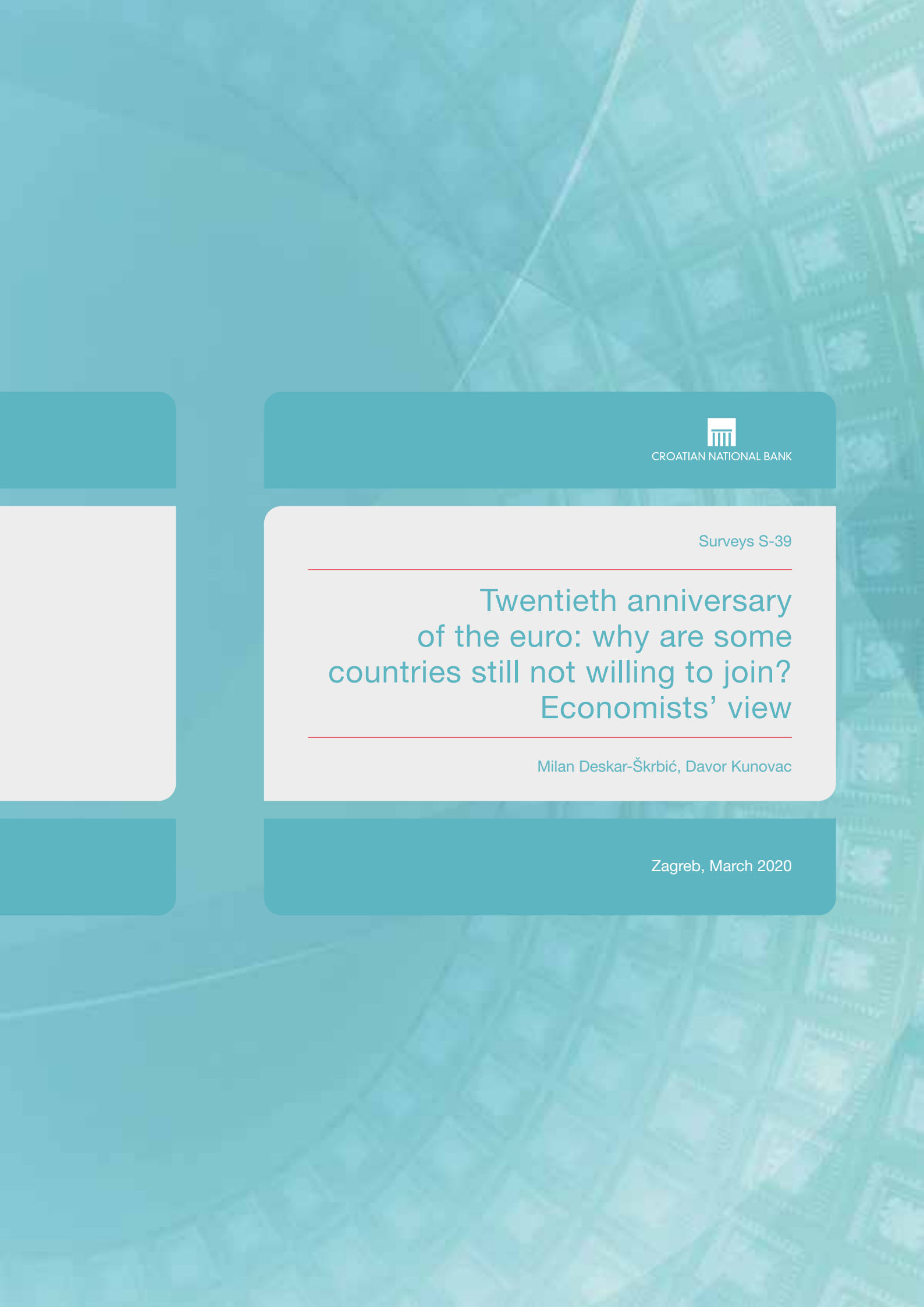

CROATIAN NATIONAL BANK

Surveys S-39

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Milan Deskar-Škrbić, Davor Kunovac

Zagreb, March 2020

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Abstract

Twenty years after the introduction of the euro, some European countries are still not willing to join the monetary union. Sweden, Czechia, Hungary and Poland, although obliged to introduce the euro, decided to postpone this process indefinitely. There are various economic, political, legal, sociological and even emotional factors underlying such a decision. In this paper, we focus on the key economic argument against euro adoption in these countries - the cost of the loss of monetary policy independence. Our results indicate that there already is a high correlation and synchronicity in key interest rates and business cycles between the euro area and non-euro area European countries. Most importantly, our analysis also suggests that business cycles in both groups of countries are predominately driven by the same (*common*) shocks. Following the postulates of the OCA theory, we therefore provide evidence supporting the view that the common monetary policy in these countries would, most likely, be an adequate substitute for national countercyclical policies. Thus, decision of these countries to pursue a *wait and see* approach and stay out of the euro area for now cannot be explained by pure economic reasons.

JEL classification: E32, E52, F45

Keywords: euro area enlargement, economic shocks, BVAR, common monetary policy, Mundellian trilemma

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1 Introduction

While most European countries were eager to join the European Union (EU),[1] the idea of monetary integration still does not appeal to all of them. In this paper, we first review the main reasons underlying their reluctance to join the monetary union. After that, we formally assess whether this choice is supported by more formal economic arguments. More precisely, literature on monetary integration indicates that the largest potential cost of the adoption of common currency is the loss of monetary policy independence, especially in terms of countercyclical reactions to economic developments. Thus, in this paper we test whether the common monetary policy, steered by the European central bank (ECB) could, in fact, successfully stabilize those economies that are currently unwilling to join the monetary union.

Nineteen member states of the European Union (out of twenty seven of them) adopted the common currency and joined the euro area. Out of the remaining eight non-euro area EU members, three of them, Bulgaria, Croatia and Romania, expressed strong interest in joining the ERM II and adopting the euro in the near future.[2] These countries, especially Croatia, are all characterized by high level of financial euroisation. For that reason, private and public debt in these countries is highly sensitive to exchange rate risk and the possibilities for autonomous monetary and exchange rate policy in these countries are thus already fairly limited. In that context, euro adoption seems like a viable and reasonable policy option for the three countries (for details see Deskar-Škrbić, Kotarac and Kunovac, 2019).

Thus, there are still *five* European countries that are not willing to give up their monetary sovereignty. Among them, Denmark is not legally bound to adopt the euro (opt-out clause). On the other hand, Sweden and the remaining three new member states, Czechia,

[1] Only two countries, Switzerland and Norway, did not wish to join the EU, while countries from South East Europe, which are still not members of the EU, clearly see the EU membership as a strategic goal.

[2] Croatia and Bulgaria sent a letter of intent for the participation in the ERM II, while Romania adopted a strategy for euro adoption and set the official target of joining the euro area in 2024 but recent reports indicate that this date would more probably be the date of accession to the ERM II.

Hungary and Poland, are legally bound to adopt the euro at some point.[3] However, these countries decided to postpone this process indefinitely and are therefore in the focus of our analysis. We will label these countries as the four non-euro area member states (four NEAMS).

There are various reasons why these countries are still not rushing to adopt the euro. Some of them are political, some are sociological, and some are emotional. Although all very important, sometimes crucial for shaping the attitude towards joining the monetary union, these reasons are not of primary interest to us. Rather, in this paper, we are interested in the key hard argument against the euro adoption in the four NEAMS – the potentially large costs of the loss of an independent monetary policy. As Eudey (1998) and Alesina, Barro and Tenreyro (2002) point out, among all the costs of euro adoption, the loss of monetary policy independence is the largest.[4] Thus, the key policy question in this context is: would euro adoption lead to significant loss in terms of the possibility of *countercyclical reaction* of monetary policy? To address this question, we follow two approaches.

To motivate our analysis, we first look at developments of key policy rates in the euro area and the four NEAMS. In this way, we initially assess the independence of monetary policy in these countries, during and after the crisis. Here, we follow the definition of monetary policy independence as the ability of the national central bank to set key policy rates independently of international rates (Obstfeld, Shambaugh and Taylor, 2005; Aizenman, Chinn and Ito, 2013). The limits to independence of monetary policies in countries with fixed exchange rates are well understood. However, contrary to the standard propositions of the *monetary policy trilemma* (Mundell, 1961), countries with inflation targeting and floating exchange rate regimes can also have very limited monetary policy independence.

[3] By the provisions of the EU Accession Treaty.

[4] De Grauwe and Lavrač (1999) emphasize that it would be odd if countries put a lot of effort in EU accession, but were then not willing to participate in its crowning project, the EMU, because they felt that the implied loss of their monetary sovereignty was too high a sacrifice. In their view, by applying for EU membership, the new member states agreed to give up their monetary sovereignty.

The *fear of floating* argument is usually used to explain this (Calvo and Reinhart, 2002; Frankel, Schmukler and Serven, 2004). Countries like Sweden, Czechia, Poland and Hungary, all inflation targeters and strongly financially integrated with the euro area[5], thus can have limited manoeuvring space for setting national key monetary policy rates independently of the euro area key rates. Indeed, a strong deviation of key rates can trigger capital flows, which then may affect exchange rate developments and can endanger the compliance with inflation targets and/or have destabilizing effects on external balances. In addition, Rey (2015) emphasizes the role of financial flows in today's integrated world, which can turn the Mundellian trilemma into the *Mundellian dilemma*. Besides these theories, the high correlation and convergence of key interest rates we often observe between small open economies and large currency areas can also result from increasing *business cycle synchronization* (Frankel and Rose, 1998) and/or reactions to some common determinants of GDP and inflation. In that sense, the similarity in key interest rates does not necessarily reflect a lack of independence in an institutional sense, but a similar reaction to *common shocks* hitting the two economies (Goczek and Mycielska, 2019).

Our second approach therefore naturally builds on the optimum currency area (OCA) literature. This literature emphasizes that the loss of monetary policy independence should not be too costly if: (i) business cycles and economic shocks between NEAMS and the euro area are synchronized and coherent (Bayoumi and Einhengreen 1992, 1993, 1994; Mongelli, 2002); (ii) if non-euro area countries and the euro area are hit by symmetric shocks (Peersman, 2011); and (iii) if non-euro area countries react to the ECB shocks in a manner similar to that of the euro area (Feldkriecher, 2015). If these conditions are all met, the common countercyclical monetary policy should be suitable for potential new euro area members and the cost of the loss of monetary policy independence would be small. To address these questions, we rely on a small open economy Bayesian SVAR model. Our structural model is identified by imposing a number of sign and zero restrictions onto

[5] See Orlowski and Tsibulina (2014).

impulse response function. This model allows one to calculate and compare the relative importance of *common* and *idiosyncratic* shocks for business cycle developments among countries and to compare the effects of ECB monetary policy shocks in the euro area with the same effects in non-euro area countries. For details about the model see Deskar-Škrbić, Kotarac and Kunovac (2019).

The paper is structured as follows. After the introduction, in the second section we briefly review the evolution of the idea of the European single currency. Then, the third section focuses on how the public sentiment on euro adoption changes over time in Sweden, Czechia, Hungary and Poland. In order to provide some context to these observations we also compare the public support for euro adoption in these countries with the support for the euro in euro area members. Also, we provide a brief overview of the most important reforms of the euro area implemented so far and stress the importance of reforms that are still pending. The fourth part analyzes monetary policy measures in the crisis and the post-crisis period in the four NEAMS, while the fifth part finally studies the relevance of the euro area (common) shocks for the business cycle and consumer inflation in non-euro area countries. The last section summarizes key findings and provides a policy discussion and conclusions.

2 Brief history of the idea of the single European currency

The motives for European integration, after World War II, were primarily political in nature, with the goal of ensuring long-term stability and peace on the European continent. However, the process of integration started with economic integration, while political integration evolved gradually over nearly forty years. Thus, to understand the history of the euro one has to understand the political economy of the EU. As Padoa-Schioppa (2004) points out: *...despite its predominantly economic content, the EU is an eminently political construct; even readers primarily interested in economics would hardly understand the euro if they ignored its political dimension.*

Economic integration started in 1951 with the establishment of the European Coal and Steel Community and then the European Economic Community in 1957. The aim of these organizations was to support economic integration through the abolition of trade barriers and definition of a common agricultural policy. The first attempt to create the European Economic and Monetary Union (EMU) dates to 1970 and the Werner Report. The creation of the EMU was then proposed in three stages, towards the end of the 1970s. However, Nixon's decision to suspend dollar's convertibility into gold in 1971 and the oil shock in 1972 led to notable economic and exchange rate disturbances in Europe and significantly postponed the original proposition of EMU creation.

After the failed attempt to stabilize European currencies through the *snake in the tunnel* arrangement of 1972, in 1979 European leaders established the European Monetary System (EMS). One of the key cornerstones of the EMS were the European currency unit (ECU) and the Exchange Rate Mechanism (ERM), which were replaced by the euro and the ERM II in 1999. Exchange rate stability was seen as the prerequisite of the long-term convergence and smooth functioning of the future common market. The Single European Act and the Delors Report of 1989 intensified discussions and provided a firm legal and conceptual background for the creation of the EMU, which was adopted in the formulation of Maastricht Treaty in 1992.

The Maastricht Treaty resulted in the creation of a political union, the EU, and final definition and operationalization of the three stages of the EMU. The first stage of the EMU broadly entailed further development of the single market, coordination of economic policies and the introduction of full freedom of movement of capital. The second stage consisted of the implementation of relevant legislation related to convergence criteria, broad economic policy guidelines, excessive deficit procedure (EDP), central bank autonomy, tighter fluctuation margins for national currencies etc. The third stage started with the introduction of the euro as the *book currency* in 1999 in the first eleven euro area members and formally by the introduction of euro coins and banknotes in 2002.

Thus, the introduction of the euro is often seen as a *cherry on top of the pie* of European integration process. However, as we will show in the next section, it seems that policy makers in some NEAMS, at least occasionally, are not convinced by the arguments for full integration on European continent and are not willing to adopt the common currency. On the other hand, the architecture of the euro itself is not yet solid and more has to be done to make the euro area more resilient to internal and external shocks, which we discuss in more detail later in the text.

3 Why are some countries not willing to adopt the euro (yet)?

In this section we briefly explain the evolution of the idea of euro adoption in Sweden, Poland, Hungary and Czechia. Most importantly, we also illustrate how these countries' stance towards euro adoption has not been constant. Although it seems that public sentiment against euro adoption is relatively strong in these countries following the euro area crisis, historical experience suggest that some future developments may easily swing the pendulum back *in favour* of the euro option.

Sweden

Discussions on the euro membership of Sweden, the last old EU member state outside the euro area with no *opt-out* option, disappeared from the political agenda after the referendum on euro adoption in 2003. On that occasion, 56% voted against membership in the euro area. According to Reade and Volz (2009), one of the key factors that shaped voters' decision was the prevailing perception that euro adoption is a threat to national independence, especially in the context of transferring monetary policy independence to a pan-European body. For that reason, no political option in Sweden has tried to put the question of euro adoption back on the political agenda since then. This is largely

understandable from their point of view - public support for the euro is one of the lowest among non-euro area countries, standing around 40%.

New member states

The euro story of the new member states Poland, Hungary and Czechia is on the other hand more complicated. After joining the EU in 2004, these countries discussed euro adoption extensively at both political and academic levels. In addition, governments and central banks adopted various strategic documents, with the aim of introducing the euro in a relatively short period.

Poland In 2004, Poland adopted the Report on the costs and benefits of Poland's adoption of the euro. The conclusions of the report were that the *balance of costs and benefits of joining the euro area would be positive and that the cost of losing an independent monetary policy after euro adoption would be small and the benefits large* (pp. 9). In 2008, the then government set 2012 as the target year for joining the euro area. In 2010, Poland adopted the Strategic Framework for National Euro Changeover Plan, with similar conclusions that the benefits outweighed the costs of euro adoption. However, the euro area crisis strongly affected public and policy makers' perception and postponed the relevant political processes related to preparations for euro adoption. The global financial crisis and the euro crisis also affected Poland's compliance with nominal convergence criteria. On the other hand, it also revealed some important structural deficiencies of the euro area during the crisis, which also strongly changed the overall perception of the euro. In addition, the Polish zloty strongly depreciated during the crisis, which was seen by many as an important stabilization factor and thus the argument for keeping the national currency. The final major setback on Poland's road to the euro area were the parliamentary elections in 2015, in which the Eurosceptic Law and Justice party won and formed the government. As for the support for the euro, public opinion in Poland is divided, as last data indicate

that 50% of Polish people are against euro adoption (Flash Eurobarometer, April 2019).

Hungary The Hungarian central bank published a cost-benefit analysis of euro adoption in 2002 (Csajbok and Csermely, 2002), with the conclusion that the benefits of euro introduction would outweigh the costs and that euro adoption should not be postponed for a long period of time but that the process of adjustment towards nominal convergence criteria (especially price and fiscal stability) should be gradual. In the Pre-accession Economic Program (PEP) in 2003, the then government set a date for euro adoption: January 2008. However, Hungary was strongly hit by the global financial crisis, and required the financial assistance of the IMF, the EU and the World Bank.[6] Worsened economic conditions and political tensions triggered by the need for notable consolidation led to changes on the political front, with Eurosceptic Fidesz winning the parliamentary elections in 2010, with an absolute majority of seats in the parliament. The new political option, still in power in 2019, firstly decided to postpone euro adoption until the end of the decade, while the current political tone suggests that euro adoption in Hungary has been removed from the political agenda indefinitely. Officially, the ruling party communicates that the biggest obstacle for the euro adoption in Hungary is relatively low level of real convergence with the euro area. While policy makers, both the government and the central bank[7], oppose euro adoption in Hungary, 66% of the public express support for the introduction of the euro (Flash Eurobarometer, April 2019).

Czechia Finally, in Czechia, in 2003 the government and the Czech National Bank (CNB) adopted a joint document, the Czech Republic's Euro-area Accession Strategy with the conclusion that the country *should join the euro area as soon as economic conditions allowed it to do so* (pp. 1), which was also translated to the Pre-accession Economic Program. The

[6] It is also worth noting that after seven years in which the EUR/HUF exchange rate was kept within a margin of +/-15% around the central parity, in 2008 Hungary adopted a free float exchange rate regime.

[7] See the column written by the governor of the Hungarian national bank for Financial times, *We need to admit the euro was a mistake.*

time frame for the introduction of the euro was set to around 2009 or 2010. One of the key elements of the Accession Strategy was commitment of the government and the CNB to annually assess the readiness of Czechia to introduce the euro. For that purpose, they focused on the analysis of the nominal and real convergence of Czechia's economy with the euro area and adjustment mechanisms published in official annual documents. In 2005, the government established the National Coordination Group for the Introduction of the euro and in 2007 the government and the CNB published an updated Accession Strategy and National Euro Changeover Plan for the Czech Republic. Both documents recognized many advantages of euro adoption but the assessment was that the economy had not achieved the adequate level of convergence, in nominal, real and structural terms to benefit from introduction of the euro. The global financial crisis and the euro area crisis affected fulfilment of nominal convergence criteria but also, as in other countries, changed the perception of the *attractiveness* of the euro. During that period there were also strong messages against the euro from some influential political leaders, such as the Eurosceptic president Vaclav Klaus who declared that the euro was a failed project and proposed that the Czech government should try to negotiate an opt-out clause like Denmark. In addition, the Czech koruna depreciated during the crisis and in 2013 the CNB intervened on the market to depreciate the koruna and ease monetary conditions, thus actively using the exchange rate as a monetary policy instrument. Exchange rate was recognized as an important monetary policy instrument, especially in the environment of the zero lower bound (ZLB) (Baxa and Šestorad, 2019). The current Czech government did not put the euro adoption on the policy agenda, which is not surprising, given the low public support for euro adoption of only 39% (Flash Eurobarometer, April 2019).

Summary of arguments against euro adoption

To summarize, main arguments against euro adoption may be divided into three groups. First, regarding monetary policy independence in a broader sense, policy makers and the

public in general recognized the importance of the exchange rate as a stabilizing and/or growth-promoting factor. That may be especially appealing in countries with low levels of euroisation and also in a ZLB environment. Good examples of these countries are Poland, Hungary and Czechia, where credit euroisation stands around 10%-25%. In contrast, in countries like Bulgaria, Croatia and Romania strong depreciation of local currency could endanger financial stability due to the high level of euroisation (40%-60%) and the use of the FX clause (Dumičić, Ljubaj, Martinis, 2017). Second, the experience of euro area periphery countries during the euro crisis emphasized the importance of the real income convergence, structural convergence and adjustment mechanisms. This led NEAMS to pay more attention to these factors in discussions on the readiness to join the euro area instead of to the nominal convergence highlighted in the pre-crisis period. Finally, support for the euro area significantly fell during the euro crisis. As the crisis was triggered within the euro area (Buti, 2020; Wyplosz, 2017; De Grauwe and Ji, 2013) and had most severe effects on the euro area members, NEAMS perceive they are better-off if they stay out of the common currency area. This crisis motivated the implementation of various reforms that we shall discuss in more detail in the next section. The European Commission also published its strategic documents, the Five Presidents Report and the Reflection Paper on the Deepening the Economic and Monetary Union. With these documents European leaders committed themselves to the building of stronger and more inclusive euro area institutions, through the creation of the Banking Union, the Capital Union, the Fiscal Union and other new institutions of intergovernmental coordination and collaboration in the euro area. If implemented, these reforms should make the euro area a more attractive option for non-euro area members. With these reforms European leaders also wanted to stimulate the remaining NEAMS to adopt the euro by 2025, by making them an *offer they cannot refuse*.[8]

There are also other factors that shape the stances of policy makers and the public

[8] Famous statement by the European Commissioner Pierre Moscovici at the presentation of the Report.

towards the euro in these countries. Palankai (2015) stresses the importance of cultural and emotional factors, mostly related to respect for the national currency, political and procedural factors (e.g. in Poland and Hungary euro adoption requires changes in the Constitution), geostrategic factors and media influence (in many non-euro area countries the media are not interested in or not in favour of the euro). Hampl (2018), presenting arguments from Czechia, additionally points to the fact that the euro as a currency does not have a firm basis in a *state*, or uniform political entity, and that if there is no prospect of complete political integration in the EU then there is no need for a common currency at all. As he puts it, with the euro introduction *European leaders started to build a house from the roof.* Dandashly and Verdun (2016) point to various political factors, such as governments' stance on the euro adoption, constitutional challenges, relations between governments and central banks etc. However, although there are many political, social, emotional and cultural factors that shape the stance towards the euro, the aforementioned economic factors dominate policy makers' debates and academic literature, the path we also follow in this paper.

Euro area after the crisis: reforms and remaining weaknesses

As we have noted, one of the most important arguments against joining the euro area is the perceived weakness and fragility of the architecture of the euro area during the crises of late 2000s. It is well documented in the literature that the period from 2008 to 2012 was characterized by capital flow reversals, banking crises, sovereign-bank doom loops, liquidity crisis, financial contagion, sovereign default (Greece), rise of re-domination risk and inadequate or delayed policy responses (for detailed analysis of the euro area crisis see Baldwin and Giavazzi, 2015 and Whelan, 2019). As already shown, these factors notably affected both the perception and the attractiveness of euro area membership for the NEAMS.

However, one could argue that the euro area of 2020 differs substantially from that of

2008. European policy makers have put a lot of effort into developing various risk-reduction and risk-sharing mechanisms, aimed at prevention and mitigation of future crises. Firstly, macroeconomic and fiscal surveillance in the EU changed drastically. Reforms in this area (Sixpack, Two-pack) strengthened both the preventive and the corrective arm of the Stability and Growth Pact (SGP) and contributed to better coordination of economic policies among EU member states. Fiscal governance framework was additionally strengthened by the so-called Fiscal Compact. Although these reforms apply to all EU member states, there are many provisions that are stricter for euro area members (e.g. annual draft budgetary plans that have to be approved by the EC). Secondly, as many euro area countries have experienced various pressures in their banking sectors, with some countries bailing out systemic banks, European policy makers made important reforms in the area of bank surveillance and resolution mechanisms by introducing the single rule book, Single Supervisory Mechanism (SSM), new Single Resolution Mechanism (SRM), Capital Requirements Directive (CRD IV) etc. SSM and SRM are now two important pillars of the Banking Union. In addition, due to national and supranational factors, banking systems in the euro area countries are currently more resilient (increased capitalization, capital buffers, reduced concentration risks, reduced NPLs etc.) than in the pre-crisis and crisis period. Thirdly, European leaders developed an important financial safety net and some form of a risk sharing mechanism through the European Stability Mechanism (ESM). The ESM can provide (conditional) financial assistance to sovereigns in severe financial distress and mitigate stress on debt capital markets through purchases on the primary and secondary market. Fourthly, there were major changes in the ECB's monetary policy framework that led to introduction of various new standard and non-standard monetary policy measures (e.g. negative (deposit) interest rate, (targeted) longer-term refinancing operations ((T)LTRO), asset purchases program (APP), forward guidance and, never used but fairly effective[9], outright monetary transactions (OMT)). Such a toolbox allows the ECB to re-

[9] Announcement of the OMT led to stabilization and strong compression of bond yields (Draghi, 2019).

act to shocks in a timely manner and more effectively than ever before. Finally, there has also been progress on a broader financial stability agenda through the operations of the European Systemic Risk Board (ESRB) and the European System of Financial Supervisors (ESFS). All these reforms led to the development of a new financial and prudential architecture that makes the euro area more resilient and reduces the possibility of the creation of endogenous and the amplification of exogenous shocks.

Regardless of this progress, the euro area reforms are far from being complete. There are still many active risk factors and potential triggers of future crises. A very influential policy paper, Benassy-Quere et al. (2018), points to some existing weaknesses of the euro area. These include high sovereign debt, the still high stocks of NPLs in some countries, high exposure of many banks to the debts of their own governments, the incomplete Banking Union (there is still no agreement of the third pillar – a single deposit insurance scheme) and fragmented capital markets (there is very limited progress on the formation of the Capital Markets Union). Szczepanski (2019) additionally emphasizes the role of still pronounced macroeconomic imbalances in the euro area and slowdown in convergence. Whelan (2019) sees room for additional improvement in sovereign debt restructuring mechanisms. In addition, this author sees a need for reforms of the institutional framework that would allow the ECB to act as a real lender of last resort as current emergency liquidity assistance (ELA) framework relies on national central banks and has many constraints that reduce its effectiveness. On the fiscal front, many authors see a need for reforms of the euro area fiscal rules, which are complex and pro-cyclical (e.g. Beetsma et al., 2018; Feld et al., 2018). The biggest challenge, and one of the largest sources of dispute among European policy makers, is the introduction of some centralized fiscal authority and/or transfers scheme that could support euro area countries hit by idiosyncratic shocks and act as a common tool of macroeconomic stabilization (e.g. Domenech, Iglesias and Steinber, 2018). On the other hand, many economists point out that efforts to create the Fiscal Union are not plausible (Eichengreen and Wyplosz, 2016) or that they are not needed because prudent

national fiscal policies can effectively absorb idiosyncratic shocks (Heijdra et al., 2018). Finally, structural reforms that would make euro area countries more resilient, flexible and competitive and lead to even stronger structural and business cycle synchronization are slow and there is evidence that the pace of reforms additionally decreased in the post-crisis period (Pierluigi and Sondermann, 2018).

Having in mind that there are still some uncertainties surrounding the future of the euro area some NEAMS decided to pursue the so-called *wait and see approach* (Binzer Hobolt and Leblond, 2009). Thus, provided that European policy makers continue with the reforms and stay committed to the agenda that they laid down in the Reflection Paper on the Deepening of the Economic and Monetary Union, we can expect that euro adoption will become a more appealing option for non-euro area countries.

Attitude towards the euro in the euro area

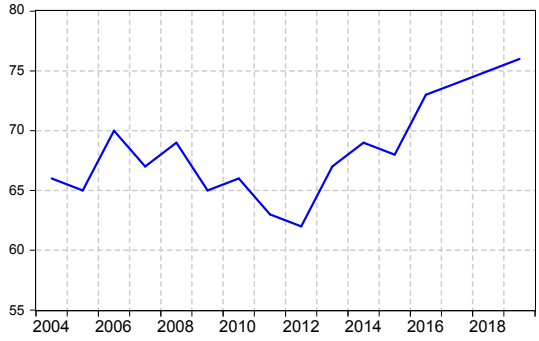
Public support for the euro varies across countries and over time. However, in this discussion it is useful briefly to analyze views of the *insiders* that already have undergone the transition from monetary policy independence to the common currency area. Their view as one of a *control group* is particularly relevant in this context – should member states recognize their membership in a currency union as having been overly costly, one would probably observe a growing negative sentiment towards the single currency.

According to the results of the latest Eurobarometer survey on the euro area, a strong majority (76%) of respondents think that the single currency is *good* for the EU. This is the highest support since the introduction of euro coins and banknotes in 2002 (Figure 1). Also, a majority of 65% of citizens across the euro area think that the euro is beneficial for their own country, which is also the highest number ever recorded. Thus, it seems that euro area insiders see many benefits of the euro even after the crisis of the euro area in 2010s. Although these numbers send a relatively strong message, for the discussion on euro adoption in NEAMS, the most valuable experience may be that of new member states that

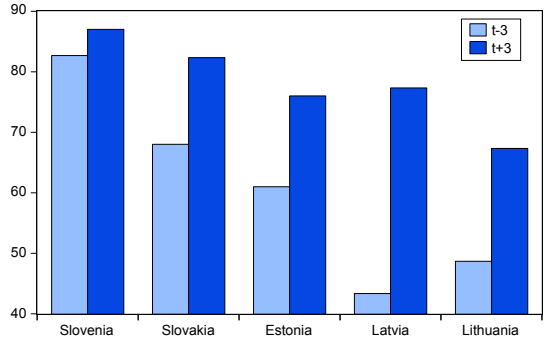
adopted the euro after 2004.

Figure 1: Support to the EMU and the euro

(a) Euro area countries



(b) NMS in the euro area three years before and after the euro adoption



Source: Flash Eurobarometer

Slovenia introduced the euro in the pre-crisis 2007, Slovakia during the deepest part of the global recession in 2009, Estonia during the euro crisis of 2011, while Latvia and Lithuania joined the common currency area in the post-crisis, 2014 and 2015, respectively. For some countries, euro adoption was not too challenging (Slovenia and Slovakia that had fulfilled criteria in the years before the crises), while some countries could not fulfil the convergence criteria for almost or more than ten years (Latvia and Lithuania), as they were affected by the effects of the global financial crisis and the euro crisis. Despite different experiences on the path towards the euro area and in the timing of euro adoption, in all these countries support for the euro increased after the adoption. Figure 1 (b) illustrates how average support for the euro during the three years following euro adoption (t+3) is in all cases larger than that in three years prior (t-3) the euro adoption.

Thus, these results support the view that when the euro ceases to be a relevant political topic and when it becomes an economic reality, public support for the euro increases. However, it is important to emphasize that these countries started to participate in the

ERM II mechanism immediately after the accession to the EU and pegged their currencies to the euro.[10] Thus, the monetary policy independence in these countries was fairly limited, which notably affected the perception of the losses that euro adoption could entail in this context. On the other hand, Sweden, Poland, Hungary and Czechia pursue an inflation targeting regime with floating exchange rates that ensures them (some degree of) monetary policy independence. We turn to this question in the next section.

4 Monetary policy independence in the non-euro area countries: fact or a myth?

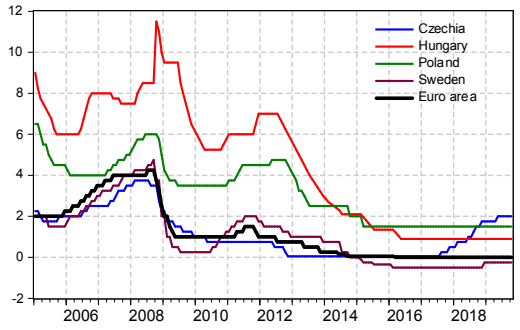
Independence of (conventional) monetary policy is usually defined in the context of the Mundellian trilemma, as a possibility for a small open economy to set key policy rates independently from international rates (Obstfeld, Shambaugh and Taylor, 2005; Aizenman, Chinn and Ito, 2013). However, the aforementioned literature provides evidence that strong trade and financial integration among small open economies and major currency areas can undermine the key propositions of the Mundellian trilemma. In other words, even countries with floating exchange rates cannot implement fully independent monetary policies. In addition, if the same shocks hit both a small open economy and the large currency area their key policy rates will tend to move in a similar manner. In this context, we look at (dis)similarities between key policy rates in euro area and four non-euro area members under analysis. Figure 2 shows key monetary policy rates in the euro area and Sweden, Poland, Hungary and Czechia together with deviations of GDP from the HP-trend, as an approximation of their business cycles.

Figure 2 (a) points to a relatively high correlation between the euro area main refinancing rate and key policy rates in the four NEAMS (see correlation analysis in the Appendix). The period covering the mid-2000s up to 2008 is characterized by restrictive

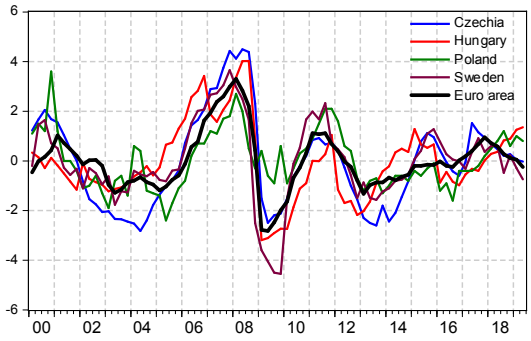
[10] Slovenia June 2004, Estonia June 2004, Lithuania June 2004, Slovakia May 2005, Latvia May 2005.

Figure 2: Monetary policy rates and business cycles

(a) Key rate



(b) Business cycles



Source: National central banks; Eurostat; authors' calculations

monetary policy stances in the euro area and the four NEAMS. After that, in all countries there were strong cuts in interest rates in the second half of 2008 and in 2009, then a period of gradual increase of policy rates during the short-lived recovery in 2010-2011, and finally a shift back towards the expansionary monetary policy stance during the euro area crisis in 2011 and 2012. These events led to greater convergence in levels of key interest rates, as Hungary and Poland brought interest rates below 2%. Correlation of interest rates is not surprising given the high correlation of business cycles between the euro area and the four NEAMS, illustrated in Figure 2 (b). As previously noted, if the euro area and the NEAMS are hit by some common shocks, as they were in the past, the reactions of the ECB and central banks in the non-euro area countries will be very similar. In other words, if the two economies have sufficiently synchronized business cycles, a common monetary policy is likely to be successful in stabilizing both economies. In the post-crisis period, key policy rates remained fairly similar, but as the euro area and some non-euro area countries touched the ZLB, countries started to use unconventional policy measures such as asset purchase programs (the euro area and Sweden), negative key policy rates (Sweden)

or exchange rate floors (Czechia).[11] Also, due to decoupling of inflation rates in the recent period (see Appendix) some countries started to tighten their monetary policy stance (Czechia)[12], while the ECB launched a new round of asset purchases and pushed money market rates further into negative territory.

This post-crisis period may thus support the argument that the non-euro area countries have manoeuvring space in terms of monetary policy independence. For example, Jordan (2016) uses the experiences of Switzerland, Czechia, Sweden and Denmark to provide examples of independent monetary policies in the euro neighbouring countries, but focuses mostly on crisis and post-crisis monetary policy moves by the Swiss National Bank. He emphasizes the importance of both the conventional and the unconventional monetary policy instruments used by these countries from 2008. He concludes that experiences of these countries show that non-euro area countries can pursue independent monetary policies as they can change interest rates at different points of time than the ECB and can use various unconventional monetary policy measures, suitable for their specific purposes.

Despite the developments during the last couple of years, in a twenty-year period since the introduction of the euro, business cycles and interest rates in the euro area and the non-euro area countries showed a great degree of correlation and synchronicity. Also, there was a notable convergence in the levels of interest rates. Thus, it seems that business cycles in these countries were largely determined by common and not country-specific, idiosyncratic shocks. We test this proposition in the next section in a more formal way.

[11] Czechia implemented non-conventional monetary policy measures aimed at depreciation of nominal exchange rate in 2013 and commitment to the higher level of EUR/CZK till April 2017 (Baxa and Šestorad, 2019)

[12] Despite the high interest rate differential there are no appreciation pressures on Czech koruna, which points to lower international capital flows, mostly due to increased uncertainty regarding Brexit, trade war, economic prospects etc.

5 Role of common (*ECB-relevant*) shocks in the non-euro area countries

5.1 Model - BVAR with sign and zero restrictions

OCA theory postulates that the cost of the loss of monetary independence should not be pronounced provided economic shocks across countries within the monetary union are sufficiently synchronized. The coherence of economic shocks can be understood as a *catch-all* property of OCA (Mongelli, 2002) as it captures the interaction between several OCA properties, such as business cycle synchronization, mobility of factors of production or similarity of economic structures. In this sense, a high coherence of economic shocks suggests that common monetary policy could be suitable for all countries in the monetary union. In addition, OCA theory posits that the cost of losing monetary policy autonomy is low for those countries in which economic activity is mostly driven by the same shocks driving economic developments in the monetary union.

Thus, following Peersman (2011), Kotarac, Kunovac and Ravnik (2017) and Deskar-Škrbić, Kotarac and Kunovac (2019), in this section we investigate the role of euro area shocks in business cycle dynamics in the four NEAMS. For that purpose, for each non-euro area country under analysis - Sweden, Poland, Hungary and Czechia - we first specify a small open economy Bayesian SVAR model and identify a number of domestic and common shocks. Identification of structural shocks is based on zero and sign restrictions [13] and allows one to distinguish between the shocks that affect both the euro area and the four NEAMS (*common*) and domestic (*idiosyncratic*) shocks. Common shocks can originate either within the euro area or globally, but for our purposes it is only important that these shocks drive the business cycle of the euro area and are relevant for the ECB. For that reason, we can also label them as *ECB-relevant* or euro area shocks. Our main objective is therefore not to provide a sharp identification strategy to distinguish between

[13] See Arias et al. 2014. and Arias et al. 2018.

all possible shocks hitting the economy. It is rather to isolate precisely common shocks from those originated domestically. Such a distinction is sufficient for an assessment of how synchronized different economies really are. Domestic shocks are country specific and are identified by imposing block exogeneity restrictions together with sign and zero restrictions.

The identification strategy we employ is largely based on mainstream macroeconomic theory and recent related empirical literature (see for example Forbes et al., 2018, Comunale and Kunovac, 2017, Bobeica and Jarocinski, 2017). Details about the model regarding Bayesian estimation, the choice of prior distributions or implementation of block exogeneity assumption can be found in Deskar-Škrbić, Kotarac and Kunovac (2019).

Identified euro area shocks are labelled: the aggregate demand (EA AD), aggregate supply (EA AS) and monetary policy shocks (EA MP). Sign and zero restrictions imposed onto impulse response functions are all very standard and uncontroversial. An expansionary aggregate demand shock increases both economic activity and prices in the euro area. Monetary policy then acts counter-cyclically and raises the policy rate. In contrast, an aggregate supply shock has the opposite effect on economic activity and prices in euro area - it raises GDP and lowers consumer inflation, while the reaction of monetary policy here is left unrestricted. Finally, an expansionary monetary policy shock increases both economic activity and inflation. We impose no restrictions on how non-euro area variables react to euro area shocks and thus allow the data to *speak freely* in this context.

For all countries of interest, we identify short run domestic aggregate supply (DOM AS) and domestic aggregate demand (DOM AD) shocks in similar fashion as for the euro area: correlation of economic activity and prices is positive following the demand shock and negative in the case of supply shocks. For each non-euro country, we assume that their shocks cannot influence the euro area at any horizon. In practice, this is implemented by imposing zero restrictions at impact (t=0), but also by restricting coefficient matrix in a VAR appropriately to prevent the propagation on subsequent horizons. A summary of our identification strategy is given in Table 1.

Table 1: Restrictions for identification of structural shocks

Shocks/Variables	GDP EA	HICP EA	IR EA	GDP DOM	HICP DOM
EA AD	+	+	+	?	?
EA AS	+	-	?	?	?
EA MP	+	+	-	?	?
DOM AD	0	0	0	+	+
DOM AS	0	0	0	+	-

In our applications, the euro area block includes: euro area GDP (GDP EA), euro area prices (HICP EA) and measure of the ECB monetary policy stance (IR EA). The monetary policy rate used is a shadow rate that corrects the EONIA rate by taking into account unconventional monetary policy actions of the ECB. Variables included in the domestic block are domestic GDP (GDP DOM) and inflation (HICP DOM). Details on data used in our analysis can be found in Appendix. All models are specified in log differences and estimated at quarterly frequency on the fifteen-year period 2004Q1- 2019Q2[14], using two lags.

To assess the relative importance of domestic and common shocks for each country, we rely on the historical decomposition from the estimated SVARs. The historical decomposition in a SVAR decomposes each endogenous variable y into contributions of all identified shocks. The contribution of shock k to variable j at period t can be calculated as the product of impulse responses and identified shocks:

$$y_{jt}^{k} = \sum_{h=0}^{t-1} \psi_{jk,h} \cdot \varepsilon_{k,t-h.} \tag{1}$$

Based on historical decomposition, we define measure of *relative importance* (in absolute terms) of some shock k to non-euro area variable j at t as:

$$\widetilde{y_{jt}^{k}} = \frac{\left| y_{jt}^{k} \right|}{\sum_{l=1}^{n} \left| y_{jt}^{l} \right|}. \tag{2}$$

[14] Czechia, Hungary and Poland joined the EU in 2004.

Now, our measure of *the overall importance* of common shocks ($k = 1, 2, 3$) for some domestic macroeconomic variable j at period t is the sum of contributions of these shocks:

$$share\_common = \sum_{k=1}^{3} \widetilde{y_{jt}^{k}}. \tag{3}$$

The contribution of idiosyncratic shocks is then $1 - share\_common$.

5.2 Results

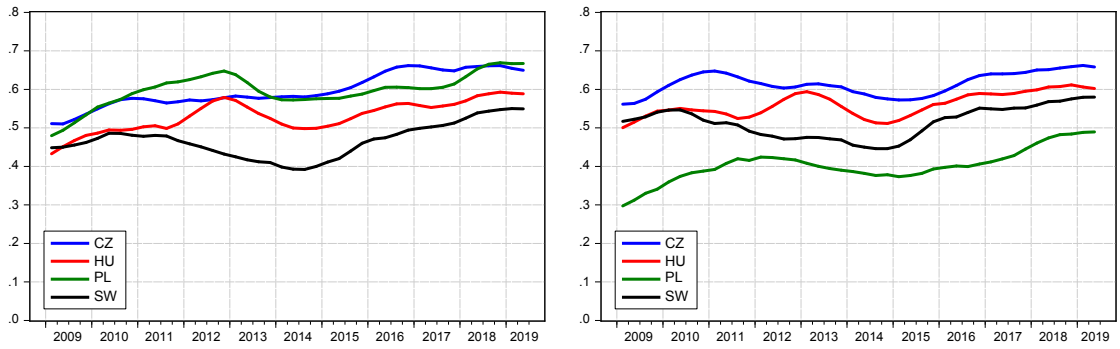
Figure 3 compares the overall importance of common shocks for the four NEAMS over time. The figure indicates that common shocks have been important, often dominant, drivers of business cycles and inflation in the four non-euro countries. Common shocks explain close to 70% of the overall dynamics of consumer inflation in Czehia and Poland and somewhat less in the two remaining countries. If GDP is considered, common shocks are again important and in most countries explain between 50% and 70% of overall dynamics during the recent period. Poland is an exception here, as a country where common shocks still explain slightly less than 50% of the overall movements. This can be attributed to the relatively low level of trade openness and limited integration of Poland in global value chains (GVC) (see Appendix). However, with rising share of exports and imports in GDP and convergence towards the euro area we may expect the contribution of common shocks in this country to become more pronounced. In this sense, common monetary policy may also become a viable option for Poland, especially as some authors point to the already fairly limited monetary policy independence in this country (Goczek and Mycielska, 2019).

An important finding of our analysis is that the overall importance of common shocks has been increasing over time for both consumer inflation and GDP. This finding supports the view that there has been a convergence of business cycles within the EU (Canova and Ciccareli, 2012) but also points to the possible existence of a global business cycle driven by global common shocks (Kose, Otrok and Prasad, 2012; Rey, 2015; Huo, 2019). Our results fit also very well into the existing literature that points to a high degree of correlation of

economic shocks and business cycles between Central Eastern European (CEE) countries and the euro area (e.g. Fidrmuc and Kordhonen, 2004; Horwath and Ratfai, 2004; Frankel, 2005; Fidrmuc and Kordhonen, 2006; Broz, 2008; Ben, 2009; Stanisic, 2013).

Figure 3: Contribution of common shocks to GDP and inflation

(a) Consumer inflation (b) GDP growth



Source: Authors' calculations

Our analysis illustrates the importance of common shocks and the consequently high correlation of business cycles with the euro area. Also, with ongoing convergence of the NEAMS from CEE and continued financial and trade integration, the role of common shocks may become even more important in these countries. These findings, based on a historical decomposition exercise, suggest that currently Czechia, Sweden and Hungary may indeed satisfy some of the key properties of optimum currency area. This supports the view that a common monetary policy could be appropriate and suitable for these countries, at least in terms of macroeconomic stabilization.

6 Conclusion

Introduction of the euro can be understood as the final step in the long process of European integration. However, some EU countries, although obliged to adopt the euro at some point

of time, are still not willing to take this final step and join the euro area. There are many reasons for such reluctance, which are founded on different economic, political, legal or even emotional factors. In this paper we focused on the key economic question - would euro adoption entail significant costs for these countries in terms of the possibility of monetary policy to react countercyclically?

Our analysis provides empirical evidence that business cycles in most of these countries are driven by the same shocks that drive the business cycle of the euro area. The direct consequences of such a similarity are highly correlated business cycles and key policy rates between the NEAMS and the euro area. As these shocks are also the key determinant of the ECB monetary policy stance, we conclude that a common monetary policy could successfully stabilize business cycles in these countries once they join the euro area. Ongoing convergence and further trade and financial integration of the NEAMS with the euro area in the future may additionally increase the relative importance of common shocks and make these countries even more suitable candidates for the euro in terms of OCA criteria (Frankel and Rose, 1998). Moreover, elimination of exchange rate volatility in the period before (ERM II) and after euro adoption could contribute to additional convergence of inflation rates, which would make a common monetary policy even more suitable for these countries. Also, after euro adoption, national central banks will keep an important macroprudential toolbox of their own that could serve as a complement to common monetary policy instruments and allow national policy makers to additionally calibrate the policy stance when needed.

This leads us to the conclusion that euro adoption would not bring any significant costs in terms of stabilization policies and economic performance. As Darvas (2019) also points out, in economic terms, the NEAMS could perform well both inside and

outside the euro area. Thus, their reluctance to join the monetary union is not founded in firm economic factors but rather in broader socio-political context. Finally, history of discussions on the euro adoption in these countries suggest that some future developments

may easily swing the pendulum *in favour* of the euro option, at least in new member states.

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Appendix

Figure 4: Inflation rates

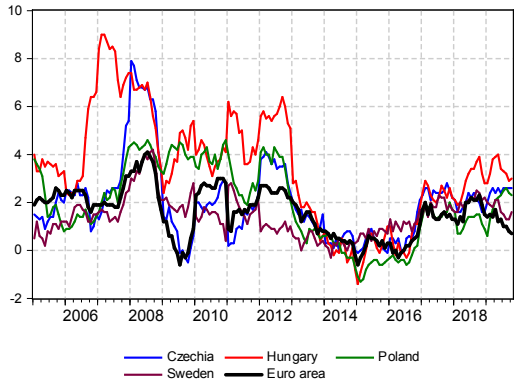
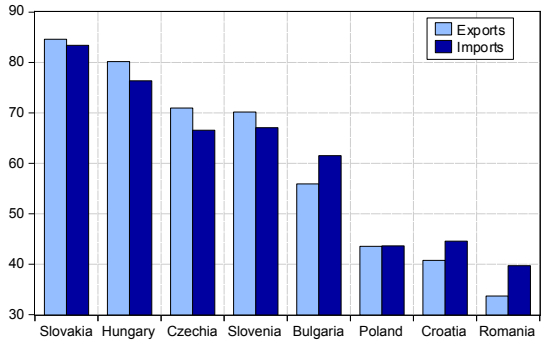


Figure 5: Openess of the economy

(a) Share of imports and exports 2004-2018



(b) Backward participation in GVC in 2013

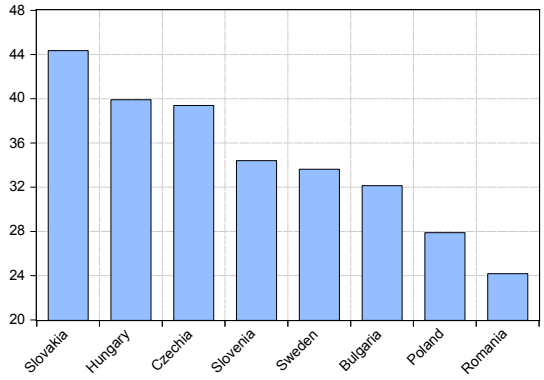


Table 2: Correlation of key interest rates

	t-6	t-5	t-4	t-3	t-2	t-1	t	t+1	t+2	t+3	t+4	t+5	t+6
Sweden	0.85	0.87	0.89	0.91	0.93	0.94	0.95	0.95	0.94	0.93	0.92	0.90	0.82
Poland	0.86	0.73	0.75	0.77	0.79	0.80	0.82	0.83	0.84	0.84	0.84	0.84	0.89
Hungary	0.84	0.72	0.74	0.76	0.77	0.79	0.81	0.83	0.84	0.86	0.87	0.88	0.84
Czechia	0.93	0.84	0.85	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.84	0.83	0.88

Table 3: Data description and sources

Variable	Description	Source
GDP_{EA}	Euro area real GDP, million euro, SA	Eurostat
$HICP_{EA}$	Euro area prices, all items, 2015=100, SA	ECB
MP_{EA}	Krippner shadow interest rate	RBNZ web page
GDP_D	Real GDP for Czechia, Hungary, Poland and Sweden, million euro, SA	Eurostat
$HICP_D$	HICP prices for Czechia, Hungary, Poland and Sweden, 2015=100, SA	Eurostat

Note: Prices are seasonally adjusted using X-11 procedure.

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