

# FOCUS ON EUROPEAN ECONOMIC INTEGRATION

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

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*Opinions expressed by the authors of studies do not necessarily reflect the  
official viewpoint of the Oesterreichische Nationalbank or the Eurosystem.*

# Call for applications: Klaus Liebscher Economic Research Scholarship

Please e-mail applications to [scholarship@oenb.at](mailto:scholarship@oenb.at) by the end of October 2022. Applicants will be notified of the jury's decision by end-November 2022.

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

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

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

Applicants must provide the following documents and information:

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

<sup>1</sup> We are also exploring alternative formats to continue research cooperation under the scholarship program for as long as we cannot resume visits due to the pandemic situation.

Studies

# Euro adoption in CESEE: How do financial literacy and trust in institutions affect people's attitudes?

Peter Backé, Elisabeth Beckmann<sup>1</sup>

*We investigate how financial literacy and trust in institutions affect attitudes (expectations and preferences) regarding euro adoption in ten countries of Central, Eastern and Southeastern Europe (CESEE). Using recent evidence from the OeNB Euro Survey, we show that attitudes on euro adoption vary widely across and within countries. In our country sample, on average, 18% of the surveyed individuals would prefer a faster accession to the euro area than they expect, while another 18% would prefer a later euro introduction than they expect. The share of those whose expectations match their preferences is 22% in the overall country sample. 19%, on average, do not expect or wish euro area accession to take place at all. Finally, 23% indicate that they have not formed attitudes on the introduction of the euro in their respective countries. Computing an overall index of attitudes toward euro adoption, we show that financially literate individuals are more likely to form definite expectations and preferences and tend to prefer euro adoption to take place earlier than they expect. We further show that trust has a similar impact on the overall attitude toward euro adoption – with both trust in national and European institutions having a positive and significant impact on forming more accurately aligned expectations and preferences as well as on preferring the euro to be adopted sooner rather than later.*

JEL classification: D12, D84, E50, O52

Keywords: euro area accession, expectations, preferences, financial literacy, trust, CESEE

EU member states are expected to join the euro area once they have achieved a high degree of sustainable convergence. Only Denmark has an opt-out, agreed back in the early 1990s, and thus no legal obligation to strive for an eventual adoption of the common currency.

So far, 5 of the 11 Central, Eastern and Southeastern European (CESEE) countries that entered the EU between 2004 and 2013 have subsequently joined the single currency area: Slovenia, Slovakia and the three Baltic states entered the euro area between 2007 and 2015. Currently, the authorities of two further CESEE countries, namely Bulgaria and Croatia, are aiming to accomplish euro area membership over the course of the next few years. Both countries joined the exchange rate mechanism (ERM II) in July 2020, a key step on the road to a future participation in the European currency union.

The authorities in the remaining CESEE EU member states (CESEE EU MS) – Hungary, Poland, Czechia and Romania – are currently not particularly interested in euro area participation or perceive it as a rather distant issue with a long lead time. Both political and economic reasons are at play, with distinct nuances across individual countries as regards the specific framing and weight of the presented arguments.

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Looking further ahead, a number of EU candidates and potential candidates (CPCs) from the Western Balkans are destined to accede to the EU in the future. While EU enlargement in that region is still several years away, it will – once it happens – expand the circle of potential euro area aspirants and, eventually, the number of euro area participants.

Against this background, it is of key interest to explore what people in those CESEE countries that still have their own currencies expect in terms of future euro adoption. We addressed this issue in a recent study (Backé and Beckmann, 2020), focusing on the question of what drives people's euro adoption expectations in a set of ten CESEE countries that are not (yet) members of the single currency area. Our country sample included six EU members – Bulgaria, Croatia, Czechia, Hungary, Poland and Romania – as well as four CPCs from the Western Balkans – Albania, Bosnia and Herzegovina, North Macedonia and Serbia. Based on data from the OeNB Euro Survey<sup>2</sup> from 2007 to 2019, which is, as far as we know, the sole dataset addressing this matter for CESEE EU MS and CPCs alike, we presented evidence on people's expectations regarding accession to the euro area. We then examined how the framework that governs euro area accession, the different monetary policy regimes and de facto euroization affect expectations. We showed that expectations had become less optimistic over time and that people's uncertainty in forming expectations had increased. Furthermore, we found that exposure to de facto euroization, trust in national central banks and in the EU as well as expectations of inflation or depreciation of the local currency are important determinants of euro adoption expectations.

In the present study we again analyze the same set of countries and use OeNB Euro Survey data but shift the focus of our analysis to build on two recent lines of research on expectations. The first line of research stresses the use of heuristics in forming macroeconomic expectations and shows that stereotypical thinking partially explains exaggerated beliefs. For example, Gillitzer et al. (2021) show that consumers expect lower inflation when the political party they support holds executive office. This result is interpreted as consistent with stereotypical thinking, which is defined as “an intuitive generalization that economizes on cognitive resources.” The second line of research stresses that the variation in cognitive abilities across individuals is an important determinant of the variation in their macroeconomic expectations (e.g. Armentier, 2010; D'Acunto et al., 2019).

We analyze three aspects of expectation formation. First, we study not only expectations but also preferences. In other words, we use data on when people think the euro will be introduced in their respective countries and also when they think it should be introduced. Contrasting and combining these two dimensions provides some insights into whether expectations are affected by wishful thinking. Second, we shed light on how financial literacy shapes euro adoption expectations and preferences and whether preferences and expectations of financially literate individuals tend to be more (or less) aligned than those of financially illiterate individuals. Third, we study whether people who trust national and/or European institutions expect and prefer accession to occur later or sooner. In addition, we

<sup>2</sup> For more details on the survey see: <https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey.html>. The European Commission regularly commissions a survey on the introduction of the euro in EU member states that have not yet adopted the common currency which also covers Sweden but not the CPCs (European Commission, 2021).

add recent evidence on how expectations regarding euro area accession developed from 2019 to 2020.

As argued in Backé and Beckmann (2020), research in this area is highly relevant from a policy perspective, given that euro adoption expectations shape many important economic and financial decisions by individuals, e.g. in the realm of saving and borrowing, when it comes to the choice of the currency in which assets and liabilities are denominated. Moreover, the implementation of national strategies toward euro area accession greatly benefits from a broad consensus in the relevant country, including expectations and preferences of the population that are well aligned with the plans of the authorities.

Our study is structured as follows: In section 1, we describe the data we used. Section 2 presents results on how households' expectations as well as preferences regarding euro introduction are distributed. Section 3 presents our empirical approach. In section 4, we present our results, before discussing their robustness in section 5. Finally, section 6 summarizes our main findings and concludes. An online supplement presents additional descriptive evidence on the development of expectations over time and robustness checks for the empirical analysis.

## 1 Data: the OeNB Euro Survey

The main source of data for our analysis is the OeNB Euro Survey – a repeated cross-sectional survey of individuals, aged 18 or older. The survey covers ten Central, Eastern and Southeastern European (CESEE-10) countries. In each country and in each survey wave, a sample (based on multistage random sampling procedures) of around 1,000 individuals is polled. Each sample reflects a country's population characteristics in terms of age, gender, region and ethnicity. Weights are calibrated separately for each wave on census population statistics.

The core of the questionnaire used for the OeNB Euro Survey focuses on the extent and different dimensions of euroization. To increase the understanding of the determinants of euroization, the survey questionnaire elicits a rich set of information on socioeconomic characteristics, indicators of wealth and finances, attitudes and beliefs, inflation and exchange rate expectations and trust in institutions. Furthermore, standard questions regarding financial literacy about interest rates, inflation and exchange rate risk are included. Table A1 in the online supplement presents definitions and the underlying survey questions for all variables employed in this analysis.

Expectations regarding accession to the euro area are an important determinant of the different dimensions of euroization (Geng et al., 2018; Brown and Stix, 2015). Expectations may partially be driven by stereotypical thinking (Gillitzer et al., 2021); i.e. people may be opposed to euro area accession, which may also lead them to expect later accession than respondents who are in favor of euro adoption. In order to investigate the determinants of expectations we, therefore, also included a question on euro adoption preferences.



The two questions on expectations and preferences form the central variables for our analysis:

*When, in which year, do you think the euro will be introduced in your country?*  
Year: #####  
Never  
Don't know  
No answer  
*And in your personal opinion, when, in which year, do you think the euro should be introduced in your country?*  
Year: #####  
Never  
Don't know  
No answer

*Interviewer instruction: Albania, Bosnia, North Macedonia and Serbia: We do not mean joining the EU but introducing the euro.*  
*Bulgaria and Bosnia and Herzegovina: We mean when the national currency will be entirely replaced by the euro.*

Both of these questions were included in the survey waves of 2017, 2018 and 2020, with a total of more than 30,000 observations. The information on expectations is also available from earlier waves and now covers a time span of 14 years, though not at annual frequency (see Backé and Beckmann, 2020). In addition, for the CESEE CPCs, questions on expectations and preferences regarding accession to the EU were included, also in 2017, 2018 and 2020:

*When, in which year, do you think [your country] will join the European Union?*  
Year: #####  
Never  
Don't know  
No answer  
*And in your personal opinion, when, in which year, do you think [your country] should join the European Union?*  
Year: #####  
Never  
Don't know  
No answer

We combine the information on expectations and preferences to derive an indicator of individuals' attitudes on euro area accession and joining the EU in the case of CPCs. The baseline indicator and a further robustness indicator are defined in table 1.

Of course, the variables and categories may be specified in alternative ways. For example, the categories "aligned" may in fact lump together fairly diverse attitudes. In robustness analyses, we employ the alternative robustness attitude categories.

Finally, for those respondents who name a year for both expected and preferred euro area accession we compute the difference between the expected year of euro introduction and the preferred year of introduction. The same definitions that we apply to the question on euro adoption are applied to the question on EU accession

Table 1

**Definition of attitude categories**

Stated expectations		Stated preferences	Baseline attitude categories	Robustness attitude categories
Don't know	&	Don't know	Oblivious	Oblivious
Year	=	Year	Aligned	Fully aligned
Year	&	Don't know	Aligned	Expectation but no preference
Year	>	Year	Eager	Expect later than preferred
Never	&	Year	Eager	Expect never but want
Never	&	Never	Negative	Never
Never	&	Don't know	Negative	Never, no preference
Year	<	Year	Reluctant	Expect earlier than preferred
Year	&	Never	Reluctant	Expect but don't want
Don't know	&	Never	Reluctant	Don't know and don't want

Source: Authors' compilation.

for the CPCs, which we will also address briefly given that EU entry is the basic precondition for subsequently joining the euro area.

When interpreting the subsequent results, it is important to bear in mind the following issues: First, as is prevalent in many surveys, respondents may round figures, i.e. report one year when their actual response would be an interval between years (see e.g. Manski and Molinari, 2010). This response behavior leads to heaped data with a large number of responses concentrated around particular years. In our analysis, we follow the standard practice and take responses at face value. Chart A4 in the online supplement provides descriptive statistics on the share of responses that are heaped at years that are multiples of 5 and shows that there is no clear development in the share of rounded responses.<sup>3</sup> Second, while we combine expectations and preferences to come up with a derived indicator of attitudes, this should not be interpreted as a substitute for a direct question on the attitude toward euro area accession. Third, item nonresponse rates vary across countries and across survey waves. For the questions regarding euro area accession, we define categories so that “don't know” responses are treated as meaningful. For the majority of the other questions, however, we assume that nonresponse is random, which might be a strong assumption.<sup>4</sup> Finally, the 2020 wave of the OeNB Euro Survey may well be affected by the COVID-19 pandemic, in particular with respect to unit nonresponse and the final sample composition. While the basic sociodemographic characteristics do not indicate that the 2020 sample differs significantly from that of previous waves, we may still be exposed to some bias in terms of unobserved characteristics, e.g. risk aversion, attitudes toward current policies or health.

<sup>3</sup> This could be taken as evidence that, despite the COVID-19 pandemic, uncertainty, which can be one reason for rounding (Binder, 2017), has not increased.

<sup>4</sup> The assumption that item nonresponse is random is not applied to the central explanatory variable “financial literacy.” Here, “don't know” responses are treated as incorrect answer. Regarding the central explanatory variables on trust in institutions, we find that the share of individuals who answer “don't know” is below 5%. It is also below 5% if we only look at the subsample of individuals who answer “don't know” regarding either euro introduction expectations or preferences.

## 2 Euro introduction – expectations and preferences

To start with, we recall that euro adoption is governed by a well-developed institutional and legal framework, which we summarized in Backé and Beckmann (2020).<sup>5</sup> This framework outlines clear conditions and a staged pathway (EU → ERM II → positive convergence assessment → preparations for changeover → euro adoption). This path implies a minimum timeline, while achieving a high degree of sustainable convergence may well take more time. Actually, in most cases so far, meeting the criteria in a durable way and thus entering the euro area has taken longer than the minimum timespan implied by the institutional framework.

Based on the regulatory setup, one can determine the technically earliest possible year of euro area accession for each country at a given point in time (in our case, for the field phases of survey waves). We are thus able to distinguish expectations and preferences that could in principle be compatible with the framework from those that are not. To be clear, this distinction only relates to technical feasibility and does not comprise aspects of economic preparedness which may vary substantially from one case to the other.

Recently, monetary integration of the CESEE region has unfolded along these lines: During their first year of ERM II participation, Bulgaria and Croatia recorded exchange rates at the parity rate (Bulgaria) or very close to it (Croatia), fairly stable interest rates and foreign exchange reserve levels. Both countries remain committed to striving for euro adoption over the next few years (Croatia targeting euro area accession in 2023, Bulgaria a year later) and have started implementing the commitments they undertook when joining the exchange rate mechanism.

Around the turn of the year 2020/21, Romania put its intended timeline toward ERM II and euro area accession under revision, implying a delay compared to earlier intentions (the authorities have hinted that the revised timeline could postpone possible ERM II entry to 2024–2025 and euro adoption to 2027–2028).

As for the other CESEE EU MS that have not yet joined the euro area, there has been no change in the authorities' stance on monetary integration in the recent past.

As for the CPCs, EU accession has remained a slow-moving process. The earliest possible EU entry date, namely the year 2025, which was announced back in 2018, has remained in place but looks increasingly difficult to achieve for any of the CPCs given the minimal momentum toward EU accession. Still, there was one development that has a bearing on our topic: In the spring of 2020, the European Council decided to open accession negotiations with Albania and North Macedonia.<sup>6</sup> Moreover, in the fall, i.e. close to the field phase of the 2020 survey wave, the European Commission published its annual enlargement package, also containing annual progress reports on each of the Western Balkan countries. In these reports, the European Commission found that Albania had made “decisive progress” toward the operational start of negotiations (which take place in intergovernmental

<sup>5</sup> See also Backé and Dvorský (2018) for an overview of euro area enlargement toward CESEE, which presents a more detailed review of the framework and how it evolved as a consequence of the sovereign debt crisis in some euro area countries in the first half of the 2010s and the deepening of European monetary union that was undertaken as a response to the crisis with a view to strengthening the resilience of the euro area.

<sup>6</sup> EU accession negotiations with Serbia continued proceeding slowly, while Bosnia and Herzegovina remains a potential candidate (considerable progress on multiple fronts would be required before the beginning of accession negotiations could be considered).

conferences), while it confirmed North Macedonia's steady progress. The appraisals of the other Western Balkan CPCs, in turn, were clearly more critical.

Be that as it may, the enlargement commissioner stated to be “very hopeful” that the first intergovernmental conferences with Albania and North Macedonia would be held before the end of the year 2020. These developments were received in a strongly positive way by the media in the two countries, especially in Albania. The arrival of substantial EU support for the Western Balkans to cope with the COVID-19 crisis, after an unwieldy start at the beginning of the crisis in spring, added to the positive sentiment.

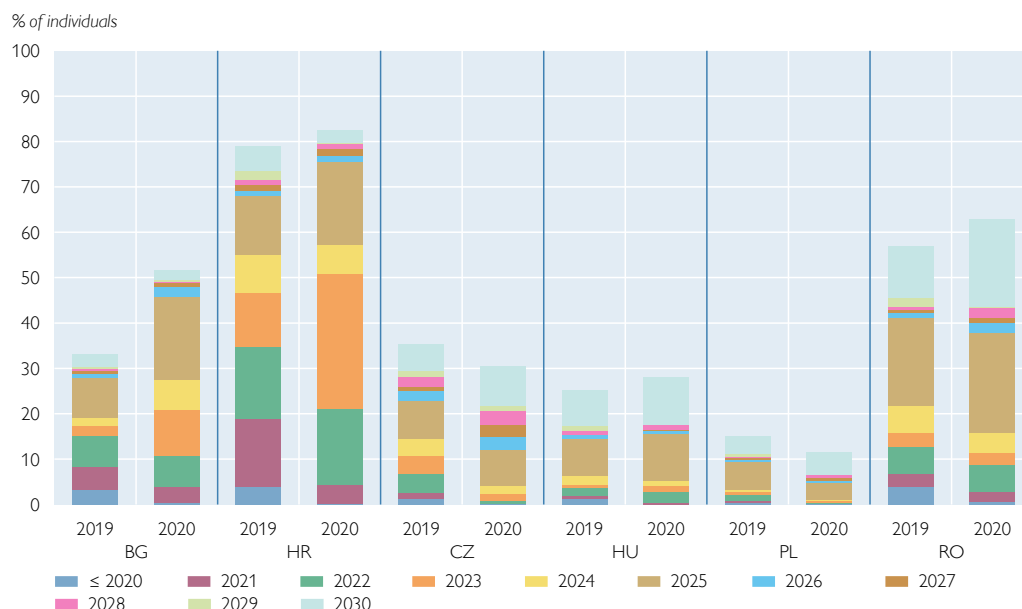
It should be noted that a few weeks after the 2020 field phase, namely in November, Bulgaria blocked accession negotiations with North Macedonia (more concretely the approval process of the “negotiating frameworks” which is supposed to go in tandem for both countries). This has effectively barred further progress since then, thus thwarting the very hopeful attitude that had prevailed back in 2020.

## 2.1 Recent changes in euro introduction expectations

Chart 1 depicts how euro adoption expectations in the CESEE EU MS covered in this study have developed from 2019 to 2020.<sup>7</sup> As mentioned, the data have to be interpreted with caution because of rounding (see chart A4 in the online supplement).

Chart 1

### Expectations in CESEE EU member states: Individuals think the euro will be introduced by...



Source: OeNB Euro Survey.

Note: For the survey wave 2019, we recode answer “2019 to 2020.” See online supplement for an update of the charts included in Backé and Beckmann (2020).

<sup>7</sup> For a description of developments until 2019, see Backé and Beckmann (2020).

Starting with the two ERM II countries, expectations have become more optimistic from 2019 to 2020. In Bulgaria, the share of individuals expecting euro adoption by 2024 has risen from close to 20% to almost 30%. In Croatia, this share has increased from 55% to 58%, driven by a strong rise in the share of people that expect euro adoption in 2023. Moreover, in Bulgaria the share of people that “don’t know” has fallen from almost 60% to a bit less than 40%. In Croatia, the latter share already dropped significantly from 2018 to 2019 and has remained at slightly above 10%, much smaller than in Bulgaria.

In Czechia, Hungary and Poland, the share of people expecting euro adoption in the course of the 2020s remains low (between 7% and about 20%) and has kept falling in Czechia and in Poland. Moreover, the share of people who expect that the euro will never be introduced in their respective countries remains persistently high (around 30%), and the same is true for the share of “don’t know” responses (between 35% and 60%). In Poland, expected euro adoption has clearly shifted into the more distant future between 2019 and 2020.

In Romania, euro adoption expectations did not shift substantially between 2019 and 2020. It is worth mentioning that the share of “don’t know” responses has fallen further (to slightly below 20%). Also, it should be noted that the 2020 survey was undertaken before the Romanian authorities announced that they would review and in fact delay the conceived timeline of their monetary integration plans.

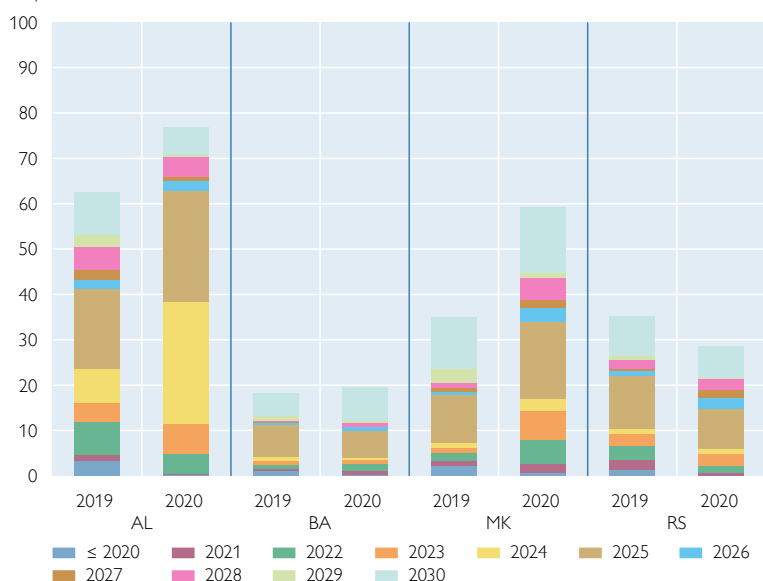
Chart 2 presents changes in euro introduction expectations in the CPCs included in this study that occurred between the 2019 and 2020 survey waves. Among the CPCs, euro adoption expectations in Albania and North Macedonia

became notably more optimistic in 2020, as compared to 2019. In fact, a large share of people in these two countries expect euro adoption to take place before it will be legally feasible. In North Macedonia, the share of people that expect euro adoption to never take place has come down substantially, as has the share of “don’t know” responses. In Albania these two shares have remained stable; the visible changes are driven by altering expectations among those who name a year for euro introduction. We attribute these changes mainly to the developments in the EU accession process in 2020 (see above), which had a clearly uplifting effect on EU accession expectations (see box 1), thus also moving forward expected euro area accession. This combines with the gaps in knowledge about the EU and euro area accession process (see below), in particular about the stepwise nature of the process toward eventual euro adoption and

Chart 2

### Expectations in CESEE EU candidates and potential candidates: Individuals think the euro will be introduced by...

% of individuals



Source: OeNB Euro Survey.

Note: For the survey wave 2019, we recode answer “2019 to 2020.” See online supplement for an update of the charts included in Backé and Beckmann (2020).

about the lead times required for each step in this process. In our view, this combination of factors is key for grasping why euro adoption expectations brightened notably in North Macedonia and, even more so, in Albania from 2019 to 2020. We also venture that the impasse in the accession process of these two countries seen since late 2020 will impact on expectation formation in the next OeNB Euro Survey wave in the fall of 2021 and, given this deadlock, we would not be surprised to see a reversal in expectations going forward.

In contrast, euro adoption expectations in Serbia as well as in Bosnia and Herzegovina (where no new momentum was visible in the accession process in 2020) have remained largely unchanged between 2019 and 2020, with one exception: The share of people answering “don’t know” has risen from slightly above 20% to a bit more than 30% in Serbia, thus reverting to the levels seen in 2017/18.

## 2.2 Preferred year for euro introduction

Turning to the distribution of euro adoption preferences, as collected in the fall of 2020, the following points stand out (see chart 3<sup>8</sup>):

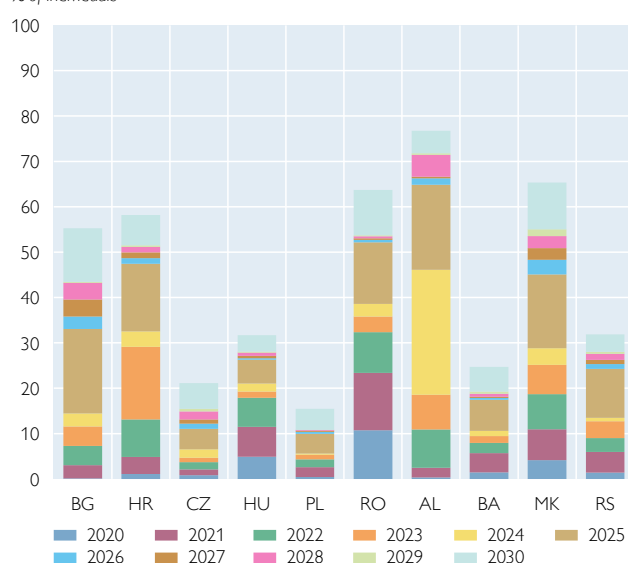
There is quite some variation in the shares of those respondents who see themselves in the position to state a preferred time horizon for euro adoption (combined shares of those indicating a year and those answering “never”). The highest shares of people with explicit preferences are found in Croatia and Albania (about 90%), the lowest in Poland (around 55%) and Hungary (about 60%). It is noteworthy that 30% of respondents in Bulgaria are not yet in a position to state a preference, despite the authorities’ intention to join the euro area within the next few years. Equally interesting is the high share of people with preferences in Albania and North

Chart 3

### Preferred year or period for euro introduction, 2020 survey wave

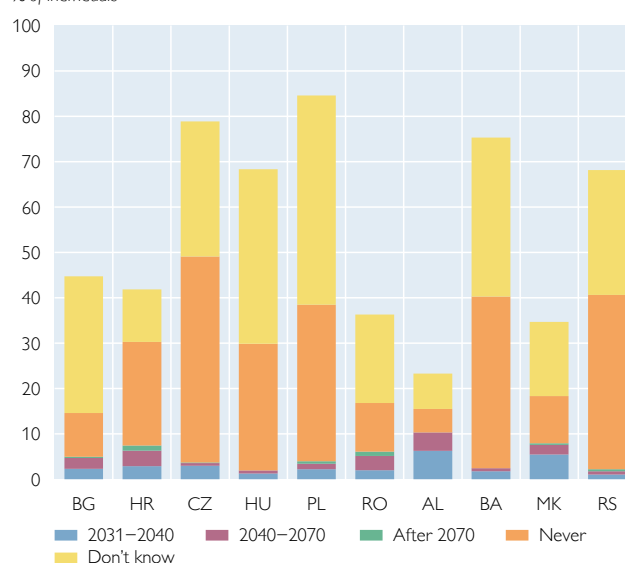
#### Specific years

% of individuals



#### Periods

% of individuals



Source: OeNB Euro Survey, 2020.

<sup>8</sup> Again, an inclination to round responses is visible.

Macedonia, countries that are not yet EU member states (and still have quite some way to go before joining the EU).

A second notable feature relates to the “never” responses. Here, too, we see considerable heterogeneity across countries. The camp of those who do not want their national currency to ever be replaced by the euro ranges from 5% to 45%, with Albania, Bulgaria and North Macedonia at the lower end of the spectrum, and Czechia, Serbia and Bosnia and Herzegovina at the upper end. Here it is remarkable that in Croatia, where the authorities are eager to introduce the euro as soon as possible, almost a quarter of the population is opposed to adopting the single currency.

Moreover, most of those who have indicated a preference for the adoption of the euro in their respective countries would like to see the single currency being introduced by 2030. In the two ERM II countries in CESEE, fast euro adoption (within the next three years) is preferred only by 15% in Bulgaria, while the share in Croatia is a bit above 30%. Higher shares of respondents who would prefer a speedy euro adoption can be observed in Romania and Albania (close to 40% and about 45%, respectively). The latter again raises the issue of compatibility with the institutional framework that governs euro introduction. Similarly to what we saw with expectations, there are large, in some cases very large shares of individuals who would want to see a faster euro introduction than technically feasible. The share of preferences that are not congruent with what is possible under the current framework increases further if we also include the “never” responses as incongruent preferences.

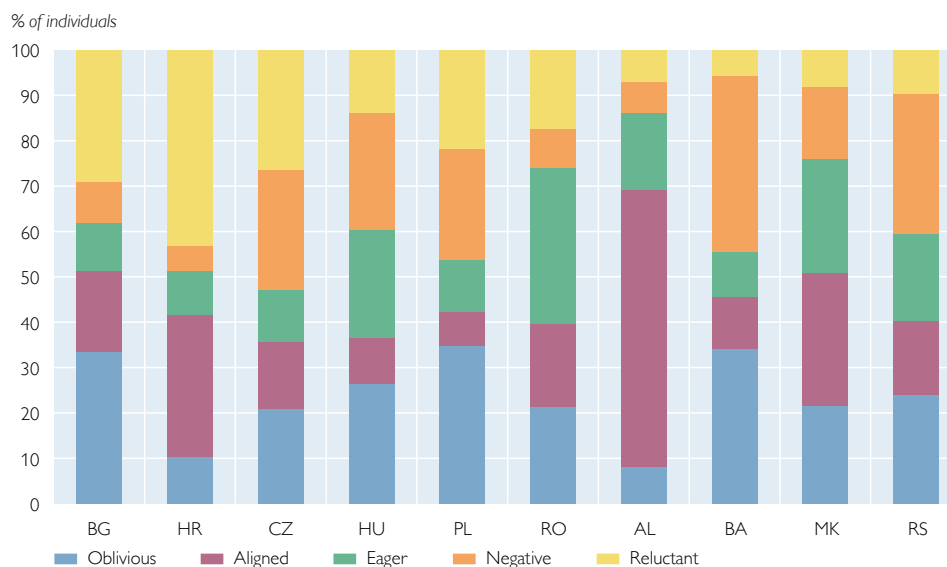
### 2.3 How do euro adoption preferences compare with expectations?

In chart 4, we combine euro adoption expectations and preferences, pooling the survey waves of 2017, 2018 and 2020, and apply the five main categories defined above.

We find that the share of “oblivious” attitudes ranges from 10% (Croatia) to about a third (Bulgaria, Poland, Bosnia and Herzegovina). People whose expecta-

Chart 4

#### Euro introduction expectations and preferences



Source: OeNB Euro Survey, 2017, 2018, 2020.



tions are congruent (or at least not incongruent) with their preferences, make up between 7% in Poland and about 60% in Albania. Those who would want to see a speedier euro adoption process than they expect form a relatively contained share, between about 10% in five of the ten countries and up to a third in Romania. Also, in North Macedonia (about 25%) and in Hungary and Serbia (about 20%), this group is of tangible relevance. The share of those who cannot conceive euro introduction in their countries, ranges from about 6% in Croatia to almost 40% in Bosnia and Herzegovina. This share is also large in Serbia – about 30% – and in Poland, Czechia and Hungary – around 25%. The share of those who would like to see a later introduction of the euro than they expect in their respective countries (or no introduction at all) is rather small in the CPCs (shares of 5% to 10%). In contrast, these shares are clearly larger and more heterogeneous in the CESEE EU MS, ranging from close to 20% in Romania to about 40% in Croatia.

Comparing euro adoption expectations and preferences among those who want to see a slower euro introduction, those who think that euro adoption is moving with appropriate momentum and those who want to see a faster euro introduction, shows that the former expect euro adoption to take place faster than the latter in most cases (see table A2 in the online supplement). Moreover, within these three categories, there is a rather high variation across countries. For example, among those who would like to see a decelerated process, the mean of the expected time-frame for euro adoption in Bulgaria and Croatia is below 5 years, while in Hungary and Poland it is above 8 years. This underlines how important it is to keep the two-dimensional character of the categories in mind: expectations relative to preferences.

It is also informative to look at the question of by how many years those who want a slower or speedier euro adoption process would like to accelerate or decelerate the process. To do so, we compare the means and medians of the (absolute) difference between the expected and the preferred year of euro adoption across countries (table 2). As could be expected, people in the “eager” category would want to speed up the process to a greater extent in CESEE EU MS in which the authorities are not in a hurry to consider euro adoption in the foreseeable future, and also in most CPCs (except Albania). Medians are lower than means, due to a number of respondents having very bleak expectations about euro adoption (i.e. anticipating it in a very distant future relative to their preferences). Individuals in the reluctant attitude category display a greater variation than eager respondents (based on means). We see that in four out of the ten countries, individuals with reluctant attitudes, on average, would want to slow the process toward euro adoption by a decade or more. These large numbers are due to some respondents indicating a preference for

Table 2

### Difference between expectations and preferences

	Eager		Reluctant	
	Expectation minus preference		Preference minus expectation	
	Mean	Median	Mean	Median
Years				
BG	3.64	3	7.21	5
HR	4.22	3	10.53	5
CZ	4.69	3	6.21	5
HU	7.86	5	5.77	5
PL	7.32	5	10.62	6
RO	8.46	5	10.59	5
AL	3.91	3	5.08	3
BA	7.94	6	4.67	5
MK	8.95	5	5.7	2
RS	7.79	5	13.65	5

Source: OeNB Euro Survey, 2017, 2018, 2020.



euro adoption in the very distant future (relative to their expectations). Looking at the medians, this effect disappears – and the picture is much more uniform, with most countries displaying a median of 5 years, i.e. the median reluctant individual would want to see euro adoption half a decade later than they expect it to happen.

Box 1

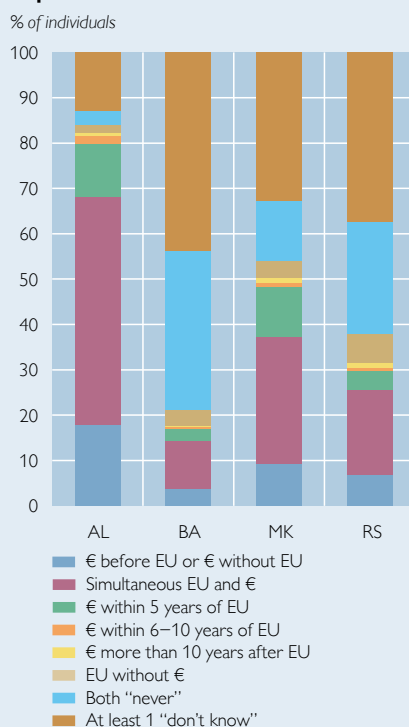
### EU accession versus euro adoption expectations and preferences

For EU candidates and potential candidates (CPCs), we complement the previous analysis by also looking at EU accession expectations and preferences. The left-hand panel of chart B1 presents EU and euro area accession expectations in comparison. A couple of interesting points emerge.

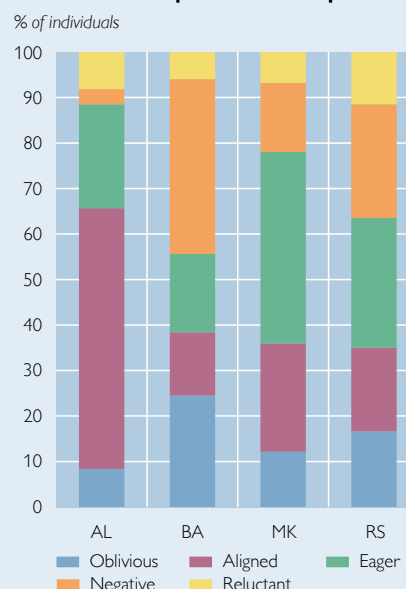
Chart B1

### Candidates and potential candidates: EU and euro area accession

#### Expectations of EU and euro area accession



#### EU accession expectations and preferences



Source: OeNB Euro Survey, 2017, 2018, 2020.

Again, the issue of the institutional framework appears quite prominently: Introducing the euro before (or without) entering the EU or simultaneously with joining the EU is clearly incompatible with the rules that govern euro area accession. The same also holds true for an adoption of the euro very swiftly after EU accession, as well as for “EU without (eventual) euro.” These incongruities are most widespread in Albania, but also substantial in North Macedonia.

The share of individuals who voice expectations of never joining the EU and euro area – highest at about 35% in Bosnia and Herzegovina, but also considerable in Serbia and North Macedonia – are genuinely sobering, given that CPCs are destined to become EU member states and that the EU would never be truly European without these countries joining at some point – even if this prospect is still rather distant.

Also, the high share of “don’t know” responses on one or both integration steps in three of the four CPCs is disconcerting, both in terms of the knowledge gaps and uncertainty it suggests.

*The right-hand panel in chart B1 applies the two-dimensional approach introduced earlier to EU accession expectations and preferences. A key takeaway is that in all countries the share of those who want EU accession to occur faster than they expect (eager attitude) is (much) larger than those who want to see a later EU entry than they expect (reluctant attitude). While the eager attitudes range between close to 20% (Bosnia and Herzegovina) and more than 40% (North Macedonia), the reluctant ones make up only 7% to 12%. Thus, authorities that would be willing to speed up preparations for EU accession would have a solid supporter base in the population. Echoing earlier results, the large shares of people that perceive EU membership as inconceivable in Bosnia and Herzegovina as well as Serbia stick out again.*

*Finally, it is eye-catching that more than half of the Albanian respondents expect EU accession to proceed in line with their preferences (in terms of timing). At the same time, a sizable share of people in this category has very optimistic expectations indeed about the timing of EU accession (compared to the EU's announcement to envisage enlargement toward the Western Balkans by 2025 at the earliest). Therefore, going forward, expectations and preferences may not be durably aligned.*

### 3 Empirical framework and strategy

What drives attitudes toward euro area accession? This question is the object of our empirical analysis. We study how financial literacy and trust in institutions interact with preferences in determining expectations. We focus on the following hypotheses regarding trust and financial literacy:

1. Financial literacy has an impact on the overall attitude toward euro area accession.
  - a. Financially literate individuals are more likely to hold a view when the euro should be adopted.
  - b. The euro adoption preferences of financially literate individuals diverge less from their related expectations than those of financially illiterate individuals.
2. Trust in institutions has an impact on the overall attitude toward euro area accession.
  - c. Individuals who trust in institutions are more likely to have a preference when the euro should be adopted.
  - d. Individuals who trust in institutions have more favorable attitudes toward euro area accession.
  - e. Trust in national institutions has a smaller impact on attitudes than trust in European institutions.

To investigate these hypotheses, we estimate probit models with five alternative dependent variables that reflect the different categories of attitudes toward euro area accession (see section 1, table 1), denoted by  $A$ :

$$P(A = 1) = \Phi_A(X_A\beta_A + u_A)$$

Following the standard estimation in the literature on expectations, we control for age, gender, education and income (Bryan and Ventaku, 2001; Bruine de Bruin et al., 2010). In alternative specifications, we additionally control for marital status and household size as well as labor market status and indicators of wealth. However, these additional socioeconomic controls are mainly insignificant and we, therefore,

do not include them in the baseline models. Our main explanatory variables are financial literacy and trust in national and European institutions, which have been shown to influence inflation expectations (see e.g. Bruine de Bruin et al., 2010; D'Acunto et al., 2019; Mellina and Schmidt, 2018; Christelis et al., 2020). We include country and wave fixed effects and cluster standard errors at the PSU-wave level, which shifts the focus to heterogeneity between individuals.

For those individuals who express both an expected and preferred year for euro adoption, we additionally analyze what determines the magnitude of the difference between expectations and preferences by estimating ordinary least square models. For these estimations we reduce the sample to the subsample of individuals in categories 2 “eager” and 4 “reluctant,” respectively.

We run several robustness analyses to address the following issues: heterogeneity between countries, endogeneity concerns as well as concerns regarding the definition and distribution of the dependent variable.

#### 4 The role of trust and financial literacy

Which attitudes do people have toward euro area accession? Table 3 presents the basic socioeconomic determinants of attitudes toward euro introduction. Age and gender, for instance, significantly affect these attitudes. Women are more likely to have an “oblivious” attitude, while older individuals are often against a speedier introduction of the euro than they expect.<sup>9</sup> Compared to individuals with only primary education, both individuals with secondary and with tertiary education are more likely to express an attitude toward euro area accession. Income shows a similar pattern. Compared to low-income individuals, those with higher income are significantly more likely to express attitudes and also to prefer an earlier euro introduction than they expect.<sup>10</sup> Labor market status does not have a significant impact on attitudes (results not shown) and is subsequently dropped from the baseline control variables.

With regard to our hypotheses, table 4 reports results on how financial literacy and trust in national and international institutions affect attitudes (see table A1 in the online supplement for variable definitions). We present results where trust and literacy are included simultaneously; however, the significance and size of marginal effects does not change if we study effects stepwise.<sup>11</sup>

Regarding hypothesis 1, we find that financial literacy has a significant impact on attitude formation.<sup>12</sup> We confirm that higher levels of financial literacy are positively and significantly correlated with expressing a preference for euro adoption

<sup>9</sup> Bear in mind that age is a continuous variable when looking at the average marginal effect in table 3. Computing marginal effects at representative values of age, we find that the propensity to give a “don’t know” response (“oblivious”) with respect to euro introduction is U-shaped, decreasing from a marginal effect of 20% for 18-year-olds to 18% for 45-year-olds and then increasing to 24% for those aged 70 and older. The propensity to display an “eager” attitude with respect to euro introduction decreases with age, starting from a marginal effect of 23% for 18-year-olds and decreasing to 18% and lower for those aged 55 plus.

<sup>10</sup> We investigate whether results for income and education are driven by a correlation between the two variables. Table A4 shows that effects are remarkably stable if we include income and education in separate models and if we include the variables jointly as in our baseline. We add further control variables regarding the exposure to de facto euroization, described in the online supplement; full regression results are presented in table A3.

<sup>11</sup> We further study if and how trust in institutions and financial literacy interact. We do not find strong evidence that trust and financial literacy reinforce or counteract each other.

<sup>12</sup> F-tests show that the effects for the three different levels of literacy are significantly different from each other.

Table 3

**How are socioeconomic characteristics and euroization correlated with attitudes?**

Dependent variable	Oblivious	Aligned	Eager	Negative	Reluctant
Female	0.030*** (0.005)	−0.006 (0.005)	−0.019*** (0.005)	−0.009* (0.005)	0.003 (0.005)
Age	0.00 (0.000)	−0.001*** (0.000)	−0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Education: secondary	−0.034*** (0.008)	0.026** (0.010)	0.00 (0.010)	0.001 (0.008)	0.019** (0.008)
Education: tertiary	−0.063*** (0.010)	0.051*** (0.012)	0.004 (0.011)	−0.011 (0.010)	0.023** (0.010)
Income: refused answer	0.056*** (0.010)	−0.052*** (0.009)	−0.017** (0.009)	0.001 (0.009)	0.004 (0.008)
Income: medium	−0.016** (0.007)	−0.005 (0.008)	0.037*** (0.008)	−0.032*** (0.008)	0.016** (0.007)
Income: high	−0.031*** (0.008)	0.011 (0.009)	0.045*** (0.009)	−0.038*** (0.009)	0.009 (0.008)
Country and wave fixed effects	Yes	Yes	Yes	Yes	Yes
Further controls, table A3	Yes	Yes	Yes	Yes	Yes
Log-L	−11,401.8	−12,096.2	−11,224	−11,052.7	−10,616.4
Pseudo-R2	0.06	0.12	0.06	0.1	0.1
N	24,802	24,802	24,802	24,802	24,802
P(DepVar=1)	0.19	0.24	0.19	0.2	0.18

Source: Authors' calculations.

Note: Average marginal effects from probit regressions. Standard errors are clustered at the PSU-wave level. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively. Based on data from 2017, 2018 and 2020.

that is speedier than expected. Compared to financially illiterate individuals (omitted category) those who have knowledge about interest rates, inflation and exchange rate risk are 10 percentage points more likely to expect euro area accession later than they would prefer (see “eager” column). However, we also find that financially literate individuals are more likely to prefer a later introduction of the euro than they would expect. The effect is much smaller at 2 percentage points (see “reluctant” column). We dig deeper into these two somewhat inconclusive findings regarding eager and reluctant attitudes and see that financial literacy only has an impact on those reluctant individuals who expect a specific year of introduction but do not want the euro to be introduced at all.<sup>13</sup>

<sup>13</sup> Moreover, we find that this result seems to be driven by Croatia as the effect disappears if we drop Croatia from the sample.

Table 4

### How do financial literacy and trust in national and European institutions affect attitudes?

Dependent variable	Oblivious	Aligned	Eager	Negative	Reluctant
<b>Model 1</b>					
Financial literacy: low	−0.050*** (0.008)	−0.014* (0.009)	0.044*** (0.008)	0.005 (0.008)	0.023*** (0.008)
Financial literacy: medium	−0.069*** (0.009)	−0.003 (0.009)	0.058*** (0.008)	−0.015* (0.008)	0.032*** (0.008)
Financial literacy: high	−0.066*** (0.010)	−0.020** (0.010)	0.095*** (0.010)	−0.027*** (0.009)	0.022*** (0.008)
Trust in EU	−0.007 (0.006)	0.073*** (0.006)	0.084*** (0.006)	−0.105*** (0.006)	−0.052*** (0.006)
Trust in government	−0.003 (0.007)	0.059*** (0.007)	−0.036*** (0.007)	−0.029*** (0.007)	0.004 (0.006)
Further controls	Yes	Yes	Yes	Yes	Yes
Country-wave fixed effects	Yes	Yes	Yes	Yes	Yes
Log-L	−11,834.7	−12,100	−11,200	−11,023.7	−11,300.4
Pseudo-R2	0.06	0.14	0.12	0.1	0.08
N	25,602	25,602	25,602	25,602	25,602
P(DepVar=1)	0.19	0.24	0.2	0.19	0.19
<b>Model 2</b>					
Financial literacy: low	−0.064*** (0.014)	−0.008 (0.017)	0.035* (0.020)	0.026* (0.014)	0.034** (0.014)
Financial literacy: medium	−0.076*** (0.015)	0.001 (0.017)	0.053*** (0.019)	0.007 (0.015)	0.036** (0.015)
Financial literacy: high	−0.075*** (0.015)	−0.006 (0.019)	0.091*** (0.020)	−0.011 (0.016)	0.014 (0.016)
Trust in ECB	0.004 (0.012)	0.066*** (0.014)	0.053*** (0.013)	−0.093*** (0.012)	−0.040*** (0.012)
Trust in central bank	−0.018 (0.012)	0.062*** (0.014)	−0.029** (0.013)	−0.016 (0.012)	−0.002 (0.012)
Further controls	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Log-L	−3,389.9	−4,002.9	−3,591.5	−3,353.1	−3,317.9
Pseudo-R2	0.09	0.16	0.08	0.15	0.1
N	8,066	8,066	8,066	8,066	8,066
P(DepVar=1)	0.17	0.28	0.19	0.19	0.17

Source: Authors' calculations.

Note: Average marginal effects from probit regressions. Standard errors are clustered at the PSU-wave level. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively. Model 1 is based on data from 2017, 2018 and 2020. Model 2 is based on data from fall 2020 only as the question on trust in the ECB was included in this wave only.

Table 3 shows that highly educated individuals are not more likely to prefer accelerated euro introduction. However, financially literate individuals are. Chart 5 addresses the question of whether financial literacy has an impact on attitudes toward euro introduction beyond education. It shows that the impact of financial literacy on top of education is strongest for respondents in the eager attitude category.

Among individuals with tertiary education, those who are highly financially literate are 10 percentage points more likely to be “eager” than those who are financially illiterate (omitted category). The difference is 7 percentage points compared to those who have low financial literacy.

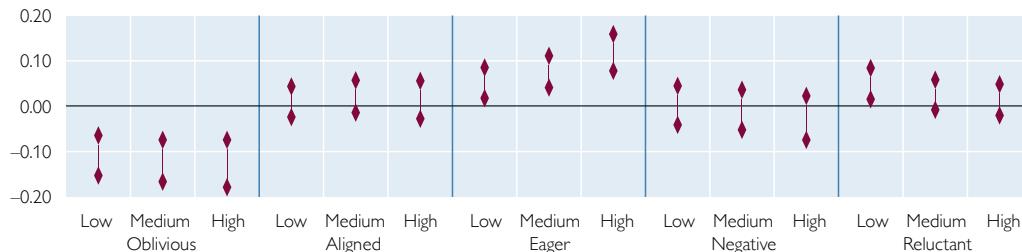
Turning to our second hypothesis on how trust affects attitudes, we do not find that individuals who trust in national or European institutions are less likely to be “oblivious,” which somewhat contradicts our hypothesis. However, we find that both trust in the government and in the EU increases the likelihood of having

Chart 5

## Does financial literacy have an effect beyond education level?

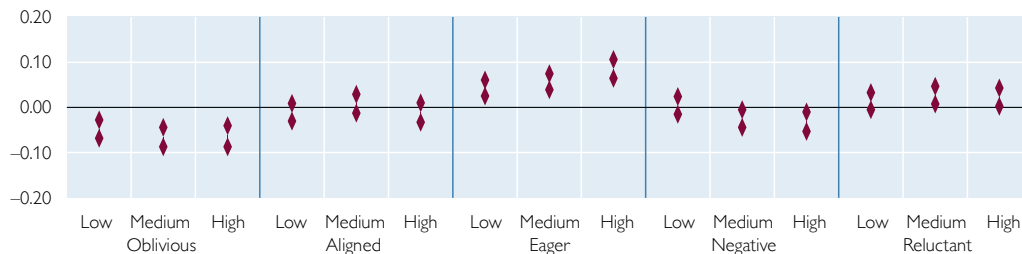
### Subsample: primary education

Average marginal effects and 95% confidence interval, broken down by financial literacy level



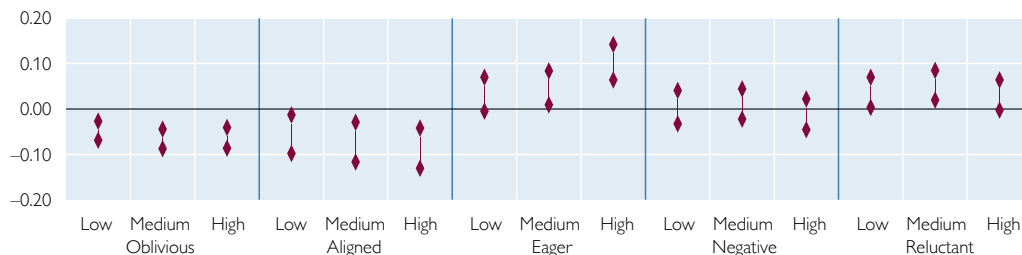
### Subsample: secondary education

Average marginal effects and 95% confidence interval, broken down by financial literacy level



### Subsample: tertiary education

Average marginal effects and 95% confidence interval, broken down by financial literacy level



Source: Authors' calculations.

Note: Average marginal effects of financial literacy on the dependent variables: oblivious, aligned, eager, negative, reluctant. Based on probit regressions where explanatory variables are equal to those listed in table 4, model 1. Regressions are run separately for the three subsamples of educational attainment.

expectations that are aligned with preferences by 7 and 6 percentage points, respectively (see “aligned” column in table 4). The same effect is found for trust in the ECB and the national central bank. In addition, trust in European institutions is associated with a higher likelihood of preferring accession earlier than expected – 8 percentage points higher for trust in the EU and 6 percentage points for trust in the ECB. Those who trust in national institutions, by contrast, are less likely to be “eager.” Furthermore, trust in European institutions is associated with a lower propensity to prefer accession later than expected (5 percentage points for trust in the EU and 4 percentage points for trust in the ECB). Trust in national institutions has no significant impact on preferring accession to occur later than expected.

In table 5, we investigate whether financial literacy or trust is associated with a bigger or smaller difference between expectations and preferences. Regressions are based on the subsamples of individuals who are classified as eager or reluctant.

Table 5

### What drives the difference between expectations and preferences?

Dependent variable	Difference in years: expected minus preferred	Difference in years: preferred minus expected
Sample	Reluctant	Eager
Financial literacy: low	0.989 (0.884)	-0.066 (0.604)
Financial literacy: medium	1.069 (0.917)	0.997 (0.707)
Financial literacy: high	0.965 (1.133)	0.064 (0.751)
Trust in EU	-2.154*** (0.728)	-1.389** (0.580)
Trust in government	-2.316*** (0.677)	-1.453*** (0.405)
Country and wave fixed effects	Yes	Yes
Constant	10.714*** (3.682)	1.56 (1.918)
Country and wave fixed effects	Yes	Yes
R2	0.053	0.047
N	1,704	3,042
P(DepVar=1)	8.54	6.98

Source: Authors' calculations.

Note: Based on ordinary least squares regression. For the dependent variables, "difference in years" is computed in such a way that positive values indicate a larger discrepancy between preferences and expectations both for "expect later than preferred" and for "expect earlier than preferred." Note that for this analysis, we only look at the subsample of eager respondents, where year > year and the subsample of reluctant respondents, where year < year and exclude any eager and reluctant respondents with "don't know" or "never" responses. This also explains why the share of eager and reluctant respondents is similar in chart 4, but the number of observations here differs. \*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% level, respectively.

Results show that financial literacy is not significantly correlated with the difference between expectations and preferences both regarding eager and reluctant attitudes. However, both trust in the government and the EU is associated with a smaller difference between preferences and expectations.<sup>14</sup>

### 5 Robustness analyses

As mentioned in section 3, our robustness analyses focus on addressing differences between countries, endogeneity concerns and the distribution of our dependent variable.

We take into account that CESEE-10 countries are very diverse and repeat estimations dropping one country at a time. We confirm that results are not driven by a particular country.

Tables 4 and 5 show results for all CESEE-10 countries: After controlling for country fixed effects, we find heterogeneities between individuals living in very diverse institutional backgrounds. Table A5 shows that results are similar but, as expected, not equal if we look at the subsample of EU member states and CPCs separately.<sup>15</sup>

Furthermore, CESEE-10 countries also exhibit strong regional divergence in terms of economic development. Controlling for differences in regional economic and financial development does not affect results.

When we look at the effect of trust in the national government and the EU, we pool the survey waves from 2017, 2018 and 2020. As mentioned in section 1, the pandemic may have introduced a bias in the sample that is not fully mitigated by controlling for sociodemographic characteristics. To address this concern, we repeat the estimations of table 4, columns 1 to 3, separately for each wave.

Most importantly, both trust and financial literacy are likely endogenous, and the results presented in tables 4 and 5 should not be interpreted as causal. Considering the endogeneity of our central explanatory variables, we conduct a large number of

<sup>14</sup> In a separate analysis, we study whether COVID-19 containment measures affected attitudes toward euro introduction by running regressions for 2020 only and including indicators on the stringency of containment measures and the severity of the pandemic. We find some indication that individuals who are exposed to more stringent containment measures are more likely to both expect and prefer the euro to never be introduced.

<sup>15</sup> For CPCs, the institutional framework stipulates that euro area accession will only take place after joining the EU. We repeat estimations for CPCs but employ attitudes on joining the EU as the dependent variable. Results show that the effect of financial literacy on attitudes is somewhat weaker and the effect of trust, in particular trust in the EU, is somewhat stronger.



robustness analyses. First, we examine if results change in terms of magnitude and significance if we include additional control variables for labor market status, household size, ownership of financial assets and wealth.

Second, we investigate whether trust is a proxy for other beliefs that we do not control for and include trust in the stability of the national currency and trust in the stability of the euro as additional controls. Third, we test whether the experience of hyperinflation during transition in the 1990s affects the results.<sup>16</sup> Finally, we control for inflation expectations and expectations regarding economic developments in the country. None of these additional controls change the significance and magnitude of the effects we present in tables 4 and 5.

Moreover, we make an effort to address endogeneity concerns by employing instrumental variable (IV) estimations. Even though these results are likely less biased, we do not present them in the main body of the paper as it is beyond the scope of the paper to present a thorough discussion of the IV assumptions; some of the instruments we employ are not available for all waves.

Table 6 shows IV estimates for trust. We employ an indicator of trust in other institutions (police as well as a joint indicator of trust in domestic and foreign banks)<sup>17</sup> as well as an indicator of the quality and duration of mobile coverage as instruments. The rationale for these instruments is that trust in the institutions we name should be correlated with trust in the government but should not directly influence euro adoption expectations. Regarding the quality and duration of mobile coverage, we draw on Guriev et al. (2020), who show that an increase in internet access reduces government approval and increases the perception of corruption in government.

Table 6 corroborates our earlier findings with respect to trust. The estimated effects of trust in the government and the EU are of very similar magnitude or stronger when using IV estimations.<sup>18</sup> Regarding financial literacy, we first examine whether effects are driven by one particular aspect. This might be the case for knowledge about exchange rate risk, in particular in highly euroized countries. We do not find that this is the case. We also repeat estimations using the share of “don’t know” responses to the questions not used in this analysis as an instrumental variable for financial literacy. Again, results are very similar to those in table 4, but the Kleibergen-Paap statistic indicates that the instrumental variables are only weakly correlated with regressors.

Finally, as an alternative to estimating separate probit models we estimate multinomial logit models (see online supplement, tables A6 and A7).

<sup>16</sup> Malmendier and Nagel (2016) provide evidence that individuals overweight inflation experienced during their lifetime when forming inflation expectations.

<sup>17</sup> In our preferred specification, we use trust in courts, notaries and cadastres as instruments; however, these variables are only available for the 2017 survey wave. Results are similar to the specification presented in table 6.

<sup>18</sup> In line with Guriev et al. (2020), we find a negative and significant impact of mobile coverage rollout on trust in government.



Table 6

### Robustness analysis: instrumental variable estimation

	Dependent variable	Oblivious	Aligned	Eager	Negative	Reluctant
OLS	Trust in EU	−0.006 (0.005)	0.074*** (0.005)	0.087*** (0.005)	−0.103*** (0.005)	−0.052*** (0.005)
	Trust in government	−0.002 (0.006)	0.064*** (0.006)	−0.039*** (0.005)	−0.027*** (0.006)	0.003 (0.005)
	Country and wave fixed effects, further controls	Yes	Yes	Yes	Yes	Yes
	R2	0.056	0.158	0.075	0.111	0.102
	N	25,602	25,602	25,602	25,602	25,602
2SLS	Trust in EU	0.009 (0.026)	0.101*** (0.027)	0.121*** (0.026)	−0.081*** (0.025)	−0.150*** (0.025)
	Trust in government	−0.015 (0.025)	0.068*** (0.026)	−0.066*** (0.025)	−0.088*** (0.025)	0.102*** (0.025)
	Country and wave fixed effects, further controls	Yes	Yes	Yes	Yes	Yes
	R2	0.056	0.157	0.073	0.107	0.083
	N	25,505	25,505	25,505	25,505	25,505
2SLS first stage	Dependent variable	Trust in EU				
	Quality and duration of mobile coverage	−0.165*** (0.036)				
	Trust police	0.177*** (0.006)				
	Trust banks	0.373*** (0.007)				
	Kleibergen-Paap F-stat.	204,252				
2SLS first stage	Dependent variable	Trust in government				
	Quality and duration of mobile coverage	−0.096*** (0.032)				
	Trust police	0.358*** (0.006)				
	Trust banks	0.194*** (0.006)				
	Kleibergen-Paap F-stat.	204,252				

Source: Authors' calculations.

Note: \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively. The OLS panel repeats estimations of table 5, model 1, but as a linear probability model. The 2SLS panel presents instrumental variable estimates for table 5, model 1. The 2SLS first stage panel shows the first stage estimations for trust in EU and trust in government.

## 6 Conclusion

In this study, we investigate people's attitudes on euro adoption. We look at a sample of ten CESEE countries that have retained their national currencies to date, namely six EU member states (Bulgaria, Croatia, Czechia, Hungary, Poland and Romania) as well as four EU candidates and potential candidates in the Western Balkans (Albania, Bosnia and Herzegovina, North Macedonia and Serbia). For our analysis, we use data from the OeNB Euro Survey from 2017 to 2020. We present unique evidence not only on euro adoption expectations but also on preferences using data revealing when people think the euro will be introduced and when they think the euro should be introduced. Contrasting and combining these two aspects allows us to describe the overall range of attitudes toward euro adoption.

We show that attitudes on euro adoption vary widely within and across countries. In our country sample, on average, 18% would prefer a faster accession

to the euro area than they expect, while another 18% would prefer a later euro introduction than they expect. For 22% of the population, expectations are aligned with preferences. 19%, on average, neither expect nor want euro area accession to take place at all. Finally, 23% indicate that they have not formed attitudes on the introduction of the euro in their respective countries. It is noteworthy that expectations and preferences are less divergent in Bulgaria and Croatia, which have participated in ERM II since July 2020, than in other CESEE EU countries.

In regression analyses, we show that attitudes toward euro area accession differ across sociodemographic groups, with the more educated and wealthier individuals being more likely to hold a definite view on accession. Financial literacy is positively correlated with forming both definite expectations and preferences. However, financially literate individuals tend to more frequently prefer a later or earlier introduction than they expect. At the same time, financially literate individuals are significantly less likely to want or expect their country to never join the euro area. In addition, we show that financial literacy affects attitudes on top of education. Trust in national and European institutions affects attitude formation. Those who trust European and national institutions are more likely to hold preferences that are in line with their expectations. Trust in European institutions is associated with preferring faster accession to the euro area than expected, while trust in national institutions is associated with preferring a slower accession than expected. We show that these results are robust to different specifications in terms of estimation methods and control variables.

From a policymaking perspective, we would like to flag the following points: First, there still appears to be room for improving the knowledge about the euro adoption process and the conditions and timelines it involves in the CESEE countries covered in this study. Supporting people in forming expectations in the first place and promoting the compatibility of such expectations with the euro adoption framework would allow people to make better-informed financial decisions. Moreover, a deeper discussion about the euro and the costs and benefits of a prospective euro area participation could have a favorable impact on the formation of preferences, too. Similarly, people in the CPCs could benefit from efforts geared at explaining how the EU accession process is designed. Second, financial literacy and trust are important in aligning expectations and preferences, but also for promoting more supportive attitudes toward euro adoption. While it takes time to build a track record and thus trust in national institutions (and trust in EU institutions is partly beyond the influence of national policymakers), advancing financial literacy is clearly better suited for more immediate policy action in individual countries. Third, communication is key, especially for authorities that target euro adoption over the near to medium term – the objective being twofold: Announcing a clear and comprehensive strategy and involving all parts of society before and during its implementation is paramount for aligning people's expectations with the plans of the authorities. At the same time, laying out the rationale for the chosen strategy (including paying genuine attention to reservations and worries) in an open and nuanced way should help to win over those people, or at least many of them, who are not yet (fully) convinced of the path the authorities are embarking upon and thus may still hold preferences that diverge from policymakers' plans. Given the substantial heterogeneity across countries that we again show in this paper, policies must be tailored to local conditions. As we already highlighted in

Backé and Beckmann (2020): “What works in one country, may not necessarily work in another.”

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# Household savings in CESEE: expectations, experiences and common predictors

Melanie Koch, Thomas Scheiber<sup>1</sup>

*This study analyzes the link between household savings and adverse financial experiences as well as financial expectations. Using data from the 2019 OeNB Euro Survey, we focus our analysis on Central, Eastern and Southeastern European (CESEE) economies. Managing perceptions of the past and expectations about the future may be particularly crucial in countries where people have repeatedly experienced macroeconomic crises. Besides controlling for a rich set of individual characteristics in a standard regression framework, we also use a double LASSO regression analysis to test if detected effects are confounded by omitted variables. While people's expectations about the economic situation in their country are positively related to the extensive margin of having savings and saving regularly, inflation expectations are negatively related to the amount people save regularly. Crisis experiences matter less but having experienced restricted access to one's bank account discourages savings in general. Crisis experiences become more relevant if we restrict our analysis to older respondents and to savings during the COVID-19 pandemic in 2020, for which we have some data. The LASSO approach mostly supports our findings but also shows that neither crisis experiences nor expectations about economic or inflation developments are relevant predictors of the propensity to save regularly. It reveals, however, that trust in the national central bank is, among other things, a relevant predictor of savings behavior.*

JEL classification: D14, D91, G51

Keywords: household finance, savings, survey data, LASSO, CESEE

Household savings are a key macroeconomic variable. They serve as a significant source of domestic funding for investments, ultimately promoting economic growth through financial markets and, more commonly, through banks. Apart from this, households accumulate savings as a means of precaution, allowing them to absorb adverse economic shocks. This, in turn, helps smooth the business cycle and maintain financial stability. The demand for precautionary savings is linked to the extent of uncertainty, which depends on the quality of a country's social security net, its pension system and educational system. Because of this uncertainty, household expectations might be a key macroeconomic variable as well. For example, households' inflation expectations are assumed to influence their real interest rate perceptions, which then affect their savings and consumption decisions and, with this, macroeconomic outcomes (Woodford, 2003).

Empirically, households are heterogeneous in terms of size, economic activity, income, net wealth and cultural background as well as their expectations and experiences. This calls for microeconomic evidence to analyze savings behavior. Malmendier and Nagel (2016) show that differences in experiences strongly predict differences in expectations, linking individuals' expectations to their financial decisions. The dispersion of inflation expectations, for instance, is particularly

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pronounced following periods of highly volatile inflation. The underlying learning-from-experience mechanism rests on psychological evidence (Tversky and Kahnemann, 1973) and the notion that the dispersion of beliefs arises naturally due to differences in experiences. Leombroni et al. (2020) complement these findings by showing that varying inflation expectations across age cohorts during the Great Inflation in the US in the 1970s matter for the propensity to save, the size of tax effects, the volume of nominal credit and the price of housing as collateral. Goldfayn-Frank and Wohlfart (2020) show that severe crisis experiences can permanently impede people's ability to form expectations. East Germans, who experienced an inflation shock after reunification, still expect higher inflation than West Germans, even decades after reunification. East Germans' higher inflation expectations are reflected in higher consumer debt and lower bond holdings.

In a similar vein, recent literature emphasizes the role of economic sentiments (i.e., households' growth expectations) as a predictor of consumption expenditures and, hence, savings in the US and the euro area (Dees and Brinca, 2013; Christiansen et al., 2014). Again, the link between economic sentiments and the business cycle is time-varying and strengthened, for instance, after the global financial crisis (Lozza et al., 2015, for Italy; Soric, 2018, for Central, Eastern and Southeastern Europe (CESEE)). Furthermore, macroeconomic conditions and economic sentiments influence each other (Van Aarle and Kappler, 2012, for the euro area). Finally, tail events can trigger larger belief revisions that may scar beliefs for a long time (Van Giesen and Pietres, 2019; Kozłowski et al., 2020). Thus, the complex interaction between experiences and expectations establishes a time-varying influence – sometimes clustered at a specific age cohort – on individual savings decisions that reaches beyond the life-cycle hypothesis and the permanent income hypothesis.

Still, microeconomic evidence on the determinants of savings for households in CESEE is scarce, although this region is considered a prime example for studying the interaction between household experiences, expectations and financial decisions. The CESEE region exhibits some special features when it comes to savings. First, people in CESEE have experienced several negative events in the last 30 years which have eroded the value of their savings, leaving a deep scar on people's trust in banks and local currencies (Beckmann and Scheiber, 2012).<sup>2</sup> These events include national currency crises, banking crises, hyperinflation periods during the transition to market economies and the Yugoslav wars; or, more recently, the global financial crisis in 2008/2009 and the ongoing COVID-19 pandemic. Consequently, CESEE households resorted to keeping savings in foreign currency cash and foreign currency deposits, if at all. Brown and Stix (2015) show that crisis experiences, economic expectations and weak trust in institutions are the main determinants of monetary expectations in CESEE, which, together with network externalities, explain the region's demand for foreign currency deposits. Another stylized fact for CESEE is that a substantial share of people prefers to save in cash. While the importance of saving in cash and/or in foreign currency declined strongly in Hungary and Poland, it remained quite substantial for households in

<sup>2</sup> While trust in local currencies has recovered gradually over the last decade, the lead of trust in the euro vis-à-vis the respective local currency has narrowed only in three out of seven countries (i.e., in Albania, Hungary and Serbia), staying the same or increasing otherwise.

Southeastern Europe (SEE).<sup>3</sup> Stix (2013) shows that weak trust in banks, gray economies and experiences of restricted access to one's bank account are the main drivers of CESEE individuals' preference for saving in cash. Finally, the share of individuals who report that they do not have any savings is relatively high. Average shares of savers ranged from only 19% in Bosnia and Herzegovina to 71% in Czechia in 2012 and have increased only moderately over the last decade (see the left-hand panel of chart 1).

Up to date, to the best of our knowledge, the only study analyzing potential determinants of savings across different CESEE countries has been conducted by Beckmann et al. (2013). Using OeNB Euro Survey data from 2010–2011, the authors find age, income and education to be the strongest socioeconomic predictors of the propensity to save. Due to lack of data, they can only analyze whether people have savings or not and they do not explicitly focus on people's experiences and expectations. Kłopocka (2017) looks at the latter at the aggregate level for Poland and finds that the gross household savings rate is positively related to changes in an aggregate index of future consumer confidence. This significant relationship is mostly driven by unemployment expectations.

In this paper, we analyze the relationship between household savings and future economic prospects as well as negative financial experiences of individuals in CESEE prior to the COVID-19 pandemic. Drawing on data from the OeNB Euro Survey from 2019, we focus on financial events that themselves cannot be influenced by the individual and the perceptions of which are malleable, e.g., perceptions of a country's economic situation, economic crises and inflation events. We consider two distinct dimensions of savings: the savings stock, i.e., *having savings at all*, and the savings flow, i.e., *saving on a regular basis*. The latter information was surveyed for the first time in 2019. Therefore, we can look at both the propensity to save regularly and the amount that is saved regularly (extensive and intensive margin). A caveat of our study is that we pool the data over all ten countries in our sample. This is because the sample within each country becomes too small, especially since two of our three dependent variables are dummy variables. Thus, we cannot estimate how expectations and experiences interact with country effects. The country effects capture, for instance, relevant differences in national pension systems. By pooling the data, we can control for several individual and household characteristics that we would otherwise not have been able to include. Besides employing standard regression techniques with predetermined covariates, we also use a more data-driven approach. This allows us to include more control variables than previous studies. Thus, with the help of the so-called double LASSO approach, we search for potential covariates that are important to uncover the “non-confounded” relationship between our independent variables of interest and savings. Eventually, we also sneak a peek at the savings stock and its covariates in 2020, the year when the COVID-19 pandemic hit CESEE, where memories of past crisis periods used to trigger a rather swift and strong reaction amid a renewed economic crisis (Prea and Stix, 2011; Brown and Stix, 2015).

<sup>3</sup> Czechia is the only country in the OeNB Euro Survey where both euroization of deposits and preference for saving in cash have never been elevated since 2007. For indicators on cash preference, trust in currencies and banks as well as euroization, see the OeNB's website at <https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/Main-Results.html>.



Our results show that having savings and saving regularly are significantly positively related to expectations about a country's future economic situation, while inflation expectations show no significant or large connection to these extensive margins. However, inflation expectations show a significant negative relation to the amount that individuals save regularly, i.e., respondents who expect high inflation with a larger probability save less. In contrast, expectations about a country's economic situation are not significantly related to the amount saved. For individuals' experiences, we do not find as strong effects but having experienced restricted access to one's bank account seems to discourage savings in general. However, if we restrict our sample to older respondents, i.e., to those who are more likely to have experienced (more) adverse events, memories and experiences become more relevant. Beyond socioeconomic factors like income (shocks), education, age and employment, we find a strong relationship between financial literacy as well as self-control and savings. Besides expectation management, these factors could be adequately addressed by policymakers and central banks through programs and trainings.

The double LASSO approach shows that most of our findings hold even when considering a larger set of covariates. This means that our results are not likely to be driven by omitted variable bias. However, the relationship between expectations about the economic situation in a country and the savings flow is not robust to this approach. Hence, none of the considered expectation and experience variables can predict the extensive margin of savings flows. Further control variables that turn out to be relevant predictors of savings are wealth, social status and trust in the national central bank. In contrast to 2019, we find that respondents' experiences with high inflation become highly significant for having savings in 2020. As in every correlational study, causal interpretation of our results should be made with caution. In our case, this holds especially true for the inference of control variables using the double LASSO framework. Still, we shed light on potential determinants of savings behavior in CESEE.

Our study is related to the scarce empirical literature that analyzes the effects of individual expectations on consumption and/or savings at the disaggregated level. Vellekoop and Wiederholt (2019) find that inflation expectations are negatively related to households' net worth and positively related to their consumption of durables in a panel sample of Dutch households. Using an Italian panel sample, Rondinelli and Zizza (2020) show that the nexus between inflation expectations and durable consumption can depend on the inflation regime (high or low). In general, our results are in line with both studies, showing that also in CESEE, individuals who expect prices to rise save less on a regular basis.

Understanding households' savings decisions at a more disaggregated level is important not only for understanding economic growth and the monetary transmission mechanism but also for assessing the stability of a country's financial system and public finances. Microfounded evidence is important for policymakers to encourage or discourage savings. Optimal policies can accommodate economic growth and business cycle needs and, at the same time, ensure household (financial) well-being. Small adjustments at the household level can cause substantial changes at the aggregate level (Bhamra and Uppal, 2019). Individuals' financial experiences from the past and perceptions of the future might play a crucial role when it comes to savings behavior. Essentially, experiences and perceptions are not only affected

through direct channels (e.g., Lachowska and Myck, 2018; d’Addio et al., 2020) but also through communication efforts of authorities (Blinder et al., 2008).

This paper is structured as follows: Section 1 introduces the data and describes the variables. In section 2, we outline the empirical approach. Section 3 presents the main results including those obtained with the double LASSO procedure, while section 4 presents initial evidence on savings in 2020. Finally, section 5 concludes.

## 1 Data and variables

We use data from the OeNB Euro Survey, an annual, cross-sectional household survey, conducted to gain insights into euroization and the financial behavior of individuals in non-euro area CESEE countries.<sup>4</sup> In each country, a multistage stratified random sampling procedure is applied that targets residents aged 18 years or older and generates a representative sample of 1,000 individual interviews per country. The interviews are carried out face-to-face in the respondent’s home. Data weighting is used to ensure a nationally representative sample for each country; sampling weights use census population statistics on gender, age, region and, where available, education as well as ethnicity (separately for each country). Our analysis is based on data from the 2019 wave of the OeNB Euro Survey which included a special module on savings. The survey was administered in the fall of 2019, about four months before the first COVID-19 cases were officially registered in the sampled countries.<sup>5</sup>

### 1.1 Savings variables of interest

We concentrate our analysis on three different outcome variables, which measure various dimensions of savings behavior. The first variable is a simple assessment of the propensity to have savings. Survey respondents are asked the following question:

#### **Savings stock**

*“There are several ways in which one can hold savings. For example, one can hold cash, use bank accounts, have life insurances, hold mutual funds, pension funds, etc. Do you currently have any savings? Please refer to savings you hold personally or together with your partner.”*

1. Yes                      2. No                      3. Don’t know                      4. No answer

Based on this question, we construct a dummy variable for the *savings stock* that captures the extensive margin of having savings, excluding those respondents who were not willing or not able to respond. Since this variable is collected in all survey waves, we can also use it to analyze savings in 2020, the first year of the COVID-19 pandemic. The definition of savings is broad, ranging from cash to deposits and financial market securities. A novelty in the 2019 wave is that respondents are also asked whether, and if so, how much they save regularly:

<sup>4</sup> Six countries are EU member states (Bulgaria, Croatia, Czechia, Hungary, Poland and Romania), while the other four countries (Albania, Bosnia and Herzegovina, North Macedonia and Serbia) are potential candidates for EU membership. For more information and technical details on the OeNB Euro Survey, see <https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey.html>.

<sup>5</sup> Out of the ten OeNB Euro Survey countries, Croatia was the first to report a case on February 25, 2020 (see <https://ourworldindata.org/covid-cases>).



**Savings flow**

*“At the end of the month, do you usually have some money left that you can save, for example, to finance major future purchases, provide for emergencies or accumulate wealth? If so, how big an amount can you save?”*

Based on this question, we build two variables. First, a dummy variable for the *savings flow* that indicates whether respondents can save regularly or not; second, a variable for the *savings flow amount* that measures the amount of savings per month in euro adjusted for purchasing power parity (PPP). Respondents who state that they usually do not have any money left to save at the end of the month get a zero. As in question one, we exclude those respondents who did not provide a valid answer.<sup>6</sup>

Note the difference between the two survey questions we rely on: The first question refers to the state of having savings (the stock), while the second refers to the act of saving (the flow). Because of its higher granularity, the savings flow amount can be directly linked to people’s current experiences and expectations, which might be more difficult to identify based on the binary assessment of the savings stock. Furthermore, the second question emphasizes the ability not the willingness to save. Thus, it can be seen as an indicator for financial resilience. If already in ordinary times individuals do not have the ability to build up or increase their savings stock, they might be hit hard when they experience a sudden income shock. Alternatively, with reference to the life-cycle and permanent income hypotheses, individuals might no longer be in a state where they have to accumulate savings; rather, they dissave. Therefore, both dimensions of savings, the stock and the flow, are important to assess the financial resilience of individuals.

**1.2 Expectations and experiences**

Our main explanatory variables of interest are expectations about *future* financial prospects and past experiences with adverse events related to financial matters. In detail, we consider the following items:

**Expectations**

1. *Over the next five years, the economic situation of [MY COUNTRY] will improve.*
2. *Over the next year, prices will strongly increase in [MY COUNTRY].*
3. *Over the next 12 months, I expect the financial situation of my household to get better.*

Expectation items are elicited with a rating scale from 1 (“strongly disagree”) to 6 (“strongly agree”).<sup>7</sup> Given that the scale does not have a midpoint, respondents who are not sure whether they agree or not can only answer “don’t know” to these

<sup>6</sup> Still, with the help of a third question about savings, we can distill some further information about respondents who answered “don’t know” to the second question. We recover whether they can save regularly or not and adjust our second dummy variable accordingly. Results are very similar without this adjustment, but it would leave us with a smaller sample size.

<sup>7</sup> Developments across countries and over time for survey items 1 and 3 can be tracked under <https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/Main-Results/individual-trust-and-expectations.html>.

items. We recode this kind of non-response as a midpoint of the scale and thereby extend the scale from 1 to 7.<sup>8</sup>

We include item 3 with two grains of salt. First, there is particularly high concern about reverse causality between savings and item 3: Having savings or being able to save might well affect individuals' perceptions about the future financial situation of their household. Second, our analysis focuses on individual respondents, their personal characteristics and their perceptions rather than on the whole household they are living in. In general, we are more interested in how individuals' perceptions of exogenous events are related to their savings behavior. Nevertheless, we think it is important to control for personal prospects and try to disentangle the latter from perceptions of external circumstances. This is especially important when examining expectations about the economic situation in a country. One of the main reasons why expectations about domestic economic developments are supposed to influence savings behavior is their link to individual income expectations. However, we are interested in a potential relationship between economic expectations and savings beyond this link, which is why we control for (a proxy of) expected income. Regarding people's experiences, we look at the following three survey items:

### Experiences

1. *I remember periods of high inflation during which the value of the [LOCAL CURRENCY] dropped sharply.*
2. *I remember periods during which access to savings deposits was restricted in [MY COUNTRY].*
3. *If you think back in time to periods of economic turbulences that happened prior to 2008, e.g. very high inflation, banking crisis or restricted access to savings deposits. At that time, did you personally incur a financial loss due to such events?*
  - a) *No, I had no savings then*
  - b) *No, I did not incur a financial loss*
  - c) *Yes*

Again, items 1 and 2 are originally measured on a rating scale ranging from 1 ("strongly disagree") to 6 ("strongly agree"), which we extend by including "don't know" answers as midpoint answers. For item 3, we create dummy variables for each answer option, also for non-responses. Option b ("No, I did not incur a financial loss") will serve as the omitted category. Generally, item 3 should be treated with caution. It refers to the period before 2008, when around 20% of our respondents had been under 18 years old. This issue could also apply to items 1 and 2, for which no time frame is set, and which focus on perceptions of the past rather than on financial loss. Older respondents are more likely to have experienced at least one period of economic turbulence and are more likely to experience several instances of such events. Therefore, we run additional estimations to better take into account that such experiences come with age.

In sum, we mainly consider two different kinds of expectations about and two different types of experiences with external financial circumstances (survey items 1 and 2, respectively), and include a third more personal expectation and

<sup>8</sup> Our results are robust to excluding "don't know" answers completely.

experience.<sup>9</sup> For the double LASSO approach that we employ, we only consider the four types mentioned earlier as fixed independent variables.

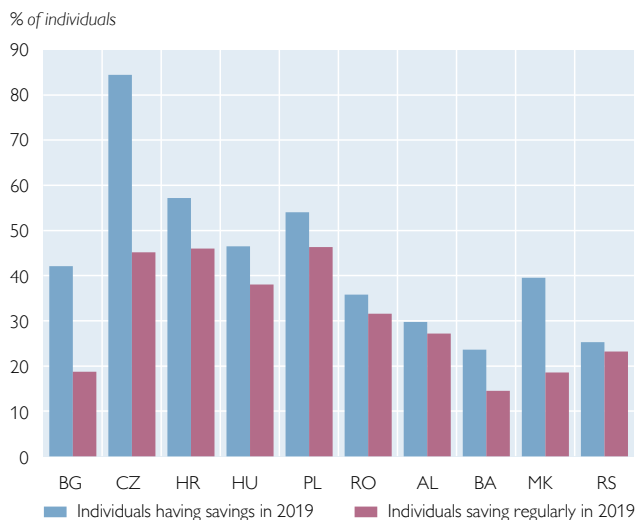
### 1.3 Descriptive statistics

The left panel of chart 1 shows the share of individuals who reported to have savings (stock) and who were able to save on a regular basis (flow) in fall 2019. The right panel exhibits the reported amounts saved regularly in euro adjusted for PPP.<sup>10</sup> Results confirm what Corti and Scheiber (2014) described as stylized facts in their study: Most persons in CESEE neither have savings nor can they save (much) on a regular basis. In some countries, not even every fifth person can save regularly.<sup>11</sup> Table 1 in the online supplement indicates the (weighted) descriptive statistics for the explanatory variables of interest. In general, standard deviations for the expectation and experience variables show considerable heterogeneity in the

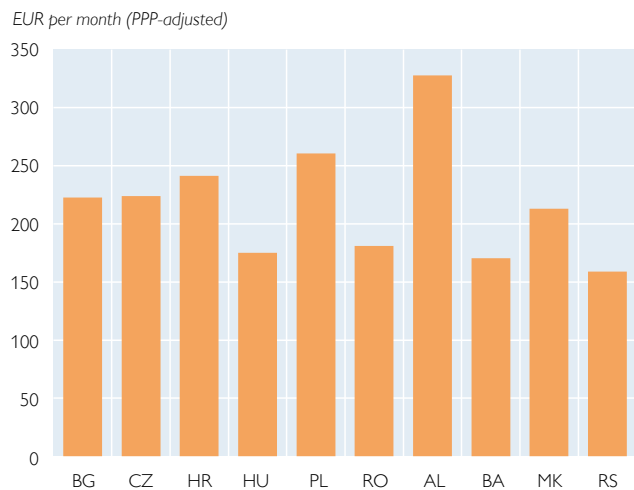
Chart 1

#### Savings stock and savings flows

##### Share of individuals who had savings and were able to save regularly



##### Average amount set aside by individuals who saved regularly



Source: OeNB Euro Survey 2019.

Note: Weighted averages excluding respondents who answered “don’t know” or refused to answer. Weights are calibrated on census population statistics for age, gender, region and, where available, on education and ethnicity (separately for each country). Reported savings amounts suffer from a rather high incidence of item non-response (18% on average), which might imply an underestimation of amounts for EU member states in particular.

<sup>9</sup> Naturally, these independent variables are correlated to each other. However, none of the correlations is so strong that we need to worry about multicollinearity. Table 2 in the online supplement shows correlations between all six expectation and experience variables. Furthermore, chart 1 in the online supplement shows histograms for each variable.

<sup>10</sup> Note that the item non-response for the savings stock averages 3.2%, with the highest incidence being reported in Poland (7.8%) and Bulgaria (11%). For the savings flows, item non-response averages 18%, ranging from 5% in Albania to about 25% in Czechia and Hungary and 33% in Poland. A simple ordinary least squares (OLS) regression for the EU member states shows that item non-response is correlated with higher educational attainment and being male, which makes an underestimation of savings amounts in those countries particularly likely.

<sup>11</sup> Another stylized fact is the relative high importance of holding cash for savings reasons. For further details, see chart 2 in the online supplement.

answers of respondents.<sup>12</sup> Overall, expectations are rather pessimistic, with the average respondent not agreeing that the economic situation of their country or household will improve but agreeing that prices will increase. On average, respondents neither agree nor disagree with having experienced hyperinflation and restricted access to their bank accounts. A tenth of the sample incurred financial loss during crisis periods that occurred prior to the global financial crisis.

## 2 Empirical approach

To analyze the relationship between savings and expectations as well as experiences, we use two different approaches. We start with a standard regression analysis, in which we regress our explanatory variables of interest and a fixed set of covariates on the three savings variables. This means that we predetermine the set of control variables used in the regression analysis. Our choice of variables is based on economic theory and empirical evidence from previous literature. In contrast, our second approach is a more data-driven, machine learning approach, in which covariates are eventually selected using a least absolute shrinkage and selection operator (LASSO) regression analysis. We explain the procedures employed in more detail in the following subsections.

### 2.1 Common predictors

The previous literature identified a comprehensive set of determinants of savings, which we try to include in our standard regression analysis, while, at the same time, keeping the model tractable and especially avoiding overfitting. A complete list and description of all control variables used can be found in table A1 in the annex, and descriptive statistics in table 1 in the online supplement. Across all dimensions of savings, *income* seems to be an important determinant of savings. This partially explains the cross-country differences depicted in chart 1, revealing, e.g., that the share of savers in Czechia (the richest country) is much higher than in other countries. In our main specifications, we include respondents' personal income. We consider *age* to be another important factor, given the empirical evidence but also the theoretical considerations related to the life-cycle hypothesis. Following this hypothesis, the relationship between age and savings should be inversely U-shaped – above all for savings flows. Therefore, we also control for *age squared*. In the standard regressions, we additionally control for sex, education, having employment, being self-employed, the number of household members, the number of children under 6 and 15 years of age, financial literacy (index), risk aversion (index), self-control and whether or not households experienced an income shock in the previous year.

### 2.2 Regression analysis with fixed covariates

In general, we estimate regression equations of the following form:

$$Y_i = \alpha_0 + \beta_1 X_i + \beta_2 C_i + \varepsilon_i \quad (1)$$

<sup>12</sup> For times series of the expectation variables by country, see <https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/Main-Results/individual-trust-and-expectations.html>.

where  $X_i$  is the vector of our four explanatory variables of interest (experience and expectation items 1 and 2) and  $C_i$  is the vector of additional control variables for each individual  $i$ . Depending on the nature of the savings variable, we either estimate the model using OLS or logit regressions. This means that  $Y_i$  is either the

$$\text{savings flow amount or} \quad \ln \frac{P(\text{Savings Flow or Stock}=1|X)}{P(\text{Savings Flow or Stock}=0|X)}$$

of individual  $i$ . We pool our regression analysis over all individuals and over all countries. There is valid concern that country-specific characteristics like pension schemes might affect how experiences and expectations are related to savings. This cannot be adequately addressed with country fixed effects. However, given the binary nature of two of the three dependent variables and the high share of (non-)savers in some countries, the sample size would be too small to estimate the regressions separately for each country, while retaining the large set of covariates we have. We clearly see a trade-off between estimating country and individual characteristics and opt for the latter. Still, we will briefly report some country-specific results if they strongly deviate from the average effect in our online supplement. Country-specific results should be treated with caution, however. For our logit regressions, we report average marginal effects. For both specifications, we again use sampling weights and cluster standard errors on the primary sampling unit. To retain as many observations as possible and to take non-response into account, we use income categories instead of PPP-adjusted income (as reported in table A1 in the annex) in the regressions. For each country, we create income quartile categories and another category for non-response. The lowest income quartile serves as base category. Finally, we estimate regressions with and without country fixed effects.

### 2.3 Double LASSO estimation

The choice of which covariates to include in regression estimation is a common source of sorrow. Not only can this choice lead to biased coefficients of the main explanatory variables but also, when taking a more holistic approach, to one overlooking important factors, which might affect the outcome variable. However, throwing in all potential covariates available is not sensible either. It might result in overfitting, i.e., it might explain the sample at hand very well but perform poorly in out-of-sample predictions, thus reducing the generalizability of results. Therefore, we also pursue a more data-driven selection of control variables for our analysis. We follow Belloni et al. (2014) and Urminsky et al. (2016) in establishing a double LASSO procedure to retrieve an optimal set of covariates. For this exercise, we consider a much larger set of potential control variables. Since the OeNB Euro Survey focuses on the financial behavior of individuals, we have a large bulk of variables that can be considered for this procedure.<sup>13</sup> Specifically, besides the covariates used in the main regressions, we include further variables for wealth (proxied by dwelling conditions and asset ownership), social status, trust in institutions, financial inclusion (bank/ATM availability, account ownership), perceptions of financial stability, migration intentions, remittances, indicators for being (over-)

<sup>13</sup> Since the preselection of potential control variables is still made by us researchers, we are far from being able to claim that this approach is fully data driven.

indebted, regional fixed effects and further sociodemographic characteristics. A list of these additional variables can be found in table A2 in the annex.

In general, LASSO estimation is a linear regression and prediction method to avoid the problem of overfitting (*regularization*) and, at the same time, to select right-hand-side variables (*selection*). It is especially useful in high-dimensional settings, where many potential covariates are available and a preselection of covariates by the researcher can be biased or incomplete (Urminsky et al., 2016). The regression equation is the same as in the OLS framework, what changes is the optimization problem. To select and regulate, the sum of squared errors is minimized subject to a penalty term:

$$\min\{\sum_i(Y_i - \alpha_0 - \beta_1 X_i - \beta_2 C_i)^2 + \lambda \sum_k |\beta_k|\} \quad (2)$$

The additional term penalizes the use of too many and too large coefficients: Regression coefficients of the variables are shrunk.<sup>14</sup> Depending on the size of the Lagrange multiplier  $\lambda$ , some coefficients will turn zero and, thereby, variables are effectively excluded from the estimation problem.

In the case of the double LASSO, two different kinds of LASSO regressions are performed. First, we estimate a regression of the dependent variable – in our case savings – on all control variables (excluding the main explanatory variables):

$$Y_i = \delta_0 + \delta_1 C_i + \varepsilon_i \quad (3)$$

In a second step, we regress each main explanatory variable individually on all control variables:

$$X_{ij} = \theta_0 + \theta_1 C_i + \varepsilon_{ij} \quad (4)$$

This second step is important in all cases, in which the researcher cannot guarantee that the main explanatory variables are perfectly randomly distributed over the control variables. In our analysis, this is extremely likely. Expectations and experiences are also affected by individuals' financial situation and sociodemographic characteristics. LASSOs have the general problem of regularization bias. They tend to underestimate effects and drop variables with moderate effects. Excluding such a variable after step one can lead to serious omitted variable bias if the dropped variable is correlated with the explanatory variable (Belloni et al., 2014). Eventually, we estimate an OLS regression including all control variables that were selected (element of union A) by equation (3) or (4), where selected means coefficients are non-zero:

$$Y_i = \alpha_0 + \beta_1 X_i + \sum_{k \in A} \beta_k C_{ik} + \varepsilon_i \quad (5)$$

This last step gives us consistent, unbiased estimates of the coefficients for  $X_i$ , the four expectation and experience variables. However, this is not true for the coefficients of the control variables. Since these will be in general biased, we do not report coefficients and p-values later but still describe which covariates are selected

<sup>14</sup> All variables are standardized before the optimization problem is performed.

and might be of special relevance. As before, we cluster standard errors at the primary sampling unit and use weights in all steps of the procedure. We estimate linear probability models instead of logits for our binary dependent variables because the literature on LASSO logits is still evolving. We use STATA to estimate our regressions and prewritten user routines to perform LASSO regressions, which do not have all features needed for our logit models (e.g., clustering and weighting).

### 3 Econometric analysis of the relationship between savings and expectations as well as experiences

#### 3.1 Main results

Table 1, columns (1) to (4), show the logit regression results for the propensity to have savings and to be able to save regularly. While inflation expectations are not significantly related to savings, having an optimistic outlook on the economic situation in a country is significantly positively related to both savings dimensions. Those respondents who strongly agree that the economic situation of their country will improve are, on average, about 8 to 9 percentage points more likely to have savings and 5 to 7 percentage points more likely to save regularly than those who strongly disagree. This positive effect does not seem to be solely driven by the fact that respondents who draw a bright future for their country also have higher hopes for their own household. When separately controlling for being optimistic about the future financial situation of one's household (at least for the upcoming year), the effect of which is highly significant itself, we find that the effect of expectations about the country's economic prospects remains significant and positive. We neither find an effect for inflation expectations nor experiences. However, having experienced restricted access to one's bank account is significantly negatively related to having savings at all but only if we do not control for country fixed effects. This could be caused by too strong a correlation between restricted access and respondents' country of residence (and age). Moreover, in contrast to the effect resulting from expectations about the economic situation of one's household or country, the effect of inflation experiences is not linear but mostly driven by people who strongly agree to having experienced such restrictions. We do not find a link between individuals' current state of savings and their experiences of having incurred financial loss during crisis periods before the global financial crisis. However, we find a remarkable persistence of the state of savings itself. Controlling for income, those who say that they did not have savings in crisis events before 2008 are also less likely to have savings and save on a regular basis today.<sup>15</sup> This persistency turns out to be related to being younger, less affluent, less (financially) educated and to having less self-control. As confirmed in previous studies on savings in and outside of CESEE, income and education have a large positive effect on the savings stock and flow. In line with Beckmann et al. (2013), we do not find evidence for a large gender gap in these broad measures of savings. If at all, men are less likely to have savings than women. The results for the age variables are

<sup>15</sup> In a similar vein, the results of the generalized ordered logit regression in table 6 of the online supplement show that respondents who lost their savings in a crisis event prior to 2008 were more likely to belong to the group of regular savers above the median amount in 2019.



somewhat surprising. We basically estimate a precise null for the savings stock and a U-shaped relationship for the savings flow, which contradicts the life-cycle hypothesis and the bivariate relationship shown in chart 2 in the online supplement. We also estimate a regression using age categories instead of respondents' exact age in years. With age categories, we clearly find no hump-shaped but a significant linear relationship between age and savings. There could be two broad reasons for this finding. First, there could be reasons why older (younger) people save more (less) than hypothesized.<sup>16</sup> Thus, the life-cycle hypothesis truly does not hold. Second, people who are older right now have a different savings trajectory – throughout their lifetime – than people who are younger. In the second case, our data cannot show a hump because we can neither observe older respondents' savings behavior when they were younger nor infer younger respondents' savings patterns when they will be older. Having a job and being self-employed are both significantly positively related to both the savings stock and savings flow. Conversely, having experienced an income shock is negatively related to accumulating savings regularly but not to having savings at all. The number of small children in a household is especially positively related to having savings, whereas the number of children aged between 6 and 15 years does not reveal a consistent effect. Household size is negatively related to savings but only if we do not control for country fixed effects. Looking at more behavioral factors, respondents' higher financial literacy and higher self-control are linked to a larger propensity to have savings and to save regularly.

Table 1

### Main regressions results: savings stock, savings flow (logit) and savings flow amount (OLS)

Dependent variable	Savings stock		Savings flow		Savings flow amount	
	(1)	(2)	(3)	(4)	(5)	(6)
Expect better economic situation of country	0.015*** (0.004)	0.014*** (0.004)	0.011*** (0.003)	0.008** (0.003)	0.776 (1.514)	–0.605 (1.582)
Expect high inflation	0.003 (0.004)	0.002 (0.004)	–0.002 (0.004)	–0.004 (0.004)	–5.302*** (1.797)	–5.551*** (1.946)
Expect better financial situation of household	0.033*** (0.004)	0.037*** (0.004)	0.043*** (0.003)	0.044*** (0.003)	10.948*** (1.321)	11.154*** (1.324)
Experienced high inflation	–0.003 (0.004)	0.002 (0.003)	–0.001 (0.003)	–0.002 (0.003)	0.780 (1.754)	1.225 (1.623)
Experienced restricted access to savings account	–0.009** (0.004)	0.002 (0.003)	–0.002 (0.003)	0.003 (0.003)	–2.670* (1.575)	–1.996 (1.452)

Source: OeNB Euro Survey 2019.

Notes: Dependent variables: savings stock = dummy for having savings; savings flow = dummy for being able to save; savings flow amount = amount saved regularly in euro (PPP-adjusted). Average marginal effects from logit estimations (1–4) and coefficients from OLS estimations (5–6) with/without country fixed effects, using sampling weights; robust standard errors are adjusted for clustering at the primary sampling unit level and reported in parentheses. \*\*\*, \*\*, \* denote that the effect is statistically different from zero at the 1%, 5% and 10% level, respectively. For a definition of variables, see annex table A1. Base categories are: financial loss prior to 2008: no; 1<sup>st</sup> income quartile; Czech resident in specifications (2), (4) and (6). The sample comprises all ten OeNB Euro Survey countries.

<sup>16</sup> Pension systems, for instance, have a strong impact on savings behavior (e.g., d'Addio et al., 2020). Similarly, increasing (expected) longevity leads to higher savings in old age than predicted by the standard model (e.g., De Nardi et al., 2010; Gan et al., 2015).



Table 1 continued

**Main regressions results: savings stock, savings flow (logit) and savings flow amount (OLS)**

Dependent variable	Savings stock		Savings flow		Savings flow amount	
	(1)	(2)	(3)	(4)	(5)	(6)
Financial loss prior to 2008: no savings	−0.095*** (0.014)	−0.062*** (0.013)	−0.078*** (0.013)	−0.068*** (0.012)	−22.275*** (5.333)	−19.078*** (5.291)
Financial loss prior to 2008: yes	0.001 (0.021)	0.006 (0.018)	0.007 (0.020)	0.002 (0.019)	3.774 (8.233)	4.786 (8.294)
Financial loss prior to 2008: don't know	0.025 (0.027)	0.014 (0.024)	−0.012 (0.024)	−0.015 (0.022)	−9.624 (8.523)	−10.277 (8.683)
2 <sup>nd</sup> income quartile	0.042** (0.019)	0.064*** (0.017)	0.045** (0.019)	0.056*** (0.018)	4.905 (3.953)	7.464* (3.970)
3 <sup>rd</sup> income quartile	0.085*** (0.020)	0.107*** (0.019)	0.102*** (0.019)	0.119*** (0.019)	15.571*** (4.925)	20.551*** (5.069)
4 <sup>th</sup> income quartile	0.139*** (0.023)	0.163*** (0.020)	0.216*** (0.023)	0.232*** (0.022)	124.956*** (10.289)	130.842*** (10.209)
Income: don't know/no answer	−0.027 (0.021)	0.035* (0.019)	−0.062*** (0.020)	−0.026 (0.019)	−6.404 (4.343)	3.723 (4.729)
Male	−0.018* (0.010)	−0.013 (0.010)	0.006 (0.010)	0.011 (0.010)	2.735 (4.357)	3.599 (4.310)
Age in years	0.001 (0.002)	0.002 (0.002)	−0.005** (0.002)	−0.005** (0.002)	−0.544 (0.782)	−0.603 (0.761)
Age squared	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.013* (0.008)	0.013* (0.008)
Educational attainment (categories)	0.037*** (0.005)	0.043*** (0.005)	0.029*** (0.004)	0.035*** (0.004)	12.337*** (2.403)	12.410*** (2.272)
Employed (dummy)	0.078*** (0.018)	0.027* (0.016)	0.108*** (0.016)	0.076*** (0.016)	16.288*** (4.837)	8.187* (4.906)
Self-employed (dummy)	0.093*** (0.021)	0.100*** (0.019)	0.071*** (0.019)	0.087*** (0.020)	78.458*** (17.942)	76.202*** (16.962)
Household members	−0.022*** (0.006)	0.001 (0.006)	−0.013** (0.005)	0.004 (0.005)	0.429 (2.857)	2.387 (2.966)
Children aged under 6 years	0.049*** (0.013)	0.029** (0.012)	0.028** (0.012)	0.014 (0.012)	3.052 (4.711)	−0.648 (4.697)
Children aged 6 to 15 years	0.020** (0.010)	0.007 (0.010)	−0.001 (0.010)	−0.013 (0.009)	5.378 (6.389)	4.148 (6.485)
Financial literacy index	0.061*** (0.005)	0.035*** (0.005)	0.041*** (0.005)	0.021*** (0.005)	14.338*** (1.862)	11.060*** (2.127)
Risk/uncertainty aversion index	0.010 (0.009)	0.014* (0.008)	0.004 (0.008)	0.010 (0.008)	−3.438 (2.300)	−2.116 (2.243)
Self-control index	0.052*** (0.008)	0.043*** (0.008)	0.028*** (0.007)	0.025*** (0.007)	6.667** (3.251)	7.364** (3.079)
Income shock (dummy)	0.000 (0.017)	−0.015 (0.016)	−0.071*** (0.016)	−0.073*** (0.015)	−16.504*** (4.736)	−19.653*** (5.019)
Country fixed effects	No	Yes	No	Yes	No	Yes
Log-likelihood	−5,397.30	−4,907.36	−4,329.00	−4,114.22	—	—
Pseudo R-squared (McFadden) / Adjusted R-squared	0.11	0.19	0.15	0.19	0.15	0.16
Probability > Chi squared / F-statistic (df_m)	667.7(25)	965.8(34)	818.9(25)	974.9(34)	22.1(25)	18.3(34)
Number of observations	8,843	8,843	8,214	8,214	7,709	7,709
Baseline predicted probability / amount	0.45	0.45	0.32	0.33	66	66

Source: OeNB Euro Survey 2019.

Notes: Dependent variables: savings stock = dummy for having savings; savings flow = dummy for being able to save; savings flow amount = amount saved regularly in euro (PPP-adjusted). Average marginal effects from logit estimations (1–4) and coefficients from OLS estimations (5–6) with/without country fixed effects, using sampling weights; robust standard errors are adjusted for clustering at the primary sampling unit level and reported in parentheses. \*\*\*, \*\*, \* denote that the effect is statistically different from zero at the 1%, 5% and 10% level, respectively. For a definition of variables, see annex table A1. Base categories are: financial loss prior to 2008: no; 1<sup>st</sup> income quartile; Czech resident in specifications (2), (4) and (6). The sample comprises all ten OeNB Euro Survey countries.

We look at the amount respondents set aside on a regular basis including amounts equaling zero<sup>17</sup> in columns (5) and (6) of table 1. Given the considerable share of non-response for this question, the results should be treated with caution with respect to their representativeness. Here, we cannot confirm that respondents' expectations about their country's economic situation matter for how much they save. However, we do find a significant correlation between respondents' inflation expectations and the amount respondents save regularly. The more respondents think that prices will increase in the future, the less they save. This effect is mostly linear and sizable: For every one-point increase on the rating scale, the amount saved decreases by more than EUR 5. Expectations about the financial situation of one's household are again positively related to savings. We find a marginally significant (this time basically linear) link between having experienced restricted access to one's bank account and the amount set aside if we do not control for country fixed effects. The significance and direction of the effects of the control variables are comparable to the results for respondents' propensity to save regularly as indicated in columns (3) and (4).

In the online supplement, we provide several robustness checks for our main results presented in table 1.

### **3.2 Double LASSO results suggest that wealth, social status and trust in the central bank might be relevant predictors of the extensive margin to save**

Table 2 summarizes the OLS results for the explanatory variables of interest from the double LASSO approach. While respondents' expectations about their country's economic prospects are still a significant predictor of the savings stock, their relationship to the savings flow is not as robust. The coefficient is shrunk tremendously and is no longer significant. Moreover, none of the experience variables turn out to be a significant predictor of respondents' savings behavior. In contrast, the relationship between inflation expectations and the amount people save regularly is almost as strong as before. Having no savings in past crises is a strong (negative) predictor for all dependent variables. None of the LASSO regressions ever selects age squared (or age to the power of three) as a predictor but only age in years, underlining that there is no hump-shaped link between age and savings in our data. Newly added covariates that seem to be strong predictors of savings behavior, even though their coefficients cannot be consistently estimated within the LASSO framework, are the variables that proxy wealth and social status. For the extensive margin of the savings stock and flow, trust in the national central bank also seems to be a relevant predictor. Moreover, the reason why the coefficients for respondents' expectations about the economic situation in their country are smaller and mostly non-significant seems to be due to the fact that these expectations are mediated by individuals' expectations about the financial situation of their household and their trust in institutions. Country expectations are significant for all three outcome variables if we run simple regressions only including such expectations, income and country fixed effects. However, coefficients become smaller and less often significant if we add expectations about household finances,

<sup>17</sup> In the online supplement, we also use other model specifications like a two-part model or ordered logit (see tables 5 and 6 in the online supplement).

Table 2

**Double LASSO approach: selected OLS results**

Dependent variable	Savings stock		Savings flow		Savings flow amount	
	(1)	(2)	(3)	(4)	(5)	(6)
Expect better economic situation of country	0.011*** (0.004)	0.011*** (0.004)	0.005 (0.004)	0.003 (0.004)	-1.634 (1.876)	-2.040 (1.9)
Expect high inflation	0.007 (0.004)	0.003 (0.004)	0.002 (0.004)	0.000 (0.004)	-4.138** (2.04)	-4.837** (2.278)
Experienced high Inflation	0.001 (0.004)	0.005 (0.004)	-0.003 (0.004)	-0.004 (0.004)	1.235 (2.034)	1.604 (1.869)
Experienced restricted access to savings account	-0.005 (0.004)	0.003 (0.004)	0.000 (0.003)	0.002 (0.003)	-2.685 (1.712)	-2.978* (1.648)
Observations	6,942	6,942	6,477	6,477	6,182	6,182
Baseline controls plus additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	No	Yes	No	Yes	No	Yes

Source: OeNB Euro Survey 2019.

Notes: Dependent variables: savings stock = dummy for having savings; savings flow = dummy for being able to save; savings flow amount = amount saved regularly in euro (PPP-adjusted). Effects from post double LASSO OLS estimations with/without country fixed effects (partialled out), using sampling weights; robust standard errors are adjusted for clustering at the primary sampling unit level and reported in parentheses. \*\*\*, \*\*, \* denote that the effect is statistically different from zero at the 1%, 5% and 10% level, respectively. For the list of control variables used, see annex tables A1 and A2. The sample comprises all ten OeNB Euro Survey countries.

diminishing even further if we include trust variables. In sum, we find that certain expectations are significant predictors of the savings stock and the intensive margin of savings flows, while none of the main expectations and experiences of interest predict the extensive margin of savings flows.

**3.3 Extensions of baseline regressions**

As mentioned earlier, people's perceptions of past negative events might depend on how old they were when the event happened (Malmendier and Nagel, 2016). One of our questions on people's past experiences explicitly asks about events that happened before 2008. The likelihood of having experienced any adverse event at all crucially depends on age (Ehrmann and Tzamourani, 2012), especially in the region we are looking at. To take this into account, we estimate our standard regressions only for older adults in our sample population, to whom we refer to as the "crisis cohort." More specifically, we only include those respondents who were 18 years or older at the end of the transition crisis or the Yugoslav wars, i.e., individuals who potentially incurred financial loss during these times. We indeed find that past experiences matter more for older respondents (see table 3 in the online supplement).<sup>18</sup> For the savings stock, the negative coefficient of having experienced limited access to one's savings account becomes larger and more significant if we do not control for country fixed effects. In contrast, for younger people the coefficient is very small and not significant. Furthermore, if we control for country fixed effects, we find that having experienced high inflation has a

<sup>18</sup> Simple t-tests show that the crisis cohort agrees significantly more strongly, on average, with the statements on past inflation experiences or restricted access to one's saving account than younger cohorts.

marginally significant, positive effect for the crisis cohort.<sup>19</sup> We again observe that having had no savings during crisis periods prior to 2008 has a negative effect on respondents' savings stock and flows. The latter is also slightly significantly related to having experienced high inflation. As was to be expected, this relationship is negative for the extensive margin of savings flows. However, it is positive for the intensive margin: The subsample of respondents who more strongly agree to having experienced high inflation is less likely to save regularly but sets aside higher amounts if they save regularly.

With respect to expectations, we find the subsample results to be broadly in line with the full sample results (see table 3 in the online supplement). Interestingly, respondents' expectations about their country's economic situation become significant for the amount saved regularly in the subsample. When considering an alternative specification using an interaction term between age categories and economic expectations, we observe that older cohorts with positive expectations tend to save moderately more, while younger cohorts with positive expectations save substantially less. This is in line with the prediction of the life-cycle hypothesis, stating that expectations matter more for younger people (see table 4 in the online supplement).

#### 4 Savings in 2020

The focus of our study is deliberately on the year 2019 instead of 2020 for two reasons: First, we do not have data on savings flows in 2020. Second, we are interested in the relationship between savings and expectations particularly in ordinary times. When thinking about potential impacts of a crisis, it is extremely useful to look at how people entered the crisis. The COVID-19 pandemic that hit the world in 2020 had an immediate impact on people's savings behavior, as many saw their income decrease and possibilities to consume were restricted. However, people's level of savings prior to the pandemic was crucial for how well they could weather the pandemic, determining, e.g., their general capability of buffering income shocks. Whether the pandemic itself will have a potentially long-lasting effect by, e.g., changing people's preferences remains an open question for future research.<sup>20</sup> Nevertheless, comparing our results for 2019 with those for 2020 could offer first insights into how authorities could manage individuals' perceptions of the pandemic and their economic prospects. Based on the savings stock – the only savings variable for which we have data in 2020 –, we first look at whether the share of respondents with savings has changed. As indicated in the left panel of chart 2, we clearly have to reject this. The share of respondents with savings in 2020 across all countries considered is not even 1 percentage point smaller than in 2019 and by no means do the shares within each country differ significantly from each other.

<sup>19</sup> For evidence on the intergenerational transmission of adverse inflation experiences, see Farvaque and Mihailov (2009). As an alternative to splitting the sample, we interacted the dummy variable for the cohort that experienced past crisis events with all survey items on respondents' experiences. In the case of restricted access to one's bank account (excluding country fixed effects), the crisis cohort dummy and the interaction term exhibit significant negative effects on predicting the extensive margin. The other results are inconclusive.

<sup>20</sup> Concerning euro cash hoardings, OeNB Euro Survey data show that individuals who have been strongly affected by the pandemic in economic terms tend to have lower trust in the stability of the local currency and demonstrate an increased demand for cash (see box 3 in European Central Bank, 2021).

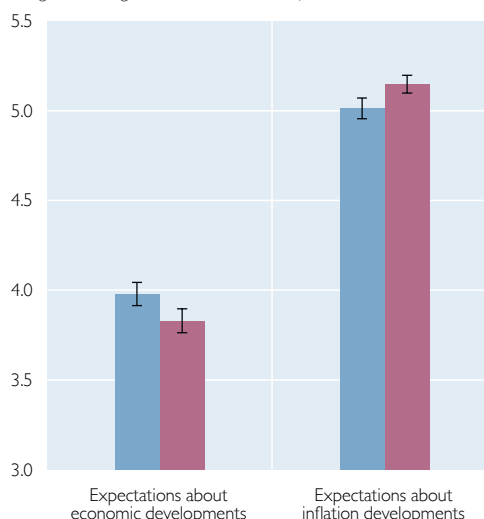
Chart 2

**Comparison between 2019 and 2020 results****Savings stock**

Weighted share of respondents with valid answers in %

**Expectations**

Weighted average value on a Likert scale from 1 to 7



Source: OeNB Euro Survey 2019 and 2020.

Note: Weighted averages excluding respondents who answered "don't know" or refused to answer for the left panel and excluding respondents who refused to answer for the right panel. Weights are calibrated on census populations statistics for age, gender, region and, where available, on education and ethnicity (separately for each country). 95% confidence intervals.

Preliminary evidence from a survey question that explicitly deals with how individuals were affected by the COVID-19 pandemic suggests that while some people had to cut savings, some others could set money aside even though they had not been able to do so before. These observations might cancel each other out. We moreover look at whether people's expectations changed between 2019 and 2020. The right panel of chart 2 depicts slight changes in the two explanatory expectation variables, with the average respondent being significantly less optimistic about the future economic situation of their country and significantly more convinced that prices will increase in 2021. As expected, respondents' experiences are very persistent and do not significantly deviate from their historical means.

Eventually, we want to know whether the multivariate relationship between savings and experiences as well as expectations in 2020 is different from that in 2019. Thus, we rerun regressions (1) and (2) from table 1 for 2020. Unfortunately, not all control variables used in the previous specifications are available. For 2020, there is no data on whether respondents incurred financial loss during crisis periods before the global financial crisis and no measure for respondents' self-control. For the financial literacy and risk/uncertainty aversion indices, one item is missing for each index but we can still construct the variables using the remaining items. Thus, we first rerun regressions for 2019 with the smaller/different set of covariates to check whether this makes a big difference. In general, results stay very similar (size and significance), especially with respect to the four main explanatory variables. The most remarkable change is that respondents' risk/uncertainty aversion is now significantly positively related to the savings stock. When repeating these two

regressions (with and without country fixed effects) for 2020, we find some striking differences for the main explanatory variables.<sup>21</sup> Individuals' expectations about the economic situation in their country are only significant if we do not control for country fixed effects. In contrast, having experienced limited access to one's bank account stays significant in both specifications. Most importantly, having experienced high inflation in the past, which was neither economically nor statistically significant in 2019, is significantly positively related to having savings in 2020.<sup>22</sup> This raises the question of whether CESEE residents who experienced past economic crises learned their lesson by preferring higher precautionary savings in times of heightened uncertainty.<sup>23</sup> Moreover, given the significant effect for the full sample, it might be the case that older generations pass on the lessons they have learned to the next generation.

Generally, memories of past periods of high inflation could affect savings directly by influencing the demand for precautionary savings (Caroll, 1992). Moreover, experiences of adverse economic events may introduce a lifelong bias in forming inflation expectations (i.e., hysteresis) and hence indirectly influence savings behavior (Brown and Stix, 2015; Goldfayn-Frank and Wohlfart, 2020). As discussed in footnote 24, both effects might be state dependent, i.e., their influence could differ between ordinary times and crisis times. Soric (2018) unveiled a similar time-varying impact of consumer confidence on GDP growth for eleven CESEE economies during the global financial crisis. Kozłowski et al. (2020) argue that the COVID-19 pandemic has the potential to trigger large belief revisions (similar to the transition crisis in CESEE) that could scar people's beliefs persistently, casting shadows on future economic outcomes. We find suggestive evidence that the precautionary motive might indeed matter, as the positive coefficient of inflation experiences on savings is slightly larger for older persons. Furthermore, the coefficient for risk aversion increases in size in 2020 compared to 2019. There is also a negative interaction between inflation experiences and risk aversion, meaning that those who experienced high inflation and are more willing to take risks are more likely to save. Regarding the indirect influence, a simple analysis of the factors associated with inflation expectations reveals a complex interaction between respondents' age, experiences of past periods of high inflation and financial literacy, which seems to exhibit a state-dependent pattern.<sup>24</sup> Regression tables are available from the authors upon request.

<sup>21</sup> For the regression results, see table A3 in the annex.

<sup>22</sup> It should be noted that the relationships between savings and the other covariates do not differ substantially from the ones in table 1. The only exception is that having experienced an income shock is significantly negatively related to savings in 2020.

<sup>23</sup> By analogy: Past crisis experiences triggered dynamics already observed during the global financial crisis in 2008/2009, when SEE residents reacted to the loss of trust in banks and increased depreciation expectations by swiftly shifting their portfolios toward euro cash and euro deposits (Dvorsky et al., 2009; Stix, 2010).

<sup>24</sup> In 2019, i.e., in ordinary times, inflation expectations were moderately lower for older respondents (crisis cohort) and higher among respondents who reported memories of past high inflation; particularly among those who also belonged to the crisis cohort (significant interaction term). Moreover, financial literacy had a small dampening effect on inflation expectations. In 2020, i.e., in crisis times, inflation expectations were dominated by a strong positive and significant effect resulting from memories of high inflation, irrespective of whether respondents belonged to the crisis cohort or not (insignificant interaction term). The dampening effect for older persons became insignificant, yet financial literacy increased the probability of reporting high inflation expectations – contrary to ordinary times.



## 5 Conclusion

Policymakers are interested in influencing households' savings behavior according to the needs of economic growth and financial stability. In contrast, households rather think about their individual well-being than that of the whole economy or of financial stability when making savings decisions. To understand which instruments could be useful in steering savings behavior, we need to have a sound understanding of what exactly determines household savings.

In this paper, we try to shed light on whether, and if so, in what ways people's expectations about and experiences with financial events that are beyond their control could affect their savings behavior. In particular, such expectations and experiences are assumed to influence macroeconomic outcomes through precautionary savings and perceived real interest rates. Moreover, the fact that individuals' expectations about and perceptions of exogenous financial events may be shaped by decision makers is of particular interest to central banks. After all, central bank communication was regarded as a promising policy tool already more than a decade ago (e.g., Blinder et al., 2008) and might play an important role in managing economic expectations and perceptions. Our study focuses on economies in CESEE, where individuals have experienced several adverse economic events over the past three decades (and more) and tend to face more economic uncertainty.

Using data from the OeNB Euro Survey from 2019, we find that both the extensive margin of the savings stock and the intensive margin of regular monthly savings (flows) are significantly positively related to individuals' expectations about their country's future economic situation. Moreover, higher inflation expectations are negatively linked to the monthly amount people save regularly. Effects resulting from people's experiences are in general smaller but having experienced restricted access to one's bank account does matter for some savings dimensions and subsamples. For older respondents who were more likely to have been affected by negative events in the past, we find significant relationships between having savings and remembering such events, especially periods of high inflation. When looking beyond socioeconomic factors like income (shocks), education, age and employment, we find a strong link between respondents' financial literacy as well as self-control and savings. As recently shown in a meta-analysis by Kaiser et al. (2020), financial literacy is not only correlated to savings but causally affects it. The authors also underline that financial education and behavior trainings can be a useful (and cost-effective) tool to improve individuals' financial health. So far, financial literacy in CESEE has been relatively low (Beckmann and Reiter, 2020) across all income groups.

Our main findings are mostly confirmed when using a more data-driven approach to covariate selection, namely a double LASSO regression analysis. Still, this analysis reveals that none of the expectations and experiences considered predict whether people save regularly or not. What seems to be an important factor for saving on a regular basis and having savings at all is, among other things, trust in the national central bank. Thus, central banks should not only keep an eye on avoiding adverse macroeconomic events in the first place but also on rebuilding trust with those who have lived through such experiences.

The COVID-19 pandemic again drew attention to the state of household savings. Amid constrained consumption opportunities and increased uncertainty,



households' (aggregate) savings rate and deposits grew very strongly in 2020. When examining the savings stock in that year, we find that respondents' experiences with high inflation become an important factor. Our analysis highlights that memories of past crises can reemerge in times of renewed heightened uncertainty, resuming a link with individual savings decisions by, e.g., raising the demand for precautionary savings. However, it remains to be seen whether this pandemic will have a long-lasting effect on household savings behavior. This particularly depends on individuals' expectations about the future and on how this pandemic will be remembered. This, in turn, might hinge on how policymakers including central banks communicate with the general public. Further research is needed on the overall effect of expectation management. Expectations are related to financial behaviors that might counteract or reinforce each other. Therefore, policies in this respect should not only consider one single aspect of financial behavior such as savings in isolation.

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## Annex

Table A1

## Control variables used in the regression analysis

Label	Description
Income quartile	Personal income per month (after taxes) divided into four percentiles per country. Non-response to income is coded as fifth category.
Male	Dummy variable that equals 1 if the respondent is male and zero if the respondent is female.
Age in years	Age of the respondent in years.
Age squared	Age of the respondent squared.
Age groups	Ordinal variable for the age of the respondent: ten age brackets with a span of 5 years, starting from 19 years to 69 years, and an open age bracket for 70 years or older.
Crisis cohort	Dummy variable that equals 1 if the respondent is 18 years or older at the end of the transition crisis or the Yugoslav wars. For Czechia, Hungary and Poland, the last crisis year was 1991, for Bosnia and Herzegovina, Croatia, North Macedonia and Romania 1993, for Serbia 1994, and for Albania and Bulgaria 1997.
Educational attainment	Ordinal variable for the education of the respondent: 1 "primary," 2 "lower secondary," 3 "(upper) secondary," 4 "post-secondary (non-tertiary) education," 5 "first stage of tertiary education," 6 "second stage of tertiary education."
Employed	Dummy variable that equals 1 if the respondent is employed (including self-employed) and zero otherwise (retired, unemployed, students).
Self-employed	Dummy variable that equals 1 if the respondent is self-employed and zero otherwise (including non-working).
Household members	Number of household members in the respondent's household.
Children aged under 6 years	Number of children in the respondent's household below the age of 6.
Children aged 6 to 15 years	Number of children in the respondent's household aged 6 to 15 years.
Financial literacy index	Index counting the correct answers to the following questions: 1. Suppose you had 100 [LOCAL CURRENCY] in a savings account and the interest rate was 2% per year. Disregarding any bank fees, how much do you think you would have in the account after 5 years if you left the money to grow: more than 102, exactly 102, less than 102 [LOCAL CURRENCY]? 2. Suppose that the interest rate on your savings account was 4% per year and inflation was 5% per year. Again, disregarding any bank fees – after 1 year, would you be able to buy more than, exactly the same as, or less than today with the money in this account? 3. Suppose that you have taken a loan in EURO. Then the exchange rate of the [LOCAL CURRENCY] depreciates against the EURO. How does this change the amount of local currency you need to make your loan installments? Does the amount of local currency increase, stay exactly the same, or decrease? 4. When an investor spreads his money among different assets, does the risk of losing money increase, decrease, or stay the same?
Risk/uncertainty aversion index	Standardized index of the answers to the following questions: 1. In managing your financial investments, would you say you have a preference for investments that offer: a) VERY HIGH returns, but with a HIGH risk of losing part of the invested capital. b) A GOOD return, but also a FAIR degree of protection for the invested capital. c) A FAIR return, with a GOOD degree of protection for the invested capital. d) LOW returns, WITH NO RISK of losing the invested capital. 2. In financial matters, I prefer safe investments over risky investments. On a scale from 1 ("strongly agree") to 6 ("strongly disagree") (reverse coded for the index).
Self-control index	Standardized index of the answers to the following questions: 1. I tend to live for today and let tomorrow take care of itself. 2. I am impulsive and tend to buy things even when I cannot really afford them. Both on a scale from 1 ("strongly agree") to 6 ("strongly disagree").
Income shock	Dummy variable that equals 1 if the respondent's household experienced "[...] an unexpected significant reduction of its income over the past 12 months."

Source: OeNB Euro Survey 2019 and 2020.

Table A2

**Additional control variables used in the double LASSO regression analysis**

Label	Description
Age <sup>3</sup>	Age of the respondent to the power of three.
Condition of dwelling	Assessment of the interviewer about the condition of the respondent's dwelling: 1 "excellent and well-maintained," 2 "good, needs some minor repairs," 3 "poor, needs major work," or 4 "very poor, some walls or ceilings need replacement."
Relative wealth	Assessment of the interviewer about how the condition of the respondent's dwelling compares to those in the neighborhood: 1 "in a better condition," 2 "in more or less the same condition," 3 "in a poorer condition," or 4 "there are no neighboring dwellings."
Household assets	Eight dummy variables if the respondent's household owns any of the following: 1 "car," 2 "main residence," 3 "secondary residence," 4 "other real estate," 5 "mobile phone," 6 "computer," 7 "internet access," or 8 "land."
Trust in institutions	Six dummy variables if the respondent trusts in the following: 1 "government/cabinet of ministers," 2 "police," 3 "domestically owned banks," 4 "foreign owned banks," 5 "the European Union," or 6 "national central bank." On a scale from 1 ("I trust completely") to 5 ("I do not trust at all").
Bank availability	Assessment of the respondent of the following statement: "For me, it takes quite a long time to reach the nearest bank branch." On a scale from 1 ("strongly disagree") to 6 ("strongly agree").
Bank stability	Assessment of the respondent of the following statement: "Currently, banks and the financial system are stable in my country." On a scale from 1 ("strongly disagree") to 6 ("strongly agree").
Owns bank account	Dummy variable that equals 1 if the respondent owns a bank account and zero otherwise.
Bank in town/village	Dummy variable that equals 1 if there is a bank in the town or village the respondent lives in and zero otherwise.
ATM in town/village	Dummy variable that equals 1 if there is an ATM in the town or village the respondent lives in and zero otherwise.
Size of village/city	Number of inhabitants of the town/village/city the respondent lives in.
Indebted	Dummy variable that equals 1 if the respondent has a loan and zero otherwise.
Expenses > Income	Assessment of the respondent if their household expenses in the last 12 months were 1 "higher than household income," 2 "roughly equal to household income," or 3 "lower than household income."
Migration intention	Dummy variable that equals 1 if the respondent intends to move abroad in the next 12 months and zero otherwise.
Remittances	Indicator if the respondent or the partner receives money from abroad: 1 "no," 2 "yes infrequently," or 3 "yes regularly."
Family abroad	Dummy variable that equals 1 if the respondent has family abroad and zero otherwise.
Religion	Categorical variable for the respondent's religion: 1 "Atheist/Agnostic," 2 "Muslim," 3 "Orthodox Christian," 4 "Catholic Christian," 5 "other Christian, including Protestant," 6 "other (for example Jew, Buddhist, etc.)," or 7 "no answer."
Marital status	Categorical variable for the respondent's marital status: 1 "single," 2 "separated/divorced," 3 "widowed," 4 "married/with partner living in same household," 5 "married/with partner living in different household," or 6 "no answer."
Social status	Proxy for the socioeconomic status the respondent grew up with, measured by the amount of books the household owned when the respondent was ten years old (ordinal variable).

Source: OeNB Euro Survey 2019.

Table A3

**Logit regression on savings stock: 2019 and 2020**

	2019		2020	
	(1)	(2)	(3)	(4)
Expect better economic situation of country	0.013*** (0.004)	0.013*** (0.004)	0.001 (0.004)	0.007* (0.004)
Expect high inflation	−0.001 (0.005)	−0.001 (0.004)	−0.002 (0.005)	0.002 (0.004)
Expect better financial situation of household	0.030*** (0.004)	0.035*** (0.004)	0.015*** (0.004)	0.025*** (0.004)
Experienced high inflation	−0.003 (0.004)	0.003 (0.004)	0.011*** (0.004)	0.017*** (0.004)
Experienced restricted access to savings account	−0.010*** (0.004)	0.002 (0.003)	−0.018*** (0.004)	−0.008** (0.004)
2 <sup>nd</sup> income quartile	0.047** (0.019)	0.066*** (0.017)	0.025 (0.019)	0.034* (0.018)
3 <sup>rd</sup> income quartile	0.095*** (0.021)	0.113*** (0.019)	0.085*** (0.021)	0.106*** (0.020)
4 <sup>th</sup> income quartile	0.147*** (0.024)	0.166*** (0.021)	0.138*** (0.024)	0.145*** (0.022)
Income: don't know/no answer	−0.014 (0.022)	0.045** (0.019)	0.018 (0.023)	0.078*** (0.021)
Male	−0.015 (0.011)	−0.012 (0.010)	−0.013 (0.010)	−0.012 (0.010)
Age in years	0.003 (0.002)	0.003 (0.002)	0.002 (0.002)	0.004** (0.002)
Age squared	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	−0.000 (0.000)
Educational attainment (categories)	0.042*** (0.005)	0.047*** (0.005)	0.043*** (0.005)	0.047*** (0.005)
Employed (dummy)	0.069*** (0.018)	0.019 (0.016)	0.084*** (0.017)	0.043*** (0.016)
Self-employed (dummy)	0.108*** (0.021)	0.114*** (0.019)	0.137*** (0.022)	0.129*** (0.021)
Household members	−0.022*** (0.006)	0.002 (0.006)	−0.009 (0.006)	0.007 (0.005)
Children aged under 6 years	0.052*** (0.013)	0.028** (0.012)	0.025* (0.013)	0.011 (0.012)
Children aged 6 to 15 years	0.024** (0.010)	0.008 (0.010)	0.005 (0.012)	−0.020* (0.011)
Financial literacy index	0.064*** (0.007)	0.037*** (0.006)	0.064*** (0.007)	0.036*** (0.006)
Risk/uncertainty aversion index	0.025*** (0.006)	0.027*** (0.005)	0.035*** (0.006)	0.032*** (0.006)
Income shock (dummy)	−0.011 (0.017)	−0.023 (0.016)	−0.067*** (0.015)	−0.065*** (0.014)
Country fixed effects	No	Yes	No	Yes
Log-likelihood	−5622.88	−5080.30	−5717.41	−5276.93
Pseudo R-squared (McFadden)	0.09	0.18	0.08	0.15
Probability > Chi squared (df_m)	576.0 (21)	891.0 (30)	589.0 (21)	836.2 (30)
Number of observations	9,038	9,038	9,108	9,108
Baseline predicted probability	0.45	0.45	0.45	0.45

Source: OeNB Euro Survey 2019 and 2020.

Notes: Dependent variables: savings stock = dummy for having savings. Average marginal effects from logit estimations with/without country fixed effects, using sampling weights; robust standard errors are adjusted for clustering at the primary sampling unit level and reported in parentheses. \*\*\*, \*\*, \* denote that the average marginal effect is statistically different from zero at the 1%, 5% and 10% level, respectively. For a definition of variables, see annex table A1. Base categories are: 1<sup>st</sup> income quartile; Czech resident in specifications (2) and (4). The sample comprises all ten OeNB Euro Survey countries.

# The Belarusian banking sector (2016–2021): from timid recovery to renewed crisis?

Stephan Barisitz<sup>1</sup>

*Belarus' aging economic system of centralized state capitalism, in which state-owned banks continue to play an instrumental role through government-directed lending to state-owned enterprises, has experienced a decade of sluggish growth punctuated by recessions (2015/16 and 2020). The system has been supported by subsidized energy deliveries from Russia, which, however, have been curtailed step-by-step in recent years. Belarus' high trade and financial dependence on Russia implied that the oil price slide in 2014 to 2016 also pushed Belarus into recession. The ensuing recovery featured a degree of fiscal as well as monetary tightening (reduced directed lending, move toward inflation targeting), which cut inflation and somewhat reined in the high dollarization of deposits and lending. In 2020, stabilization tendencies were interrupted anew by the crisis triggered by the outbreak of the COVID-19 pandemic and political instability triggered by the brutal repression of demonstrations against the likely rigged presidential elections of August. While the recession of 2020 turned out to be quite mild in Belarus, Western economic and financial sanctions imposed in mid-2021 are likely to have an appreciable negative impact on the economy and banks from 2022. Given Belarus' political isolation from the West, Russia's external "lender of last resort" status looms even larger.*

JEL classification: E52, G21, G28, P34

Keywords: state capitalism, government-directed lending, soft budget constraints, evergreening, recapitalization, dollarization, quasi-fiscal activities, muddling-through strategies, sanctions

Following almost two decades of relatively strong economic expansion, Belarus and its banking sector entered a decade of sluggish growth about ten years ago (around 2012), which was punctuated by recessions (2015–2016 and 2020). The country's average annual GDP growth came to 0.5% to 1% in 2012–2021. This partly reflects Belarus' strong linkages with Russia and its dominant hydrocarbon sector, whose growth also sharply slowed down in the last decade. Even more importantly, Belarus' recently lackluster economic trend is probably due to its peculiar and aging economic system of centralized state capitalism, in which state-owned banks continue to play a key role. The present study is an update of Barisitz (2016), which analyzed the evolution of Belarus' banking sector in 2012–2016; it covers developments from the crisis of 2015–2016 through to the momentous years of 2020–2021. Section 1 presents an overview of macroeconomic developments in these five years. Section 2 discusses how the banking sector overcame the crisis period of 2015–2016 and temporarily stabilized (subsection 2.1), how credit institutions and the National Bank of the Republic of Belarus (NBRB) responded to the triple crisis that hit the country in 2020–2021 (subsection 2.2), and the structure of risks banks currently face, as assessed by the author (subsection 2.3). Section 3 sheds some light on existing shock-absorbing factors (subsection 3.1) and offers a brief outlook that wraps up the study (subsection 3.2).

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## 1 Macroeconomic overview: the Belarusian “economic model” – from gradual winding down to crisis-triggered reactivation

The highly centralized and state-dominated Belarusian economic model may have reasserted itself during the most recent politically triggered crisis of 2020–2021, while it had been relaxed to some degree in the preceding years. Majority state-owned or state-controlled enterprises (SOEs) still account for about half of total GDP and employment; industry and banking record particularly high state ownership of assets (about 75% and 65%, respectively). State-owned banks (SOBs) have continued to be actively engaged in quasi-fiscal activities (QFAs), meaning that the banks have been implementing various state programs through government-directed lending.<sup>2</sup> This has been true especially for the two largest SOBs, Belarusbank and Belagroprombank, which together accounted for about 55% of total banking assets at end-2020. Under the authorities’ industrial policy, government-directed lending, which sets out annual growth targets for bank credit, predominantly goes to strategic actors in agriculture, manufacturing and residential construction.<sup>3</sup>

This system has benefited over decades from subsidized energy (oil and gas) deliveries from Russia, the country’s main trade and investment partner.<sup>4</sup> Exports of machinery and equipment to Russia and other CIS countries, of refined hydrocarbons to the EU as well as oil and gas pipeline transit revenues from Russia to the EU have contributed to a relatively high standard of living in Belarus compared to its post-Soviet peers, like Ukraine or Georgia.<sup>5</sup> Yet disagreements over drawn-out bilateral economic and political integration efforts<sup>6</sup> as well as over preferential prices of Belarusian energy purchases prompted Moscow to substantially reduce implicit transfers in recent years, to the point where oil deliveries from the east were temporarily discontinued in early 2020, before a new arrangement was reached and deliveries resumed. Long-standing structural problems, sluggish investment and inefficiencies in the state-owned sector contributed to a weakening growth trend (Jajko, 2017, pp. 37–39; IMF, 2019, p. 4). On the other hand, tax benefits and light regulation have facilitated the development of a potent Belarusian information and communication sector dominated by private firms.

Given Belarus’ strong links with Russia, the oil price collapse and the Western sanctions of 2014–2015 that had pushed Russia into a mild recession also caused the Belarusian economy to contract (by 3.8% in 2015 and another 2.5% in 2016; see table 1). In relative terms, the contraction was even stronger for Belarus than for Russia. The Belarusian ruble plummeted by about 45%, and the country’s gross external debt rose to 78% of GDP in 2016 – a record level. Belarus was bailed out

<sup>2</sup> Such loans are usually extended at preferential terms (below market interest rates) to state-owned borrowers, while the banks are subsidized by the authorities to make up for the interest rate differential (Dobrinsky, 2016, p. 23).

<sup>3</sup> Borrowers’ eventual payment difficulties are treated, in most cases, by bailouts of SOEs or (recurrent) recapitalizations of SOBs, respectively, reflecting persisting soft budget constraints (Kruk, 2016, pp. 94–96; Jajko, 2017, p. 36).

<sup>4</sup> Russia accounts for about 45% of Belarus’ exports and 50% of Belarus’ imports, and the EU for about 20% of the country’s exports and imports. As regards Belarusian oil and gas imports, Russia is the overwhelming supplier (delivering almost 100% of both oil and gas purchased by the country). Together with Armenia, Kazakhstan and Kyrgyzstan, Belarus and Russia are also members of the Eurasian Economic Union, which was established in 2014/15.

<sup>5</sup> For instance, according to World Bank data, in 2020, GDP per capita (purchasing power parity) came to USD 20,200 in Belarus, USD 28,200 in Russia, USD 26,700 in Kazakhstan, USD 13,060 in Ukraine and USD 14,860 in Georgia.

<sup>6</sup> A “Treaty on the Union of Russia and Belarus” was signed in December 1999 by then presidents Yeltsin and Lukashenko, but its realization has been marked by very modest progress.

with about USD 3 billion in loans from the Russian government and Sberbank (together USD 2.5 billion in 2015) as well as the Russia-led Eurasian Fund for Stabilization and Development (EFSD; USD 0.5 billion granted in early 2016). A stabilization of the oil price and Russia's economic recovery also helped Belarus bounce back, but the recovery was weaker than expected (GDP growth 2017: 2.5%, 2018: 3.1%) and leveled off in 2019 (1.4%).<sup>7</sup>

Monetary and fiscal tightening in reaction to dwindling Russian energy subsidies were also partly responsible for this subdued growth.<sup>8</sup> In 2015, the country's central bank, the NBRB, had moved from an unsustainable crawling peg regime against the US dollar to a managed float (vis-à-vis a currency basket comprising the Russian ruble, the US dollar and the euro), which flanked transition to money growth targeting (operational target: base money). This was followed by the ongoing transition to inflation targeting, which started in 2018; during the current state of transition, the interbank rate is used as the operational tool. Government-directed lending declined from above 40% of total lending in 2016 to about 22% in early 2020.<sup>9</sup> Improved monetary policy brought inflation down from double digits in 2015 and 2016 to around 5% p.a. in 2017 to 2019, which helped raise the NBRB's credibility. Thus, a degree of fragile monetary stability was temporarily achieved (Kruk, 2021, p. 7). Current account deficits were reined in and gross external debt as a ratio to GDP slightly declined, but remained at a high level (60% to 65%); modest gross international reserves (including gold) were somewhat shored up and expanded from USD 5.4 billion (or 2.1 import months) at end-2016 to USD 9.7 billion (or 2.6 import months) at end-2019. However, wage targets for the public sector (which remained rather ambitious) were exempted from this "austerity policy" (Dobrinsky, 2020, p. 68).<sup>10</sup>

In 2020, multiple shocks hit the Belarusian economy. Due to continuing disagreements, Russia temporarily stopped oil deliveries in January to February. Then the COVID-19 pandemic struck in late March. Starting in summer 2021, months of mass protests and political instability rocked the country in the wake of the disputed elections of August, in which incumbent president Lukashenko was officially declared the winner but which were widely believed to have been fraudulent. In reaction, the EU, the USA, the UK and Canada imposed restrictive measures (mostly travel bans and asset freezes) against dozens of persons identified as responsible for repressive measures against peaceful demonstrators, opposition members and journalists in the wake of the election, as well as for misconduct of the electoral process.

Notwithstanding the multiple shocks, Minsk recorded one of the shallowest recessions in Europe in 2020: A first half-year dip of reportedly 1.7% of GDP (year on year) was followed by a modest improvement in the second semester, resulting in a full-year 2020 contraction of less than 1%, largely due to the mix of a near-

<sup>7</sup> The slowdown of GDP growth in 2019 was due to the above-mentioned deepening dispute with Russia over the price of imported hydrocarbons, which led to substantial curtailments of oil shipments, less domestic hydrocarbon processing and losses of export revenues.

<sup>8</sup> Given Belarus' still modest ability to pay, the authorities hardly possessed the option of launching anticyclical stimuli to counter the erosion of Russian energy subsidies.

<sup>9</sup> Government-directed lending was partly replaced by the provision of implicit government guarantees, though (Kruk, 2016, pp. 95–96).

<sup>10</sup> These wage targets have traditionally been set by the president of the republic.

absence of lockdowns (unique in Europe) and some unavoidable indirect negative effects through channels of international trade.<sup>11</sup> After sharply contracting in the first six months of 2020, the current account improved again in the second half of 2020 and was almost balanced at the end of the year. Belarus' external position was supported by its thriving IT sector, generating service export revenues of over USD 2.7 billion in 2020 and contributing to almost balancing the current account (Dobrinsky, 2021, p. 48). The same year, government-directed lending activities stopped shrinking and slightly recovered again to 23% of total lending at end-September. Thus, government-directed lending seems to have been stepped up again as a (costly) crisis response measure to support SOEs and prop up the economy (Fischer, Kirchner and Chervyakov, 2020, slides 2, p. 15).

After reattaining the pre-pandemic production level of late 2019 in the first quarter of 2021, Belarus witnessed economic expansion of 3.3% in the first semester of 2021 (year on year), stemming largely from a revival of export demand, increased prices for oil and petrochemical products and the reestablishment of Russian oil deliveries. Inflation doubled from about 5% at end-2019 to 10% (year on year) in September 2021 – far above the official target of 5%. This was triggered by rising global commodity prices, continuing homegrown wage pressure as well as high inflation expectations. The NBRB raised its key rate to 8.5% in April 2021 and further to 9.25% in July, after it had slightly reduced it (to 7.75%) in 2020. While forex interventions and debt servicing eroded international reserves by almost USD 2 billion in 2020 and the first half of 2021 (to USD 7.8 billion in mid-2021), a Eurobond issue of USD 1.3 billion in early 2020, a new Russian emergency loan of USD 1.0 billion in late 2020 and government forex bond placements of USD 0.7 billion with local credit institutions in early 2021 have supported the country's fragile ability to pay (Dobrinsky, 2021, p. 49).<sup>12</sup> Partly as a result, external indebtedness swelled again (to about 70% of GDP) at end-2020.<sup>13</sup>

The new wave of EU sanctions adopted in late June 2021 in response to the illegal grounding of a passenger airplane in Minsk and the arrest of an opposition activist and his wife are likely to have a much stronger negative impact on the Belarusian economy and banks than the largely symbolic targeted sanctions against persons involved in the violent repression of protests against the disputed elections of the previous year (mentioned above). Notably, the selective sectoral sanctions imposed by the EU cover tobacco, petrochemicals (including refined oil) and potash products as well as the security, defense and financial sectors. These punitive measures contain key exemptions weakening their impact while leaving room for possible additional tightening. Sectoral sanctions are i. a. focused on "restricting" EU imports from end-June 2021 and reducing access to EU financial markets,<sup>14</sup> therefore the impact will only be visible over time and Belarus may have some leeway to react and redirect trade and financial transactions to soften the effect.

<sup>11</sup> The flip side of this peculiar "policy" of largely ignoring the pandemic might be seen in a significant increase of the reported general mortality rate in the country in 2020, which may reflect under-reporting of COVID-19-related deaths. At the same time, there have been no reports of serious strains on the Belarusian healthcare system (Dobrinsky, 2021, p. 48).

<sup>12</sup> Moreover (as of early December 2021), Belarus is to receive a new EFSD loan of USD 500 million.

<sup>13</sup> Belarus' government debt is reportedly dominated by official loans from Russia and Russian-led institutions (about 50% of the total) and from China (about 15%) (Dow Jones Newswires, 2021b).

<sup>14</sup> For more details on the latter see subsection 2.2.

Table 1

### Macroeconomic indicators (2015–2021)

	2015	2016	2017	2018	2019	H1 2020	2020	H1 2021	Jan-Oct 2021
GDP growth (in real terms, %)	–3.8	–2.5	2.5	3.1	1.4	–1.7	–0.9	3.3	2.4
Consumer prices (end-year, %)	12.0	10.6	4.6	5.6	4.7	5.2	7.4	9.9	10.5
Consumer prices (annual average, %)	13.5	11.8	6.0	4.9	5.6	4.9	5.5	..	..
Current account balance (% of GDP)	–3.3	–3.4	–1.7	0.0	–1.9	–3.9	–0.4	..	..
NBRB policy rate (general refinancing rate, %, end of period)	25.0	18.0	11.0	10.0	9.0	8.0	7.75	8.5	9.25
Net FDI inflows (% of GDP)	–2.7	–2.4	–2.2	..	..	..	..	..	..
Gross external debt (% of GDP)	67.3	78.0	72.8	65.5	63.1	62.4	70.2	..	..
Gross international reserves (end-year, % of GDP)	8.5	11.3	13.9	13.0	15.0	13.8	13.3	12.4	..
- in USD billion	4.84	5.38	7.60	7.81	9.68	9.00	8.06	7.79	8.55
- in GNFS import months	1.7	2.1	2.4	2.2	2.6	..	2.6	..	..
General government balance (% of GDP) <sup>1</sup>	1.1	0.5	1.8	–0.3	..	..	..	..	..
Overall balance (% of GDP) <sup>1,2</sup>	–2.2	–1.7	–0.3	–1.3	..	..	..	..	..
Gross public and publicly guaranteed debt (% of GDP) <sup>1</sup>	53.0	53.5	53.4	51.7	..	..	..	..	..
Unemployment rate (LFS, %)	5.2	5.8	5.6	4.8	4.2	..	4.0	..	..
Memo items:									
GDP (nominal, BYR billion)	89.91	94.95	105.75	122.32	134.73	65.99 <sup>3</sup>	147.01	78.93 <sup>4</sup>	..
GDP (nominal, converted to USD billion)	56.68	47.75	54.74	60.06	64.42	28.27	60.38	30.67	..
Exchange rate (BYR/USD, period average)	1.5864	1.9885	1.9318	2.0366	2.0914	2.3343	2.4349	2.5732	2.5453
Terms of trade (change in %)	–12.4	–5.2	+3.1	+1.1	..	..	..	..	..

Source: NBRB, IMF, wiw, German Economic Team Belarus.

Note: “..” = data not available at the cutoff date.

<sup>1</sup> Source: IMF; latest published fiscal data on Belarus from this source (as of December 2021): end-2018.

<sup>2</sup> General government plus off-balance sheet operations (including guarantee payments, SOB and SOE recapitalizations as well as SOE debt restructuring).

<sup>3</sup> H1 2020 (rolling four-quarter): ca. 139.95.

<sup>4</sup> H1 2021 (rolling four-quarter): ca. 159.93.

In August 2021, the USA, the UK and Canada imposed comparable sectoral sanctions, while the USA also singled out 17 Belarusian enterprises in various sectors and one smaller bank (Absolut Bank,<sup>15</sup> which accounts for about 0.2% of total banking assets) and barred them from all US dollar-denominated transactions. Furthermore, the US dollar transaction ban leaves open the possibility of imposing punitive measures also on third parties doing business with these Belarusian companies (secondary extraterritorial sanctions, an option not yet chosen) (Timofeev, 2021; Sutyryn, 2021).<sup>16</sup> Possibly already showing a marginal impact of the above-mentioned wave of EU and Western sanctions of the summer of 2021 on top of the passing of the post-pandemic recovery of external demand, Belarusian economic expansion eased to 2.4% (year on year) in the first ten months of 2021, while it continued to be supported by the IT sector. Notwithstanding sanctions risks and negative impacts, still favorable external demand and commodity price developments slightly lifted the exchange rate of the Belarusian ruble in the second half of 2021. The rating agency Fitch in November confirmed Belarus’ long-term forex rating with a negative outlook (Fitch Solutions, 2021).

<sup>15</sup> This credit institution is reported to entertain close links to the regime (Le Point, 2021).

<sup>16</sup> One should add that some important emerging market trading partners of Belarus, including China, Ukraine, Kazakhstan, Turkey, India, Brazil and others, which together account for 15% to 20% of the country’s foreign trade turnover, have not joined Western sectoral sanctions.

## 2 Banking developments and risks

### 2.1 Post-2015/16 crisis stabilization

SOBs continue to account for the majority of banking sector total assets (see table 2), with Belarusbank (the big savings bank accounting for 38.8% of the sector's total assets at end-2019), Belagroprombank (14.0%) and Belinvestbank (5.7%) playing the most important roles. Foreign-owned banks make up around one-third of the sector's total assets, with Russian credit institutions comprising the lion's share: BPS-Sberbank (7.1% of total assets at end-2019), Belgazprombank (6.8%), BelVEB (Belvneshekonombank, 6.2%), Alfabank Belarus (4.0%) and Bank VTB Belarus (2.6%). Priorbank, a subsidiary of Austria's Raiffeisen Group (6.1% of total Belarusian banking assets) remains the largest non-Russian foreign-owned bank (Raiffeisen Research, 2020, p. 45)<sup>17</sup>. While the largest share of the banking sector's loans goes to SOEs and the general government, this share somewhat leveled off from 46% at end-2016 to 40% at end-2019, while the share of households as borrowers strongly expanded from 14% to 22%.

As chart 1 shows, lending as well as deposit growth were very sluggish overall in the second half of the 2010s in Belarus. After contracting sharply (by about a fifth) during the recession of 2015/16, total loans (excluding interbank loans) more or less stagnated year on year during 2017 and 2018 (in real terms and exchange rate-adjusted), before regaining momentum in 2019 (+5%). The traditionally high dollarization<sup>18</sup> of loans spiked at above 60% during the recession (partly also due to the sharp crisis-triggered devaluation of the Belarusian ruble), before easing to around 50% at end-2019 (see chart 2). The share of forex (mostly US dollar-denominated) loans was highest (above 65%) in loans to SOEs; among the latter, there are some important exporters, but many SOEs are unhedged against exchange

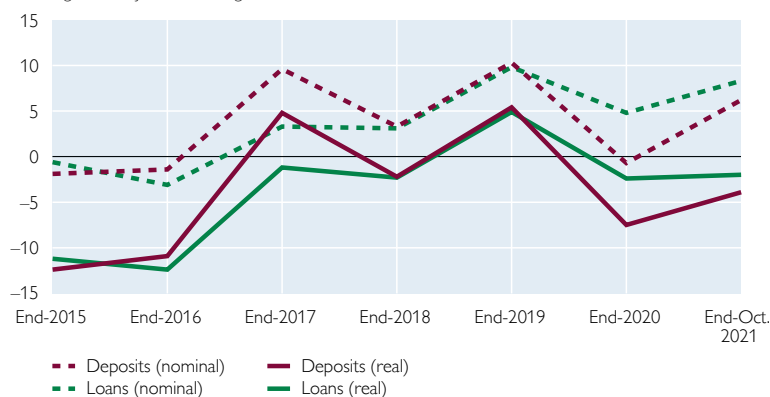
rate risks (Jajko, 2017, p. 42, p. 50). Retail lending (comprising mostly car, housing and consumer credit) stands somewhat apart in that it expanded even during the recession years and, as mentioned above, grew to over a fifth of total loans. The authorities had banned forex lending to households in 2011, and today less than 1% of retail loans are still foreign currency-denominated.

The nonperforming loan (NPL) ratio doubled during the recession of 2015/16, then remained at a relatively high level of 13% in 2017. In 2018, a new, more restrictive NPL definition was adopted, according to which the ratio came to 5% that year and then slightly declined in 2019. While a slight

Chart 1

#### Deposits and loans of resident sectors (excluding the interbank sector)

Exchange rate-adjusted annual growth, %



Source: NBRB.

<sup>17</sup> Together with the above-mentioned big Belarusian and Russian banks, Priorbank features among the seven "systemically important banks" of "group I," as determined by the NBRB (NBRB, 2021a, pp. 93–94). Austrian banks' exposure to Belarus amounted to about 0.75% of their total exposure to CESEE at end-2020.

<sup>18</sup> The high dollarization in Belarus is predominantly driven by historical factors. Past crises, hyperinflation and strong bouts of depreciation undermined trust in the local currency (Benedek, 2018, p. 2).

decline in 2019 is indeed likely given the recovery of lending that year, unfortunately, the data are not comparable with previous years.<sup>19</sup> Evergreening practices (undisclosed restructurings) no doubt continued to play a role (IMF, 2019, p. 12). Deposits grew somewhat less sluggishly than credits, largely on account of expanding enterprise deposits. Deposit dollarization (even higher than loan dollarization) eased

Table 2

### Banking sector-related indicators (2016–2021)<sup>1</sup>

	End-2016	End-2017	End-2018	End-2019	End-2020	Mid-2021	End-Oct 2021
<b>Total deposits</b> (of resident sectors, excl. Interbank, BYR billion)	40.07	44.12	48.07	52.28	58.01	56.48	58.78
of which: forex deposits (incl. interbank, %)	64.3	61.7	60.2	54.3	57.0	55.4	53.7
Annual growth (nominal, exchange rate-adjusted, %)	–1.4	+9.6	+3.3	+10.3	–0.7	–2.3	+6.2
Annual growth (in real terms, exchange rate-adjusted, %)	–10.9	+4.8	–2.2	+5.4	–7.5	–11.1	–3.9
Deposits of enterprises (BYR billion)	12.58	16.63	17.53	20.81	24.60	24.90	24.94
of households	20.75	22.03	23.97	25.39	23.43	21.84	21.37
of government agencies	6.35	5.11	5.78	6.02	7.91	7.76	10.06
of the central bank	0.40	0.35	0.79	0.06	2.08	1.97	2.41
<b>Total loans</b> (to resident sectors, excl. interbank, BYR billion)	52.03	53.96	58.11	63.01	72.92	73.07	74.58
of which: forex loans (incl. interbank, %)	60.9	55.4	53.3	48.8	51.2	50.7	48.2
Annual growth (nominal, exchange rate-adjusted, %)	–3.1	+3.3	+3.1	+9.8	+4.8	+4.5	+8.3
Annual growth (in real terms, exchange rate-adjusted, %)	–12.4	–1.2	–2.3	+4.9	–2.4	–4.9	–2.0
Loans to state-owned enterprises (BYR billion)	15.76	15.62	16.50	17.05	21.76	20.87	20.76
of which: forex loans (%)	67.8	68.2	69.2	67.7	65.4	63.8	58.5
Loans to private enterprises (BYR billion)	11.86	12.62	13.90	14.92	18.62	18.47	19.55
of which: forex loans (%)	70.7	60.5	58.2	59.2	60.0	60.7	61.4
Loans to households (BYR billion)	7.16	9.03	11.60	14.05	15.70	15.79	16.21
of which: forex loans (%)	1.0	0.6	0.3	0.2	0.2	0.1	0.1
Claims on government agencies (BYR billion)	8.40	8.29	9.05	8.11	8.86	10.52	9.77
Claims on central bank (BYR billion)	8.85	8.40	7.06	8.87	7.98	7.42	8.29
<b>Directed lending</b> (share in total bank lending, %)	40.5	33.0	27.5	24.0	23.0 (end-Sep)	..	..
<b>Loan-to-deposit ratio</b> (%)	129.8	122.3	121.0	120.5	125.7	129.4	126.9
Nonperforming loans <sup>2</sup> to total gross loans (%)	12.8	12.9	5.0 <sup>3</sup>	4.6	4.8	5.0	5.5
Established reserves for assets subject to credit risk (%)	5.8	6.2	6.3	6.2	6.6	7.0	..
Liquid assets to total assets (liquid asset ratio, %)	24.6	27.4	14.4	15.0	15.8	16.3	..
Large exposures to capital (%)	176.5	160.2	166.5	159.9	189.1	160.1	..
Banks' net open position in foreign exchange to capital (%)	6.3	3.0	3.0	3.5	3.9	5.3	..
<b>Return on assets</b> (%)	1.6	1.8	2.0	1.9	1.5	2.0	..
Return on equity (%)	12.6	12.1	13.6	12.8	10.6	13.5	..
Capital adequacy ratio (regulatory capital to risk-weighted assets, %)	18.6	18.5	17.7	17.8	17.2	18.3	18.4
Tier 1 capital ratio (regulatory Tier 1 capital to risk-weighted assets, %)	14.2	14.0	13.6	14.0	13.9	15.6	..
<b>Market share of SOBs</b> (% of total assets)	66.7	64.5	64.1	63.0	64.6	..	..
Market share of FOBs (% of total assets)	30.8	32.4	32.9	33.7	32.0	..	..

Source: NBRB, IMF, Raiffeisen Research, German Economic Team Belarus.

Note: “..” = data not available at the cutoff date.

<sup>1</sup> Official statistics may not adequately reflect risks because of the likelihood of evergreening and of reporting shortcomings.

<sup>2</sup> Share of substandard, doubtful and bad assets in assets subject to credit risk. Separate NPL data for SOBs versus FOBs were not available.

<sup>3</sup> Due to a new definition of NPLs from 2018 numbers are not comparable with previous periods.

<sup>19</sup> The new definition i. a. replaces “problem assets” by what appear to be more narrowly defined “risk groups.” Restructured loans are not counted as NPLs although being subject to higher reserve requirements. According to IMF expert assessment, the new definition falls quite short of what would constitute NPLs for international comparisons (Cruz González, 2020, pp. 7–8; see also IMF, 2021).



from around 64% at end-2016 to 54% at end-2019.<sup>20</sup> As chart 3 shows, banks' profitability (ROE and ROA) somewhat improved from the low levels of 2015/16, but remained modest (also against the backdrop of some SOBs' quasi-fiscal functions). Meanwhile, capital adequacy ratios slightly eased but remained relatively high (18% in 2019, benefiting from SOB recapitalizations).

## 2.2 Plunge into renewed crisis mode 2020/21: COVID-19 and disputed presidential elections and Western sanctions

Recapitalizations and crisis response measures contributed to (temporarily) pushing up the market share of SOBs, as had happened in the recession of 2015–2016, when their share had ratcheted up 3% before gradually declining in the following years. Thus, the market share of SOBs rose again – by about 2% – during the crisis of 2020/21, reaching 65% at end-2020. While still expanding until mid-2020 (year on year), lending slowed down and contracted (in real terms and exchange rate-adjusted) by late 2020 and in 2021, yet the rate of contraction declined most recently (end-October 2021: –2%, see table 2 and chart 1). Thus, credit hardly provided a contribution to the economic growth recorded so far in 2021. Interestingly, until mid-2021, lending to SOEs and government agencies was comparatively lively, while credit to private enterprises and households gained some momentum in the summer and early fall of 2021. Forex loans continued to account for about half of total loans. The NPL ratio remained largely stable (at

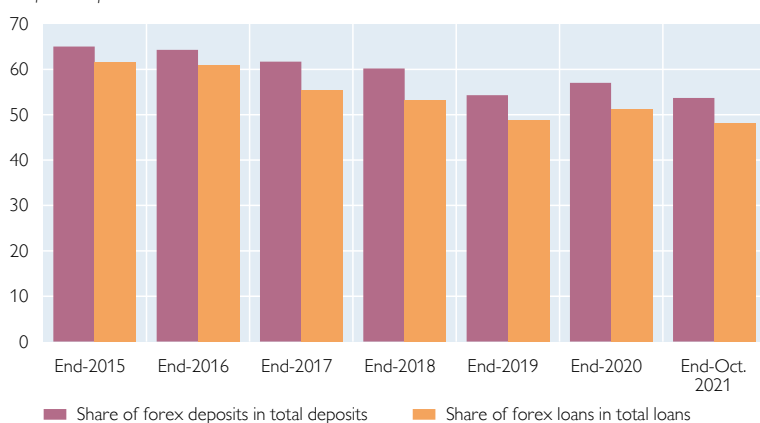
around 5% according to the new definition) in 2020 and the first ten months of 2021.<sup>21</sup>

Deposit growth, having still slightly increased until spring 2020, strongly declined thereafter, as table 2 and chart 1 indicate. However – somewhat similar to loan growth – the shrinkage of deposits lost momentum most recently. The decrease of deposits started in May 2020 and was driven by shrinking household deposits, largely triggered by heightened uncertainty due to the outbreak of the COVID-19 pandemic and by the subsequent loss of confidence in connection with the political crisis unfolding in August 2020. Partly thanks to increased deposit interest rates, the pace of household deposit erosion

Chart 2

### Dollarization of deposits and loans<sup>1</sup>

% of total deposits or loans



Source: NBRB.

<sup>1</sup> Including interbank deposits and loans.

<sup>20</sup> Looking more closely at the enterprise sector, the dollarization of private sector firms' deposits turns out to be typically higher than the dollarization of public commercial enterprises' deposits, e.g. at end-2019, the two ratios were 65% compared to 54%.

<sup>21</sup> In June 2020, the NBRB introduced temporary administration at Belgazprombank, the country's seventh-largest credit institution (in majority Russian ownership and comprising about 5% of total sector assets), on tax evasion and money laundering charges. The board of directors, chaired by a political rival and challenger to President Lukashenko, was suspended and a new board and chairman were elected. Thereupon, in December 2020, the temporary administration of Belgazprombank was lifted. Throughout the period of temporary administration, the bank managed to stay financially stable.



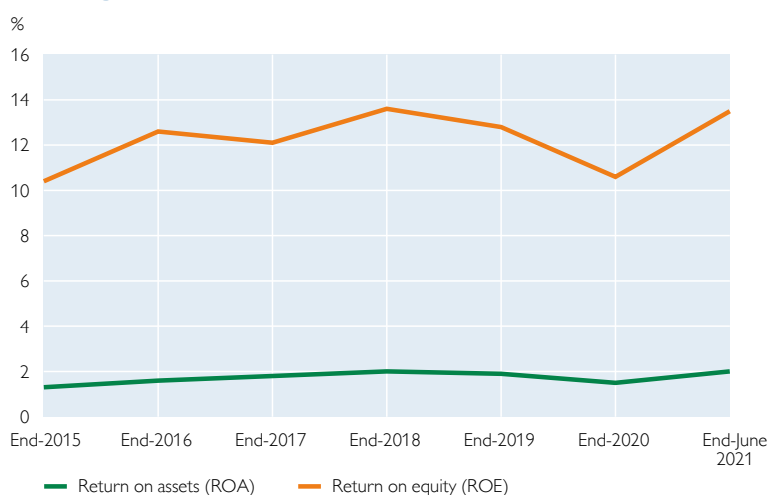
slowed down in the first ten months of 2021. Retail deposit flight was furthermore offset by the expansion of enterprise, government and NBRB deposits in January to October 2021, but this did not suffice to stop the overall contraction (measured in real terms and exchange rate-adjusted). Deposit dollarization remained at a high level (about 54%) but did not spike despite temporary pressure on the Belarusian ruble. Unsurprisingly, profitability sagged somewhat (NBRB, 2021b). While NPLs (according to the new narrower definition) remained at a level of about 5% in 2020/21, forbearance measures undertaken by the NBRB during the crisis<sup>22</sup> may understate the true situation (Fischer, Kirchner and Chervyakov, 2020, slides 10, p. 19). While slightly eroding in 2020, recorded capital adequacy regained a satisfactory level in 2021 (end-October: 18%).

The new EU financial sanctions imposed in late June 2021 focus i.a. on Belarus' three largest SOBs: Belarusbank, Belagroprombank and Belinvestbank. While they are barred from taking out loans with maturities exceeding 90 days in EU financial markets, these three banks' exposures to EU markets are very modest. If necessary, banks may get some liquidity support from the authorities as well as from the local interbank market, where subsidiaries of Russian credit institutions likely represent a stabilizing factor (about 25% market share) reinforced by their respective parent banks. In reaction, Standard&Poor's confirmed its ratings of the three banks but downgraded their outlook to negative (Dow Jones Newswires, 2021a). The current EU sanctions also ban buying Belarus government debt.

Right after their imposition, the new sanctions did not trigger a significant depreciation of the Belarusian currency nor did they cause notable deposit withdrawals. However, they have increased risks and uncertainty (Fitch Wire, 2021). Following the border crisis with Poland and Lithuania in November 2021, in which the West accused Belarus of luring thousands of migrants from Africa and the Middle East to the EU eastern border to build up pressure to force their migration west, the USA in early December 2021 matched EU sanctions on buying Belarusian government debt, and both the EU and the USA adopted additional punitive measures against Belarusian government officials.

Chart 3

### Banking sector profitability



Source: NBRB, German Economic Team Belarus.

<sup>22</sup> These measures include the easing of a number of prudential requirements with respect to credit risk assessments for calculating capital adequacy, limiting risk concentration, formation of special reserves, regulatory capital, liquidity. The measures were introduced in the second quarter of 2020 and are scheduled to expire at end-2021 (NBRB, 2021a, pp. 87–88).

### 2.3 Major credit, exchange rate, liquidity, sanctions and state solvency risks

The major risks the Belarusian banking sector is currently facing include, in order of importance: credit risk (including directed lending risk), exchange rate risk and liquidity risk. Given the above-mentioned nature of banking activity in Belarus, where industrial policy and political objectives trump economic profitability or efficiency objectives, at least as far as SOBs and government-directed lending are concerned, one can assume high credit risk to be an important integral component of the system, which, as mentioned above, from time to time requires recapitalization exercises. Sanctions risk relates to the possibility of a further escalation of Belarus' conflict with the EU and the West and potential new rounds of punitive measures, which could directly or indirectly affect banks and thus likely also trigger repercussions with respect to all of the three just mentioned risks. State solvency risk is a salient underlying risk, given that the state is a majority shareholder and strategic decision maker in the banking sphere.

Credit risk continues to loom large in the Belarusian banking system given the uncertain but likely low quality of loans – notably in connection with still widespread government-directed lending, which typically follows politically determined goals instead of furthering the efficient market allocation of resources. According to NBRB information cited in Kruk (2021), the amount of potentially bad debt of the state sector is estimated at around 14% of GDP; this is very high, taking into account that the total volume of loans to SOEs and government agencies in mid-2021 came to about 21% of GDP (Kruk, 2021, p. 3). If only half of the potential bad debt was actually nonperforming, this would imply an effective NPL ratio for loans to the state sector of about one-third. Of course, one could argue that part of the burden reflects the impact of industrial policy, with “strategic actors” benefiting from subsidies and particularly lenient credit conditions. If this were the case, it would be quite an inefficient, uncertain and risky way to prop up “national champions” and buttress their competitiveness.

In any case, high credit risk will likely continue to necessitate recurrent recapitalization exercises to keep (key) SOBs (and SOEs) afloat – thus claiming a periodic “quasi-fiscal tribute.” Put in a simplified manner, in this system, SOBs are essentially tools for carrying out subsidy policies in favor of target SOEs, therefore core vulnerabilities (as far as they exist) relate to the latter<sup>23</sup>. Elevated dollarization levels (see below) also sustain the transmission channel for currency-induced credit risk.

Against the backdrop of the Belarusian economy's continued commodity price dependence, exchange rate risk remains a key risk even though it may have lost some of its weight in connection with the progress the NBRB has achieved in moving away its monetary policy from exchange rate orientation toward inflation targeting. While dollarization remains very high on the asset and liability sides of banks' balance sheets, reflecting continued limited confidence in the domestic currency, the Belarusian ruble has recently (since 2014) sustained repeated bouts of instability-triggered devaluation, with dollarization reverting to previous (elevated) levels and financial stability not getting out of hand as a result.

The pronounced outflow of retail deposits as well as increased demand for foreign exchange (since the outbreak of political instability following the contested presidential elections in mid-2020) have underlined the importance of liquidity

<sup>23</sup> Most recently, additional support may have become necessary for sanctions-affected SOEs and SOBs.

risk, even if the mentioned outflows have most recently declined and have also been offset by inflows coming from enterprises and the public sector. The high level of dollarization also poses liquidity risks, as the lender of last resort function for forex deposits is limited by existing reserves.

A possible new round of EU and/or Western sanctions would most strongly affect banks if the punitive measures were related to the financial sphere (e.g. conditions for taking out loans or launching debt instruments on EU capital markets, or possible extraterritorial secondary US sanctions against specific entities), even if the actual impact may differ widely from bank to bank and depend on how the authorities react. Additional trade sanctions would affect banks indirectly (via costs imposed on SOEs or other exporters or importers).

Because of SOBs' predominant position in the banking sector and their role as instruments of government-directed lending policies, the risk of the government running into financial or other difficulties in fulfilling its bank ownership functions continues to constitute a salient business risk in Belarus. This risk is all the more serious against the backdrop of the authorities' current crisis-triggered (2020/21) delicate financial situation.<sup>24</sup>

### 3 Shock-absorbing factors and outlook

#### 3.1 Shock absorbers: limited fiscal resources, external “lender of last resort” looms large

There are both domestic and external factors that may act as shock absorbers for the Belarusian banking sector. At the domestic level, SOBs' capital adequacy ratios are periodically propped up by capital injections from public resources, which is why the still comfortable level of these ratios is of an artificial nature and not sustainable without continuing transfers of means within the given framework. The state budget itself, more precisely in its version of the “overall balance” (IMF, 2019, p. 33), includes such recapitalization outlays and thus constitutes an important shock-absorbing factor. While one can see in table 1 that off-balance sheet operations, including recapitalization measures, declined from about 2% to 3% of GDP during the recession in 2015/16 to about 1% of GDP in 2018, they doubtlessly must have increased again in the crisis situation most recently (2020/21).<sup>25</sup> As mentioned above, the Belarusian authorities have been able to launch a Eurobond (of USD 1.3 billion) in 2020, moreover local foreign currency-denominated obligations (of about USD 0.7 billion) were placed in early 2021. Yet the financial straits of the Belarusian state (heightened quasi-fiscal budgetary pressure from largely unreformed enterprises, waning Russian energy subsidies, renewed increase in external debt, modest level of international reserves) once again, after 2015/16, call into question the solidity of the domestic shock absorber.<sup>26</sup>

<sup>24</sup> This recalls quite similar findings related to Minsk's precarious financial situation referred to in Barisitz (2016, p. 47), in that case related to the impact of the recession of 2015/16.

<sup>25</sup> IMF staff reports appear to be a very reliable source for estimates of the size of these quasi-fiscal activities (QFAs). Unfortunately, by December 2021, no new IMF Article IV Consultation and Staff Report on Belarus containing these data had been published since the 2018 report (published in January 2019). Therefore, the last IMF QFA estimate available relates to the year 2018.

<sup>26</sup> Belarus' public debt came to BYR 57.8 billion at end-2020 (about 40% of GDP). 83% of total public debt constituted external debt, which amounted to USD 18.6 billion. According to Fitch, at least for 2021, sovereign forex debt repayments looked manageable at USD 2.8 billion, with about half of redemptions owed to Russia (Reuters, 2021).

Once again, this points to external support as the second major supporting pillar of the country's economy and its banking sector. Sources of external support can principally be financial assistance from the IMF or financial assistance from Russia directly and/or from the Russia-led EFSD or from other external sources (e.g. China). Belarus could also tap Russian capital markets (Dow Jones Newswires, 2021b). An IMF loan currently appears to be out of question (given the sanctions stand-off with Western countries which are the Fund's major shareholders); however, in August 2021, Minsk did receive about USD 0.9 billion from the IMF under its new SDR program to support emerging markets in the global post-COVID-19 economic recovery (Le Figaro, 2021a). This helped provide a modest boost to Belarus' international reserves, which moved back to USD 8.5 billion at end-August 2021, a level last seen in mid-2019.<sup>27</sup>

While disputes with Russia have been frequent in the past – in early 2020 even triggering a spectacular, if short-lived, halt to oil deliveries – at critical turns (e.g. in 2015/16), Belarus' big eastern neighbor has provided assistance to Minsk to stay financially afloat. Although Lukashenko has repeatedly and successfully played off Russia against the West in the diplomatic arena in the past, since the brutal repressive measures of 2020, tensions with the West have reached a point where support from Moscow appears the only substantial option left for Minsk for the time being. This unprecedented degree of dependence on Moscow may paradoxically bolster Belarus' creditworthiness because Russia's "lender of last resort" quality seems even more unequivocal than in the past.

Indeed, equipped with twin surpluses (budget as well as current account) and boasting modest external liabilities coupled with generous international reserves that have lately attained new record levels, Russia is financially well suited to lend its small eastern Slavic neighbor a helping hand, should it perceive the need to do so. And as long as Russia remains in a tense standoff with the West and as long as Belarus remains a valuable and loyal geostrategic partner, Moscow is likely to be sustaining its support for Minsk. Given the likelihood of Russian assistance, Belarus' international reserves will probably not shrink substantially in the near future (Luzgina, 2021, p. 13). In September 2021, an agreement on deeper economic integration between Russia and Belarus was signed, providing for harmonization of various policy areas between the two neighbors (for more detail see section 3.2). Parallel to the agreement, new Russian financial support is reportedly being discussed, although the details are not yet clear.

### **3.2 Prospects: high short-term vulnerability, costly muddling-through probably unsustainable in the long run**

While Belarus seems to have overcome its surprisingly shallow COVID-19- and political instability-related recession of 2020, short- and medium-term prospects appear subdued against the backdrop of weak productivity, lingering domestic political instability and uncertainty, coupled with important, if selective, Western sanctions (since mid-2021), whose impact will likely become clearer in 2022. The Russian economy seems to have gained some steam again, having returned to a growth path in 2021 and thus resumed its role as an "economic locomotive" for Belarus, and the EU is also recovering from its deep COVID-19-triggered economic

<sup>27</sup> The country's international reserves have held this level through December 2021.

contraction of 2020. The traction of the EU's recovery for Belarus and its banks will of course be much more modest (or even nonexistent), given the expected influence of the sanctions. Saddled with these numerous domestic and external uncertainties, including the possibility of a new flare-up of the pandemic, the prospects for a sluggish recovery are not likely to provide any essential stimulus to the banking sector in the medium term. Moreover, a further escalation of Belarus' conflict with the West, which cannot be ruled out, might trigger another round of sanctions, rendering the outlook even more fragile.

Integration agreements were signed in September 2021<sup>28</sup> to deepen economic relations with Russia in the coming years within the framework of the above-referred to Union Treaty of 1999. These agreements, which provide i.a. for a harmonization of tax and customs administration, monetary policy, payment and settlement systems and labor laws, might open up new opportunities for Russian firms in Belarus' market, e.g. to acquire state-owned assets. The adoption of Russian practices might also imply that some branches in Belarus will have to shift to a more market-based system, which may well run counter to the local tradition of heavy-handed state interventionism including pervasive public ownership, government-directed lending, wage targets, etc. (BOFIT, 2021; Le Monde, 2021). In December 2021, Russia allowed Belarusian companies access to Russian state tenders (TASS, 2021). While it is clear that the authorities in Minsk prize continued uninhibited access to inexpensive natural gas supplies from Russia in the years ahead in order to prolong the functioning of their economic model, it is not yet clear to what extent they might be willing to sacrifice their control of strategic SOEs and SOBs, directed lending strategies, interventionist targeting and other essential model components. Possibly, a compromise might be found and muddling-through strategies, tolerated or supported by Moscow, might be maintained for another couple of years. Ultimately, however, such strategies will be unsustainable.

<sup>28</sup> Roadmaps were signed in early November 2021 (*Le Figaro*, 2021b).

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Event wrap-ups

# Conference on European Economic Integration 2021

## Recalibrating tomorrow's global value chains – prospects for CESEE

Compiled by Maria Silgoner<sup>1</sup>

The Conference on European Economic Integration (CEEI) was held in November 2021 by the Oesterreichische Nationalbank (OeNB) in cooperation with the European Investment Bank (EIB).<sup>2</sup> Given the complementary nature of the regional research focuses of both institutions and their long-standing collaboration, the EIB was the ideal candidate for this cooperation. Around 300 participants from more than 25 countries took in and discussed past trends, recent challenges and future prospects for global value chains (GVCs), with a special focus on the Central, Eastern and Southeastern European (CESEE) region.

In his introductory remarks, *Robert Holzmann, Governor of the OeNB*, started out by pointing to the manifold advantages resulting from integration into GVCs, which has proved to be an engine of economic growth and development over the last decades. The CESEE economies, in particular, have benefited from deep GVC integration, which has strongly supported their successful transition and catching-up process. However, recent events have laid bare the vulnerability and risks associated with GVC integration. The COVID-19 pandemic, in particular, has brought about significant disruptions in global production networks. As a consequence of the resulting shortages of raw materials, inputs and intermediate goods, global industrial production and trade flows have been severely hampered, highlighting Europe's dependency on these crucial imports. Some individual sectors such as the car industry – a sector the CESEE region is heavily reliant on – have been hit particularly hard. Governor Holzmann moved on to stress that, in addition to pandemic-related challenges, we are witnessing profound structural shifts in our economies as the world is increasingly determined to tackle climate change. He warned that these shifts, as well as the impact of climate change itself, may push commodity prices even higher – in addition to the cyclical upturn in inflation. Governor Holzmann wrapped up by drawing the audience's attention to the most pressing policy priorities and unresolved questions that loom ahead. These include striking the right balance between relocating production to ensure strategic autonomy and diversifying trade flows to create a more robust world trading system.

Next, *Ricardo Mourinho Félix, Vice-President of the EIB*, shed further light on the challenges associated with the current recovery process. He noted that if the supply bottlenecks and disruptions were temporary, their impact on our economies would eventually disappear. However, as the EIB's large firm survey corroborates, there is widespread concern that the ongoing changes in demand and supply will be structural. If so, they might not only be long-lasting but also change the structure

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<sup>2</sup> Originally planned as a hybrid event, the conference had to go fully virtual at short notice due to new pandemic-related government regulations.

of GVCs. Against this background, Vice-President Mourinho Félix emphasized the necessity of reducing dependency on imports of strategically relevant inputs. While policymakers focused all efforts on stimulating demand after the global financial crisis, it is now key to also keep a close eye on the supply side and build more resilient supply chains. The EIB has played an extremely active role in the context of recovery from the COVID-19 pandemic. After having first tackled immediate health-related emergencies and having supported European companies' liquidity needs, the EIB now aims to help boost investment, innovation and job creation in Europe and provide necessary resources for the climate agenda. On a final note, Vice-President Mourinho Félix showcased the EIB's support to the CESEE region, which is based on a firm commitment and long tradition.

### **Ricardo Hausmann: Do GVCs make development easier?**

In the following keynote lecture, *Professor Ricardo Hausmann from Harvard University* demonstrated in an impressive and illuminating way what GVCs and the modular principle of the word game Scrabble have in common. He views production as assembling “letters,” which stand for capabilities, to make “words,” which represent products. Since technology has developed more capabilities (letters) and has made products more intricate (longer words), one would assume that the world has become a complex place where only those who have all the letters can get into business. Yet, this is not the case thanks to GVCs which allow for trade in syllables, not words. GVCs have thus made progress easier for less developed places, allowing them to participate in production with fewer capabilities. In other words, GVCs allow for growth of complexity without its downsides. However, for GVCs to open these new doors, technology has to spread, and more coordination is required. While transferring know-how into brains is a slow and tedious process, moving brains, i.e. workers with know-how, to places where they are needed is much easier, cheaper and faster. However, coordination and foreign direct investment both become more difficult with distance. Yet, the better the infrastructure, the easier it is to overcome distance. Against this background, Professor Hausmann concluded that the most important prerequisites to reap the full developmental gains from GVC integration are migration policies and transport infrastructure. Applying these findings to Austria, he pointed out that the infrastructure particularly in the east and south of Vienna has to be better developed.

### **Stability versus vulnerability in GVCs: tracing the benefits and risks of increasing interconnectedness**

*Debora Revoltella, Director at the EIB*, chaired a session on the benefits and risks of GVCs. She emphasized that growing interconnectedness of production processes comes with many challenges, as has become obvious during the COVID-19 pandemic. However, countries have been rather resilient. Moreover, CESEE countries, in particular, could potentially gain from the relocation of production from Asian countries to the region.

*Gábor Márk Pellényi, Economist at the European Commission*, argued that specialization in services matters for economic development and convergence. First, services capture a higher share of value added in GVCs and, second, services are less volatile than production, as was witnessed during the global financial crisis. This is due to the fact that the provision of services needs fewer intermediate inputs

and is less sensitive to supply disruptions. Of course, this was different during the COVID-19 pandemic, as many services are contact-intensive. So far, the CESEE region has mostly attracted assembly-like production, while being less specialized in providing services. To shift the region's focus toward services would require investments in skills and strong digital infrastructure.

*Andreja Jaklič, Professor at the University of Ljubljana*, focused on domestic versus global value chains, explaining that CESEE countries started out with a lower share of domestic value chains compared to Western EU member states. Furthermore, CESEE has seen this share decline in importance over time. Taking Slovenia as an example, she pointed out that complex value chains feature lower productivity growth. This could mean that the CESEE countries are not yet ready for complex value chains. According to Jaklič, this might in turn explain missed convergence opportunities in the region. With reference to the COVID-19 pandemic, her research shows that only firms that had invested in human resources and digitalization managed to improve their position within GVCs during the crisis. She agreed that CESEE countries should focus on digitalization in order not to get stuck in the middle.

*Fritzi Köhler-Geib, Chief Economist at the KfW Group*, showed in her intervention that German small and medium-sized enterprises (SMEs) have been hit hard by the COVID-19 pandemic due to the collapse of international trade. A special feature of the current crisis is that internationally active companies have been hit harder than locally operating companies. Many companies have learned their lessons and intend to reexamine existing GVCs. This could be a window of opportunity for CESEE countries, as many German companies want to diversify their GVCs by putting a stronger focus on European markets. Köhler-Geib concluded by saying that firms have so far proved to be very flexible during the COVID-19 pandemic, which is why she was confident that firms would also be able to move toward a green digital economy.

The last panelist, *Boris Vujčić, Governor of the Croatian National Bank*, argued that GVCs have been less affected by the COVID-19 crisis than predicted. Overall, GVCs have been recovering rather quickly, and while some reshoring has already taken place, no major reversal is underway. He expects GVCs to remain resilient with no major disruptions. Vujčić agreed with previous speakers that digitalization is a key factor for reaping the benefits of GVC integration. Speaking from a central banker's point of view, he added that structural changes driven by technology improvements are expected to be cost-efficient or even cost-neutral, leaving no impact on the inflation rate in the medium to long run. Touching on environmental issues, he pointed out that the aim of reducing carbon emissions could negatively affect GVCs in developing countries, as production tends to be more emission-intensive. However, exports of emission-efficient technologies from Europe to developing countries could also have an impact on the structure of GVCs.

### Central bankers' views on monetary policy implications of GVC integration

OeNB Governor *Robert Holzmann* opened the following panel with the observation that while the role of globalization for domestic prices has received increased attention, this has been less the case for the impact of multistage international production processes on the design of monetary policy. The latter impact has become

particularly evident in recent months, with prices of (imported) intermediate goods and raw materials rising considerably due to pandemic-related disruptions in GVCs.

*Jiří Rusnok, Governor of the Czech National Bank*, started out by stressing Czechia's deep integration into GVCs, mainly because of the large weight of the automotive industry in the country's GDP. He emphasized that GVC integration increases cost and price competitiveness due to comparative advantages of international specialization, while at the same time making economies more vulnerable to disruptions originating in GVCs. Such disruptions act as a supply-side shock, increasing inflationary pressure and slowing economic growth. Having moved higher up the value chain over the last three decades, the exchange rate pass-through has lost importance for Czechia, converging to levels typically observed in more advanced economies.

*Mārtiņš Kazāks, Governor of the Bank of Latvia*, perceived his country's integration into GVCs as a key instrument to strengthen domestic productivity, exports and eventually income. While GVC integration thus implies substantial opportunities for small, open economies, Governor Kazāks took the position that many aspects of vulnerabilities can be best addressed by using instruments that lie outside the monetary policy realm like targeted labor market policies. Moreover, he argued that domestic disinflation is not an adequate solution, as long as the current price pressure stems from global supply-side frictions and remains transitory (i.e., as long as second-round domestic effects remain negligible). He also emphasized that the effectiveness of monetary policy in the euro area would benefit from further integration within Europe.

*Peter Kažimír, Governor of the National Bank of Slovakia*, stressed that the automotive industry is also very important for Slovakia, referring to the negative impact of recent commodity price hikes. Taking a longer-term perspective, he argued that increased GVC participation has been associated with lower core inflation and a flattening of the Phillips curve, not only in Slovakia but also globally. At the same time, Governor Kažimír expressed his skepticism about GVC participation returning to pre-pandemic levels any time soon, as initiatives to nearshore and diversify supply chains have already been launched – not least for geopolitical reasons.

In a second round of discussion, the panelists addressed the impact of price hikes that may directly or indirectly result from the climate crisis. All three governors from the CESEE region agreed that monetary policy is not in the driving seat in this context; rather, fiscal and structural policies are better suited to addressing the climate crisis and tackling the transition to green economies. However, they also acknowledged that there is an impact on price stability, financial stability and banking supervision, and thus on central banks' ability to achieve their mandates, requiring close monitoring also by central banks. Governor Kažimír expressed his concern that a rapid green transition could increase production costs, putting an upward pressure on prices. This would likely require a tighter monetary policy stance. While decarbonization-related investments could indeed have inflationary effects in the short run, Governor Kazāks expects a positive impact on economies' growth potential in the longer run. This might be best sustained by an accommodative monetary policy stance. Overall, he pleaded for more research on the inflationary effects of the climate crisis and put up for

discussion whether the impact of carbon pricing should be taken out from the euro area's inflation target.

The final round of discussion focused on the implications for euro adoption. The declining role of the exchange rate pass-through to inflation in Czechia gave rise to the question of whether this could be an argument pro euro adoption. Governor Rusnok replied that although Czechia's economic integration with the euro area has gradually deepened, there is currently no political majority in the country to progress accordingly. Governor Kazāks stressed that during the global financial crisis, when Latvia had not yet adopted the euro, constrained external borrowing was a major challenge, while this time, during the COVID-19 pandemic, being part of the euro area has acted as a shelter ensuring sufficient access to funding. Governor Kažimír emphasized that during the global financial crisis, Slovakia benefited from having joined the exchange rate mechanism (ERM II) in 2005 and from having adopted the euro in 2009. Being part of the euro area has also been helpful for Slovakia's participation in GVCs.

### **Structural changes in the automotive industry: Can CESEE escape the functional specialization trap?**

The chair of the panel on structural changes in the automotive industry, *Robert Stehrer, Scientific Director of the Vienna Institute for International Economic Studies (wiiw)*, started off by reminding the audience of the vital significance of this industry for the CESEE region's economic development. In the same breath, he also mentioned the various challenges ahead, such as supply chain disruptions and environmental issues. In their lead statements, *Matteo Ferrazzi, Senior Economist at the EIB*, and *Tomáš Slačák, Senior Economist at the OeNB*, presented an ongoing study, jointly conducted by the EIB, the OeNB and the wiiw, on the future of the automotive industry in CESEE. They focused on the current electric car revolution, particularly driven by EU regulation. In their assessment, CESEE is well integrated into this transition and is expected to largely benefit from it, not least due to its links with Germany, the electrification hub. However, CESEE is strongly dependent on decisions taken by companies' headquarters, where more high value is created. The authors underscored the role of policies in promoting patent applications, digitalization of production and regional and technological diversification.

The following panel debate brought together three proven experts in the field. *Sigrid de Vries, Secretary General of the European Association of Automotive Suppliers (CLEPA)*, emphasized the sector's commitment to supporting the climate transition in a manageable way. At the same time, she stressed that all renewable energy solutions and clean drivetrain technologies are needed to decarbonize the road transport sector and achieve the EU's climate neutrality objective. Against this background, she particularly called for a technology-open approach avoiding any technology bans. She went on to alert the audience to the social and employment dimensions of the climate policy-induced transition in the automotive industry. According to a recent study conducted by CLEPA in cooperation with PwC, a pace of vehicle electrification in line with the European Commission's "Fit for 55" proposal implies that about half a million jobs would be at stake in the European automotive industry until 2040. Yet, the findings presented by de Vries also suggest that new jobs created particularly in European battery production would reduce the net job losses to 275.000.



According to *Petr Pavlínek, Professor at the University of Nebraska Omaha and Charles University*, Europe will stay a significant player in the automotive industry, as it is an important market and car production needs to be located close to final sales. Moreover, CESEE continues to be attractive for the automotive industry thanks to its continued lower labor costs and proximity to markets. However, the high degree of foreign ownership and weak innovation activities indicates that combustion engine production may stay longer in the region and the introduction of mass production of electric vehicles will be slower than in Western Europe.

Referring to the previous speaker, *Martin Jahn, Board Member of ŠKODA AUTO a.s.*, was more positive not only about the sector's innovative power in CESEE but also about its future, with a lot of electric vehicles already being produced in the region. He admitted that the transition would take some time, though. Even when assuming that new combustion engine cars will no longer be sold after 2035, they will still remain in operation until about 2045. This will give the industry enough time to adjust. Moreover, Jahn highlighted that not only electrification but also other trends like automated driving provide many new opportunities for suppliers. Yet having said that, Škoda's Board Member stressed that policy support is needed for upskilling and R&D investment to facilitate what will be a major structural shift. Jahn concluded by pointing to the "one-million-dollar question" that nobody can really answer at this point, namely how quickly electric vehicles will be accepted by the market despite or as a result of the strong push by policies from both public sector and private sector companies. The ensuing discussion with the audience centered on how future mobility trends may affect demand for cars. The panelists agreed that cars will continue to be produced in Europe on a significant scale, the question is only by whom. Demand for cars is expected to stay roughly constant, while the global car market will grow.

### **Richard Baldwin: Risks in global supply chains: Do we need policy?**

The virtual dinner speech was delivered by *Richard Baldwin, Professor at the Graduate Institute Geneva*. He pointed to the great heterogeneity within GVCs with respect to size, complexity, products, country and regional coverage as well as the variety of interaction modes. As a result, GVC risks also differ depending on the type and configuration of each supply chain. Moreover, GVCs can be subject to supply, demand or transport shocks. Hence, appropriate policy responses have to take into account the different kinds of supply chains and the type of shock. At the same time, recovery from shocks hinges on the robustness and resilience of the respective supply chain, whereby robustness refers to the ability to continue functioning during shocks and resilience refers to the ability to quickly recover after shocks. Professor Baldwin then focused on systemic shocks to supply chains – such as pandemic, climate and geopolitical shocks, or the recent US-China trade conflict – which imply a case for government intervention. Referring to the well-known risk versus return trade-off, he pointed out that private companies are likely to underestimate risks, opening up a role for economic policy in three ways: First, policies need to match the respective shock. Demand shocks are best addressed by stockpiling and holding excess capacity, while the answer to supply shocks is to geo-diversify sourcing. In contrast, transport shocks call for the reshoring of suppliers. Second, policies should work on the principle of "no regrets," i.e. they should provide public information on suppliers and apply public stress tests to



critical supply chains. Finally, the public sector should work as a macro circuit breaker. This was demonstrated well in the pandemic when macroeconomic stabilization dampened snowball effects and thus kept demand afloat. Baldwin argued that public intervention to address possible risk-return misjudgments by private companies should focus on certain industries of public interest, such as medical supplies, essential foodstuff and strategically important inputs.

### **Hylke Vandenbussche: Digitalizing and greening GVCs: What does the future hold?**

The second conference day was opened by *Birgit Niessner, Director of the OeNB's Economic Analysis and Research Department*. After summarizing the main takeaways from the previous day, she put the focus on fundamental changes that will shape tomorrow's GVCs, in particular on digitalization, decarbonization and the supporting role of the EU by way of its Green Deal. This was taken up by *Hylke Vandenbussche, Professor and Vice Dean of Research at the University of Leuven*, in her keynote lecture. Europe is facing serious supply problems for critical production inputs, in particular microchips. Europe was a first mover in this industry in the 1990s, with a global market share of 40% (currently down to 10%). The European Chips Act, announced in September 2021, aims at doubling chip production in Europe by 2030 to secure supply of microchips, reduce vulnerabilities and reach more technological sovereignty. Professor Vandenbussche pointed out that this represents a new form of non-protectionist strategic trade policy, which is not aimed at substituting for imports from competing suppliers but rather at complementing domestic production. Whether this is a viable strategy remains to be seen, as it implies a major efficiency-availability trade-off with potential implications for product quality as well. But in view of increasing systemic risks, the balance may well shift toward availability considerations. However, there are still many open issues related to reestablishing the microchip industry in Europe. More specifically, Europe still has to determine in which parts of the value chain it wants to invest in, decide on the regional dispersion of production within Europe and consider the availability of necessary raw materials as well as the ecological footprint. And then broader questions also arise: Will the reestablishment of the microchip industry foster a new regionalism, thus putting the multilateral approach under pressure? Will government interventions work for the technology sector given its reliance on innovation? And how can strategic mistakes from the past be avoided, which caused critical technology players like Philips, Nokia and Ericson to exit the European market?

### **The future of GVCs from the firms' perspective: relocation, regionalization and just-in-time manufacturing in CESEE?**

In his introductory words, the chair of the first session on the second conference day, *OeNB Executive Director Eduard Schock*, cited examples of supply chain problems one may encounter today: For delivery of a new PlayStation, you may need to wait for a couple of months, for a new car a year, and for bike components up to two years. He then raised the question of whether we are indeed embarking on a period of regionalization.

*Professor Giorgio Barba Navaretti from the University of Milan and Sciences Po, Paris*, pointed to the costs of shortening GVCs or nearshoring. As GVCs tend to embody

relationship-specific sunk costs (incurred search costs for good partners), it tends to be quite costly to give up relationships. Breaking up GVCs might be more attractive if trade and transportation costs with distant partners swelled substantially. As to Europe, there is plenty of evidence that CESEE is highly integrated into GVCs; yet, the contribution of domestic value added tends to be quite shallow (e.g. in the motor vehicle industry). If CESEE aimed at a more sophisticated integration, the region would need to upgrade its social and service technologies. While GVC structures in Europe are likely to be resilient, a deepening of these chains and a clear technological overhaul in CESEE currently appear unlikely, in his view.

*James Zhan, Director of the United Nations Conference on Trade and Development (UNCTAD)*, pointed to GVCs' two decades of growth, followed, from about 2010, by tendencies of stagnation. Currently, we are witnessing regionalization pressures. In response to growing geopolitical tensions, GVCs are restructuring and partly reshoring. Against the backdrop of the continuing US-China trade war, national security needs have also been driving GVC diversification. In order to reduce vulnerabilities, governments may play a larger role. In Zhan's opinion, the overall directional trend in international production points toward shorter value chains and greater concentration of value added.

*Xiaolan Fu, Professor at the University of Oxford*, emphasized the importance of digitalized value chains for sustainable post-pandemic GVCs. Lessons learned from COVID-19 and the trade war will push business to build more resilient production systems. Geopolitically determined regionalization is the major underlying trend, as she put it. Chinese firms have experienced a significant positive impact of digitalization on the service sector and have benefited from expansion of 5G and cloud technology. Overall, digital technologies should also be harnessed to facilitate global knowledge flow, especially in a situation where human mobility is still hindered by pandemic-related measures. The green transition may imply a comparative advantage for on- or nearshoring. In the post-COVID-19 world, there may be a "green window of opportunity."

### **Building a smart and green Europe: GVCs and the role of skills**

*Mark Keese, Head of the Skills and Employability Division at the OECD*, chaired the next session on smart and green GVCs. He started off by asking whether the green transition is adding to global disrupting trends that require challenging structural adjustments, or whether it is an opportunity for CESEE economies to be more innovative and more closely integrated into GVCs.

*Michael Landesmann, Professor at Johannes Kepler University Linz*, provided a review of how CESEE economies' integration into GVCs has contributed to convergence, relying, however, on strong specialization in the production phase. He argued that economies may be restricted in moving beyond this specialization, especially in the intra-European context where the potential for further outsourcing is limited. Moreover, in CESEE's manufacturing sectors, restructuring will be employment-saving; however, the region will need to address a legacy of high inequalities within countries both regionally and demographically. Professor Landesmann argued that structural adjustments toward green and smart economies will require active labor market policies and sufficient funds to address these CESEE-specific challenges.

*Olga Strietska-Ilina, Senior Skills and Employability Specialist at the International Labour Organization (ILO)*, highlighted that the pandemic augmented inequality in the labor market with respect to job security, gender and skills. At the same time, awareness of climate-related vulnerabilities intensified, raising demand for green skills and jobs. In addition to developing new skills, Strietska-Ilina stressed the need to reskill workers, i.e. to raise workers' awareness of how their skill set needs to change to work in a greener way. Furthermore, she argued that new skills, such as resilience, change management, problem-solving, innovation and creativity as well as occupational health and safety, have become extremely important during the pandemic.

*Alexandra Bocșe, State Adviser and Head of the Department of Climate and Sustainability at the Romanian Presidential Administration*, provided insights into Romania's experience. She highlighted that the country is involved in the construction of components for wind turbines and has successfully developed regional champions, such as the Renewable Energy School of Skills and a new biofuel plant. At the same time, Alexandra Bocșe stressed that there are a number of regions in the country which are reliant on coal and pollutant industries. Workers in these regions will be strongly affected by the green transition and will require programs to develop new or transferable skill sets. In the subsequent discussion, the three speakers expressed concern about the increasing risk of polarization within countries and highlighted the need for better governance of skill systems and for better cooperation between public and private stakeholders.

### **The future of GVCs from the political economy perspective: strategic autonomy, social responsibility and environmental sustainability**

Past crisis episodes have taught us about the importance of sustainable supply chains, putting the spotlight on the discussion around strategic autonomy of vital production. On top of that, an increasing number of countries has imposed social responsibility and environmental sustainability standards in production. The chair of the final session, *Gabriel Felbermayr, Director at the Austrian Institute of Economic Research (WIFO)*, emphasized the timeliness of the discussion, given recent initiatives at the EU or World Trade Organization (WTO) level. He highlighted three recent factors that are likely to shape future trade policy: (i) the vanishing trust in the global economic system, as trade policy was repeatedly abused for domestic policy objectives; (ii) the increasing use of trade policy to achieve social, environmental and human rights objectives; and (iii) the national attempts to safeguard domestic businesses after the introduction of measures such as CO<sub>2</sub> pricing.

*Maria Demertzis, Deputy Director of Bruegel*, pointed out that the discussion is too narrowly focused on the dimensions of dependency versus strategic autonomy, neglecting related trade-offs: If you are autonomous, you are very predictable but forgo potential efficiency gains, e.g. from economies of scale. A map of the “geography of dependence” shows that the US and the EU are highly interdependent, with both hinging heavily on China. While the EU's dependency on China is concentrated on a small number of items, these have shown to be crucial (including health products or raw materials). For example, 98% of EU imports of rare earths, which are central to any greening strategy of the economy, come from China, limiting scope for diversification. Demertzis warned that a reversal of globalization would disproportionately hurt less advanced countries whose development depends

on their integration into GVCs. We would also give up a key instrument to push important social and environmental goals. Global public goods such as the environment require global collaboration. What we need is thus a narrative of global, fair solutions instead of strategic autonomy discussions.

*David Haugh, Senior Economist at the OECD*, focused on his institution's contribution to increasing pressure on firms, urging them to adhere to certain social responsibility standards in their operations, supply chains and business relationships. The OECD's Multinational Enterprise Guidelines and Due Diligence Guidelines give recommendations for responsible business conduct that apply to firms at home but also to their trading partners and complement respective domestic legislation. From a political economy perspective, this approach has proved to be effective in spite of its voluntary nature: Recent research shows that adverse reports have some negative impact on share prices.

*Robert Koopman, Chief Economist at the WTO*, began by observing that 12% of greenhouse gas emissions are caused by transportation of traded goods. However, producing everything locally would not solve the problem, as less efficient local production may offset the gains from shorter distances. By the same token, domestic production would not fully isolate from the adverse effects of climate change (e.g. hurricanes). Over time, Koopman expects supply chains to become more modular and standardized, providing parts and components that fit into many different products. Current WTO negotiations about sustainable economic growth have revealed diverging views on how to balance responsibilities. With climate challenges being too pressing to wait for a global consensus, groups of countries may push ahead with climate clubs in certain areas.

In his concluding remarks, *OeNB Executive Director Thomas Steiner* emphasized the wealth of interesting presentations and stimulating discussions on the risks and benefits that arise from increasing interconnectedness and on the most promising avenues for future-proofing tomorrow's value chains. After recapping selected key messages to take home from the conference, he thanked the organizing teams, both at the OeNB and the EIB for their efforts. He concluded by expressing his hopes that next year's conference will again be held as an in-person event in Vienna.

# Referees for Focus on European Economic Integration 2019–2021

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