economic prospects.

Government consumption was boosted in 2022 by the spending spree ahead of the parliamentary elections in April. However, we expect government consumption to decelerate in the second half of the year as a result of savings measures, such as across-the-board expenditure cuts (or freezes) by ministries, and to contract modestly in 2023 from a comparably high base.

Various factors point to a slowdown of gross fixed capital formation, such as global supply shortages (e.g. microchips), compounded by high gas prices across Europe and dim prospects for Hungary's major trading partners. Windfall profit taxes imposed on eight sectors, rising interest rates and curtailed preferential financing programs will likely additionally restrain companies' propensity to invest. Public sector investments will partially fall victim to budgetary savings, while the inflow of EU funds could resume in the first quarter of 2023 at the earliest. Household investments will likely suffer from households' worsening real income position, rising interest rates and the substantial rise in construction prices. At the same time, the extension of the preferential VAT rate for new home construction beyond 2022 will continue to support building activity.

We expect net real exports to have a negative impact on the overall GDP growth rate in full-year 2022 despite an improving outcome in the second half of the year. For 2023, we expect export growth to slow substantially along with weakening external demand, while the stagnation of domestic demand will cause an import slowdown, resulting in a positive contribution of net real exports, which will likely get somewhat smaller in 2024.

#### **Poland: sharp growth slowdown in 2023 but recession unlikely**

In Poland, annual GDP growth is forecast to decelerate from an expected rate of 4.0% in 2022 to 1.1% in 2023 and 2.0% in 2024. Foreign demand growth will not render a positive contribution to total final demand and GDP growth in 2023. With a weight of almost 40% in total final demand, exports are of particular interest: Exports are forecast to decline by about 1% in 2023, following a projected expansion of 3.5% in 2022. Russia's war against Ukraine will continue to have both direct and indirect negative effects on Polish exports, with Russian and Ukrainian demand for Polish goods shrinking sharply and euro area growth slowing. GDP and import growth of Germany, a particularly important trading partner, is even more affected than overall euro area GDP growth and growth of euro area imports from outside the euro area. On top of this, there is also the slowdown of imports by the world excluding the euro area. Domestic demand is expected to grow by about 2.1% in 2023, substantially less than the 6% expected for 2022.

As a result, in 2023, the slowdown of foreign and domestic demand growth will decelerate import growth sharply toward near-stagnation, following projected growth of 7% in 2022. Hence, real import growth will remain marginally positive while real exports will marginally contract in 2023. Despite starting from a sizable external surplus, the growth differential will be sufficiently large to keep the contribution of net exports to GDP growth in negative territory but not as deep as in 2022.

Private consumption is expected to grow at close to 3% in 2023, a moderate slowdown from the expected 5% in 2022. On the one hand, this results from a substantial deterioration of consumer confidence, driven by the ongoing war and the rise of inflation. Moreover, employment growth will slow or even turn negative in response to slowing foreign demand and the postponement of domestic investment

projects. On the other hand, wage increases are likely to more than offset inflation, even more so as inflation will likely decline substantially in the course of 2023, due to the favorable base effect and weaker demand. The hikes in minimum wages agreed for 2023 will support poorer households' consumption. The outflow of Ukrainian migrant workers will contribute to a tight labor market and substantial nominal wage increases. At the same time, Ukrainian refugees fleeing from the war will provide additional private consumption demand, financed by personal savings and public transfers received in Poland. More generally, public support measures will bolster consumption through cuts in indirect tax rates (prolonged "anti-inflationary shield") and direct tax rates (Polish deal) as well as through energy subsidies (coal) and higher family transfers. Public consumption growth will accelerate given measures related to incoming refugees and national defense and probably also in view of elections in 2023.

Fixed investment is expected to grow at about 1.5% in 2023, after an expansion of about 5% in 2022. On the one hand, weaker foreign demand and war-driven uncertainty will considerably weaken corporate and residential fixed investment. Moreover, supply chain bottlenecks will likely remain a limiting factor. On the other hand, both public and corporate sector fixed investment will benefit from additional EU funds under the Recovery and Resilience Facility and from higher national defense efforts. Besides, the forecast incorporates a negative growth contribution from inventory change in 2023, as the buildup will be far smaller than in 2022 when it increased substantially compared to 2021.

### **Romania: economic growth surprisingly robust in the first half of 2022, notable weakening in 2023**

As economic growth turned out markedly higher than expected in the first half of 2022, we revise our GDP forecast for 2022 upward to 5.5%. Yet, economic activity will begin to lose steam in the second half of 2022, hampered by high inflation, high energy prices and weakening external demand. As economic weakness will drag on into next year, we revise our GDP forecast for 2023 downward to 2%. With inflation expected to come down in the course of 2023 and in line with our external assumptions, we expect growth to accelerate to above 4% in 2024.

In the next few quarters, private consumption will be dampened by negative real wage growth, low consumer loan growth and tightening financial conditions. Real wage growth might turn positive again in the course of 2023 due to falling inflation rates, the renegotiation of private sector wages and likely also due to a further minimum wage hike (a minimum wage hike of 18% is being discussed). Regarding pensions, an increase of 10% in 2023 is currently being considered by government officials. Natural gas and electricity price caps were extended until August 2023, and further social measures targeted at vulnerable households were introduced in the first half of 2022. As 2023 is a pre-election year, the government might be inclined to renew or introduce further social support measures. However, public consumption is not expected to act as a distinct growth driver due to the ongoing excessive deficit procedure.

Despite high uncertainty, rising interest rates in Romania and tightening global financial conditions, we still expect gross fixed capital formation to gain importance in the growth structure, mainly due to Romania's access to sizable EU fund inflows (from the multiannual budget frameworks and NGEU). Yet, there is considerable

uncertainty about effective EU fund absorption and the implementation of the national recovery and resilience plan as a requirement for disbursements from the Recovery and Resilience Facility. Robust corporate credit growth (partly on the back of state guarantee programs) is supportive of private investments, but a tightening of credit standards can be expected. While Russia's war on Ukraine entails negative confidence effects, gross fixed capital formation in Romania could benefit from foreign direct investments related to production reallocations, from energy efficiency investments and from investments into the transport infrastructure aimed at facilitating the reconfiguration of Ukraine's export routes. Ongoing investments (and investment plans) in the automotive and battery sectors are a further positive factor for gross fixed capital formation and will also lead to an increase of Romania's export capacities.

In the short term, however, the outlook for exports is clouded by faltering external demand, remaining supply chain bottlenecks and possible production cuts related to high energy prices. Moreover, noticeable increases of unit labor costs in the manufacturing sector combined with a largely stable exchange rate vis-à-vis the euro do not bode well for Romania's external price competitiveness. While import growth will be dampened by weakening domestic demand, exchange rate developments seen so far will not entail an additional effect. Hence, we expect the growth contribution of net exports to remain negative over the forecast horizon.

### 3 Russia: war and sanctions are triggering a protracted recession

Russia's invasion of Ukraine and severe Western sanctions have caused Russia to plunge into recession. However, this downswing has so far been milder than originally expected because of the Russian authorities' quite effective macroeconomic response. Policy actions have included capital controls that have helped block large capital outflows and prevent massive bank runs. The resulting restabilization of the ruble in turn has contributed to reining in inflation. Other forces that cushioned the downswing were still sizable revenue inflows stemming from high oil prices and the fact that Russia redirected some energy (particularly oil and coal) deliveries to nonsanctioning countries.

GDP is projected to shrink by about 4% in 2022 and by another 4% in 2023, before growth will return to positive territory at about 1% in 2024. Private consumption will decrease markedly, in line with retail trade, destabilized by the swelling of inflation and uncertainty. Indeed, private consumption is seen as the major factor pulling the Russian economy into recession in 2022. Gross capital formation is also expected to contract sharply, largely on account of a massive drawdown of inventories following Western trade restrictions covering various sectors. On the other hand, net exports are expected to skyrocket in 2022, given a combination of a sharp sanctions-triggered drop of imports and a mild decline of exports (notably of natural gas, coal, wood and steel, while oil exports largely remain on 2021 levels). Meanwhile the fiscal stimulus delivered in 2022 promises to remain modest. Different forces from those seen in 2022 are expected to drive the continuing slide of the Russian economy in 2023: Specifically, net exports will likely plunge deep into negative territory, assuming that the planned EU embargo on Russian tanker-transported oil is implemented from late 2022, because Russia is not likely to find new buyers for the entire amount of oil deliveries in question. Moreover, Russian imports are expected to recover at least slightly. Private consumption will marginally

weaken or stagnate on its new-found lower level; the same goes for public consumption and gross capital formation. In 2024, the Russian economy is projected to revert to – very low – growth of 1% again.

Risks for this forecast are tilted downward. Uncertainty is huge and possible major defeats in the ongoing war in Ukraine may have destabilizing political and economic effects. An escalation of the war and/or the economic conflict with the West (including a threatened Russian oil embargo in response to the imposition of a unilateral price cap on Russian oil envisaged by the G7) could exacerbate Russia's recession in 2023 and further weaken the global economy with spillbacks on Russia. Given these various imponderables, the Urals export prices for 2023 and 2024 are very difficult to predict. In any case, the oil price ranges Russia can fetch are likely to be lower than in 2022, so probably no additional growth boost can be expected from oil.

Table 2

### Russian GDP and components (realized and forecast)

	2019	2020	2021	2022	2023	2024
Year-on-year growth in %						
<b>GDP</b>	<b>2.2</b>	<b>–2.7</b>	<b>4.7</b>	<b>–4</b>	<b>–4</b>	<b>1</b>
Private consumption	4	–7	10	–9	–1	–
Public consumption	2	2	2	2	0	–
Gross capital formation	2	–4	9	–15	1	–
Exports	1	–4	4	–5	–10	–
Imports	3	–12	17	–25	5	–

Source: BOFIT-OeNB October 2022 projections, Rosstat.

## Spotlight on the Western Balkans



# Special feature

## Property rights and homeownership in the Western Balkans<sup>1</sup>

This special feature focuses on property rights and homeownership in the Western Balkans. The multiple changes in legal and political regimes over the last century have left most economies in the Western Balkans<sup>2</sup> with complex property registration systems, heterogeneous property right registration processes within countries and significant numbers of overlapping land claims. As a result, property rights are not always secure, which not only dampens the motivation of households to acquire property but also limits trust in institutions and negatively affects the use of property as collateral to access financing. Insecure property rights in the Western Balkans appear to be at odds with extremely high homeownership rates. High homeownership rates *ex ante* are somewhat at odds with comparatively weak property rights.

We provide an overview of property rights protection in the Western Balkans based on the Index of Economic Freedom and look at how documentation of property rights may relate to other property-related findings from the OeNB Euro Survey. We document how homeowners assess their ability to document their property rights and whether landownership and homeownership overlap. We examine whether property rights are correlated with the mode of acquisition, ownership structure and the quality of housing. We further address the question whether there are regional differences in property rights. To conclude we provide evidence on housing as collateral. This special feature is intended to provide a first overview and introduce novel survey evidence. It is not intended as a comprehensive background paper on the institutional background, nor do we claim that the survey evidence presented here allows the identification of causal relationships.

### 1 Still a long way to well protected property rights in the Western Balkans

The Index of Economic Freedom published by The Heritage Foundation (2022) gives first insights into the state of the rule of law in the Western Balkan economies. The scoring for the rule of law comprises three components: property rights, judicial effectiveness and government integrity. The scoring for *private property rights of individuals*<sup>3</sup> indicates that property rights are less protected in the Western Balkan countries than in the EU countries of Central, Eastern and Southeastern Europe (CESEE; see chart 1). In the Western Balkans, property rights are least protected in Kosovo and graded best in Montenegro. However, the distance to the CESEE

<sup>1</sup> Compiled by Elisabeth Beckmann, Antje Hildebrandt and Tomáš Slačik.

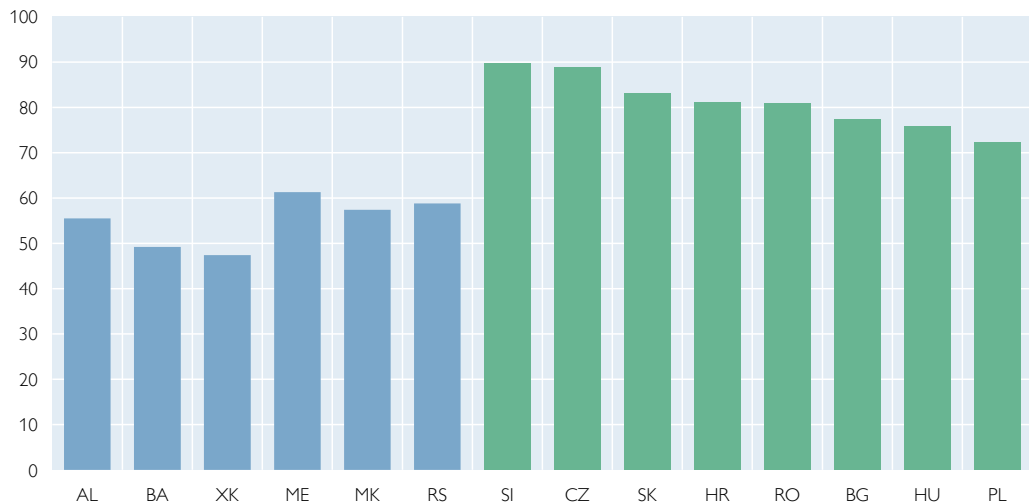
<sup>2</sup> The Western Balkans comprise Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia. The designation “Kosovo” is used without prejudice to positions on status and in line with UNSC 1244 and the opinion on the Kosovo Declaration of Independence.

<sup>3</sup> “The property rights component assesses the extent to which a country’s legal framework allows individuals to acquire, hold, and utilize private property and the extent to which these rights are secured by clear laws that the government enforces effectively. Relying on a mix of survey data and independent assessments, it provides a quantifiable measure of the degree to which a country’s laws protect private property rights and the extent to which those laws are respected. It also assesses the level of state expropriation of private property. The more effective the legal protection of property is, the higher a country’s score will be. Similarly, the greater the chances of government expropriation of property are, the lower a country’s score will be (...). The Index relies on the following sources in assessing property rights: Credendo, Country Risk and Insights, 2021; U.S. Chamber of Commerce, International IP Index, 2021; and World Bank, Worldwide Governance Indicators.” The Heritage Foundation, 2022.

Chart 1

### Protection of property rights

Score 0–100



Source: The Heritage Foundation, 2022.

EU member states – even to the worst-performing countries – remains sizable. The score for property rights is significantly worse in all Western Balkan countries than the average score reached in European countries (77.4).

The score for *judicial effectiveness* provides important information on the functioning of the judicial system, which is essential for the protection of households' rights. In case of disputes over land claims, for example, its smooth functioning is key for a fair solution. The third score on *government integrity* reflects, for example, the extent of systemic corruption that has the potential to hamper the protection

Chart 2

### Judicial effectiveness

Score 0–100

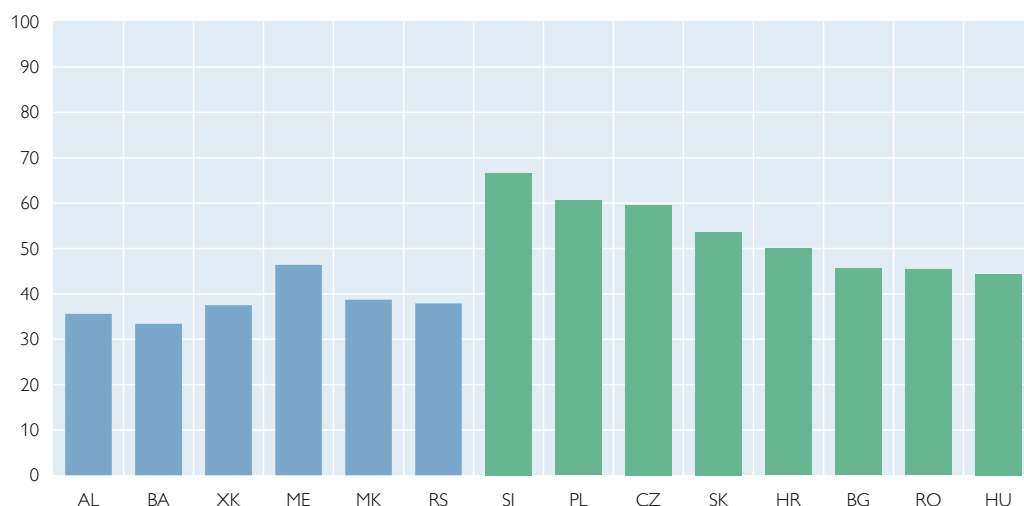


Source: The Heritage Foundation, 2022.

Chart 3

### Government integrity

Score 0–100



Source: The Heritage Foundation, 2022.

of property rights. As is evident from chart 2 and chart 3, all Western Balkan economies show significant deficiencies when it comes to government integrity scores.

Moreover, the European Commission regularly points toward deficiencies in the enforcement of property rights in the Western Balkans. The protection of property rights is one important condition for fulfilling the EU accession criteria, more specifically: Chapter 23 of the *acquis communautaire*. For this reason, the status quo of the rule of law and implementation progress is evaluated annually by the European Commission. Overall, in its latest Enlargement Package, the European Commission (2022c) concluded that the Western Balkan countries still show deficiencies in the area of the judiciary and fundamental rights. For Albania, for example, the European Commission (2022a) explicitly pointed out that the registration of property should be done faster. Moreover, it was noted that information on about 80% of registered properties in Albania are not correct and 10% of the land is not registered at all. Similar concerns were raised by The Heritage Foundation (2022). Accordingly, titles are often not clear or even overlap. Similar concerns were raised for Kosovo, where overlapping land claims are considered a legacy of the conflict with Serbia (The Heritage Foundation, 2022). In Bosnia and Herzegovina (European Commission, 2022b), there are deficiencies in interconnecting cadasters and land registration databases over entities. Moreover, titles are often not clear and property cadasters are not reliable. In North Macedonia (European Commission, 2022d) the analog and irregularly updated property registers hamper the protection of property rights.

This overview indicates that Western Balkan countries have to tackle multiple challenges in the field of private property registration and private property right protection. Lengthy and inefficient registration of property, unreliable data, analog cadasters or informal settlements are only some reasons for unclear property rights. Moreover, overall weak institutional frameworks with inefficient judiciary

systems and widespread corruption are hampering the protection of property rights in the Western Balkan countries.

## 2 Property rights from the household perspective

Insecure private property rights are at odds with very high homeownership rates in the region; it is a well-known fact that homeownership rates are above 80% and up to 95% in Western Balkan countries. Traditionally, the high homeownership rates have been attributed to post-communist privatization programs. Because of this history, it has been hypothesized that homeownership patterns will differ from those observed elsewhere in the world.

Survey evidence shows, though, that the majority of homeowners either purchased, built or inherited their residence. Indeed, survey results further show that the demographic characteristics of homeowners in CESEE now largely resemble those observed in more mature market settings in OECD countries (Beckmann et al., 2019).

In this section, we address the conundrum of high ownership rates and weak property rights. We present survey evidence on how homeowners assess their ability to document their property rights and whether landownership and homeownership overlap. We analyze whether property rights are correlated with the mode of acquisition and the quality of housing. We further address the question whether there are regional differences in property rights. We conclude by a snapshot on how property rights affect the use of immovable property as collateral.

### Data source: OeNB Euro Survey

The data source we use is the OeNB Euro Survey, which has been carried out on commission of the OeNB since fall 2007. The main purpose of the survey is to elicit information on the use of the euro in countries that have not introduced the euro as a legal tender. Therefore, of the Western Balkan countries under review here, the survey only covers Albania, Bosnia and Herzegovina, North Macedonia and Serbia. Unfortunately, it does not cover Montenegro and Kosovo.

In each survey wave, a representative sample of 1,000 individuals is polled in each country in a multistage stratified random sampling procedure. The sample is representative of the country's adult population (aged 18 years and older) with regard to age, gender and region. We use data collected during the survey wave of fall 2017, which included a number of questions related to housing, property rights and collateral.<sup>4</sup>

For the purpose of our analysis here, we pool the data for all four Western Balkan countries covered by the OeNB Euro Survey and weight descriptive statistics by the population size as well as individual sampling weights. As we are pooling and weighting results by population size, the results can be interpreted as referring to an average adult living in these four Western Balkan countries. We will point out differences between countries, where these are particularly large or relevant.

The OeNB Euro Survey is a survey of individuals. In questions regarding homeownership and other property ownership, respondents are asked to report not only their personal ownership but also that of individuals living in the same household.

<sup>4</sup> The full questionnaire is available for download at: <https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/data-sharing.html>.

Beckmann et al. (2019) show that the results from the OeNB Euro Survey are very close to data from EU SILC.<sup>5</sup>

### Real estate ownership and land ownership frequently coincide

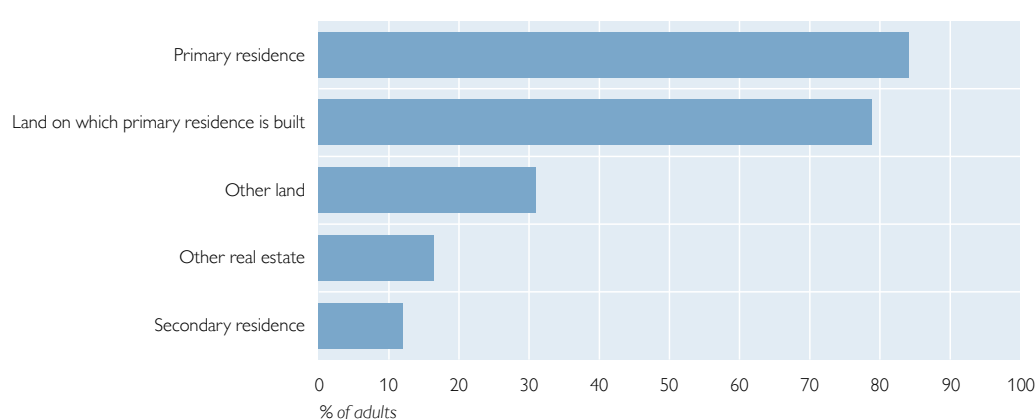
Chart 4 shows the percentage of adults who report that they (or someone living in the same household) own the primary residence, the land belonging to the primary residence, a secondary residence, other real estate or other land. Clearly, ownership of the primary residence is the most widespread form of property ownership at above 80% on average. It ranges between 95% in Albania and 80% in Bosnia and Herzegovina. A first very rough proxy for the security of property rights regarding housing is the overlap of ownership of the primary residence and land.<sup>6</sup> On average, 80% of those who own their primary residence also own the land on which the primary residence is built. Simultaneous ownership of the primary residence and land on which it is built ranges between 76% in Serbia and Albania and 86% in North Macedonia.

Other ownership rates are much lower: e.g. an average 30% for other land, based on a range from 41% in Albania and 10% in Bosnia and Herzegovina. Ownership of a secondary residence is most frequent in Serbia at 19% and least common in Bosnia and Herzegovina at 4%. Albania has the highest percentage of individuals who report owning other real estate at 26%; the lowest rate is observed in Bosnia and Herzegovina at 3%.

Clearly, there are large differences between countries in ownership rates. However, these are especially relevant regarding property other than the primary residence and the corresponding land.

Chart 4

### Ownership of real estate and land



Source: OeNB Euro Survey.

<sup>5</sup> Please note that the following sections are intended to provide novel descriptive statistics only. No conclusions should be drawn in terms of a causal relationship between the variables presented.

<sup>6</sup> Of course, there are alternative forms of security other than outright ownership regarding the land on which a property is built, for example long-term land lease.

### The majority of homeowners can prove ownership by means of an official document

How can owners document property rights regarding their primary residence? Chart 5 (left panel) shows that the majority has a document from a government agency such as a property registry or cadaster<sup>7</sup>. Almost every fourth household owning the household's primary residence, however, does not have such a document. In addition, 20% of households have a legal document from a notary or lawyer documenting their ownership. Less than 10% report that they have documentation of ownership that originated from privatization. Finally, 6% of homeowners have an unofficial document to prove their ownership. Please note that percentages do not add up to 100% as homeowners may have more than one document to prove their ownership.

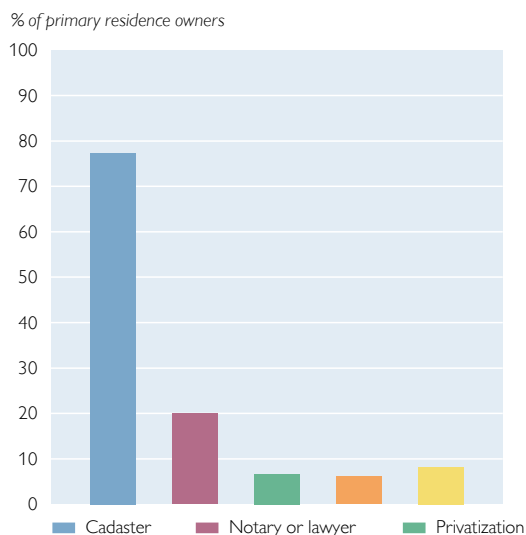
Every tenth adult living in a household where the primary residence is owned by the household reports not having any document to prove their property rights.

The right panel (chart 5) shows how the 23% of primary residence owners who do not have a document from a cadaster can prove their ownership. With no document from a government office, these might be particularly affected by overlapping property claims. The right panel shows that about 40% of those who do not have a document from a cadaster, have an official document from a notary or lawyer as proof of ownership. More than 10% can prove ownership based on a document originating in the privatization process. 14% have a document from an unofficial source. 14% have a document from an unofficial source. 14% have a document from an unofficial source. 14% have a document from an unofficial source.

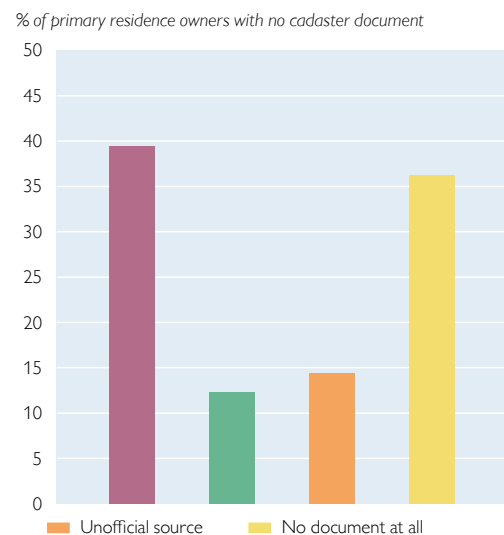
Chart 5

#### Proof of ownership document originated from...

##### Primary residence owners



##### Primary residence owners with no cadaster document



Source: OeNB Euro Survey.

Note: Results are weighted by individual and country population weights. Owners can have more than one document, so percentages do not add up to 100.

<sup>7</sup> For brevity, we will refer to these agencies as cadaster although we are aware that the term is not exactly accurate in all countries.

Moving from potentially overlapping claims to a proxy for weak property rights, we further reduce the sample to those homeowners who do not have a document from a cadaster and also do not have a document from a lawyer or notary. In total, this applies to 14% of homeowners. Among these homeowners, 18% report having an unofficial document, 21% report having a document from privatization. The remaining homeowners do not report having any document to prove their ownership.

Are these percentages high or low? A comparison with six CESEE EU member states yields no clear-cut picture. For example, the share of homeowners with documentation from a cadaster is higher in Hungary at 85%, but much lower in Bulgaria at 4%. In Bulgaria, the share of homeowners with documentation from a notary or lawyer is, however, 87%. Compared to six CESEE EU member states, Western Balkan countries do not stand out as having a particularly high share of homeowners who have no official document to prove their homeownership.

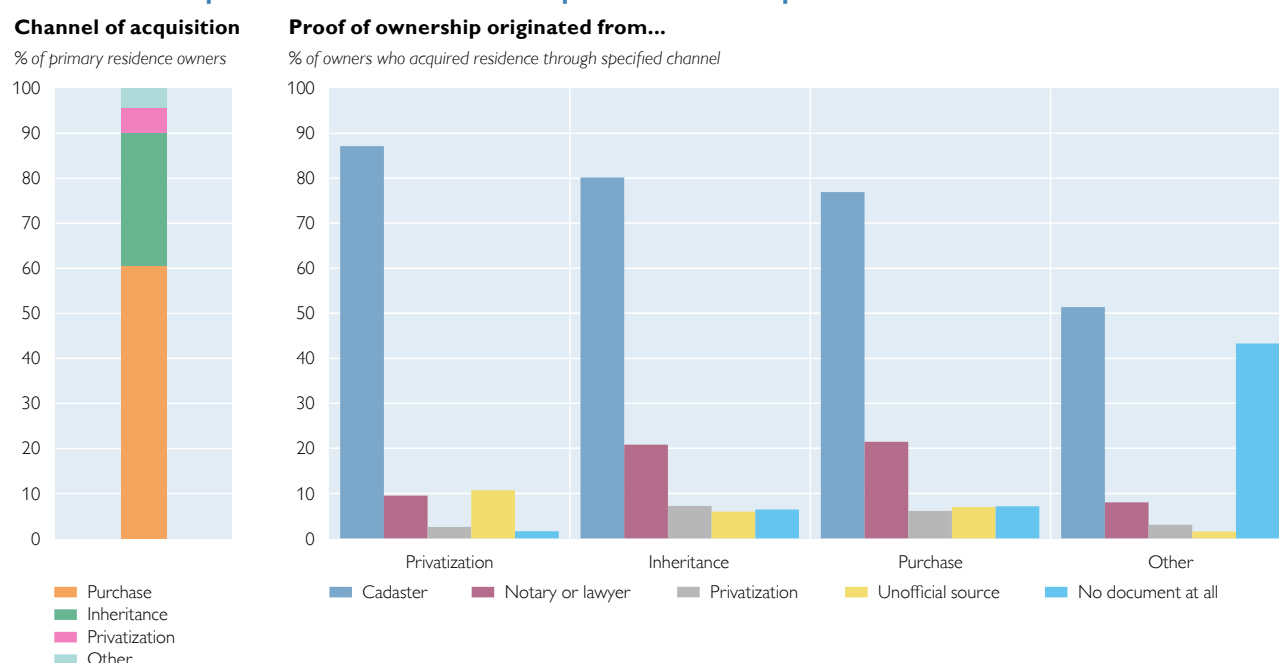
### Property right documentation is heterogeneous

Does property right documentation vary depending on how the household acquired the primary residence? Chart 6 shows that this is the case. Most frequently, households acquire ownership by purchasing or building their primary residence. For these homeowners, 77% can document ownership with a document from a cadaster, 20% have a document from a lawyer or notary.

The percentage of homeowners with cadaster documentation is highest for those who obtained ownership during privatization. The share is lowest for homeowners who obtained ownership through channels other than purchase, inheritance or

Chart 6

### Channels of acquisition are associated with proof of ownership



Source: OeNB Euro Survey. Note: Results are weighted by individual and country population weights. Owners can have more than one document, so percentages do not add up to 100.  
 Note: Results are weighted by individual and country population weights. Owners can have more than one document, so percentages do not add up to 100.



Table 1

### Heterogeneities in ownership documentation by degree of urbanization

	Proof of ownership originated from...				
	Cadaster	Notary or lawyer	Privatization	Unofficial source	No document at all
% of primary residence owners					
Villages	79	15	5	4	10
Towns	80	22	8	5	5
Cities	79	19	5	6	11
Capital city	63	30	5	20	8

Source: OeNB Euro Survey, 2017.

Table 2

### Quality of housing

Proof of ownership originated from...				
	Years that have passed since...			
Building age	Last major renovation	Windows were exchanged	Kitchen was renovated	
Years (median)				
Cadaster	37	9	8	7
Notary or lawyer	37	7	7	7
Privatization	39	8	7	7
Unofficial source	32	6	6	5
No document at all	37	7	7	7

Source: OeNB Euro Survey, 2017.

privatization. The percentage of these homeowners, however, is very low at less than 10%.

Proof of ownership further varies by the degree of urbanization (table 1). In villages, the share of owners with a document from a lawyer or notary is very low at 15%. This share is highest in the capital cities at 30%. At the same time, the share of primary residence owners with a cadaster document is lowest in capital cities at 63% and the share of owners with documents from an unofficial source is highest at 20%.

While these figures clearly suggest that documentation of property rights differs within countries, we do not see a strong effect of the various forms of proof of ownership on the quality of housing. Table 2 shows the median age of the buildings in question and the median years since the last major renovation, last renovation of the kitchen or exchange of the windows. Obviously, these are only very rough proxies of housing quality. Nevertheless, it is interesting to note the similarities across primary residences where there is no or only unofficial documentation and those where there is a document from the cadaster or from a notary or lawyer.<sup>8</sup>

<sup>8</sup> Investigating this finding in greater depth is beyond the scope of this special feature. Field (2005) would suggest that weak property rights also have a negative effect on the quality of housing, whereas Gil and Celhay (2022) show that for poorer households their investment in their homes does not change when security of property rights is improved. However, access to credit is affected.

## Immovable property as loan collateral

Do differences in property right documentation affect households' access to finance? Chart 7 provides a preliminary glimpse. On average, 15% of borrowers pledge their primary residence as collateral. However, there is notable variation among Western Balkan countries and this share ranges between 42% in Albania and 7% in Bosnia and Herzegovina and Serbia.

Chart 7 indicates that there is a correlation between more secure forms of property right documentation and the use of immovable property as collateral. The percentage of borrowers who use the primary residence as loan collateral is highest among those who can prove their property right by a cadaster document. It is lowest among those with documents from no official sources. Compared to CESEE EU member states, the percentage of borrowers who use the primary residence as collateral is relatively low ranging between 20% in Bulgaria and 38% in Czechia.

Of course, it would be wrong to conclude from this chart that households with poorer property right documentation have worse access to credit. Instead, chart 7 should be taken as pointing to an interesting avenue for further research.

### 3 Summary

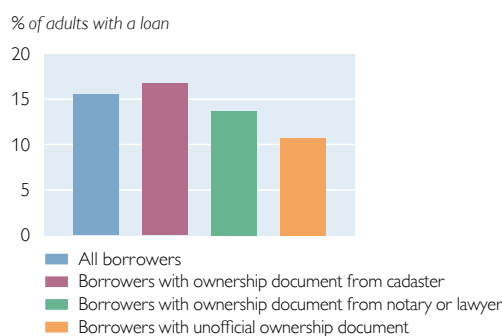
An international comparison of the quality of property rights shows that property rights in the Western Balkans are comparatively weak. This finding is somewhat at odds with high homeownership rates in the region. More than 80% of adults in the Western Balkans live in a primary residence that is owned by someone in their household. Moreover, evidence from the OeNB Euro Survey shows that the majority of homeowners have a document from a government cadaster to prove their ownership. In addition, a significant share has a legal document from a notary or lawyer proving ownership. However, every tenth homeowner does not have any such document. Available proof of property rights appears to differ depending on how the household acquired the primary residence. In the capital and larger cities, the share of homeowners without officially documented ownership is higher. At a descriptive level, there does not seem to be a correlation between the quality of housing and available proof of property rights.

Taken together, survey evidence suggests that, at the individual level, lack of proof of ownership is not a serious issue. Rather, property rights are relatively weak because claims of several individuals conflict or overlap – a phenomenon that has partially developed due to multiple changes in legal and political regimes in the last century, which in turn gave rise to complex and heterogenous property registration systems, most of which are not digitalized yet. Moreover, weak institutional frameworks make property rights protection even more challenging.

Obviously, property rights matter at the individual level and their protection needs to be improved in the Western Balkans. From a financial stability point of

Chart 7

#### Primary residence as loan collateral



view, moreover, a first glimpse at how property rights are associated with financial outcomes suggests that households with “better” documentation of ownership are more likely to use their house as collateral.

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Studies

# Is it easy to hide money in the crypto economy? The case of Russia

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Russia's stance on crypto assets has clearly changed since its invasion of Ukraine. Throughout 2021, the Bank of Russia was set on strictly regulating crypto activities, maybe even close to all-out banning them from Russian territory in an attempt to protect investors and to close down on criminal activities. Since the invasion of Ukraine, this has clearly changed, even drastically so. Russia is now considering permitting crypto mining, investment and also payment to some extent. To shed light on possible reasons for this paradigm change, our study examines the potential for sanction evasion through the crypto economy. We show examples of countries that have already developed methods of using the crypto economy to circumvent sanctions more or less successfully. In our work, we distinguish between wealth preservation and the search for alternative payment channels for trade as two central motivations for the circumvention of sanctions, taking a deeper look into the EU sanctions regime as well as crypto market liquidity. Based on real world examples, we derive three hypothetical methods for circumventing sanctions through the crypto economy, i.e. the direct peer-to-peer system, the intermediary model and the escrow model. All these methods have major weaknesses though, and especially in light of low crypto market liquidity, we come to the conclusion that, for the time being, the crypto economy does not seem to offer sufficient potential to governments or major oligarchs for circumventing sanctions on a large scale.

JEL classification: F51, G15, O30, O38

Keywords: sanctions, cryptocurrency, crypto assets, crypto economy, Russia

Russia counts as one of the leading crypto nations. The crypto economy enjoys exceptionally high acceptance and strong adoption rates among individuals and firms. 46% of Russian internet users regularly pay for online trades and services with e-money. Globally, Russian users move around USD 16.8 billion in cryptocurrencies per year. Next to notoriously low trust in Russian banks and institutions, this may explain why Russia consistently leads the Global Crypto Adoption Index<sup>2</sup> (Allinger et al., 2022; Chainalysis, 2020). There have been strong efforts, though, especially by the Bank of Russia (CBR), to follow China's example and largely ban the crypto economy in Russia. The CBR sees a lot of similarities between crypto assets and financial instruments, as well as between stablecoins and money market funds. It has great concerns regarding money laundering, terrorism financing, systemic threats and proper payment function viability (CBR, 2022). That said, the internal political debate following the invasion of Ukraine in February 2022 and

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<sup>2</sup> Chainalysis aggregates a number of weighted key indicators, with a particular focus on long-term behavior and tendencies, to evaluate adoption rates and usage patterns in the crypto economy across 154 countries.

subsequent sanctions against Russia has since brought a dawn of more crypto-friendly sentiments on the part of Russian governmental institutions.

Against this backdrop, the question arises if this newly awakened interest in the crypto economy may have a deeper purpose. Could the crypto economy, for instance, open up innovative ways of circumventing sanctions? Is such an idea even plausible on a large scale? And which possible forms of circumvention could be deduced from known illegitimate practices in recent history?

In an attempt to answer a number of these questions, this paper is structured as follows: Section 1 discusses Russia's recently turbulent history in crypto policy and sheds light on crypto market developments around the Ukrainian invasion. Section 2 provides an overview of the current sanctions regime as it relates to the crypto economy. Section 3 takes a deeper look into potential motivations and methods for circumventing sanctions, also taking into account crypto market liquidity. And Section 4 offers concluding remarks on the main questions at hand.

## 1 The crypto economy and policy in Russia

In this section, we discuss recent developments in crypto asset regulation in Russia and the use of crypto assets since the start of the war against Ukraine.

### 1.1 Crypto policy in Russia

Russians are very active in crypto markets and generally share a rather appreciative public opinion of the crypto economy, regarding both mining and investments (Allinger et al., 2022). But despite this popularity, the course of future Russian regulation has been unclear for some time now. In January 2022, the CBR published a consultation paper addressed to industry and the broader public in which it suggested clear steps to reign in and even outright ban most crypto asset activities throughout Russia (CBR, 2022). With the invasion of Ukraine, this political debate took an unexpected turn again, this time toward some more flexibility but with tighter monitoring on Russian territory.

In April and June, at last, and after a lot of public speculation, a number of drafts regulating digital token activities in great detail were sent to the Federation Council of the Russian parliament. They aim to introduce new rules regulating digital currencies<sup>3</sup> and amend basic law on digital financial assets from 2021 (Aksakov, 2020). With these draft bills, regulators seem to aim at more detailed, specific regulation but also for more liberties in digital investing (Aksakov, 2022), digital mining (Tkachev et al., 2022) and paying with crypto assets (Aksakov, 2022). They aim to introduce improvements, for instance, for those wishing to purchase crypto assets. This will open up investment into digital assets to all Russians on a limited scale and to professional investors on an unlimited scale. Non-fungible tokens (NFTs), on the other hand, do not seem to factor into the regulatory debate at all for the time being.

Cryptos with payment function are by far the most controversial topic among Russian regulators. The Russian Ministry of Finance supports more flexible regu-

<sup>3</sup> *Crypto tokens in Russia are broken down into three official categories: digital financial asset (DFA), utility digital right (UDR) and digital currency. Where DFA seems to be a rather generic and UDR a technical term, "digital currency" is a new term in Russian regulation whose distinct implications are not yet clear at the time of writing.*

lation on this issue while the CBR mostly opposes it. Although the CBR has recently expressed some leniency in its stance on cryptos that are only used for international payments and do not penetrate the Russian financial system, the debate is still ongoing (Tassev, 2022a). However, there seems to be general institutional consensus that digital financial assets should not be freely used for payment but could still be viable as substitutes for existing US dollar-based financial settlements, euro or other fiat currencies to some extent.

Regarding electronic platforms, their providers will be subject to the “national payment system,” which most probably means that crypto exchanges will have to be registered, will be subject to an extensive record-keeping regime and also subject to CBR rulings in many areas of crypto service provision. Non-Russian exchanges will effectively have to partner up with Russian banks if they want to offer services on Russian territory.

The debate on crypto mining is still very young and there is a clear tendency toward recognizing crypto mining as a regular business activity. Natural persons and companies looking to engage in crypto mining will be expected to register and will be monitored but seem to be subject to special allowances for higher energy consumption and lower taxation as incentives. How far minted crypto tokens may also be allowed to freely circulate inside of Russia is being hotly debated.

In addition to all these currently very lively debates, a Duma representative, who was a central figure in these initiatives, was quoted to have said that the current collapse of the crypto economy is heavily influencing all discourses, too, naturally (Tassev, 2022b).

Because of the tough requirements on identification, recordkeeping and certification, the industry, especially fintechs, reacted critically and complained that regulation could overburden smaller players while favoring bigger players and banks (Kulikova, 2022).

In mid-June, CBR Governor Elvira Nabiullina was quoted by the Russian newspaper Kommersant to have said that volatile crypto assets could be perfectly fine for usage in international settlements. This statement is seen as signal that the Russian government could be opening up to settlements in crypto assets with their global partners (Kolganowa, 2022). Remarkable comments similar to those of Pavel Zavalny, Chairman of the State Duma Committee on Energy, who already in March 2022 suggested accepting bitcoin as payment for Russian oil and gas exports, would fit into this line of thinking. It is still unclear if cooperative countries will be inclined to accept crypto assets as payment but if these ideas make their way into the upcoming regulation this could potentially prepare the legal ground for cryptos as money surrogate in international trade in due time (Liang, 2022).

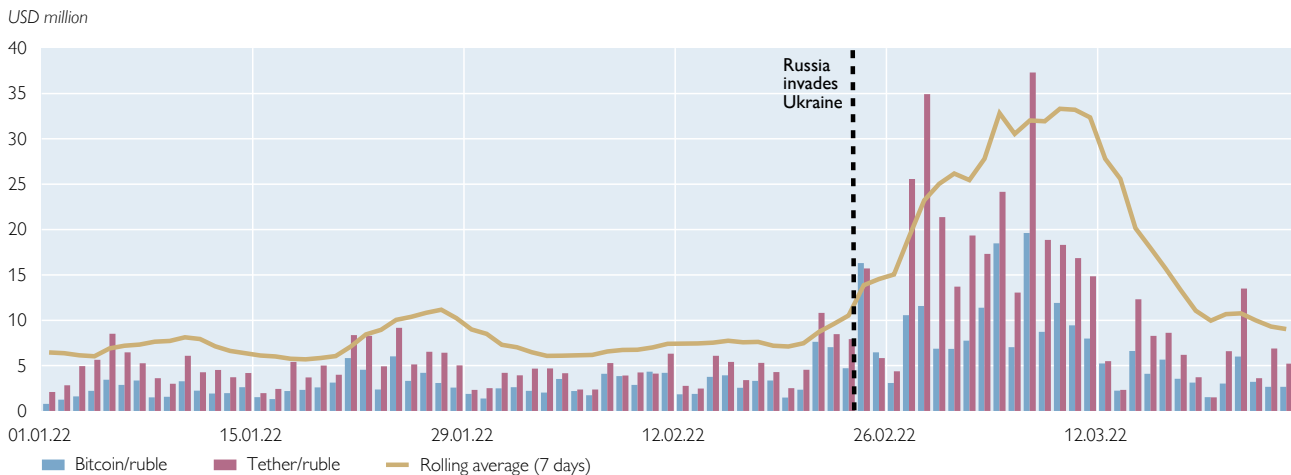
## 1.2 Crypto markets in light of the invasion in Ukraine

Following the Russian attack on Ukraine, crypto assets seemed of heightened interest to both sides of the war. The Ukrainian government and companies raised crypto asset donations for various purposes and accumulated over USD 135 million by mid-May 2022 through these channels. From a Russian perspective, chart 1 shows very lively trading in crypto-ruble pairs for nearly a month before trading reverts back to normal levels.



Chart 1

### Tether and bitcoin exchange for Russian ruble



Source: Kaiko.

With the beginning of the conflict, an unusually high increase in volumes of bitcoin-ruble and tether-ruble pairs can easily be observed. In an all-time high, ruble-crypto swaps with volumes as high as 37 million USD in tether and 20 million USD in bitcoin, respectively, were registered on March 7, 2022. It seems that the fears of ruble inflation dropped after the first months following the invasion, though. The crypto donations mentioned above, however, may have become a successful part of Ukraine's income model for the time being.

## 2 Sanctions

This section outlines sanctions passed by the EU and examines their implications for Russia as they are a central element in Russia's involvement in the crypto economy.

### 2.1 Definition and overview

Sanctions are targeted economic and fiscal measures imposed against a specific country in order to achieve a desired policy objective. Instead of actual warfare, sanctions attempt to create a political turnaround by increasing pressure on the relevant government. Sanctions surrounding Ukraine originally date back to the year 2014, when Russia was invading the Crimea. The European Union, besides other countries (e.g. UK, USA), introduced sanctions to change Russia's behavior against Ukraine. The sanctions imposed by the EU included asset freezes against certain persons which were involved in the Crimean politics (e.g. the "Prime Minister of Crimea").<sup>4</sup> Additionally, the EU introduced specific sanctions in the financial sector.<sup>5</sup> However, these sanctions did not lead to the intended outcome.

<sup>4</sup> Council Regulation (EU) No. 269/2014 of 17 March 2014 concerning restrictive measures in respect of actions undermining or threatening the territorial integrity, sovereignty and independence of Ukraine, OJ L 2014/78, 6, as amended.

<sup>5</sup> Council Regulation (EU) No. 833/2014 of 31 July 2014 concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine, OJ L 2014/229, 1, as amended.

In February 2022, Russian troops invaded Ukraine. As a response, far-reaching sanctions against Russia (and Belarus)<sup>6</sup> were introduced by the EU. Other countries like the UK, the USA and Switzerland also increased political pressure in a similar way. For the purposes of this study, we will, however, focus on EU-specific sanctions only.

Regarding the applicability of EU sanctions, all citizens of EU member states and people living in the EU are subject to these measures since the sanctions regulations of the EU are directly applicable. This also covers companies inside or outside the territory of the EU that have been incorporated or constituted under the law of an EU member state as well as their representative offices in sanctioned areas and foreign companies that operate in the EU regardless of their origin. All EU companies operating in the crypto economy are therefore addressed by the sanctions regulations. On the other hand, companies and subsidiaries registered in Russia are seen as independent, liable Russian entities and are therefore not necessarily subject to the EU sanctions regulations (OeNB, 2022).

EU sanctions against Russia can be assigned to three different categories: personal sanctions (natural and legal persons), geographical sanctions (Crimea, Sevastopol, Donetsk and Luhansk) and sectoral sanctions (economic sanctions) (OeNB, 2022).

### 2.1.1 Personal sanctions

Personal or individual sanctions are the most severe sanctions in place. They prohibit any direct or indirect economic interaction (payment, provision of funds) with directly listed persons and with all companies that are owned or controlled by a sanctioned person.<sup>7</sup> Personal sanctions are also called “asset freezes” because they are aimed at freezing all funds and economic resources of the listed person. Also, no funds or economic resources shall be made available, directly or indirectly, to or for the benefit of listed persons.<sup>8</sup> However, sanctioned persons usually do not deal under their own name but make use of complicated corporate networks. Therefore, determining whether a company is under direct or indirect control by a sanctioned natural or legal person is of utmost importance. The European Commission has published a best practices paper in which the necessary factors for assessing ownership or control are described.<sup>9</sup>

As of the editorial closing date of this article, 1,262 natural persons and 118 entities were being targeted by the EU sanctions list concerning Russia.

Table 1

#### Applicability of EU sanctions by type of entity and location

	EU entities	Non-EU entities	EU citizens	Non-EU citizens
Inside EU	applicable	applicable	applicable	applicable
Outside EU	applicable	not applicable	applicable	not applicable

Source: Authors' compilation.

<sup>6</sup> Council Regulation (EC) No. 765/2006 of 18 May 2006 concerning restrictive measures against President Lukashenko and certain officials of Belarus, OJ L 2006/134, 1, as amended.

<sup>7</sup> E.g. if the direct or indirect ownership interest is 50% or more.

<sup>8</sup> Article 2 Council Regulation (EU) No. 269/2014.

<sup>9</sup> EU Best Practices Paper 8519/18, p. 22.

### 2.1.2 Sectoral sanctions

Sectoral sanctions consist of a financial and an economic component, both specifically regulating the access to the European market.

#### *Financial sanctions*

The goal of financial sanctions is to severely restrict access to the European capital market with the intent of preventing any kind of financing via the EU. They cover transferable securities including crypto assets, money market instruments, loans and credits, stock exchanges, deposits, activities of the CBR, selective SWIFT exclusions and rating services (among other things). Additionally, it is prohibited to supply banknotes denominated in any official currency of an EU member state to Russia or to any natural or legal person, entity or body in Russia. One aspect is particularly interesting: the prohibition for EU credit institutions<sup>10</sup> to accept any deposits from Russian nationals or natural persons residing in Russia, or legal persons, entities or bodies established in Russia, if the total value of deposits at the credit institution exceeds EUR 100,000.<sup>11</sup> This prohibition was later also extended to crypto assets if a Russian natural<sup>12</sup> or legal person's crypto assets exceed EUR 10,000 per wallet, account or custody provider. In its latest update, the prohibition regarding crypto assets was replaced by an even more extensive provision: It is prohibited to provide any crypto asset wallet, account or custody services to Russian nationals or natural persons residing in Russia, or legal persons, entities or bodies established in Russia.<sup>13</sup>

#### *Economic sanctions*

Economic sanctions target different important areas of the Russian economy. The goal is to limit exports from and imports to Russia and therefore create pressure on the Russian economy. There are restrictions in the energy sector (e.g. the prohibition on importing crude oil from Russia except via pipeline which is to take effect at a later date), transport restrictions (e.g. a closure of EU airspace to all Russian-owned and Russian-registered aircrafts), restrictions on supplying Russia with goods that contribute to Russia's defense and security capabilities (e.g. dual-use goods or arms) and restrictions regarding imports of certain raw materials (e.g. iron, steel, wood, cement) from Russia into the EU as well as exports of luxury goods from the EU to Russia.

### 2.1.3 Regional sanctions

Although regional sanctions are an important element of the EU sanctions regime, they are mostly specific, regionalized instances of sectoral sanctions. For the purpose of analyzing the circumvention of sanctions we will therefore mainly focus on personal and sectoral sanctions.

<sup>10</sup> As defined by Article 4 (1) (1) Capital Requirements Regulation – CRR (Regulation (EU) No. 575/2013 as amended).

<sup>11</sup> Article 5b Council Regulation (EU) No. 833/2014, as amended.

<sup>12</sup> As well as persons residing in Russia.

<sup>13</sup> Council Regulation (EU) 1904/2022 of 6 October 2022 which amended Article 5b Council Regulation (EU) No. 833/2014.

## 2.2 Legal challenges with sanctions targeting crypto assets

To avoid the impact of the sanctions legislation, affected persons and corporations sometimes try to circumvent the rules and search for loopholes. EU legislators have found that especially crypto assets may be used to circumvent financial sanctions as well as personal sanctions. Therefore, some regulations have been extended to include the crypto market, however, often failing to target them properly.

Council Regulation (EU) No. 833/2014 for example defines that “*transferable securities*’ means the following classes of securities, including in the form of crypto-assets [...]”<sup>14</sup> If crypto assets fulfill the requirements of “*transferable securities*” according to the MiFID<sup>15</sup> they are subject to the regulation regime of the MiFID anyway. However, the term “*crypto-assets*” itself lacks a clear definition. Without a conclusive definition, the legislative intention to ban crypto assets as a potential tool for circumventing sanctions regulations cannot be effectively fulfilled.

### Example

The problem is illustrated by the following example: According to the sanctions regime in Council Regulation (EU) No. 833/2014, it is prohibited “to provide crypto-asset wallet, account or custody services to Russian nationals or natural persons residing in Russia, or legal persons, entities or bodies established in Russia.”<sup>16</sup> However, the Council Regulation does not include any definition of crypto assets, wallet, account or custody provider. As long as the MiCAR<sup>17</sup> is not in force, the authorities as well as companies need to interpret these terms autonomously, which could potentially lead to legal uncertainty. The most sensible interpretation would be that the prohibition targets virtual asset service providers (VASPs)<sup>18</sup> (e.g. crypto exchanges), which need to comply with the sanctions regulations. But since the addressees of the prohibition are still not clearly defined, the provision lacks a clear scope of application.<sup>19</sup>

Also, Council Regulation (EU) No. 833/2014 – though it prohibits accepting deposits exceeding EUR 100,000 per EU credit institution – does not specify any reporting obligation for crypto asset wallet, account or custody services providers for crypto assets. Therefore, authorities are not able to monitor crypto stock effectively, which makes supervising these providers and monitoring compliance more difficult.

One main point of criticism has been clarified due to the latest amendment of Council Regulation (EU) No. 833/2014. In practice, compliance with the prohibition regarding crypto assets and its value threshold of EUR 10,000 was more complicated than the prohibition of accepting of deposits over EUR 100,000, since

<sup>14</sup> Article 1 (f) Council Regulation (EU) No. 833/2014, as amended.

<sup>15</sup> Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU, OJ L 2014/173, 349, as amended.

<sup>16</sup> Article 5b (2) Council Regulation (EU) No. 833/2014 as amended.

<sup>17</sup> Proposal for a Regulation of the European Parliament and the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937, COM(2020) 593 final 2020/0265(COD). The European Parliament and Council reached an agreement on this regulation on June 30, 2022, however, the legislative work is not yet finalized and the MiCAR is not yet in place.

<sup>18</sup> According to Article 47 AMLD (Directive (EU) No. 2015/849, as amended).

<sup>19</sup> Article 5g Council Regulation (EU) No. 833/2014 as amended.

the value of crypto assets is highly volatile. The currently bearish market for crypto assets allowed a higher number of crypto tokens in e.g. a crypto asset account. However, if the value increased again, the value limit could have been exceeded quickly and exorbitantly.

To target crypto assets as part of the financial economy more effectively and to provide legal certainty, EU lawmakers could and should improve and *clarify the sanctions regulations* in the future. A clear and comprehensive definition of the term “crypto-assets” would lead to more legal certainty and support the target of preventing a possible circumvention of sanctions. A fragmentation of definitions under the MiCAR and the sanctions regulations should be avoided. Furthermore, if crypto assets are targeted by the sanctions regulations, a comprehensive reporting and monitoring system needs to be set up to be able to verify the compliance of VASPs with the regulations.

### 3 Circumventing sanctions: motives, models and limitations

Once we have taken a closer look at regulatory and geopolitical developments and implications, the actual motivations for circumventing current economic barriers become evident. But developing capacities for large-scale bypassing solutions is not easy. Based on observations in the global crypto economy, we found clear indications that some governments have already established a *modus operandi* for evading sanctions. Countries like North Korea and Iran, for instance, are successfully using or exploiting the crypto economy to markedly improve their financial situation. Later on, we will sketch the example of North Korea’s systematic cyber-raids, which served as the model for our intermediary model concept.

#### 3.1 Potential motives for circumventing sanctions

The current sanctions against Russia are supposed to hamper its business operations and relevant economic activities as much as possible. However, as the crypto market is still fairly unregulated, its continuing technical improvements could provide fruitful, discreet methods to bypass sanctions. Sanction evasion usually has clear motives, and we therefore differentiate between the motives of wealth preservation by influential individuals and keeping up sectoral trade and business by governmental parties.

##### 3.1.1 Motive: individual wealth preservation

Personal sanctions may have the most immediate and severe impact on influential individuals. Such personalized sanctions address individuals with significant interest in preserving wealth, holdings and business contacts. Hence, high net worth individuals may find any form of effective circumvention attractive to prevent asset freezing and forced expropriation. The impact of personal sanctions becomes tangible when looking at examples of influential oligarchs cited by the media. In one representative example, speculations about frozen and lost assets since February range from 30% to 50% of individual net worth despite several early fire sale attempts (Robinson, 2022; Iain, 2022).

When seeking to evade sanctions, one of the main problems for Russian high net worth individuals is hiding their identity because of the “know your customer” (KYC) regimes most crypto exchanges enforce. Because of these regimes, most major crypto exchanges quickly were forced to put bans on Russian or even dubious

crypto accounts since they are bound by the asset freezes under the EU sanctions regulations (Bartenstein, 2022).

With these circumstances in mind, crypto assets may not be a very safe haven for wealth<sup>20</sup>.

Two ways of crypto storage must generally be distinguished. The first one is having crypto assets stored in an *anonymous wallet*. This type of storage is accompanied by the question if asset transaction attempts from such accounts will be seen as dubious and blocked on principle. Tokens may safely and discreetly accrue in anonymous wallets but converting them into legal currency at gateways subject to KYC regimes has already become challenging and may become outright impossible in the near future.

KYC *wallets* (i.e. identifiable wallets) are a second option for crypto storage and trade. Identified portfolios are flexible and convenient to use. However, providers of crypto wallets and accounts in the EU and in many other countries are obliged to comply with personal identification regimes, which makes it easy to freeze assets of sanctioned persons.

### 3.1.2 Motive: governmental parties aiming to preserve sectoral trade

Sectoral sanctions may have a more indirect impact on Russian business capabilities than listings of natural or legal persons. They, nevertheless, could motivate ventures into rather unconventional means of payment or alternative avenues of income, at least more so than individual wealth preservation. In contrast to personalized sanctions, sectoral sanctions focus more on established import and export lines of industry and government. They therefore have a more structural and systemic impact, addressing whole sectors and groups of businesses.

However, would Russian trading partners even be willing and able to engage in crypto payment on a large enough scale? The example of Ukraine shows that manufacturers, even military grade manufacturers, are willing and able to accept crypto assets as payment (Singh, 2022). According to official statements, about 40% of Ukraine's international suppliers show willingness to accept payment against crypto assets, even NFTs (Kharif, 2022).

To better illustrate this case, we want to briefly outline two exemplary but very different sectoral business cases.

Example 1: Importing high-tech parts can be seen as vital for Russia and is naturally strictly sanctioned.<sup>21</sup> For goods this difficult to substitute, such as computer chips and complex software, most countries are dependent on reliable imports. Sympathetic trading partners, unmonitored trade channels and alternative payment options via the crypto economy would therefore understandably become interesting for building new, secure payment lines. Alternative payment methods aside, the challenge may still remain how to transport bespoke goods through customs checkpoints in exporting countries that have implemented sanction regimes against Russia.

Example 2: A very different business case and an example for alternative income would be the oil industry. Commodity trade often is essential for resource-rich,

<sup>20</sup> The issue of asset recovery naturally affects all forms of digital tokens with value, from classic tokens like bitcoin and stablecoin to NFTs – non-fungible but tokens with inherent value nonetheless.

<sup>21</sup> E.g. Article 2a Council Regulation (EU) No. 833/2014, as amended.



industry-focused countries, and export is a top priority. Nevertheless, import-export bans may entail an accumulation of in-country commodity supplies. Following Iran's example, there could also be an alternative use for raw materials: Oil can be utilized for cheap energy production. Iran has, for instance, generated new sources of income by subsidizing the crypto industry and crypto mining through cheap domestic energy, offering appealing licensing regimes for token mining and integrating economies of scale-oriented taxation (Reuters, 2021). Such subsidized licensing regimes seem to inspire Russia to follow suit with similar approaches, even more so if stored oil keeps piling up (Tkachev et al., 2022).

### 3.2 Potential models for circumventing sanctions

The essential question then is: How can sanctions realistically be circumvented? Might there already be models or concepts in place which would facilitate evasion? This paper identifies one basic system and two larger-scale models which we try to individually evaluate to determine their suitability for the aforementioned purposes (wealth preservation and governmental trade), i.e.:

- the *direct peer-to-peer system*, i.e. basic transactions between individuals who discreetly trade assets and goods;
- the *intermediary model*, which incorporates peer-to-peer trade into networks of inconspicuous middlemen of good standing;
- the *escrow model*, which incorporates payment facilitators and automates anonymous peer-to-peer trade on small to medium-scale transactions.

#### 3.2.1 Direct peer-to-peer system

Direct peer-to-peer transactions can be seen as one of the most immediate and direct forms of trade. The concept of one wallet sending crypto assets to another wallet is as simple as it is sufficient for most regular economic activities. It can also be a viable business model for operations where discretion is of utmost importance, as the Russian ransomware industry impressively demonstrates. According to leading crypto crime analysts, Russia, as a high-risk jurisdiction, has brought forth several of the most experienced companies in the area of cybercrime, with as much as 74% of global ransomware revenue strains running straight into the business district of Moscow (Chainalysis, 2022). On top of that, unhosted wallets, anonymous accounts and bundled transaction methods (to name but a few ways of technical concealment) add a thick layer of obfuscation to such constructs. While, for instance, blockchain is a fully transparent architecture and can be analyzed thoroughly, anonymous wallets and untraceable accounts greatly reduce the informative value and impact of blockchain analyses.

Ransoms for clearing malware-infected computers are naturally payable in crypto assets and into anonymous wallets. So, quite obviously there already are professional and profitable business models that conduct their trade through opaque channels of the dark web (Ahmad et al., 2019).

The direct peer-to-peer system is the simplest basis for circumvention in that it may suffice for single or small bundle transactions even if bigger crypto volumes are involved. For systematic, ongoing or automatable trade and business, larger-scale models would be required in our opinion. These might incorporate parts of a peer-to-peer system but would need to be more reliable for large economies and



trade. In this regard, we perceive the next two models to be more fitting on a government level.

### 3.2.2 Intermediary model

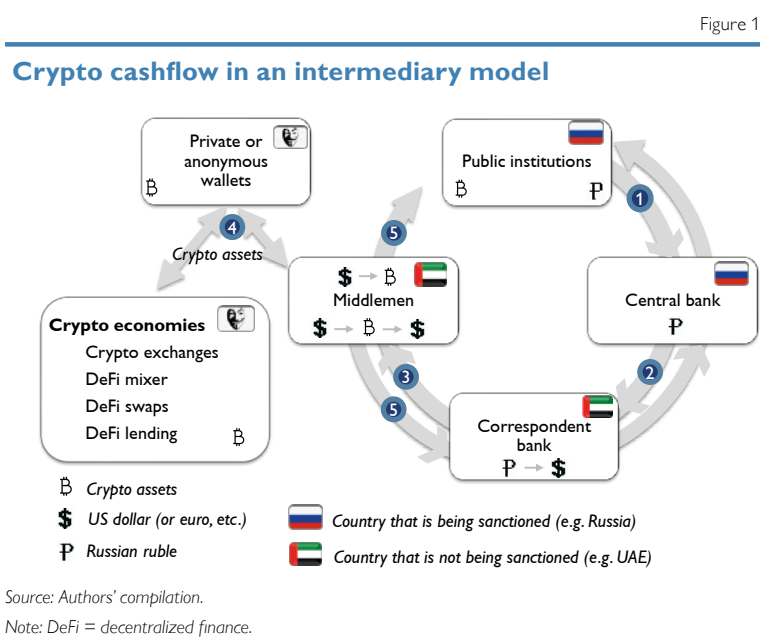
The intermediary model rests on the idea that crypto assets will be bought, disguised, invested, further traded and sold via a network of business contacts like inconspicuous businesspeople, oligarchs, companies, crypto exchanges and public institutions (BAE Systems and SWIFT, 2020).

If we focus on the obfuscation of transactions, one of the most important components of this model is the complicit partner. Countries like the United Arab Emirates (UAE), which do not seem likely to participate in sanctions against Russia for the time being, could qualify for such a partnership. Shortly after the invasion of Ukraine, Russian wealth, including impressive crypto portfolios amounting to billions of US dollar, was shifted from sanctioning areas into other sympathizing countries without trouble. For instance, UAE-based crypto exchanges helped Russian and Belarusian clients relocate, rearrange or liquidate crypto stocks for further disposal (Alkousaa et al., 2022).

The intermediary model combines layers of middlemen that are used to cover large-scale Russian crypto activities. Looking at the process step by step, we begin in the sanctioned country, where state and state-related actors usually hold a sizable volume of assets in local currency (e.g. ruble in the case of Russia). State-related banks or central banks are then instructed to forward these funds to correspondent banks in a non-sanctioned, sympathetic country (e.g. the UAE). The correspondent bank exchanges the sanctioned country's local currency for USD or EUR, for example, and passes these funds on to intermediaries, i.e. individuals in good standing or inconspicuous enterprises, in non-sanctioned third countries. The middlemen layer changes the funds into crypto assets and moves them across multiple wallet addresses to disguise the origin of the funds and effectively tries to anonymize it. Then, the crypto asset flowback is either reconverted into fiat money (e.g. US dollar) and returned to the state bank via correspondent banks or left in the crypto economy for other purposes (e.g. crypto lending, peer-to-peer transactions or wallets of state actors for further investments).

From the perspective of a sanctioned country, the advantage of the intermediary model lies in the versatility of business opportunities and in its hypothetical potential for indirectly acquiring stable foreign cash reserves. We also see this model as the only one that is theoretically sufficiently powerful for state-level import-export requirements (the example of North Korea in box 1 validates this point).

However, the disadvantages for those seeking to evade sanctions include



the barrier of KYC regimes put in place in third countries to identify sanctioned actors, the potentially high complexity of such business networks and their inherent instability due to middlemen who may end up on sanctions lists themselves at any time. Although the intermediary model is freely scalable, its actual capacities depend on freely available crypto assets. If, for instance, not enough bitcoin are to be had on crypto exchanges, the amount of goods that can be bought or sold is limited as well. And as we will see in subsection 3.3, crypto market liquidity may only suffice for volumes interesting to smaller oligarchs at best.

Box 1

### **The intermediary model in action: cyberheists by the Democratic People's Republic of Korea**

*Within the last few years, the government of the Democratic People's Republic of Korea (DPRK) has consolidated its role as an advanced persistent threat (APT) to the crypto industry. Laundering crypto assets allows the state to circumvent international sanctions and finance its weapons programs. From 2017 to 2021, state-run hacker groups launched at least 32 cyber-attacks on crypto asset platforms, extracting approximately USD 1.45 billion worth of digital assets. These cybercriminals mainly target centralized exchanges and investment firms and steal funds from these institutions' internet-connected wallets by using malware, code exploits, phishing lures and advanced social engineering. The hacker groups transfer these stolen assets to DPRK-controlled wallets and further move them through multiple wallet addresses to disguise their origin – effectively using an intermediary model to mask illegal activities (Chainalysis, 2022).*

*A prominent example of the intermediary model in action emerged in April 2018: The Lazarus Group, a hacker group run by the DPRK, stole virtual assets worth USD 250 million from a crypto exchange (Reuters, 2022). Two Chinese citizens, acting as middlemen, received approximately USD 100 million of the stolen assets. To disguise the assets' origin, the middlemen moved the assets across addresses they held themselves. Furthermore, they transferred a portion of the assets through newly added bank accounts linked to their exchange accounts so that the crypto assets could be converted into fiat currency. Another portion of the stolen assets were transferred into Apple iTunes gift cards, which can be used to purchase additional crypto assets on certain exchanges. In March 2020, the U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC) sanctioned the two Chinese citizens (BAE Systems and SWIFT, 2020; U.S. Department of the Treasury, 2020).*

*Moreover, the process of laundering crypto assets, for example by sending them across different wallets, proves to be very time-consuming and may take several years. Thus, the DPRK holds large amounts of crypto assets which have not yet been converted into fiat currency. As a consequence, the current crypto crash<sup>22</sup> severely affects the crypto values held by the DPRK. According to analysts, un laundered legacy crypto holdings from exchange raids between 2017 and 2021, which were worth approximately USD 170 million back then, have reduced their value to just USD 65 million as of spring 2022 (Smith, 2022).*

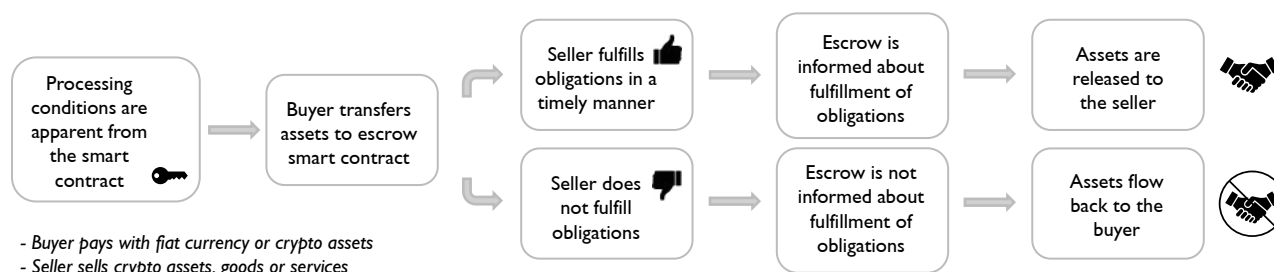
### **3.2.3 Escrow model**

This model is derived from already existing online services that enjoy great popularity in Russia and are very advanced in their capabilities. The escrow model is established as a platform and can be seen as a partly automated, anonymized and

<sup>22</sup> Amid a broader economic slowdown, crypto markets experienced a slump as a consequence of the Russian invasion in Ukraine.

Figure 2

### Escrow model process



Source: Authors' compilation.

smaller-scale variant of the intermediary model. It features an automated facilitation level and often involves trusted business partners for reputability. The model works with providers of cryptos, products or services who can place offers and, in turn, interested parties who may accept these offers. In that sense it is a marketplace that matches buyers and sellers, while escrows act as third-party intermediaries and help facilitate each trade.

The essential components of this model are anonymous buyers and sellers, and at least one internet trustee, the escrow, that acts as an intermediary in between. Terms and conditions for the transaction process are predefined by coded script or smart contract. Trading of goods and services can easily be automated. In order to complete a transaction, the predefined conditions must be met by both contracting parties, the buyer and the seller. The escrow holds the assets of the involved parties until all contracting parties fulfill their obligations (Hu et al., 2004). Escrow services are already widely used in the real estate industry: For example, Sberbank offers (classic) escrow accounts through which the purchase of real estate is processed (Mendentseva and Tokmakov, 2017; Confidus Solutions, 2022). This system could also be applied to the crypto economy and the exchange of service or goods for crypto assets (Bonneau et al., 2017).

Box 2

#### Example: Bitpapa

The online platform Bitpapa ([bitpapa.org](https://bitpapa.org)) presents itself as a peer-to-peer marketplace that matches buyers and sellers for the purpose of trading crypto assets. However, an escrow smart contract acts as an intermediary to settle deals and protect transactions. The website offers the opportunity to buy crypto assets like bitcoin, ether etc., offering more than 100 different payment forms. For example, Bitpapa also allows an exchange of Russian ruble for crypto assets by means of bank transfer via Sberbank or Tinkoff Bank. The deployment of a telegram bot to “connect” buyers and sellers directly (one-stop trading and settlement) allows for easy business automation. The site is currently operating in the UAE, Russia and Africa.

Bitpapa is incorporated under the laws of Ajman Media City Free Zone of the United Arab Emirates and effectively not subject to sanctions (Bitpapa, 2022).

Similar to the intermediary model, the escrow model is also versatile but less complex and easy to automate since it is based on smart contracts. KYC necessities

depend on national regulation and could, for example, be flexible in case of Russia. However, at the time of writing, we had the impression that volumes that are traded seem to be small-scale. The model could probably also have potential for larger-scale trade, but without existing examples to point to, we can only speculate. The findings presented in the next subsection regarding inferior crypto market liquidity also have large implications for the viability of this model.

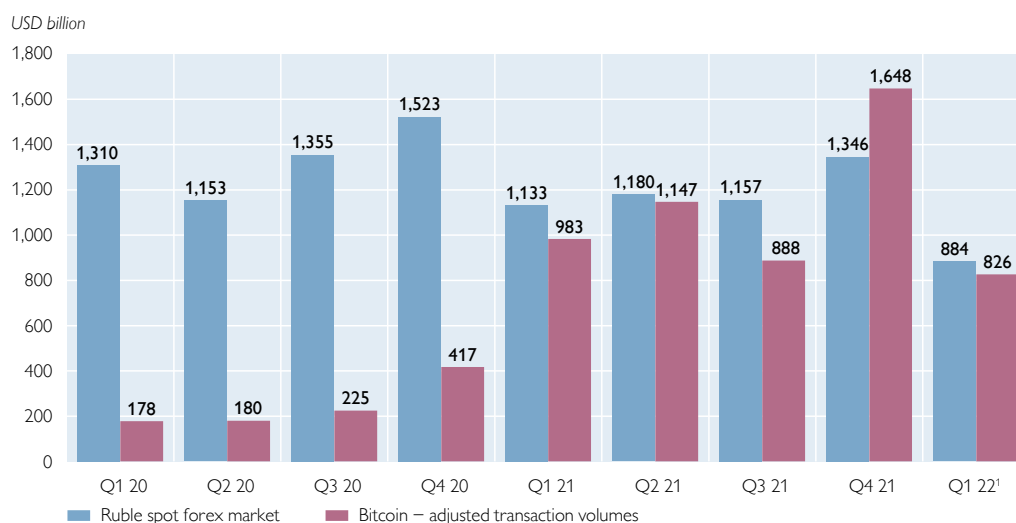
### 3.3 Crypto market liquidity

We have looked into potential motivations and models for circumventing sanctions, but one central question still remains unanswered: Does the crypto economy even have enough capacities available in the market for large-scale value transactions? We decided on a basic approach to this question and had a look at bitcoin transaction volumes as an indication of the available quantity of tradable tokens compared to ruble spot exchange trade volumes as a measure for capital required for Russian trade.

Based on data from Coin Metrics<sup>23</sup> as well as data from the CBR – and to gain a good measure for available free tokens of high value – we compared global adjusted bitcoin transaction volumes<sup>24</sup>, as bitcoin is the crypto asset with the largest market share (about 40%) and the longest market history by far, with Russia's foreign exchange volumes.

Chart 2

#### Ruble spot exchange market vs. bitcoin transaction volumes



Source: Bank of Russia and Coin Metrics.

<sup>1</sup> Q1 22 only includes data for January and February.

<sup>23</sup> <https://charts.coinmetrics.io/network-data/> (accessed 12 July 2022).

<sup>24</sup> In our opinion, “transaction volumes” are a representative metric to identify non-staked, freely available and actively traded tokens on the market. Coinmetrics adjusts these transaction volumes by applying the early-spent output heuristic by Chator et al. (2017), where outputs spent within four blocks of their first expenditure are subtracted. This method reduces data distortion from e.g. wash trading or other dubious heuristics.

This comparison reveals that, while the global bitcoin market volume rose impressively in the quarters preceding the Ukraine invasion<sup>25</sup>, it is still not able to hold up to necessary Russian trade volumes, indicated by ruble foreign exchange volumes. In the time span from October to December 2021, when bitcoin volumes were at an extraordinary all-time high of USD 1,648 billion, the volume of all tradable bitcoins was just 22% higher than required by ruble forex trade. This means that forex compensation via, for instance, bitcoin tokens would have soaked up nearly all of bitcoin's liquidity, even in this very liquid phase. Therefore, we would not assume shifts into the crypto economy as a sustainable or even realistic perspective for ongoing large-scale business requirements. From 2020 to 2022, the average ratio of bitcoin to ruble volumes was only at 56% (44% lower than ruble spot forex demand), which shows even more clearly that it may still be a long way until bitcoin liquidity would reach any levels necessary.

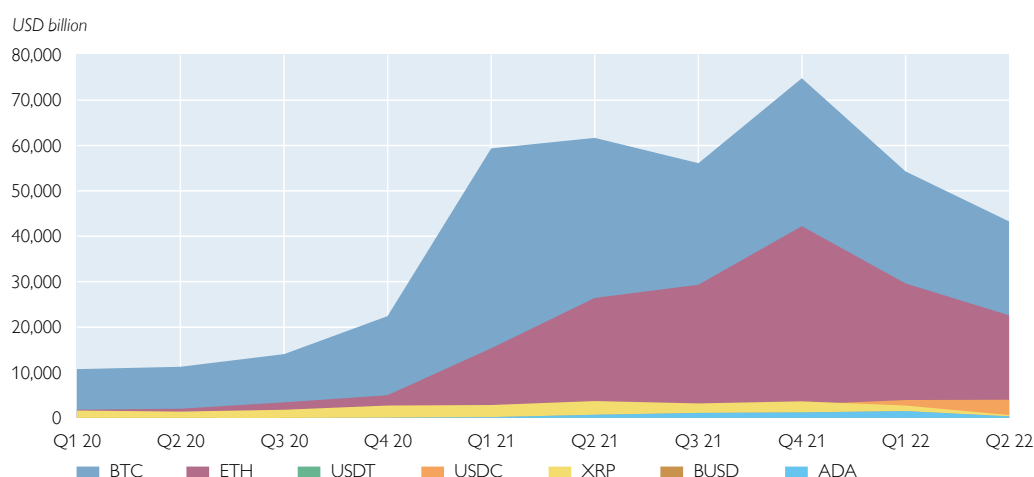
Widening the portfolio with other reasonably reliable crypto assets does not change the picture significantly either (see chart 3).

Ether is the second-most dominant crypto asset besides bitcoin and has gained significant market capitalization in the last two years, whereas the next-biggest cryptos show nowhere near the same level of capitalization. Taken together, the top seven crypto assets would raise the free-floating crypto capital to somewhere between 130% and 170% relative to ruble forex volumes<sup>26</sup>, which also indicates a rise in volatility brought in by less dominant crypto assets. Because of the currently high uncertainty in crypto markets and uncertain Russian trade perspectives, we refrain from making any predictions with such loosely aggregated figures, though.

According to the Bloomberg Billionaires Index, the richest 15 sanctioned oligarchs have a net worth of USD 190 billion, with USD 83 billion in cash. Even

Chart 3

### Free-float market capitalization of top 7 crypto assets



Source: Coin Metrics.

<sup>25</sup> For the purposes of this study, we deliberately emphasize market liquidity of the pre-Ukraine war time period. Our reasoning is that we try to examine circumvention methods under ideal crypto market conditions. The current crypto market crisis only stresses the point that under worse market conditions the liquidity situation naturally becomes more critical.

<sup>26</sup> Evaluated within the period from Q1/20 to Q2/22.

though the net worth of these individuals may theoretically fit into global quarterly crypto transaction volumes, if they all shifted their assets to the crypto economy, this would have significant effects on prices. Therefore, we conclude that even the liquidity of dominant crypto assets like bitcoin does not seem vast enough for subtly and systematically preserving wealth for major individuals. However, liquidity would probably be sufficient for minor oligarchs (Bloomberg, 2022).

We conclude that if crypto liquidity is not nearly sufficient to provide enough crypto assets for Russian foreign exchange, it most certainly is insufficient for sanction evasion on any larger scale. If used in “smaller doses” and only for selected parts of sectors or selected portfolios, there is also the problem that relevant transactions are generally sent over a transparent, public blockchain. Whether for payment purposes or wealth storage, such transactions would still be widely recognizable because of the significant sizes of value involved. Authorities could almost conveniently observe and analyze such transactions in real time (Jiang et al., 2021). Such transactions could even help countries that are trying to implement sanctions to identify intermediary model-style networks and business partners for further action.

In the months following the invasion in Ukraine, crypto prices and crypto market capitalization have dropped significantly, which further strengthens our point that, even with the most liquid crypto assets, wide-ranging sanction evasion is not viable via the crypto economy.

#### 4 Conclusions

We started out by looking at crypto policy in Russia, showing that, while there was a lot of speculation and activity surrounding the regulation of the crypto economy in the country, Russia seems open to using it on a transnational basis. Additionally, we show that in the month following the invasion in Ukraine, crypto activity in Russia surged.

We then described the three categories of sanctions imposed by the EU (personal, sectoral and regional), showing that circumventing EU sanctions through the crypto economy is a demanding and potentially complex undertaking with bleak results for circumventors. In light of the official EU sanctions regime and leaving aside regional sanctions, different motives for sanction evasion can be directly derived from personally sanctioned individuals and from sanctions with a sectoral focus.

While influential sanctioned individuals and oligarchs would mainly be interested in preserving and securely storing their wealth, enterprises and businesses faced with sectoral sanctions would be strongly motivated to find solutions for acquiring banned components and material as well as ways to preserve their payment and financing capabilities. Any considerations of sanction evasion via the crypto economy are not made easier by the fact that inherently transparent blockchain-based transactions are currently under scrutiny at the gateways of exchange. Keeping one’s anonymity by using unhosted wallets may seem attractive for obfuscating ownership but may be daunting when attempting to reconvert at exchanges with strict KYC regimes.

Furthermore, we categorized three potential methods for sanction evasion: the direct peer-to-peer system, the intermediary model and the escrow model. All three are based on cases observed in the global crypto economy and have been



applied to varying degrees. The direct peer-to-peer system is the simplest method, involving simple digital trade between two peers, and to some extent forms the basis for the other two models. As for usage on a big and systemic scale, we argue that this method is rather simple and not sufficiently automatable and scalable.

The intermediary model is a more fine-tuned and complex model for sanction evasion. It relies on the exchange of money via correspondent financial institutions in sympathetic countries and a large number of coordinated peer-to-peer transactions carried out to exchange and broadly invest crypto assets outside of the sanctioned country and then channeling them back there. While the intermediary model offers advantages like versatility for oligarchs trying to circumvent sanctions or for sanctioned states looking to keep up imports and exports in an alternative way, there are also significant downsides. There is the constant possibility that middlemen might be recognized and end up on sanctions lists themselves. Also, the model depends on highly complex business networks and dedicated efforts and costs to keep these networks running. Nevertheless, in theory, the intermediary model may be a feasible option for major oligarchs and the most viable way of systemic sanction evasion on a national level.

The escrow model builds on peer-to-peer interactions but supplements them with automated smart contracts as facilitators and reputable intermediaries providing escrow services. The escrow model is versatile, discreet and builds on an already highly accepted business model as we show in an example. That said, it still mostly qualifies for small-scale trade, and we currently do not see a larger-scale applicability of this model.

Last but not least, we examined available crypto market liquidity. We can see that the crypto economy grew significantly in the years before Russia's invasion in Ukraine, but even so, the adjusted global bitcoin transaction volumes are not sufficient to cover required ruble foreign exchange capacities. Following Russia's invasion of Ukraine, crypto valuations strongly dropped, which further underlines that crypto assets do not seem to be perceived as a viable option for large-scale sanction evasion (otherwise prices would have increased). There may be ways for businesses or parts of the economy to use the crypto economy to circumvent sanctions, but we conclude that, in the current situation, such attempts would mainly be doubtful emergency measures for preserving parts of individual wealth.

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Event wrap-ups

# 90<sup>th</sup> East Jour Fixe

## Can we win the battle against uncertainty? New approaches to macroeconomic forecasting in CESEE

*Compiled by Katharina Allinger and Thomas Scheiber*

Over the last 15 years, professional forecasters have been confronted with several crises, each of them distinct in terms of underlying causes, international propagation, policy responses and economic impact. Each crisis has also brought about advances in modeling and data. The 90<sup>th</sup> East Jour Fixe<sup>1</sup> organized by the Oesterreichische Nationalbank (OeNB) on October 4, 2022, brought together professional forecasters from international institutions, central banks and academia to share lessons learned from past crises, explore latest trends in forecasting and discuss challenges associated with data availability.

In her welcome remarks, *Birgit Niessner* (Director of the Economic Analysis and Research Department, OeNB) highlighted the *OeNB's long track record in forecasting GDP for selected economies in Central, Eastern and Southeastern Europe (CESEE)* and the current challenges associated with producing timely and accurate forecasts. This was followed by a lecture by *Robert C. M. Beyer*, economist at the IMF, on *satellite imagery as a proxy for economic data in uncertain times*. Beyer highlighted that satellite data in general have four main advantages: usually, they (1) contain information that is difficult to obtain with other data, (2) are available at high spatial resolution, (3) have high geographic coverage and (4) have low financial costs. He proceeded to talk about nighttime light data as one form of satellite data that has been frequently used by economists. The provision of annual DMSP-OLS data was discontinued in 2013. According to Beyer, research based on monthly VIIRS data, available from 2012, is still lacking. He highlighted that any nighttime light data have shortcomings, e.g. noisiness, but showed examples of interesting questions that can be answered with these data. For instance, Beyer talked about studies estimating the economic impact of COVID-19 containment measures and natural disasters. Regarding the use of nighttime light data for forecasting, Beyer noted that first efforts have been made. So far, it seems that the benefits of using these data are particularly high when there is little other data available. He also highlighted that a lot of work still needs to go into the meaningful aggregation of nighttime light data.

Session 1 was chaired by *Julia Wörz* (Head of the Central, Eastern and South-eastern Europe Section, OeNB). *Alexander Plekhanov* (Director for Transition Impact and Global Economics, European Bank for Reconstruction and Development) elaborated on his experience in gauging economic activity during the COVID-19 pandemic with high-frequency mobility data. Mobility turned out to have high predictive power for tracking the COVID-19 downturn and recovery in most countries, but some measurement issues challenged the use of mobility indices for nowcasting, particularly noise in the data and country-specific mobility patterns. Estimates yield that a 10% drop in mobility translated into an approximately 2% drop in GDP growth. Over the course of the pandemic, some of the cyclical differences in mobility have become structural, which implies that the link between

<sup>1</sup> The presentations and the workshop program are available at [90<sup>th</sup> East Jour Fixe of the Oesterreichische Nationalbank - Oesterreichische Nationalbank \(OeNB\)](#).

mobility and economic activity has changed. Still, stronger economic activity later in the pandemic can be attributed to recovering mobility – but mobility itself did not recover fully in all places. In general, mobility-based nowcasts performed better than random walk and other naïve forecasts, except for Ireland, Greece and Russia, where the nowcasts performed poorly for different reasons. Plekhanov concluded that, as with nighttime light as a proxy for economic activity, forecasters have to be aware of what they are trying to estimate and what information their input signals transfer.

*Olga Pindyuk* (Senior Economist, Vienna Institute for International Economic Studies) discussed the literature on the role of expert judgment in short-term economic forecasting. Macroeconomic forecasts should be treated with caution, especially in times of crisis. Forecasting models are far from accurately capturing complex, dynamic modern economic and commercial systems in which humans play a decisive role. Forecasters make systematic errors when economies are subject to major perturbations. They tend to overestimate growth in downturns, miss the onset of recessions and underestimate recoveries and booms. Still, forecasts are crucial for policymaking. Like medical doctors, they cannot predict illness but help us understand why one got sick. Forecasts provide information on the main interaction forces in the economy and assess the balance of risks and uncertainties regarding the economic outlook and policy responses. Pindyuk stressed that expert judgment improves forecasts' precision, particularly in shorter-term forecasting. It is especially useful if important variables are missing from the causal model, data are poor, relationships are mis-specified or may have changed, or the environment has changed. To exploit the benefits, it is necessary to address the caveats too. Cognitive factors and motivational biases can lead to the inefficient use of information by experts. Therefore, the wiiw implemented several support systems to support the accuracy of expert judgment and as a result of the forecasts.

*Svetlana Makarova* (Associate Professor, University College London, Vistula University, Poland) presented insights from her research on economic uncertainty and natural language processing for the case of Russia. Makarova and her coauthors were able to construct a text-based country-specific (economic policy) uncertainty index based on media publication in Russian – capturing linguistic undertones, sentiments and reporting styles more accurately than English translations. Moreover, the lexicon-based approach outperformed machine learning because of the complex conjugation that is typical for Slavic languages. The derived uncertainty index for Russia tracks the underlying series of predefined uncertainty-generating events with an accuracy of 92%. Based on Bloom et al. (2018)<sup>2</sup>, Makarova showed that the uncertainty shocks as signaled by the uncertainty index have predictive power for negative real effects in Russia.

Session 2 was chaired by *Gerhard Fenz* (Head of the Business Cycle Analysis Section, OeNB) and featured three presentations. *Nikodem Szumilo* (Associate Professor, University College London) discussed a recently produced *Warcast Index*, which tracks economic activity during the war in Ukraine. The index was designed specifically for use by the Ukrainian authorities, who were interested in timely estimates for regional economic developments. The model was designed to be

<sup>2</sup> Bloom, N., M. Floetotto, N. Jaimovich, I. Saporta-Eksten and S. J. Terry. 2018. Really uncertain business cycles. In: *Econometrica* 86(3). 1031–1065.

simple (linear OLS model) and uses publicly available data only. Specifically, Szumilo and his coauthors were able to calibrate a model that very closely tracks Ukrainian pre-war GDP by using nighttime light data, Twitter data and Google Trends data. Szumilo highlighted that the model was a black box and recapped points made in session 1 about the difficulties associated with deciding and understanding what kind of activity a model actually measures or should measure. The presentation contained a visualization of the results until May 2022 for a number of regions, which showed that the war led to a dramatic decrease in economic activity in all regions, but in safe areas the economy quickly rebounded. Economic activity in Western regions rose to above pre-war levels, while occupied regions recovered slowly, even though liberating a region accelerated its economic recovery.

Klaus Vondra (Principal Economist, Business Cycle Analysis Section, OeNB) presented *forecast efforts of the OeNB during the pandemic*. He showed the weekly GDP indicator that was based on novel, partially confidential daily and weekly data. He showed that the indicator worked very well in forecasting realized GDP during the COVID-19 pandemic but noted that it required a lot of time and effort and data mining. These challenges are part of the reason why the indicator was discontinued during the summer of 2022. However, the OeNB still uses credit card payments data to *forecast tourist overnight stays for the purpose of nowcasting*. This approach produces very accurate results and improves the nowcast, given the high importance of tourism for the Austrian economy. The OeNB's Business Cycle Analysis Section has been continuously working on improving its models and forecasting methodology.

Finally, Thomas Warmedinger (Deputy Head of Division, Business Cycle Analysis, European Central Bank) talked about the *learning experiences of the ECB regarding forecasting during the COVID-19 pandemic and since the start of the war in Ukraine*. He highlighted four main lessons learned: First, narratives are vital in communicating forecasts, as they provide a consistent story that includes underlying assumptions. Second, developing and utilizing new tools and indicators is important, particularly during crises. For instance, the ECB expanded its use of high-frequency indicators and nonlinear modeling and put more emphasis not only on shocks to growth but also on the trajectory of GDP levels. Third, forecasters need good approaches to deal with uncertainties. These could be projection ranges or scenarios, for instance. In all cases, transparency regarding assumptions is crucial. Finally, the ECB adapted standard models and procedures. For instance, it allowed more flexibility in certain procedures to accommodate exceptional, last-minute updates of data or information. In the Q and A session, Warmedinger and Fenz also briefly discussed difficulties and ongoing efforts to improve high-frequency inflation forecasts.