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NEW MEMBER STATES (NMS) POLICY FORUM, 2014

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CENTRAL AND EASTERN EUROPE:

NEW MEMBER STATES (NMS) POLICY FORUM, 2014

SELECTED ISSUES

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Approved By
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EURO ADOPTION—MACROECONOMIC BENEFITS AND CHALLENGES[1]

Summary

- **New Member States (NMS)[2] have considerable leeway over the timing of euro adoption**. Even though the NMS have committed to eventually joining the euro area in their accession treaties, key steps to initiate adoption—such as harmonizing the legal framework with euro area standards, or applying for ERM2 entry—remain under sovereign control. Conversely, the euro area institutions have substantial discretion in admitting countries to ERM2—a pre-condition to euro adoption.
- **The NMS-6 maintain different monetary regimes.** Bulgaria and Croatia have tied their currencies to the euro, while the Czech Republic, Hungary, Poland, and Romania target inflation and allow exchange rates to float.
- **The euro area crisis has reduced some attractions associated with joining the euro**. While countries adopting the euro in the 2000s benefited from a sizeable premium as regards investors' perception of credit risk, this premium has mostly vanished with the euro crisis. This said, euro adoption continues to hold advantages for highly euroized economies.
- **For NMS that have maintained monetary autonomy, this has been helpful in containing macro-economic imbalances,** suggesting that, for them, ceding autonomy could be costly. Monetary tightening and exchange rate appreciation helped contain credit booms in the mid-2000s. After the outbreak of the 2008-09 financial crisis, monetary easing supported domestic demand. More recently, it has helped offset imported disinflationary pressures.
- **The trade-offs associated with euro adoption present themselves differently for the NMS-6, depending on their monetary regimes**. For floaters, key issues are the extent to which monetary autonomy can be replaced by instruments such as macro-prudential tools and fiscal policy, and the scope for internal adjustment in the euro area. For peggers, the question is to what extent they can continue to use macro-prudential and other regulatory tools after adopting the euro.
- For many NMS-6, **uncertainty about the euro area's evolving institutional framework** provides a rationale to wait for final outcomes before taking an irreversible adoption decision.

[1] Prepared by Jiri Podpiera, Johannes Wiegand and Jiae Yoo. Jessie Yang provided excellent research assistance. The authors are grateful to Csaba Balogh (Hungarian National Bank), Kalin Hrivstov (Bulgarian National Bank), Paul Kutos (European Commission), Andrzej Raczko (Polish National Bank), and Vedran Sosic (Croatian National Bank) who participated as discussants in the session on euro adoption at the New Member States (NMS) Policy Forum in Warsaw on December 12, 2014, and to the NMS-6, EC and ECB representatives who provided comments during bilateral discussions in November 2014. Ernesto Crivelli, Anna Ilyina, Plamen Iossifov, Murad Omoev, Andrea Schächter, Michelle Shannon, (other) members of NMS-6 country teams, and participants at an IMF seminar provided helpful discussions and comments.

[2] NMS-6 includes Bulgaria, Croatia, Czech Republic, Hungary, Poland and Romania. NMS includes these countries and NMS-EA consisting of Estonia, Latvia, Lithuania, Slovakia and Slovenia.

A. European Integration and Euro Adoption

1. Euro adoption forms the endpoint of monetary integration in the EU.

- ***In their EU accession treaties, the NMS-6 committed to adopting the euro "once the necessary conditions are fulfilled."***[3] Parallel biannual reports by the European Commission (EC) and the European Central Bank (ECB) assess the readiness of non-euro area EU member states to join. In the latest reports from June 2014, no NMS-6 fulfills all adoption criteria, hence, none is assessed as ready to join the euro at this stage.[4]

- ***The NMS-6 have considerable leeway over the timing of euro adoption.*** Especially two adoption criteria—harmonization of the legal framework with euro area standards and joining the European Exchange Rate Mechanism (ERM2)—require a sovereign decision. At the same time, the euro area institutions have also substantial discretion in the euro adoption process, especially as regards admitting countries to ERM2.

2. Since 2004—when the first Central and Eastern European countries joined the EU—five NMS have adopted the euro: Slovenia, the Slovak Republic, and the Baltic countries. While in the Baltics, euro adoption followed many years of unilateral hard pegs to the euro, Slovenia and the Slovak Republic maintained monetary autonomy until shortly before euro adoption. At the same time, new countries have joined the EU in the past decade—Bulgaria, Romania, Croatia—and now face the issue of euro adoption.

3. The NMS-6 that have not yet adopted the euro maintain fairly different monetary regimes and strategies.

- **Bulgaria** and **Croatia** have tied their currencies to the euro: the Bulgarian lev by means of a currency board, the Croatian kuna in the form of a tightly managed quasi-peg. In both countries, the exchange rate anchor was introduced in the mid-1990s to combat hyper-inflation (in Croatia in the context of the dissolution of former Yugoslavia). Thus, Bulgaria's and Croatia's currency regimes mimic many features of euro adoption already.

[3] This distinguishes the NMS-6 from the United Kingdom or Denmark, both of which negotiated an opt-out. Sweden did not negotiate an opt-out and is subject to the same assessment procedures as the NMS-6.

[4] The criteria are fixed in the Treaty on European Union and defined as follows: 1/ *Legal* = includes the statutes of the national central bank; 2/ *Fiscal* = a government budgetary position without a deficit and debt level that are determined excessive; 3/ *Price stability* = a rate of inflation which is close to that of, at most, the three best performing Member States in terms of price stability; 4/ *Exchange rate stability* = the observance of the normal fluctuation margins provided for by the exchange-rate mechanism of the European Monetary System, for at least two years, without devaluing against the euro; 5/ *Interest rate stability* = observed over a period of one year before examination, a Member state has had an average nominal long-term interest rate that does not exceed by more than 2ppt that of, at most, the three best-performing Member States in terms of price stability.

- By contrast, central banks in the **Czech Republic, Hungary, Poland**, and **Romania** target inflation and, correspondingly, have in general allowed exchange rates to float—a policy framework that spread in the region with the Czech Republic's adoption of inflation targeting in 1997. In Hungary and Romania, central banks have at times carried out significant interventions in foreign exchange markets, arguably to prevent the revaluation of foreign currency denominated loans in case of excessive exchange rate volatility. As a result, IMF (2014) classifies the Hungarian forint and the Romanian leu as "floating", while the Polish zloty is classified as "free floating." The Czech koruna is classified as "other managed arrangement", reflecting recent currency interventions in the context of unconventional monetary policy at the zero interest bound. Until 2013, however—i.e., in the period covered by the empirical analysis of this paper—the Czech koruna was classified as "free floating".

New Member States - Currency Arrangements

	EU Accession	Currency	Exchange rate regime classification (IMF, 2014)	Earlier regimes
Bulgaria	2007	Lev	Hard peg - currency board	Float until 1997. Currency board adopted in response to hyperinflation.
Croatia	2013	Kuna	Soft peg - crawl-like arrangement	Dinar until 1994, hyperinflation. Soft peg to deutsche mark until euro introduction.
Czech Republic	2004	Koruna	Other managed arrangement	Peg to dollar/currency basked until 1997. Inflation targeting; free float until 2013.
Hungary	2004	Forint	Floating - inflation targeting	Various pegs and crawling pegs until 2008 with increasingly wide bands (15% 2001-08).
Poland	2004	Złoty	Free floating - inflation targeting	Various pegs and crawling pegs until 2000.
Romania	2007	Leu	Floating - inflation targeting	Monetary based targeting with managed float until 2005. Abandoned amid high inflation.
Estonia	2004	Euro (since 2011)	...	Pegged to deutsche mark/euro (currency board).
Latvia	2004	Euro (since 2014)	...	Pegged to SDR 1994-2004, pegged to euro 2004-2014.
Lithuania	2004	Euro (since 2015)	...	Pegged to dollar 1994-2002, pegged to euro 2002-2014 (currency board).
Slovak Republic	2004	Euro (since 2009)	...	Float until 2004. Float with a 15% band during ERM II (2005-08), repeated parity adjustments.
Slovenia	2004	Euro (since 2007)	...	Float until 2004. Pegged to euro during ERM II 2004-06.

4. This paper's objective is to illustrate economic benefits and costs from euro adoption by reviewing the main arguments and empirical evidence. The last time Fund staff analyzed this issue systematically was in 2004 (published as Schadler et al, 2005; see Box 1 for a summary of the main findings), in a study informed by the literature on optimal currency areas (Box 2). This paper follows and builds on the conceptual framework of 2004, by both reviewing new results from the literature and contributing analysis in areas less covered by existing research. We also discuss issues that were less on the radar screen in 2004 but have since come to the forefront, especially in the wake of the global financial crisis.

5. Broadly speaking, the trade-off presents itself as follows:

- On the positive side—i.e., in favor of euro adoption—the 2004 study identified: (i) trade generation that could translate into higher growth; and (ii) improved country risk perception from deeper integration with the euro area that could, inter alia, lead to lower funding cost.

On (i) there is a solid body of evidence now that trade generation has remained far below original expectations—see Box 1—and we do not delve into this issue further. As for (ii) we reassess the impact of euro adoption on investor perception of country risk in the light of the evidence of the past 10 years.

We also analyze a benefit of euro adoption not covered in the 2004 paper: the elimination of currency mismatches resulting from the prevalence of foreign currency, mainly euro denominated loans in many NMS's economies. As the global financial crisis illustrated, currency mismatches can translate into large vulnerabilities in times of financial strain.

- As the main factor on the negative side—i.e., cautioning against rapid euro adoption—the 2004 study identified the loss of monetary autonomy; i.e., ceding the ability to adapt monetary conditions to the economy's needs and use the exchange rate as shock absorber. We re-assess the value of monetary autonomy in light of the experience of the past ten years that were characterized by far higher macro-economic volatility than expected (Box 1).

- Finally, we discuss how euro adoption changes countries' macroeconomic policy frameworks beyond monetary policy, and how recent euro area wide reforms in these areas—fiscal compact, banking union—may affect a country's calculus to join.

6. Importantly**, weighing the pros and cons of euro adoption is ultimately an issue of preference that can differ between countries**. Further, the decision on adoption clearly goes beyond purely economic aspects and includes political economy and broader political considerations. These are beyond the scope of this paper. As a result, we refrain from recommendations on whether a country should adopt the euro or not, but instead focus on key macro-economic tradeoffs.

7. The remainder of this paper is organized as follows. Section B reviews key economic advantages of euro adoption as sketched above, Section C the advantages from maintaining monetary policy autonomy. Section D discusses the impact of euro adoption on policy frameworks. Section E concludes.

B. Advantages from Adopting the Euro

8. As outlines above, this section analyzes two possible advantages of euro adoption:

- **Improved country risk perception** from integrating deeper in the euro area's institutional framework that may translate, inter alia, into lower funding costs, and

- **the elimination of currency mismatches** between euros and domestic currencies.

Euro Area Membership and Country Risk Perception

9. Adopting the euro can reduce perceived risks through the elimination of exchange rate risk and access to lender-of-last resort facilities in a global reserve currency. For countries with weak institutions, euro adoption can also strengthen the credibility of the monetary anchor.[5] Conversely, euro adoption may *undermine* a country risk perception, especially when it reduces the ability to handle country-specific shocks (as discussed in Section III).

10. To analyze the effect of euro adoption on country risk perception, we estimate an econometric model (Figure 1).

- **Country risk perception indices**. We use two different indices: the Institutional Investor's country credit ranking (IIR), and a linearized version of Standard & Poor's sovereign credit ratings (S&P). The IIR index is based on anonymous inputs from economists and risk analysts at banks, money market funds, and securities firms. Participants' responses are weighed according to their institutions' exposure. The IIR thus directly measures investor attitudes toward country risk. The S&P rating is based on a formal assessment methodology, complemented by judgment. It is used both for regulatory purposes and to inform asset allocations of institutional investors, but has at times been criticized for (alleged) biases (see e.g. Vernazza et al, 2014). The two indices display similar patterns, and their relationship is broadly linear, with 4–5 points on the IIR scale corresponding to one rating notch with S&P (Figure 1).

- **Analysis.** We estimate the relationship between perceived credibility and country characteristics for 34 countries during 2001–13. One characteristic is euro area membership. A positive coefficient suggests that investors put a "euro premium" on membership.[6] The premium is estimated for each year separately (see Appendix I).

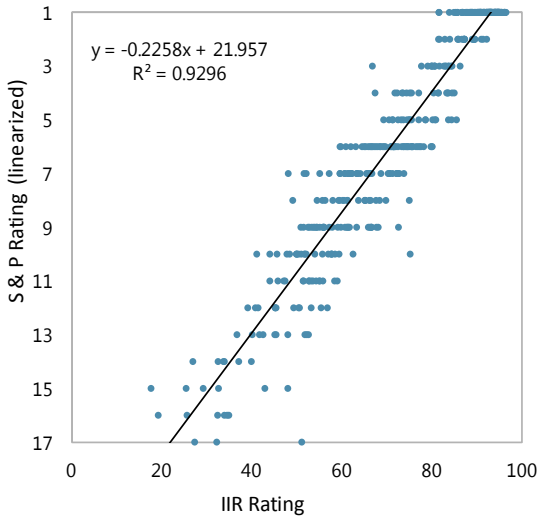
- **Results**. The reputational value of euro area membership has declined. Through most of the 2000s, membership provided a substantial country risk premium of 10–15 rating points on the IIR scale, and of about two rating notches with S&P. This premium has mostly vanished—entirely for the S&P index, and to a somewhat lesser degree for the IIR. The timing of the decline—starting in 2010—suggests that the euro area crisis triggered a reassessment among investors of the relative benefits and drawbacks of euro membership for country risk.

[5] These advantages were clearly on the mind of the early euro adopters. For example, in 2003 the Slovenian authorities listed as the first benefit of euro introduction "*providing a more stable environment for the whole economy*", and in the same year the Slovakian central bank wrote "*the adoption of the single currency will represent the completion of the integration process*".

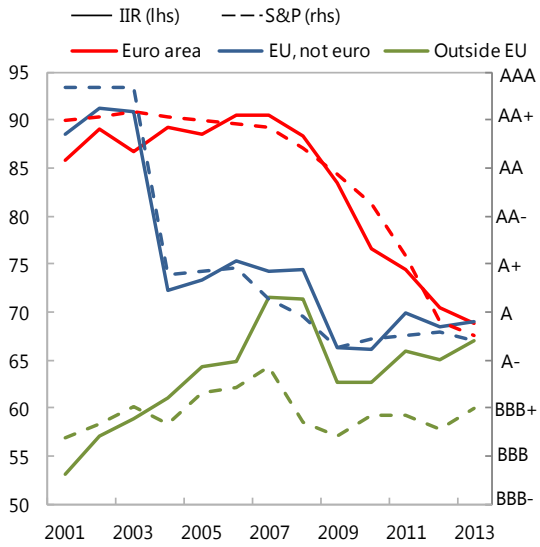
[6] Strictly speaking, the premium measures the impact of euro membership on the perceived distance to default.

Figure 1. Euro Premium, 2001-13

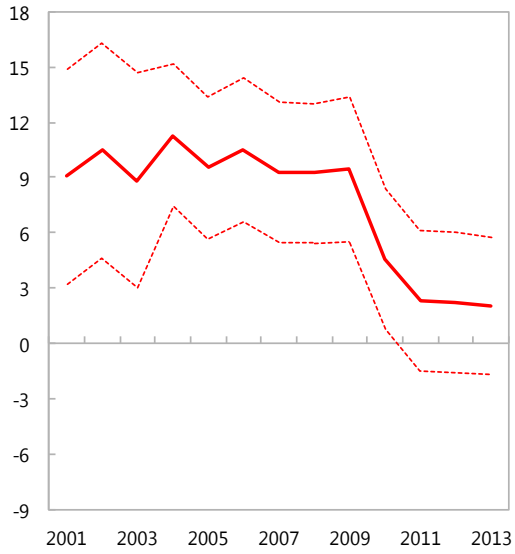
The S&P and IIR Credit Ratings



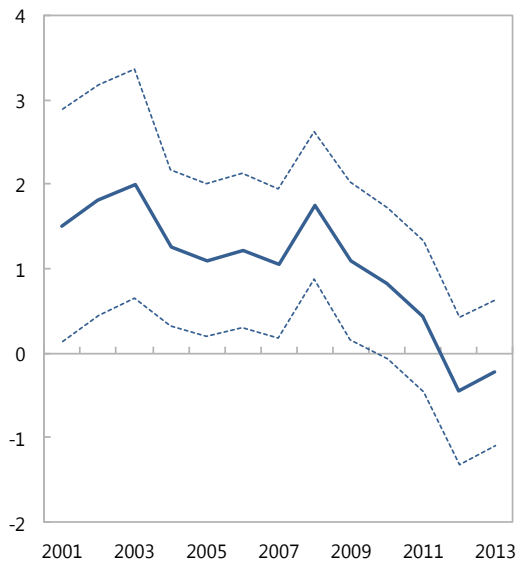
Evolution of Ratings per Country Group



International Investor Ratings Premium for Euro Membership (Rating points)



Standard and Poors Rating Premium for Euro Membership (Rating notches)



Sources: EBRD; International Investor Ratings; Standard and Poors; and IMF Staff calculations.

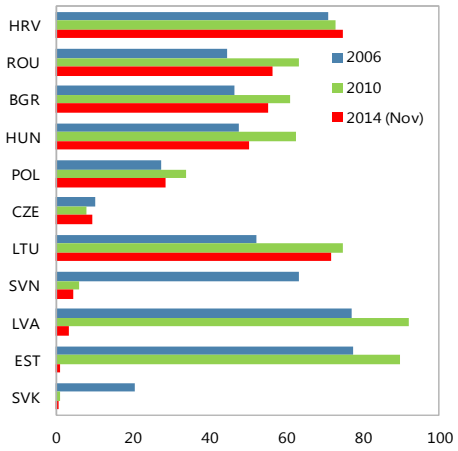
11. As a result, **the NMS-6 today face a different situation than the early euro adopters in the 2000s**. While Slovenia or the Slovak Republic—that adopted the euro in 2007 and 2009, respectively—could expect to benefit from a sizeable reputational boost upon joining the euro, this benefit has vanished with the euro area crisis.

Eliminating Currency Mismatches

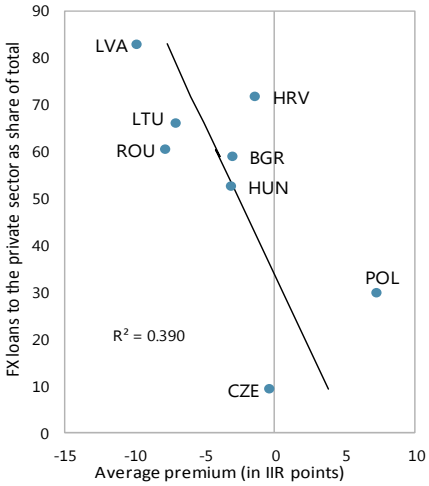
12. Beyond the impact of the euro on general risk perception, **euro adoption can benefit a country if it reduces specific vulnerabilities—notably foreign currency mismatches**. Such mismatches arise when households and corporations are indebted in foreign currency (FX), while their assets and income streams are in domestic currency. In this case, currency depreciation can trigger an upward revaluation of debt that can harm financial stability and economic activity. While countries can self-insure against depreciation risk—through accumulation of FX reserves and regulations forcing financial institutions to hold extra buffers—this is costly. FX indebtedness is widespread in Central and Eastern Europe, often—but not always—intermediated by subsidiaries of banks located in the euro area (see, e.g., Brown and de Haas 2012, or Rosenberg and Tirpak 2009). Among the NMS-6, balance sheet euroization—proxied here by the share of bank loans to the private sector

Investor Perception and Balance Sheet Euroization, 2006-14

Balance Sheet Euroization
(FX loans to the private sector as share in total)



Euro Premium and Balance Sheet Euroization
(Fixed effects, 2006-12)



Sources: EBRD; International Investor Ratings; Standard and Poors; and IMF Staff calculations.

denominated in FX (see figure)—is considerable in all economies except Poland and the Czech Republic.[7]

13. As most FX debt in the NMS is denominated in euro, euro adoption can eliminate sizeable currency mismatches,[8] as it did in the Baltic states and in Slovenia upon joining the euro (see figure). Similarly, euro adoption grants access to euro lender-of-last-resort facilities for banks with a high share of euro denominated assets and, correspondingly, high euro funding needs.[9] In contrast to the general euro premium discussed above, these FX-specific benefits are disproportionately to the advantage of economies with a high share of FX loans prior to euro adoption.

14. Our results suggest that **for highly euroized economies, eliminating mismatches through euro adoption is indeed beneficial**. This is shown by correlating the country-specific premium—captured by country dummies—with the share of FX bank loans. The results show that for nearly fully euroized economies, euro adoption can eliminate a ratings malus of more than 10 IIR points. Further statistical analysis points to a non-linear impact, i.e., the malus increases disproportionately with higher levels of euroization (see Appendix I).

15. In contrast to the *general* euro premium discussed above, *FX-specific* benefits from euro adoption have not vanished. This provides an economic rationale why the Baltic countries—all of them highly euroized—sought euro area membership in the early 2010s, even though at the time the general euro premium was already waning.

C. Advantages from Preserving Monetary Policy Autonomy and Exchange Rate Flexibility

16. We now turn to advantages from maintaining monetary autonomy, i.e., the ability to set monetary conditions in line with the economy's needs, and to allow the exchange rate to operate as a shock absorber. If successful, monetary policy autonomy helps stabilize domestic demand—especially when economies are exposed to shocks—contain inflation volatility and credit developments. To assess the value of monetary autonomy for the NMS, we look at three distinct episodes in the past 10–12 years:

---

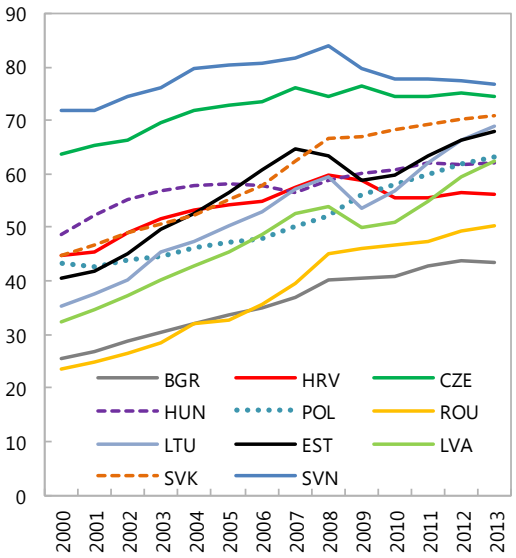
[7] This proxy correlates closely with more comprehensive metrics of balance sheet euroization, such as the currency mismatch index in Ranciere et al. (2010). Data requirements for these indices are larger than for FX bank loans, however, which would have restricted our sample significantly.

[8] In some economies—notably Poland and Croatia— a significant part of FX loans is denominated in Swiss francs rather than euro (in Hungary, most CHF loans were converted into domestic currency, with a de-factor conversion date of November 2014). Thus, some currency mismatch would remain even after euro adoption.

[9] The value of ECB access became apparent during the financial crisis of 2008/09, when cross-border currency markets became impaired. The problem was especially severe for banks with sizeable FX assets—and therefore high FX refinancing needs—but without a euro area based parent bank that could have accessed ECB facilities on their behalf.

- **economic convergence**, i.e. the period of about 2003–07, when the NMS outgrew the old EU member states (EU 15) by about three percentage points per year;
- the **financial crisis of 2008/09** and its aftermath that brought the convergence process in most NMS to a halt; and
- the **most recent period of 2012–14** when the NMS were affected by disinflationary pressures from global commodity markets and the euro area.

GDP Per Capita in Purchasing Power Standard
(Percent of the euro area)



For each episode, we map a standard monetary conditions index[10] against domestic demand volatility and related outcomes, such as real credit growth and inflation, in (i) NMS that have maintained monetary policy autonomy and (ii) NMS that have used external monetary anchors—either by adopting the euro, or by tying their currencies to the euro or other currencies/currency baskets. While there is considerable heterogeneity of outcomes within both groups—reflecting, among other things, countries' policy stances in areas other than monetary policy—some broad patterns emerge.

17. Importantly, this section is *not* about whether fixed or flexible exchange rates are generally preferable. Many reasons that go beyond short-to medium-term demand management as discussed here may call for one regime or the other—e.g., in the case of a fixed exchange rate regime, the need for a credible monetary anchor. What choice is appropriate will typically depend on country-specific circumstances. A widespread finding in the literature is that long-term growth and inflation outcomes tend to be broadly similar under both regimes, while fluctuations tend to be larger with fixed exchange rates (see, e.g. IMF, 2005 and 2013b).

Managing Convergence

18. In 2003–07, the NMS grew at an average annual real rate of about 6 percent, 3 percentage points faster than the old members of the European Union (EU 15). As a

[10] The monetary conditions index is calculated as the weighted average of real interest rate and real exchange rate, with weights representing the impact of each component on domestic demand (see Appendix II).

result, the average income gap per capita (PPP) against the EU 15 fell by about 10 percent, until convergence stalled with the outbreak of the global financial crisis.

19. Higher growth rates for an extended period require a tighter monetary policy stance. Less wealthy countries have typically a smaller capital stock and therefore higher returns of capital. This attracts capital inflows, boosts economic growth, and gradually increases the capital share until economies converge. Unless the higher real return on capital is matched by tighter monetary conditions, however, there is a risk that capital inflows trigger credit and housing booms, inflation, and external imbalances (see Lipschitz et al., 2002).[11] As countries with fixed exchange rate regimes tend to adopt the monetary policy stance of the economy to which their currency is tied, there is a risk that during convergence, monetary conditions are too loose. This risk increases with an economy's real income gap with the euro area, and therefore with its potential for rapid growth.

20. The data show a pattern of tighter monetary conditions for economies that maintained monetary policy autonomy during convergence (Figure 3). This is especially evident for the Czech Republic and Poland, both of which let their currencies float during this period, and to a lesser degree for Hungary (that held the forint within a wide band against the euro). Importantly, the tightening in monetary conditions was achieved mostly by means of nominal exchange rate appreciation rather than higher central bank interest rates (Box 3).

21. By contrast, monetary conditions in countries with fixed exchange rates tended to be, overall, fairly accommodative, often even more accommodative than in the euro area. Correspondingly, such countries tended to experience stronger overshooting in domestic demand, larger credit and asset booms, and higher and more volatile inflation (for a detailed discussion, see Bakker and Gulde, 2010).

Managing Downturns

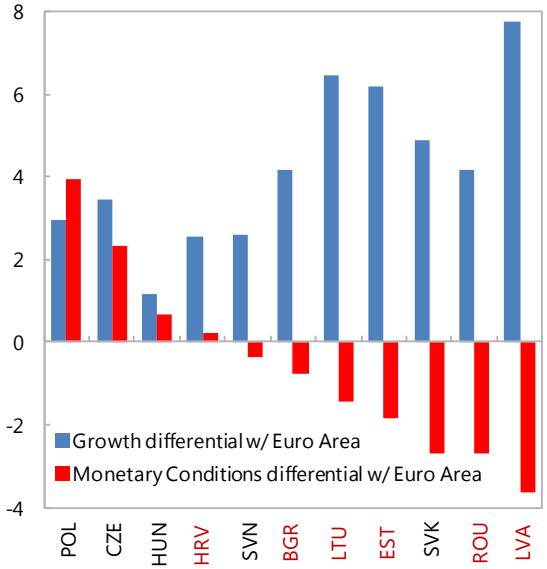
22. In the global financial crisis of 2008/09 and its aftermath, the NMS were hit by a severe negative demand shock that stalled or even reversed convergence. Monetary autonomy allowed central banks to respond by cutting policy rates and—more importantly—allow nominal exchange rates to depreciate and act as shock absorbers (Figure 4). Nominal depreciations were especially large in Poland and Romania, where domestic demand held up better than elsewhere.[12] By contrast, in countries with fixed exchange rates, monetary

[11] This thought goes back as far as Wicksell (1898). It is also reflected in a simple Taylor rule that specifies the cyclical behavior of policy rates around a neutral rate. Policy rates that are systematically above/below the neutral rate will result in a monetary policy stance that is systematically too tight/too lose.

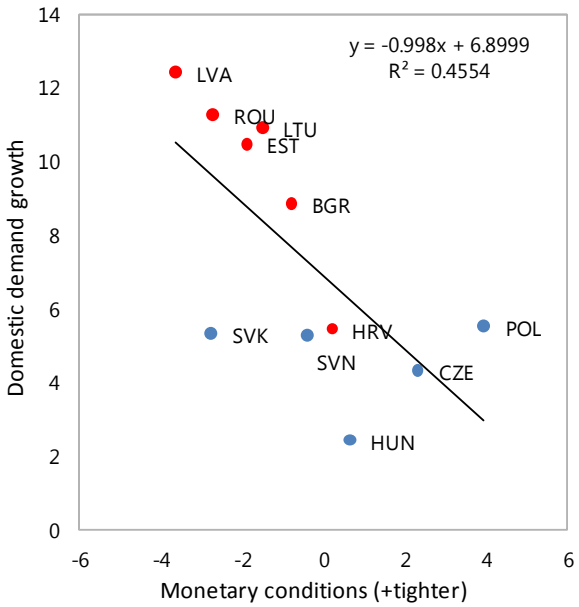
[12] In Hungary, the scope for exchange rate depreciation was arguably constrained by the high share of FX loans, see Bakker and Gulde (2010).

Figure 2. New Member States: Monetary Policy, 2003-07

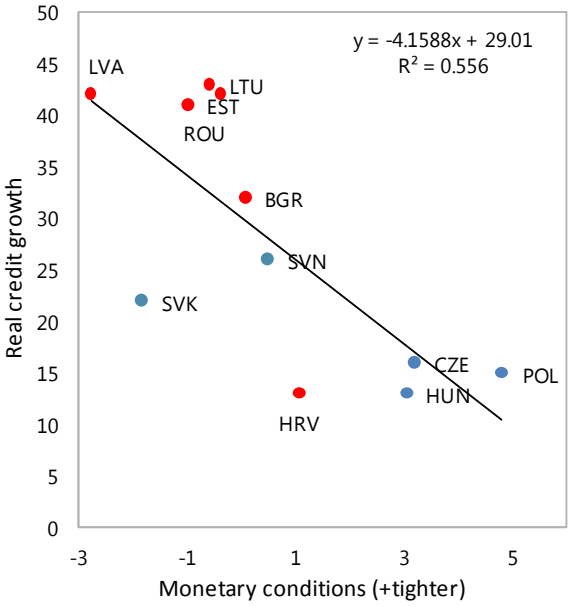
Growth and Monetary Conditions
(Percent; average 2003-07; peggers labeled red)



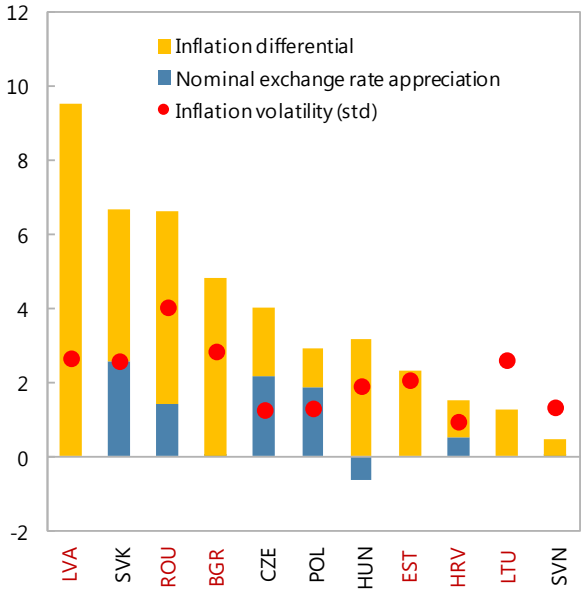
Domestic Demand Growth and Monetary Conditions
(2003-07 average; percent; peggers labeled red)



Real Credit Growth and Monetary Conditions
(Percent; average 2003-07; peggers labeled red)



Real Exchange Rate Appreciation Against Euro
(Contributions in percentage points; average 2003-07)



Sources: Haver Analytics; and IMF Staff calculations.

conditions tended to be tighter driven in part by the need to defend the exchange rate arrangement.[13] As a consequence, the demand contraction in crisis tended to be larger, even though there are exceptions.[14]

Offsetting Disinflationary Spillovers

23. In recent years, the NMS have been affected by deflationary shocks from falling global commodity prices and euro area disinflation. The impact on NMS has been asymmetric: while in economies with flexible exchange rates, disinflation has mostly affected headline inflation, in exchange rate pegging economies deflationary pressures have tended to creep into core inflation.[15]

24. Econometric analysis suggests that the link between disinflation spillovers and the exchange rate regime is systematic. Iossifov and Podpiera (2014) decompose headline inflation in the NMS-6 into country-specific, global, and euro area factors using an open-economy New Keynesian Phillips curve within 2004–14 panel data framework (see Appendix III). The share of inflation variance explained by euro area developments is largest in Bulgaria and Croatia, both of which have tied their currencies to the euro ("ET"). By contrast, inflation targeting ("IT") central banks have thus far been able to largely offset the deflationary impulse from the euro area with their monetary policy stance. [16]

D. The Impact of Euro Adoption on Macroeconomic Policy Frameworks

25. Euro adoption would change the NMS-6's policy frameworks. Ceding monetary autonomy is only one—although the most important—component. In addition, the stability and growth pact foresees stricter enforcement mechanisms for euro area members

[13] In this regard, there is an important difference between countries with currencies tied to the euro and those already in the euro area (Slovak Republic and Slovenia), as the latter did not have to tighten monetary policy in order to defend a peg.

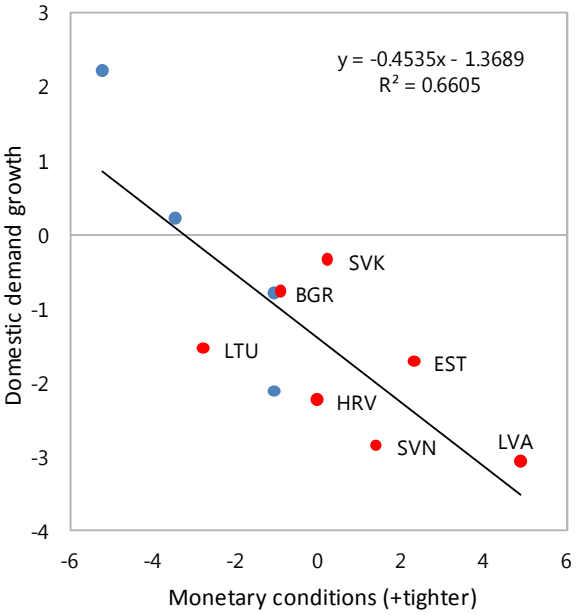
[14] Bulgaria, for example, had a relatively muted demand contraction, arguably reflecting in part the use of fiscal buffers

[15] This result holds even after controlling for the size of import exposure to the euro area.

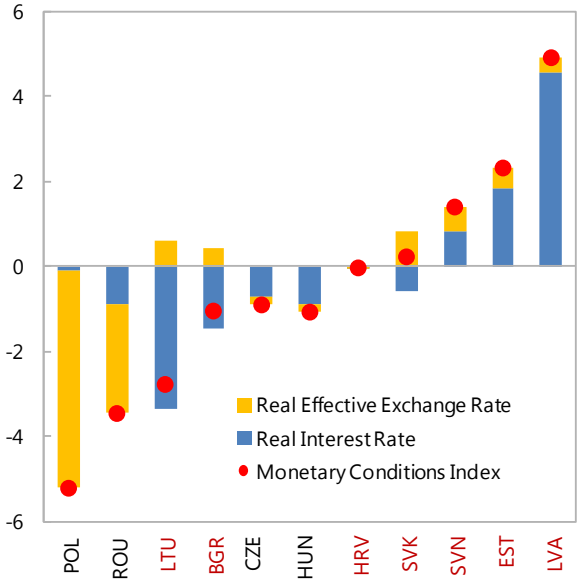
[16] The value of monetary autonomy is also being recognized by rating agencies, as the following quote from Standard and Poors' (2015) illustrates: "*Unlike in the Baltic countries, euro adoption would not immediately lead us to raise the ratings on Poland. This is because the Baltics, unlike Poland, already had currency pegs to the euro in place, which limited their monetary flexibility. Poland, on the other hand, has a flexible exchange rate, and the current ratings clearly take into account its monetary flexibility and effective monetary policymaking as a ratings strength. On the one hand, euro membership would give Poland access to a reserve currency and the ability to issue debt in it, which would be positive for the ratings. On the other hand, membership of a monetary union that has a monetary policy not necessarily geared toward the needs of individual countries could be ratings-negative, especially if we saw a strong asynchrony between European Central Bank (ECB) policies and a monetary policy stance needed for Poland's purposes.*"

Figure 3. New Member States: Monetary Policy, 2008-14

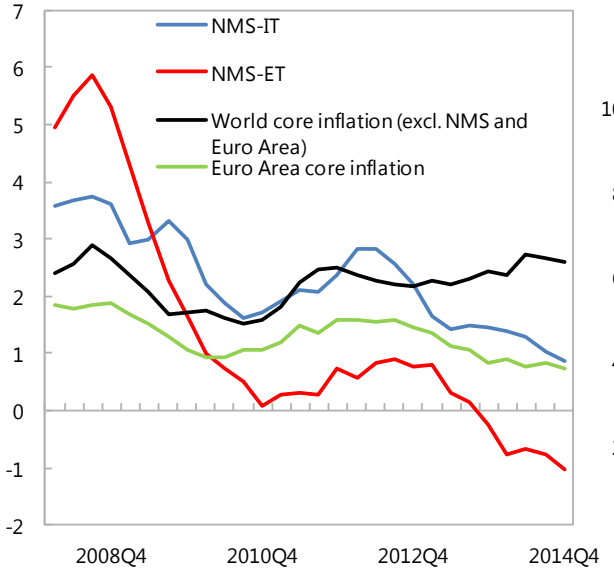
Real Monetary Conditions and Domestic Demand Growth
(2008-14 average; percent; peggers labeled red)



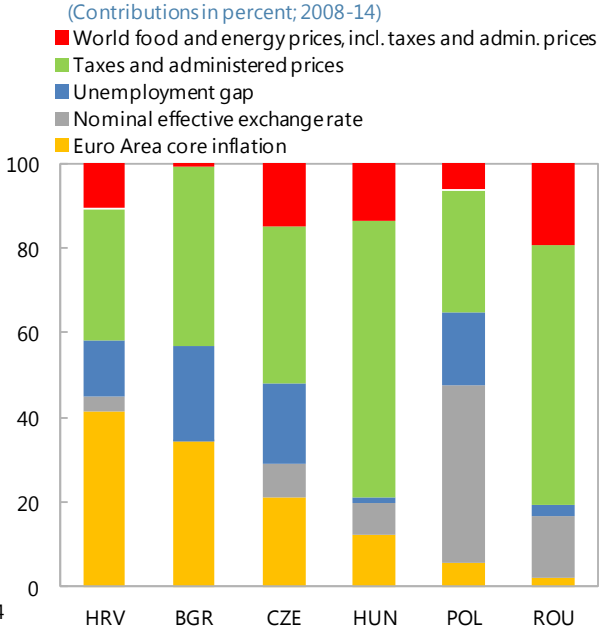
Contributions to Monetary Conditions
(2008-14 average; percent; peggers labeled red)



Core Inflation
(y-o-y, percent)



Headline Inflation Variance Decomposition
(Contributions in percent; 2008-14)



Sources: Haver Analytics; and IMF Staff calculations.

than for countries outside the euro area, and euro area members are obliged to join the Banking Union, which comes with the transfer of most authority for micro-prudential supervision and some aspects of macro-prudential policy to the ECB.

26. The challenge to adapt to the euro area policy framework presents itself differently for countries with flexible and with fixed exchange rates. [17]

- ***For NMS-6 that let exchange rates float and target inflation*****,** monetary policy autonomy would have to be replaced with other instruments, such as counter-cyclical fiscal policy, macro-prudential tools, and internal adjustment through wages.

- ***For the NMS-6 that have pegged their currencies to the euro***, an important issue is to what extent they could use macro-prudential policies also within the euro area—as Bulgaria and Croatia have been among the heaviest users of macro-prudential instruments in Europe (see Lim et al., 2011, and Dumičić, 2014).[18]

27. At this juncture, key euro area reforms that will affect both fiscal and financial sector governance are ongoing or have only just been completed. The final shape and practical implementation of these reforms will determine countries' policy space in the euro area, as well as the support they can expect from common euro area institutions in combating economic and financial shocks.

28. Given the large uncertainty surrounding these reforms—regarding both their final shape and how they will work in practice—there is a rationale to waiting for final outcomes before taking an irreversible euro adoption decision. In an uncertain environment, the option to wait until benefits and cost become clearer has value by itself. The standard economic application of the "option value of waiting" is for investment decisions (see McDonald and Siegel, 1986, or Dixit and Pindyck, 1994). However, the rationale also applies to irreversible *policy* choices, such as euro adoption.

[17] It is worth noting that in case the NMS-6 were to adopt the euro, this would not only affect the NMS-6 but also the existing euro area members. The NMS-6 would account for about 8 percent of the euro area's GDP (14 percent on a PPP basis), and a similar share of euro area consumption. In case convergence would resume at the same pace as in the early 2000s, staff estimates that NMS-6 adoption could increase average euro inflation by up to 0.3 percentage points, which would require a tighter monetary policy stance by the ECB to preserve its current inflation target. This, in turn, would further diminish space for nominal adjustment in case euro area members suffer asymmetric shocks.

[18] The jury is still out on the effectiveness of these measures. A recent paper by Cerutti et al. (2015), for example, finds some effectiveness of macro-prudential policies in managing credit cycles, but also severe issues of avoidance through greater cross-border borrowing.

E. Conclusions

29. The parameters of the euro adoption debate have shifted. While countries joining the euro area in the 2000s could expect to benefit from a significant country risk premium, this premium has mostly vanished with the euro crisis. When or whether it will return is uncertain and will depend in part on the success of ongoing reforms of the euro area's institutional framework. At the same time, for countries with sizeable shares of foreign currency loans, there are still important financial stability benefits from adopting the euro.

30. The NMS that have maintained exchange rate flexibility and monetary policy autonomy have, in general, made good use of it. During convergence, nominal currency appreciation supported more balanced growth and restrained credit and asset price booms. In the crisis-induced downturn of 2008–09, depreciation and monetary loosening helped stabilizing demand and, more recently, prevented external deflationary pressure from spilling into domestic core inflation.

31. It is an open question whether the macroeconomic volatility of the past decade will recur. If divergent growth patterns and volatility were to repeat, euro adoption would constrain macro-policy options, especially for economies with large income gaps and a-synchronized business cycles vis-à-vis the euro area. Thus, a large burden would be placed on other policy instruments to safeguard balanced growth, notably counter-cyclical fiscal policy—which, in turn, requires fiscal space—and macro-prudential policies. Structural reforms to boost growth potential and facilitate internal adjustment would also be key.

32. For countries that peg their currencies to the euro, the balance of the argument is somewhat different, as they have already traded monetary autonomy and exchange rate flexibility for benefitting from the euro as monetary anchor. Thus, for the most part, their policy frameworks would not change materially upon adopting the euro. An important remaining issue though is to what extent they could employ macro-prudential and other regulatory instruments also within the euro area.

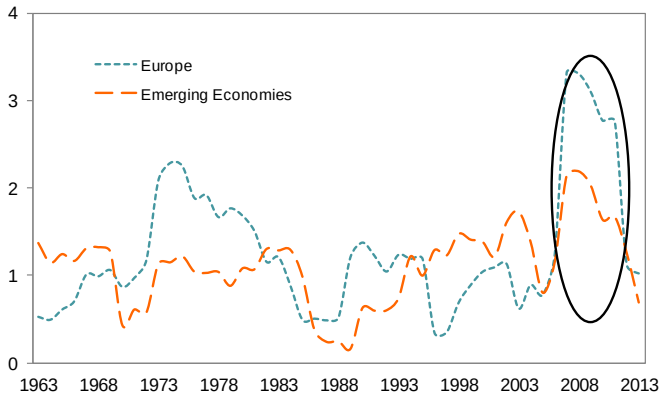
33. The scope for using fiscal policy and macro-prudential instruments is currently being re-defined in the context of ongoing reforms of the European fiscal and financial architecture. Depending on the final shape of these reforms, this may or may not constrain policy space for euro area members. The uncertainty about the outcomes of these reform efforts—and the limited means of the NMS-6 to affect them—provides a rationale to wait for and analyze final outcomes before taking an irreversible adoption decision.

Box 1. The 2004 IMF Study, and New Evidence on its Main Findings

The 2004 IMF study *"Adopting the Euro in Central Europe—Challenges of the Next Step in European Integration"* was cautiously optimistic about the net economic benefits of euro adoption.

- As key factor **in favor of euro adoption,** the study singled out trade generation and, as a result, higher growth. Based on estimates from the literature (e.g., Frankel and Rose, 1998 and Rose, 2000), staff considered real GDP gains of 10 to 25 percent over 20 years plausible. Staff noted though that the mechanism generating such large effects was not entirely clear, as the reduction in transaction cost and the elimination of exchange rate uncertainty would explain only a minor portion. The study also anticipated that adoption would reduce perceived credit risk which could, inter alia, reduce funding costs for NMS in the euro.
- As for **possible risks** from euro adoption, the study acknowledged that coping with asymmetric demand shocks would become more difficult without an independent monetary policy. However, the study noted that the NMS had experienced low growth volatility in the preceding years, suggesting that shocks may be manageable also without monetary autonomy—provided countries had fiscal space for countercyclical policies, and wages and prices were sufficiently flexible. Further, economic integration in the wake of euro adoption was expected to lead to more synchronized business cycles. As another potential risk from adopting the euro, the study identified large and volatile capital inflows and lending booms, as well as higher inflation due to the Balassa/Samuelson effect. Again, fiscal space and wage flexibility were seen as key to manage these phenomena, together with structural reforms to boost competitiveness, and strong financial supervision.[1]

Growth Volatility
(5-year rolling standard deviation of per-capital real GDP growth,)



Subsequent developments confirmed parts of the 2004 assessment, but in other parts yielded new insights.

- **Risk spread compression** happened as anticipated in 2004, at least until the outbreak of the euro crisis. The study's warnings of **excessive asset and credit booms** were well placed.
- Recent estimates of **trade and growth effects** are much smaller than assumed at the time, however, and range from nil (Havranek, 2010) to 2-3 percent of GDP (Baldwin, 2006). Further, recent studies suggest that trade generation is more related to EU entry than to euro adoption.
- **Demand volatility** has been significantly larger than anticipated in 2004, especially in the wake of the global financial crisis of 2008/09 and the ensuing euro crisis. Endogenous **business cycle synchronization** with euro adoption has not materialized—rather, there have been signs of divergence, such as growing external imbalances (Gayer 2007; Holinski et al. (2012), Enders et al. 2013, Lehwald, 2013; and Degiannakis et al., 2014).

[1/] The 2004 study also discussed ERM2-related strategies. The study recommended completing all necessary structural and fiscal reforms prior to entry into the ERM2 to ensure a smooth transition. Countries with autonomous monetary regimes—mostly inflation targeting—should maintain these until ERM2 entry.

Box 2. New Member States, Euro Adoption, and the Theory of Optimal Currency Areas

The academic literature on currency unions often casts the issue in terms of whether member countries form an "optimum currency area, OCA" (Mundell, 1961; McKinnon, 1963; and Kenen, 1969).

- In principle, countries can ***benefit from a currency union*** through capital market integration, lower terms-of-trade volatility and reduced exchange rate fluctuations. Countries with weaker institutions can import monetary policy credibility (McKinnon, 2004; Tavlas, 1993).
- ***There are also costs***, mostly associated with forgoing exchange rate flexibility and monetary policy autonomy for managing cyclical conditions. To minimize such costs, countries in currency unions would best have ***synchronized business cycles and growth patterns***, which is typically enhanced by intra-industry trade (Frankel and Rose, 1998).
- ***In currency unions with incomplete business cycle synchronization***, flexible non-monetary adjustment mechanism are needed: notably price and wage flexibility and cross-border labor mobility. Risk sharing through integrated financial markets can also help, by diversifying income sources through cross-country asset holdings (McKinnon, 2004; Mongelli, 2008).

Business cycle synchronization of NMS with the euro area is in general lower than within the euro area, even though there are differences between countries (Fidrmuc and Korhonen, 2003; Artis et al., 2004; Darvas and Szapáry, 2005; Van Arle et al. 2008). For Hungary, Poland, and the Czech Republic, synchronization with the euro area is higher than for the other NMS; and also higher relative to Greece and Portugal (Fidrmuc and Korhonen, 2006; Rinaldi-Larribe, 2013).

Wage flexibility in the NMS tends to be high while cross-border labor mobility has been increased (Gruber, 2004; Dao et al. 2014), with substantial outward migration from some NMS in the wake of the global financial crisis (OECD, 2013):

- **Wage flexibility**. According to Gruber (2004) and Boeri and Garibaldi (2006) NMS tend to have lower statutory minimum wages, union density rates and more decentralized wage bargaining structure than the euro area—all pointing to wage flexibility.
- **Labor mobility**. Outward migration in the post-crisis period of 2009-2011mostly was younger and educated workers, typically finding employment abroad below their skill level (Anacka et al., 2011; Jauer et al., 2014).

Cross-country risk sharing through financial market integration is low. While prior to the 2008/09 financial crisis, there was some evidence of increasing integration in equity and debt markets—such as lower interest rate dispersion and increasing effects of the euro area shocks on NMS equity markets (Cappiello et al. 2006; Baltzer et al. 2008)—these reversed in the wake of the crisis, with higher interest rate spreads (Pungulescu, 2013) and funding market segmentation along national lines (van Rixtel and Gasperini, 2013). In addition, cross-border asset holdings tend to be one-directional: euro area banks hold sizeable assets in NMS, and also FDI and portfolio investment from euro area residents in NMS is much larger than vice versa. As a result, domestic investment in the NMS is more sensitive to domestic saving than in EU15, and national consumption is closely correlated with GDP (Pungulescu, 2013).

Overall, while there are significant structural differences and lack of integration with the euro area, for NMS like the Czech Republic, Hungary, and Poland, this do not seem larger than heterogeneity within the euro area itself.

Box 3. Economic and Price Convergence in Emerging Europe

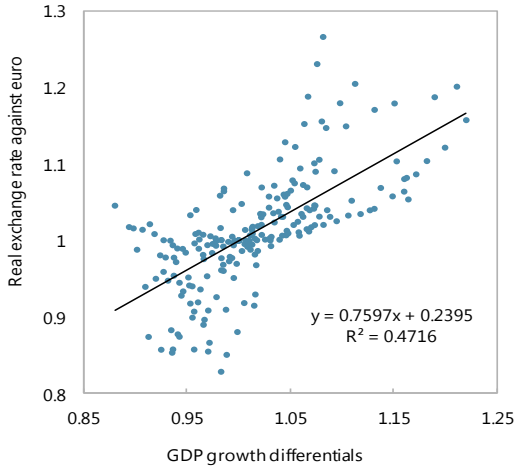
The political transformation in NMS in 1990s led to economic convergence through economic reforms, including trade and price liberalization, privatization, and the adoption of the legal framework of advanced Europe. Institutional change established the base for rapid growth, facilitated by external capital investment, a supportive external financing environment, and an often skilled labor force and reasonable infrastructure. As a result, productivity and income per capita increased by 20 percent relative to the Euro Area countries by between 1995 and 2013 (see IMF, 2014).

Improvements in productivity go typically hand in hand with real exchange rate appreciation. There are two, not mutually exclusive channels – the Balassa-Samuelson and the Podpiera effect:

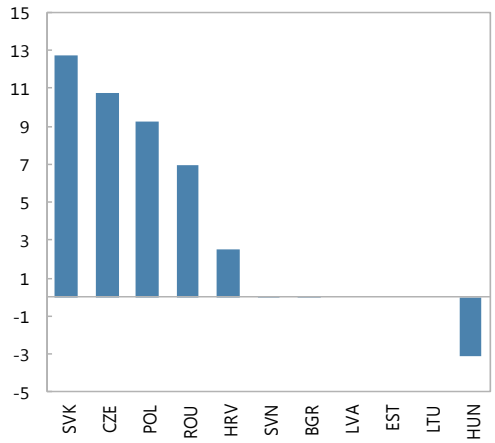
- The *Balassa-Samuelson effect* reflects faster productivity growth for tradable than for non-tradable goods during convergence. As the price for tradable goods is fixed in global goods markets, the price for non-tradables has to rise. However, contrary to initial expectations–formed during early stages of convergence–that such an effect could account for 1-2 percentage points of consumer price inflation per year (Cipriani, 2000, Kovacs et al., 2002, and Mihaljek and Klau, 2003), more recent studies find much smaller effects (Mihaljek and Klau, 2008).
- The *Podpiera effect* is due to converging economies shifting production toward higher quality goods. As quality improvements come with price increases and are typically underreported in domestic CPI indices, these effects are reflected in real exchange rate appreciation. Cincibuch and Podpiera (2006) and Fabrizio et al. (2007) document the rapid increase in prices in tradable sectors in NMS. Bruha and Podpiera (2010 and 2011) devise and calibrate a model that explains the rapid (2-3 percent a year) CPI-based real exchange rate appreciation during convergence. Sonora and Tica (2014) test jointly the *Balassa-Samuelson* and *Podpiera* effects and find that the latter primarily explains the real exchange rate appreciation in Emerging Europe.

Real exchange rate appreciation happened partly through nominal exchange rate appreciation in countries with flexible exchange rate regimes. In exchange rate targeting countries, it happened solely through higher inflation differentials (box charts and see figure on Investor Perception and Balance Sheet Euroization).

Real and Nominal Convergence
(Indexes, 2005=1, 2003Q1-07Q4)



Nominal Exchange Rate Against Euro
(Percentage change 2003Q1-07Q4)



Source: Haver and IMF Staff calculations.

References

Anacka, Marta, Agnieszka Fihel, Pawel Kaczmarczyk and Renata Stefanska, 2011, "Recent Trend in International Migration in Poland," *The 2011 SOPEMI Report*.

Arellano, Manuel, and Stephen Bond, 1991, "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations," *Review of Economic Studies*, Vol. 58/2, pp. 277-297.

Artis, Michael J., Massimiliano Marcellino, and Tommaso Proietti, 2004, "Characterizing the Business Cycle for Accession Countries," *CEPR Discussion Paper* 4457.

Bakker, Bas B., and Anne-Marie Gulde, 2010, "The Credit Boom in the EU New Member States: Bad Luck or Bad Policies?" IMF Working Paper No. 10/130. (Washington: International Monetary Fund).

Baldwin, Richard, 2006, "The Euro's Trade Effects," *Working Paper* 594, European Central Bank, March.

Baltzer, Markus, Lorenzo Cappiello, Roberto A. De Santis and Simone Manganelli, 2008, "Measuring Financial Integration in New EU Member States," *European Central Bank Occasional Paper Series* 81.

Boeri, Tito and Pietro Garibaldi, 2006, "Are Labour Markets in the New Member States Sufficiently Flexible for EMU?" *Journal of Banking & Finance*, Vol. 30, pp. 1393-1407.

Brown, Martin and Robert de Haas, 2012, "Foreign Banks and Foreign Currency Lending in Emerging Europe," *Economic Policy*, Vol. 27(69), pp. 57-98.

Bruha, Jan and Jiri Podpiera, 2010, "Real Exchange Rate in Emerging Economies: The Role of Different Investment Margins," *Economics of Transition*, Vol. 18/3, pp. 599-628.

_____, 2011, "The Dynamics of Economic Convergence: The Role of Alternative Investment Decisions," *Journal of Economic Dynamics and Control*, Vol. 35/7, pp. 1032-1044.

Cappiello, Lorenzo, Bruno Gerard, Arjan Kadareja and Simone Manganelli, 2006, "Financial Integration of New Member States," *European Central Bank Working Paper Series* 683.

Cerutti, Eugenio, Stijn Claessens and Luc Laeven, 2015, "The Use and Effectiveness of Macroprudential Policies: New Evidence", IMF, mimeo.

Cincibuch, Martin and Jiri Podpiera, 2006, "Beyond Balassa-Samuelson: Real Appreciation in Tradables in Transition Countries," *Economics of Transition*, Vol. 14/3, pp. 547-573.

Cipriani, Marco, 2000, "The Balassa-Samuelson Effect in Transition Economies," mimeo, Paper prepared by the CEC5 National Banks for the Basle meeting on March 2002.

Dao, Mai, Davide Furceri and Prakash Loungani, 2014, "Regional Labor Market Adjustments in the United States and Europe," *IMF Working Paper* No. 14/26.

Darvas, Zsolt and György Szapáry, 2005, "Business cycle synchronization in the enlarged EU: Comovements in the new and old members," *CEPR Discussion Paper* No. 5179.

Degiannakis, Stavros, David Duffy and George Fils, 2014, "Business Cycle Synchronization in EU: A Time-Varying Approach," *Scottish Journal of Political Economy*, Vol 61(4), pp. 348-370.

Dixit, Avinash K. and Robert S. Pindyck, 1994, *Investment under Uncertainty*, Princeton University Press.

Dumičić, Mirna, 2014, "Macroprudential Policy in Central and Eastern European Countries - Is There Something We Should Learn?" Paper Presented at the 20th Dubrovnik Economic Conference.

Enders, Zeno, Philip Jung and Gernot J. Müller, 2013, "Has the Euro Changed the Business Cycle?" European Economic Review, Vol. 59, pp 189-211. European Commission, 2014, *Convergence Report*, ISSN 1725-3217.

Fabrizio, Stefania, Deniz Igan, and Ashoka Mody, 2007, "The Dynamics of Product Quality and International Competitiveness," *IMF Working Paper* No. 07/97.

Fidrmuc, Jarko and Iikka Korhonen, 2003, "Similarity of supply and demand shocks between the euro area and the CEECs," *Economic Systems*, Vol. 27(3), pp. 313-334.

Fidrmuc, Jarko and Iikka Korhonen, 2006, "Meta-analysis of the business cycle correlation between the euro area and the CEECs," *Journal of Comparative Economics*, Vol. 34(3), pp. 518-537.

Frankel, Jeffrey A. and Andrew K. Rose, 1998, "The Endogeneity of the Optimum Currency Area Criteria," *Economic Journal*, Vol. 108(449), pp. 1009-1025.

Freedman, C., 1994, "The Use of Indicators and of the Monetary Conditions Index in Canada", In: Balino, T. J. T. and Cottarelli, C. (eds.), Frameworks for Monetary Stability: Policy Issues and Country Experiences, Chapter 18, pp. 458-476, International Monetary Fund, Washington, D.C.

Galí, Jordi and Mark Gertler, 1999, "Inflation dynamics: A structural econometric analysis," *Journal of Monetary Economics*, 44(2), October, pp. 195-222.

Gayer, Christian, 2007, "A Fresh Look at Business Cycle Synchronization in the Euro Area," European Economy, *Economics Paper* 287.

Government of the Republic of Slovenia and Bank of Slovenia, 2003, "The Euro is Coming," OPOCE .

Gruber, Thomas, 2004, "Employment and Labor Market Flexibility in the New EU Member States," in *Focus* 01/04, Osterreichische Nationalbank, pp. 96-121.

Havránek, Tomáš, 2010, "Rose Effect and the Euro: Is the Magic Gone?" *Review of World Economics*, June 2010, Vol 146(2), pp. 241-261.

Heinz, Frigyes Ferdinand, and Yan Sun, 2014, "Sovereign CDS Spreads in Europe—the Role of Global Risk Aversion, Fundamentals, Liquidity, and Spillovers," *IMF Working Paper* No. 14/17 (Washington: International Monetary Fund).

Holinski, Nils, Clemens Kool and Joan Muysken, 2012, "Persistent Macroeconomic Imbalances in the Euro Area: Cause and Consequences," *Federal Reserve Bank of St. Louis Review*, January/February 2012, Vol 94(1), pp. 1-20.

Ilzetzki, Ethan, Carmen M. Reinhart and Kenneth S. Rogoff, 2011, "Exchange Rate Arrangements Entering the 21st Century: Which Anchor Will Hold?" London School of Economics, mimeo.

International Monetary Fund, 2005, "Does Inflation Targeting Work in Emerging Markets?" Chapter IV, *World Economic Outlook*, September, (Washington).

International Monetary Fund, 2013a, *Annual Report on Exchange Arrangements and Exchange Restrictions*, (Washington).

International Monetary Fund, 2013b, "The Yin and Yang of Capital Flow Management: Balancing Capital Inflows with Capital Outflows," Chapter IV, *World Economic Outlook*, September (Washington).

International Monetary Fund, 2014, "25 Years of Transition: Post-Communist Europe and the IMF" Regional Economic Issues, October 2014, (Washington).

Iossifov, Plamen and Jiri Podpiera, 2014, "Are Non-Euro Area EU Countries Importing Low Inflation from the Euro Area?" *IMF Working Paper* No. 14/191.

Jauer, Julia, Tomas Leibig, John P. Martin and Patrick Puhani, 2014, "Migration as an Adjustment Mechanism in the Crisis? A comparison of Europe and the United States," *OECD Social, Employment and Migration Working Papers* No. 155.

Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi, 2010, "The Worldwide Governance Indicators: Methodology and Analytical Issues," *World Bank Policy Research Working Paper* No. 5430.

Kenen, Peter B., 1969, "The Theory of Optimum Currency Areas: An Eclectic View," In R. Mundell and A. Swoboda eds, *Monetary Problems of the International Economy*, The University of Chicago Press, pp. 41-60.

Kovacs, M. A. (ed.), 2002, "On the Estimated Size of the Balassa-Samuelson Effect in CEC5 Countries," May. Paper prepared by the CEC5 National Banks for the Basle meeting on March 2002.

Lehwald Sybille, 2013, "Has the Euro Changed Business Cycle Synchronization? Evidence from the Core and the Periphery," *Empirica*, Vol. 40 (4), pp. 655-684.

Lim, C., F. Columba, A. Costa, P. Kongsamut, A. Otani, M. Saiyid, T. Wetzel and X. Wu, 2011, "Macroprudential Policy: What Instruments and How to Use Them? Lessons From Country Experiences," *IMF Working Paper* No. 11/238 (Washington: International Monetary Fund).

Lipschitz, Leslie, Timothy Lane, and Alex Mourmouras, 2002, "Capital Flows to Transition Economies: Master or Servant," IMF Working Paper No. 02/11. (Washington: International Monetary Fund).

Maltritz, Dominik, 2012, "Determinants of Sovereign Yield Spreads in the Eurozone: A Bayesian Approach," *Journal of International Money and Finance*, Vol. 31/3, pp. 657-672.

Matei, Iuliana and Angela Cheptea, 2012, "Sovereign Bond Spread Drivers in the EU Market in the Aftermath of the Global Financial Crisis," *in* Essays in Honor of Jerry Hausman, pp. 327-352.

McDonald, Robert L. and Daniel Siegel, 1986, "The Value of Waiting to Invest," *Quarterly Journal of Economics*, Vol. 101 (4), pp. 707-727.

McKinnon, Ronald I., 1963, "Optimum Currency Areas," *American Economic Review*, Vol. 53, pp. 717-724.

McKinnon, Ronald I., 2004, "Optimum Currency Areas and Key Currencies: Mundell I versus Mundell II," *Journal of Common Market Studies*, Vol. 42(4), pp. 689-715.

Mihaljek, Dubravko and Marc Klau, 2003, "The Balassa-Samuelson effect in Central Europe: A Disaggregated Analysis," *BIS Working Paper* 143.

_____, 2008, "Catching-up and inflation in transition economies: the Balassa-Samuelson effect revisited," *BIS Working Paper* 270.

Mongelli, Francesco P., 2008, "European Economic and Monetary Integration, and the Optimum Currency Area Theory," European Economy, *Economic Paper* 302, Directorate General Economic and Monetary Affairs (DG ECFIN), European Commission.

Mundell, Robert A., 1961, "A Theory of Optimum Currency Area," *American Economic Review*, Vol. 51, pp. 657–665.

OECD, 2013, "Coping with emigration in Baltic and East European countries," OECD Publishing.

Pungulescu, Crina, 2013, "Measuring financial market integration in the European Union: EU15 vs. New Member States," *Emerging Markets Review*, Vol. 17, pp. 106-124

Ranciere, Romain, Aaron Tornell, and Athanasios Vamvakidis, 2010, "A New Index of Currency Mismatch and Systemic Risk," *IMF Working Paper* No. 10/263 (Washington: International Monetary Fund).

Rinaldi-Larribe, Marie-José, 2013, "Is economic convergence in New Member States sufficient for an adoption of the euro?," *The European Journal of Comparative Economics*, Vol. 5(2), pp. 133-154.

Rose, Andrew K., 2000, "One money, one market: the effect of common currencies on trade," *Economic Policy*, Vol. 15(30), pp. 7–33.

Rosenberg, Christoph and Marcel Tirpak, 2009, "Determinants of Foreign Currency Borrowing in the New Member States of the EU," *Journal of Economics and Finance*, vol. 59(3), pp. 216-228.

Schadler, Susan, Paulo Drummond, Louis Kuijs, Zuzana Murgasova, and Rachel van Elkan, 2005, "Adopting the Euro in Central Europe – Challenges of the Next Step in European Integration," *IMF Occasional Paper* 234.

Slovakian National Bank, 2003, "Strategy of the Slovak Republic for Adoption of the Euro," *BIATEC*, Volume XI, 10/2003.

Sonora, Robert J. and Josip Tica, 2014, "Harrod, Balassa and Samuelson (Re)Visit Eastern Europe," *Cogent Economics & Finance* (2014-2).

Standard and Poor's Rating Service, 2015, "Poland Could Reap Longer Term Benefits From Adopting The Euro", McGraw Hill Financial.

Tavlas, George S., 1993, "The 'New' Theory of Optimum Currency Areas, " *The World Economy*, Vol. 16(6), pp. 663-685.

Traistaru, Iulia, 2004, "Transmission channels of business cycles synchronization in an enlarged EMU," *Working paper* B18. Center for European Integration Studies, ZEI, Bonn.

Van Arle, Bas, Marcus Kappler, Andreas Sachs, Atilim Seymen, and Klaus Weyerstrass, 2008, "Study on Economic Integration and Business Cycle Synchronization," Center for European Economic Research (ZEW) and Institute for Advanced Study (HIS).

Van Rixtel, Adrian and Gabriele Gasperini, 2013, "Financial Crises and Bank Funding: Recent Experience in the Euro Area," *BIS Working Papers* 406.

Vernazza, Daniel, Erik F. Nielsen, and Vasileos Gkianakis, 2014, "The Damaging Bias of Sovereign Ratings," UniCredit Global Themes No. 21.

Von Hagen, Jürgen, Ludger Schuknecht, and Guido Wolswijk, 2011, "Government Bond Risk Premiums in the EU Revisited: The Impact of the Financial Crisis," *European Journal of Political Economy*, Vol. 27(1), pp. 36-43.

Wicksell, Knut, 1898/1936, *Interest and Prices* (Geldzins und Güterpreise), Sentry Press, New York.

Appendix I. Estimating the Euro Premium

Euro Premium

The empirical analysis of the euro premium is based on panel data regression for 34 European countries with annual observations for the period 2001–2013. The time period is mostly determined by data availability. We estimate the following equation:

$$C_{it} = \boldsymbol{X_{it}}\boldsymbol{\beta} + \gamma_t Euro_{it} + \vartheta_t EU_{it} + \theta_t + \delta_i + u_{it}, \qquad t=1,2,\ldots T$$

where

- ***C is an expert assessment of country perception*.** We use two different measures, (i) the Institutional Investor's country credit ranking (IIR) and, for comparison (ii) a linearized version of Standard & Poor's sovereign credit ratings (S&P).[1] A possible alternative measure would have been credit spreads as used, e.g., in Heinz and Sun (2014), Matei and Cheptea (2012), Maltritz (2012), or von Hagen et al. (2011). The high volatility of credit spreads, and the fact that spreads are affected by many other factors than perceived credibility—say, global liquidity conditions and/or cross-country spillovers—makes us select a metric that assesses investor perceptions directly.

- ***X is a vector of country characteristics*** that may affect a country's perception of credit worthiness. **X** includes macro-variables—such as fiscal and external balances, public debt, per-capita-GDP, real GDP growth, the unemployment rate, inflation, the exchange rate regime, national investment as share of GDP, and the country's a international investment position (NIIP)—but also an indicator measuring institutional quality.

- ***Most data are drawn from the IMF's World Economic Outlook database***. For institutional quality, we use a simple average of the Kaufmann et al. (2010) governance quality indices that is available, at this juncture, only for 2002–12. The exchange rate regime is captured with a dummy variable for floating currencies (freely or managed) drawn from Ilzetzki et al. (2011) until 2010 and extrapolated with IMF (2013a) for the period thereafter. Public debt data is available for only about 90 percent of the observations; we control for missing observations by including a corresponding dummy variable.

[1] For the IIR, respondents grade each country on a scale of zero to 100, with 100 representing the least likelihood of default. Participants' responses are weighed according to their institutions' global exposure. As for the S&P index, the linearization assigns a value of 1 to an AAA rating, of 2 to AA+, and so on. We use the foreign currency sovereign credit rating, but for the vast majority of countries, the local and foreign currency ratings are identical.

- ***x_{it} is typically the expected outcome of variable for year t*** at the time when the WEO fall forecast is produced. We experimented with leads and lags, but found that concurrent values have the greatest explanatory power.

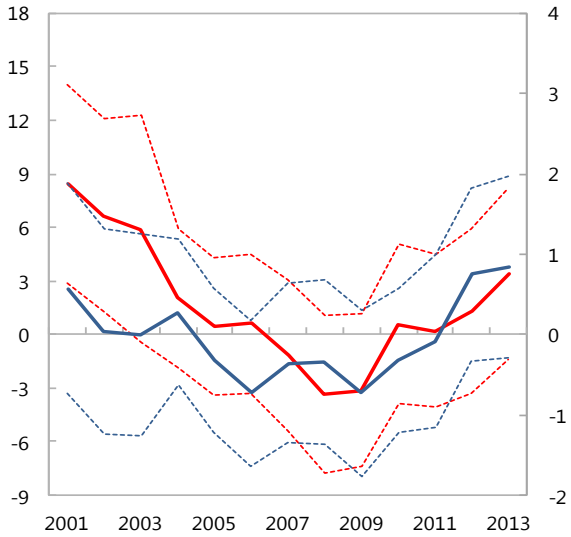
- ***δ and θ are a country/time-dummies*** capturing unobserved, time invariant country-specific factors/common unobserved time-specific factors, respectively. The time dummies control for common macroeconomic and financial developments.

- ***Euro is a dummy variable*** that takes on value 1 if country *i* was member of the euro area in year *t*, and 0 otherwise (or technically speaking, we interact a general euro area dummy with a time dummy). The γ_t thus measure the impact of euro area membership on country perception, holding country characteristics—both observed and unobserved—constant. We allow γ to vary over time, to verify whether the value of euro membership has changed. Similarly, EU is a dummy variable capturing EU membership.

Table A1 displays the regression results.

- ***Euro and EU premia.*** While estimates for the IIR index (column 1) and the S&P indices (column 2) are in general similar, the IIR tends to value *euro area* membership higher than S&P throughout. Further, the decline in the premium in the wake of the euro crisis is steeper for the S&P index than for the IIR.[2] The premium for *EU* membership is generally insignificant (see chart), except for 2001/02, when EU membership displays modest positive significance with the IIR index.[3]

EU Membership Premium: IIR (red, lhs) and S&P (blue, rhs) (Rating points)



- Among ***controls***, unemployment, and government debt have the strongest impact on perceived credibility, followed by inflation, growth, and the NIIP. Note that the IIP puts most weight on stock variables, while for the S&P assessment flow variables also matter (budget deficit, current account balance). Governance quality shows up as a strong determinant of credibility (column 3).

[2] This is consistent with claims that rating agencies downgraded euro area countries excessively in crisis—see, for example, Vernazza et al. (2014). The finding of a vanishing euro premium is consistent with the results in Heinz and Sun (2014) for credit spreads.

[3] The pattern in the early 2000s reflects arguably more an improvement in investor perception of non-EU countries than a deterioration in the perception of EU member countries—see also Figure 1 in the main text.

At the same time, its inclusion (or omission) does not materially affect the pattern of the euro premium over time.

To check for ***robustness*** we estimated various other specifications, both by including additional control variables—such covariates capturing global macro/liquidity conditions, e.g. the VIX index—and by estimating dynamic panels—notably the Arellano-Bond (1991) GMM estimator. The basic pattern—a steep decline in the euro area premium from 2010—persists across all specifications.[4]

IIR Premium for Euro Area Membership: Arellano/Bond GMM Dynamic Panel Estimator (Rating points)

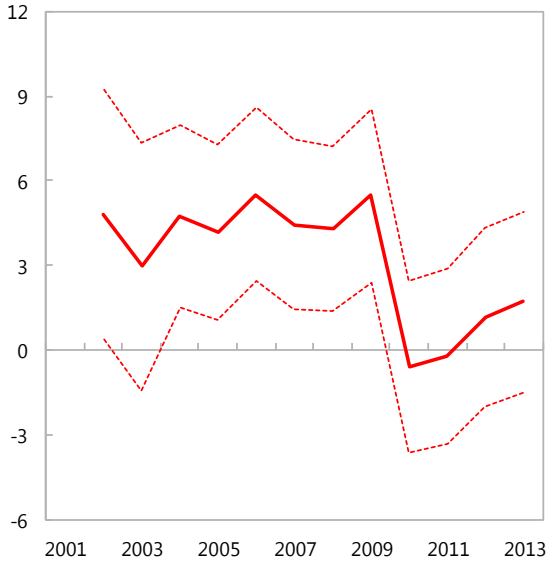


Table A1.Euro Premium - Panel Regressions

	2001-2013				2002-2012	
	(1) IIR Rating		(2) S&P Rating[1/]		(3) IIR Rating	
	Coeff.	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*
Controls						
Per-capita GDP	-1.8^(-5)	-0.51	0.1^(-5)	0.58	-1.7^(-5)	-0.39
Real growth	0.40	3.63***	0.12	4.64***	0.37	3.41***
Investment/GDP	0.13	1.36	0.04	1.74*	0.11	1.09
Unemployment rate	-1.03	-9.56***	-0.31	-12.16***	-0.84	-7.13***
CPI inflation	-0.26	-3.92***	-0.68	-5.88***	-0.20	-2.46**
Gen. gov. balance	-0.10	-0.95	-0.07	-2.69***	-0.00	-0.01
Gen. gov. debt	-0.17	-9.01***	-0.03	-6.62***	-0.14	-7.16***
External balance	0.06	0.82	0.04	2.42**	0.08	0.99
NIIP	0.03	5.15***	0.01	4.10***	0.02	3.60***
Floating (dummy)	0.16	0.14	-0.50	-1.82*	0.72	0.56
Governance quality	...	...	...	...	18.08	5.63***
Country fixed effects, time dummies, euro and EU membership dummies, dummy for missing gov. debt observations (not reported)						
Observations		442		442		374
Adjusted R^2		0.952		0.952		0.956
Significance of country FE		F(33,359)= 37.63 (0.000)		F(33,359)= 45.30 (0.000)		F(33,292)= 22.10 (0.000)

[1/] Linearized and inverted
Significance at the 1 (***), 5 (**), and 10 (*) percent level.

[4] With Arellano-Bond, the estimated size of the euro premium is on average smaller by about one-third.

Euroization

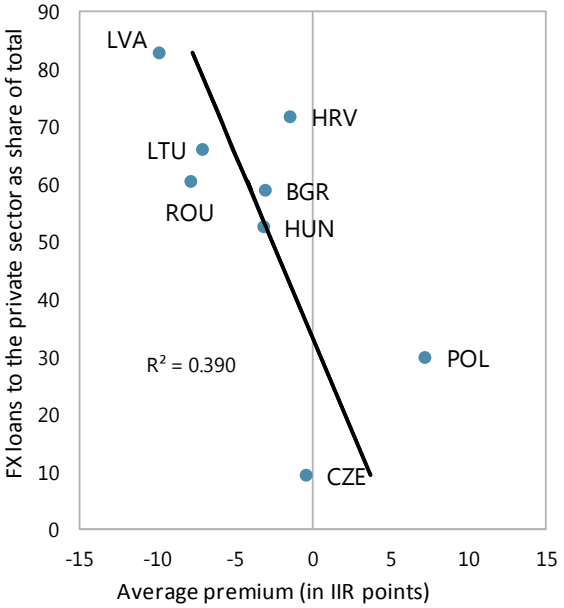
The analysis of the impact of balance-sheet euroization on perceived credibility is constrained by limited data availability. We have information for only 11 new EU members states from 2006–2012 (in a few cases going back to 2004). This prevents including euroization as a covariate into the regression equation above. As an alternative strategy, we correlate both (i) the NMS' *country fixed effects* $\widehat{\boldsymbol{\delta}_i}$ and (ii) a country's estimated annual *residual credibility premium* $\widehat{\boldsymbol{\delta}_i} + \widehat{\boldsymbol{u}_{it}}$ with the share of FX loans in total private sector loans. The estimated correlation (i) is unbiased as long as the share of FX loans is invariant over time (which for most countries holds at least approximately), but the estimate is based on very few observations. By adding a time dimension, (ii) greatly enlarges the sample (from i to $\times \boldsymbol{t}$ observations), but makes an orthogonality assumption about the relationship between euroization and the other covariates included in the main regression equation above. This assumption can, in general, not be assumed to hold, giving rise to potential estimation bias in a priori unknown direction.

Figure A1 shows key results, using the $\widehat{\boldsymbol{\delta}_i}$ and $\widehat{\boldsymbol{\delta}_i} + \widehat{\boldsymbol{u}_{it}}$ coming out of model (3).[5] While correlation with euroization is marginally weaker for the residual credibility premium than for fixed effects, the difference is so small that potential bias is unlikely to materially affect the analysis. Further, the richer sample obtained from using the residual premium allows extracting a non-linear relationship from the data: euroization becomes disproportionately more detrimental for country perception the larger FX balance sheet mismatches are. This relationship appears broadly stable over time—thus, in contrast to the general euro credibility premium, the FX-specific credibility premium has not vanished with the euro crisis.

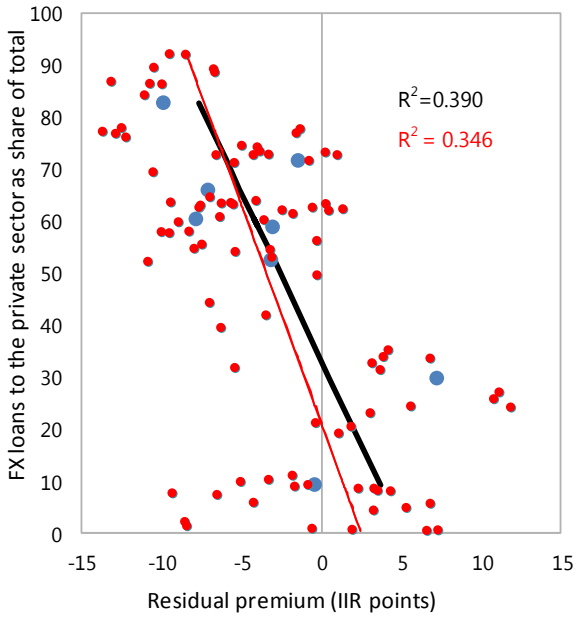
[5] Euroization correlates strongly with governance quality, thus inclusion of governance quality in $\boldsymbol{X}$ is necessary lest to overstate the link between euroization and perceived credibility.

Figure A1. Ratings Premia and Euroization, Detailed Results

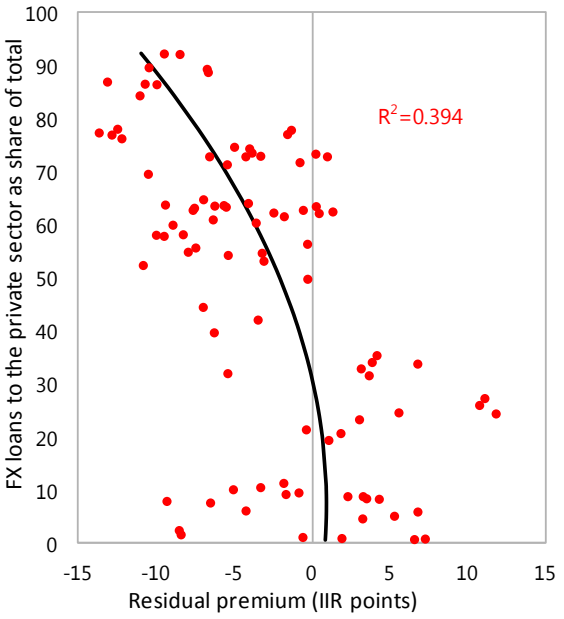
Investor Perception and Balance Sheet Euroization
(Fixed effects, 2006-12)



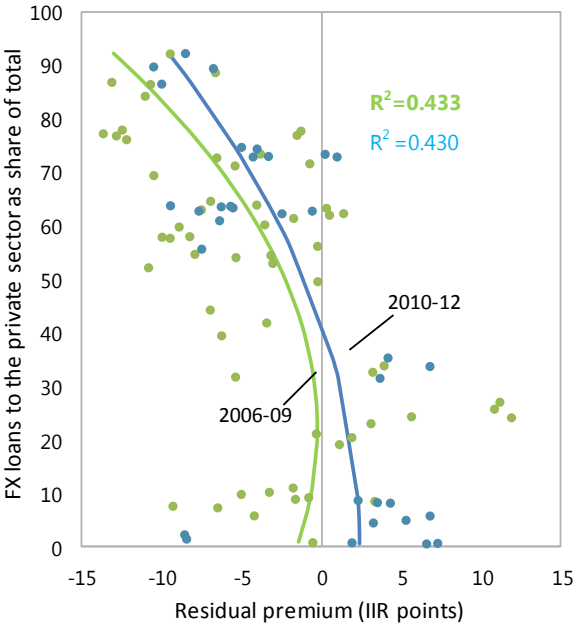
Fixed Effects (blue/black) vs. Residual Premium (red)
(2006-12)



Residual Premium: Non-Linear Specification
(2006-12)



Residual Premium: 2006-09 and 2010-12



Source: IMF Staff calculations.

Appendix II. The Index of Monetary Conditions

Following Freedman (1994) and subsequent applications by several central banks and the IMF, the index of monetary conditions (MCI) has been calculated as the weighted average of the indexes of the real interest rate (RIR) and the real effective exchange rate (REER):

$$MCI = \alpha\ RIR + (1-\alpha)\ REER,$$

where α is the relative impact of RIR on domestic demand. The estimated weight α ranges from 0.6 in the Czech Republic, Poland, and Slovenia, through 0.8 in Bulgaria, Estonia, Latvia, Lithuania, and Slovakia, to 0.9 in Croatia and Hungary. For comparison, the European Commission[1] uses α = 0.8 in its MCI calculations for the euro area. All indexes were set to 1 in 2003.

[1] http://ec.europa.eu/economy_finance/db_indicators/conditions/index_en.htm

Appendix III. Model-Based Inflation Variance Decomposition

Iossifov and Podpiera (2014) analyze inflationary developments in ten non-euro area EU countries within the 2004–14 period, using a panel framework of an open-economy New Keynesian Phillips curve (Galí and Gertler, 1999). They assume inflation to be both forward-looking with some degree of inertia and driven by demand and supply-side shocks. The regression specification can be described, for a country *i*, as:

$$\pi_{it} = \alpha_i + \sum_{p=1}^{2} \beta_p \pi_{it-p} + \gamma \pi_{it}^{*} + \delta \tilde{u}_{it} + \zeta_i \pi_t^{EA} + \mathbf{z}_{it}\boldsymbol{\theta} + \mathbf{w}_t\boldsymbol{\vartheta} + \varepsilon_{it}, \;\; t = 1,2, \ldots, T$$

- π_{it} – *Headline inflation* is calculated using the Harmonized Indices of Consumer Prices (HICP) published by Eurostat.
- π_t^{EA} – *Euro Area price pressures* is the euro area HICP core inflation, which is stripped of direct, first-round effects of commodity price changes.
- π_{it}^{*} – *Expected inflation* proxies expectations of future inflation by the mean forecasts of average annual inflation two-years ahead published by Consensus Economics.

$\tilde{u}_{it}$ – *Unemployment rate gap is* the cyclical unemployment rate extracted with the Baxter-King bandpass filter using data from Haver and national sources. [1]

- $\mathbf{z}_{it}$ – $1 \times K$ vector of country-specific supply-side shocks*:*
  - *Contribution of taxes and administered prices* are captured by their combined contribution to headline inflation, calculated with HICP data published by Eurostat.
  - *Exchange rate appreciation/depreciation* is calculated using the nominal effective exchange rates published by the IMF.
- $\mathbf{w}_t$ – $1 \times P$ vector of common external supply-side shocks:
  - *World commodity price inflation*—world oil and food price indices in US dollars from the IMF's World Economic Outlook (WEO) are used to capture commodity price changes. They are interacted with the weights of energy and food in consumer baskets to allow for differentiated impact across countries.

[1] The Baxter-King filter decomposes, in the frequency domain, the analyzed series into trend, cyclical, and irregular components, which are additive. For all countries, the Baxter-King filter is based on an 11-quarter centered moving average and a widely used definition of the business cycle—movements in economic series that occur with periodicity of between 6 quarters and eight years (32 quarters). In order to obtain estimates for the whole sample period, we augment the dataset with Fund staff forecasts through end-2016.

- *Exchange rate regime dummies*—based on the classification of exchange rate regimes in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (IMF, 2013a).

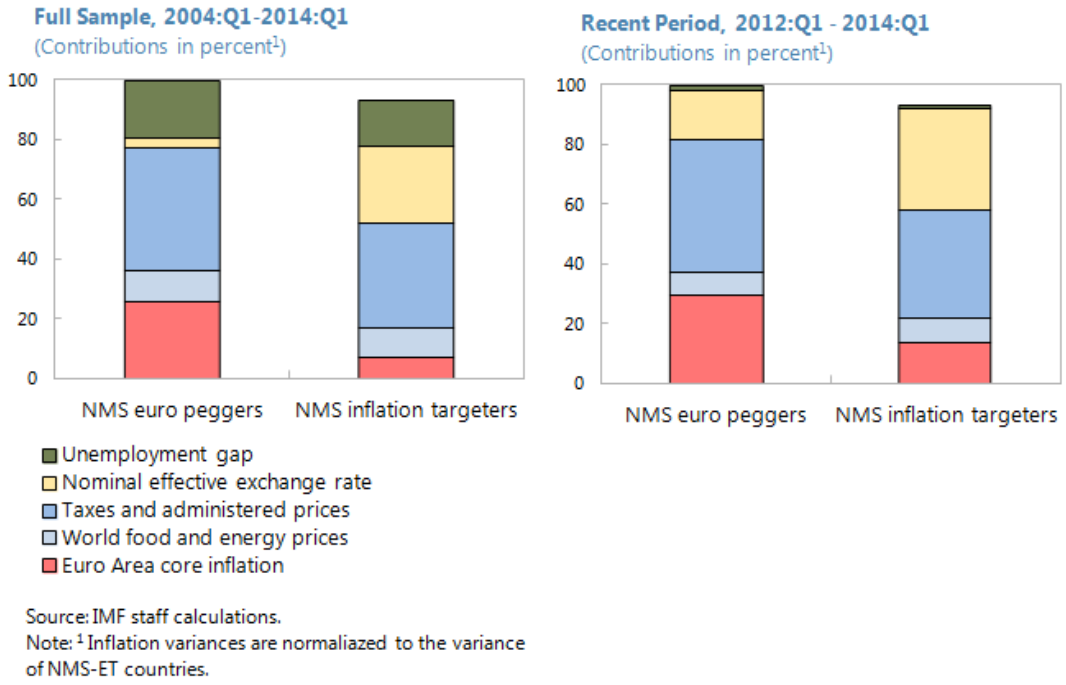
- *Share of foreign value added in domestic demand*—calculated using OECD-WTO's Trade in Value Added dataset as an average of the 2005 and 2009 values. Data for Croatia is not available in the OECD-WTO database. We approximate the share of foreign value added in Croatian domestic demand by the average of its readings in Poland and Romania, as the ratio of imports to GDP of these three countries are very similar.

The estimation results suggest that food and energy prices account for a large share of the variance of headline inflation, but exchange rate regime and trade linkages to the Euro Area are also important. According to the inflation variance decomposition (Figure A2), world food and energy price changes together with changes in administered prices and taxes account for about half of the variability of headline inflation across non-euro area EU countries. However, disinflation spillovers from the euro area have been an important factor for NMS that peg their currency to the euro and inflation targeting countries with high foreign value added in domestic demand:

- Countries with more rigid exchange rate arrangements tend to import more inflation from the euro area.

  Inflation spillovers from the euro area are also larger, the higher the share of domestically consumed foreign value-added (e.g., in the Czech Republic and Hungary).

Figure A2. Model-based Inflation Variance Decomposition



Source: IMF staff calculations.
Note: [1] Inflation variances are normaliazed to the variance of NMS-ET countries.

OPTING INTO THE BANKING UNION BEFORE EURO ADOPTION[1]

Summary

The main motivation for establishing the Banking Union (BU) was the need to reverse financial fragmentation that crippled monetary transmission within the common currency area in the wake of the euro crisis. By design, the BU would raise the credibility of the euro area bank supervision, eliminate distinction between home and host supervisors, and sever the link between banks and sovereigns. This would, in turn, lead to lower bank compliance costs, lower barriers to cross-border activity, and lower funding costs for banks under the BU. As host countries of euro area banks, the NMS-6 would benefit from improved resilience of the euro area financial system and lower funding costs for parent banks.

The full benefits of the BU will be realized once all its elements are in place, which is not yet the case. Most notably an effective common backstop is still needed to break the sovereign-bank links. Furthermore, there is **no equal treatment of the eurozone and non-eurozone members of the BU** with regards to their role in the Single Supervisory Mechanism (SSM), access to common (ECB) liquidity support or to a common fiscal backstop (with ESM currently acting as *de facto* common fiscal backstop for euro area banks).

When would opting into the BU make sense for the NMS-6? For those new member states (NMS) that have set a target date for euro adoption (Romania), this amounts to choosing to frontload the phase-in of some of the necessary institutional changes. For others, the BU opt-in decision requires a careful consideration of country characteristics, policy preferences as well as BU's modalities and implementation:

- ***BU design***: the lack of equal (or fully equivalent) treatment of euro area and non-euro area members of the BU tilts the NMS-6's decision against early BU opt-in and in favor of waiting until euro adoption.
- ***BU modalities***: the lack of clarity on and experience with the BU operational modalities – which may affect macroprudential and possibly monetary policy space of the NMS-6 – may be another factor in favor of waiting. This, in particular, applies to coordination between the BU and local supervisors, as well as to coordination between prudential policies at the national and BU-levels and national monetary policies.
- ***Some may still opt into the BU*** because for them the BU participation may be a way to address specific challenges, which outweigh other considerations, including BU shortcomings. Notably, some may see BU as a way to enhance quality and credibility of bank supervision or to gain access to larger industry-funded common backstop.

The BU opt-in would be more attractive for the NMS-6 if mechanisms were in place to ensure that the NMS-6's concerns stemming from unequal treatment of opt-ins and euro area members are fully addressed. Furthermore, greater clarity on the BU operational modalities – that would shape the opt-ins' policy space and the support they could expect from common euro area institutions — is needed in order for the NMS-6 to make a more informed decision on the BU opt-in.

[1] Prepared by John Bluedorn, Anna Ilyina and Plamen Iossifov. Min Song and Jessie Yang provided research assistance. The authors are grateful to Mr. Hampl (the Czech National Bank), Mr. Voinea (National Bank of Romania), Ms. Szombati (Hungarian National Bank) and Ms. Field (ECB) who participated as discussants in the session on opting into the Banking Union before euro adoption at the New Member States (NMS) Policy Forum in Warsaw on December 12, 2014, and to the NMS-6, EC and ECB representatives who provided comments during bilateral discussions in November 2014. The authors are grateful to Giovanni Dell'Ariccia (IMF) for helpful discussions.

A. Why Did Europe Need a Banking Union?

"With a European supervisor, borders will not matter. Issues such as protecting national champions or supervisory ring-fencing of liquidity will not be relevant." (M. Draghi)

1. The global financial crisis exposed weaknesses in the EU financial architecture, arising from misalignments between national mandates for financial sector oversight and the EU-wide operations of many market participants:

- ***Negative externalities***: The pursuit of domestic financial stability and competitiveness objectives, as well as resident taxpayer interests can create negative externalities for other EU members, resulting in a sub-optimal Union-wide outcome. One example is the failure of home supervisors of banks with subsidiaries in Central and Eastern Europe to rein in credit expansion in the region, which fueled unsustainable domestic demand booms prior to 2008. Host supervisors' efforts to limit rapid credit growth were circumvented by redirecting borrowers from local subsidiaries to parent banks' headquarters (Hilbers et al, 2005). Another example is the bailout of companies from the financial conglomerate Fortis Group according to their country of incorporation, instead of restructuring on a consolidated basis (BIS, 2010).

- ***Financial fragmentation***: The national nature of deposit insurance schemes and public backstops for financial institutions led to a post-crisis fragmentation of the European market for financial services, as the funding costs of financial intermediaries and ultimately the cost of borrowing became linked to sovereign creditworthiness (ECB, 2012). As a result, a number of countries became caught in a negative feedback loop between bank solvency and sovereign default risks, posing a major challenge for euro area countries which do not have country-specific monetary autonomy (IMF, 2013a).

2. In the aftermath of the crisis, the EU embarked on ambitious financial sector reforms aimed at improving the transparency and health of the financial system, strengthening and harmonizing bank supervision and resolution, reducing market fragmentation, and minimizing the cost to taxpayers of future bail-outs. Given the special challenges faced by euro area members, the reform strategy has proceeded along two parallel tracks:

- **Harmonization of the regulatory and supervisory regimes** for all participants in the single market for financial services. To this end, the European System of Financial Supervision (ESFS) was put in place in 2011 and the Single Rulebook was developed to harmonize prudential norms for all EU banks (EC, 2013):

- The *European System of Financial Supervision* comprises the European Banking Authority (EBA), the European Systemic Risk Board (ESRB) [2], European Securities and Markets Authority (ESMA), European Insurance and Occupational Pensions Authority (EIOPA), the Joint Committee of the European Supervisory Authorities (ESAs), and national supervisory agencies.

- The core of the *Single Rulebook* is now in place, although some elements are to be phased in gradually over time. The *Capital Requirements Directive* (CRD IV) and the *Capital Requirements Regulation* (CRR)—which harmonize capital definitions and implement Basel III—were adopted in mid-2013. Work is ongoing on binding technical standards for implementation of CRD IV/CRR, as well as on other chapters of the rulebook, including further harmonization and strengthening of deposit guarantee schemes.

- The *Bank Recovery and Resolution Directive* (BRRD) and *Deposit Guarantee Scheme Directive* (DGSD) were adopted in mid-2014. BRRD establishes baseline bank restructuring and resolution procedures for EU member states and critically introduces "bail-in" of bank liabilities (conversion of liabilities to equity) as a means of reducing the contingent liability for taxpayers (bailouts) in cases of resolution. Similarly, DGSD sets out minimal requirements for the operation of national deposit guarantee schemes, ensuring they are funded *ex ante* and pay out in a timely manner when needed.

- The next step is the development of a Single Supervisory Handbook and further harmonization of supervisory practices to ensure the uniform implementation of the Single Rulebook.

- **Building upon the EU-wide reforms above, euro area countries established common bank supervision and resolution regimes—*Banking Union (BU)*—which is open to non-euro area EU member states.** The architecture of the BU includes the Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism (SRM), which centralize bank supervision and resolution powers. Importantly, the other key elements of the BU —a truly common fiscal backstop and a common deposit guarantee scheme – are not yet in place.

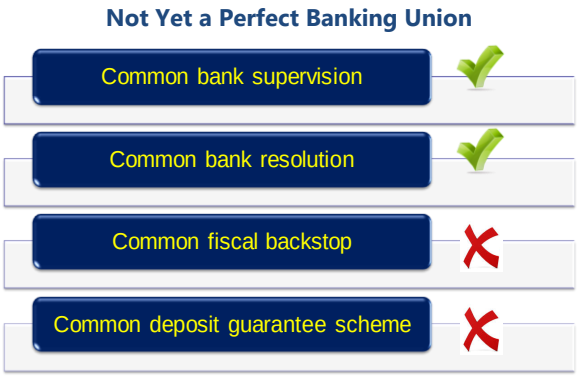
The rest of this chapter focuses on **the pros and cons of participating in the BU prior to euro adoption for the NMS-6** that are members of the EU, but are not yet part of the euro area.

[2] The ESRB is responsible for the macro-prudential oversight of the financial system within the Union in order to contribute to the prevention or mitigation of systemic risks to financial stability arising from developments within the financial system (ESRB Regulation). The ESRB is also tasked with assessing national macroprudential frameworks and ensuring effective coordination and internalization of cross-border spillovers. However, it does not have enforcement powers.

B. Banking Union Modalities and What an Early "Opt-In" Entails

"We have to consider that opt-in countries, as opposed to their partners from the euro area, don't have equal rights in the Banking Union". (M. Belka)

3. Despite significant progress, not all elements of the BU are yet in place. While both SSM and SRM are now operational, an effective common fiscal backstop is still needed to break the sovereign-bank links (though ESM is currently acting as *de facto* common fiscal backstop for euro area banks – see Box 1 for discussion of the BU modalities). Other key elements include allowing the Single Resolution Fund (SRF) (which will be fully funded and mutualized only by 2024) to borrow against future industry levies and working towards a pan-European deposit guarantee scheme (DGS)[3].



What does "opting into the BU" entail?

4. The BU membership refers to participation in the Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism (SRM). For non-euro area countries, "opting into the BU" would entail entering into a *close cooperation with the ECB* (Article 7 of the SSM Regulation) and passing any required national legislation to enable national authorities to work with the ECB and the Single Resolution Board (SRB) under their supranational frameworks for supervision and resolution:

- *Entry into close cooperation with the ECB*. The ECB assesses the applying member's transposition into national laws of the relevant EU legislation, and can request additional information for the purposes of the envisioned comprehensive assessment of banks. Whereas the outcome of the application is not conditional on the results from the comprehensive assessment, the ECB can, to a certain extent, use its powers to request further information and carry out its own comprehensive assessment, as levers to steer the process.

- *Exit option for non-euro area members*: Unlike members of the euro area, non-euro area participating member states have the option to suspend or terminate the close cooperation with the ECB, and thus their participation in the BU. At the same time, the ECB also has the option to suspend or terminate close cooperation with a non-euro area participating member state, if it is

[3] The proper functioning of the SRM will depend on whether there is adequate backstop. Yet the SRF is not yet fully in place. All banks in the BU countries will contribute to the SRF as from 2016 and this Fund will only amount to €55 billion by 2024. Moreover, banking union also presupposes a common deposit insurance scheme, which does not (yet) exist. So far, there is only a voluntary mechanism of mutual borrowing between deposit guarantee schemes from different EU member states.

determined that the member is not fulfilling their obligations. Resolution actions undertaken prior to becoming a participating member state would not be covered by the SRM.

5. Acting as a *de facto* common fiscal backstop, *ESM bank recapitalization will not be available for any non-euro area BU participants*, since the ESM Treaty is only open to currency union members. The lack of an effective common fiscal backstop means that sovereign and bank risks can become intertwined, especially in times of stress.

Participation in the SSM and SRM

6. After opting into the BU, non-eurozone members would have representation on the Supervisory Board (SB) (on par with the euro area member states)[4], but the modalities of their participation in the decision-making process would differ from the eurozone members. Within the SSM, the SB will manage oversight and make draft decisions. The draft decisions will be referred to the ECB Governing Council, as the overarching authority, that can either automatically adopt the decision under a "*non-objection procedure*" or object to it (see Box 2 for details on the SSM modalities). The non-euro area member states of the BU – *who do not have representation on the ECB Governing Council* – would be invited to send representatives to the ECB Governing Council, if the ECB contemplates an objection to an SB draft decision or if the non-eurozone members disagree with a draft decision of the SB. If no satisfactory compromise can be found in the subsequent reconciliation process, the non-euro area member state can notify the ECB that it will not be bound by such decision. If the "*reasoned disagreement*" with the decision is not accepted, this can result in the eventual suspension or termination of the member state's cooperation with the ECB in the SSM (per Article 7, SSM Regulation).

7. After opting into the BU, non-eurozone members would also have representation on the *Single Resolution Board* (SRB) and would contribute to and have access to the *Single Resolution Fund* (SRF) (see Box 3 for details on the SRM modalities).

Emergency Liquidity Assistance (ELA)

8. Central bank provision of ELA is not affected by the BRRD or by the SRM, as it was and remains a national prerogative. ELA is extended to solvent institutions (that is, those without a capital shortfall identified by the supervisor), subject, *inter alia,* to systemic importance and interconnectedness considerations. These rules are applicable to all EU members.[5] However, for BU-participating states, it will be the ECB in its supervisory capacity under the SSM that will determine whether a bank is solvent or not, and thus its eligibility for ELA. Importantly, unlike eurozone members, *non-euro area BU participating members would not be entitled to supplementary access to the ECB's liquidity facilities*. At present, any liquidity provision by the ECB to non-euro area members

[4] The SSB includes one representative from each member state plus 5 ECB representatives (in their personal capacity) – see Box 2.

[5] See the European Commission's state aid rules as of July 2013 (Article 5 of Communication 2013/C 216/01) for further details.

via repo or swap lines is granted on a country-by-country basis and subjugated to monetary policy considerations.

- ***Key takeaways:*** **the modalities of the non-eurozone members' participation in the BU are notably different from those of the euro-area members**: (i) *role in the SSM*: non-euro countries are not members of the ECB's Governing Council that is charged with adopting decisions drafted by the Supervisory Board; (ii) *fiscal backstop*: non-euro area opt-ins are not eligible for direct bank recapitalization from the ESM (acting as *de facto* common fiscal backstop); and (iii) *liquidity support*: non-euro area opt-ins would not automatically have access to the ECB liquidity facilities. That said, as a compensation for this unequal treatment, the *BU offers some safeguards for the non-euro area opt-ins, such as the possibility to present "reasoned disagreement" and to exit the BU.*

9. Certain features of their banking systems suggest that the NMS-6 would be particularly sensitive to the lack of equal (or fully equivalent) treatment within the BU:

- *Ability to influence decisions related to parent banks is critical for the NMS-6* because most of their banking systems are dominated by euro area bank subsidiaries, which tend to be more important for local economies than for the parent banking groups (see text charts). If under the BU all/most *barriers to cross-border transfers* of capital and liquidity are indeed removed, this also means that local authorities would have less power to ring-fence. The latter raises the importance of being able to influence the activities of parent banks through other means, including via participation in the SSM decision-making process. Given that any decision regarding cross-border banks will have to weigh prudential considerations of host and home countries, any weakness in the ability to influence such decisions raises concerns that these decisions may be tilted in favor of larger financial systems/institutions which have a greater bearing on the financial stability of the BU as a whole.
- *Access to common liquidity and fiscal backstops is important for the NMS-6*, because: (i) many still have large external liabilities, though many NMS subsidiaries are now less reliant on foreign parent bank funding than before the crisis (see Box 1 in the staff report); and (ii) banks in NMS-6 typically have less bail-inable funding (other than uninsured deposits) than eurozone banking groups operating in the region. NMS-6 are, therefore, more likely to benefit from the risk-sharing aspect of the SRF or other common backstop (see chart below).

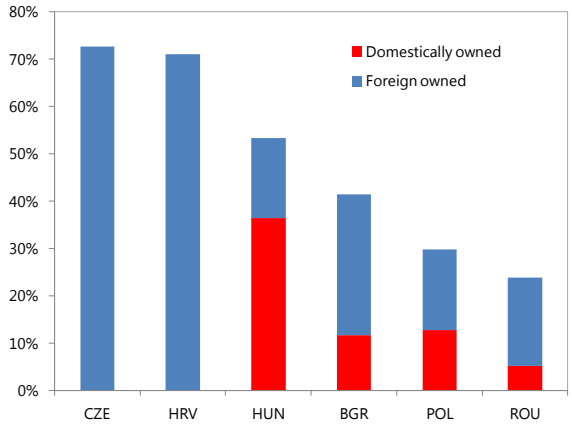
10. At this stage, it is not clear how effective the safeguards for the non-euro area opt-ns would be. Given that the SSM has been set up very recently and there is yet no experience with the process, there are different views on whether the modalities of the BU opt-ins' participation in the SSM decision-making process can adequately protect their interests.[6] The exit clause may not be an

[6] For example, Tröger (2013) argues that the inability to participate in the ECB's Governing Council's deliberation is important ("it is a significant difference, if a representative of the affected Member State can participate actively in the Governing Council's deliberations or if the Member State has to rely dégagé on the benevolent consideration of a position articulated ex ante"). In contrast, Darvas and Wolff (2013) consider that this mechanism gives the non-euro area participating member a sufficient voice in

(continued)

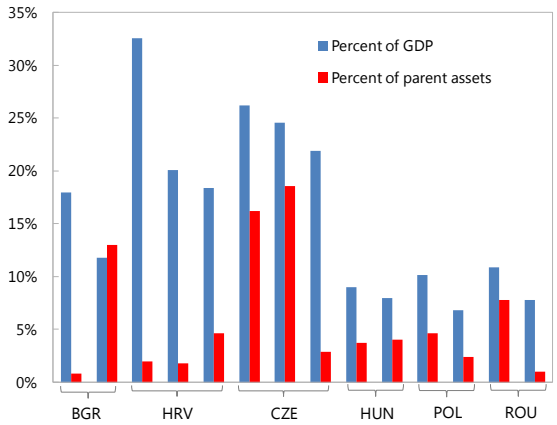
effective safeguard, if it is not used in practice due to significant negative reputational effects. The question of whether, on balance, the opt-ins would gain or lose influence on decisions regarding parent banks is complex and is discussed in more details below.

Three largest banks by assets, 2013
(Percent of GDP)



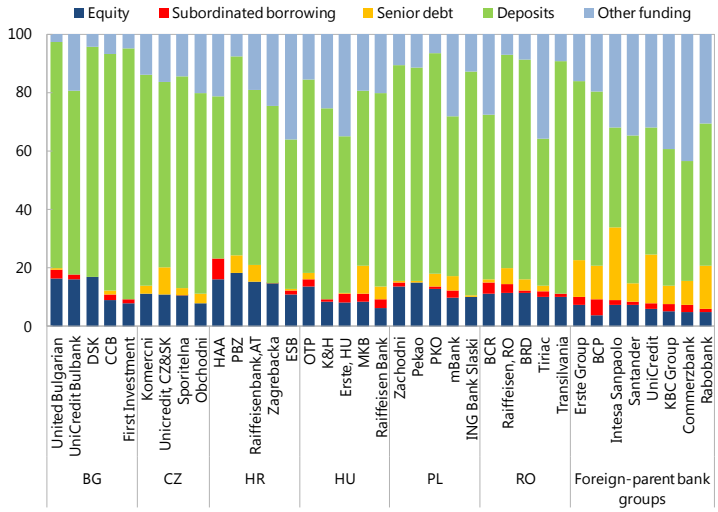
Sources: Bankscope; and IMF staff estimates.
Note: Top 3 banks would be expected to come under SSM.

Assets of largest foreign-owned banks in NMS-6
(Individual bank assets)



Sources: Bankscope; and IMF staff estimates.
Note: In some cases, the source data are consolidated for the financial group, in which the bank is part of.

Funding Structure of Top-5 Banks in NMS-6 and Select Parent Bank Groups, 2013
(Percent of total liabilities)



Sources: Bankscope; and IMF staff calculations.

decision making, since it contains a special opt-out clause in the event of a disagreement with the ECB's decisions in its supervisory role. The NMS-6 survey (see Box 5 in the main report) suggests that this is source of discomfort for many NMS-6.

Macroprudential Policy Space and Policy Coordination

11. The CRR/CRD IV legislative package defines a range of tools over which national macro-prudential authorities may set stricter requirements (above the industry-wide, micro-prudential minima) based on systemic risk considerations, macro-prudential concerns, or to address risks at individual firm level. *National macroprudential authorities retain full control over macroprudential measures, not specified in Union law*, such as the loan-to-value and debt-to-income ratios, among others (see Box 4).

12. All EU member states are required to notify the ESRB of changes in their macroprudential policy stance. The ESRB then provides opinions on the proposed policies regarding their financial stability and growth implications (at both the national and EU levels). Member states are not required to follow the ESRB's recommendations, but the requirement to explain measures, questioned by the ESRB, introduces an additional, albeit soft, check-and-balance.

13. For BU members, the SSM entails some additional constraints on macroprudential policies. Under the SSM Regulation (Article 5), national competent authorities (NCAs) can still deploy macroprudential measures as they deem appropriate, subject to a notification requirement to the ESRB.[7] However, in the case of CRR/CRD IV measures (see Box 4), BU-participating states must also notify the ECB of their intention 10 working days prior to issuance of their decision. If the ECB objects, then it supplies a written explanation within 5 working days, which the national authority must take into consideration. Furthermore, if the ECB wishes, it may apply stricter macroprudential requirements on banks, irrespective of whether they are under direct SSM supervision or not, than the national authorities (subject to similar notification and consideration timelines). In other words, there is an asymmetry in the ability of the ECB to intervene in a participating member state's macroprudential policies —the ECB may always strengthen macroprudential policies set out in relevant Union law, but it cannot compel loosening. On their part, NCAs can also tighten those norms, but cannot loosen them below the ECB's desired minimum.

- ***Key takeaway:*** The extent to which joining the BU would limit macroprudential policy space, unless fully offset by lower likelihood of shocks or additional support from the euro area institutions, would need to be taken into account. At present, a full assessment is complicated by the lack of clarity on and experience with relevant operational modalities of the BU, including the mechanisms for policy coordination between supranational and national levels.

[7] Proposed national measures are analyzed by an Assessment Team consisting of two representatives of the ESRB Secretariat, representatives from nine European Union national central banks, one representative of the ECB, and one representative of the SSM. See the 2013 Annual Report of the ESRB (ESRB, July 2014).

C. Banking Union Opt-In: Pros and Cons for Non-Euro EU Countries

14. The main motivation for establishing the BU was the need to reverse financial fragmentation that crippled monetary transmission within the common currency area in the wake of the euro crisis. The establishment of the SSM (supported by the SRM) would raise the credibility of the euro area bank supervision, eliminate distinction between home and host supervisors for cross-border banks, and sever the link between banks and sovereigns. This is expected to lead to lower bank compliance costs, the removal of any barriers to cross-border activity which may be in place to protect national interests,[8] and lower funding costs for banks under the SSM supervision. That said, the full benefits of the BU will only be realized once all the BU elements are in place (as discussed above).

15. Because of significant presence of euro area banks in all NMS-6 countries, a fully established BU will have positive implications for the NMS-6. As host countries of euro area banks, the NMS-6 would benefit from improved resilience of the euro area financial system and lower funding costs for euro area banks:

- Provided that euro area banks become safer and more conservative (under *more consistent supervision in the BU*), the likelihood of negative spillovers for the NMS-6 from the euro area will be lower.

- Provided the BU will lead to greater fungibility of liquidity within the euro area, the *funding costs for cross-border banking groups will be lower,*[9] which may help boost lending to faster-growing/higher-return NMS.

- *Home-host interactions may become simpler* with the euro area single supervisor. That said, the key question for the NMS is whether the SSM itself, which will supervise most of the cross-border banking groups with operations in the NMS, will treat bank exposures to counterparties inside and outside the BU differently.

16. At present, direct participation in the BU prior to euro adoption is generally less attractive for the NMS-6 than for euro area countries, given that the BU remains incomplete and non-euro area members do not enjoy the same treatment as the euro area members. An imperfect BU could work in practice for euro area countries, given that they have access to the ECB liquidity facilities and to the ESM, but for non-euro area NMS – that do not have either – joining the BU before adopting the euro is less attractive. This is because the amount of decision-making power

[8] Some analysts note, however, that it yet remains to be seen whether the ECB will be able and willing to change the currently reported ring-fencing of banking activities.

[9] Removal of barriers to cross-border transfer of capital and liquidity would reduce the required capital and liquidity buffers at the subsidiary level (see Cerutti and others (2010)).

that they cede to the supranational level would be similar to that of the euro area countries[10], but, in return, the NMS-6 would receive less support from common liquidity and fiscal backstops than the euro area countries.

17. In addition to the BU modalities (discussed above), **whether an NMS-6 country would still be better off in the BU than outside would depend on country characteristics, policy preferences and BU's operational modalities** (see Box 5 for discussion of insights from theoretical literature). Some of the key considerations are as follows:

- The NMS-6 *risk-sharing preferences* depend on the country-specific characteristics that affect the types of shocks they are likely to face (e.g., economies that are less integrated with the euro area and hence, more likely to face asymmetric shocks, may derive greater benefits from having access to common backstop).

- The NMS-6 *policy preferences* may influence the desired stringency of prudential standards. While lower incidence of financial instability is growth-enhancing, at any given time, policy makers may have to weigh different considerations when deciding on the "right" level of stringency required to contain systemic risks (e.g., tighter standards reduce the risk and cost of financial instability, but also dampen credit growth and lower bank profitability).[11] The NMS-6 would be more inclined to opt in if they perceive the SSM's preferences to be similar to theirs.

- The *policy space configuration* of the BU opt-ins is yet to be fully defined. The NMS-6 need to consider that joining the BU may affect their macroprudential and monetary policy space.

18. The rest of this section focuses on the **interaction between various country characteristics and BU modalities and provides examples of key trade-offs for different types of countries.** Table 1 presents a taxonomy of country characteristics (top row) and policy objectives (first column) and whether joining the BU could help or hinder the achievement of these objectives (column showing potential benefits and costs). The cells in the matrix indicate which of the country characteristics are likely to be associated with relative benefits or costs. The country characteristics in Table 1 are the ones that are most relevant for the decision to join the common currency area or the common regulatory area based on the literature:

- The degree of *real or financial integration* with the euro area (columns 1 and 3) determines the relative likelihood of common versus asymmetric shocks and hence, risk-sharing preferences.
- The degree of *economic flexibility* (column 2) reflects the ability of the economy to absorb shocks; less flexibility makes it more likely that negative shocks could trigger financial instability.

[10] All banks that come under the SSM supervision have to satisfy the same criteria on systemic significance (Box 1).

[11] The relative weights that national authorities place on different considerations may vary across countries, depending on the institutional setup of financial sector oversight (its independence and accountability), the type of financial system (bank versus market-based), ownership of the banking sector , the degree of market concentration. Weights may change through the cycle.

- The *share of local bank assets owned by the euro area banks* (column 4) indicates the importance of intra-group cross-border flows of euro area banks for domestic financial stability.
- The *supervisory standards* (column 5) refer to the stringency of rules and quality of supervisory processes at the local level.
- *Local backstops* for the financial system include local DGS (column 6) and fiscal policy space (column 8) and refer to the national capacity to absorb shocks. Their adequacy is inversely related to countries' potential exposure to contingent liabilities, as measured by the ratio of insured deposits to GDP, and the size of public debt relative to GDP.
- *Policy space* indicates the availability and effectiveness of monetary and fiscal policies (columns 7 and 8), as tools for demand management. Policy space can be proxied by the ratio of public debt to GDP, whereas the availability of monetary policies depends on the nominal anchor (exchange rate versus inflation) chosen by the central bank.

Would joining the BU reduce financial stability (FS) risks for the new members?

YES, if joining the BU

- **Improves the overall quality/stringency of supervision**. To the extent that supervision under the SSM will be stricter than current national supervision, banks would be safer and financial stability risks would be lower. This would be the case, if the SSM: (i) sets micro-prudential standards for local banks that are at least as strict as the current standards in force in the new members (see Box 5); and (ii) succeeds in distancing supervision from the influence of local vested interests, especially the "too big to fail" domestically-owned banks (see Box 6). In order for these benefits to accrue, it is critical for the SSM to establish early a strong track record. That said, differences in legal and accounting standards across members would complicate harmonized supervision in the BU. *New members with less stringent supervisory standards and those with weaker local backstops would benefit more* (Table 1, Columns 5, 6, and 8, Ranks: Low).

- **Limits negative externalities stemming from the actions of current BU member banks.** The participation of the non-euro area countries in the BU could further reduce the scope for regulatory arbitrage and leakages of macroprudential measures aimed at safeguarding financial stability in member countries.[12] The possibilities for regulatory arbitrage have already been reduced through the Single Rulebook, but the SSM would ensure compliance through centralized supervision and greater harmonization of supervisory practices. *New members with strong financial links with the euro area, and a significant presence of BU member banks* (Table 1, Columns 3 and 4, Ranks: High), as well as those with *less stringent supervisory standards and weaker local backstops* (Table 1, Columns 5, 6 and 8, Ranks: Low) *would benefit more*.

[12] As discussed in the introduction, the macroprudential measures adopted by the local authorities to slow rapid credit growth in CESEE countries during the pre-crisis boom were often not very effective because they were not matched by similar measures by the home country supervisors of euro area banks operating in CESEE countries.

Table 1. Benefits and Costs of Joining Banking Union for Non-Euro Area Countries

Policy objective	Benefit or Cost of Joining the Banking Union	Real Sector				Financial Sector				Supervision/Backstops				Policy Space			
		(1) Degree of real convergence/ integration with the euro area		(2) Degree of labor & product markets flexibility		(3) Degree of financial integration with the euro area		(4) Banking system structure (share of banks owned by euro area banks)		(5) Supervisory standards		(6) Industry-funded backstops (DGS)		(7) Monetary		(8) Fiscal	
		High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
Financial stability – Likelihood of distress	1. Improve the overall quality of supervision										+		+				+
	2. Limit negative externalities from euro area banks					+		+			+		+				+
	3. Increased access to info and improved home-host coordination through SSM					+		+									
	4. Reduce ability to mitigate country specific shocks		-		-		-		-	-							
	5. Constrain ability to control cross-border intra-group flows					-		-		-							
Financial stability – Cost of distress	6. Increase efficiency and lower cost of cross-border bank resolution							+									
	7. Provide access to common, industry-funded backstop (SRF)		+		+		+						+				+
	8. Loss of some local control over resolution process in the absence of fiscal backstops							-		-			-				-
Growth	9. Reduce ability to smooth credit cycles through prudential measures		-		-		-		-	-					-		

Note: The table presents a simplified taxonomy of country characteristics (top row) and policy objectives (first column) and whether joining the BU could help or hinder the achievement of these objectives (rows showing potential benefits and costs). The cells in the matrix indicate whether country's ranking on a given country characteristic (in columns) has a material impact on the benefits or costs of joining. For example, the degree of real or financial integration with the euro area (columns 1 and 3) affects the relative likelihood of common versus asymmetric shocks, with lower integration = higher likelihood of asymmetric shocks and hence costs of giving up local policy space to respond to them. Types: for each characteristic listed in the top row, a country can be of two types: High – at or above the average across BU members; and Low –below the average across BU members. Payoffs: "-"(extra loss);"+" (added benefit with diagonal stripes indicating only partial benefit during transition to full SRF mutualization; and "blank" (particular benefit or cost of joining accrues independent of whether a country ranks low or high on a particular country characteristic).

- **Better access to information and better home-host coordination through direct participation in the SSM.**[13] Joining the BU would provide non-eurozone members: (i) greater access to supervisory information on cross-border banks operating in their jurisdictions (and also in other jurisdictions);[14] and (ii) ability to directly participate in the SSM/SB decision making process, though acting in their personal capacities for the good of the Union, rather than for national or group interests. There is a range of views on whether this would ultimately give NMS greater leverage over decisions regarding parent banks. On the one hand, as a member of the SB, the NMS representative would be able to vote on *all issues*, including the ones that are currently beyond the purview of local supervisors.[15] On the other hand, because of different treatment of the euro area and non-euro area members of the SSM (discussed above), the ability of NMS to influence decisions may be weaker than that of the euro area members. Another important issue is that after opting into the BU, the new member would no longer have the final say on certain matters that are of particular importance to them (e.g., local liquidity requirements –see below). Hence, the net gain/loss of influence on the decisions regarding parent banks would depend not only on the NMS' role in the SSM, but also on how much control the new member will *de facto* cede by joining the BU. *New members with strong financial links with the euro area and a significant presence of the BU member banks would benefit* (Table 1, Columns: 3 and 4, Rank: High).

NOT necessarily, if joining the BU

- **Limits the ability to use prudential tools to address country specific shocks**, to the extent that the loss of powers in not compensated by a commensurate decline in the frequency or size of such shocks. Under the Single Rulebook, local supervisors have significant flexibility to impose additional macro- and microprudential requirements, early intervention powers and ability to set conditions under which the local CB could provide liquidity assistance to troubled banks. After joining the SSM, some of this flexibility (including "good" discretion) could be lost. For example, in the event a NMS is hit by an asymmetric shock, SSM's prudential requirements may end up being stricter than might be warranted given country-specific circumstances, which could lead to

[13] Prior to the BU, cross-border coordination of banking supervision of a banking group would occur via a college of supervisors, involving supervisors from those jurisdictions spanned by the group. The college would provide a venue for interactions between supervisors across countries to facilitate information sharing and coordination (particularly in emergencies or cases of restructuring or resolution). A key innovation of the BU is the removal of this institutional layer for coordination between its members.

[14] Being part of the supervisory college, non-euro area member can request any information about parent banks that it deems relevant. Because there is a need to request information, access to information may not always be as timely as desired. In comparison, being part of the SSM would automatically grant access to all info about the parent bank as well as other euro area banks.

[15] Currently, the extent to which local supervisor is able to influence any given decision depends on the specific issue under consideration and who has competency over this issue. E.g., in the case of capital/liquidity requirements at the group level, if a home supervisor decides to increase the requirements for the whole group, the host supervisor cannot block this decision; in the case of capital/liquidity requirements at the subsidiary level, the host supervisor has the final say.

higher (than optimal) incidence of bank closures or to lower recovery values on distressed assets (less of "good forbearance"). *This consideration is most relevant for countries that are relatively less integrated with the euro area and hence more exposed to asymmetric shocks (*Table 1, Columns 1 to 4, Ranks: Low*), as well as for supervisors with greater capacity to intervene* (Table 1, Column 5, Rank: High).

- **Leads to loss of full control over cross-border capital and liquidity flows**, to the extent that the loss of powers in not compensated by a commensurate reduction in the likelihood of negative spillovers or in the absence of alternative mechanisms for dealing with such spillovers. Ring-fencing of capital and liquidity of the euro area banks' subsidiaries was used by national supervisors during the crisis to prevent problems in foreign parent banks from spilling over to the domestic banking systems. After joining the BU, local supervisors will lose control over the liquidity requirements at the subsidiary level, though they will retain the ability to set large exposure limits.[16] To the extent that BU would completely eliminate any negative externalities, the NMS supervisor should not be concerned about losing the ability to ring-fence after joining the BU. However, to the extent that some spillovers remain a possibility, national supervisors may perceive a loss of control over cross-border intra-group flows as potentially increasing the risk of financial instability. *These considerations are most relevant for counties where the euro area banks' subsidiaries dominate in the local banking market* (Table 1, Columns 3and 4, Ranks: High), *as well as for supervisors with greater capacity to intervene* (Table 1, Column 5, Rank: High).

Would joining the BU reduce the cost of financial distress, once it occurs?

YES, if joining the BU

- **Increases efficiency and reduces the cost of bank resolution**. The BRRD already goes some way towards achieving this objective, but the SRM further ensures that the process of winding down of large cross-border banks is orderly and "least cost" on a consolidated basis. *This is a positive factor for all, but especially for those countries that host subsidiaries of euro area banks* (Table 1, Column 4, Rank: High).

- **Provides access to common backstop** (SRF). Joining the SRM allows the NMS banks to have access to a larger backstop without adding to the fiscal burden of the sovereign. Having access to a common backstop (SRF) would be relatively more attractive for countries that are more likely to be hit by asymmetric shocks and those with *weaker local backstops*.[17] However, these

[16] While in a BU it will be much harder for host supervisors to block intra-group cross-border transfers, there are still some powers that are given to member states that could be viewed as safeguards. E.g., there is large exposure regime in the CRR and there are two discretions: one given to supervisor and the one that allows member states to impose large exposure limits (Article 493). The supervisory decision can never overrule the decision of a member state.

[17] The logic is similar to that of the optimal currency area literature. In the Mundell II models (surveyed in Tavlas, 1993 and McKinnon, 2004), differences in economic structure, lack of diversification, and high volatility of terms-of-trade increase the appeal of a monetary union, as they increase the benefits of pooled foreign reserves and integrated capital markets.

benefits are limited until the SRF is fully mutualized. The national contributions to the SRF will be only gradually mutualized over the course of the next eight years, reducing the appeal of this aspect of BU membership in the interim. *Hence, less integrated countries* (Table 1, Columns 1 to 3, Ranks: Low) *and those with weaker local backstops* (Table 1, Columns 6 and 8, Ranks: Low) *would derive the biggest benefit once the fully mutualized backstop is in place*.

NOT necessarily, if joining the BU

- **Leads to some loss of local control over the resolution process, without commensurate risk-sharing on supra-national level.** Once a non-EA member joins the SRF, the decision on whether or not to resolve a bank under SSM supervision will be taken at the BU level. Until the SRF is fully mutualized, this raises the risk that the resolution decision may not fully take into account available financing (for resolution purposes), as the latter would still largely consist of local DGS and local fiscal backstop. In addition, there is a risk that the SSM will apply stricter criteria (than might be warranted by local conditions) in determining whether a bank is solvent or not, which would lead to higher incidence of resolution under the BU. *This consideration is most relevant for countries with strong supervision* (Table 1, Column 5, Rank: High), *those in which subsidiaries of cross-border banks that would be resolved directly by the SRM have significant market share* (Table 1, Column 4, Rank: High), *as well as countries with less adequate local backstops* (Table 1, Columns 6 and 8, Ranks: Low).[18]

Would joining the BU facilitate or hinder achieving macroeconomic objectives?

- **Macroeconomic considerations.** Joining the BU could reduce the national policy makers' ability to support access to credit through prudential measures, particularly when country specific circumstances require more supportive financial regulation than in other BU members.[19] This is partly an artifact of the asymmetry between the powers of the ECB and national supervisors to tighten and loosen prudential norms: (i) national prudential norms can only be stricter than the floor set by the ECB; and (ii) the ECB may always strengthen macroprudential policies, but it cannot compel loosening. While in principle, the ECB does not have to set the same macroprudential standards across all BU members, it is not clear how much heterogeneity it may be prepared to accept given its objective of ensuring level playing field and preventing regulatory arbitrage. *This consideration is most relevant for less integrated economies that are more likely to find themselves facing different cyclical conditions than the rest of the BU* (Table 1,

[18] In addition, initial conditions may matter as well. If asset quality, liquidity and profitability of local subsidiaries of euro area banks are stronger than in the rest of the banking group, local stakeholders would be worse off if a banking group is resolved at BU-level (on a consolidated basis) rather through the local resolution process. While this consideration is not relevant in a steady state, it may provide a disincentive to joining the BU from a position of relative strength.

[19] GFSR (2013) notes that during the latest crisis, a number of European countries used prudential measures to enhance credit supply, including a reduction in risk weights for small and medium enterprise loans when calculating banks' capital adequacy ratios, forbearance of nonperforming loans, and countercyclical macroprudential regulations.

Columns 1 to 4, Ranks: Low), *as well as for supervisors with greater capacity to intervene* (Table 1, Column 5, Rank: High).

Does monetary policy autonomy make a difference?

19. All BU members, including those in the eurozone, retain some policy instruments (for example, taxes and subsidies, housing policies, and so on) that could potentially be used to offset the impact of measures adopted at the BU level. However, non-euro area members will have an additional tool—they will retain sovereignty over monetary and exchange rate policies.[20] In the BU, these national policies would need to be coordinated not only with prudential measures[21] taken at the national but also at the BU level. Independent monetary policy provides an additional policy tool to manage the impact of shocks on the economy that could, in principle, allow a non-euro area BU member to take advantage of the upsides offered by the BU, while mitigating potential downsides.[22] *Perspective BU members without independent monetary policy will, hence, be at a disadvantage relative to their inflation-targeting peers* (Table 1, Column 7, Rank: Low).

- **Key takeaways:** Looking at purely economic considerations, some NMS-6 may want to opt in because they see potential benefits from addressing specific challenges through participation in the BU as far more important than all other considerations, including BU shortcomings. Notably, some NMS may see BU as a way to enhance quality and credibility of bank supervision or distance local supervision from local vested interests[23] or to gain access to larger common (industry-funded) backstops. In general, the BU opt-in decision is complex, with many moving parts and requires careful consideration of country characteristics, policy preferences and BU's modalities. Some trade-offs are illustrated below:

  - ***Economies that are less integrated with the euro area and hence more likely to find themselves facing different cyclical conditions than the rest of the BU*** *(e.g., Bulgaria, Croatia)* face a trade-off between gaining access to a larger industry-funded common backstop (SRF) and giving up some flexibility to deal with country specific shocks. While the upside will fully materialize only once the SRF is fully mutualized, the downside can be

[20] Monetary policy remains a national responsibility prior to euro adoption, but is subordinated to EU Treaty obligations. In particular, its main objective should be price stability, with exchange rate policy being treated as a matter of common interest.

[21] E.g., according to the IMF (2013c) monetary policy measures that were adopted during the recent crisis by a number of European countries with the explicit objective of easing constraints on credit supply included direct and indirect credit easing as well as widening of collateral eligibility for private sector assets.

[22] In the more extreme case, the use of monetary policy for financial stability rather than price stability goals may undermine its credibility. There are also other practical policy coordination challenges, such as interaction between multiple central banks (LoLR, collateral requirements) and coordination of monetary and competition policies (see Scherf, 2014).

[23] In Box 4, we infer the policymakers' revealed preference between financial stability and support of domestic banks by the extent to which they allow sizable gains in the market share of domestically-owned banks to occur alongside with these banks paying a bigger premium in funding costs than foreign-owned banks.

properly assessed only when there is more clarity on and experience with the relevant BU operational modalities.

- ***Economies where the euro area banks dominate local banking systems*** *(e.g., Czech Republic, Croatia)* face a trade-off between direct participation in the SSM deliberations (which entails better access to information and ability to participate in the decision-making on parent banks) and ceding full control over intra-group cross-border capital and liquidity flows (ability to ring-fence). The big unknown here is the extent to which negative externalities stemming from the activities of the euro area cross-border banks would indeed be effectively eliminated under the BU, as this would determine the value of having control over the intra-group cross-border flows for local authorities.

- **Countries with monetary and exchange rate flexibility** would need to better understand how the centralization of micro- or macroprudential powers under the BU would affect their ability to conduct monetary policy/lender-of-last-resort functions effectively. While the non-eurozone BU opt-ins could, in principle, use their monetary policy/exchange rate flexibility to offset tighter macroprudential requirements set at the BU level, in practice, this could lead to tensions that would need to be resolved.

How would participation by one or more NMS change the "opt-in" calculus for others?

20. The opt-in decision by one NMS may have a bearing on the decision(s) of other NMS(s), if it creates a competitive advantage for the NMS that joins but makes others worse off compared to the status quo. This, however, requires an assumption that there is a limited pool of capital and funding dedicated to the region by the euro area banks, which does not seem plausible. Kisgergely and Szombati (2014) list other reasons why the opt-in decisions of NMS could be interrelated, such as: (1) the possible use of BU-membership, by international capital market participants, as a signaling device of lower systemic risk, with the potential of putting opt-outs' borrowers at a competitive disadvantage; and (2) possible dominance of BU-centric views in EBA and ESRB operations that could marginalize NMS positions on issues.

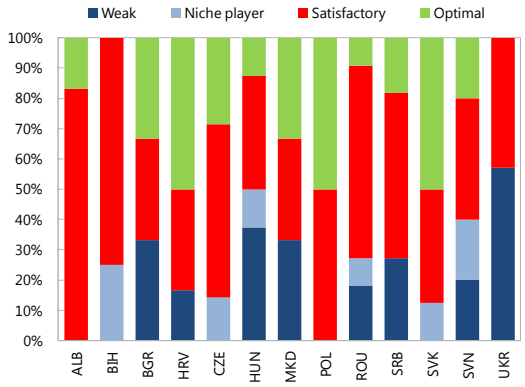
21. Available evidence suggests that host country' risk profile, growth potential and banking system soundness are dominant factors in foreign banks' assets allocation decisions:

- The latest CESEE bank lending survey (charts below) shows that foreign banks have broadly similar views on the Czech and Slovak banking systems, which have similar financial soundness indicators (Box 2 in the main report), despite the fact that one is a member of the euro area/BU and the other is not.

- During the crisis, euro area banks scaled back their exposure to the region, while differentiating across countries based on their risk profiles. Among the NMS-6, banking systems with relatively higher asset quality and profitability, such as Poland and the Czech Republic, managed to attract additional foreign funding, while countries with higher FX-currency mismatches, NPLs and lower profitability experienced significant outflows (see Box 2 in the main report).

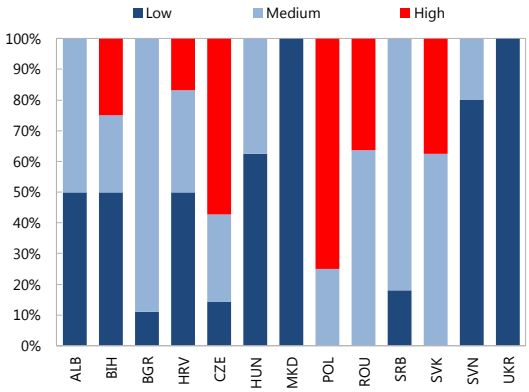
Foreign Banks' Assessment of Market Positioning and Potential across CESEE

Subsidiary current positioning in the market



Sources: EIB, CESEE Bank Lending Survey, H2 2014.

Assessed market potential



Sources: EIB, CESEE Bank Lending Survey, H2 2014.

D. Conclusions

22. For the NMS-6, the calculus of opting into the BU before euro adoption is complex and has many moving parts. The opt-in decision has to take into account a range of economic and political considerations, as well as evolving European financial architecture. For those NMS-6 that already set the date for euro adoption (Romania), an early BU opt-in would simply be a matter of phasing in the necessary institutional adjustments. For those that have not yet decided on the timing of euro adoption, the BU opt-in decision requires a careful consideration of the countries' characteristics, policy preferences/space, as well as greater clarity on the BU implementation.

When would opting into the BU make sense for the NMS-6?

- ***BU design***: the lack of equal (or fully equivalent) treatment of euro area and non-euro area members of the BU (in the areas of representation in the SSM, access to common liquidity and fiscal backstops) tilts the decision against early BU opt-in and in favor of waiting until euro adoption.
- ***BU modalities***: the lack of clarity on and experience with the BU operational modalities may be another factor in favor of waiting. This, in particular, applies to coordination between the SSM and local supervisors, as well as to coordination between prudential policies at the national and BU-levels and national monetary policies.
- ***Some may still opt in*** because for them the BU participation may be a way to address specific challenges, which outweigh all other considerations, including BU shortcomings. Notably, some may see BU as a way to enhance quality and credibility of bank supervision or to gain access to larger industry-funded common backstop.

23. Opting into the BU before euro adoption would be more attractive for the NMS-6 if mechanisms were in place to ensure that the NMS-6's concerns stemming from unequal treatment of opt-ins and euro area members are fully addressed. Furthermore, greater clarity on the BU operational modalities – that would shape the opt-ins' policy space and the support they can expect

from common euro area institutions — is needed in order for the NMS-6 to make a more informed decision on the BU opt-in.

Box 1. Key Elements of the Euro Area Banking Union

For member states participating in the BU, there are three key elements:

Single Supervisory Mechanism[1] – Consisting of the ECB and national banking supervisors (the national competent authorities or NCAs), the SSM unifies banking supervision across participating member states (currently, only euro area states). The ECB is the overarching supervisory authority, directly supervising 120 significant banks—jointly comprising almost 85 percent of total euro area bank assets —and overseeing NCAs' supervision of the other 3500 less significant banks in the euro area. The ECB can take over direct supervision of any less significant bank at any time in order to maintain cross-country consistent and high supervisory standards, or if it deems the bank to have become significant.

The ECB, in close cooperation with the NCAs, has carried out the assessment of significance based on the criteria set out in the SSM Regulation and the SSM Framework Regulation, namely:

a) size (total assets exceeding €30 billion);

b) importance for the economy of the EU or any participating Member State (in particular, total assets exceeding €5 billion and 20% of GDP of a Member State);

c) significance of cross-border activities (in particular, if the ratio of its cross-border assets or liabilities to its total assets or liabilities, respectively, is above 20%);

d) a request for, or the receipt of, direct public financial assistance from the European Stability Mechanism (ESM);

e) one of the three most significant credit institutions in a participating Member State.

Single Resolution Mechanism[2] – The SRM refers to the system of national resolution authorities and the central Single Resolution Board (SRB), which is a stand-alone institution. It unifies the bank resolution framework across participating member states. The SRB oversees the resolution of banks by national resolution authorities (which will follow the strictures of BRRD), and directly handles the resolution of large and cross-border banks. From January 2016, it can also draw upon a common, industry-funded backstop called the Single Resolution Fund (SRF), in order to resolve banks under BRRD.[3] The eventual size of the industry backstop is planned at €55 billion (about 1 percent of covered deposits in the euro area).

ESM Direct Bank Recapitalization – In December 2014, euro area member states gave the European Stability Mechanism (ESM) the power to directly recapitalize banks (with up to €60 billion available), mitigating some of the potential fiscal problems associated with ESM indirect bank recapitalization, when a sovereign borrows from the ESM and then funnels those funds into its banking system. ESM bank recapitalization will not be available for any future non-euro area banking union participants, since the ESM Treaty is only open to currency union members. However, even if it were available, there are doubts about its effectiveness as a common fiscal backstop as currently formulated. The hurdles for its use are very high and in the event of systemic crisis, the ceiling on the funding available for recapitalization could be rapidly reached.

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[1] The enabling legislation was adopted in October 2013 by the European Union. To prepare the ground for the SSM, the ECB has undertaken a Comprehensive Assessment of bank balance sheets, with an asset quality review and stress tests.

[2] At the EU level, the enabling legislation was adopted April 2014. The SRM began operating in January 2015, shortly after the SSM.

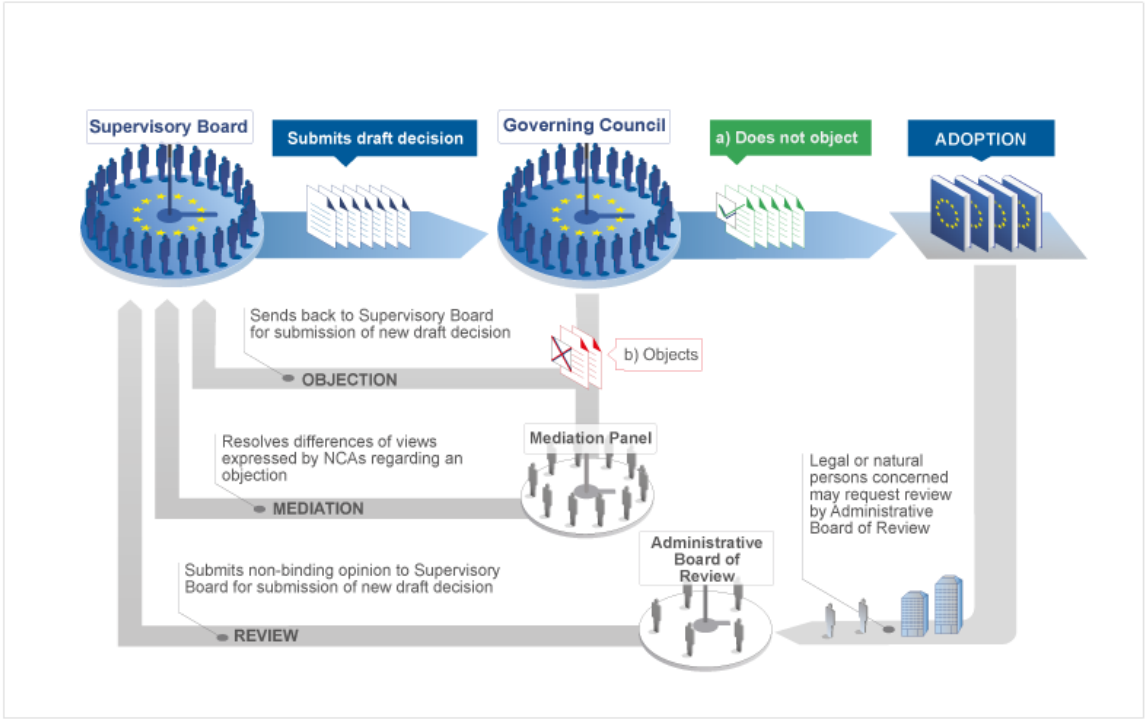
[3] The SRF was adopted by intergovernmental agreement (rather than EU legislation) in May 2014. It will start out with national compartments which build up over time and are gradually mutualized (60 percent mutualized after 2 years, building to 100 percent after 8 years, in 2024).

Box 2. The SSM Modalities

Oversight will be managed by a *Supervisory Board* (SB), based within the ECB, which consists of a chair and vice-chair (the latter also serving on the ECB Executive Board), a single representative from each participating Member States plus four ECB representatives and who are expected to act in their personal capacities for the good of the Union, rather than for national or group interests. In the event that a participating member state's national supervisor is not the national central bank, they may request that a representative of the national central bank also attend. For the purposes of voting however, the representatives of any one member state are considered as one member.

The SB will also make draft decisions, which are then referred to the ECB's *Governing Council* (consisting of ECB Board members and euro area national central bank heads). Regular draft decisions are passed by simple majority, while regulatory decisions with SSM-wide import are passed by qualified majority (Article 26 of the SSM Regulation).[1] The ECB Governing Council then either adopts the decision on a lapse-of-time basis or objects to it. In case a decision is objected to, then it is referred back to the SB for redrafting, or, as an intermediary step, goes to a mediation panel which works to resolve the differences in views across national competent authorities.

Decision-making process of the Single Supervisory Mechanism:
Non-objection procedure



Source: **https://www.bankingsupervision.europa.eu/organisation/governance/html/index.en.html**.

[1] A qualified majority is defined in Article 16(4) of the Treaty on European Union (TEU) and Article 3 of Protocol Number 36 on transitional provisions associated with TEU (reweighted according to the membership of the SSM).

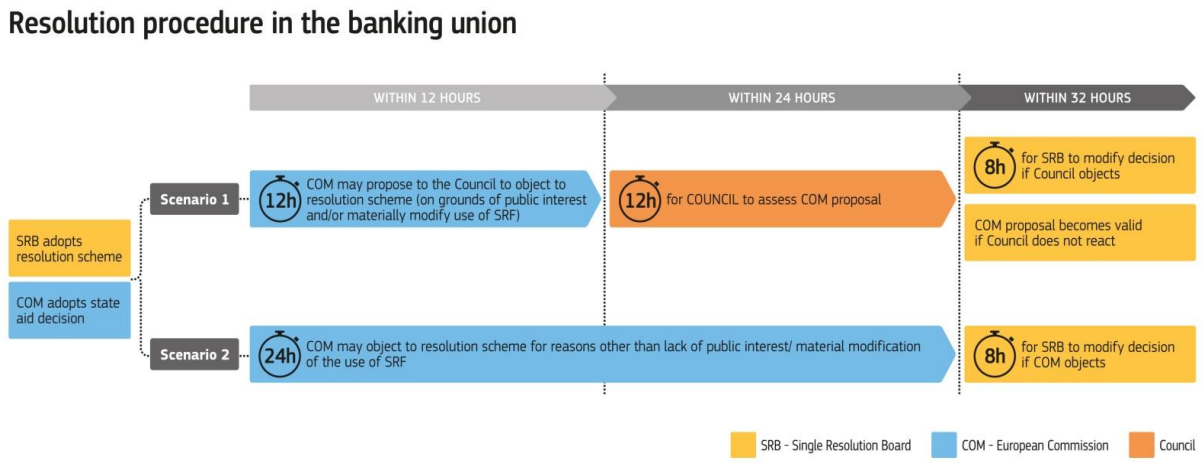
Box 3. The SRM Modalities

Decision-making in the SRM:

The governing body of the SRM is the *Single Resolution Board* (SRB), which consists of a chair, vice-chair, three other full-time members, and one representative from the national resolution authorities of each participating member state. The chair, vice-chair and other full-time members, constituting the *executive of the SRB*, are all appointed by the European Parliament from a short-list of candidates drawn up by the Commission.

Resolution decisions are drafted by the executive of the SRB and are assumed adopted by the SRB unless there is an objection by one of the representatives of the participating member states (similar to the non-objection procedure used by the SSM). In the case of an objection, the SRB meets in plenary (all members) and takes the resolution decision, based on a *simple majority rule*. In general, the plenary SRB meets at least twice a year, to review the budget and assess resolution activity, but it may also meet at the behest of the chair or if more than €5 billion in funds from the SRF have been used in any 12 month period.

The resolution procedure also involves close coordination with the European Commission and the EU Council (see below)



Source: europa.eu/rapid/press-release_MEMO-14-294_en.htm

Contributing to the SRF

Under the SRM Regulation and SRF intergovernmental agreement, all participating member states contribute (whether euro area or not) and are able to access the SRF under the SRM. A bank's *ex ante* contributions to the SRF are calculated *pro rata* with its share of total liabilities minus covered deposits of all banks in participating member states (plus a risk-adjusted contribution drawing upon BRRD criteria; see the SRM Regulation, Article 70).

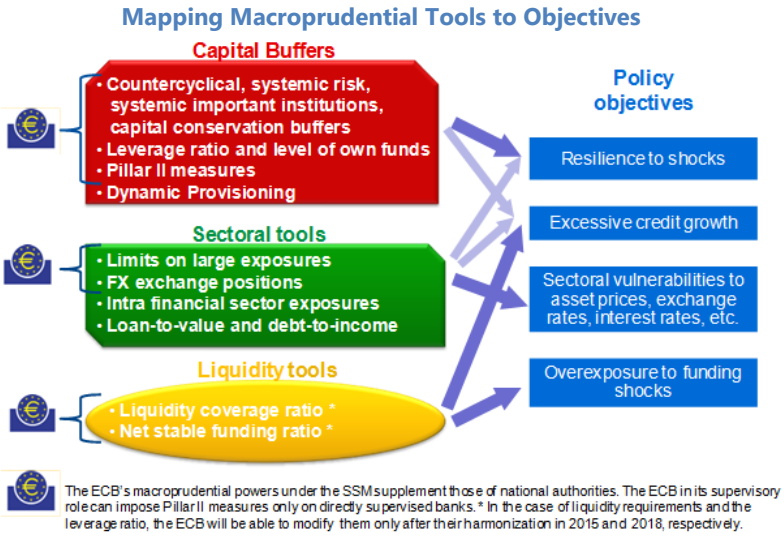
Box 4. Macroprudential Policy Space for the BU members

For BU members, the SSM entails some additional constraints on macroprudential policies. Under the SSM Regulation (Article 5), national competent authorities (NCAs) can still deploy macroprudential measures as they deem appropriate, following the usual practice of submitting them to the ESRB for a non-binding opinion. However, in the case of CRR/CRD IV measures (see below), BU-participating states must also notify the ECB of their intention 10 working days prior to issuance of their decision. If the ECB objects, then it supplies a written explanation within 5 working days, which the national authority must take into consideration. Furthermore, if the ECB wishes, it may apply stricter macroprudential requirements on banks, irrespective of whether they are under direct SSM supervision or not, than the national authorities (subject to similar notification and consideration timelines)

The **CRR/CRD IV legislative package** defines a range of tools over which national macro-prudential authorities may set stricter requirements (above the industry-wide, micro-prudential minima) based on systemic risk considerations, macro-prudential concerns, or to address risks at individual firm level. These are subject to a notification requirement to the ESRB and include:

- Pillar I measures—countercyclical capital buffer and additional capital buffers for systemic risk, systemic important institutions, and capital conservation, as well as the leverage ratio and the level of own funds. In addition, national authorities can set higher risk weights on real estate exposures and large exposures;
- Pillar II measures—a wide range of measures at the level of individual institutions or group of institutions with similar risk profile, imposed following a supervisory review and evaluation process aimed at identifying risks they face or pose to the financial system;
- Liquidity provisions—liquidity coverage ratio and net stable funding ratio;
- Limits on large exposures and intra financial sector exposures.

National macroprudential authorities retain control over macroprudential measures, not specified in Union law, such as the loan-to-value and debt-to-income ratios, among others (Chart below). This is subject to a notification requirement to the ESRB and possible intervention by the EU Council. In addition, until the harmonization of the liquidity requirements in 2015 and the leverage ratio in 2018, member states can set unilaterally these measures.



Source: Authors. Mapping to objectives is based on IMF 2013b.

Box 5. Theoretical Considerations in Designing an Optimal Banking Union

The design of national supervision and safety nets in a multi-country integrated market has to take into account potential cross-border spillovers. Tighter supervision which makes the domestic banking system safer may be good for other countries with which this country has close links, by reducing financial stability risks. But, tighter supervision may also make domestic banks less competitive vis-à-vis foreign banks. This suggests that while there may be incentives for national supervisors in a financially integrated region to cooperate, independent regulators may also have an incentive to promote the competitiveness of domestic banks by lowering their own supervisory standards, which could trigger a "race to the bottom."

When will a centralized solution ("banking union") be preferred by national supervisors as a way to achieve their national policy objectives? The theoretical literature suggests that countries that are highly interlinked and similar in their regulatory preferences will tend to see higher net benefits to coordination, compared to those that are not. But in order for such national supervisors to prefer a banking union, the common standards must be stricter than the ones existing in individual countries (Dell'Ariccia and Marquez, 2006).[1] If however, the initial cross-country differences in supervisory preferences are significant, the centralized solution may not be an optimal choice for all. In more extreme cases, regulatory preferences may be distorted by vested interests of bank shareholders, debtors, and creditors (Scherf, 2014), in which case joining a regulatory union may be a way to reduce "regulatory capture."

Parallels between the decisions to join a banking union and a currency union bring out additional factors pertinent to the decision.[2] In reality, countries that are contemplating joining a banking union may be very different, not only in terms of supervisory preferences, but also along other characteristics, such as their degree of real and financial integration with banking union members, the degree of flexibility of their economies, the structure of their banking systems, as well as the quality of prudential supervision and the level of national backstops. Greater "similarity" between current and prospective banking union members reduces the probability of an idiosyncratic shock driving a wedge between national interests and that of the banking union. But lower supervisory quality and lower backstops at the national level likely increase the benefits of having common (tighter) regulatory/supervisory standards and common (larger) backstops.[3]

[1] "If a country-level regulator is to relinquish its authority and, hence, its ability to set standards optimally given its competitor's choice, it must be compensated by an increase in the capital requirement for its competitor's banks. In other words, a necessary condition for a centralized regulator to emerge endogenously as an agreement between the independent regulators is that the new common regulatory standards represent an increase for both countries." (Dell'Ariccia and Marquez, 2006, p. 413).

[2] See Box 1 in Chapter 1 on "Euro adoption – Macroeconomic Benefits and Challenges."

[3] Recent research in the OCA area highlights the benefits of financial markets integration and of importing prudent economic management by pegging the domestic currency to that of a dominant economic power (see Iossifov and others, 2009 for an overview). In the same vein, a common fiscal backstop in a banking union serves the role of an insurance policy, upon which individual members can draw in the event of an asymmetric shock.

Box 6. Cross-Country Differences in Policymakers' Relative Preference for Promoting Domestic Banks

Countries differ in the quality of bank supervision and the balance between financial stability and support of domestic banks. These two aspects of the policy regime can be, but are not necessarily, linked by the degree of "regulatory capture". The assessment of supervisory quality goes beyond the scope of this paper. But, policymakers' revealed preference for promotion of domestically-owned banks can be inferred from the extent to which domestic banks are allowed to gain market share at the expense of above-average funding costs.

The data suggest that domestic banks in Bulgaria and the Czech Republic, and to a lesser extent Poland and Hungary, rapidly expanded their deposit base in the post-crisis period (see figure in the box). Domestic banks in Bulgaria and Hungary have the largest market shares relative to other NMS-6 countries, whereas in the Czech Republic the market share of domestic banks remains marginal. In addition, domestic banks have higher funding costs than their foreign-owned peers in all NMS-6 countries, with the widest margins recorded in Hungary, Bulgaria, and the Czech Republic.

New Member States: Relative Performance of Domestic- versus Foreign-Owned Banks

	Share of domestic banks in total bank deposits			Cummulative Growth Rate of Deposits 2009-2013			Average cost of funding 2009-2013			Return on equity avg 2008-2013		
	2007	2013	Change, 2007-2013	Domestic banks	Foreign banks	Difference in growth rates (dom. vs frn. banks)	Domestic banks	Foreign banks	Difference in rates (dom. vs frn. banks)	Domestic banks	Foreign banks	Difference in ROE (dom. vs frn. banks)
Bulgaria	21.4	32.1	10.7	133.4	27.4	106.0	4.7	2.9	1.8	5.9	5.7	0.2
Croatia	…	…	…	…	…	…	…	…	…	…	…	…
Czech Republic	1.7	6.4	4.6	167.1	25.1	142.0	2.4	1.4	0.9	9.3	14.1	-4.8
Hungary	41.0	47.0	6.0	14.3	-10.6	24.9	5.5	3.3	2.1	8.5	-6.6	15.0
Poland	32.1	40.2	8.1	79.9	35.8	44.1	3.0	2.6	0.5	11.4	9.2	2.2
Romania	13.5	11.1	-2.4	-7.9	29.6	-37.5	4.4	3.9	0.5	2.4	0.1	2.3

Source: ECB Consolidated Banking Data and Fund staff calculations.

Notes: The cost of funding is estimated as the ratio of interest expenses to the average interest-bearing liabilities (the latter proxied by the difference between total liabilities and equity).

Overall, results suggest that domestic banks in Bulgaria and Hungary might have benefitted from a more favorable policy stance compared to their foreign-owned peers. Domestic banks in Bulgaria and Hungary have the largest market shares relative to other NMS-6 countries, with gains in recent years associated with the payment of a bigger premium in funding costs over foreign-owned banks. In the case of Hungary, the size of the premium is likely driven by foreign-owned banks' interest rate margin policies in response to the government-mandated cost of restructuring of FX-denominated debt.

Appendix I. Largest Banks in NMS-6 and their Ultimate Owners

Table 1. Largest Banks in NMS-6 and their Ultimate Owners

Country	Bank	National rank by assets	Country of global ultimate owner	Name of global ultimate owner	Market share in banking sector loans	Total assets (bil EUR)	Total assets (% of GDP)
Bulgaria	UniCredit Bulbank AD	1	Italy	UNICREDIT SPA	18%	7.18	18%
Bulgaria	DSK Bank Plc	2	Hungary	OTP BANK PLC	13%	4.70	12%
Bulgaria	First Investment Bank AD	3	Bulgaria	FIRST INVESTMENT BANK AD	11%	4.66	12%
Bulgaria	Corporate Commercial Bank AD	4	Bulgaria	MR TSVETAN RADOEV VASILEV	8%	3.58	9%
Bulgaria	United Bulgarian Bank - UBB	5	Greece	HELLENIC FINANCIAL STABILITY FUND	9%	3.56	9%
Bulgaria	Raiffeisenbank (Bulgaria) EAD	6	Austria	RAIFFEISEN LANDESBANKEN HOLDING GMBH	8%	3.16	8%
Bulgaria	Societe Generale Expressbank	7	France	SOCIETE GENERALE SA	6%	2.10	5%
Bulgaria	Central Cooperative Bank AD	8	Liechtenstein	CHIM INVEST ANSTALT	3%	1.99	5%
Bulgaria	CIBANK JSC	9	Belgium	KBC GROEP NV/ KBC GROUPE SA-KBC GROUP	2%	1.10	3%
Bulgaria	Allianz Bank Bulgaria AD-CB Allianz Bulgaria AD	10	Germany	ALLIANZ SE	2%	1.05	3%
Croatia	Zagrebacka Banka dd	1	Italy	UNICREDIT SPA	31%	13.98	33%
Croatia	Privredna Banka Zagreb d.d-Privredna Banka Zagreb Group	2	Italy	INTESA SANPAOLO	18%	8.61	20%
Croatia	Erste & Steiermärkische Bank dd	3	Austria	ERSTE GROUP BANK AG	18%	7.89	18%
Croatia	Raiffeisenbank Austria d.d., Zagreb	4	Austria	RAIFFEISEN LANDESBANKEN HOLDING GMBH	9%	4.91	11%
Croatia	Hypo Alpe-Adria-Bank dd	5	Austria	REPUBLIK OSTERREICH - GOVERNMENT OF AUSTRIA	8%	4.16	10%
Croatia	Societe Generale - Splitska Banka dd	6	France	SOCIÉTÉ GÉNÉRALE	7%	3.71	9%
Croatia	Hrvatska Postanska Bank DD	7	Croatia	GOVERNMENT OF CROATIA	4%	2.52	6%
Croatia	OTP banka Hrvatska dd	8	Hungary	OTP BANK PLC	3%	1.86	4%
Croatia	Sberbank dd	9	Russia	PRAVITELSTVO ROSSIISKOI FEDERATSII	2%	1.26	3%
Croatia	Kreditna Banka Zagreb	10	Croatia	N/A	1%	0.56	1%
Czech Republic	Ceskoslovenska Obchodni Banka A.S.- CSOB	1	Belgium	KBC GROEP NV/ KBC GROUPE SA-KBC GROUP	17%	39.16	26%
Czech Republic	Ceska Sporitelna a.s.	2	Austria	ERSTE GROUP BANK AG	16%	36.66	25%
Czech Republic	Komercni Banka	3	France	SOCIÉTÉ GÉNÉRALE	16%	32.70	22%
Czech Republic	Unicredit Bank Czech Republic and Slovakia AS	4	Italy	UNICREDIT SPA	10%	17.58	12%
Czech Republic	Hypotecni banka a.s.	5	Belgium	KBC GROEP NV/ KBC GROUPE SA-KBC GROUP	6%	8.10	5%
Czech Republic	Raiffeisenbank akciova spolecnost	6	Austria	RAIFFEISEN LANDESBANKEN HOLDING GMBH	5%	7.46	5%
Czech Republic	GE Money Bank as	7	USA	GE CAPITAL INTERNATIONAL HOLDINGS	4%	5.10	3%
Czech Republic	J&T Banka as	8	Slovakia	TECHNO PLUS, A. S.	2%	4.17	3%
Czech Republic	PPF banka a.s.	9	Czech Republic	MR KELLNER PETR	1%	3.98	3%
Czech Republic	Stavební Sporitelna Ceské Sporitelny as	10	Austria	ERSTE GROUP BANK AG	1%	3.76	3%
Hungary	OTP Bank Plc	1	Hungary	OTP BANK PLC	49%	36.24	36%
Hungary	K&H Bank Zrt	2	Belgium	KBC GROEP NV/ KBC GROUPE SA-KBC GROUP	8%	8.95	9%
Hungary	Erste Bank Hungary Nyrt	3	Austria	ERSTE GROUP BANK AG	11%	7.91	8%
Hungary	MKB Bank Zrt	4	Germany	FREISTAAT BAYERN BAYERISCHES STAATSMINISTERIUM DER FINANZEN	10%	6.85	7%
Hungary	Raiffeisen Bank Zrt	5	Austria	RAIFFEISEN LANDESBANKEN HOLDING GMBH	10%	6.46	6%
Hungary	CIB Bank Ltd-CIB Bank Zrt	6	Italy	INTESA SANPAOLO	10%	6.46	6%
Hungary	UniCredit Bank Hungary Zrt	7	Italy	UNICREDIT SPA	7%	6.18	6%
Hungary	OTP Mortgage Bank-OTP Jelzalogbank Rt	8	Hungary	OTP BANK PLC	8%	4.49	5%
Hungary	Budapest Bank Nyrt-Budapest Hitel-és Fejleszési Bank Nyrt	9	USA	GE CAPITAL INTERNATIONAL FINANCING CORP INC	4%	3.16	3%
Hungary	FHB Mortgage Bank Plc-FHB Jelzalogbank Nyrt.	10	Hungary	FHB MORTGAGE BANK PLC-FHB JELZALOGBANK	3%	2.57	3%
Poland	Powszechna Kasa Oszczednosci Bank Polski SA - PKO BP SA	1	Poland	POWSZECHNA KASA OSZCZEDNOSCI BANK POLSKI SA - PKO BP SA	15%	49.80	13%
Poland	Bank Polska Kasa Opieki SA-Bank Pekao SA	2	Italy	UNICREDIT SPA	10%	39.63	10%
Poland	Bank Zachodni WBK S.A.	3	Spain	BANCO SANTANDER SA	7%	26.52	7%
Poland	mBank SA	4	Germany	COMMERZBANK AG	7%	26.07	7%
Poland	ING Bank Slaski S.A. - Capital Group	5	Netherlands	STICHTING ING AANDELEN	5%	21.69	6%
Poland	Getin Noble Bank SA	6	Poland	GETIN NOBLE BANK SA	5%	15.90	4%
Poland	Bank Millennium	7	Portugal	BANCO COMERCIAL PORTUGUÊS, SA-MILLENNIUM	4%	14.25	4%
Poland	Raiffeisen Bank Polska SA	8	Austria	RAIFFEISEN LANDESBANKEN HOLDING GMBH	4%	13.35	3%
Poland	Bank Handlowy w Warszawie S.A.	9	USA	CITIGROUP INC	2%	11.35	3%
Poland	Bank Gospodarki Zywnosciowej SA-Bank BGZ	10	Netherlands	COOPERATIEVE CENTRALE RAIFFEISEN-BOERENLEENBANK B.A-RABOBANK NEDERLAND	3%	8.94	2%
Romania	Banca Comerciala Romana SA-Romanian Commercial Bank SA	1	Austria	ERSTE GROUP BANK AG	24%	15.43	11%
Romania	BRD-Groupe Societe Generale SA	2	France	SOCIÉTÉ GÉNÉRALE	18%	11.10	8%
Romania	Transilvania Bank-Banca Transilvania SA	3	Romania	TRANSILVANIA BANK-BANCA TRANSILVANIA SA	10%	7.46	5%
Romania	UniCredit Tiriac Bank SA	4	Italy	UNICREDIT SPA	9%	6.35	4%
Romania	Raiffeisen Bank SA	5	Austria	RAIFFEISEN LANDESBANKEN HOLDING GMBH	9%	6.23	4%
Romania	CEC Bank SA	6	Romania	STATE OF ROMANIA	7%	6.22	4%
Romania	Alpha Bank Romania	7	Greece	HELLENIC FINANCIAL STABILITY FUND	6%	3.76	3%
Romania	Volksbank Romania	8	Austria	VOLKSBANKEN HOLDING REGGENMBH	6%	3.20	2%
Romania	Bancpost SA	9	Greece	HELLENIC FINANCIAL STABILITY FUND	4%	2.75	2%
Romania	Banca Romaneasca S.A.	10	Greece	HELLENIC FINANCIAL STABILITY FUND	3%	1.72	1%

Sources: BankScope; national sources; Haver Analytics; International Financial Statistics; World Economic Outlook database; and IMF staff calculations.

References

Bank of International Settlements, 2010, *Report and Recommendations of the Cross-border Bank Resolution Group*, available on the internet at www.bis.org/publ/bcbs162.pdf, (Basel).

BRRD Directive: "Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 Establishing a Framework for the Recovery and Resolution of Credit Institutions and Investment Firms and Amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council Text with EEA Relevance, available on the internet at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32014L0059 .

Cerutti, Eugenio, Anna Ilyina, Yulia Makarova, Christian Schmieder, "Bankers Without Borders? Implications of Ring-Fencing for European Cross-Border Banks", Chapter 11 in "A Guide to IMF Stress Testing", editor Li Lian Ong, 2014. (International Monetary Fund).

CRR Regulation: "Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on Prudential Requirements for Credit Institutions and Investment Firms and Amending Regulation (EU) No 648/2012," available on the internet at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2013.176.01.0001.01.ENG .

CRD IV Directive: "Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on Access to the Activity of Credit Institutions and the Prudential Supervision of Credit Institutions and Investment Firms, Amending Directive 2002/87/EC and Repealing Directives 2006/48/EC and 2006/49/EC," available on the internet at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2013.176.01.0338.01.ENG .

Dell'Ariccia, Giovanni and Marquez, Robert, 2006, "Competition among Regulators and Credit Market Integration," *Journal of Financial Economics,* 79(2), pp. 401–430.

DGSD Directive: "Directive 2014/49/EU of the European Parliament and of the Council of 16 April 2014 on Deposit Guarantee Schemes Text with EEA Relevance," available on the internet at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0049 .

ESRB Regulation: "Regulation (EU) No 1092/2010 of the European Parliament and of the Council of 24 November 2010 on European Union Macro-Prudential Oversight of the Financial System and Establishing a European Systemic Risk Board," available on the internet at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010R1092 .

European Commission, 2012, "Communication from the Commission to the European Parliament and the Council: A Roadmap towards a Banking Union," COM(2012) 510 final, available on

the internet at http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0510&from=EN, (Brussels).

European Commission, 2013, "A Comprehensive EU Response to the Financial Crisis: A Strong Financial Framework for Europe and a Banking Union for the Eurozone," Memo, available on the internet at http://europa.eu/rapid/press-release_MEMO-13-679_en.pdf, (Brussels).

European Central Bank, 2012, "Why the Euro Needs a Banking Union," speech by Benoît Coeuré, Member of the Executive Board of the ECB at the Conference "Bank Funding—Markets, Instruments and Implications for Corporate Lending and the Real Economy," available on the internet at www.ecb.europa.eu/press/key/date/2012/html/sp121008_1.en.html, October, (Frankfurt).

Hardy, Daniel and Nieto, Maria, 2011, "Cross-border Coordination of Prudential Supervision and Deposit Guarantees," *Journal of Financial Stability,* 7(3), pp. 155–164.

Hilbers, Paul, Inci Ötker, Ceyla Pazarbasioglu, and Gudrun Johnsen, 2005, "Assessing and Managing Rapid Credit Growth and the Role of Supervisory and Prudential Policies," IMF Working Paper No. 05/151, available via internet at: www.imf.org/external/pubs/ft/wp/2005/wp05151.pdf (Washington: International Monetary Fund).

International Monetary Fund, 2013a, "A Banking Union for the Euro Area," *IMF Staff Discussion Note*, 13/01, available via internet at: www.imf.org/external/pubs/ft/sdn/2013/sdn1301.pdf, (Washington).

International Monetary Fund, 2013b, "Key Aspects of Macroprudential Policy", IMF Policy Paper, available via internet at: www.imf.org/external/np/pp/eng/2013/061013b.pdf, (Washington).

International Monetary Fund, 2013c, "Transition Challenges to Stability," *Global Financial Stability Report*, October , available via internet at: www.imf.org/External/Pubs/FT/GFSR/2013/02/pdf/text.pdf, (Washington).

Iossifov, Plamen, Noriaki Kinoshita, Misa Takebe, Robert York, Zhan, Zaijin, 2009, "Improving Surveillance Across the CEMAC Region," IMF Working Paper No, 09/260, available on the internet at www.imf.org/external/pubs/ft/wp/2009/wp09260.pdf, (Washington: International Monetary Fund).

Kisgergely, Kornél and Anikó Szombati, 2014, "Banking Union through Hungarian Eyes – the MNB's Assessment of a Possible Close Cooperation, *MNB Occasional Papers* 115, available on the internet at http://english.mnb.hu/Root/Dokumentumtar/ENMNB/Kiadvanyok/mnben_muhelytanulmanyok/Banking_Union_MNB_OP_115.pdf (Budapest: Magyar Nemzeti Bank).

McKinnon, Ronald I., 2004, "Optimum Currency Areas and Key Currencies: Mundell I versus Mundell II," *Journal of Common Market Studies*, Vol. 42(4), pp. 689-715.

Ozkan, Gulcin and Unsal, Filiz, 2014, "On *the use of Monetary and Macroprudential Policies for Small Open Economies,"* IMF Working Paper No. 14/112, available on the internet at www.imf.org/external/pubs/ft/wp/2014/wp14112.pdf, (Washington: International Monetary Fund).

Scherf, Gundbert, 2014*, Financial Stability Policy in the Euro Zone—The Political Economy of National Banking Regulation in an Integrating Monetary Union*, (Wiesbaden: Springer Gabler).

Tavlas, George S., 1993, "The 'New' Theory of Optimum Currency Areas, " *The World Economy*, vol. 16(6), pp. 663-685.

THE EU FISCAL FRAMEWORK AND PENSION REFORM[1]

Summary

- **The NMS were among the earliest pension reformers in Europe.** Pressures on their public pensions emerged in the 1990s, reflecting inter alia falling labor force participation and high unemployment during transition that rendered the inherited pension systems insolvent.
- **As a result, public pension systems in many NMS are technically sustainable, but often at the cost of low replacement rates.** In spite of severe demographic pressures, average public pension spending is projected to remain at a level of about 10 percent of GDP in 2060, broadly unchanged from today. The replacement rate, however, is often projected to fall sharply, giving rise to doubts about whether the public, defined-benefit, pay-as-you-go (PAYG) pension systems are socially sustainable.
- **Along with parametric reforms to PAYG systems, most NMS introduced private, mandatory, pre-funded pension ("Pillar II") schemes with individual accounts,** in order to supplement retirement incomes. In Hungary and Poland, as well as Estonia and the Slovak Republic, second pillar contributions exceeded 1 percent of GDP per year in the mid-2000s.
- **The performance of Pillar II schemes has been mixed.** In particular, there is no systematic evidence that the introduction of Pillar II schemes increased in national savings—which, ultimately, is required to generate higher pension income—as contributions were diverted from PAYG systems and the resulting fiscal impact was accommodated with higher deficits. Returns were generally modest, while exceeding basic benchmarks. Management fees remain elevated, even though they have come down somewhat.
- **In the wake of the 2008/09 financial crisis, many countries unwound their second pillars** and redirected contributions to the budget, as governments struggled with severe fiscal pressures. The European Union's fiscal framework under the stability and growth pact as arguably been a factor in the reversal: deficit ceilings were defined mostly in headline terms, granting only partial allowances for Pillar II transition costs. This provided an incentive—especially for countries with large second pillars—to reverse the reform. By contrast, neither returns on Pillar II assets nor management fees appear to have been a systematic factor in the reversal.
- **While recent reforms render the EC's fiscal framework more flexible** toward Pillar II systems, it continues to fall short of neutrality toward a country's choice of pension regime.

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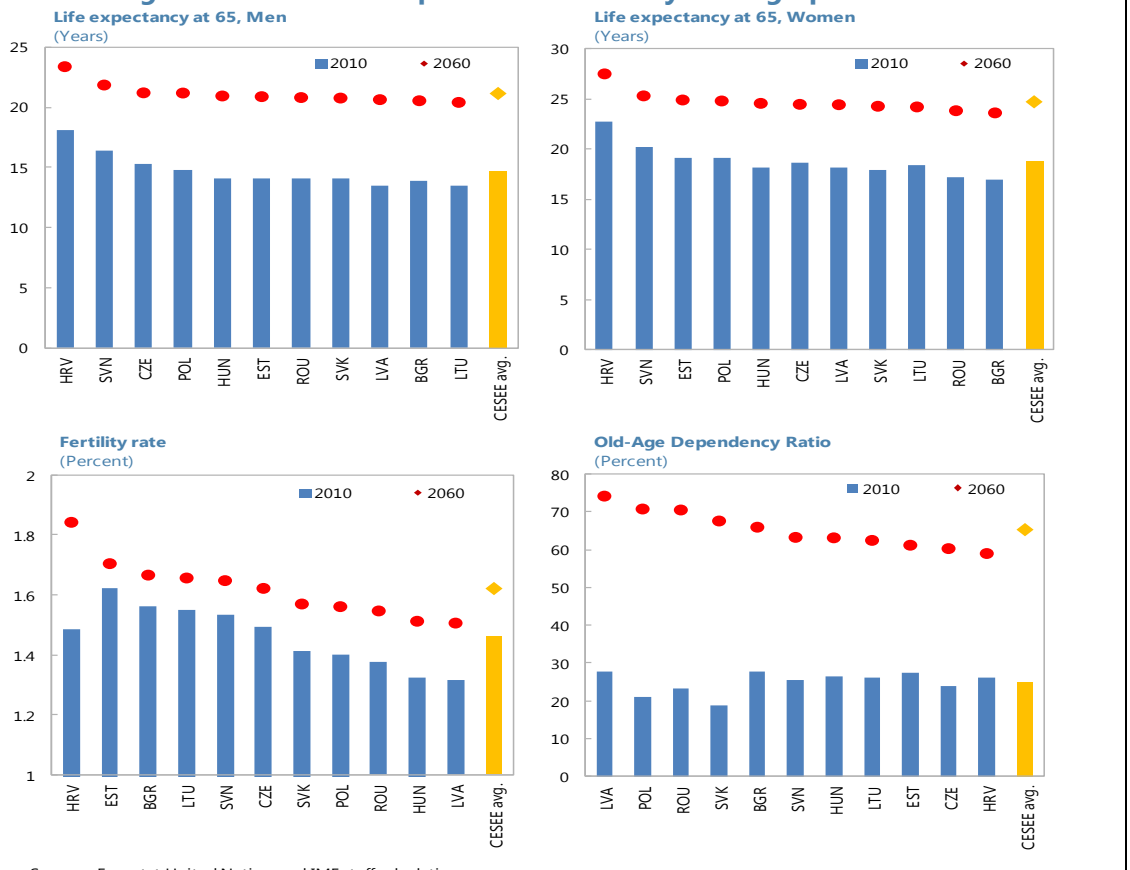
A. Public Pension Systems in New Member States: The Broad Picture

1. The EU New Member States were among the earliest pension system reformers in Europe. Pressures on the their pay-as-you-go (PAYG) pension systems arose early during the economic transition of the 1990s, as labor participation declined sharply, unemployment rose, the informal economy grew, and high evasion complicated the collection of social security contributions. Reforms to reduce these pressures included changing pension formulas to control the increase in benefits—for example by linking pension increases to inflation rather than wage growth—increasing retirement ages, and reducing incentives for early retirement (see Appendix I).

2. However, **demographic change continues to put pressure on PAYG systems.** Fertility rates in the NMS-6 have fallen by an average of 30 percent during 1990-2010. Life expectancy has also increased since 1990, and is projected to continue trending upward (Figure 1). Moreover, some countries, including Bulgaria, Romania, and Poland, experienced substantial outmigration in the past decade, mostly of the younger generation. Overall by 2060 the working age population is projected to fall to 60–80 percent of its 2010 level. Combined with longer life expectancy, this will result in a sharp increase in the dependency ratio: in 2060, an old person (65+) is projected to be supported by 1½ workers, compared to four workers in 2010.

Figure 1. Selected European Countries: Key Demographic Data



Sources: Eurostat; United Nation; and IMF staff calculations.

3. Even with the sharp increase in the dependency ratio, most NMS-6 pension systems appear technically sustainable if already reforms are implemented as foreseen.[2] The reforms are projected to keep average pension spending at about 11 percent of GDP, only a percentage point more than today—which compares to public pension spending of almost 23 percent of GDP if reforms are not implemented (Table 1). Most notably, legislated reforms in Poland are projected to yield an annual reduction of 25 percent of GDP in pension spending (European Commission, 2012). Still, in some other countries, pension expenditures are projected to increase, yielding rising pension deficits in their PAYG systems (Table 2).

Table 1. Pension Spending Projections[1/]

	With reforms						Without reforms					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
	(in percent of GDP)											
Bulgaria	9.9	9.2	9.6	10.1	11.1	11.1	9.9	11.9	14.2	16.6	20.0	21.2
Croatia 2/	6.0	4.4	3.3	2.6	2.5	3.3	6.0	5.5	5.8	5.6	6.3	7.0
Czech Republic	9.1	8.7	8.9	9.7	11.0	11.8	9.1	11.9	13.7	15.9	19.2	21.0
Estonia	8.9	7.7	8.2	8.1	8.0	7.7	8.9	9.9	11.3	12.4	14.8	16.8
Latvia	9.7	7.3	6.5	6.3	6.4	5.9	9.7	10.4	11.9	13.8	17.4	21.0
Lithuania	8.6	7.6	8.4	9.6	10.8	12.1	8.6	9.0	11.2	12.9	14.4	17.2
Hungary	11.9	10.5	9.3	9.8	11.2	12.4	11.9	13.6	14.3	17.2	21.3	24.4
Poland	11.8	10.9	10.9	10.3	10.0	9.6	11.8	15.4	19.9	22.8	29.7	35.5
Romania	9.8	9.2	10.3	11.6	12.8	13.5	9.8	11.6	13.9	18.8	24.6	28.8
Slovakia	8.0	8.6	9.5	10.6	12.2	13.2	8.0	10.3	13.1	16.1	21.3	25.1

Source: Fund staff calculations based on data in the EU Aging Report (2012), 2012 EU Fiscal Sustainability Report, and information provided by the World Bank on Croatia.

1. "With reforms" block refer to projected spending under currently legislated reforms, and correspond broadly to the baseline projection in the EU Ageing Report. "Without reforms" block refer to pension spending that would occur if pension parameters were kept constant at 2010 levels without considering changes from legislated reforms.

2/ For Croatia, numbers are for old age related pension spending only and do not include other pension payments from the PAYG scheme.

4. At the same time, most reforms imply a steep cut in pension benefits, calling into question the social—and therefore political—sustainability of PAYG systems. For some NMS-6 PAYG systems, the replacement rate of income in retirement is projected to fall below 20 percent, compared to around 40 percent today.[3] In fact, some countries have already reversed recent reforms, in response to political pressures that increased when benefit reductions started taking effect (Schwarz and Arias, 2014).

[2] Most data for this section are drawn from the European Commission's Ageing Report of 2012. Croatian data are from the World Bank (Croatia was not yet an EU member in 2012 and is thus not covered by the 2012 Ageing Report). The base year is 2010. The next Ageing Report is expected to be published in May 2015.

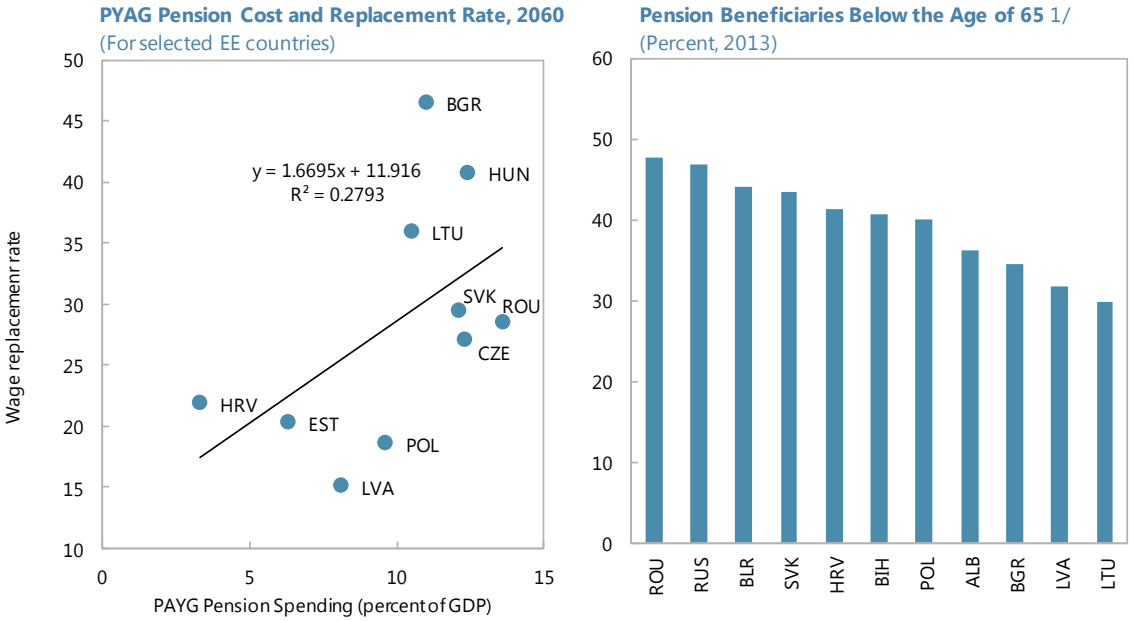
[3] Different tax treatment on pension and non-pension income will affect income replacement rate net of taxes. For some countries (e.g. Hungary), the replacement rate can be higher because pensions are not taxed.

Table 2. Net Present Value of Pension Deficits

	Discount rate=0			Discount rate=1			Discount rate=2		
	2010-2030	2031-2060	2010-2060	2010-2030	2031-2060	2010-2060	2010-2030	2031-2060	2010-2060
	(in percent of GDP)								
Bulgaria	34	79	114	31	55	86	29	38	67
Croatia 1/	-38	-105	-144	-34	-74	-108	-30	-53	-83
Czech Rep.	7	65	72	6	44	50	6	30	36
Estonia	16	-13	4	15	-9	7	14	-6	8
Latvia	51	66	116	46	47	93	42	34	77
Lithuania	14	61	75	13	41	55	12	29	41
Hungary	39	87	126	36	59	95	33	41	74
Poland	76	48	124	70	35	105	65	25	90
Romania	27	10	37	25	7	33	24	5	29
Slovakia	77	176	253	69	122	191	63	86	149
Average	30	47	78	28	33	61	26	23	49

Source: EC (2012), World Bank, and Fund staff calculation.
1/ For Croatia, only old age related pension spending is included. PAYG balance including other pension payments will be smaller.

EE Pension Cost, Replacement Rate, and Young Pensioners



Source: EU 2012 Ageing Report, World Bank.
1/ Beneficiaries include old age, disability, survivor. For some countries only old age and disability beneficieries included. In some countries orphans are included.

5. As a result, further steps are called for to improve both fiscal and social sustainability of NMS pension systems. Two areas with significant reform potential are aligning the mandatory retirement age with longevity, and reducing incentives for early retirement. Several NMS-6 countries continue to have relatively generous early retirement incentives and special pension regimes for privileged groups. As a result, the share of relatively young beneficiaries remains high. The gains from embracing these reforms could be used to further improve fiscal sustainability, increase the social sustainability of replacement rates, or a combination of the two.

B. Pillar II Pension Schemes: History, Rationale, Performance

6. A second component of NMS pension reforms—accompanying the parametric changes to the PAYG systems mentioned above—has often been the introduction of private, mandatory, pre-funded, "pillar II" pensions. Pillar II-type systems require contributions to be channeled into privately held accounts, with accumulated savings to be paid out upon retirement. Chile was the first country to introduce such a system in the early 1980s. Its example inspired many countries in Eastern Europe to follow. Hungary (1998) and Poland (1999) led reform efforts in the region, followed by Bulgaria, Croatia (both 2002), and Romania (2007) (Appendix II). The exception among the NMS-6 is the Czech Republic that, instead of making contributions mandatory, strengthened tax incentives for accumulating savings on a voluntary basis.

Conceptual Issues: Why a Second Pension Pillar?

7. A key objective of second pension pillars is to generate additional income out of which supplementary pensions can be paid. In the NMS, second pillars were often designed to compensate for the pension income losses from parametric PAYG reforms. At the aggregate level, this objective can be achieved only if national savings increase. Further, for higher savings to materialize, the increase in private savings generated by the establishment of a second pillar must *not* be offset by simultaneous public sector dis-saving. To avoid this, the contributions to a Pillar II plan should *not* be accompanied by decreases in contributions to the PAYG scheme. Alternatively, the resulting budgetary shortfall needs to be compensated with fiscal savings elsewhere.

8. By the time of their introduction, several other benefits associated with second pillar programs were touted.

- ***Risk diversification.*** With a second pillar, pension benefits are paid not only from the wage base (PAYG) but also from returns on capital (Pillar II). Further, second pillars can allow for better diversified portfolios by enabling investments in foreign assets, especially when domestic capital markets are thin.

- ***Ownership, labor market participation, and capital market development.*** Second pillar schemes can link pension income transparently to contributions, thus enhancing ownership and awareness on the part of contributors of the need to save for retirement income. They may also provide incentives for higher labor market participation—or for shifting from the informal to the formal labor market—and for capital market development, by developing longer-term financial instruments.

Pillar II Pension Systems in the NMS: How Have They Performed?

9. This section reviews some performance indicators for Pillar II systems in the NMS. As a general caveat, such assessments are not straightforward. For once, it can be difficult to identify clear-cut metrics of success: while the capacity to pay higher pensions will ultimately require higher national savings, for example, the national savings rate is affected by many factors other than second pillars. This renders it problematic to link changes in savings (or the lack thereof) directly to the success of reform efforts. Other performance indicators are not fully comparable across countries and time periods: lack of asset diversification or elevated administrative fees, for example—features noted below—are fairly common among young pension funds, such as those of the NMS. However, these indicators tend to improve as funds mature.

10. With these caveats**, there is no systematic evidence that Pillar II systems have increased savings** (Figure 2).

- ***National savings*** as a share of GDP do not reveal a clear pattern around the dates of Pillar II introduction—only Croatia, Estonia, Lithuania, Poland and Slovakia show a sizeable increase. This observation is consistent with governments offsetting the increase in private savings triggered by the establishment of Pillar II funds with higher fiscal deficits.[4]
- ***Social security contributions.*** As for more direct evidence of public dis-saving, upon Pillar II introduction PAYG contributions were typically cut to the same degree as Pillar II contributions were levied, to avoid excessive burdens on wage earners—especially as at the time of Pillar II introduction many economies were still weak from transition—and prevent higher tax wedges.[5]
- ***Investments in government bonds.*** Further, large holdings of government bonds by many Pillar II funds suggest that governments covered transition cost largely with debt financing rather than fiscal consolidation—tapping the very Pillar II funds for financing that they had created. Reflecting this pattern, Pillar II investments in government securities are more than twice as high in the NMS than for private pension funds in other OECD countries.[6]

11. Prior to the 2008/09 financial crisis, gross investment returns on Pillar II funds were generally modest, even though, barring a few exceptions, they exceeded real returns from investing in domestic long-term government bonds. Once the crisis struck, pre-crisis gains were eliminated. As Pillar II funds have a long-term investment horizon, comparing their returns against

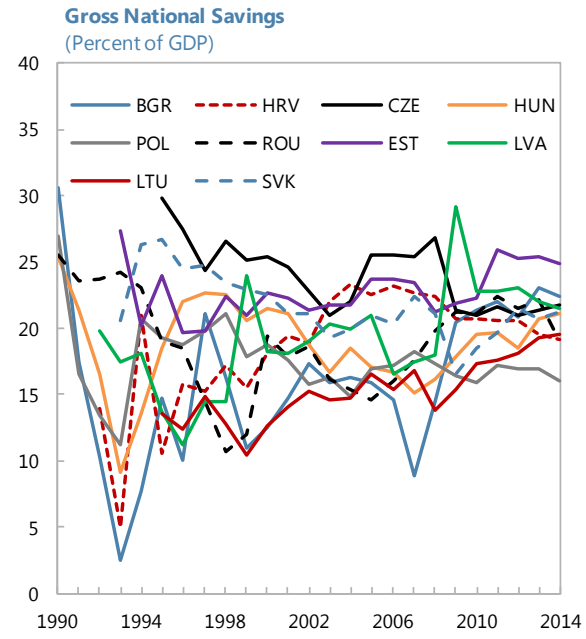
[4] Pillar II reforms were sometimes hoped to be self-financing, through increased labor force participation and, as a consequence, higher tax revenues. In the case of Poland, labor force participation rates were expected to increase by some 20 percentage points with Pillar II pension introduction (Epstein and Velculescu, 2011). In the event, participation remained broadly constant in the 2000s.

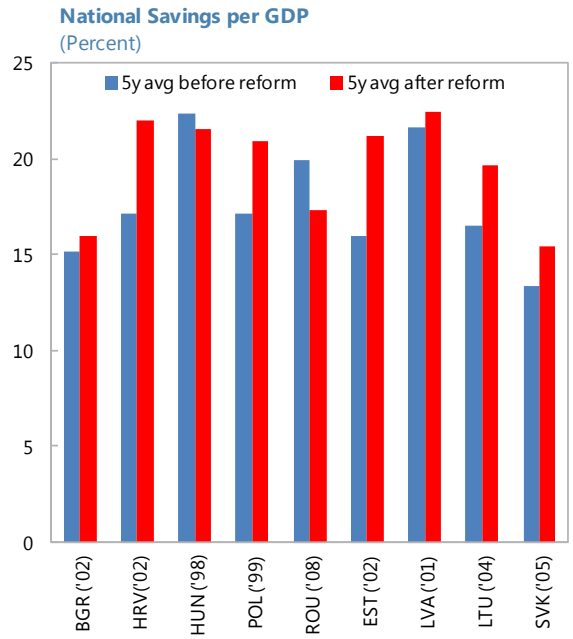
[5] Exceptions are Estonia and Lithuania, where the government matched additional individual contributions with additional contributions from the state (from the outset in Estonia, only recently in Lithuania).

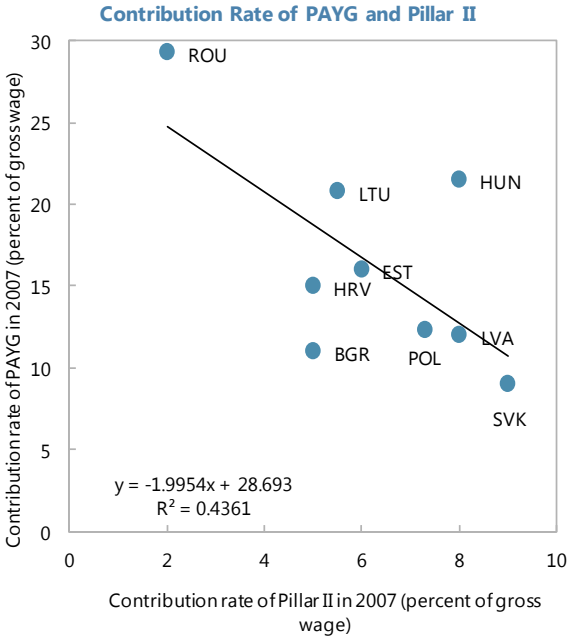
[6] Note that the OECD comparator group includes not only second pillar funds but also voluntary and occupational retirement funds.

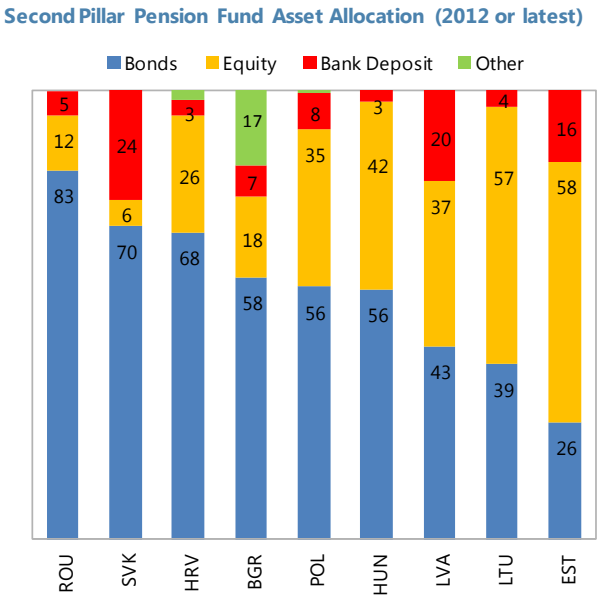
short-term benchmarks is problematic, however, especially if funds invest into riskier assets such as equity. As a result, it is too early to assess to what extent the crisis losses can be recouped.

Figure 2. Second Pension Pillars and National Savings









Sources: WEO; Haver; national authorities; EC 2012 Ageing Report; WB (2014) and IMF staff calculations.

12. *Asset management fees* charged by Pillar II funds have come down, but they remain high. Total fees for Pillar II funds have fallen from an average of more than 2 percent of assets in 2006 to about 1¼ percent in 2011. In part, this may reflect the realization of economies of scale as Pillar II funds grow larger, although it may also relate to political pressures that funds faced in the wake of the financial crisis. Still, operating expenses—one element featuring in the fee structure—remain more than 50 percent higher than in other OECD countries (Figure 3).[7]

13. Only a few countries with second pillars have taken advantage of the opportunity to *diversify* away from domestic risk. As shown above, Pillar II portfolios contain a high share of government securities. The Baltic countries—that have low levels of public debt—are the main exception. In many countries, Pillar II regulations enforce a high share of risk-free assets and a minimum domestic investment requirement, creating a bias toward government securities, bank deposits, and cash.

C. The EU Fiscal Framework and Pillar II Reversals

The EU Fiscal Framework and Pillar II Pensions Prior to the Crisis

14. The treatment of second pillars within the EU fiscal framework assumed practical relevance only in 2004, when the first NMS joined the EU. Among the older EU members, only Sweden had a second pillar. Further, prior to 2004, second pension pillars were recorded as part of the public sector when calculating government deficits and debt. In 2004, however, Eurostat reclassified Pillar II to within the private sector. This gave rise to higher recorded fiscal deficits, as Pillar II contributions counted no longer as fiscal revenue a phenomenon after called the "transition costs" of setting up a second pillar.

15. Starting with a 2005 reform of the Stability and Growth Pact (SGP), the EU fiscal framework began to partially accommodate Pillar II transition costs (Table 3).

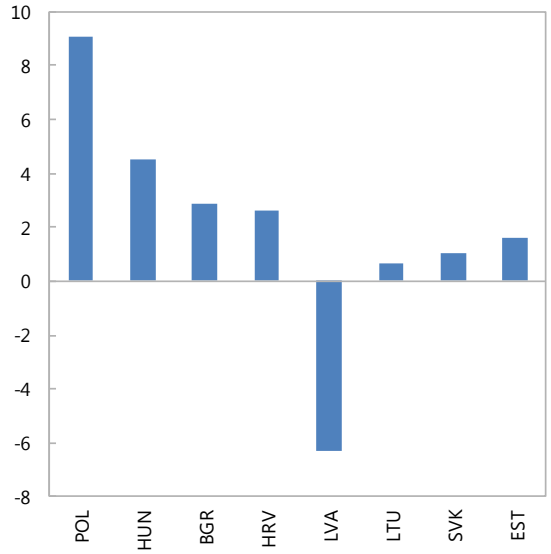
- A formal *request to fully exempt transition cost was turned down* in 2005. The request had been brought forward by countries that had already put in place a second pillar at the time, which included Hungary, Poland, and Sweden.

- However, the European Council agreed on ***limited exemptions in the context of the Excessive Deficit Procedure*** (EDP). Specifically, it allowed adjustments to the deficit for a maximum of five years—on a degressive linear scale—as long as the deficit remained "close to the reference value".

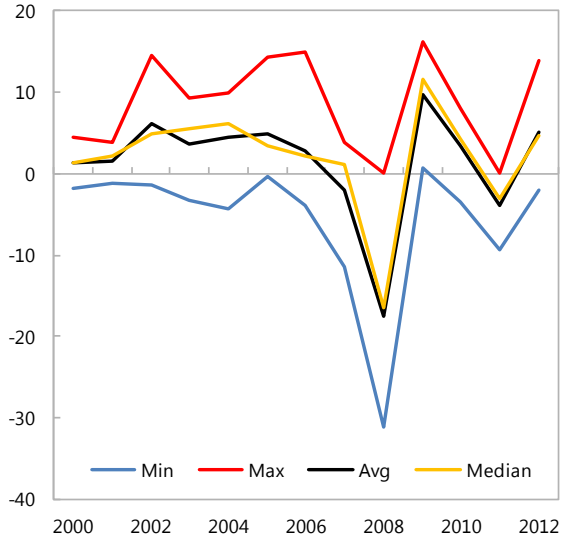
[7] As a rule of thumb, one percent of assets spent in fees and other charges reduces life-time pension earnings by about 20 percent, see Barr (2000).

Figure 3. Pillar II Pension Funds: Returns and Fees

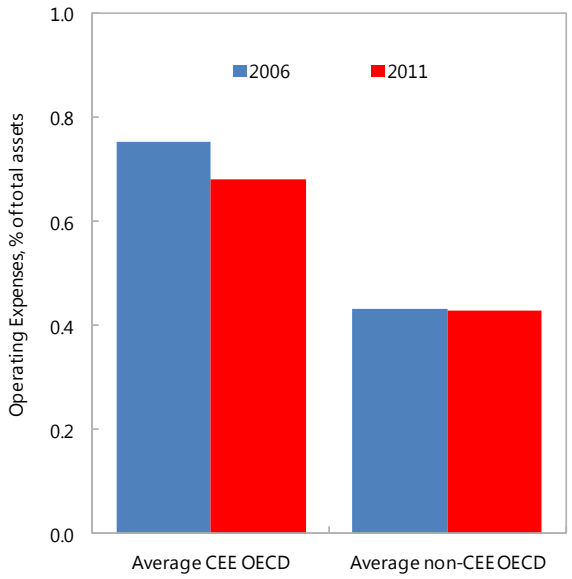
Weighted Average Returns, 2004-07 1/
(Percent, real)



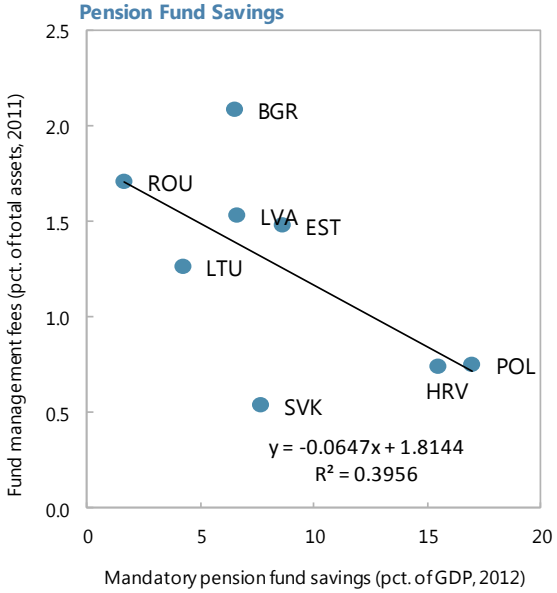
Annual Gross Real Returns on Pillar II Pension Investments in NMS+4 2/ (Percent)



Operating Expenses of Pillar II in CEE OECD 3/



Pension Fund Management Fees and Mandatory Pension Fund Savings



Sources: WEO, OECD and IMF staff calculations.
1/ 2005-07 for Slovak Rep.
2/Excl. Czech Republic.
3/ CEE OECD include Czech Republic, Estonia, Hungary, Poland and Slovak Republic.

Table 3. Treatment of Net Cost of Systemic Pension Reforms in the EU Fiscal Framework (the Stability and Growth Pact (SGP))

				2005 reform of the Pact	2011 reform of the Pact
Preventive arm of the pact	MTO revision			Can be partially reflected through the MTO^{ILD} indicator, but subject to peer review and endorsement by the EPC.*	Can be partially reflected through the MTO^{ILD} indicator, but subject to peer review and endorsement by the EPC.*
	Adjustment path toward the MTO			N/A	Can be taken into account when defining the path or allowing a temporary deviation from the path with two conditions: 1) a safety margin to ensure the respect of the 3% of GDP reference value for the deficit is guaranteed; and 2) the budgetary position is expected to return to the MTO within the period covered by the Stability or Convergence Program.
Corrective arm of the pact	Launch of EDP	Criteria/conditions for consideration	Government debt	No requirement	Does not exceed the Maastricht reference value
			Government deficit	1) Close to the Maastricht reference value; and 2)excess reflects the net cost of the reform.	1) Does not significantly exceed what can be considered close to the Maastrict reference value; and 2) Excess is explained by reform costs.
			Other criteria	Considered only over five years and in resgressive scale	Overall fiscal sustainability is maintained
	Aboragation of EDP		Government debt	No requirement	Does not exceed the Maastrict reference value
			Government deficit	1) Has declined substantially and continuoursly; and 2) Close to the Maastrict reference value.	1) Has declined substantially and continuoursly; and 2) Close to the Maastrict reference value.
			Other criteria	Considered only over five years and in resgressive scale	Overall fiscal sustainability is maintained
Assessment of compliance with the debt ceilings				N/A	N/A

* MTO is defined as the maximum among three components, MTO^{MB} (the "minimum benchmark" as agreed by the EFC), $MTO^{Euro/ERM2}$ (the Pact obligation for euro area Member States and Member States participating in ERM II to have an MTO not lower than –1% of GDP), and MTO^{ILD}. The component MTO^{ILD}, which has an ageing component in it, relates to explicit liabilities and a fraction of implicit liabilities. (Detailed description can be found in Chapter 3 of Part II of2013 Public Finance Report available at http://ec.europa.eu/economy_finance/publications/european_economy/2013/pdf/ee-2013-4.pdf

- As for the ***preventive arm of the SGP,*** net cost of systemic pension reforms with an impact on long term fiscal sustainability could be partially taken into account when determining a country's medium-term objective (MTO).

16. These exemptions were insufficient to eliminate disincentives for maintaining a second pillar, especially as regards the EDP. The ceiling for the deficit allowance remained unspecified, but a common understanding was that it would be at most ½ of a percent of GDP. This compares to average Pillar II transition costs of about one percent of GDP pre-crisis, with significantly higher fiscal burdens for countries with large second pillars, such as Poland and Hungary. Further, the exemption period was far shorter than the actual transition period during which a second pillar

creates net budgetary cost—this period can last 40–50 years—and there was no allowance under the debt criterion.

Pillar II Pensions Reversals: Why Did They Occur?

17. Several second pillar reforms were reversed following the 2008/09 crisis, although not in all countries the reversal has been permanent (Figure 4). As regards *temporary* reversals, the Baltic countries are currently in the process of or have finished restoring their Pillar II systems. Romania delayed somewhat the built-up of its second pillar. By contrast, Slovakia and Poland significantly reduced the size of their Pillar II schemes, with no declared intention for restoration, and Hungary eliminated its second pension pillar altogether. Disappointing financial performance and high private management fees were often cited as reasons for the reform reversals. The exception among the NMS-6 are Bulgaria and Croatia, both of which have maintained their second pillars throughout the crisis period, and without a major change in parameters.[8]

18. To gauge why countries unwound second pillar reforms, we correlate the size of the Pillar II reversal with characteristics of a country's Pillar II fund. The results have to be interpreted with some caution, given the small number of observations.[9]

19. With this caveat, **an important trigger for reversing Pillar II reforms appear to have been fiscal pressures, including the need to stay within—or return to—the EDP's deficit ceilings**.

- ***Countries with the largest second pillars—as measured by the Pillar II contribution rate—had the largest reform reversals.*** For them, the amount of contributions channeled into the second pillar was large, providing a strong incentive to divert second pillar contributions to the budget in order to reduce the headline fiscal deficit.

- ***By contrast, countries with smaller Pillar II schemes were generally able to maintain them,*** as these schemes imposed less of a fiscal burden. Pillar II funds with contribution rates of up to 5 percent—triggering a loss in fiscal revenue of ½-1 percent of GDP—did in general survive the financial crisis and its aftermath.

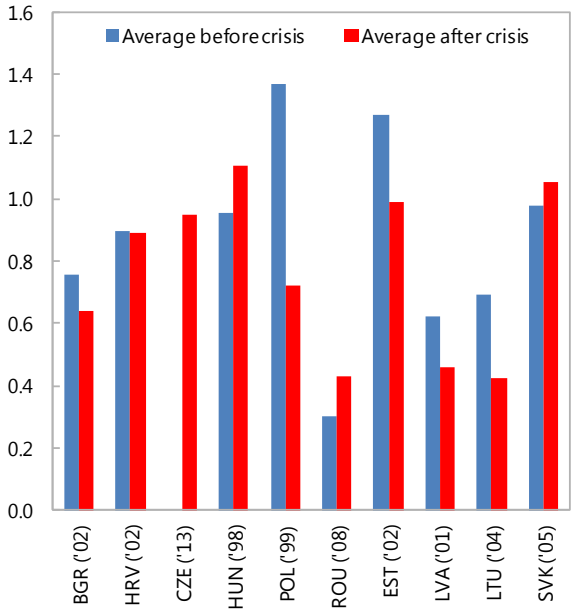
- As for the ***preventive arm of the SGP,*** net cost of systemic pension reforms with an impact on long term fiscal sustainability could be partially taken into account when determining a country's medium-term objective (MTO).

[8] Including Bulgaria which recently allowed participants in the second pillar to opt back into the PAYG system.

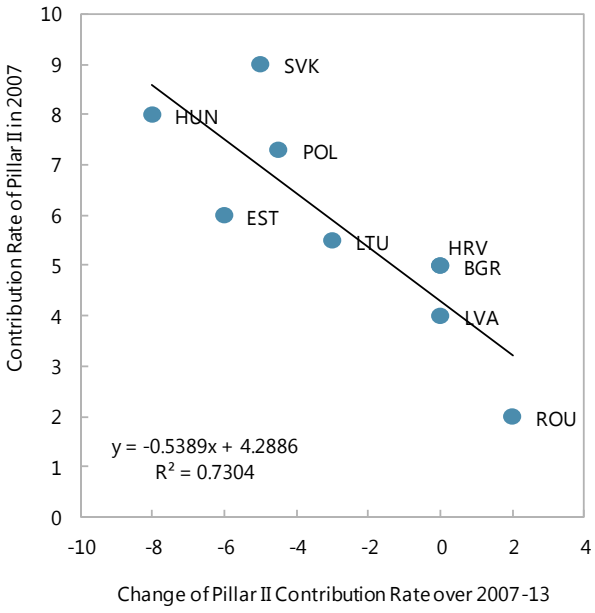
[9] Further, the small number of observations allows only for univariate analysis.

Figure 4. Pillar II Pension Reversals

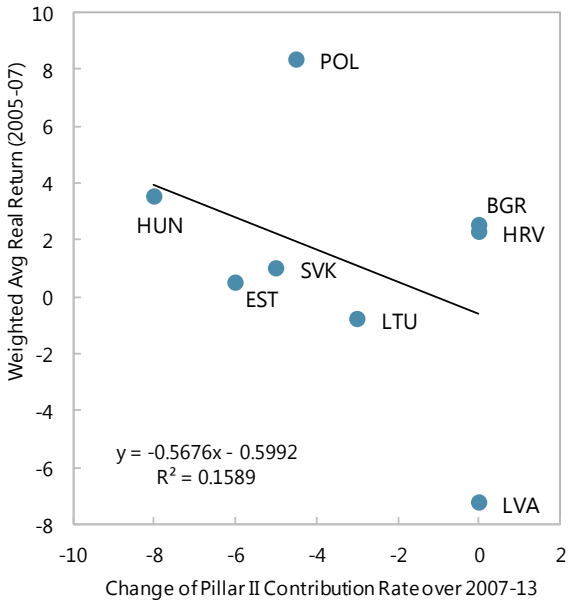
Budgetary Cost of Second Pension Pillars
(Percent of GDP)



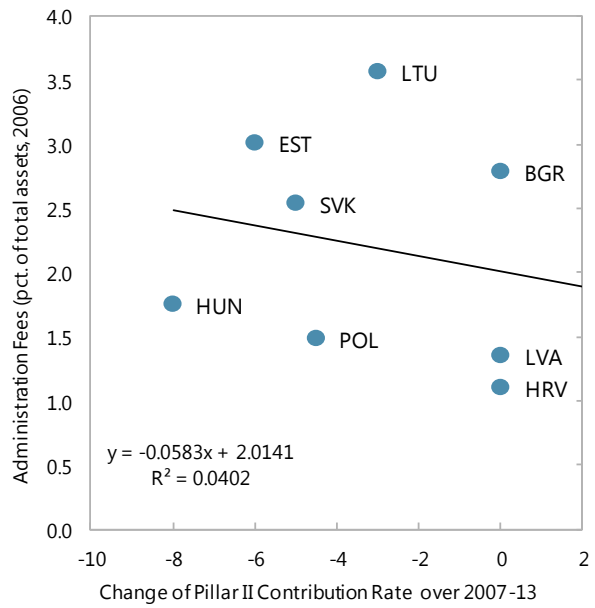
Reform Reversals and Pillar II Contribution Rates (in percent of gross wages)



Reform Reversals and Pillar II Asset Returns



Reform Reversals and Pillar II Fees



Sources: WB (2014) and staff calculations.

This said, the impact of the EU's fiscal framework on the reversal is difficult to disentangle from market pressures during crisis—Cuevas et al (2008) find that investors put a higher weight on explicit government debt than on implicit pension liabilities in their assessment of country creditworthiness.

20. There is no evidence that reform reversals were related to poor investment performance. There is even a negative correlation of pre-crisis returns with reform reversals—hence, if anything the Pillar II funds that were dissolved or cut back were relatively more profitable. Similarly, there is no significant relationship between the level of asset management fees and the extent of Pillar II reversals after 2008 for the countries under consideration.

The EU's Fiscal Framework Post-Crisis

21. In 2011, another SGP reform expanded the framework's flexibility vis-à-vis second pillar funds.

- ***Deficit exemption.*** The regressive scale for the deficit allowance under the EDP was eliminated—in other words, it was made permanent—but the allowance remains subject to tight approval restrictions. Further, the size of the exemption remains limited.

- ***MTOs.*** In addition, under the preventive arm of SGP, net cost of systemic pension reforms can now also be partially taken account in part when defining—or allowing a temporary deviation from—a country's *adjustment path* toward its MTO (and not just the MTO itself).

Further, in September 2014 the fiscal accounting framework ***ESA 2010*** entered into force. Under ESA 2010, lump-sum transfers of assets from the second pension pillar fund to the general government sector have no longer a direct impact on the general government budget balance, somewhat reducing the incentive to abolish Pillar II funds in the context of the EDP.[10]

22. While the reforms have increased the flexibility of the EU's fiscal framework, they remain short of a neutral treatment of different types of pension regimes. Shortcomings exist both in the framework's preventive (MTOs) and in the corrective arm (EDP):

- **Preventive arm**. Improvements in fiscal sustainability from pension reforms are only partially recognized in MTOs. In practice, there appears to be little relation between the existence of a second pillar fund and a country's MTO.

- **Corrective arm**. However, the larger deficiencies persist arguably in the corrective arm. In the context of the EDP, the adjustment to the deficit criterion for second pillars remains small and

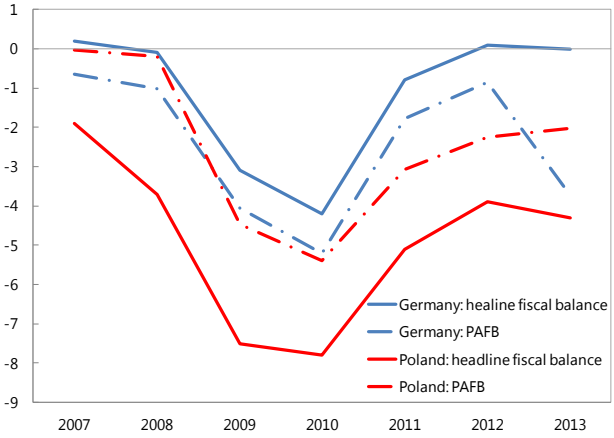
[10] It does not eliminate the incentive entirely, as (i) the increase in higher social security contributions from re-integrating the second pension pillar into the budget continues to lower the recorded fiscal deficit, (ii) pillar II asset transfers continue to reduce recorded government debt and, relatedly, (iii) interest savings as a result of debt reduction also continue to lower the recorded fiscal deficit.

subject to many conditions. No flexibility is allowed when assessing compliance with the debt ceilings. As a result, the current framework continues to discriminate against large second pension pillars. While ESA 2010 reduces incentives to dissolve Pillar II funds, disincentives to setting up or enlarging Pillar II funds remain.

- Frequent ad hoc ***changes to the fiscal framework,*** its complexity and the degree of discretion in its application trigger substantial policy uncertainty.

23. The gap between the EU's fiscal framework and a fiscally neutral treatment of a country's pension regime is illustrated by a comparison between Poland and Germany, using the concept of the pension-adjusted balance (PABF) developed by Soto et al. (2011) and applied using data from the EC's 2012 ageing report. While Germany's headline fiscal balance—that remains the basis for EDP assessments under the EU's fiscal framework—has been almost 4 percentage points stronger than Poland's in recent years, both countries' pension-adjusted balances were, on average, almost identical, reflecting cost-saving parametric reforms to Poland's PAYG system and the existence of its second pillar. Put differently, while Germany accumulated less explicit debt in this period, it accumulated more implicit debt than Poland. [11]

Poland vs. Germany: Headline vs. Pension Adjusted Fiscal Balance (PAFB) (Percent of GDP)



Sources: EC 2009 and 2012 Ageing Report; and IMF staff calculations.

D. Conclusions

24. Securing fiscally and socially sustainable pension systems remains a challenge. With currently legislated parameters, most NMS-6 PAYG systems will pay much lower pensions in the future, creating a risk of old-age poverty. Absent increases in the retirement age, such an outcome can be avoided only by accepting higher fiscal burdens or by increasing savings ahead of time in order to generate additional income out of which pensions can be paid. With countries emerging from the 2008/09 financial crisis, a renewed focus on long-term challenges is appropriate, including on strengthening, rather than reversing, the momentum of pension reform.

25. Pillar II reforms are one, but not the only, way of generating higher savings for retirement.

[11] While the EC uses some indicators of implicit liabilities in its fiscal analysis, these complementary indicators do not carry the same weight as the core assessment of compliance with fiscal rules.

- ***Countries that choose to maintain a second pillar*** should seek to strengthen the Pillar II fund's performance, including by encouraging more diversified investment portfolios, and by further reducing administrative costs.[12] Moreover, the transition costs of second pillars should at least in part be absorbed by the budget, which will require generating more fiscal space.

- ***Countries that choose to abolish second pillars need to cope with the cost of ageing in other ways***. This implies the need to improve fiscal performance and increase public savings, and strengthen incentives for participation in a third, voluntary pillar. A few countries in the region (the Czech Republic, Slovakia, Romania and Poland) have introduced such schemes in recent years. Still, and similar to second pillars, the design of voluntary pensions schemes should be accompanied by sufficient quality control and include the availability of simple savings products with low administrative costs (Barr, 2013). As mostly higher earners make use of voluntary schemes, generous tax breaks should be avoided.

- ***For all countries***, aligning the retirement age more closely with longevity and reducing incentives for early retirement is key to ease the trade-off between fiscal and social sustainability of pension systems.

26. There remains a case for rendering the EU's fiscal framework more neutral toward a country's choice of pension regime. While the reforms SGP reforms of 2011 have moved the framework some way in this direction, the discriminatory treatment of second pillars persists. Admittedly, full neutrality is difficult, as it would arguably require moving away from the headline deficit as the main assessment tool—which, in turn, has other drawbacks (for example, the headline deficit can be computed from observed data, while concepts like pension adjustment balance require parametric assumptions about discount rates, etc.). Still, such an effort is worthwhile to avoid discouraging countries from pre-funding ageing costs.

[12] Sweden, for example, centralizes the administration and maintenance of individual accounts to reduce costs, and has established a low-cost default fund to compete with other, more sophisticated investment schemes. Similarly, the U.S.'s Thrift Savings Plan, which is offered to civil servants in the U.S., provides civil servants a limited investment choice (currently five broadly based funds). The accounts are maintained centrally, and fund management is on a wholesale basis—that is, the fund manager knows only the total volume of resources to be managed, not the details of which worker owns how much.

References

Barr, Nicholas, 2000, "Reforming Pensions: Myths, Truths, and Policy Choices" (Washington: International Monetary Fund). http://www.imf.org/external/pubs/ft/wp/2000/wp00139.pdf.

_____, 2013, The pension system in Finland: Adequacy, sustainability and system design, The Finnish Centre for Pensions.

Cuevas, Alfredo, Maria Gonzalez, Davide Lombardo, and Arnoldo Lopez-Marmolejo, 2008, "Pension Privatization and Country Risk". IMF Working Paper No. 08/195

Economic and Financial Committee of the European Union, 2012, "Specifications on the Implementation of the Stability and Growth Pact and Guidelines on the Format and Content of Stability and Convergence Programmes" (Brussels: European Union). http://ec.europa.eu/economy_finance/economic_governance/sgp/pdf/coc/code_of_conduct_en.pdf.

Epstein, Natan, and Delia Velculescu, 2011, "Republic of Poland: Selected Issues," IMF Country Report No. 11/167 (Washington: International Monetary Fund). http://www.imf.org/external/pubs/ft/scr/2011/cr11167.pdf.

European Commission, 2012, *The 2012 Ageing Report: Economic and budgetary projections for the EU27 Member States (2010-2060)*.

Eurostat, 2004, "Classification of Funded Pension Schemes in Case of Government Responsibility or Guarantee," 30/2004 (Luxembourg: Eurostat). http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/2–02032004-BP/EN/2–02032004-BP-EN.HTML.

Frayne, C. and S. Riso, 2013, "Vade mecum on the Stability and Growth Pact", European Economy Occasional Paper No. 151, May.

Lassila, Jukka, Niku Määttänen, and Tarmo Valkonen, 2014, Linking retirement age to life expectancy – what happens to working lives and income distribution? Finnish Centre for Pensions, Reports 02/2014.

Sinn, Hans-Werner, 2000, *Why a Funded Pension System Is Useful and Why It Is Not Useful*, NBER Working Paper No. 7592 (Cambridge, Massachusetts: National Bureau of Economic Research). http://ideas.repec.org/p/nbr/nberwo/7592.html.

Schwarz, Anita M., Omar S. Arias. 2014, *The Inverting Pyramid: Pension Systems Facing Demographic Challenges in Europe and Central Asia*. DOI: 10.1596/978-0-8213-9908-8. Washington, DC: World Bank.

Soto, Mauricio, Benedict Clements, and Frank Eich, 2011, A Fiscal Indicator for Assessing First and Second pillar Pension Reforms, IMF Staff Discussion Note, SDN/11/09.

World Bank, 1994, *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth* (Washington).

Appendix I. Pension Systems in NMS-6 and Recent Pension Reforms

New Member States Pension Systems–an Overview

The pension systems of the new member states (Bulgaria, Croatia, Czech Republic, Hungary, Poland, and Romania, collectively NMS-6) are similar: all NMS-6 provide the bulk of pension entitlements through statutory pay-as-you-go public pension (PAYG) systems, which generally cover old-age, sickness, disability, survivors', early retirement, and minimum pensions. The first five components are provided on an earnings-related basis, while minimum pensions are either means-tested or delivered as social assistance. Bulgaria, Croatia, the Czech Republic, Hungary, and Romania provide a defined-benefit (or similar) old-age pension. Poland has a notional defined-contribution system, which works on an actuarial basis. At retirement, an annuity is calculated by dividing the individual's account value by a divisor reflecting life expectancy at the date of retirement.

Over the last two decades, the NMS-6 added mandatory second pillars (or a third, voluntary pillar with state contributions and tax incentives in the case the Czech Republic). Contributions to these pillars are administrated by private pension managers.

NMS-6 policies concerning drivers of future old-age pension spending are also similar (see table below). All the member states apply pension benefit formulas in which full career earnings are taken as a reference to calculate pension entitlements. All contributions paid before retirement are indexed to wages (valorization)—Croatia incorporates prices into the formula as well. Wages, along with prices, are also used to index pension benefits.

In 2010, the statutory retirement age was less than 65 for female participants in all NMS-6 and male participants other than Polish and Croatian men. However, in all NMS-6 the statutory male retirement age will increase gradually to 65 or above by 2022. Moreover, the Czech Republic's benefit formula provides for a continuous increase in the retirement age. Available data on accrual rates—the annual pension earned through participation in the PAYG system—paint a mixed picture, with rates rising in Bulgaria and Hungary over the next 40 years, and falling rates in the Czech Republic.

NMS-6 pay-as-you-go (PAYG) pension schemes and key parameters

Country	Type	Earnings reference	Valorization variable	Benefit indexation variables	Statutory retirement age
BG	DB	Full career	Wages	Prices and wages	M=63; F=60
CR	PS	Full career 1/	Prices and wages	Prices and wages	M=65; F=60.3
CZ	DB	Full career	Wages	Prices and wages 3/	M=63.8; F=60.8
HU	DB	Full career 2/	Wages	Prices	M=62; F=62
PL	NDC	Full career	Wages	Prices and wages	M=65; F=60
RO	PS	Full career	Prices (and wages until 2030)	Prices (and wages until 2030)	M=64; F=59

Sources: Europen Commission; OECD; World Bank, and IMF staff
DB = Defined benefit; NDC = Notional defined contribution; PS = Point system
1/ For those who are in both PAYG and Pillar II systems, benefits for post-2002 years of service are based on a basic pension plus the second pillar annuity.
2/ Net pay from 2008, moving toward full career.
3/ Suspended in 2009.

Recent Pension Reforms

Bulgaria. Since 2012, the retirement age started to increase by 4 months per year until reaching 65 years of age for men (63 for women), and the required length of insurance started to increase by four months per year until reaching 40 years for men (37 for women). Pensions were indexed to CPI only and eligibility requirements for military and police pensions were tightened and contributions increased. In 2013, significant reform reversals were announced; including (i) a return to the "golden Swiss rule," that links pension increases to the average growth of insurable income and CPI inflation; and (ii) the gradual increase in the retirement age was halted until at least 2014.

Czech Republic. The reform adopted in 2011 increased the statutory retirement age, reduced disability pensions, curtailed the rate of progressivity in the assessment of contributions, and extended the insurance period required for accessing a full pension. These and other changes to the pay-as-you-go (PAYG) system have cut its long-term deficits from 4–5 percent of GDP to around 2 percent of GDP in 2040–60, and to less than 1 percent of GDP from 2070. The statutory retirement age is gradually increased by two months per birth cohort without any upper limit for men (and later on for women too). The pension eligibility age for women is increased by four months and from 2019 by six months to be unified with that of men. In 2012, a voluntary second pillar (with partial diversion of premiums from the PAYG plan) was legislated, but the take-up was very low, and the pillar is expected to be soon abolished.

Croatia. In 2010, female retirement age is raised to 65 for women by 2030. Early retirement age for both genders was also increased, and a modest late retirement bonus was introduced. In 2013, a further increase in the retirement age to 67 was legislated, along with the relaxation of the early retirement rules and more generous indexation. In early 2012, the government abolished privileged pensions of government officials and members of parliament to improve equity in the pension system. In August 2012, the list of military occupations subject to early retirement with extended service period was rationalized. The government reduced pensions that are above HRK 5,000 by 10 percent in December 2013 and conditioned the indexation of privileged part of the pension benefit with growth and fiscal parameters.

Hungary. Reforms taken in 2008 included eliminating the 13th month public pensions, and replacing the combined price-wage indexation of pensions with pure price indexation. According to the 2009 pension reform, since 2014, the statutory retirement age has been gradually increased (by half a year for every age cohort), with the objective of reaching 65 years in 2021 for those born in 1957 and thereafter. Measures to reduce or eliminate early retirement schemes, terminate special retirement rules for armed forces, tighten conditions for disability pension eligibility, and overhaul of allowances were also introduced in 2012. Moreover, to address fiscal pressures and contain public debt, the government made changes to the second pillar in 2011. Specifically, from November 2010 to December 2011, contributions from mandatory DC plans were diverted to the public scheme, and the mandatory DC scheme became voluntary in December 2011 with its assets transferred to the government. Finally, in 2013, the upper ceiling on pension contributions was terminated.

Poland. Retirement ages will gradually increase to 67 from 65 over the period 2013 to 2020 (men) and 2040 (women). Early retirement (at 62 for women and 65 for men) is possible with pension reduced by 50% (2012). Several early retirement schemes were abolished at the beginning of 2009. It is possible to defer both the notional and the funded, defined-contribution pension component without any age limits. In 2014, the second pillar was scaled-back with the transfer of about half of pension fund assets (and corresponding liabilities) to the PAYG plan. The changes also entailed, *inter alia*, a further redirection of contributions to the PAYG system which initially began in 2011, and the centralization of the payout phase in the PAYG plan.

Romania. Key reforms taken include the increase of the retirement age 63 years for woman females (65 for man) by January 1, 2015, and the equalization of both ages at 65 years by January 1, 2030; and the corresponding contribution period for receiving the full old-age pension. The valorization and indexation of pension benefits will change gradually to inflation by 2030. Other changes include reducing the attractiveness of early retirement; tighter eligibility for invalidity pensions; creation of a Guarantee Fund, funded by private pension operators, to backstop minimum investment return guarantee (real amount of contributions less commissions) for contributors to Pillar II; and the consolidation of special-sector pension schemes with the overall public pensions scheme. Lately there has been pressure to re-establish some of the privileged pensions.

Appendix II. Evolution of Pillar II Systems and Contribution Rates

Table. Evolution of Pillar II. Systems and Contribution rates[1/]

	Intro	Voluntary/mandatory		SSC of PAYG participants 1/	SSC of Pillar II participants 1/			Current status of Pillar II
					PAYG SSC	Pillar II SSC	Total	
Bulgaria	Jan-02	mandatory for those borne after 31/12/1959	2010	16.0%	11.0%	5.0 % (universal funds)		no change 5/
			2011-14	17.8%	12.8%	5.0 % (universal funds)		
Croatia	Jan-02	mandatory for those borne after 31/12/1961		20.0%	15.0%	5 % 3/	20%	no change
Czech Rep.	Jan-13	voluntary, but upon entry no withdrawal from Pillar II		28.0%	25.0%	(3+2)% 7/	(28+2)%	likely to be abolished (merged into Pillar III)
Hungary	Jan-98	mandatory for new entrants, voluntary for others	1998	31.0%	25.0%	6.0%	31.0%	Abolished
			1999-2000	30.0%	24.0%	6.0%	30.0%	
			2001	28.0%	22.0%	6.0%	28.0%	
			2002-03	26.0%	20.0%	6.0%	26.0%	
			2004-06	26.5%	18.5%	8.0%	26.5%	
			2007	29.5%	21.5%	8.0%	29.5%	
			2008-10	33.5%	25.5%	8.0%	33.5%	
			2011	34.0%	..	0.0%	..	
			2012	37.0%	..	0.0%	..	
Poland 4/	Jan-99	mandatory for those borne after 31/12/1968, voluntary for those borne between 1949 and 1969	up to 2010	19.5%	12.3%	7.3%	19.6%	partially abolished - investments in instruments other than (domestic) government bonds remain
			2011-12	19.5%	17.2%	2.3%	19.5%	
			2013	19.5%	16.7%	2.8%	19.5%	
Romania	Jan-07	mandatory for those borne after 31/12/1971, voluntary for those borne between 1962 and 1971	2007	31.3%	29.3%	2.0%	31.3%	restoration in progress
			2008	31.3%	29.3%	2.0%	31.3%	plan to increase to 6 % in 0.5
			2009	31.3%	29.3%	2.0%	31.3%	steps
			2010	31.3%	28.8%	2.5%	31.3%	
			2011	31.3%	28.3%	3.0%	31.3%	
			2012	31.3%	27.8%	3.5%	31.3%	
			2013	31.3%	27.3%	4.0%	31.3%	
Other CEE countries								
Estonia	Jan-02	mandatory for persons born in 1983 or later, voluntary for others	up to Jun-09	20.0%	16.0%	(4+2)% 2/	(20+2)%	fully restored
			Jul-09 to Dec-10	20.0%	20.0%	(0+2)%	(20+2)%	2014-17: rate may rise to 8 %
			2011	20.0%	19.0%	3.0%	(20+2)%	to make up for reduced
			2012	20.0%	16.0%	(4+2)%	(20+2)%	revenue
Latvia 4/	Jul-01	mandatory for those born after 1971, voluntary for those born between 1953 to 1971, those born before 1953 not qualified to join pillar II	up to 2006	20.0%	18.0%	2.0%	20.0%	partially restored
			2007	20.0%	16.0%	4.0%	20.0%	
			2008 to Apr-09	20.0%	12.0%	8.0%	20.0%	
			May-09 to Dec-12	20.0%	18.0%	2.0%	20.0%	
			2013	20.0%	16.0%	4.0%	20.0%	
			2014	20.0%	14.0%	6.0%	20.0%	
Lithuania	Jan-04	voluntary , but upon entry no withdrawal from Pillar II allowed	2004	26.3%	23.8%	2.5%	26.3%	partially restored
			2005	26.3%	22.8%	3.5%	26.3%	plan to further increase
			2006	26.3%	21.8%	4.5%	26.3%	funding going to Pillar II to 6
			2007	26.3%	20.8%	5.5%	26.3%	percent in 2016 and to 7.5
			2008	26.3%	20.8%	5.5%	26.3%	percent in 2020 (partially
			2009H1	26.3%	23.3%	3.0%	26.3%	financed from non-SSC
			2009H2-2011	26.3%	24.3%	2.0%	26.3%	revenues and additional
			2012	26.3%	24.8%	1.5%	26.3%	individual contributions).
			2013	26.3%	23.8%	2.5%	26.3%	
			2014 6/	26.3%	24.3%	(2+1+1)%	(26.3+1+1)%	1 from individuals, 1 from other state budget resources
Slovakia	Jan-05	Mandatory for employees aged 51 and younger;	up to sept 2012	18.0%	9.0%	9.0%	18.0%	partially reversed
			2013 6/	18.0%	14.0%	4.0%	18.0%	plan to increase pillar II from 2017

1/ SSC to finance pensions only.
2/ 4 ppt of mandatory SSC of the state are redirected to Pillar II. Individuals add 2 ppts of supplementary individual contributions.
3/Inital plan was to increase rate to 10 percent by 2009 but initial law never set a schedule for the increase to take place.
4/ Notionally defined contribution systems.
5/ In 2000, a second pillar-type sytem for workers in hazardous occupations was introduced with the aim to provide for early retirement.
The 2002 reform introduced a mandatory second pillar for all employees .
6/ contributors to the second pillar were also allowed to leave and return to PAYG.
7/ 2 percent supplementary contributions by individuals.

MAKING THE MOST OF THE EU SINGLE MARKET[1]

Summary

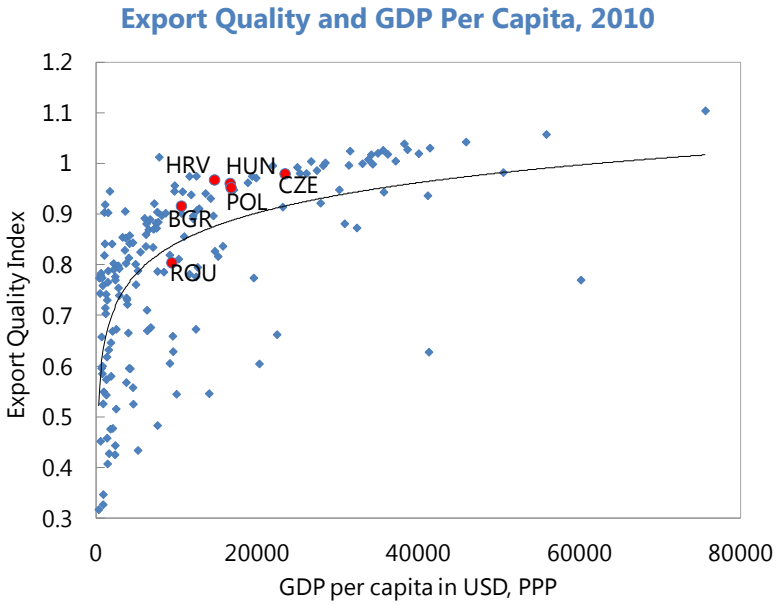
- **Since 1995, NMS-6[2] as a group has experienced a spectacular increase in exports to the EU.** However, this masks considerable heterogeneity across these countries: the Czech Republic, Hungary and Poland have steadily increased exports to the EU as a share of GDP, while the performance of Bulgaria and Romania has been less stellar.
- **Structural and institutional factors explain a significant part of the variance in export performance.** In particular, human capital, labor skills, foreign investment environment, and wage competitiveness are found to be highly significant in explaining export performance of NMS in the EU market as are reforms that help countries link up with global supply chains. For countries where there is a significant room for increasing exports to the EU, these reforms can help maximize benefits of access to the larger market.
- **While higher exports help growth, quality improvement is important for sustained income convergence.** For NMS-6, overall quality of exports is relatively high when compared to that of other exporters of similar products in the world market, but less so when assessed in the EU market. In both markets, Romania and Bulgaria show the largest room for quality improvement while Hungary and Czech Republic, countries specializing in mid-quality products, show the least room tend for improvement among the NMS.
- **Policy priorities to improve export quality need to be mindful of initial conditions.** For countries specializing at lower end products, priorities include a better foreign investment regime and higher links with supply chains that would allow access to technology. For countries specializing in higher quality products, innovation via sustained pursuit of higher education and R&D spending is key to further improvement of quality.
- **Significant boost in exports can come from further liberalization of services trade within the EU.** The implementation of the EU Services Directive (SD) resulted in a sizable reduction in import restrictions and the NMS-6 seems to be benefiting more than other EU members. However, significant barriers remain in products where the NMS-6 hold a comparative advantage, including in professional and technical services product. Further liberalization by EU members and a new impetus to liberalize services trade will help NMS-6 enhance their exports to the single market.

[1] Prepared by Jesmin Rahman, Ara Stepanyan, Jessie Yang and Li Zeng. The authors are grateful to Marinela Petrova (Bulgaria Ministry of Finance) and Christian Buelens (European Central Bank) for discussing the paper at the New Member States (NMS) Policy Forum in Warsaw on December 12, 2014, to Hylke Vandenbussche of the European Commission for providing data on export quality and to the NMS-6 country representatives that reviewed the paper during bilateral visits in November 2014.

[2] NMS-6 includes Bulgaria, Croatia, Czech Republic, Hungary, Poland and Romania. NMS includes these countries and NMS-EA consisting of Estonia, Latvia, Lithuania, Slovakia and Slovenia.

A. Introduction

1. Being part of the European Union (EU) allows new member states (NMS) access to a larger market for their products and provides an anchor for growth and convergence.[3] The EU single market provides opportunities for firms to grow, and, at the same time, subjects them to stronger competition raising incentives to improve productivity. The open trade and investment regime in turn also acts as a conduit for technology transfer that over time improves quality of exports. Higher exports and quality create a virtuous cycle of growth and convergence (Hausmann et al. (2007), see text chart).



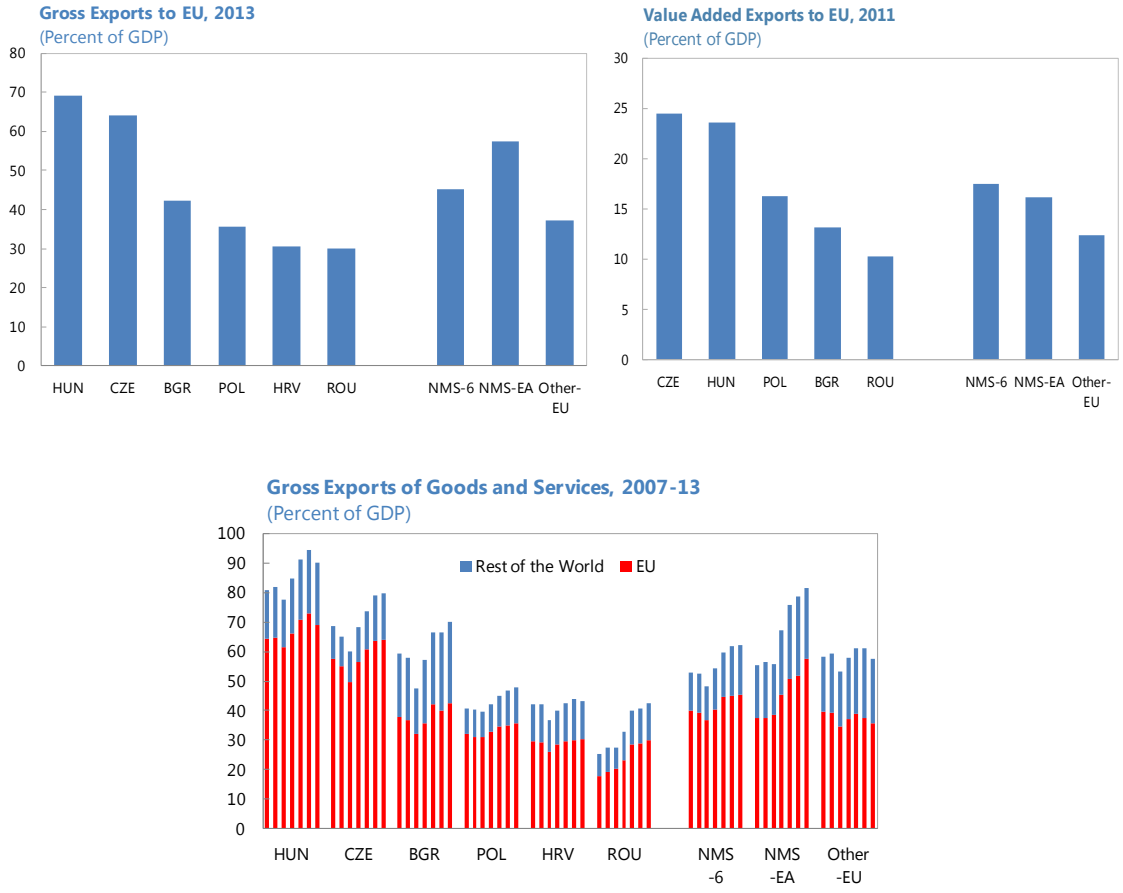
Source: WDI, Henn, Papageorgiou, and Spatafora (2013), and IMF staff calculations.

2. In this paper, we examine export performance of NMS in the EU single market, with a focus on the six new member states which are not yet part of the euro area (NMS-6): Bulgaria, Croatia, Czech Republic, Hungary, Poland and Romania. We focus on the following questions: How successful have these countries been in taking advantage of their unrestricted access to the EU single market?[4] What structural factors matter most? Has export integration with the EU been associated with improvement in export quality? What role has services sector played in exports? And going forward can services exports play a bigger role?

[3] NMS includes 11 member states that joined the EU during 2004–13. They are split into two groups: NMS-6 and NMS-EA. NMS-6 includes Bulgaria, Croatia, Czech Republic, Hungary, Poland and Romania, and NMS-EA includes countries that have joined the euro area in recent years: Estonia, Latvia, Lithuania, Slovakia and Slovenia. The "Other EU "group used in charts and tables in this study refers to all other EU members.

[4] While the single market provides an opportunity for all EU firms, there may be domestic factors that prevent firms from taking full advantage of this opportunity - such as preferential treatment of incumbents or excessive entry regulations. These obstacles that may narrow the scope of unrestricted access to the EU single market for goods are outside the scope of this paper.

Figure 1. NMS: Gross and Value Added Exports of Goods and Services



Note: More up-to-date data for value added exports of goods and services could not be shown as the World Input Output Table does not go beyond 2011.
Source: Staff calculations using World Input Output Table, Eurostat and Haver Analytics.

B. Evolution of Exports to EU: Relative Success and its Determinants

3. NMS-6 shows a varying degree of success in taking advantage of the EU single market. As a group, NMS-6 export more goods and services to the EU than other members measured in both gross and value added terms (scaled by GDP) (Figure 1). However, within NMS-6, there is a range. The Czech Republic and Hungary, being among the most open economies in the world, derive a quarter of their GDP from value added exports to the EU, while this share is less than one tenth for Romania. Since the crisis, exports have played a stronger role in growth counting for a higher share of GDP in all NMS-6 countries except Croatia. This has been driven by higher exports to the EU, as well as outside the EU (Figure 1).

4. What factors explain the varying export performance in the single market? We investigate this question empirically in a sample of ten NMS for the period 2003-11.[5] Our variable of interest is value added exports to the EU. Scaled by GDP, this variable tells us what share of economic activity in NMS is generated by import demand from the EU single market. We chose *value added* as opposed to *gross* exports since the former measures exports more accurately taking out re-exports and imported inputs.[6]

5. In what follows, we examine the role of structural factors in export performance. The choice of structural variables draws on trade literature which emphasizes the importance of human capital (Bougheas and Riezman 2007, and Bombardini et al. 2012) and institutional quality (e.g. Anderson and Marcouiller 2002, and Levchenko 2007). These factors affect competitiveness and export performance of a country by influencing the overall environment in which firms operate. In selecting variables, we started with a large set that include human capital, labor market efficiency and flexibility, foreign investment, physical and virtual infrastructure, and governance. The final selection was made based on data availability and statistical significance. Below are the five variables that were included in our preferred regression specification, all of which show a strong correlation with value added exports to the EU.[7]

- **Human capital.** Better human capital improves a country's exports through expansion of productive capacity over time. Human capital is proxied by two variables: higher education (***upper secondary or tertiary education attainment***) and the share of employed participating in ***continuous vocational training and skills upgrade***. The second variable, which takes into account on-the-job training and skill upgrade, also implicitly captures the degree of skills match in the economy (for example, Card and others (2009) found that vocational and on-the-job training programs tend to lead to better labor market outcomes).

- **Labor market efficiency.** A well-functioning labor market is critical for ensuring an efficient allocation of labor force and providing incentives to work. We proxy labor market efficiency with the two variables: ***inactivity trap***, which captures incentives to stay out of work force either because after-tax income is too low or social benefits are too generous (a larger value indicates weaker incentive to work), and ***minimum wage relative to gross average wage***, which captures wage competitiveness of low-skilled labor.

- **Foreign investment environment**. The importance of foreign direct investment in promoting exports and technology transfer is well-known. This is particularly so for NMS where foreign

[5] We were not able to include Croatia in the regression analysis due to lack of data for value added exports and many of the structural variables.

[6] For robustness check, we also use gross exports of goods and services to the EU and exports (both value added and gross) to the world as the dependent variable. See forthcoming working paper by Rahman and others for details.

[7] The details on data sources can be found in Annex I.

capital from the EU has been a main driver of growth in the last decade. We use ***foreign investment environment*** as the fifth structural variable. This variable is an index based on a survey that captures prevalence of foreign ownership in a country as well as sentiment regarding whether current regulations discourage foreign ownership. A higher index indicates a more conducive environment for foreign ownership.

- **Participation in supply chains**. In addition, we also include a measure of supply chain integration (the share of exports processed through upstream and downstream supply chains) given the strong role of supply chains in global and EU exports in the past decade (IMF, 2013; Rahman and Zhao, 2013). The degree of supply chain integration, which varies across time and country, captures the effects of other structural and institutional variables that may have important bearing for FDI and foreign firms' decisions to locate operations but could not be included in the regression due to lack of data: quality of export processing infrastructure, unobserved regulations or obstacles hindering business operation, availability/cost of utilities and other inputs, and tax advantages. By including this variable, we have a more complete coverage of structural factors that are relevant for exports.

6. What about gravity factors that are typically found to be important determinants of trade flows in the literature? In our regression, the measure of supply chain integration is already capturing many of the gravity factors, such as distance from destination, domestic market size and income level. According to Rahman and Zhao (2013), about 88 percent of explained variance in integration with supply chains in a sample of 40 countries over 15 years is captured by these factors. Nevertheless, we also include main gravity variables -- income per capita, weighted distance from export partners, and population of the exporting country (which also controls for the size of the domestic market and the bias that smaller countries typically have a higher exports-to-GDP ratio compared to larger countries) – in our regression analysis. In addition, we control for demand growth in partner countries (proxied by weighted PPP real GDP growth or weighted consumer sentiment in partner countries), and price competitiveness (unit labor cost based real effective exchange rate, REER-ULC).

7. Estimation results show that structural factors explain much of the variance in value added exports of the NMS to the EU. The estimation results from the panel OLS are shown in Table 1. A system regression could not be estimated due to the small sample size. We used two alternative dependent variable: value added exports to the EU in percent of a country's own GDP (column 1, Table 1), and this variable's distance from the NMS-10 average (column 2, Table 1). The five structural variables are all statistically highly significant and together capture more than 80 percent of the explained variance in both versions of the regression.

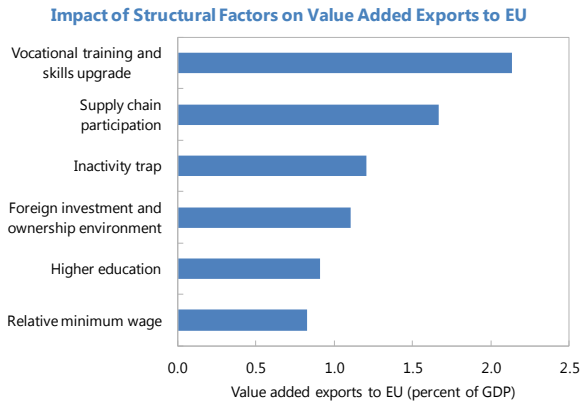
Table 1. Determinants of Value-Added Exports of Goods and Services to EU: NMS-10, 2003–11

	Estimation results	
	In levels	Relative to NMS-10 average
Structural variables		
Upper secondary or tertiary educational attainment	0.16**	0.33***
Participation in continuous vocational training and skills upgrade	0.15***	0.14***
Inactivity trap	-0.09***	-0.03*
Relative minimum wage	-0.08**	-0.16***
Foreign investment environment [1/]	1.0**	2.2***
Control variables		
Share of exports processed by supply chain	0.44***	0.34***
PPP GDP per capita	0.00	0.00
Weighted real GDP growth of trading partners	0.06	0.13
Real effective exchange rate (ULC-based)	-0.03	-0.07**
Population	0.57	-0.68
Constant	-29.4***	0.03
Observations	73	73
R-squared	0.858	0.859

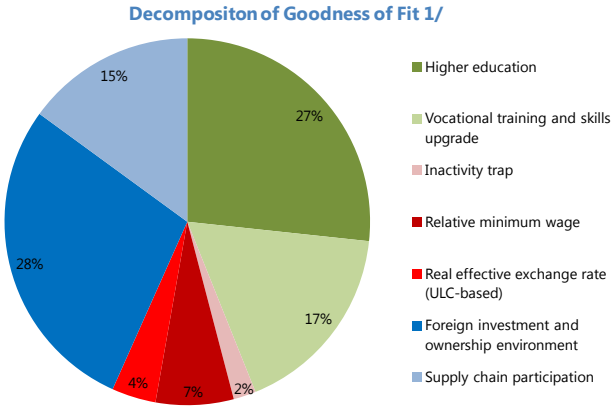
Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.
[1/] Higher values indicate lower degree of restrictions.

8. Differences in educational attainment, vocational training and skills upgrade and foreign investment environment seem to be most significant in explaining differences in exports from NMS to the EU. The relative importance of structural variables included in the regression is illustrated in Figure 2, which shows the increase in value added exports to the EU brought about by a one-standard-deviation improvement (LHS panel). The strongest impact comes from human capital, in particular continuous participation in vocational training and skills upgrade. This is consistent with the empirical literature that suggests significant productivity gains from vocational training (for a survey of literature see OECD (1998) and Descy and Tessaring (2005)). In the version that uses the distance of value added exports from the group average, foreign investment environment shows the largest impact with higher education and skills also contributing strongly (Figure 2, RHS panel).

Figure 2. Structural Factors: Relative Importance for Exports to the EU



Note: This chart illustrates the increase in value added exports to EU that would be brought about by a one standard deviation improvement in each factor.



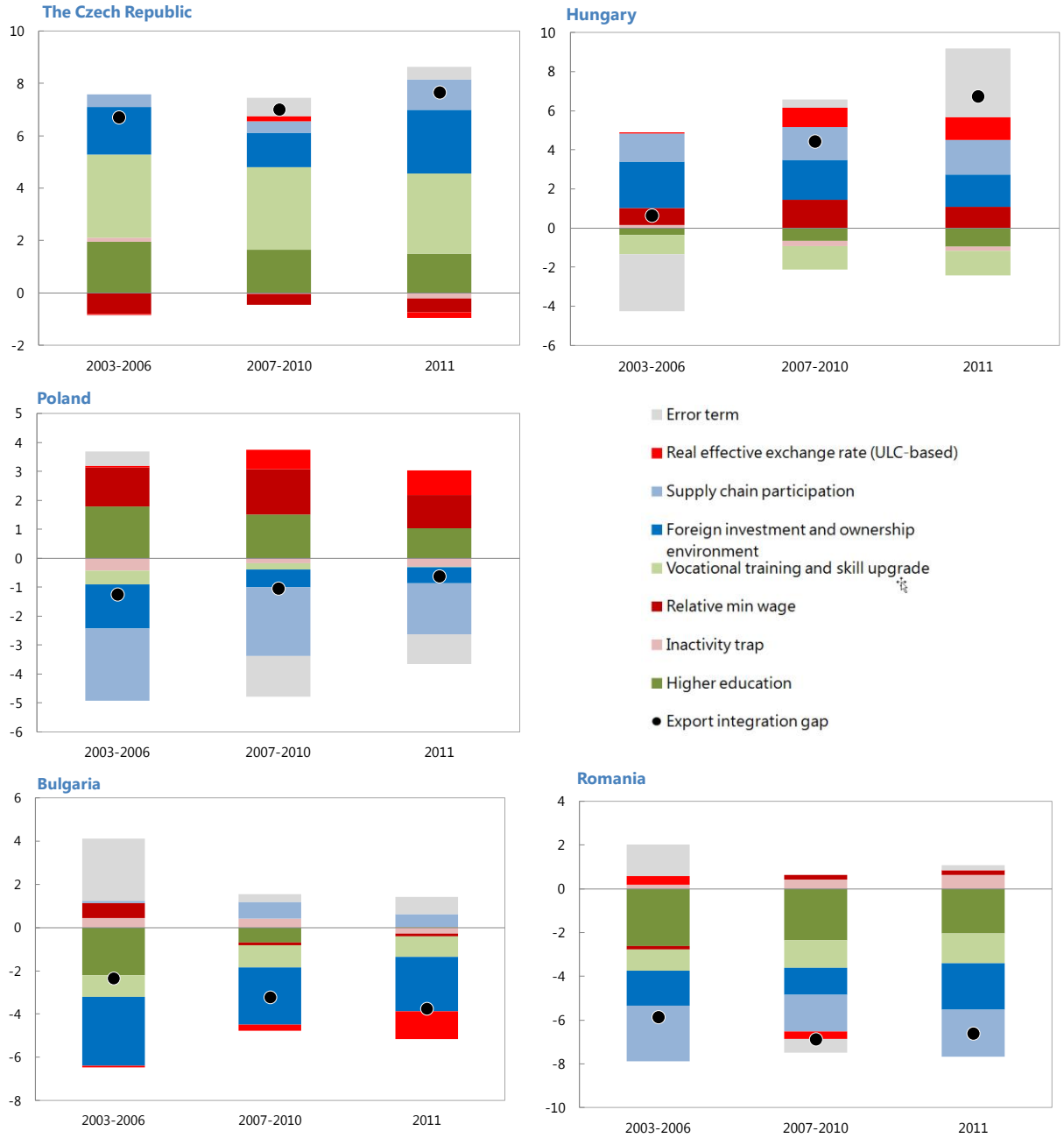
1/ The decomposition is done according to Shapley value.

9. We also find participation in supply chains and price competitiveness to be statistically significant (Table 1). Links with supply chains increase exports with the impact being the second highest when compared to the impact of structural variables included in the regression (Figure ~~3~~ 2, LHS). This highlights the role of supply chains as an important conduit for increasing exports. Higher REER-ULC decreases exports by eroding competitiveness, although this variable was not significant in all specifications**.** In contrast, per capita income level, weighted distance from partner countries, weighted GDP growth in partner countries and population come out as statistically insignificant although with the expected signs; this could be due to the fact that supply chain participation, which strongly depends on gravity variables, is partly capturing their impact on exports. We also used time dummies and dummy variable for the euro area crisis, which were found statistically insignificant. We did not use country-specific dummy variables as it prevents us from identifying structural factors that are important for export performance, as most structural variables move slowly over time. This may imply that the impact of structural variables is somewhat overestimated in our regression.[8]

10. Our empirical findings identify country-specific policy priorities. We look at the contributions of structural variables in explaining a country's export performance in the EU market relative to its NMS peers. Czech Republic and Hungary show an above average export performance relative to the other NMS, while Poland, Bulgaria and Romania show a below average performance during 2003-11. A decomposition of contribution of structural factors based on regression results shown in Table 1, Column 2 yields the following observations (Figure 3):

[8] The coefficients of structural variables are robust to alternative specifications (for details see Rahman and others (forthcoming).

Figure 3. NMS-6: Contribution of Structural Factors to Relative Export Performance in the EU Market



Source: Staff calculations using regression results in Table 1, column 2.

- For the Czech Republic, vocational training and skills upgrade, higher education, a favorable foreign investment environment and links with supply chains have all contributed positively during 2003-11, while labor market variables, both wage cost and incentives to work, have not been a source of competitiveness. For Hungary, wage competitiveness, strong links with supply chains and foreign investment environment have contributed positively, with contribution from foreign investment environment declining in recent years. Vocational training and higher education are, on the other hand, areas that have contributed negatively to Hungary's export performance relative to the NMS.

- For Poland, we have seen an improvement in export performance over time with the gap relative to the other NMS decreasing over time. Higher education and competitive wages have contributed positively, while a relatively lower degree of participation in supply chains has been a drag. Although foreign investment environment contributes negatively, in recent years Poland has seen improvement in foreign investment environment and a pick-up in off-shoring and outsourcing of business services (McKenzie 2013). These factors have boosted Poland's exports to the EU since 2010. For Bulgaria and Romania, the below-average performance in exports has been persistent with the gap relative to the NMS average worsening over time. This highlights the need for broad-based reforms, particularly in the areas of human capital and foreign investment environment (Figure 4).

C. Export Quality in NMS-6: Room for Growth

11. In NMS-6, export quality is generally high when compared to the rest of the world. We assess the quality of merchandise exports to the world using an index developed by Henn, Papageorgiou, and Spatafora (2013) based on an estimated relationship between export quality, export unit value, production cost, and the distance from importers.[9]

- The overall exports quality for NMS-6 is above the 60th percentile when compared to all countries in the world (Figure 4). The Czech Republic leads with an overall quality level close to the 90th percentile and Romania, at 61st percentile, lags others. Our analysis of quality at a more disaggregated product level shows three tiers[10]: the Czech Republic in the highest tier where the quality of export goods ranges between 61st and 97th percentiles; Croatia, Hungary, and Poland in

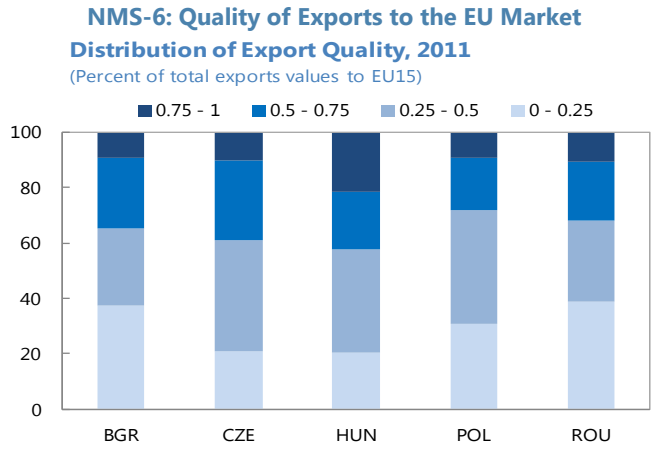
[9] The intuition behind this approach is that after controlling for the production costs and taking into account the fact that exports to more distant destinations tend to be tilted towards higher-priced goods (because of higher shipping costs), higher quality goods would have higher export unit values. This approach does not assume that international export markets are competitive where individual exporters can be price takers. This index defines export quality *within a product group* rather than across the entire spectrum of export products. This means that a county that exports low-end high-tech products (for example, auto parts) may show a lower level of overall export quality compared with a country that exports high-end low-tech products (for example, designer clothing). The overall export quality is aggregated using quality indices calculated at the SITC 4-digit product level and export weights.

[10] For this product level exercise, we only looked at SITC 4-digit products where a country has a market share of at least ½ percent in the world.

the next tier, where the quality ranges between 40th and 89th percentiles; and Bulgaria and Romania in the third tier, where the quality ranges between 24th and 80th percentiles. In other words, underneath an overall high quality, there seems to be a wide range even for countries like the Czech Republic.

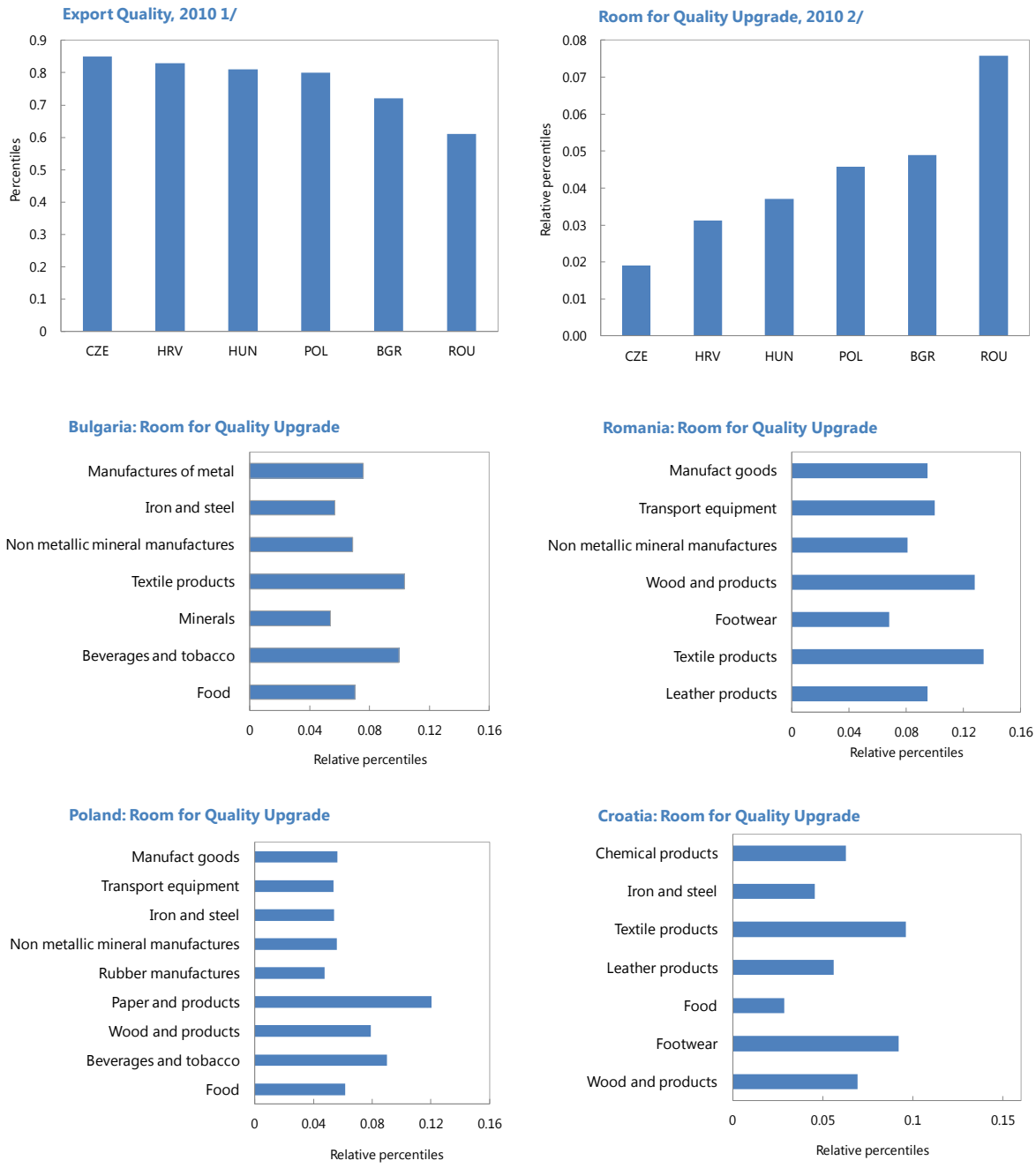
- Next, we calculate room for quality improvement, which looks at not only a country's standing in the quality ladder relative to others, but also the average quality absorbed by its importers. A positive gap indicates the quality demanded by importers is larger than that provided by the exporting NMS. Our analysis reveals positive quality gaps for the NMS at the overall and product levels (Figure 4). A look at the SITC 4-digit products indicates significant room for quality improvement in the following areas: textile products (Bulgaria, Croatia, and Romania); wood products (Romania), paper products (Poland), beverages and tobacco products (Bulgaria and Poland), and in footwear products (Croatia) (Figure 4).

12. A comparison of export quality in the EU market using a different methodology draws somewhat different conclusions. Based on Di Comite, Thisse and Vandenbussche (2014), which uses firm-level cost data in a mark-up model to capture quality of exports in the EU market relative to other EU exporters, the NMS-6 show a quality distribution that is concentrated at the low (Bulgaria, Romania and Poland) and middle (Hungary and Czech Republic) part of the quality spectrum (see chart). The share of products where quality is below the 50th percentile relative to other EU countries ranges between 62 percent in Poland to 52 percent in Hungary. In other words, more than half of export products from the NMS are in the bottom half of the quality ladder showing significant room for improvement with respect to other exporters in the EU market. Relatively speaking, the Czech Republic and Hungary still come out at the top among the NMS just as they do with respect to the world market with export products concentrated in the mid-quality range.



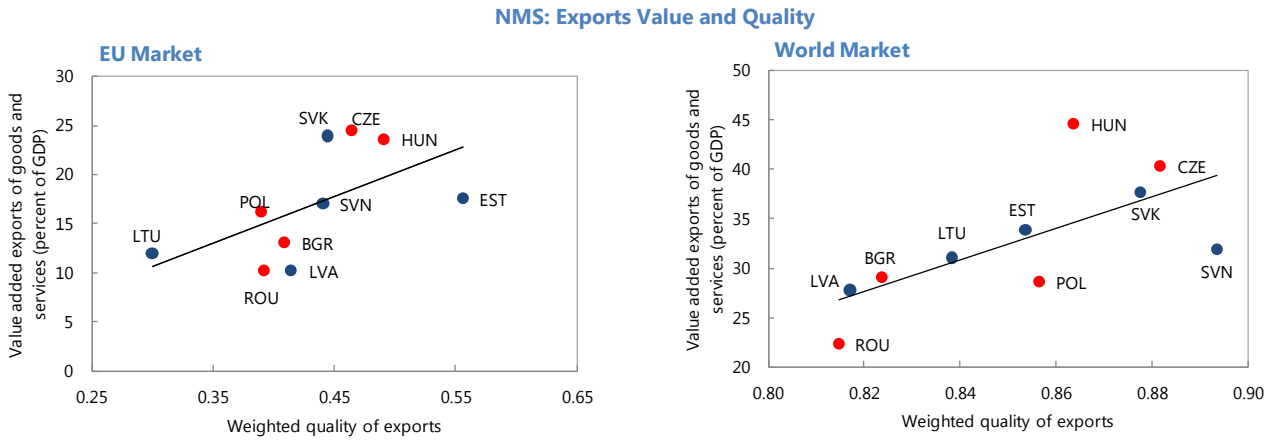
Source: Di Comite, Thisse and Vandenbussche (2014).
Note: Quality ranks are normalized between zero and 1; "1" = highest.

Figure 4. NMS-6: Export Quality and Room for Improvement



1/ Vertical axis shows a country's place in the export quality distribution in the world.
2/ Room for quality upgrade shows the gap between country's export quality and the quality demand by trading partners.
Sources: Staff calculations using Henn, Papageorgiou, and Spatafora (2013) database.

13. For the NMS, export quality is found to be positively correlated with export value in both EU and world markets (see figure below on Exports Value and Quality). This is not surprising as most NMS have experienced an improvement in quality of export producing since 2005 as exports also grew. Vandenbussche (2014) finds that the estimated price elasticity of quality is around 0.5, implying that quality upgrading would likely to result in a firm's capacity to increase price, profits and market share. This shows causality from quality to higher exports. Going forward, this positive relationship between quality and exports is likely to strengthen. Globally speaking, the NMS are not countries where low labor costs or labor abundance could be a source of comparative advantage given ageing population, although this may be currently the case relative to advanced Europe. So improving quality has to be a part of the strategy to enhance exports and our analysis shows significant room for improvement particularly in the EU market.



Source: For weighted export quality, staff calculations using Henn, Papgeorgiou and Spatafora (2013) for world exports and Di Comite, Thisse and Vandenbussche (2014) for EU exports; For value added exports, staff calculations using world input output data.

14. How can countries improve export quality over time?

- A survey of literature shows that some of the structural reforms that explain differences in exports performance in our regression analysis are also the ones that tend to explain differences in export quality: human capital, institutional quality, and foreign investment (see for example Zhu et al, 2009, Henn et al, 2013 and Weldemicael, 2012). In addition, R&D expenditure is also important for quality improvement.

- The EBRD 2014 Transition Report, which looks at innovation and knowledge-based growth in transition economies, finds that different factors matter in quality improvement at different levels of economic development and product quality. At a relatively low level of development and product quality, when countries are trying to access technology, openness and facilitation of foreign investment are important. The study also finds firms that are part of the global supply chains to be more innovative than non-linked firms. The capacity to absorb such technology and replicate depends on the quality of secondary and undergraduate education, and the effectiveness of on-the-job training. Thus, to innovate over learnt technology depends on postgraduate education, quality of scientists and engineers, quality of scientific research,

flexibility of product and labor market, effective cooperation between science and industry, and availability of venture capital which become important for countries with mid-quality products trying to move up.

15. Based on this, the NMS-6 would have different policy priorities in terms of improving export quality. For Bulgaria and Romania, the focus should be on improving foreign investment regime, boosting secondary education, and linking with supply chains which would help with acquiring technology. For the Czech Republic and Hungary, policies need to focus on improving the environment for innovation. For these two countries, a comparison outside the region also points to the need for ramping up higher education and R&D spending (Box 1). Diversification of exports outside the EU and into new products are other ways to enhance exports for these two given that a significant part of the GDP is derived from value added exports to the EU.

D. Services Exports: Scope for Further Increase

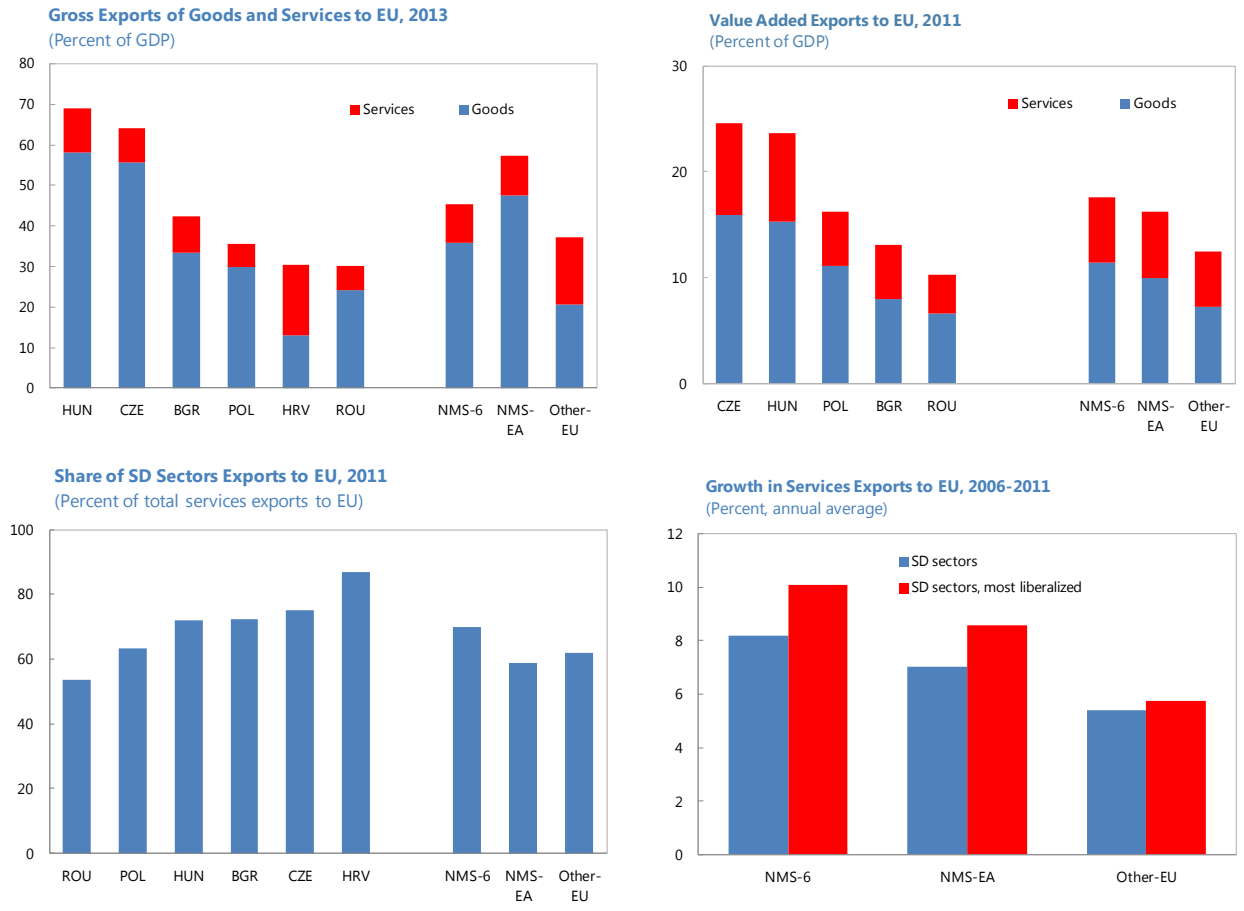
16. Goods dominate over services in exports from NMS-6 to the EU. Although services sector contribute to two-thirds of the EU GDP and create 9 out of 10 jobs, its share in intra-EU trade is low. For the NMS-6, the share of services sector in value added exports is only a third and much less than that in gross exports (Figure 5). Croatia is the only country among the NMS-6 where services products, mostly related to the tourism sector, dominate exports to the EU. The lower share of services in exports, among other things, is explained by specific characteristics of service products: many services are traditionally non-tradable which can only be delivered at production location and hence not part of the cross-border trade. But we want to explore whether a lack of comparative advantage relative to other EU members and restrictive market access may be contributing to relatively low services exports. When it comes to services exports, the single market does not work quite as well as it does for goods. Countries face numerous restrictions in the form of authorization, economic needs test, licenses, territorial restrictions and restrictions on multidisciplinary activities. In this regard, we want to see to what extent the adoption of Services Directive (SD) in 2006 has helped reduce barriers to exports.

17. Most services exports from the NMS-6 fall under sectors covered by the SD.[11] The weighted average share of SD sectors in total services exports from NMS-6 to the EU (70 percent for NMS-6, almost 90 percent for Croatia) is significantly higher than the NMS-EA (59 percent for NMS-EA) and other EU (62 percent) (Figure 5). According to the assessment by European Commission, the implementation of the SD has reduced average restrictions on services imports across products and countries by about 30 percent since 2006, although with considerable variations (Montiagudi et al, 2012). Exports from the NMS-6 benefited from the SD as services exports from these countries in

[11] These include travel, construction services, computer and information services, operational leasing, miscellaneous business services, royalties, education and other personal, and cultural and recreational services. The rest of the services exports fall under the category of "Regulated" sector which include the following six sectors: transportation, communication services, financial services, insurance services, health, and government services.

sectors covered by the SD grew more (on average 8 percent annually) than from other EU members (Figure 5). The increase was even more pronounced when we look at sectors that were most liberalized after the SD.

Figure 5. NMS-6: Services Exports and Services Directive



Note: Most liberalized sectors include travel agency, real estate agents, tourist guide, and hotels, which are the sectors with the top percentile percent changes on barriers after the implementation of the Services Directive.

Source: Staff calculations using World Input Output Table, Eurostat and Haver Analytics.

18. However, significant barriers remain regarding services exports, particularly with regards to professional services. The SD was adopted in 2006 in order to promote competition and trade in services products. The intended implementation period was 2006-9 during which member countries were to review their respective regulatory framework for services in order to identify restrictions that can be removed. However, countries were given considerable leeway in the sense that pre-existing restrictions could be maintained if they were deemed necessary to protect public interest and as long as they were non-discriminatory, necessary and proportionate. Countries worked in clusters of 5 members each for mutual evaluation of abolition/amendment of restrictions.

Given the broad coverage and the deference to member states for action, liberalization of services trade under the SD has fallen short of expectations (Corugedo and Ruiz, 2014). Specifically, among many advanced economies in the EU which are major absorbers of exports from the NMS-6, many barriers remain on professional and technical services after the implementation of the SD.

19. Our analysis of comparative advantage shows that the NMS-6 would greatly benefit from further liberalization of services imports by EU member states. Hungary, Bulgaria and Romania show comparative advantage in higher number of services products than goods products (Annex II). Croatia, where a RCA analysis based on value added exports was not possible due to data unavailability, would also likely fall into this group given the high share of services exports. The Czech Republic, Hungary, Poland and Romania hold comparative advantage in professional and technical services relative to other EU members (Table 2). The weighted average share of professional services in total SD exports range between 30–40 percent in these four countries. Further liberalization of services trade, particularly those in professional services, would greatly help NMS-6 increase exports to the EU.

Table 2. RCA: Exports on Professional and Technical Services

	RCA	% of exports in sectors under SD
Bulgaria	0.6	16
Croatia	0.4	8
Czech Republic	1.1	30
Hungary	1.1	31
Poland	1.1	36
Romania	1.1	40
Estonia	0.8	27
Latvia	0.7	31
Lithuania	0.4	23
Slovak Republic	0.8	20
Slovenia	0.5	16

Sources: Eurostat; and IMF staff calculations. Note: RCA is relative to total services gross exports.

E. Policy Implications

20. Structural reforms play a key role in maximizing benefits of unrestricted access to the EU single market. Our analysis shows that improving exports to the EU depends on a competitive economy underpinned by structural reforms, particularly in the areas of higher education, skills upgrade, wage structure's ability to provide incentives to work, and foreign investment environment. Other institutional reforms that promote successful integration with supply chains are also helpful in enhancing export performance, not just to the EU but to destinations outside the EU.

21. Our analysis identifies some country-specific structural reform priorities that can help boost export performance. For Bulgaria and Romania, where export performance has been persistently weak relative to other the NMS, closing the distance with peers will require broad-based reforms, particularly improvement in skills, education attainment, and foreign investment regime. For Poland, where export performance has consistently improved over time to almost closing the

gap with the NMS average, a more conducive foreign ownership regime and greater links in services-based supply chains will help. For Hungary, where the contribution of the operating environment for foreign investors has declined in recent years, it would be important to strengthen such an environment to further enhance its integration with the EU.

22. There is room for export quality improvement in all NMS-6. The analysis presented in this paper, which takes into account both export quality relative to other exporters and quality demanded by importers, shows that there is room for improvement for exports from the NMS-6, particularly with respect to other exporters to the EU market. The room for quality improvement is particularly large for Bulgaria and Romania. We also find a strong positive relationship between exports value and quality, suggesting that pursuing structural reforms, such as improving human capital, labor market and business environment, would help increase both exports and quality.

23. For quality improvement, structural reforms need to be mindful of a country's existing quality level. For countries producing products at the lower end of quality spectrum such as Bulgaria and Romania, accessing technology through improving foreign investment environment and greater links with supply chains are key. Countries that are at the medium-level of quality spectrum such as the Czech Republic and Hungary, improving skills and higher education, and innovation through higher R&D spending are priorities.

24. For countries that are already highly integrated with the EU single market and produce mid-quality products, diversification in products and markets will prove useful. This applies to the Czech Republic and Hungary, countries that derive a high share of domestic output from demand in the EU market. Looking outside the EU may be useful for these countries. Given that export products from these countries are at a relatively high level when compared to other exporters from the world, increasing quality of existing products would require a significant boost in R&D expenditure and tertiary education. Diversification of exports into new products would be another option for these countries to stay on the export-led growth path.

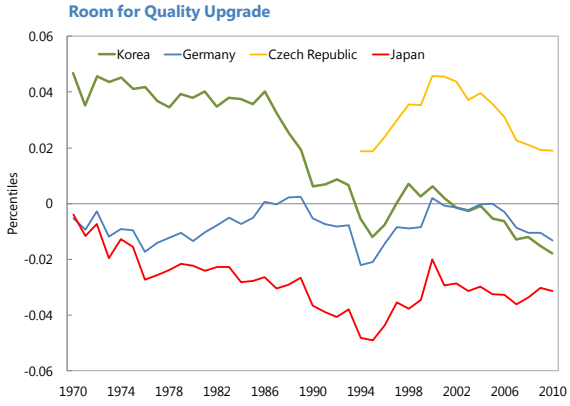
25. Improved market access can significantly increase services exports to the EU. Our analysis shows that a large part of services exports from the NMS fall under sectors covered by the SD. A number of the NMS have comparative advantage in these products including in professional services which remain most restricted. Further dismantling of restrictions by EU members, both advanced and emerging economies, will help maximize benefits from the single market. In this regard, a renewed impetus to the SD through third-party review of principles of non-discrimination, necessity and proportionality to assess public interest may also help.

Box 1. Czech Republic and Hungary: What can be learnt from Korea?

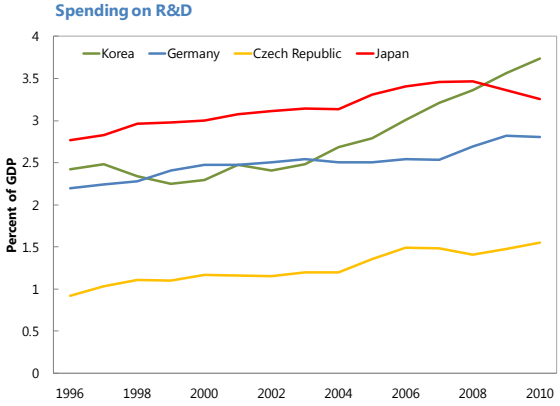
For countries such as the Czech Republic and Hungary, a comparison with countries outside transition economies may also be instructive despite differences in policy environment. We looked at the experience of the world's most successful export-driven countries, such as Japan and Germany, and Korea—a country that has successfully pursued a sustained period of export-led growth kick-started by the Japanese supply chain (figure). We focused on the evolution of structural variables indentified in empirical literature as significant for quality upgrade over time. Since 1970, Japan and Germany have demonstrated a negative room for quality improvement with respect to what their importers have demanded. This means that they have provided a quality above and beyond the level demanded by importers helping them maintain market shares and stay as leaders. Korea joined this group in the early 2000s after a steady improvement in quality. Available time series data for R&D spending and tertiary education, variables that are identified in literature as important contributors to quality improvement, shows a ramping up by Korea in both aspects and surpassing the levels of Germany by early to mid-2000s. For Czech Republic and Hungary, to pursue a similar path of quality upgrade and movement up the value chain, there seems to be a need for significant improvement on these fronts (education, R&D expenditure and business environment).

Quality Improvement: Lessons from Korea

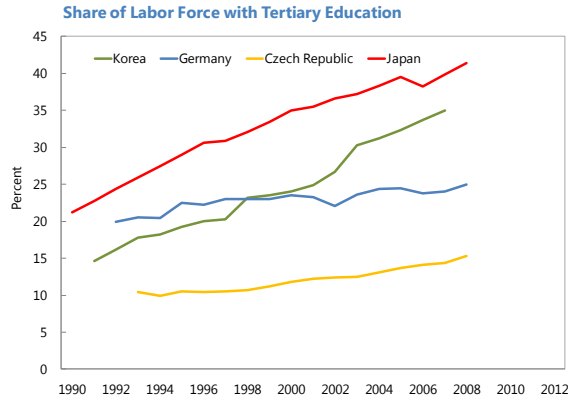
Japan and Germany provided a quality above and beyond that demanded by importers: Korea joined this rank in 2000…



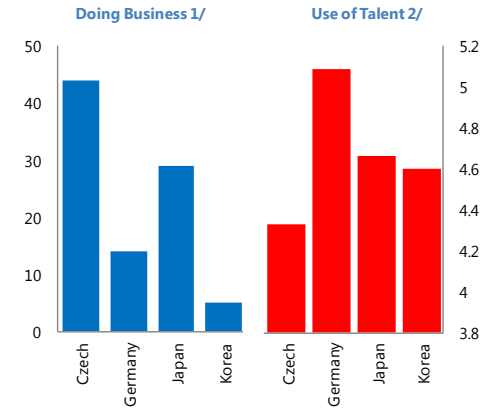
…benefitting from a boost in R&D spending…



… tertiary education



..and a friendly business environment.



1/ Doing business ranking as of 2014, a higher number indicates lower quality.
2/ A higher number for use of talents suggests more efficient use. This index is a composite index of the following indices: pay and productivity; reliance on professional management; country capacity to retain and attract talent; and relative female participation in the labor force. The value indicates as of 2014.

Source: The World Bank and World Economic Forum.

Annex. Data Appendix and Robustness Check for Regression Analysis for Export Integration

The following table provides definition of variables, sources and statistical properties.

Annex. Table 1. Summary Statistics and Data Sources

Variable	No. of obs.	Mean	Std. dev.	Min.	Max.	Source
Domestic value-added exports to EU (% of GDP)	90	17.9	5.2	10.0	29.5	World Input-Output Database; World Economic Outlook database, IMF; and IMF staff calculations
Upper secondary or tertiary educational attainment (% of population aged 20-24 years)	90	85.6	5.5	75.0	94.1	Eurostat
Participation in continuous vocational training and skills upgrade (% of total employed)	77	27.4	14.7	13.3	61.0	LAF database, European Commission
Inactivity trap 1/	86	71.6	13.6	42.0	90.0	LAF database, European Commission
Relative minimum wage (% of gross average wages)	80	40.3	10.0	23.5	62.4	LAF database, European Commission
Foreign investment and ownership environment	80	6.7	1.2	4.3	8.9	Economic Freedom of the World 2013 Annual Report
Share of exports processed by supply chain (% of gross exports)	90	76.9	3.8	67.7	82.7	World Input-Output Database and IMF staff calculations
Weighted real GDP growth of trading partners	90	0.2	4.1	-11.6	12.2	World Input-Output Database; World Economic Outlook database, IMF; and IMF staff calculations
Population	90	10.2	11.0	1.3	38.5	World Economic Outlook database, IMF
PPP GDP per capita	90	17312.7	5183.8	7828.2	29402.8	World Development Indicators database, World Bank
GDP weighted distance	90	2197.4	2288.7	423.7	9176.1	GeoDist database, CEPII; World Economic Outlook database, IMF; and IMF staff calculations

1/ Inactivity trap is one minus the ratio of difference in net and gross wage, where the difference is between in-work and out-of work wage for an average worker.

References

Anderson, James E. and Douglas Marcouiller, 2002, "Insecurity And The Pattern Of Trade: An Empirical Investigation," *The Review of Economics and Statistics*, MIT Press, vol. 84(2), pp. 342—352, May.

Bombardini, M., Giovanni Gallipoli, and German Pupato, 2012, "Skill Dispersion and Flows of Trade," *American Economic Review*, pp. 102, 2327–48.

Bougheas, S. and Raymond Riezman, 2007, "Trade and the Distribution of Human Capital," *Journal of International Economics*, pp. 73, 421–33.

Card D., Kluve J., and Weber A., 2009, "Active Labor Market Policy Evaluations: A Meta-Analysis", The Economic Journal, 2010, 120, F452-F477.

Descy, P. and Tessaring, M., 2005, "The Value of Learning: Evaluation and Impact of Education and Training, Third Report on Vocational Education Research in Europe, Synthesis Report", Cedefop.

Di Comite, F., J. Thisse and H. Vandenbussche, 2014, Veri-zontal Differentiation in Export Markets, *Journal of International Economics*, pp. 50—66.

European Bank For Reconstruction and Development, 2014, "Transition Report: Innovation in Transition."

Fernandez-Corugedo, Emilio and Esther Perez Ruiz, 2014, "The EU Services Directive: Gains from Further Liberalization," IMF Working Paper No. 14/113 (Washington: International Monetary Fund).

Hausmann, Ricardo, Jason Hwang, and Dani Rodrik, 2007, "What you export matters", Journal of Economic Growth.

Henn, Christian, Chris Papageorgiou, and Nikola Spatafora, 2013, "Export Quality in Developing Countries", IMF Working Paper No.13/108 (Washington: International Monetary Fund).

International Monetary Fund, 2013, Cluster Report: German Supply Chains (Washington).

Koopman, Robert, Zhi Wang, and Shang-Jin Wei, 2012, "Tracing Value-Added and Double Counting in Gross Exports", *NBER Working Paper* 18579.

Monteagudi, Jesofa, Aleksander Rutkowski and Dimitri Lorenzani, 2012, "The Economic Impact of the Services Directive: A First Assessment Following Implementation," *European Commission Economic Papers* 456, June.

Levchencko, Andrei, 2007. "Institutional Quality and International Trade," Review of Economic Studies, Oxford University Press, vol. 74(3), pp. 791—819.

McKinsey Global Institute, 2013, "A New Dawn: Reigniting Growth in Central and Eastern Europe," December.

Organisation for Economic Co-operation and Development, 1998, Human Capital Investment. An International Comparison (Paris: OECD Publishing).

Rahman, Jesmin and Tianli Zhao, 2013,"Export Performance in Europe: What Do We Know from Supply Chains? IMF Working Papers No. 13/62, (Washington: International Monetary Fund).

Rose, A.K., 2004, "Do We Really Know That the WTO Increases Trade?," American Economic Review, American Economic Association, vol. 94(1), pp. 98—114, March.

Vandenbussche, Hylke, 2014, "Quality in Exports", *Economic papers* 528, European Commission, September.

Weldemicael, Ermias, 2012, *"Determinants of Export Sophistication"*. The University of Melbourne.

Zhu,Shujin, Xiaolan Fu, Mingyong Lai, and Ji Xuan, 2009, "What Drives the Export Sophistication of Countries?", *SLPTMD Working Paper Series* No. 033, University of Oxford.