

European Department

# Taking Stock of Monetary and Exchange Rate Regimes in Emerging Europe

*Nazim Belhocine, Ernesto Crivelli, Nan Geng, Tiberiu Scutaru, Johannes Wiegand, and Zaijin Zhan*

**European Department**

# **Taking Stock of Monetary and Exchange Rate Regimes in Emerging Europe**

*Nazim Belhocine, Ernesto Crivelli, Nan Geng, Tiberiu Scutaru,  
Johannes Wiegand, and Zaijin Zhan*

Copyright © 2016

International Monetary Fund

## **Cataloging-in-Publication Data**

### **Joint Bank-Fund Library**

Names: Belhocine, Nazim. | Crivelli, Ernesto. | Geng, Nan. | Scutaru, Tiberiu. | Wiegand, Johannes. | Zhan, Zaijin. | International Monetary Fund. | International Monetary Fund. European Department.

Title: Taking Stock of Monetary and Exchange Rate Regimes in Emerging Europe / Nazim Belhocine, Ernesto Crivelli, Nan Geng, Tiberius Scutaru, Johannes Wiegand, and Zaijin Zhan.

Description: Washington, D.C. : International Monetary Fund, 2016. | At head of title: European Department.  
| Includes bibliographical references.

Identifiers: ISBN 978-1-47555-662-9 (paper)

Subjects: Exchange Rates. | Monetary policy. | Europe—Economic Conditions. | Emerging Markets.

Classification: LCC HC412.A893 2016

The Departmental Paper Series presents research by IMF staff on issues of broad regional or cross-country interest. The views expressed in this paper are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

Publication orders may be placed online, by fax, or through the mail:

International Monetary Fund, Publication Services

P.O. Box 92780, Washington, DC 20090, U.S.A.

Tel. (202) 623-7430 Fax: (202) 623-7201

E-mail: [publications@imf.org](mailto:publications@imf.org)

[www.imfbookstore.org](http://www.imfbookstore.org)

[www.elibrary.imf.org](http://www.elibrary.imf.org)

# Acknowledgments

This paper was prepared by a staff team consisting of Nazim Belhocine, Ernesto Crivelli, Nan Geng, Tiberiu Scutaru, and Zaijin Zhan (all EUR), led by Johannes Wiegand (RES, EUR at the time when the paper was written), under the general guidance of Philip Gerson (EUR), and with contributions from Christoph Klingen, Anita Tuladhar (both EUR), Jorgovanka Tabakovic, and Ana Ivkovic (both National Bank of Serbia).

The staff team benefited from bilateral discussions in early April with the European Commission, the European Central Bank, and the central banks of Austria, Bulgaria, Croatia, Romania, and Serbia, as well as from comments and advice by numerous colleagues at the IMF, in particular Bas Bakker, Jörg Decressin, and Jiri Podpiera.

# Executive Summary

**In the quarter century since transitioning from socialism, countries in Central, Eastern, and Southeastern Europe (CESEE) have adopted a multitude of monetary strategies.** Today, almost every type of monetary and exchange rate regime can be found in the region, from inflation targeting and floating to pegs and the unilateral use of the euro.

**The demands on monetary and exchange rate regimes in the region have evolved.** In the early to mid-1990s, the main task was to control inflation, following the liberalization of prices. Once this was achieved—often by means of exchange rate–based stabilization—the focus shifted to aligning monetary conditions with the economies’ needs, among other reasons to manage the process of income convergence with Western Europe.

Against this yardstick, **flexible exchange rate regimes have been associated with more favorable outcomes**, owing to better alignment of monetary conditions with cyclical needs. Economies with flexible regimes experienced a more muted boom-bust cycle in 2003–13, and have displayed greater resilience more recently in the face of deflationary pressures, imported in part from the euro area. Their growth *outlook* also appears, on average, stronger, as they are less saddled with private sector debt, have preserved higher investment ratios, and have suffered lesser human capital losses from unemployment.

**However, obstacles to more exchange rate flexibility are large.** Fixed exchange rate regimes in CESEE are often rooted in traumatic experiences with hyperinflation during the transition from socialism, which created lasting distrust in domestic currencies. One consequence is high deposit and loan euroization in many countries, which leaves central banks with little room for maneuver. Some countries also face capacity constraints due to their small size and inadequate institutions. In such circumstances, tying the currency to a strong anchor like the euro provides monetary stability and can support confidence, which can be more important than fine-tuning monetary conditions.

**Looking ahead, both options—sticking to existing fixed-rate regimes and transitioning to more flexibility—come with challenges and require policy efforts to make the regime work**, with the balance of benefits and risks depending on country characteristics. Countries that stick to fixed exchange rates should seek to make stronger use of countercyclical fiscal and, especially, macroprudential policies to compensate for monetary misalignment. Alternatively, transitioning to more exchange rate flexibility requires a carefully planned and executed strategy to contain monetary and financial stability risks that an uncontrolled shift could trigger.

# Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>MOTIVATION.....</b>	<b>4</b>
<b>EXCHANGE RATE REGIMES IN CESEE: EVOLUTION, PERFORMANCE, RATIONALE .....</b>	<b>5</b>
<i>A Short History of Monetary and Exchange Rate Regimes in CESEE .....</i>	<i>5</i>
<i>How Have Monetary and Exchange Rate Regimes Performed? .....</i>	<i>11</i>
Monetary Stability .....	11
Alignment of Monetary Conditions.....	12
<i>The Boom-Bust Recovery-Cycle of 2003–15: A Monetary Interpretation.....</i>	<i>13</i>
<i>Alternative Explanations.....</i>	<i>18</i>
<i>Implications beyond Macroeconomic Volatility.....</i>	<i>20</i>
Nonmonetary Objectives.....	22
Summary .....	23
<i>Obstacles to Exchange Rate Flexibility .....</i>	<i>24</i>
Financial Euroization and Fear of Floating.....	24
Why Are Financial Systems Euroized? .....	24
Summary.....	29
<b>MONETARY STRATEGIES FOR CESEE ECONOMIES .....</b>	<b>29</b>
<i>Sticking to Fixed Exchange Rate Regimes: The “Baltic Path” .....</i>	<i>30</i>
Overview .....	30
The Baltic Path.....	30
Options to Enhance Macroeconomic Performance under Fixed Exchange Rate Regimes.....	31
<i>Moving to Flexible Exchange Rate Regimes: What Does It Take? .....</i>	<i>35</i>
Overview .....	35
Establishing a Credible Domestic Monetary Anchor .....	36
Regulatory and Structural Policies.....	40
<b>CONCLUSIONS .....</b>	<b>42</b>
<b>REFERENCES.....</b>	<b>45</b>

**FIGURES**

1. Evolution of Exchange Rate Regimes.....	6
2. Exchange Rate Flexibility in CESEE .....	8
3. Effective Exchange Rate Flexibility and Hyperinflation during Transition .....	11
4. Consumer Price Inflation, 1996–2016 .....	12
5. Macroeconomic Volatility and Exchange Rate Regime, 2003–14.....	15
6. Monetary Conditions, 2003–14.....	16
7. Monetary Conditions and Economic Activity, 2003–14.....	17
8. Alternative Explanations.....	19
9. Implications beyond Macroeconomic Volatility .....	21
10. Nonmonetary Objectives .....	22
11: Financial Euroization .....	25
12. Determinants of Deposit Euroization .....	27
13. The Baltics vs. Other Countries with Fixed Exchange Rates.....	31

**BOXES**

1. Transition from Socialism and Emerging Europe’s Legacy of Hyperinflation .....	7
2. The Calvo-Reinhart "Fear of Floating" Index.....	9
3. Albania’s Monetary Framework.....	10
4. The Minimum Portfolio Variance Approach.....	28
5. The Baltic Path to Euro Adoption .....	32
6. De-dollarization of Bank Deposits: Successful Cases .....	37
7. Serbia’s Dinarization Strategy.....	38
8. Central Bank Survey on De-euroization Policies .....	41

# MOTIVATION

**A full quarter century after the transition from socialism, almost every type of monetary and exchange rate regime can be found in Central, Eastern and Southeastern Europe (CESEE):** from free floating and inflation targeting over various soft and hard pegs to the unilateral use of the euro and full euro area membership. Why are CESEE's monetary regimes the way they are? How have they performed, and what makes a regime "right" for a country? Looking ahead, how can monetary regimes assist in addressing the economic challenges countries are likely to face? If a country's current exchange rate regime seems suboptimal, could it switch, and how?

**This paper reassesses monetary and exchange rate regimes in CESEE:**

- **From a longer-term, strategic perspective**—as in the short term, the cost of departing from an existing regime can be prohibitively large.
- **Against the objective of (ultimately) adopting the euro**—which is an obligation enshrined in the accession treaties of European Union (EU) members. The question though is *how rapidly* countries should join the euro area, and *how they should prepare*—which includes the type of monetary regime they should adopt in the interim. Hence the paper focuses on countries that are part of the European integration process. It does not focus on the Commonwealth of Independent States, nor on Turkey: while Turkey is an EU accession country, its historical path is too different from other CESEE countries to fit well into this paper's framework.

**More generally, the paper seeks to contribute to a policy debate on European exchange rate policy that has gone on for some 40 years.**

- In **Western Europe**, the dismantling of the Bretton Woods system in the 1970s triggered repeated attempts to re-erect fixed and quasi-fixed exchange rate systems—efforts that, in a majority of countries, led to the introduction of the euro in the late 1990s.
- However, **monetary regimes in emerging Europe** have been—and are being—affected by factors that are absent in Western Europe. First, regimes have been shaped by countries' experiences during their transition from socialism in the 1990s. Second, CESEE economies often lack (elements of) the institutional setting that is, for the most part, taken for granted in Western Europe. These factors influence and complicate policy choices.

**The paper also contributes to the long-standing global debate about the benefits and limits of monetary policy autonomy.** In a much-cited recent paper, Rey (2013) argues that exchange rate flexibility is of limited value for "peripheral" countries, as fluctuations in activity are dominated by global asset price and credit cycles that leave little scope for autonomous monetary management. To advance the result, this paper finds that while all countries in CESEE went through a large, asset price- and credit-driven boom-bust-recovery cycle in the past 15 years, the exchange rate regime still mattered for the size of the boom, and the degree of destructiveness of the bust.



**The paper has two parts. The first part takes stock by:**

- **Reviewing the evolution of exchange rate regimes** in CESEE since transition.
- **Assessing the regimes' performance**, in particular for the past 15 years or so, when the boom-bust-recovery cycle tested the regimes' capacity to align monetary conditions with their economies' needs. The paper finds that countries with flexible exchange rate regimes generally benefited from the ensuing monetary autonomy, which raises the question of why there are not more countries that choose to float.
- **Analyzing obstacles to exchange rate flexibility**, in particular financial euroization—that is, the denomination of loans and deposits in foreign currency—and its implications for the choice of the exchange rate regime.

**The second part is forward looking.** It sketches strategic options for CESEE economies, focusing on countries that currently have fixed exchange rate regimes. The section is not prescriptive, as the choice of the exchange rate regime is not only the prerogative of the member country, but also goes beyond purely economic aspects. Rather, it illustrates economic pros and cons of different strategies, and elaborates on associated policy challenges. Specifically, the section discusses two strategic options: (i) *stick to pegging* until (eventual) euro adoption—akin to the path the Baltic countries have taken, or (ii) *seek to shift to more exchange rate flexibility*, with a view to increasing monetary autonomy and to generating more balanced growth during the convergence process.

## EXCHANGE RATE REGIMES IN CESEE: EVOLUTION, PERFORMANCE, RATIONALE

### A Short History of Monetary and Exchange Rate Regimes in CESEE

**Monetary and exchange rate regimes in CESEE were shaped during the transition from socialism in the early to mid-1990s** (Box 1). At the time, the liberalization of prices and wages—combined with the release of a monetary overhang that had accumulated for decades—triggered strong inflationary pressures, often reinforced by recourse to monetary financing to fill fiscal gaps. Many monetary authorities struggled to rein in these pressures initially, reflecting in part lack of experience with managing monetary systems of decentralized market economies.

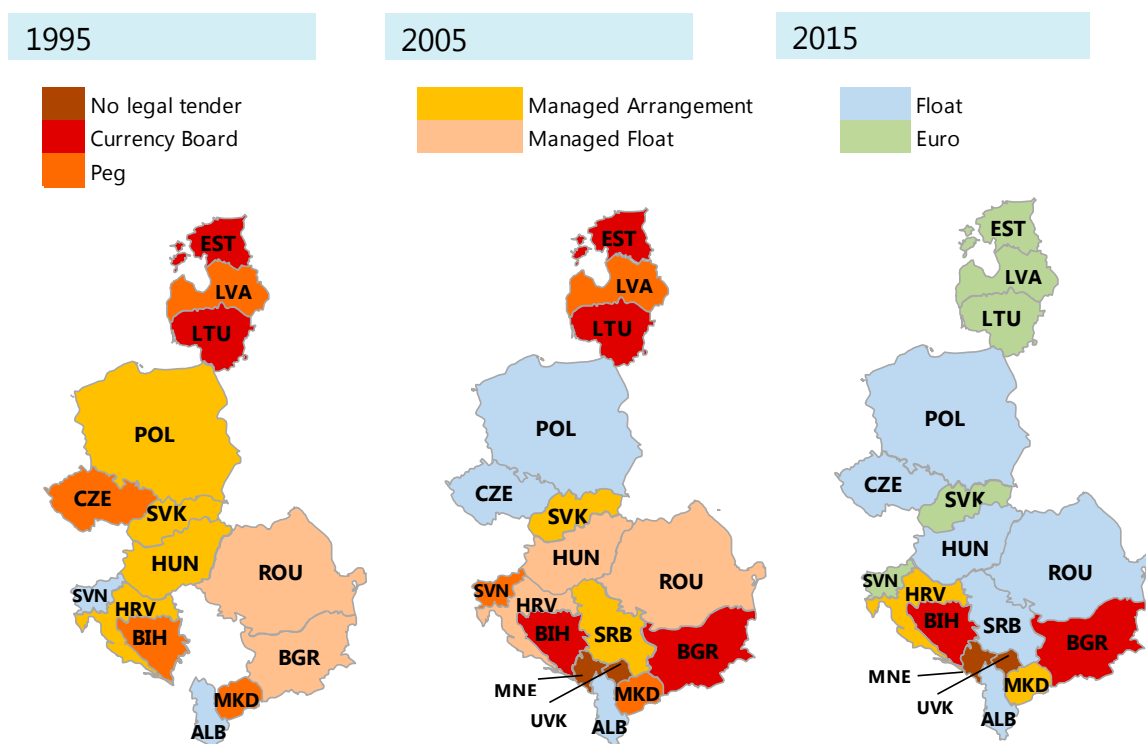
**Most countries defeated inflation by adopting an exchange rate anchor, typically linking their currencies to the Deutsche Mark (DM).** In the Baltics and Central Europe, stabilization succeeded relatively rapidly. In several Balkan countries, however, disinflation took longer. Most countries of former Yugoslavia, beset by civil war, suffered hyperinflation in 1993/94. To restore monetary order, Croatia, Serbia, and Macedonia adopted pegs and quasi-pegs to the DM (and later the euro). Bosnia and Herzegovina installed a currency board upon independence, while Montenegro and Kosovo

made the DM—which was already the de facto currency of use—the legal tender. Also Bulgaria experienced hyperinflation in 1996/97, and defeated it with a currency board.

**Flexible exchange rate regimes became more common in the second half of the 1990s.** In 1997, hit by a currency crisis, the Czech Republic abandoned the peg to the DM, let the koruna float, and adopted inflation targeting. Floating has since spread, especially in Central Europe. Poland adopted inflation targeting in 1998, Hungary in 2001. Some southeastern European economies followed (Albania, Romania, Serbia). In 2007, Slovenia was the first CESEE economy to adopt the euro. It has since been followed by the Slovak Republic (2009), Estonia (2011), Latvia (2014), and Lithuania (2015).

**At this juncture, almost every type of exchange rate regime can be found in emerging Europe** (Figure 1):<sup>1</sup>

**Figure 1. Evolution of Exchange Rate Regimes**



Sources: IMF, AREAER, and IMF staff estimates.

<sup>1</sup> Figure 1 broadly follows the de facto classification of the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER), but aggregates classifications into fewer subgroups. The annual AREAER reports are available at [www.imfareaer.org](http://www.imfareaer.org). A methodological change in 2008—described in Habermeier and others (2009)—implies that categories between 1995/2005 and 2015 are not always exactly comparable.

## Box 1. Transition from Socialism and Emerging Europe's Legacy of Hyperinflation

While all countries in CESEE struggled with inflation during the transition from socialism, the intensity and length differed between countries.

In the **Baltic economies**, inflation surged after independence, following the lifting of price and wage controls. Hyperinflation ensued by end-1992, but was short lived: stabilization programs in 1992–93 brought price pressures under control, first through tightening money supply and then through the adoption of currency boards (*Estonia, Lithuania*) and hard pegs (*Latvia*).

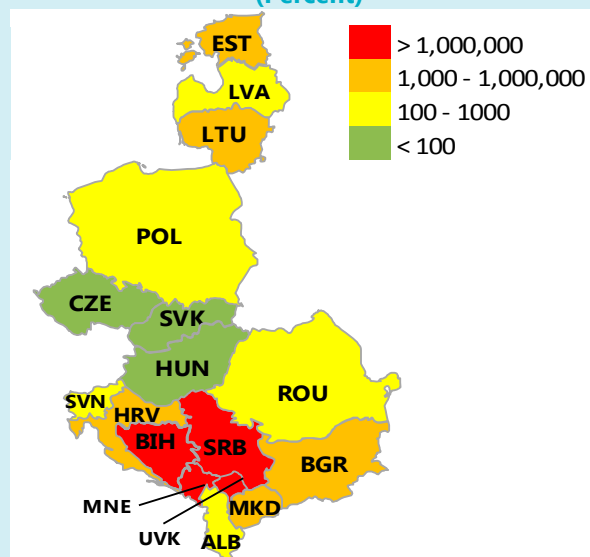
By contrast, in **Central Europe** inflation pressures were less severe.

- In *Hungary*, annual inflation never exceeded 40 percent, reflecting an early and gradual start to price liberalization in the second half of 1980s.
- In *Czechoslovakia*, an initial price surge was quickly subdued with a peg introduced in 1991. After the peaceful split into the Czech and Slovak Republics and devaluation of the Slovak koruna, a forceful monetary policy response and moderate wage pressures contained inflation.
- In *Poland*, inflation during transition was higher, as monetary expansion financed sizable public deficits and losses of Polish firms. Devaluation under the Balcerowicz Plan further fueled pressures. Inflation was brought under control by means of a crawling peg.

In **former Yugoslavia**, break-up and civil war triggered catastrophic inflation in 1992–94. Only *Slovenia*—which was largely spared from the war—avoided hyperinflation. In *Croatia*, monetary financing of fiscal deficits and a sharp, war-related real contraction caused inflation to peak well above 1,000 percent in 1993, before an exchange rate–based stabilization program brought it under control. *Macedonia* experienced hyperinflation in 1992; disinflation was also achieved with a peg. In the remainder of former Yugoslavia, hyperinflation, fueled by the monetization of fiscal deficits, reached among the highest levels ever recorded.

In **other Balkan economies**, *Bulgaria* suffered severe hyperinflation in 1996/97 after failed attempts at money-based stabilization. A currency board with the Deutsche Mark in 1997 achieved single-digit inflation within a year. *Romania* never experienced a comparable hyperinflation crisis, although it struggled repeatedly with double- and triple-digit inflation through the 1990s and early 2000s. Inflation was brought under control after adopting inflation targeting in the mid-2000s.

Maximum Annual Inflation During Transition (Percent)



Sources: World Bank, national central banks, WDI; and IMF staff estimates.

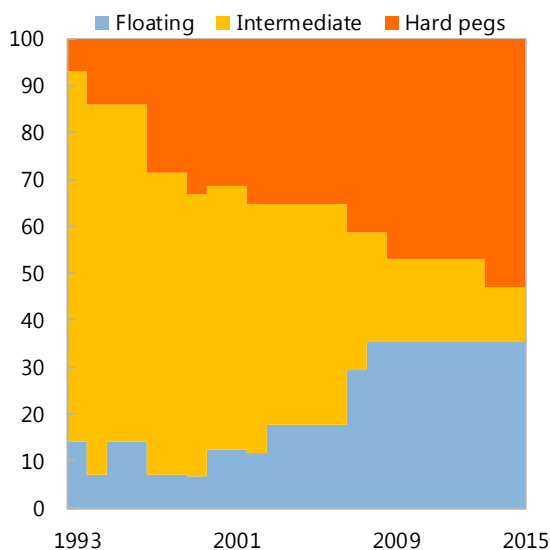
- Inflation targeting with (for the most part) **free floats** in *Poland* and the *Czech Republic*,<sup>2</sup>
- Floats** with some exchange rate interventions in *Albania, Hungary, Romania, and Serbia*,
- Managed arrangements**—that is, quasi-pegs to the euro with very limited exchange rate flexibility—in *Croatia* and *Macedonia*,
- Currency boards** with the euro in *Bosnia and Herzegovina* and *Bulgaria*,
- The **unilateral use of the euro**—that is, without euro area membership, and therefore without access to European Central Bank (ECB) financing facilities—in *Kosovo* and *Montenegro*, and
- Full euro area membership** in *Slovenia*, the *Slovak Republic* and the *Baltic countries*.

Grouping regimes (a.) and (b.) as “floating,” (c.) as “intermediate,” and (d.)–(f.) as “fixed” shows an increasingly bimodal distribution of monetary and exchange rate regimes (Figure 2).<sup>3</sup>

**However, a data-driven approach yields a somewhat different picture.** Panel B in Figure 2 measures the *effective* degree of exchange rate flexibility with the Calvo and Reinhart (2002) “Fear of Floating” index (Box 2). A higher value indicates less “Fear of Floating” and therefore more flexibility. Countries with hard pegs have an index value of zero by design. For 2003–15, the Calvo-Reinhart index identifies only the Czech Republic, Poland, Hungary, and Romania clearly as floaters. Effective exchange rate flexibility was lower for Serbia, and for Albania it resembled that of countries with

**Figure 2. Exchange Rate Flexibility in CESEE**

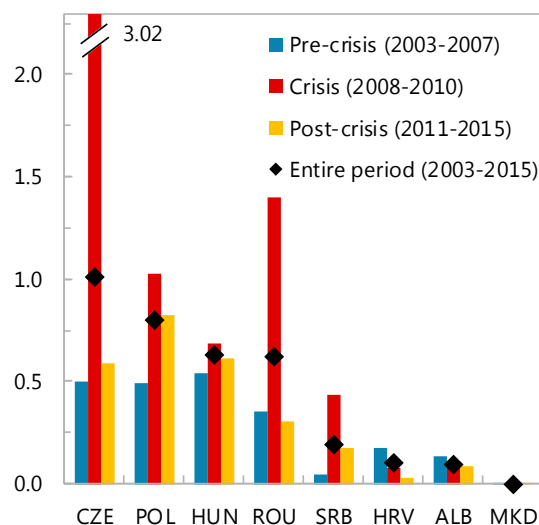
**A. IMF Classification**  
(Percent of total)



Sources: IMF, AREAER; and IMF staff calculations.

**B. Effective Flexibility**

(Calvo-Reinhart “Fear of Floating” index, average over quarterly values)



<sup>2</sup> An exception is the Czech Republic’s announcement in November 2013 to resist appreciation of the koruna beyond CZK 27 per euro, amid hitting the zero lower bound for policy rates and undershooting the inflation target.

<sup>3</sup> In contrast to Figure 2, panel A, euro area members are categorized as “free floating” in the AREAER.

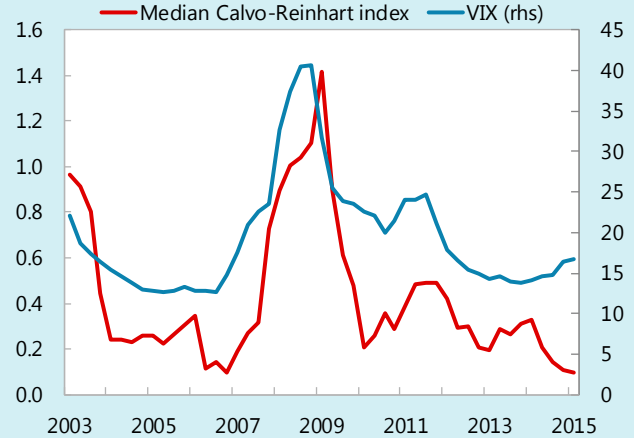
## Box 2. The Calvo-Reinhart “Fear of Floating” Index

The Calvo and Reinhart (2002) Fear of Floating Index puts exchange rate variability in relation to the variability of the policy instruments that monetary authorities can deploy to stabilize the exchange rate. Formally,

$$\lambda = \frac{\sigma_e}{\sigma_i + \sigma_F}$$

where  $\sigma_e$ ,  $\sigma_i$ , and  $\sigma_F$  denote the normalized standard variation of the nominal exchange rate, the nominal short-term interest rate, and gross international reserves, respectively. Exchange rate regimes that allow more de facto flexibility (that is, the monetary authorities are more willing to tolerate fluctuations of the nominal exchange rate without intervening) have higher index values relative to regimes where effective flexibility is lower. By design, countries with hard pegs and currency boards, as well as unilateral euro users and euro area members, have an index value of zero. In this study, quarterly (instead of monthly) values are used, given data availability constraints.

Financial Volatility and Effective Exchange Rate Flexibility



Sources: Harver Analytics, and IMF staff estimates.

The Calvo-Reinhart index co-moves with global financial stress as measured by the VIX (the implied volatility of S&P 500 stock options). In times of financial turbulence, there is more pressure on nominal exchange rates, which boosts Calvo-Reinhart index values.

managed arrangements (Box 3).<sup>4</sup> The paper uses this data-driven classification for most analysis, with an index value of 0.5 forming the threshold between “high” and “low” exchange rate flexibility.

**The degree of exchange rate flexibility is, to this day, closely tied to countries’ inflation experiences during transition** (Figure 3): the higher peak inflation was in the 1990s, the more likely a country was to maintain a fixed exchange rate subsequently (or to allow very limited de facto flexibility). In 2006–08, about 70 percent of the cross-country variation in effective exchange rate flexibility was accounted for by whether a country suffered *hyperinflation* (peak annual inflation rate above 1,000 percent) or *high inflation* (above 100 percent) during transition. The percentage was still about 60 percent in 2015 if one excludes euro adoptees.<sup>5</sup> The final subsection of this chapter returns to this link.

<sup>4</sup> For Albania, the Calvo-Reinhart index reports significantly higher effective exchange rate flexibility in the late 1990s.

<sup>5</sup> Two euro adoptees—Slovenia and the Slovak Republic—have no history of hyperinflation during transition.

### Box 3. Albania's Monetary Framework\*

Albania maintains a successful inflation targeting regime. In contrast to many other CESEE countries, Albania has kept inflation low for much of the past 20 years. Since 2000, headline inflation has remained below 10 percent and has, with few exceptions, been close to the target range of 2–4 percent. The exchange rate regime is a de jure flexible arrangement. However, nominal exchange rates have been relatively stable. The lek appreciated by some 10 percent vis-à-vis the euro in 2000–07, then depreciated by about 12 percent during the global financial crisis in 2008–09. Subsequently, it has moved narrowly within a range of 2 percent. The high degree of stability—despite only limited exchange rate interventions by the Bank of Albania—has been largely explained by structural factors and entrenched exchange rate expectations.

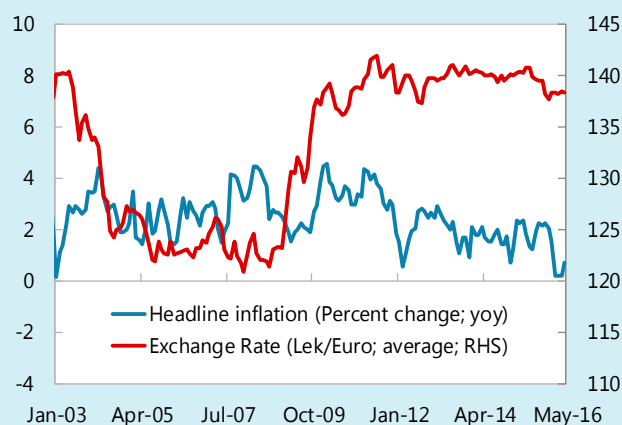
Monetary policy remains constrained by fear of floating and weaknesses in transmission channels. Euroization is pervasive in Albania, as in much of the region, and has been fueled in part

by crisis episodes such as the collapse of corporate pyramid schemes in 1997. Lending has been mostly in euros, currently accounting for nearly two-thirds of loans. About half of euro-denominated lending is to unhedged borrowers. Consequently, monetary policymaking has been constrained by financial stability considerations. Although lek lending has increased somewhat over time, it remains limited, as lek deposits are largely intermediated into higher yielding Treasury bills. Together with a low level of banking intermediation by regional standards, this limits the effectiveness of the credit channel in monetary transmission.

Despite the stability of the exchange rate, macroeconomic volatility has been modest. This mainly reflects structural factors. First, Albania's degree of openness and the size of capital inflows are low by regional standards—for example, Albania entered the Eurobond market only in 2010. Second, external financing risks have been mitigated by reliance on private transfers and foreign direct investment (FDI), which are inherently less volatile. Remittances have declined over time, but they have been replaced by FDI, which now covers almost three-quarters of the current account deficit. Third, the banking system remains heavily reliant on domestic deposits, a stable funding source for banks. The loan-to-deposit ratio has been in the range of 50–60 percent, the lowest in the region, since the mid-2000s. Finally, when faced with large shocks, such as during the global financial crisis, the exchange rate has absorbed some of the impact.

\* Prepared by Anita Tuladhar

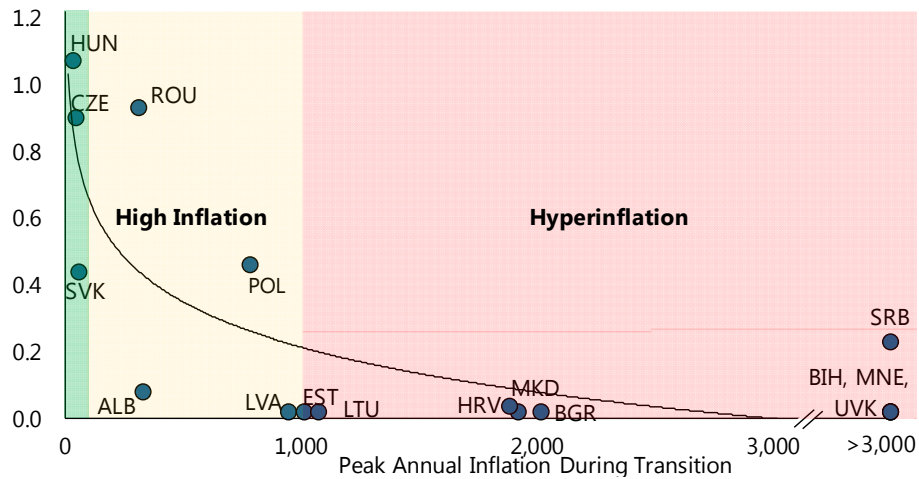
Headline Inflation and Exchange Rate



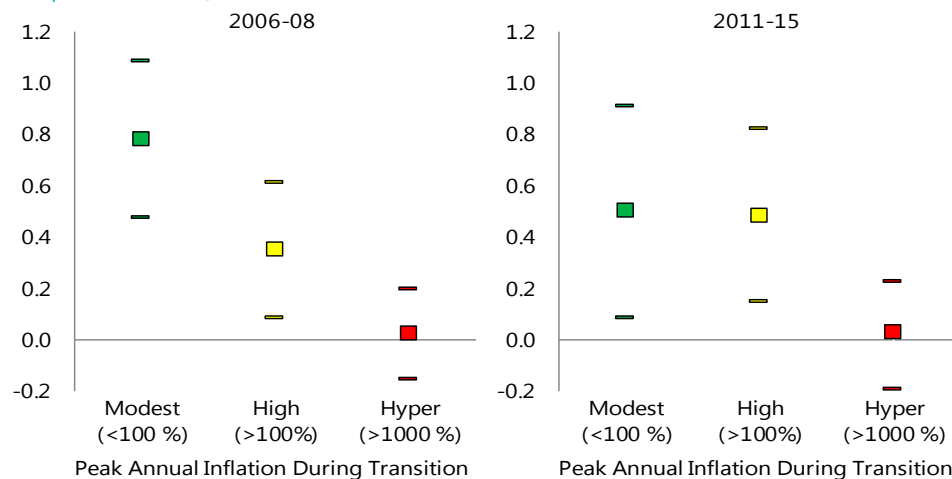
Source: Haver Analytics.

**Figure 3. Effective Exchange Rate Flexibility and Hyperinflation during Transition**

**A. Actual Calvo-Reinhart Index**  
(Average, 2006–08)



**B. Predicted Calvo-Reinhart Index**  
(Point estimates and 95 percent intervals)



Sources: National central banks; World Bank, World Development indicators, and IMF staff estimates.

## How Have Monetary and Exchange Rate Regimes Performed?

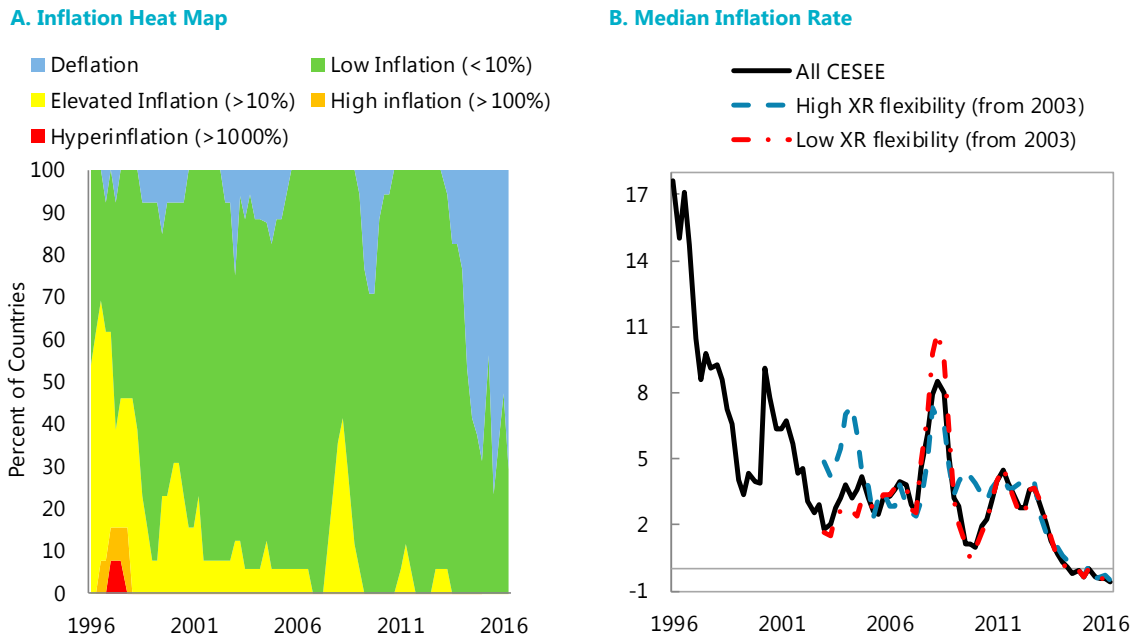
### Monetary Stability

**The performance of monetary and exchange rate regimes has more than one dimension.** The most basic and most critical function of any regime is arguably to deliver monetary stability.<sup>6</sup> As discussed in the previous subsection, establishing monetary order was a key challenge in CESEE in the early to mid-1990s.

<sup>6</sup> See Flandreau (2007) for a survey of the evolution of monetary policy objectives.

**Figure 4. Consumer Price Inflation, 1996–2016**

(Year-over-year, quarterly frequency)



Sources: Haver Analytics; and IMF staff calculations

**Since the late 1990s, CESEE economies have made decisive and lasting progress with achieving monetary stability.** Very high inflation (above 100 percent) occurred for the last time in early 1998 (Figure 4), and single-digit inflation rates have since become the norm. Further, low inflation has been achieved with both fixed and flexible exchange rates, although inflation performance has differed somewhat over time: countries with low effective exchange rate flexibility tended to have lower inflation rates in the early 2000s, then experienced a surge in 2007/08 that reversed in 2009/10.<sup>7</sup> More recently, the region has been struggling with deflationary pressures.

### ***Alignment of Monetary Conditions***

**Aligning the monetary stance with the economy’s needs is key to supporting balanced and high-quality growth.** If monetary policy is too accommodative or too restrictive, growth can be volatile, be subject to boom-bust patterns, trigger the misallocation of resources, and/or provoke the accumulation of excessive debts that subsequently weigh on growth prospects (Wicksell 1898). Neither fixed nor flexible exchange rate regimes deliver well-aligned monetary conditions automatically. With a flexible exchange rate, alignment depends importantly on the capacity of the central bank (in open economies, external factors can complicate this task). With a fixed exchange rate, or low de facto exchange rate flexibility, the economy imports the monetary stance of the economy to which its currency is pegged (or with which it shares a currency), which may not be appropriate for domestic purposes.

<sup>7</sup> The time series by exchange rate regime can be computed only from 2003; before then, the changes in the de facto and de jure classification of countries are too frequent.



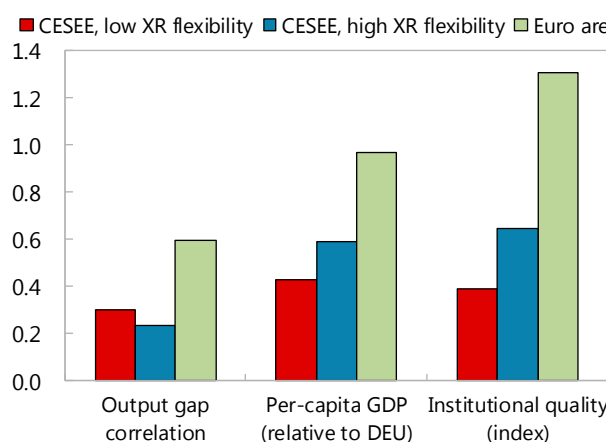
**Specifically, CESEE economies that tie their currencies to the euro risk two types of misalignment:**

- **Cyclical misalignment** due to a different cyclical position from the euro area, and
- **Structural misalignment** due to differences in expected longer-term growth rates that imply different neutral interest rates.<sup>8</sup> Countries with (on average) higher neutral interest rates require tighter monetary conditions. Longer-term growth in CESEE *should* exceed that of the euro area, given smaller capital stocks and potential for productivity catch-up. Pegging to the euro comes then with structurally too loose monetary conditions, harboring the potential for goods and asset price inflation, and the accumulation of excessive debt and leverage.<sup>9</sup>

**There appears to be sizable potential for monetary misalignment from pegging in CESEE.** Regarding cyclical misalignment, growth is less synchronized between CESEE and the euro area than within the euro area. As for structural misalignment, CESEE’s average output and capital stock are still significantly smaller than those in the euro area.

**This said, monetary misalignment can, at least in principle, be offset by other policies,** such as countercyclical fiscal or macroprudential policies. Further, features like a strong regulatory framework and flexible wages can dampen monetary misalignment or contain its impact on the real economy.

**Potential for Monetary Misalignment**



Sources: IMF, WEO; Kaufmann, Kraay, and Mastruzzi (2006); World Bank, WGI database; and IMF staff calculations.

### ***The Boom-Bust-Recovery Cycle of 2003–15: A Monetary Interpretation***

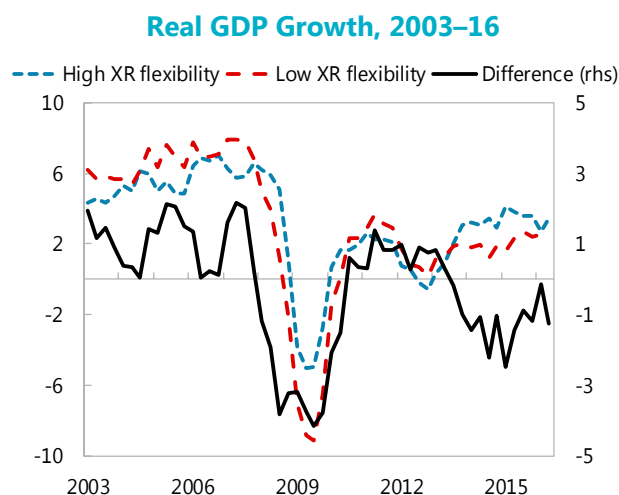
**Against this backdrop, this subsection analyzes the impact of monetary alignment on CESEE’s economic performance for 2003–15.** There are two reasons for choosing this period: as mentioned above, by the early 2000s the broad contours of most monetary regimes were established—hence they can be taken mostly as given for the analysis.<sup>10</sup> And the region went through a large boom-bust-recovery cycle in this period, fueled by sizable capital in- and outflows. It is during turbulent times like these that monetary and exchange rate regimes are tested.

<sup>8</sup> See Lipschitz, Lane, and Mourmouras 2002, 2005; Backé and Wójcik 2008; Magud, Reinhart, and Vesperoni 2014; and Podpiera, Wiegand, and Yoo 2015 for elaborations of this argument.

<sup>9</sup> This is in line with the standard Balassa-Samuleson argument; that is, that high productivity growth in the tradables relative to the nontradables sector yields real effective exchange rate appreciation. With a fixed exchange rate, appreciation shows up in higher inflation rates. However, there are reasons beyond Balassa-Samuleson why inflation in converging economies may be higher; see Égert 2007, 2011; or Égert and Podpiera 2008.

<sup>10</sup> Only the Slovak Republic’s classification changes in this period (from “high” to “low” due to euro adoption).

**Growth patterns differed between countries with flexible and fixed exchange rates.** For most of the period, growth differences were cyclical. Countries with low exchange rate flexibility had a larger boom until 2007/08. Subsequently they suffered a sharper recession, which was followed by a somewhat stronger recovery in 2011–13.<sup>11</sup> From mid-2013, countries with higher exchange rate flexibility tended to grow faster without a clear cyclical context. Averaging over subperiods yields broadly similar growth rates for both groups. However, given the ongoing growth differential in favor of floaters, the jury on overall growth performance is still out.



Sources: Haver Analytics; and IMF staff calculations.

**The different growth patterns translate into significantly higher growth volatility**

**for countries with low effective exchange rate flexibility** (Figure 5). While growth volatility was by far the highest in the Baltic economies, in most other countries with low exchange rate flexibility it exceeded that of flexible exchange rate countries by almost a full percentage point. The picture for *inflation volatility* is similar.<sup>12</sup> Macroeconomic volatility is not only negative in itself, it can also pose obstacles to (eventual) euro adoption.<sup>13</sup>

**What drove the pronounced boom-bust pattern in countries with low exchange rate flexibility?** This paper's analysis points to a clear monetary transmission mechanism, working through the nominal exchange rate for floaters, and through inflation and its impact on real interest rates for peggers (Figure 6). Similar results have been reported before (see Bakker and Gulde 2010; and Podpiera, Wiegand, and Yoo 2015). This paper's contribution is twofold: it uses a strictly data-driven concept of exchange rate flexibility, and it covers all CESEE economies with available data, including many smaller western Balkan economies.<sup>14</sup> Still, the limited number of countries in this study remains a constraint for statistical analysis. However, Magud, Reinhart, and Vesperoni (2014) do find very similar results for a larger group of emerging economies that went through boom-bust cycles, including in Latin America and Asia.

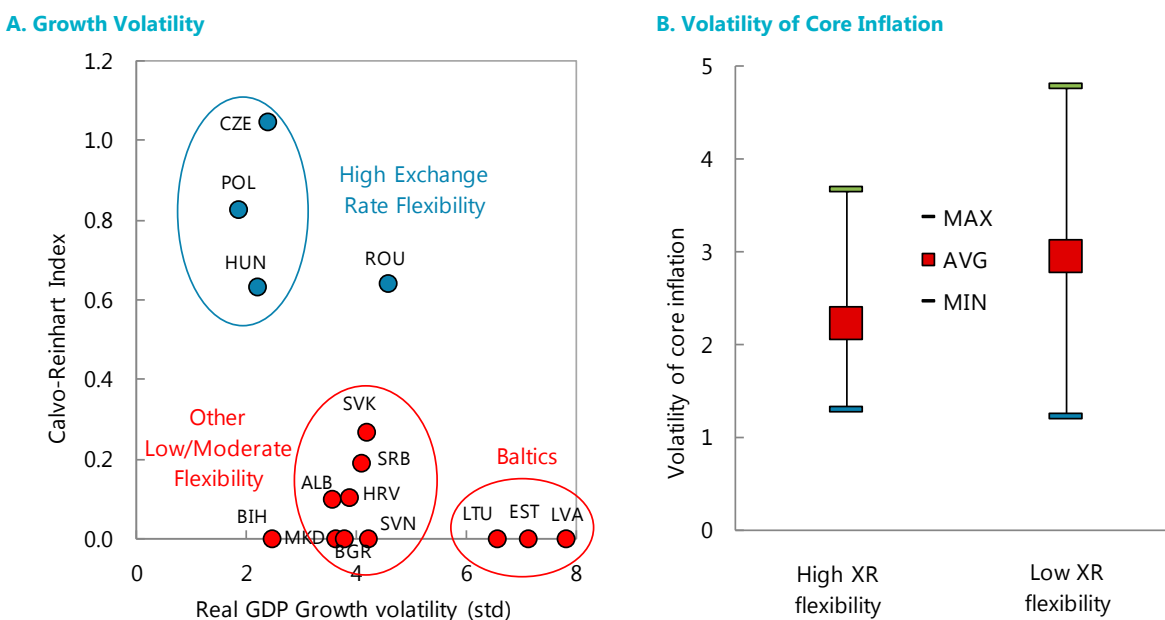
<sup>11</sup> Gagnon (2013) reports similar results on the performance of exchange rate regimes in a global study of the great recession. Tsangarides' (2012) results for a larger but also more heterogeneous sample of 50 emerging economies differ somewhat. In particular, he finds no significant growth differences in recession between pegs and floats.

<sup>12</sup> This paper uses core inflation, as many economies with fixed-rate economies are small and open. Volatile food and energy import prices thus account for a large share of the CPI. Differences in volatility are even larger for headline inflation.

<sup>13</sup> The criteria for the European Exchange Rate Mechanism (ERM2) stipulate, among other things, that inflation must not exceed the average inflation rate of the three best-performing euro area members by more than 1½ percentage points for at least two years.

<sup>14</sup> For Kosovo, Montenegro and Macedonia, some time series are available for only part of the period or only at a lower frequency than used here. Slovenia is excluded because for most of the period it was either in the euro area or in ERM2.

**Figure 5. Macroeconomic Volatility and Exchange Rate Regime, 2003–14**



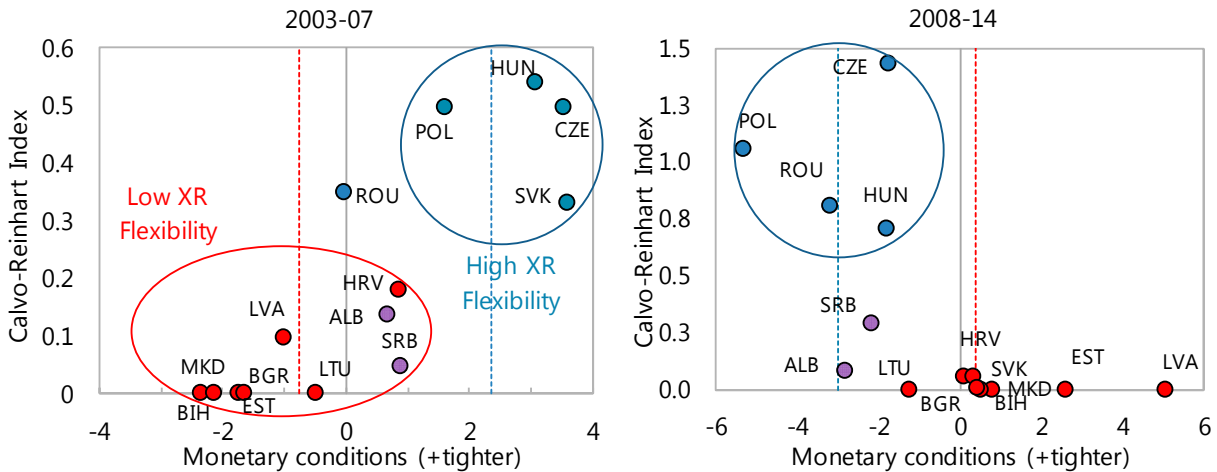
Sources: Haver Analytics; and IMF staff calculations

- First, a standard **real monetary conditions index** is computed—that is, a weighted average of the short-term *real interest rate* and the *real effective exchange rate*.<sup>15</sup> The change in the index is analyzed (i) between 2003 and 2007—when strong growth and inflationary pressures would arguably have warranted monetary tightening—and (ii) between 2008 and 2014—when loosening would have appeared warranted.
- **For countries with high effective exchange rate flexibility**—marked in blue in Figures 6 and 7—monetary conditions were markedly countercyclical. Conditions tightened, on average, by almost 3 percentage points during the boom (in real interest rate equivalents), then loosened by about the same amount thereafter. Disaggregating the index into its components shows that the nominal exchange rate accounts for most of the change. An exception during the boom phase is Romania, where the monetary authorities resisted real appreciation prior to the adoption of inflation targeting in 2005/06 (Romania is not an exception in subsequent years).
- By contrast, **for countries with low effective exchange rate flexibility**—marked in red—monetary conditions were, on average, mildly procyclical. This reflects primarily the impact of boom and bust on inflation and, consequently, real interest rates. Surging inflation during the boom compressed real interest rates, boosting demand for credit and provoking the buildup of leverage. Conversely, in recession and its aftermath, disinflation pushed up real interest rates, offsetting many central banks’ efforts to loosen the monetary stance through nominal rate cuts.

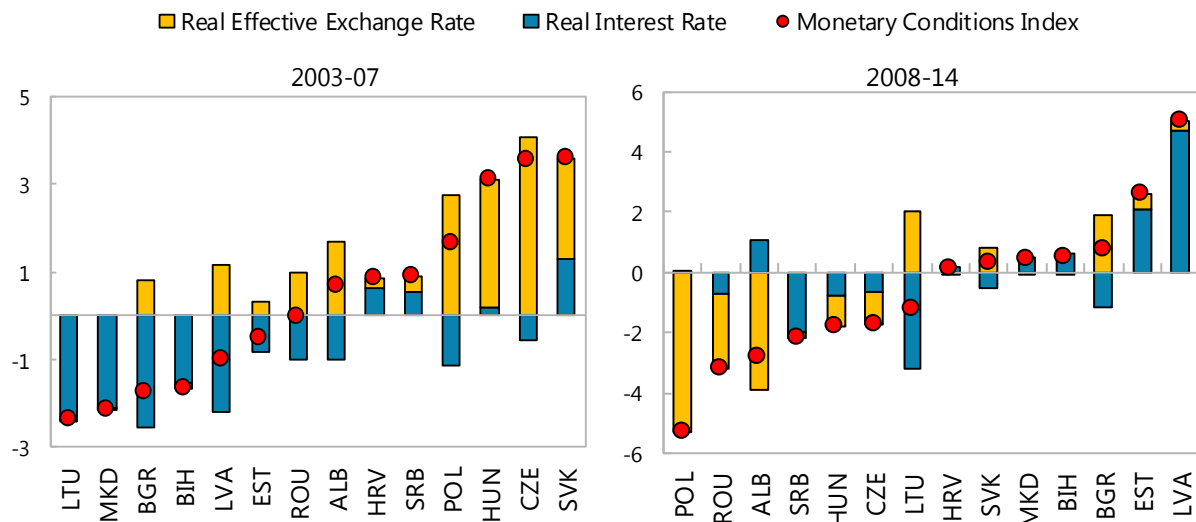
<sup>15</sup> Weights are  $\frac{3}{4}$  for the real interest rate and  $\frac{1}{4}$  for the real effective exchange rate, following similar studies and reflecting the relative impact of the components on aggregate demand. See Freedman (1995). Results do not depend materially on the exact weights.

**Figure 6. Monetary Conditions, 2003–14**

**A. Effective Exchange Rate Flexibility and Real Monetary Conditions**  
(Percent, annual average)



**B. Contributions to Monetary Conditions**  
(Percent, annual average)



Sources: Haver Analytics; IMF, INS database; and IMF staff calculations.

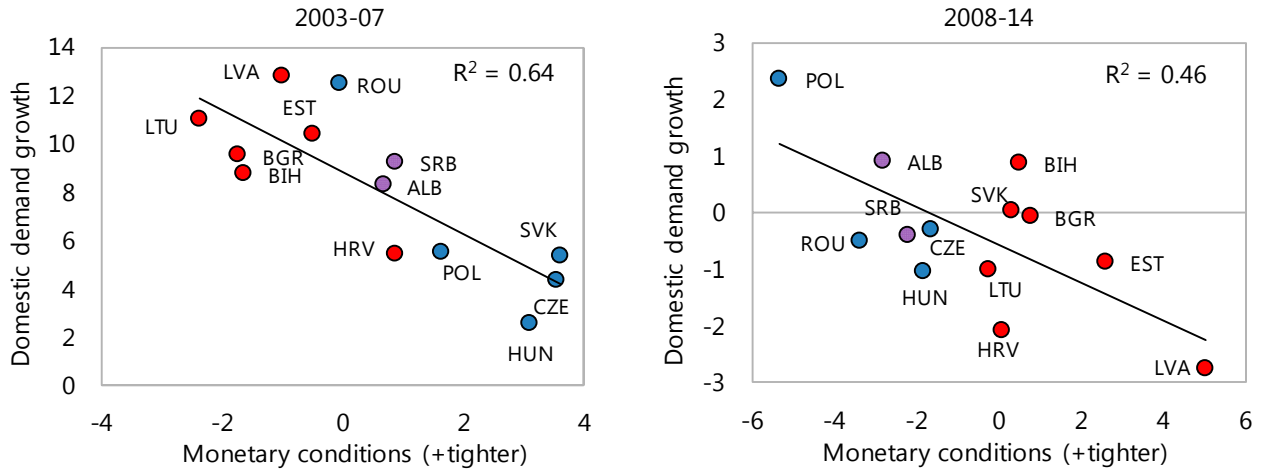
The fact that these currencies are tied to the euro, and therefore imported strong disinflation through the anchor currency, arguably reinforced the contractionary impact (Iossifov and Podpiera 2015).

- There is a **strong, albeit asymmetric, link between monetary conditions and domestic demand** (Figure 7). During the *boom*, 1 percent tighter monetary conditions were on average associated with 1 percentage point less demand growth. During the *bust*, 1 percent more accommodative conditions were associated with 0.5 percentage point more domestic demand

**Figure 7. Monetary Conditions and Economic Activity, 2003–14**

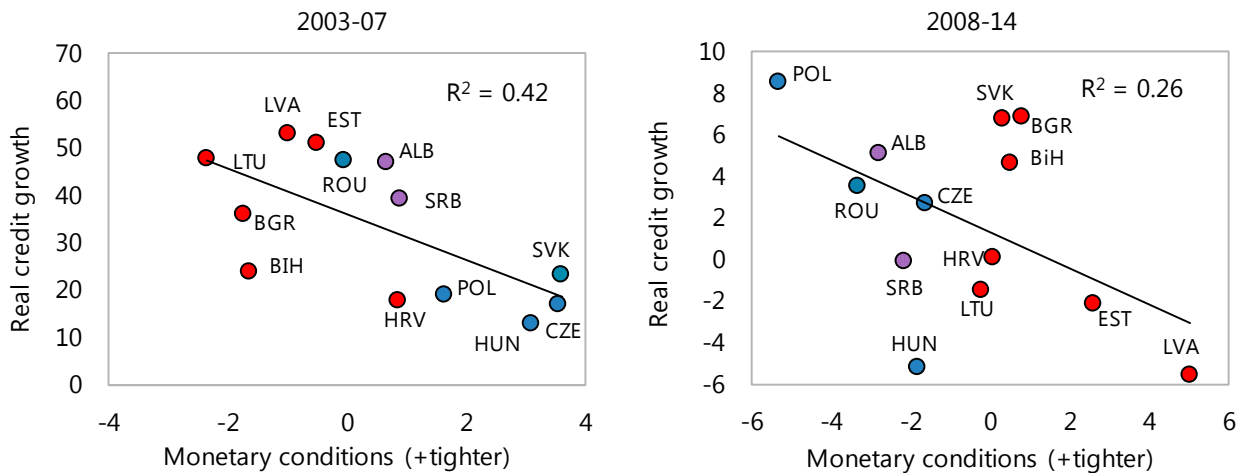
**A. Domestic Demand Growth**

(Percent, annual average)



**B. Real Credit Growth**

(Percent)



Sources: Haver Analytics; and IMF staff calculations.

growth.<sup>16</sup> The link between *monetary conditions* and *real credit growth* is similar though somewhat weaker.<sup>17</sup>

- Outcomes for **Albania and Serbia**—marked in purple—whose currencies were de jure floating but are de facto fairly stable—resemble more those of floaters than of peggers. During the boom phase, this holds also for Croatia, even though that country granted only a very modest degree of exchange rate flexibility in the context of a stabilized arrangement. While these few

<sup>16</sup> The question suggests itself whether size of the downturn after 2008 was not just a consequence of the size of the upswing before 2008. This analysis finds no evidence for this: in a regression of demand growth in 2008–14, on the change in the monetary stance in 2008–14, and on demand growth in 2003–07, the latter factor is insignificant.

<sup>17</sup> By contrast, no significant link is found between exchange rate flexibility and exports (not displayed above).

country observations provide only anecdotal evidence, they suggest that even limited exchange rate flexibility may have been helpful in managing the cycle.

### **Alternative Explanations**

**Do factors other than monetary policy explain the differences in the boom-bust-recovery cycle?** This subsection investigates some alternatives (Figure 8). Again, the small sample allows only for basic tests; for example, multivariate analysis is mostly beyond reach. With this caveat, the alternatives tested are as follows:

- **Size.** Smaller economies may be intrinsically prone to more volatility. If smaller economies also have more frequently fixed exchange rates, exchange rate flexibility and low volatility are jointly endogenous; that is, the correlation reported above would be spurious.

At least within CESEE, there is no support for this hypothesis, however. *Within* the group of countries with low exchange rate flexibility—that is, where the monetary regime does not enter the picture—size is not correlated with volatility (Figure 8, panel A). The Baltics—medium sized among peggers—experienced the most volatility; in both smaller (Macedonia, Albania, Bosnia and Herzegovina) and larger (Croatia, Slovenia, Bulgaria) economies, growth volatility was lower.

- **Quality of institutions.** Countries with weak institutions may be intrinsically more prone to volatility than countries with better institutions (see, for example, Acemoglu and others 2003). However, within the group of countries with low exchange rate flexibility, the relationship between volatility and perceived institutional quality is *positive*, with institutional quality proxied by the Kaufmann, Kraay, and Mastruzzi (2006) perception index (Figure 8, panel B).<sup>18</sup> The correlation is mostly driven by the Baltics, whose exceptionally fast growth during the convergence phase made for particularly misaligned monetary conditions.
- **Macro-policies other than monetary policy.** Procyclicality of macroeconomic policies is a frequent phenomenon in emerging economies (Kaminsky, Reinhart, and Vegh 2005). If fiscal or macroprudential policies were more procyclical in countries with fixed exchange rates—that is, more accommodative in the boom, and more restrictive thereafter—this would be an alternative explanation for the more pronounced boom-bust cycle.

Regarding *fiscal policy*, countries with fixed or quasi-fixed exchange rates tended to have a *tighter* fiscal stance during the booms phase (2003–07), while the fiscal *impulse*—that is, the change in the stance—was on average broadly the same as in countries with flexible exchange rates (Figure 8, panel C). Also, the intensity in the use of *macroprudential policies* did not differ significantly between the two groups (panel D).<sup>19</sup> This suggests that nonmonetary macro-policies did not induce *additional* procyclicality in countries with fixed exchange rates relative to floaters. However, they also did not *offset* procyclicality introduced by the monetary stance.

---

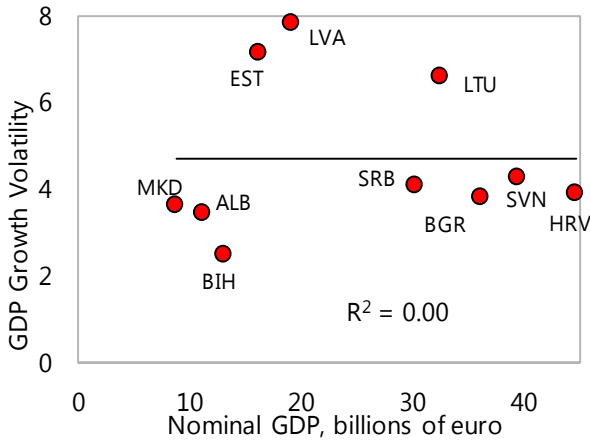
<sup>18</sup> It is worth emphasizing that the Kaufmann, Kraay, and Mastruzzi (2006) index measures the *perception* of quality, not quality itself.

<sup>19</sup> There is some evidence that macroprudential policies reduced volatility *within* the group of countries with low exchange rate flexibility. However, the result is based on too few observations to be stated with confidence.

**Figure 8. Alternative Explanations**

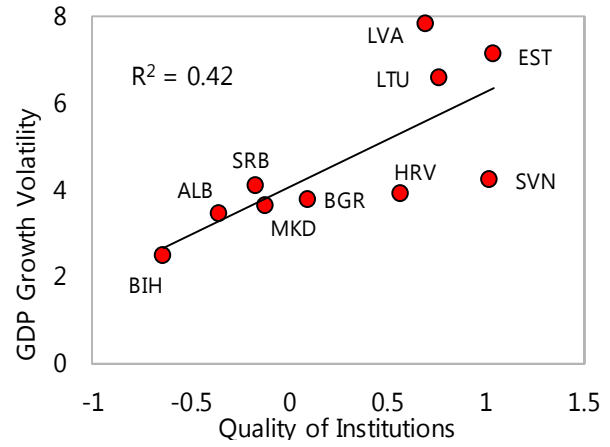
**A. Size**

(2003–14 average)



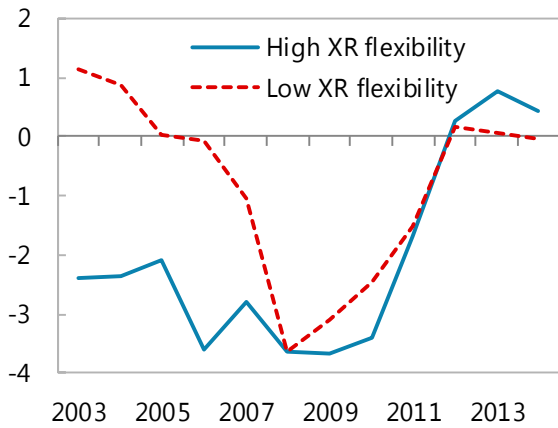
**B. Perceived Quality of Institutions**

(2003–14 average)



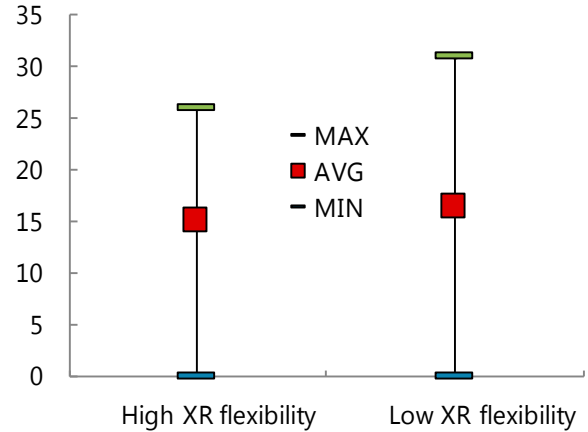
**C. Fiscal Impulse**

(Average annual structural primary balance, 2003–07)



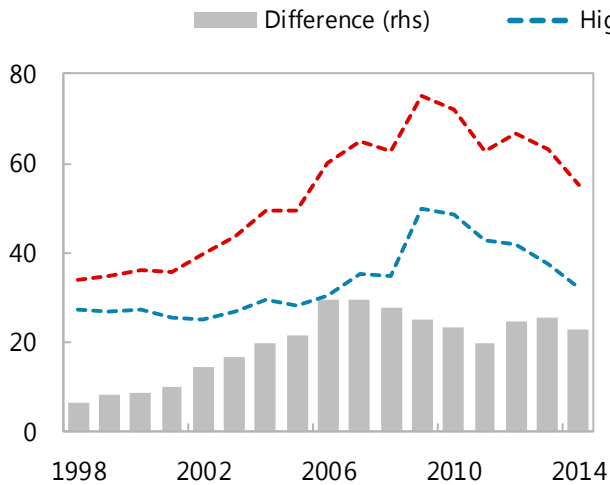
**D. Macprudential Policies**

(Number of policies adopted, precrisis)



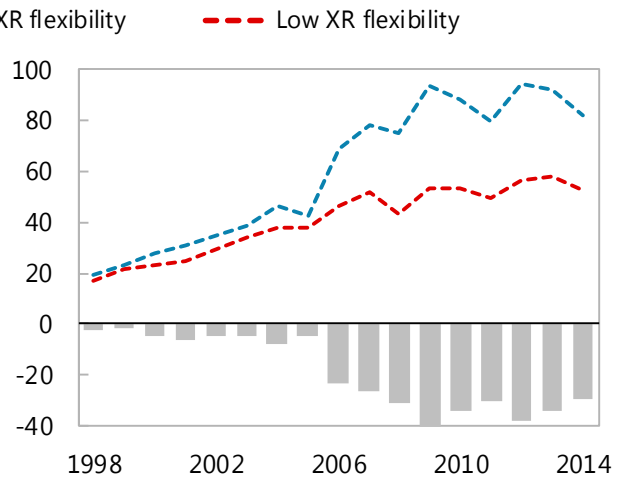
**E. Bank Flows and Other Investment Liabilities**

(Percent of GDP)



**F. Foreign Direct Investment**

(Percent of GDP)



Source: IMF staff calculations.

- **Structure and size of capital inflows.** According to this view, the relative proximity of Central European economies to the euro area (and possibly also stronger underlying institutions) allowed them to attract a relatively larger share of foreign direct investment (FDI) and reduce their reliance on bank funding. Because bank funding tends to be more volatile than FDI, countries outside Central Europe—which also tend to have less flexible exchange rates—suffered more volatility.

The evidence is not straightforward. Bank flows were indeed more volatile than FDI.<sup>20</sup> However, until the early 2000s, both the total amount and the structure of capital inflows were broadly the same for countries with fixed and flexible exchange rates. For bank flows, a sizable gap in favor of pegs opened up only from about 2002/03, when the boom was already well underway (Figure 8, panel E). For FDI inflows, a marked differential in favor of floaters appeared only from about 2006 (panel F). This suggests that differences in the composition of capital inflows are more a *part* of the different boom-bust pattern rather than its *cause*. In countries with low exchange rate flexibility, low real interest rates boosted demand for credit and the value of collateral, leading to more bank lending. With a flexible exchange rate, FDI investors benefited from currency appreciation. In short, there is an issue of reverse causality that cannot be entirely disentangled.

### ***Implications beyond Macroeconomic Volatility***

#### **The implications of the different growth patterns go beyond volatility, and some are**

**potentially long lasting.** Figure 9 shows stylized facts. As a caveat, while the link of these outcomes to differences in the boom-bust pattern is suggestive, other factors may (also) be at work.<sup>21</sup> Further, the indicators average across countries; hence individual country experiences can deviate from the average.

- **Length of recession.** Recessions in countries with fixed and quasi-fixed exchange rates tended to be not only deeper but also longer. Economies with high exchange rate flexibility needed on average four quarters until growth returned, while countries with low exchange rate flexibility needed on average nine quarters—a difference of more than a year (Figure 9, panel A).
- **Debt and investment.** Countries with fixed exchange rates accumulated more private sector debt during the boom (Figure 9 panel B). Several of them continue to suffer from substantial debt overhangs, as they manage to draw down debt only slowly (IMF 2015a). Relatedly, in the wake of the global financial crisis, *investment rates* in countries with fixed exchange rates dropped below those of countries with flexible exchange rates and have yet to recover (panel C).
- **Unemployment.** Registered unemployment has traditionally been higher among countries with low exchange rate flexibility, which arguably reflects structural factors. However, the differential more than doubled in the wake of the global financial crisis (Figure 9 panel D). Similarly, outward

---

<sup>20</sup> The standard deviation of bank flows is 6 percentage points of GDP for 2003–15; for FDI it is about half that size.

<sup>21</sup> For example, the investment ratios reported below may also be affected by the absorption of European Union structural and cohesion funds, or by countries' different degrees of integration into European supply chains.

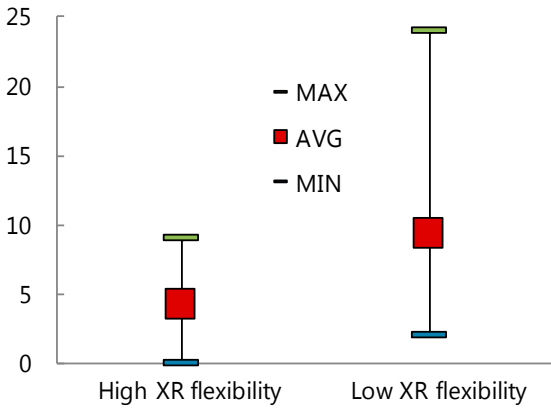


## Figure 9. Implications beyond Macroeconomic Volatility

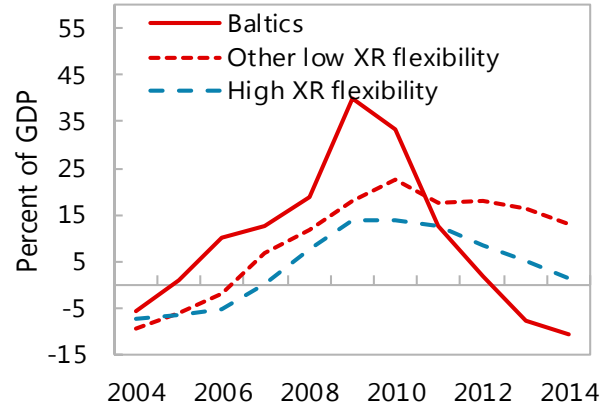
(Cross-country averages)

### A. Length of Recession

(Number of quarters with negative GDP growth)

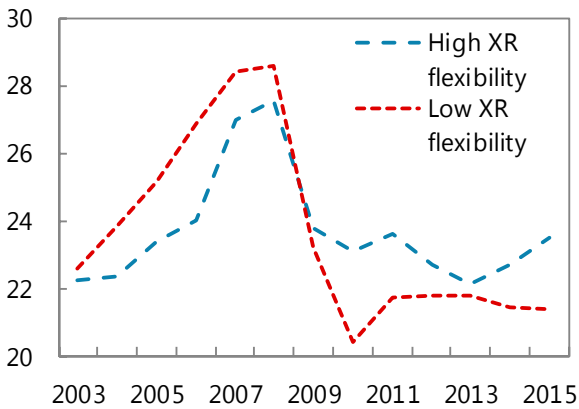


### B. Private Sector Debt Overhang 1/



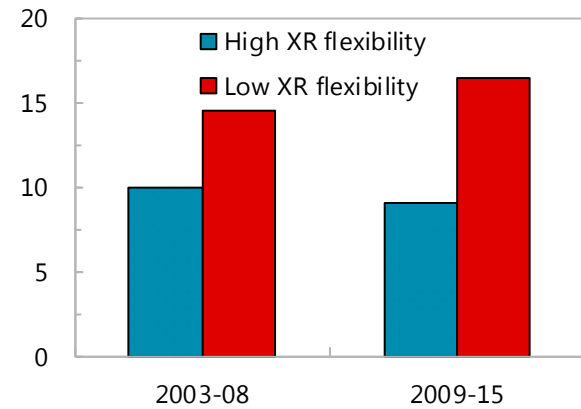
### C. Investment

(Percent of GDP)



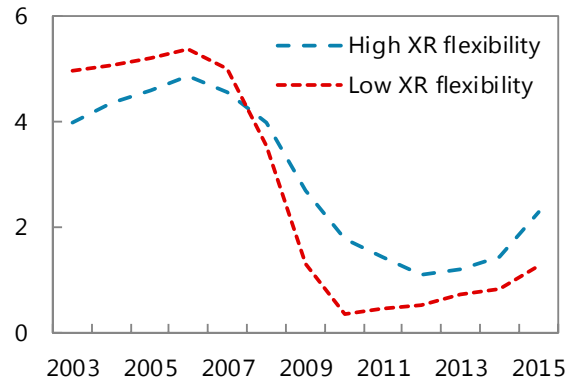
### D. Unemployment

(Percent)



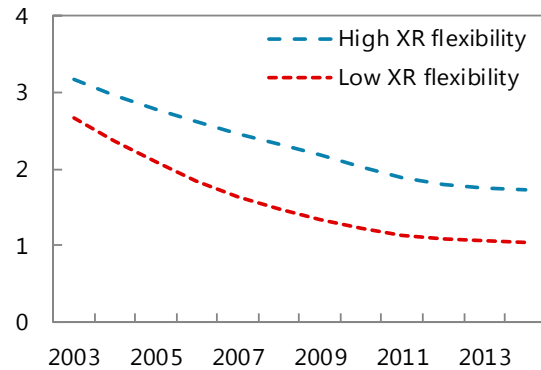
### E. Real Potential Growth

(Percent)



### F. Total Factor Productivity Growth

(Percent)



Sources: Haver Analytics; IMF, WEO; and IMF staff calculations.

1/ Private sector debt relative to long-term, sustainable values. For details, see IMF (2015a).

migration has been higher for countries with low exchange rate flexibility since 2008 (not displayed in the chart; see IMF 2016 for details).

- **Potential growth.** A longer and deeper recession can harm potential growth, as lower investment rates harm the physical capital stock, and as unemployment and outward migration lead to losses of human capital. While estimates of potential growth are notoriously uncertain, computations based on a coherent methodology across CESEE countries (IMF 2016) suggest that potential growth weakened disproportionately for countries with fixed and quasi-fixed exchange rates (Figure 9, panel E). Disaggregating potential growth into its components points to weak investment as the main cause for the disproportionate slowdown. Total factor productivity growth has also been lower in countries with low exchange rate flexibility, but this is a long-standing phenomenon that appears unrelated to the boom-bust-recovery cycle (panel F).

## Nonmonetary Objectives

### Sometimes nonmonetary objectives are stressed as a factor in favor of fixed exchange rates.

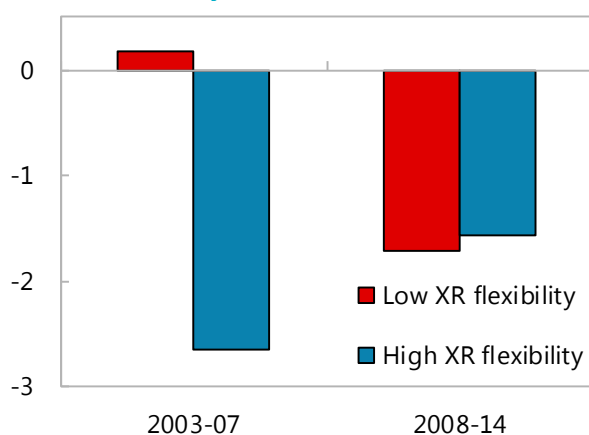
The argument goes broadly as follows (see for example, Aslund and Dombrovskis 2011): by removing the scope for monetary policy to support demand, and by introducing more volatility, fixed exchange rate regimes increase the pressure for good conduct on other policies. This holds in particular for fiscal policy, but also for structural policies and general institutional development. Ultimately, what matters for emerging economies is institutional development. Hence, the argument goes, fixed exchange rate regimes are a means of forcing countries on a better development path.

**Does this line of argument fit CESEE?** The evidence is mixed (Figure 10):

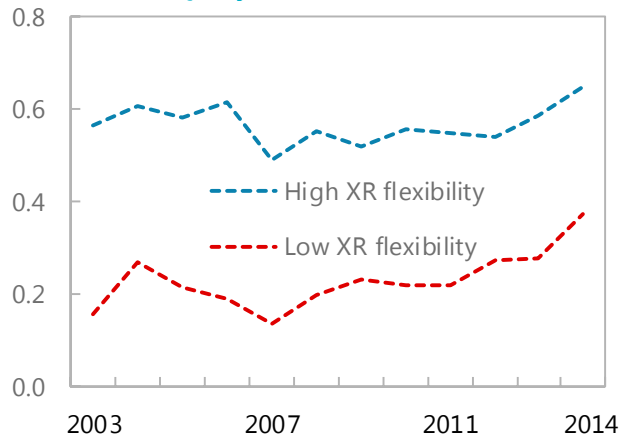
- **Fiscal policy.** In countries with low exchange rate flexibility, the fiscal stance was, on average, indeed tighter in the years preceding the global financial crisis (Figure 10, panel A). This advantage disappeared during the crisis, however, and has not returned.

**Figure 10. Nonmonetary Objectives**

**A. Structural Primary Fiscal Balance**



**B. Institutional Quality**



Sources: IMF, WEO; Kaufmann, Kraay, and Mastruzzi (2010); World Bank, WGI database; and IMF staff calculations.

- Perceived ***institutional quality*** tends to be better in countries with flexible exchange rates, although the picture is mixed: the Baltic countries are perceived as having as good or even better institutions than floaters, while western Balkan countries are generally perceived to have weaker institutions (Figure 10, panel B).

Over the past decade or so, countries with fixed exchange rates have, on average, caught up somewhat, strengthening their rating with the Kaufmann, Kraay, and Mastruzzi (2006) perception index in both absolute and relative terms (to countries with flexible exchange rates). The improvement has been concentrated in economies with a weak starting position. While these simple cross-country averages by themselves are far from conclusive, they lend some support to the Aslund-Dombrovskis (2011) hypothesis.

## Summary

**To summarize, this subsection finds evidence that countries with flexible exchange rates benefited from monetary autonomy in the past 15 years or so.** While flexible exchange rate regimes could not *insulate* their economies from CESEE's boom-bust cycle, they mitigated it, and helped these economies cope with deflationary pressures. Further, at least at this juncture, the growth outlook for economies with flexible exchange rates appears more favorable than for economies with fixed exchange rates, as the former avoided the worst debt overhangs during the global financial crisis, preserved—relatedly—higher investment ratios and therefore larger capital stocks, and also displayed more favorable employment dynamics. Looking ahead, the capacity of floaters to align monetary conditions with the economy's needs should continue to help promote balanced growth during convergence to euro area income levels and prepare for eventual euro adoption.

### Three qualifications are in order:

- ***The results are relative to the boom-bust-recovery cycle of the past 15 years.*** This cycle was very large, and may not recur in the same form. If so, the analysis arguably overstates the benefits of flexible exchange rates.
- It is possible that ***other policies, notably fiscal and macroprudential, may be able in principle to compensate for the lack of monetary policy autonomy,*** but have not been used enough in practice. If so, a policy implication would be that countries with fixed exchange rates should make more use of such policies in the future. The next chapter returns to this point.
- There is some evidence that ***fixed exchange rates were associated with better institutional development,*** especially for countries with a poor starting position. This suggests that pegging may have merits during the earlier stages of convergence.

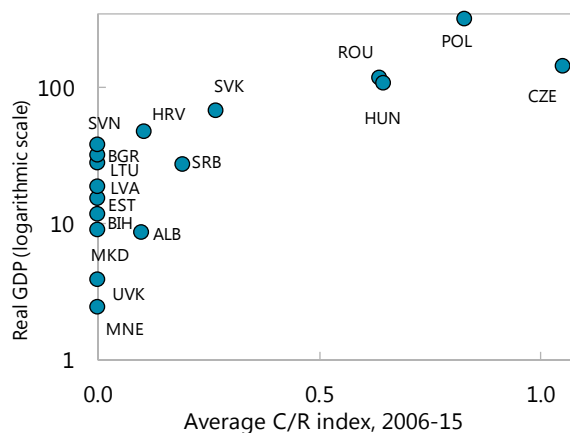
## Obstacles to Exchange Rate Flexibility

### Financial Euroization and Fear of Floating

**Why are there not more CESEE countries that let their currencies float?** This section discusses constraints on countries' monetary regime choices. Some obstacles are technical: for example, a certain size of the economy and level of institutional development is arguably required to render it worthwhile to build the technical apparatus for managing a domestic monetary policy anchor (see the next section for a discussion). But other constraints are economic in nature.

**Euroization (or dollarization) of balance sheets is well known to constrain exchange rate flexibility.** Countries in which a large share of private (or public) debt is denominated in foreign currency tend to be reluctant to let their currencies float, out of fear that depreciation could trigger contractionary balance sheet effects, with repercussions for the real economy and the financial system.

### Exchange Rate Flexibility and Size



Sources: Haver Analytics; World Bank, WDI; and IMF staff calculations.

**The link between balance sheet euroization and exchange rate rigidity is indeed strong in CESEE.** The share of foreign currency loans in total bank loans correlates highly with the Calvo-Reinhart index (Figure 11, panel A). Further, loan euroization has been highly persistent (panel B): in the past decade, there has been almost no change in the degree of loan euroization, except in countries that have adopted the euro (euro adoption eliminates "euroization" as it converts euro loans from foreign currency into domestic currency loans).

### Why Are Financial Systems Euroized?

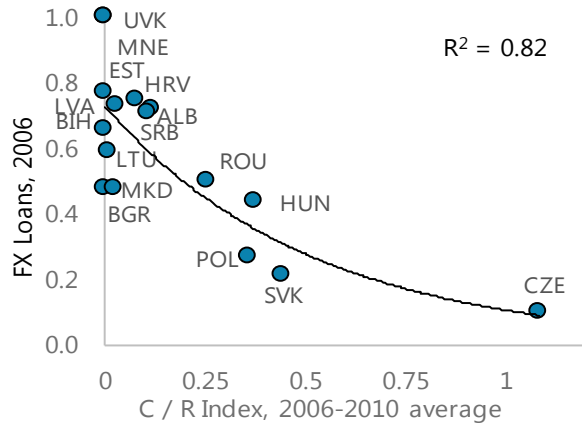
**Loan euroization can be driven by different forces that have different policy implications.**<sup>22</sup> To analyze these, this paper first looks at 2006—before the onset of the global financial crisis, and before the first CESEE country joined the euro area—when three groups of countries can be distinguished (Figure 11, panel C):

- **Countries with little euroization**, on both the loan and the deposit sides: the Czech Republic, the Slovak Republic, and Poland.

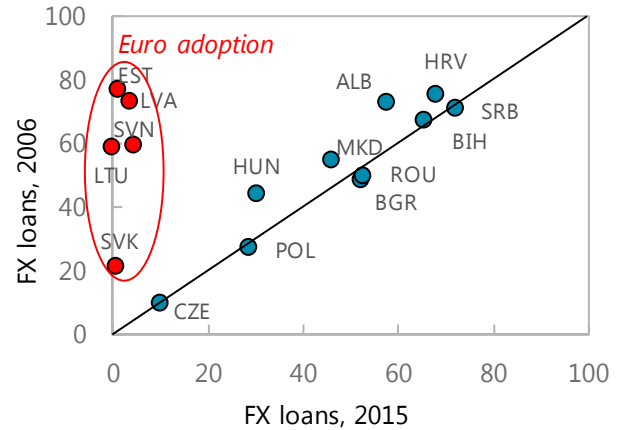
<sup>22</sup> There are also causes for loan euroization beyond those analyzed here—for example, exporting firms may match their foreign currency income stream with foreign currency liabilities. However, these phenomena are typically not large enough to explain large-scale financial euroization as discussed in this section.

**Figure 11: Financial Euroization**

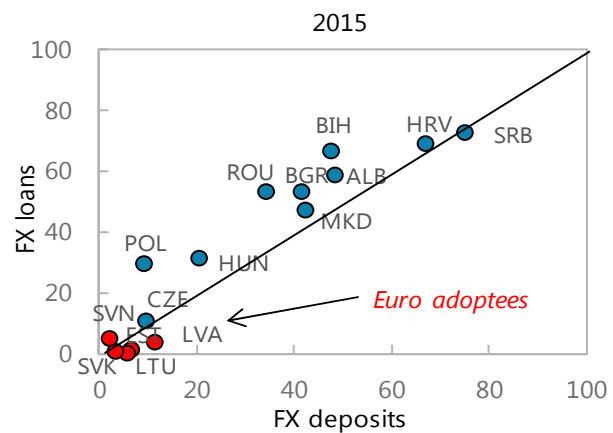
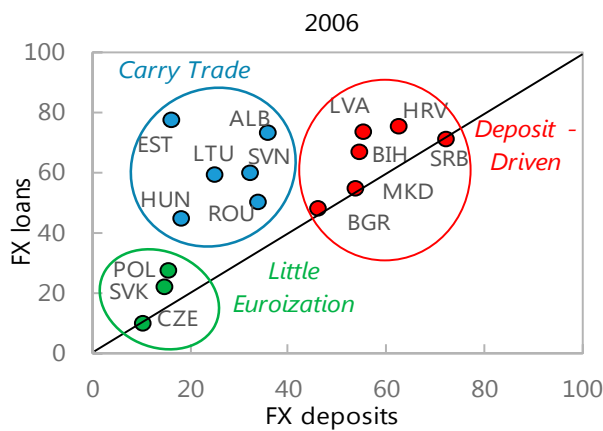
**A. Exchange Rate Flexibility and Loan Euroization**  
(Share of total loans)



**B. FX Loans, 2006 vs. 2015**



**C. Loan and Deposit Euroization 1/**  
(FX loans / deposits as a share of total loans / deposits)



Sources: IMF, IFS; national banks; and IMF staff calculations.

1/ Loan euroization: 2008 for SRB, 2007 for ALB, BGR, and ROU.

- **Countries with carry trade euroization**, that is, euroization of loans but far less euroization of deposits. With carry trade, households and corporations exploit differentials between low-interest rate foreign currency (FX) loans and higher-interest rate domestic currency deposits.<sup>23</sup> It requires that borrowers and lenders assess the risks differently, for example, when borrowers do not fully internalize potential economic costs associated with FX borrowing (Ranciere, Tornell, and Vamvakidis 2010).

Carry trade euroization used to be widespread in the Baltics and in Central European countries prior to the global financial crisis. It has important financial stability implications, as carry trades create long open FX positions in banks' balance sheets, exposing them to possible currency fluctuations. In countries where pegs or currency boards insured against such fluctuations,

<sup>23</sup> A sizable differential between domestic and foreign currency loans is a key characteristic for carry trade (see, for example, Rosenberg and Tirpák 2008).

notably the Baltics, banks often left these positions open. In countries with flexible exchange rates—Hungary, Poland, or Romania—however, banks close their FX positions by swapping FX exposure with foreign investors that seek to purchase domestic currency securities. In 2008–09, the disruption of FX swap markets in the wake of the global financial crisis created significant financial turbulence in some CESEE economies.

- **Countries with deposit-driven euroization.** Euroized *deposits* reflect distrust in the domestic currency as a saving vehicle. They force euro lending such that banks foreign currency positions can be closed, as a short FX position can typically not be hedged in the market. All CESEE countries with deposit-driven euroization had experiences with hyperinflation during their transition. The financial stability concerns associated with deposit-driven euroization go beyond balance sheet effects: depreciation and inflation expectations can reinforce euroization; in an extreme case, they can also trigger capital flight and financial disintermediation, as savers substitute foreign currency cash for deposits.

**Carry trade has mostly vanished in the wake of the global financial crisis** (Figure 11, panel D). The Baltics and Slovenia—countries with fixed or quasi-fixed exchange rates prior to euro adoption—joined the euro area, thus eradicating currency mismatches. In countries with flexible exchange rates, carry trade also eroded, owing to market turbulence and sharp currency movements that rendered carry trade unprofitable. Further, many supervisory authorities implemented prudential measures in the wake of the crisis to limit the origination of FX loans; in some cases, governments even forced conversion of FX loans into domestic currency (notably in Hungary).

**This leaves deposit-driven euroization as the main remaining euroization phenomenon in the region.** There are two main analytical approaches to deposit-driven euroization, both of which can usefully be applied to CESEE:

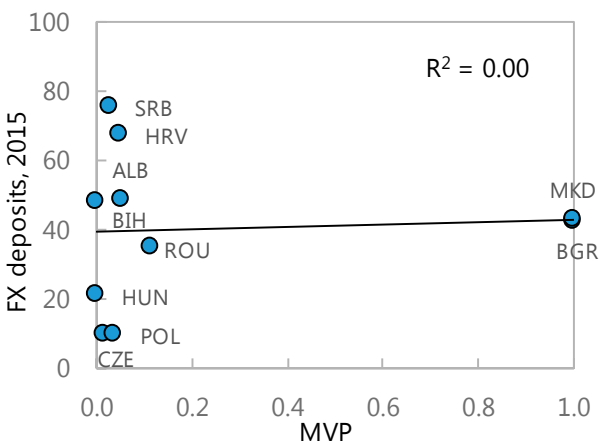
- **Minimum variance portfolio.** The minimum variance portfolio (MVP) approach interprets savings behavior as result of a risk management calculus (Box 4). High expected volatility of inflation relative to the real exchange rate incites savers to move into foreign currency assets, so as to minimize the riskiness of their portfolios. In applications of the MVP approach, expectations are typically proxied with past values of inflation and exchange rate volatility.

We find that for CESEE, the MVP approach *fails* to explain deposit euroization the latter is linked to the inflation volatility of the past decade or so. A statistically significant relationship emerges only when the early 1990s are included in the computation (Figure 12, panel B). Further, the volatility of the 1990s impacts deposit euroization today as much as it did 10 years ago (panel C). Explanatory power more than doubles when a control is added for whether countries experienced hyperinflation. All this suggests that it is not the *current* or recent conduct of monetary policy that is causing deposit euroization, but rather the still-traumatic inflation experiences of the 1990s.

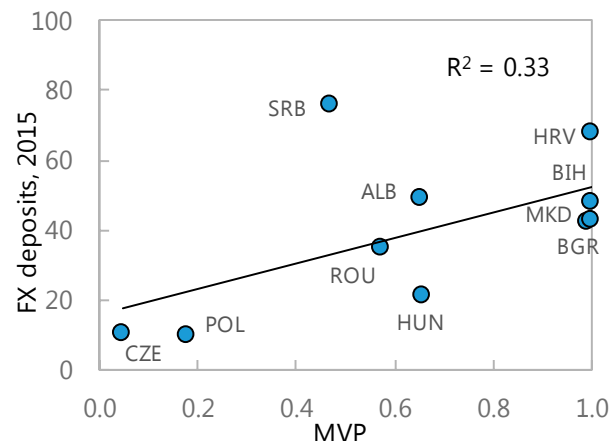
- **Institutional quality.** A complementary approach to the MVP emphasizes perceived low institutional quality that triggers distrust in the domestic currency by the population, thus provoking deposit euroization (De Nicoló, Honohan, and Ize 2005). In a simple bivariate correlation, the Kaufmann, Kraay, and Mastruzzi (2006) institutional quality perception index

**Figure 12. Determinants of Deposit Euroization**

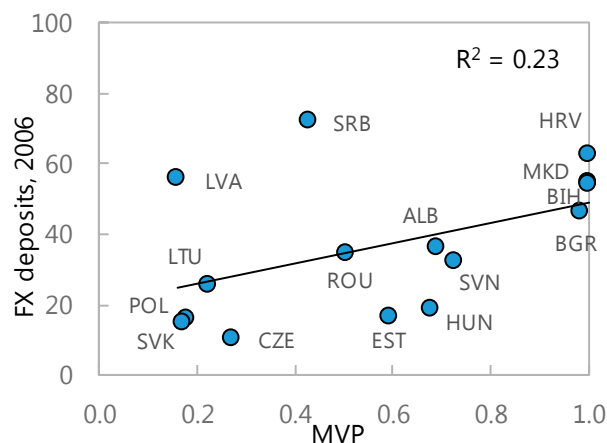
**A. Minimum Variance Portfolio, 2015, 10 years 1/**



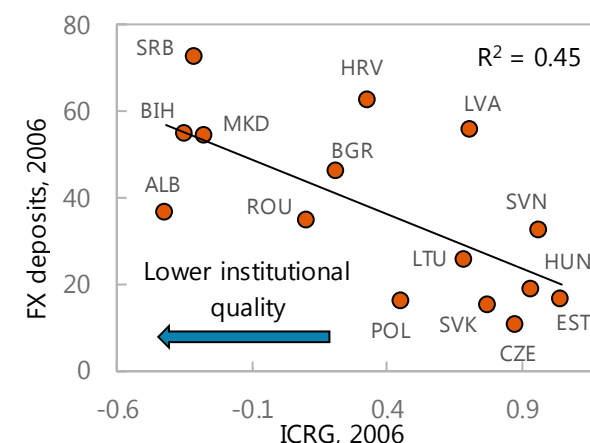
**B. Minimum Variance Portfolio, 2015, Long Term 2/**



**C. Minimum Variance Portfolio, 2006, Long Term 2/**



**D. Perceived Institutional Quality**



Sources: Haver Analytics, ICRG data; IMF, IFS database; national banks; World Bank, WDI; and IMF staff calculations.

1/ Minimum variance portfolio (MVP) estimated for 2006–15.

2/ MVP estimated using all available data until end period.

correlates indeed well with deposit euroization (panel D). However, the memory of hyperinflation and perceived lack of institutional quality are clearly related.<sup>24</sup>

**The results confirm findings obtained from micro data**, in particular the seminal study by Brown and Stix (2015). Their key results—based on the Euro-survey conducted by the Austrian National Bank that covers households in 10 CESEE countries—are worth summarizing briefly.

<sup>24</sup> A multivariate regression for 2006—the year before the first CESEE country joined the euro—yields:

$$\text{Share of FX deposits} = 0.17 (0.12) + 0.23 (0.12) * MVP + 0.03 (0.01) * \log(\text{Maxinfl}) - 0.09 (0.10) * ICRG,$$

where *MVP* is the minimum variance FX deposit share computed with all available data, *Maxinfl* is the highest annual inflation rate during transition, and *ICRG* is the Kaufmann, Kraay, and Mastruzzi (2006) institutional quality perception index. Standard errors are in parentheses. The regression is based on 17 country observations, the adjusted  $R^2$  is 0.71,  $\log(\text{Maxinfl})$  is significant at the 1 percent level, and *MVP* is significant at the 10 percent level.

#### Box 4. The Minimum Portfolio Variance Approach

The minimum portfolio variance (MVP) approach developed by Ize and Levi-Yeyati (2003) is based on a model of portfolio optimization under uncertainty (Thomas 1985).

Risk-averse savers optimize a portfolio consisting of foreign currency and domestic currency deposits.  $U_D = E(r_D) - c * Var(r_D)/2$  is their utility function, where  $r_D$  is the real return on the depositor's portfolio and  $c$  is the degree of risk aversion. If the real return on domestic currency deposits  $r_{cd}$  is affected by shocks to inflation  $\pi$ , and the real return on foreign currency deposits  $r_{fx}$  is affected by shocks to the real exchange rate  $e$ , the desired share of foreign currency deposits in total deposits is

$$x = \frac{Var(\pi) - Cov(\pi, e)}{Var(\pi) - 2Cov(\pi, e) + Var(e)} + \frac{E(r_{fx}) - E(r_{dc})}{c * (Var(\pi) - 2Cov(\pi, e) + Var(e))}$$

The first term is the minimum variance portfolio. High variability of inflation incites depositors to move into foreign currency deposits, while high variability of the real exchange rate incites a move to domestic currency deposits. The second term is a speculative component that is zero if uncovered interest parity holds.

The MVP approach is a second-generation dollarization model. These compare to first generation "currency substitution" models that explain dollarization mostly in terms of different expected inflation rates (rather than inflation volatility).

- **Past crisis experiences**, within both the household and the wider family, trigger a preference for FX deposits. "Crisis" encompasses thereby not only past hyperinflation, but also banking crises and other events that made households suffer financial losses.
- **Distrust in government** is another important factor triggering deposit euroization (but not related phenomena that lack an economic connotation, such as "distrust in police").
- **Depreciation expectations and fear of monetary instability** are widespread in CESEE—even in countries with fixed exchange rates.<sup>25</sup> They are also a strong factor driving deposit euroization.
- **Network effects** matter: the more widespread FX deposit holdings are in a person's social environment, the more likely the person is to prefer FX deposits herself.
- **Education and demographics**. Preferences for FX deposits are broadly the same between households of different education levels and age cohorts. The latter finding dampens prospects that fading memories of hyperinflation would make deposit euroization go away soon.

<sup>25</sup> For example, in 2011/12, about one-quarter of households in Bulgaria and Bosnia—both countries with currency boards—expected the exchange rate to depreciate in the next year. More than one-quarter expected higher inflation.



## Summary

In many CESEE economies, **exchange rate flexibility remains constrained by the often traumatic experiences with inflation during the transition.** In countries that suffered hyperinflation, distrust in the domestic currency remains widespread even after 20 years of monetary stability, resulting in large-scale and persistent euroization of deposits. The associated financial stability risks greatly limit many central banks' room for maneuver.

# MONETARY STRATEGIES FOR CESEE ECONOMIES

**This section turns to strategic policy options for CESEE economies.** It is neither prescriptive nor exhaustive, not least because the choice of a monetary and exchange rate regime is a sovereign matter and influenced by many factors that go beyond the economic calculus analyzed here—such as general attitudes toward European integration and geopolitical considerations.<sup>26</sup> Instead, this section illustrates various options and weighs their economic pros and cons.

**For countries with flexible exchange rate regimes, the previous section's results suggest little reason for strategic reorientation.** The monetary authorities should continue to use monetary autonomy to promote balanced growth, supported by adequate fiscal and macroprudential policies. This study's results do not suggest that central banks need to move to *pure* floating: even limited exchange rate flexibility appears helpful, for example, in the context of managed floats. However, central banks should resist the temptation to combat *trend* appreciation, to avoid losing control over domestic monetary conditions. Beyond monetary policy, growth-friendly structural reforms should aim at boosting growth and income convergence to the euro area. Once real and nominal integration indicators have sufficiently converged to euro area levels, adoption could be envisaged.

**For countries with fixed or quasi-fixed exchange rates, the range of realistic options depends on, among other things, how far away euro adoption is.** Euro area membership would eliminate currency mismatches and grant access to euro refinancing facilities. Where country authorities desire adoption and consider it a short-term prospect—say, within a decade or less—pondering changes to the monetary regime other than joining the euro area makes limited sense. However, the large gaps in economic integration criteria between for many CESEE economies (see the previous section) suggest that adoption may often be some time off. Where this applies, thinking about strategic alternatives can have merit. The longer-term options present themselves as follows: (i) stick to the current arrangement, or (ii) seek to move to a more flexible monetary regime. The advantages and challenges associated with both strategies are discussed below in turn.

---

<sup>26</sup> See Podpiera, Wiegand, and Yoo (2015) for a discussion of some economic arguments in favor and against.

## Sticking to Fixed Exchange Rate Regimes: The “Baltic Path”

### Overview

**Sticking to an existing exchange rate regime minimizes short-term risks, but can come at the expense of longer-term costs.**

- **Minimizing risks.** Fixed-rate regimes have proved to deliver low inflation and, more generally, have provided a credible monetary anchor. “Sticking” avoids a change from a tried and tested regime that, if exited inadequately or prematurely, could trigger sizable financial stability risks (see below).
- **Longer-term costs.** However, “sticking” also means that countries will likely have to live with elevated macroeconomic volatility and a tendency for boom-bust cycles with potentially long-lasting consequences—features that may get worse as economies develop and attract more capital flows. The capacity to adapt to shocks will also remain constrained. Further, fixed exchange rate regimes may eventually complicate euro adoption—elevated and volatile inflation, for example, can render entering and passing the European Exchange Rate Mechanism (ERM2) difficult.

### The Baltic Path

**“Sticking” has been pursued successfully by the Baltic economies that joined the euro area from a fixed exchange rate regime (Box 5). Can their performance be reproduced elsewhere?**

Three caveats seem in order:

- For many new member states and EU accession countries, **the distance to euro adoption appears greater than it was for the Baltics.** This implies that they would need to endure volatility for a longer period, rendering the “stick” option more costly.
- **The Baltics met growth volatility with, among other things,** (i) strong institutions, (ii) strong fiscal positions that provided space in crisis, without endangering fiscal sustainability, (iii) rapid downward adjustment of wages to compensate for the lack of exchange rate flexibility, and (iv) high productivity growth that allowed the Baltic economies to grow out of many difficulties, including private debt overhang (Figure 13 and Figure 9, panel B).<sup>27</sup>

A simple comparison of the Baltics’ indicators with the three largest economies remaining on fixed exchange rates suggests that the Baltics’ institutional setup is indeed unique for the region. Their performance may therefore be difficult to reproduce, at least in the absence of profound structural reforms.

- However, **even the Baltic countries required a crisis and recession** that interrupted convergence to bring inflation down to levels consistent with euro adoption (Box 5). With the high inflation rates during the convergence period, the Baltics could not have adopted the euro.

---

<sup>27</sup> These cross-country differences can, of course, obscure outcomes for individual countries—public debt in Bulgaria, for example, is at (low) levels that are comparable to the Baltics.

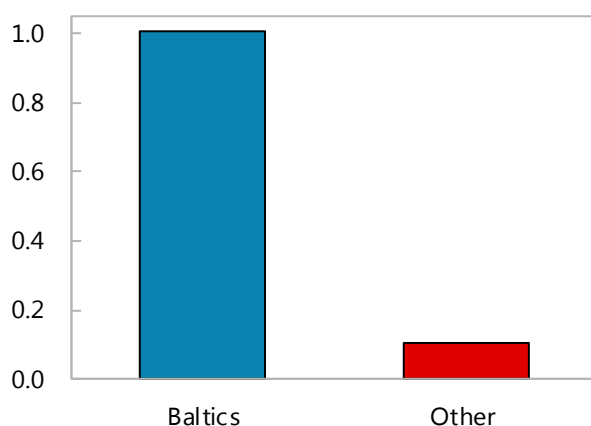
## Options to Enhance Macroeconomic Performance under Fixed Exchange Rate Regimes

**What options do countries that decide to “stick” have to manage economic convergence and contain volatility?** One option suggesting itself is making stronger use of *nonmonetary macro-policies*, to compensate at least in part for the absence of monetary and exchange rate adjustment mechanisms. How large a role such policies can play in practice is open to question: the fact that both fiscal and macroprudential policies were, on average, insufficiently countercyclical during the last boom (see above) points to a substantial challenge.

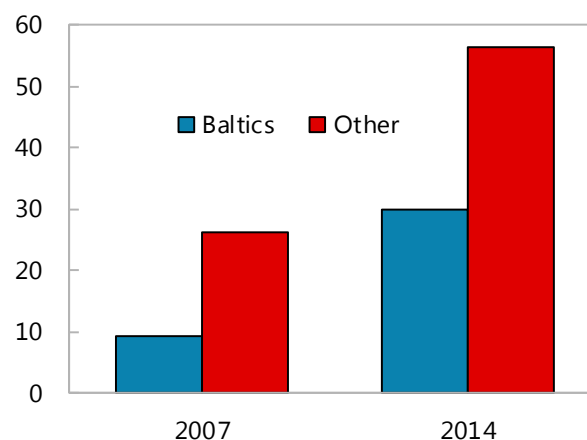
- **Fiscal policy.** A sufficiently countercyclical fiscal stance may require sizable surpluses during periods of good growth, both to contain demand pressures and to create fiscal space that can be used in a downturn. Empirical evidence suggests, however, that running a successful countercyclical fiscal policy is a steep challenge for emerging economies (Vegh 2015). Political

**Figure 13. The Baltics vs. Other Countries with Fixed Exchange Rates**

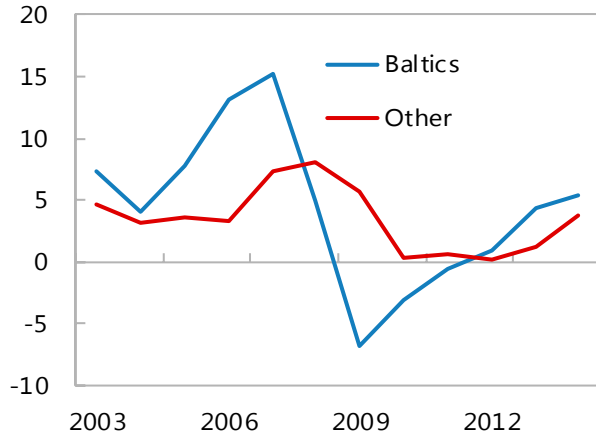
**A. Quality of Institutions, 2014**



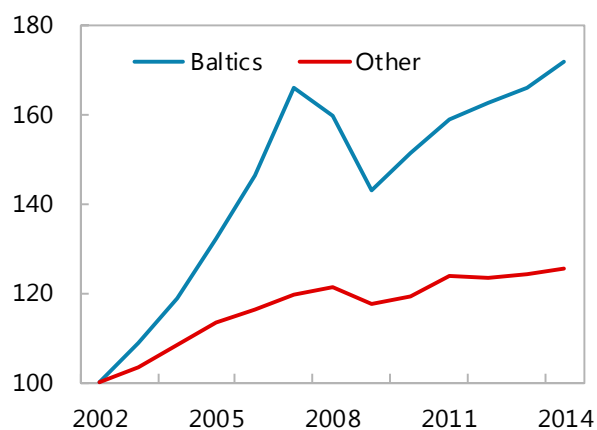
**B. Public Debt**  
(Percent of GDP, average)



**C. Real Wage Growth, 2009–12**  
(Average annual percentage change)



**D. Total Factor Productivity, 2002–14**  
(Cumulative, 2002 = 100)



Sources: Haver Analytics; ICRG data; IMF, WEO; and IMF staff calculations.

Other = nonweighted average of Bosnia and Herzegovina, Bulgaria, and Croatia.

### Box 5. The Baltic Path to Euro Adoption\*

*Estonia, Latvia, and Lithuania have all joined the euro area, but the path from the hard exchange rate pegs adopted early in the transition process was long and difficult. Meeting the entry criteria is inherently challenging for catching-up economies and in the end it took specific circumstances to seal the deal.*

**All three Baltic countries adopted hard exchange rate pegs early in economic transition.** Following independence in 1990, the ruble remained the sole legal tender. As hyperinflation ensued and banknotes ran short in 1992, Estonia introduced a currency board pegging the kroon to the Deutsche Mark. Lithuania set up a U.S. dollar-based currency board in 1994 for the litas, and Latvia pegged the lats to the SDR the same year under a quasi-currency board arrangement—only minimal deviations of  $\pm 1$  percent from the central parity were allowed and base money was fully backed by foreign reserves.

**The hard exchange rate pegs helped secure prudent fiscal policy and successful disinflation.** They were credible thanks to strong international reserve positions, which benefited from Western countries and the Bank for International Settlements returning gold from the interwar period. Inflation came down quickly and rates dropped into the single digits in early 1997. Initial exchange rate undervaluation prolonged the process, but other successful transition countries took 1½-2 years longer to get there. Equally important, the Baltic pegs put a swift end to “soft budget constraints” in the public sector, helping to contain public debt better than in the rest of the region.

**But the currency board arrangements also exacerbated the business cycle and are subject to inherent vulnerabilities.** Without independent monetary policy and exchange rate buffers, booms and busts are more difficult to contain. The boom that engulfed CESEE from about 2003 was particularly pronounced in the Baltic countries, with current accounts reaching deficits of 15–23 percent of GDP—surpassed only by Bulgaria and Montenegro, which also operated hard pegs. And the subsequent recession in the 2008/09 crisis was also deeper than elsewhere. Moreover, the crisis exposed a key vulnerability of currency boards: the lack of a proper lender-of-last resort function. There is very limited scope to counteract a liquidity squeeze on banks. Reserve requirements can be lowered and liquidity support up to any excess reverse coverage is possible, but this goes only so far. Latvia relied on financial support from the EU and the IMF, Estonia arranged for contingency support from Nordic neighbors, and Lithuania barely scraped by.

**Euro adoption had great appeal in the Baltic countries from the outset.** Economically, it secures access to ECB liquidity and has no important downsides, because independent monetary policy and exchange rate flexibility had already been relinquished. Politically, it was the next logical step on the integration path with Western Europe. Upon joining the EU in 2004, all three countries declared their intention to adopt the euro as soon as possible. The target date was January 2007, given the required two-year participation in ERM2 plus one year for evaluation and preparation. Latvia switched its peg to the euro in 2005, Lithuania had already done so in 2002, and Estonia converted automatically when the Deutsche Mark was replaced by the euro in 1999.

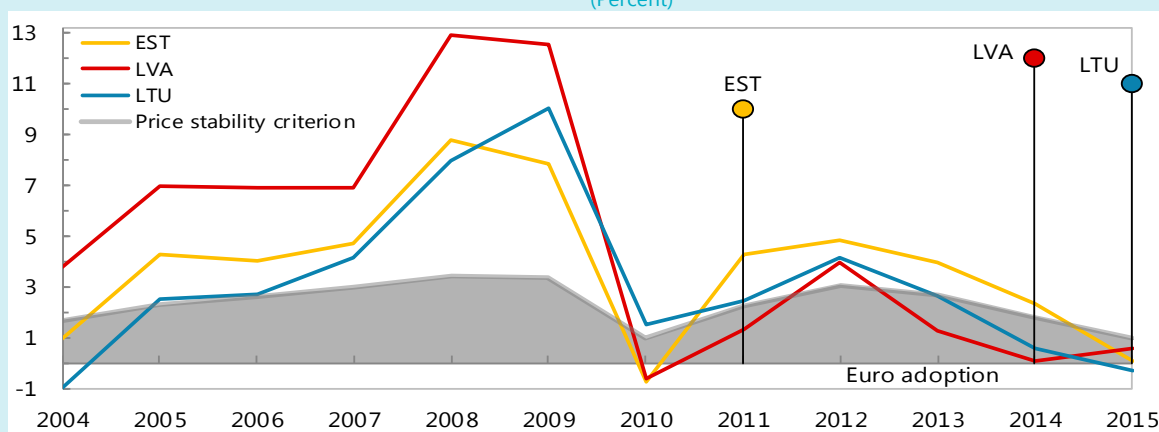
**However, the euro area entry criteria were ill-suited for catching-up economies with currency boards.** These so-called Maastricht criteria were designed with advanced economies in Western Europe in mind, those that might join the euro area after its launch. The requirements regarding sound public finances, exchange rate stability, and interest rate convergence were attainable for the Baltic countries. However, the

inflation criterion, which stipulates that inflation must not exceed the average in the three “best performers” in the EU plus a margin of 1.5 points, was a problem because the catching-up process is typically accompanied by real exchange rate appreciation, due to Balassa-Samuelson effects and price increases related to quality improvements of domestically produced goods and services. With nominal appreciation ruled out, real exchange rate appreciation takes the form of positive inflation differentials with the euro area. This leaves two avenues to avoid running afoul of the inflation criterion: waiting until the catching-up process is largely complete, or hoping for fortuitous circumstances that depress inflation. The latter include periods of low inflation in food and energy prices, which have a larger weight in the Baltic CPIs than the Western European ones; cuts in indirect taxes or administered prices; or particularly deep recessions.

**The inflation criterion thwarted Baltic efforts to join the euro area early.** Estonia and Latvia postponed the envisaged entry date because inflation ran too high. Lithuania had lower inflation, and in 2006 it formally applied for euro adoption in 2007. But in the reference period of March 2006, inflation ran at 2.72 percent, slightly above the 2.66 percent threshold. Lithuania was rejected.

**The deep recessions in the 2008/09 crisis opened an unexpected window to beat the inflation criterion.** Price pressures evaporated quickly as GDP plummeted by between 14 and 18 percent in 2009. But the recessions also took a large toll on public finances, with fiscal deficits at risk of breaching the threshold of 3 percent of GDP. Draconian adjustment efforts were made in response. Estonia managed to keep the deficit sufficiently low throughout. It joined the euro area in 2011, based on a positive evaluation by the EC and ECB in the spring of 2010. Fiscal consolidation took longer in Latvia and Lithuania. By the time they had secured sufficient fiscal consolidation, the euro area crisis had broken out, pushing several Western European countries into or close to deflation and raising questions about what constituted “best performers” on inflation. In the end, countries in deflation and those outside the euro area were dropped as comparators. Latvia adopted the euro in 2014. Lithuania followed in 2015.

**Baltic Economies: HICP Inflation, 2004–15**  
(Percent)



Sources: Haver Analytics; and IMF staff calculations.

\* Prepared by Christoph Klingen.

economy pressures render it difficult to maintain sufficiently large surpluses during boom periods. And even where a tight stance can be maintained, effectiveness is hampered by the fact that fiscal multipliers tend to be smaller than in advanced economies—especially when economies are open or public debt is high.

- **Macroprudential policies** can help contain financial imbalances and risks, in particular by counter-cyclically tightening and loosening banks' lending conditions. They require a good institutional framework, sound analytical capacity, and the willingness and ability of the macroprudential authority to act. Encouragingly, Cerutti, Claessens, and Laeven (2015) find that in emerging markets, macroprudential measures tend to be *more* effective in constraining credit growth than in advanced economies, arguably reflecting lower financial market development, and therefore limited options to circumvent bank lending regulations.

Dimova, Kongsamut, and Vandebussche (2016) report that for Bulgaria, Croatia, Romania, and Serbia during the pre-2008 boom, only strict macroprudential measures helped contain domestic credit growth. Most effective were (i) binding marginal reserve requirements tied to credit growth that acted as de facto credit ceilings, (ii) strong capital measures, and (iii) the introduction of strict loan-to-value and debt-service-to-income ceilings. This said, circumvention via direct cross-border borrowing still offset much of the measures' impact. Evasion through cross-border borrowing is an issue in particular for EU member states, as the "single passport" for financial services grants lenders legally established in one member state the right to provide services in another member state without further authorization requirements.

Restricting channels of circumvention should therefore be an integral part of policy design, which will require international cooperation. The reciprocity for countercyclical capital buffers embedded in Basel III, and the supranational perspective brought by the European Central Bank and the European Systemic Risk Board within the new European macroprudential framework, are positive steps.

**Finally, structural reforms also have an important role to play in strengthening the performance of fixed exchange rate regimes**, in particular measures that enhance labor market flexibility. Following the taxonomy of Blanchard, Jaumotte, and Loungani (2014), both "micro" and "macro" labor market flexibility matter.

- **Micro flexibility** facilitates the reallocation of the workforce to generate productivity growth. A key policy to strengthen micro flexibility is supporting workers through unemployment insurance and retraining rather than through high levels of employment protection.
- **Macro flexibility** aims at swift adjustment of wages to external shocks in lieu of the exchange rate. Blanchard, Jaumotte, and Loungani (2014) note that macro flexibility depends critically on the structure of the collective bargaining system. Successful systems tend to allow both decentralized wage setting at the firm level—to adjust wages to the specific conditions faced by individual companies—and a degree of coordination at the national level—to promote the adjustment of wages and prices in response to macroeconomic shocks. This said, trust among social partners appears just as important in bringing about macro flexibility as the structure of collective bargaining.

## Moving to Flexible Exchange Rate Regimes: What Does It Take?

### Overview

**What can countries with fixed exchange rate regimes do to move toward more exchange rate flexibility?** This subsection sketches the elements of a comprehensive strategy, based on (i) a thorough review of the literature, including previous work conducted at the IMF—in particular IMF (2015b, chapter 3); Reinhart, Rogoff, and Savastano (2014); Kokenyne, Ley, and Veyrune (2010); and Ize and Levy-Yeyati (2005); (ii) the analysis of individual country cases, both within and outside emerging Europe (Box 6); and (iii) bilateral discussions with some regional central banks.

**Moving from a fixed to a flexible rate regime is a complex undertaking that needs to include—and is conditional on success with—a de-euroization strategy.** A move without proper preparation risks financial upheaval, capital flight, and financial disintermediation. The balance of benefits and risks of a possible move needs to be assessed carefully and for each country individually. In some cases—in particular countries with limited technical capacity and underdeveloped institutions—moving may not be advisable at all. Further, the step to exchange rate flexibility is larger the more explicitly a country’s existing macroeconomic framework is built around an external anchor, as is the case especially with currency boards and unilateral users of the euro.

**Some conditions for transitioning to flexibility are technical in nature.**<sup>28</sup> These include (i) developing a liquid foreign exchange market, (ii) building market participants’ capacity to manage exchange rate risks, and the capacity of the supervisory authorities to regulate and monitor market participants, (iii) formulating an FX intervention strategy that is consistent with a flexible exchange rate regime, and (iv) a good understanding of the monetary transmission mechanism, coupled with a reasonable degree of control over the main policy instrument. For small economies, developing these capacities may be unreasonably costly.

**As sketched earlier, the main economic challenge associated with moving to more exchange rate flexibility is to overcome savers’ distrust in the domestic currency.** To this end, the literature review emphasizes the importance of three conditions for success:

- **Disinflation and, more generally, restoring a stable macroeconomic environment.** A crucial element is a stability-oriented fiscal policy that eliminates the need for monetary financing of the budget.
- **Establishing a credible domestic monetary anchor;** that is, targeting of inflation or of another domestic monetary aggregate by a strong and independent central bank.
- **Supportive regulatory and structural policies** that encourage the use of the domestic currency.

---

<sup>28</sup> See Dutttagupta, Fernandez, and Karacadag (2004), and Freedman and Ötoker-Robe (2009, 2010) for detailed discussions.

Of these elements, disinflation has long been achieved in CESEE, in most countries for more than two decades (as discussed above). This paper therefore focuses on the other two conditions.

### ***Establishing a Credible Domestic Monetary Anchor***

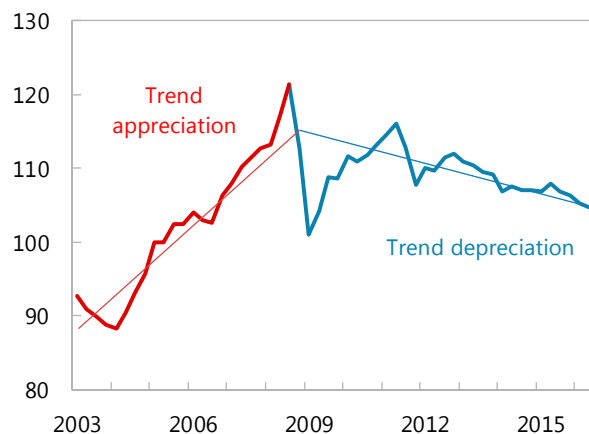
**A gradual, carefully planned transition to exchange rate flexibility can help render the shift smooth and durable.** Ötker-Robe and Vavrá (2007) report that in Israel, Poland, and Chile, shifting from pegging to full-fledged floating and inflation targeting took 10–20 years. The transition started typically with an exchange rate band that allowed only limited flexibility. The band was then gradually widened and finally eliminated. Hence, the central bank removed the external monetary anchor only gradually, exposing households, corporations, and financial institutions step by step to exchange rate risk. The gradual nature of the transition also granted the monetary and supervisory authorities time to build the necessary operational and technical capacities associated with floating. The process often went hand in hand with stepwise capital account liberalization. In the European context, however, capital account liberalization is a part of the EU accession process, hence the scope is limited for tailoring liberalization to the needs of exchange rate regime transition.

**Cross-country evidence suggests that appreciation expectations greatly facilitate the initial move to exchange rate flexibility.**

- According to a recent IMF study (IMF 2015b, chapter 3), **most de-euroization/de-dollarization episodes occurred during periods of sustained currency appreciation.** Appreciation, in turn, was induced by strong growth and sound macroeconomic policies. The rationale is that appreciation expectations give savers a financial incentive to switch to domestic currency deposits.
- By contrast, introducing flexibility when savers expect depreciation can be counterproductive, as this incites currency substitution to euro deposits.<sup>29</sup> This implies that **the past 7-8 years were, in general, not conducive to switching to flexible exchange rates,** as the region dealt with trend depreciation against the euro (in the chart proxied by the average real exchange rate of CESEE's clear floaters). While exchange rate flexibility may have been desirable for combatting the recession and deflation, it would have come at the expense of sizable financial stability risks.

#### **Real Effective Exchange Rate, Floaters 1/**

(CPI based, index, 2000 = 100)



Sources: Haver Analytics; and IMF staff calculations.

1/ Simple average for the Czech Republic, Hungary, Poland, and Romania.

<sup>29</sup> In principle, appreciation expectations could also be generated by a sharp, unanticipated depreciation at the onset of floating, but this appears a risky strategy, in particular in a context of lack of trust in the domestic currency.

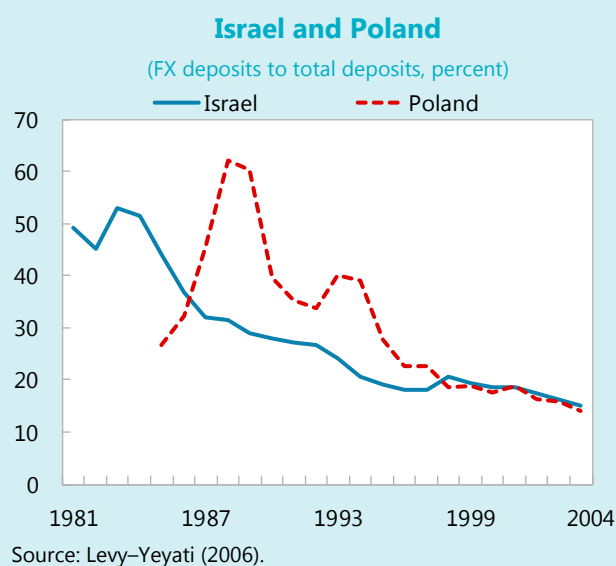


## Box 6. De-Dollarization of Bank Deposits: Successful Country Cases

While many countries have attempted to de-dollarize, only a few have succeeded. Histories of macroeconomic instability and hyperinflation—the key factors that encourage dollarization—tend to lead to long memories, encouraging economic agents to maintain FX-denominated assets even when macroeconomic conditions have stabilized and policy credibility has been established.

- **Israel.** High and rising inflation throughout the 1970s, reaching triple digits in the mid-80s, led dollar deposits to reach half of total deposits by 1984, along with high inflation indexation. Subsequently, Israel adopted a policy package to rein in imbalances, including by cutting fiscal deficits, reducing inflation first under a crawling exchange rate anchor and then an inflation targeting regime, while gradually increasing exchange rate flexibility. These macroeconomic policies were complemented with prudential regulations, such as remunerating mandatory local currency reserves at a higher rate, imposing stronger requirements for unhedged borrowers, establishing minimum holding requirements for foreign currency deposits, and developing the securities market in domestic currency. As a result, deposit dollarization declined to about 20 percent by the mid-1990s.

- **Poland.** Dollarization reached 80 percent of bank deposits in the late 1980s, following episodes of high inflation and frequent step devaluations. In the early 1990s, Poland embarked on a macroeconomic stabilization program, coupled with financial sector liberalization and the gradual opening of the capital account. In addition, domestic interest rates were raised well above foreign currency interest rates. The sharp reduction in inflation together with interest rate deregulation, which created positive local currency real interest rates for depositors, resulted in a decline of deposit dollarization to about 20 percent by the late 1990s.



**Peru.** In the mid-1980s, the authorities attempted to combat dollarization by forcibly converting foreign currency deposits to local currency, provoking capital flight and financial disintermediation (Garcia-Escribano 2010). Inflation rates reached the quadruple digits in the early 1990s. In subsequent years, macroeconomic performance improved, with fiscal surpluses, lower public debt, and inflation targeting contributing to substantial real appreciation 2007–13. These policies were complemented with prudential measures to better reflect the risks of currency mismatches, and with developing a securities market with longer maturities in domestic currency. More recently, Peru has introduced bank-specific loan dollarization ceilings, coupled with higher reserve requirements in case banks exceed their ceilings.

Altogether, these policies have born fruit, with dollarization falling from more than 90 percent of private sector deposits in the early 2000s to about 40 percent today. Loan dollarization fell to even lower levels.

In sum, dollarization is difficult to reverse. It can be reduced only through long, consistent, and credible stabilization efforts. An effective de-dollarization strategy requires sustaining strong macroeconomic policies, encouraging two-way exchange rate movements, adopting sound prudential measures, creating the conditions for longer-term domestic capital market development, and pursuing a market-based rather than administrative approach to de-dollarization.

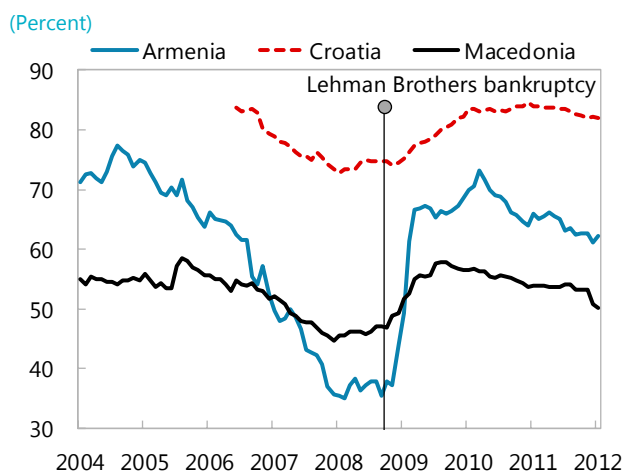
- **Looking ahead, appreciation expectations should return to CESEE once real convergence resumes.** Countries could boost prospects further—and put appreciation expectations on a sound footing—by advancing growth-friendly structural reforms. Disinflation can also contribute to appreciation expectations, as Serbia’s recent experience shows (Box 7). However, in most countries, the scope for further disinflation is limited, as inflation is already very low.<sup>30</sup>

**A related but distinct challenge is to maintain low levels of euroization in the face of—arguably unavoidable—bouts of financial turbulence.** Examples are plentiful—both inside and outside CESEE—where initial success with de-dollarization (or de-euroization) during an appreciation phase reverted once the currency again came under pressure. Often this threw back de-dollarization efforts for many years. The financial turbulence in the wake of the Lehmann Brothers bankruptcy of 2008 is a point in case.

In view of this, and given the entrenched nature of deposit euroization in the region, **the question arises whether external support could assist de-euroization efforts,** at least

during the earlier stages of the transition. A safety net—for example in the form of a precautionary borrowing arrangement and/or of uncollateralized swap lines with the ECB—could provide assurances to depositors that short-term exchange rate volatility does not mark the onset of a renewed depreciation-inflation spiral. The modalities of such arrangements would of course have to be worked out (sketching them goes beyond the scope of this paper).

### Deposit Dollarization/Euroization in Selected Countries, 2004–12



Source: National central banks.

<sup>30</sup> Some studies suggest that higher exchange rate volatility, by itself, encourages de-dollarization (Kokenyne, Ley, and Veyrune 2010; Garcia-Escribano 2010) but others found no strong relationship (Berkmen and Cavallo 2010).

### Box 7. Serbia's Dinarization Strategy\*

Recognizing de-euroization as a systemically important and long-term process, the National Bank of Serbia (NBS) and the government signed the Memorandum on the Strategy of Dinarization of the Serbian Financial System in March 2012. The strategy is based on three interconnected pillars:

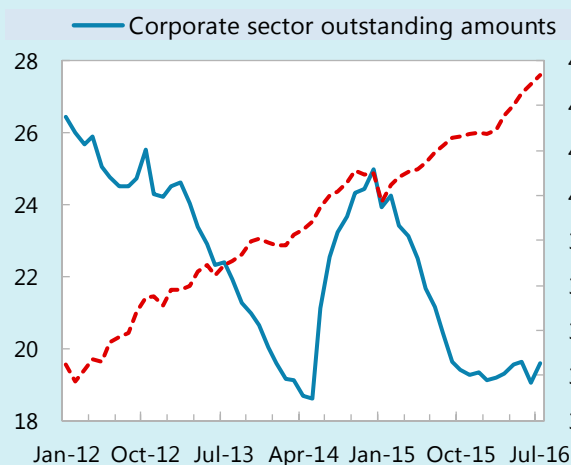
1. The first pillar includes activities to preserve a macroeconomic environment of low and stable inflation, a stable financial system, and sustainable economic growth.
2. The second pillar consists of measures to promote dinar-denominated instruments and markets, with an emphasis on the development of the dinar bond market.
3. The third pillar aims to promote hedging against foreign exchange risks in the nonbank sector, and to discourage their further buildup.

Experience shows that the most important measures to decrease euroization relate to macroeconomic stability over a longer period of time (pillar 1: environment of low and stable inflation). In Serbia, inflation has fallen to about 2 percent in the past three years. The FX market has been stable, while interest rates on dinar loans have fallen sharply, led by the cuts in the NBS key policy rate. In parallel, fiscal consolidation and structural reforms have led to a significant reduction in internal and external imbalances.

The dinarization strategy is yielding first results. The share of the dinar in total public debt has risen from 2.5 percent in 2008 to 22.2 percent in 2015. Household loan dinarization is on the rise, reflecting the sharp decrease in interest rates on dinar loans, NBS regulation (mandatory down payment for FX loans), relative stability in the FX market, and stronger confidence in monetary policy. Deposit dinarization also shows progress, boosted by the relative stability of the dinar exchange rate and price stability.

**Share of Dinar in Total Bank Receivables from Corporate and Household Sectors**

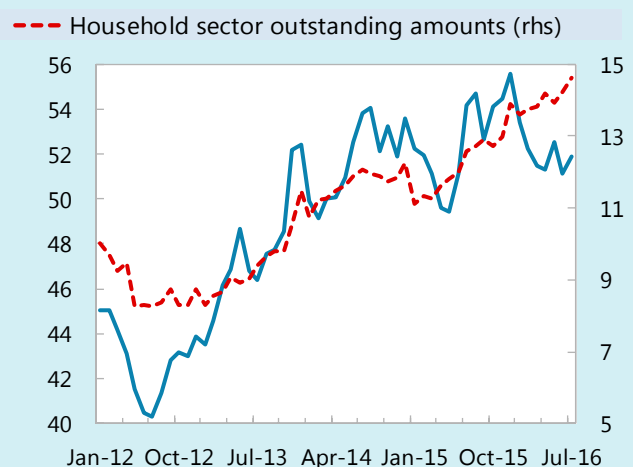
(Percent)



Source: National Bank of Serbia.

**Share of Dinar in Total Bank Deposits from Corporate and Household Sectors**

(Percent)



\* Prepared by Jorgovanka Tabakovic and Ana Ivkovic, Serbian National Bank.

## Regulatory and Structural Policies

**Most successful de-dollarization/de-euroization efforts have been accompanied by market-based regulations to internalize the costs for conducting business in foreign currency**

(Reinhart, Rogoff, and Savastano 2014; Kokenyne, Ley, and Veyrune 2010; Ize and Levy-Yeyati 2005).

- Steps **that target directly the deposit side of banks' balance sheets** have included:
  - (i) *higher reserve and liquidity requirements* for FX deposits,
  - (ii) remunerating *reserve requirements* on local currency deposits at a higher rate than on FX deposits,
  - (iii) obliging banks to hold *required reserves* for FX deposits in domestic currency,
  - (iv) charging *higher risk premia on FX deposits* that are covered by the deposit guarantee scheme, and
  - (v) *mandatory holding periods* for FX deposits.
- Successful **indirect regulatory measures** have included steps that create disincentives for FX lending, such as capital surcharges and higher risk weights for FX loans.
- Measures to **develop domestic currency securities markets** have often complemented regulatory steps. In particular, promoting the use of indexed financial instruments—such as inflation-linked bonds—can create alternative saving vehicles to foreign currency deposits.
- By contrast, **heavy-handed regulation and administrative measures** have typically been counterproductive. For example, forced conversion of FX deposits (or of FX loans in the context of deposit-driven euroization) has often provoked financial disintermediation, by inciting depositors to withdraw their savings from banks (see the example of Peru in Box 6).

For European Union members and countries in EU accession negotiations, **there is a latent conflict between the EU's "free movement of capital" provision and regulations that encourage the use of domestic currencies.**<sup>31</sup> The threshold where prudential regulation ends and capital controls start is difficult to define exactly. In the past, the European Commission judged some prudential measures as violating the free movement of capital provision, notably in the context of EU accession negotiations—thus potentially complicating countries' de-euroization efforts.<sup>32</sup>

This said, **views on these issues have evolved.** The European Systemic Risk Board, for example, is now publishing recommendations on a regular basis on how to control risks from foreign currency lending. The recommendations focus on the asset side of bank balance sheets, while for deposit-driven euroization, the greater need for action is on the liability side. A survey conducted among regional central banks reflects similar concerns (Box 8).

---

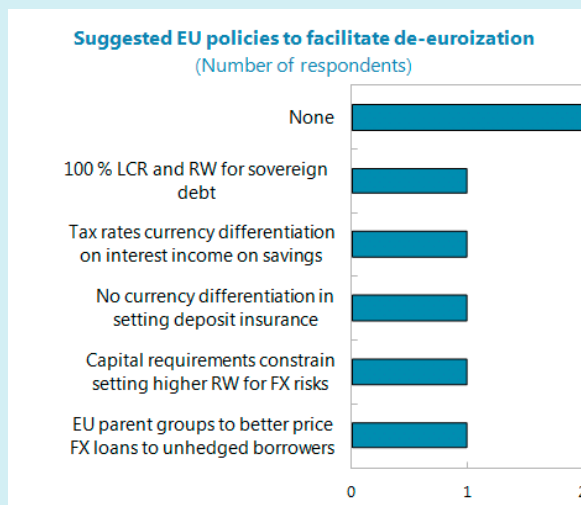
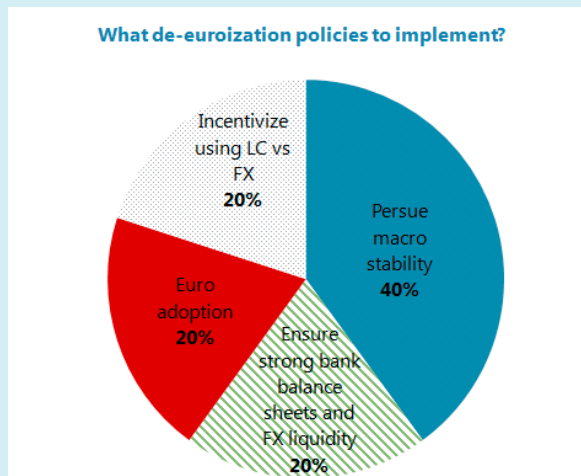
<sup>31</sup> Article 63 of the Treaty on the Functioning of the European Union.

<sup>32</sup> For example, the Croatian National Bank reports that in 2010 it had to abolish the implementation of higher risk weights for currency induced credit risk to align with European Commission's Capital Markets Directive.

### Box 8. Central Bank Survey on De-Euroization Policies

A survey of de-euroization policies covered 10 central banks, seven of which returned complete questionnaires.<sup>33</sup> The main findings are summarized below:

- *De-euroization impediments are shared across all countries.* One hundred percent of respondents provided the following two reasons impeding de-euroization: (i) the prospect of adopting the euro, which makes de-euroization futile; and (ii) entrenched memories of the hyperinflation era, which remain strong, despite stable macroeconomic policies over the past 10–20 years in most countries.
- *All respondents viewed de-euroization as desirable,* emphasizing two reasons: better transmission of monetary policy (80 percent of respondents), and safeguarding financial stability (100 percent of respondents).
- *Respondents mentioned a variety of de-euroization policies.* The pursuit of macroeconomic stability was cited most often. Other policies include building banking-sector buffers, incentivizing the use of local currency, and adopting the euro.
- *Several respondents saw scope for policies that the EU could potentially adopt to facilitate de-euroization,* although two respondents saw no need for the EU to take any steps. Others cited policies such as revisiting the EU directive on capital requirements to allow for higher risk weights on FX loans, encouraging EU parent groups of local banks' subsidiaries to better price FX loans to unhedged borrowers, and allowing for currency differentiation when setting deposit insurance parameters.



<sup>33</sup> The central banks of Albania, Croatia, the Czech Republic, Hungary, Macedonia, Romania, and Serbia. Their cooperation is gratefully acknowledged.

## CONCLUSIONS

**The demands on monetary and exchange rate regimes in CESEE have evolved, in line with the region's development.** In the 1990s, the immediate challenge was to rein in excessive inflation following transition, and to establish basic monetary order. These objectives have been achieved, owing largely to successful exchange rate-based stabilization. With this accomplished, the focus has shifted to cyclical monetary management, and to appropriately managing monetary conditions during CESEE's growth and income convergence to the euro area.

**Flexible exchange rate regimes have, in general, been helpful in aligning monetary conditions with CESEE economies' needs.**

- **During the pre-2008 convergence phase**, monetary conditions tightened countercyclically through nominal exchange rate appreciation and higher real interest rates. By reining in demand, this contained the buildup of private sector debt and leverage.
- **When the global financial crisis hit**, monetary conditions reversed rapidly. This allowed for shorter and shallower recessions, and smaller losses on the labor force and capital stock—arguably contributing to a better growth outlook for countries with flexible exchange rates
- By contrast, **in economies with fixed exchange rates, the monetary stance tended to be procyclical**, as boom and bust were amplified by inflation and deflation and their inverse impact on real interest rates, reinforced in recession by very low inflation imported from the euro area. Fiscal and other policies were insufficiently countercyclical to offset these effects.

**Flexible exchange rates—and the ensuing capacity of monetary conditions to adapt to the economies' needs—are likely to remain advantages**, especially to extent that CESEE's GDP and income levels will resume convergence to the euro area. Once this process restarts, tighter monetary conditions will again be needed to limit goods and asset price inflation, and to contain growth imbalances.

**This said, obstacles to shifting to more flexible regimes are large.**

- **For small CESEE economies**, building the institutions for managing a domestic monetary anchor is arguably unreasonably costly.
- **But also in many larger and more developed economies, financial euroization often poses a key obstacle.** Euroization reflects, to a large degree, distrust in the domestic currency as a saving vehicle, as depositors have been burned by hyperinflation in the past. Overcoming distrust is a steep challenge that has not been achieved in the past 20 years, despite persistent disciplined monetary policy implementation and low inflation. Without a comprehensive strategy to overcome this obstacle, a switch to more exchange rate flexibility could end in financial chaos and should not be attempted.

**For countries that prefer to stick to fixed exchange rate regimes, the focus should be on strengthening the capacity to employ fiscal and, especially, macroprudential policies** in response to changing macroeconomic and financial conditions. The effectiveness of macroprudential policies would be strengthened by a stronger international effort to limit evasion through direct cross-border borrowing. Another priority is structural reforms that increase wage flexibility and boost productivity growth.

**For countries that consider a switch to more exchange rate flexibility, timing matters.**

- **As long as depreciation expectations for CESEE currencies persist—as has been the case for the past 8 years or so—a move to more flexible exchange rates is not advisable.** Flexibility coupled with depreciation expectations would provoke *more* deposit euroization, and possibly even risk capital flight and financial disintermediation.
- However, **once growth convergence resumes, a window of opportunity will open.** As regional currencies will appreciate in real terms against the euro, more exchange rate flexibility would grant depositors a financial incentive to save in the domestic currency. Gradual increases in exchange rate flexibility and de-euroization could go hand in hand and reinforce one another, accompanied by appropriate regulatory measures and steps to develop domestic securities markets. Stretching the transition to floating over several years would allow market participants to get used to exchange rate volatility, while also providing time to build the necessary institutions and technical capacities.

**Structural and fiscal policies would need to support de-euroization efforts.**

- **Structural reforms.** As the scope for de-euroization depends critically on countries' growth prospects, growth-enhancing reforms are key to support monetary autonomy, and, ultimately, a more balanced and less costly convergence process. Reforms are also needed to overcome distrust in domestic institutions.
- **Stability-oriented fiscal policies** signal that there will be no need for monetary financing of fiscal deficits, eliminating arguably the most important risk factor for hyperinflation. The integration of EU member states into the EU's fiscal governance framework provides an important anchor in this regard.

**There appears scope for European institutions to assist de-euroization and floating even more.** As (eventual) euro adoption is an obligation inscribed into EU member states' accession treaties, effectively managing convergence and the transition to euro area membership is an issue of common interest. Areas of possible support include:

- **Support a domestic monetary anchor.** While appreciation provides an incentive to de-euroize, this may not always be enough, given the entrenched distrust in the domestic currency in many countries. Further, even where financial systems start de-euroizing, the risk is that the process would revert in the face of—arguably unavoidable—financial turbulence. An external insurance device, for example in the form of noncollateralized ECB swap lines, could assure depositors that exchange rate volatility is temporary and does not signal the onset of a devaluation-inflation

spiral. While the modalities of such facilities would have to be worked out, they could contain an element of conditionality; that is,, in exchange for disciplined policy implementation.

- ***Facilitate regulatory efforts to de-euroize.*** Market-based regulation that internalizes the risk of FX operations has been part of most successful de-dollarization/de-euroization efforts. Such regulation should be not only tolerated but encouraged. This requires willingness to interpret de-euroization measures as prudential regulation rather than capital controls.



## REFERENCES

- Acemoglu, Daron, Simon Johnson, James Robinson, and Yunyong Thaicharoen. 2003. "Institutional Causes, Macroeconomic Symptoms: Volatility, Crises and Growth." *Journal of Monetary Economics* 50: 49–123.
- Aslund, Anders, and Valdis Dombrovskis. 2011. "How Latvia Came through the Financial Crisis." Special Report, Peterson Institute for International Economics, Washington.
- Backé, Peter, and Cezary Wójcik. 2008. "Credit Booms, Monetary Integration and the New Neoclassical Synthesis." *Journal of Banking and Finance* 32 (3): 458–70.
- Bakker, Bas B., and Anne Marie Gulde. 2012. "The Credit Boom in the EU New Member States: Bad Luck or Bad Policies?" Working Paper 10/130, International Monetary Fund, Washington.
- Berkmen, Pelin, and Eduardo Cavallo. 2010. "Exchange Rate Policy and Liability Dollarization: What Does the Data Reveal about Causality?" *Review of International Economics* 18 (5): 781–95.
- Blanchard, Olivier, Florence Jaumotte, and Prakash Loungani. 2014. "Labor Market Policies and IMF Advice in Advanced Economies during the Great Recession." *IZA Journal of Labor Policy* 3 (2).
- Brown, Martin, and Helmut Stix. 2015. "The Euroization of Bank Deposits in Eastern Europe." *Economic Policy* 30: 1–59.
- Calvo, Guillermo A., and Carmen M. Reinhart. 2002. "Fear of Floating." *Quarterly Journal of Economics* 117 (2): 379–408.
- Cerutti, Eugenio, Stijn Claessens, and Luc Laeven. 2015. "The Use and Effectiveness of Macroprudential Policies: New Evidence." Working Paper 15/61, International Monetary Fund, Washington.
- De Nicoló, Gianni, Patrick Honohan, and Alain Ize. 2005. "Dollarization of Bank Deposits: Causes and Consequences." *Journal of Banking and Finance* 29 (7): 1697–727.
- Dimova, Dilyana, Piyabha Kongsamut, and Jérôme Vandenbussche. 2016. "Macroprudential Policies in Southeastern Europe." Working Paper 16/29, International Monetary Fund, Washington.
- Dutttagupta, Rupa, Gilda Fernandez, and Cem Karacadag. 2004. "From Fixed to Float: Operational Aspects of Moving toward Exchange Rate Flexibility." Working Paper 04/126, International Monetary Fund, Washington.

- Égert, Balázs. 2007. "Real Convergence, Price Level Convergence and Inflation Differentials in Europe." CESifo Working Paper 2127.
- . 2011. "Catching-Up and Inflation in Europe: Balassa–Samuelson, Engel's Law and Other Culprits." *Economic Systems* 35 (2): 238–59.
- , and Jiri Podpiera. 2008. "Structural Inflation and Real Exchange Rate Appreciation in Visegrad-4 Countries: Balassa-Samuelson or Something Else?" Policy Insight 20, Center for Economic Policy Research, London.
- Flandreau, Marc. 2007. "Pillars of Globalization: A History of Monetary Policy Targets, 1797–1997." Discussion Paper 6252, Centre for Economic Policy Research, London.
- Freedman, Charles. 1995. "The Role of Monetary Conditions and the Monetary Conditions Index in the Conduct of Policy." *Bank of Canada Review* (Autumn): 53–59.
- , and Inci Ötker-Robe. 2009. "Country Experiences with the Introduction and Implementation of Inflation Targeting." Working Paper 09/161, International Monetary Fund, Washington.
- . 2010. "Important Elements for Inflation Targeting for Emerging Economies." Working Paper 10/113, International Monetary Fund, Washington.
- Gagnon, Joseph E. 2013. "Stabilizing Properties of Flexible Exchange Rates: Evidence from the Global Financial Crisis." Policy Brief No. 13-28, Peterson Institute for International Economics, Washington.
- Garcia-Escribano, Mercedes. 2010. "Peru: Drivers of De-Dollarization." Working Paper 10/169, International Monetary Fund, Washington.
- Habermeier, Karl, Annamaria Kokenyne, Romain Veyrune, and Harald Anderson. "Revised System for the Classification of Exchange Rate Arrangements." Working Paper 09/211, International Monetary Fund, Washington.
- International Monetary Fund. 2014. *25 Years of Transition: Post-Communist Europe and the IMF*. Regional Economic Issues. Washington.
- . 2015a. *Mind the Credit Gap*. Regional Economic Issues, Washington.
- . 2015b. "Dollarization in Sub-Saharan Africa—Experience and Lessons." African Department Paper, Washington.
- . 2016. *How to Get Back on the Fast Track*. Regional Economic Issues, Washington.

- Iossifov, Plamen, and Jiri Podpiera. 2015. "Are Non-Euro Area EU Countries Importing Low Inflation from the Euro Area?" Working Paper 14/191, International Monetary Fund, Washington.
- Ize, Alain, and Eduardo Levy-Yeyati. 2003. "Financial Dollarization." *Journal of International Economics* 59 (2): 323–47.
- . 2005. "Financial De-Dollarization: Is It for Real?" Working Paper 05/187, International Monetary Fund, Washington.
- Kaminsky, Graciela L., Carmen M. Reinhart, and Carlos A. Vegh. 2005. "When It Rains, It Pours: Procyclical Capital Flows and Macroeconomic Policies." *NBER Macroeconomic Annual* 19: 11–79.
- Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. 2006. "Measuring Governance Using Perceptions Data." In *Handbook of Economic Corruption*, edited by Susan Rose-Ackerman. Edward Elgar.
- Kokenyne, Annamaria, Jeremy Ley, and Romain Veyrune. 2010. "De-Dollarization." Working Paper 10/188, International Monetary Fund, Washington.
- Levy-Yeyati, Eduardo. 2006. "Financial Dollarization: Evaluating the Consequences." *Economic Policy* 21: 61–118.
- Lipschitz, Leslie, Timothy Lane, and Alexandros Mourmouras. 2002. "Capital Flows to Transition Economies: Master or Servant?" Working Paper 02/11, International Monetary Fund, Washington.
- . 2005. "Real Convergence, Capital Flows, and Monetary Policy: Notes on the European Transition Countries." In *Euro Adoption in Central and Eastern Europe—Opportunities and Challenges*, edited by Susan Schadler. Washington: International Monetary Fund.
- Magud, Nicolas E., Carmen M. Reinhart, and Esteban R. Vesperoni. 2014. "Capital Inflows, Exchange Rate Flexibility and Credit Booms." *Review of Development Economics* 18 (3): 415–30.
- Ötker-Robe, Inci, and David Vávra. 2007. "Moving to Greater Exchange Rate Flexibility: Operational Aspects Based on Lessons from Detailed Country Experiences." Occasional Paper 256, International Monetary Fund, Washington.
- Podpiera, Jiri, Johannes Wiegand, and Jiae Yoo. 2015. "Euro Adoption—Macroeconomic Benefits and Challenges." In *Central and Eastern Europe, New Member States Policy Forum 2014—Selected Issues*. Washington: International Monetary Fund.
- Ranciere, Romain, Aaron Tornell, and Athanasios Vamvakidis. 2010. "Foreign Banks and Foreign Currency Lending in Emerging Europe." *Economic Policy* 25: 597–658.

Reinhart, Carmen M., Kenneth S. Rogoff, and Miguel A. Savastano. 2014. "Addicted to Dollars." *Annals of Economics and Finance* 15: 1–51.

Rey, H el ene. 2013. "Dilemma Not Trilemma: The Global Financial Cycle and Monetary Policy Independence." In *Proceedings—Economic Policy Symposium*, 285–333. Jackson Hole: Federal Reserve Bank of Kansas City.

Rosenberg, Christoph B., and Marcel Tirp ak. 2008. "Determinants of Foreign Currency Borrowing in the New Member States of the EU." Working Paper 08/173, Washington.

Thomas, Lee R. 1985. "Portfolio Theory and Currency Substitution." *Journal of Money, Credit and Banking* 17 (3): 347–57.

Tsangarides, Charalambos G. 2012. "Crisis and Recovery: Role of the Exchange Rate Regime in Emerging Market Economies." *Journal of Macroeconomics* 34 (2): 470–88.

Vegh, Carlos A. 2015. "Fiscal Policy in Emerging Markets: Procyclicality and Graduation." NBER Reporter 2015 Number 4.

Wicksell, Knut. 1898. *Money and Interest: A Study on the Causes Regulating the Value of Money*, English translation 1936. New York: Sentry Press.