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Central, Eastern, and Southeastern Europe

Regional Economic Issues

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SAFEGUARDING THE RECOVERY AS THE GLOBAL LIQUIDITY TIDE RECEDES

April 29, 2014

EXECUTIVE SUMMARY

Growth is picking up in most of Central, Eastern and South-Eastern Europe (CESEE) in the wake of the recovery in the euro area, but the region is facing an unusual constellation of risks. CESEE[1] excluding the largest economies—Russia and Turkey—is projected to grow by 2.3 percent in 2014, marking a significant acceleration from last year's 1.2 percent pace. However, external funding conditions have become more volatile since mid-2013. In addition to the ongoing reduction in foreign bank funding, portfolio flows to CESEE, excluding Russia and Turkey, turned negative in 2013:Q3 for the first time since 2009. While flows rebounded in 2013:Q4, pressures may re-emerge if risks stemming from potential escalation of geopolitical tensions in the region, further bouts of financial volatility along the path towards monetary policy normalization in advanced economies, and the possibility of protracted weak growth in the euro area were to materialize.

The susceptibility of the region to external funding shocks stems principally from relatively high stocks of external debt, large refinancing needs, and sizable foreign currency exposures. While many CESEE countries have greatly improved their current account positions in recent years, vulnerabilities to external shocks persist because of their relatively *high stock of external debt*—due to its accumulation by the private sector during the pre-global-crisis boom, and by the public sector since the crisis—and the *associated large refinancing needs*. *Foreign currency exposure risk* linked to external borrowing is further compounded by a high degree of financial euroization in the region.

The April 2014 *Regional Economic Issues* (REI) finds that CESEE countries' sensitivity to changes in global financial conditions stems from a number of additional factors:

- *Increased foreign investor participation in local bond markets*. Tighter global conditions will therefore exert pressure on borrowing costs and may trigger flow reversals in CESEE, though countries with stronger macroeconomic fundamentals and policy frameworks should be relatively less affected.

[1] In this report, "CESEE" refers to the following countries: Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovak Rep., Slovenia, Turkey, and Ukraine. List of acronyms is at the end of the report.

- *Increased role of foreign institutional investors*. While such flows are generally more resilient and differentiated across countries than retail investor flows, they also tend to react more strongly and persistently to extreme shocks.

- *Reliance on a relatively few common creditors*. In the case of foreign holdings of CESEE securities, investor concentration appears to be high, especially in smaller markets, making portfolio flows sensitive to allocation decisions of a few fund managers. Similarly, a large share of external bank funding to CESEE comes from a relatively few large euro area banks.

A sharp tightening in external financial conditions accompanied by heightened market volatility would have a net negative—but likely manageable—effect on most CESEE countries. The analysis in this report finds that while faster U.S. economic recovery would boost CESEE growth, for most countries that would be more than offset by the contractionary impact of tighter global monetary conditions and financial market volatility that could accompany faster than anticipated monetary policy normalization in the U.S.

Some CESEE countries may also face further reductions in cross-border bank flows. This could be because deleveraging pressures on parent banks rise amid the euro area asset quality review (AQR) and stress tests leading to selective cutbacks of exposures to some countries. Empirical evidence suggests that weaknesses in host-country macroeconomic and banking sector fundamentals (asset quality, profitability, reliance on non-deposit funding) increase the risk of a reduction in cross-border bank funding.

Stronger policies and buffers would help mitigate external shocks and also unlock higher growth potential, as evidenced by the experience of CESEE countries that have faced more subdued market pressures over the past year. More specifically,

- Countries with *exchange rate and monetary policy flexibility* should continue to use it as the principal line of defense during episodes of market volatility. Securing external credit lines and targeted liquidity provision could be helpful as well.

- *Diversifying funding sources* and *deepening the local investor base* would help reduce countries' vulnerability to idiosyncratic shocks and contagion through common lenders.

- All countries, especially those with weaker macroeconomic fundamentals, can increase their resilience to shocks by *rebuilding fiscal policy space* and *addressing the legacies and problems exposed by the crisis*—structural weaknesses that are holding back growth and keeping unemployment unacceptably high; and high levels of nonperforming loans that are hamstringing credit.

- *Implementation of structural reforms* that boost growth potential will also attract more stable foreign investment.

Approved By
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I. RECENT DEVELOPMENTS AND OUTLOOK

Economic recovery in the euro area lifted growth in Central and Eastern Europe (CEE), and in much of Southeastern Europe (SEE). The outlook for 2014 is for the pace of activity to continue recovering in most countries in the wake of stronger growth in Western Europe. The main downside risks relate to the possibility of a slowdown or protracted weak growth in the euro area, increased geopolitical tensions, and possible bouts of financial volatility along the path towards monetary policy normalization in advanced economies.

Euro area growth has been positive since 2013:Q2, lifting growth in many CESEE countries. Real GDP growth picked up in CEE and many SEE countries in 2013:Q3 on the back of stronger net exports (Figure 1).[2] At the same time, inflation has declined to very low levels in many countries due to moderating global fuel and food prices, still negative—though closing—output gaps, depressed domestic demand and weak credit growth. Countries pegged to the euro have experienced some deflationary pressures given very low inflation in the euro area (Box 1).

At the same time, external financial conditions have become more challenging since May 2013, when the U.S. Fed first mentioned the prospect of QE tapering. The 2013:Q3 balance of payments registered overall negative capital flows into CESEE, excluding Russia and Turkey, with portfolio flows turning negative for the first time since 2009 (Figure 2). Countries with sizable external or fiscal financing requirements were most affected.[3] Some countries—notably Croatia, Hungary, Latvia, and Slovenia—suffered both portfolio outflows and sizable foreign bank funding reductions in 2013:Q3. Although portfolio flows rebounded strongly in 2013:Q4, as a number of CESEE sovereigns issued bonds in international markets, pressures could re-emerge as Fed tapering proceeds.

Improvements in domestic conditions have been uneven and credit growth remained sluggish. Domestic demand has been weak in most CEE and SEE countries in 2013:H2. Credit growth to nonfinancial firms (in nominal, exchange-rate adjusted terms) has been negative in the Baltics, CEE, and SEE through end-2013, though credit growth to households fared better, reflecting some relaxation of credit standards (Figure 2). Credit developments in 2013:H2 appear to have been dominated by supply side pressures: lending conditions tightened, reflecting a substantial tightening in funding conditions for CESEE banks in 2013:H2[4], while loan demand continued to grow, albeit at a slower pace. In SEE countries, private sector balance sheet weaknesses, high non-performing loans (NPLs), and fiscal and structural challenges continue to constrain the recovery in domestic demand.

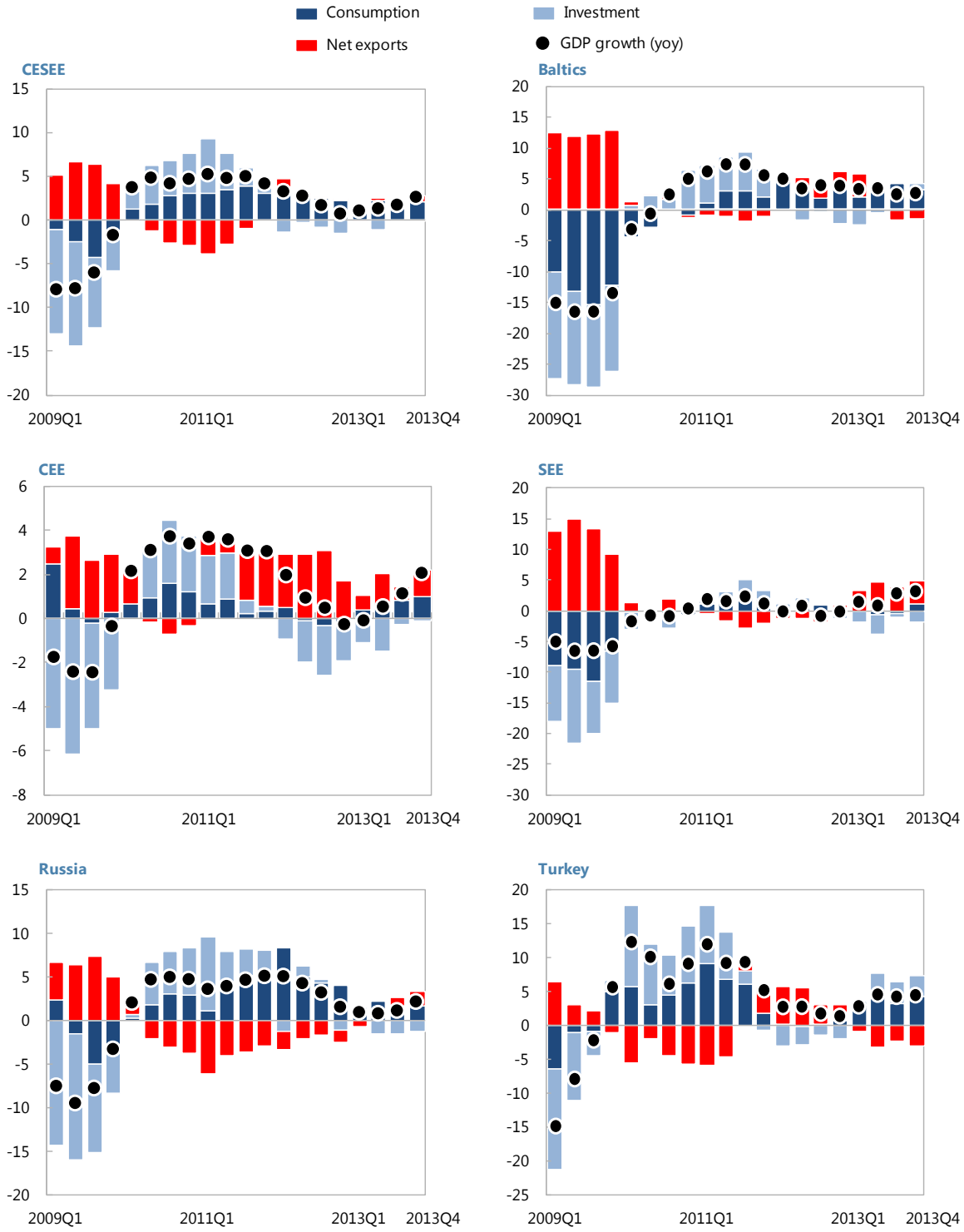
[2] There is a tight link between the euro area and CESEE growth. According to staff estimates based on bivariate vector autoregression (VAR) framework with the euro area and CESEE GDP growth, a 1 percent growth shock in the euro area would add about 0.5–0.8 percentage point growth in CESEE region. See, also IMF (2011a).

[3] See IMF (2013c).

[4] See IIF (2013).

Figure 1. Contributions to Real GDP Growth

(Percent)



Sources: Haver Analytics; and IMF staff calculations.

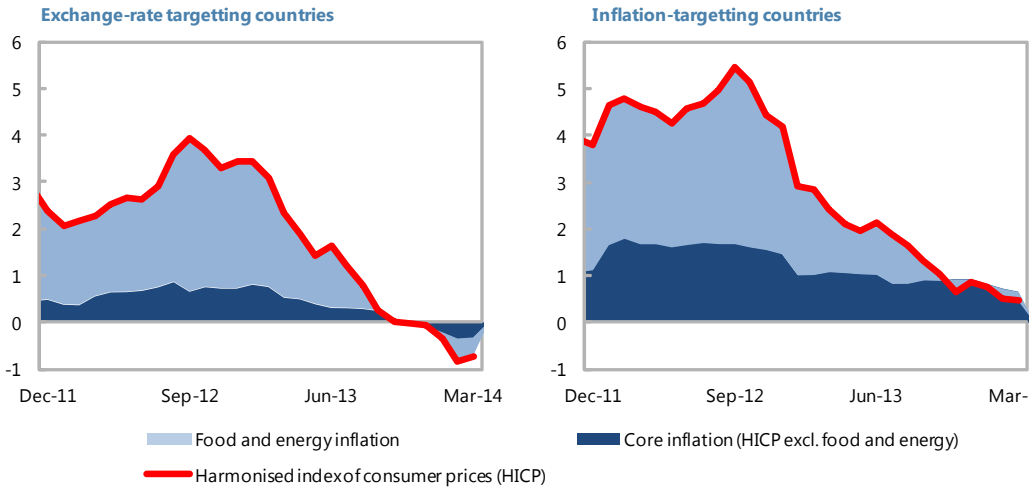
Box 1. Inflation Developments in CESEE[1]

Inflation declined sharply across most of CESEE over the course of 2013. At present, 12-month inflation is well below its target in the Czech Republic, Hungary, and Poland, and to a lesser extent in Romania.

Falling world energy and food prices have been the main driver of declining inflation across the region. Countries that peg their currencies to the euro (de jure or de facto) have experienced sharper declines in inflation since June 2013 and, in some cases, outright deflation (Bulgaria, Bosnia and Herzegovina, and Croatia). Negative output gaps further dampened inflationary pressures. Core inflation moderated during 2013, but to a much lesser extent than headline inflation.

Contributions to Headline Inflation, 2011-14

(Percentage-points contributions to 12-month growth rates of HICP)



Sources: Eurostat; European Central Bank; and IMF staff estimates.
Note: Exchange-rate targetting countries include Bulgaria and Lithuania; Inflation targetting countries include Czech Republic, Hungary, Poland, and Romania. Croatia is grouped together with exchange rate targetting countries, as in practice the exchange rate is managed within a tight range.

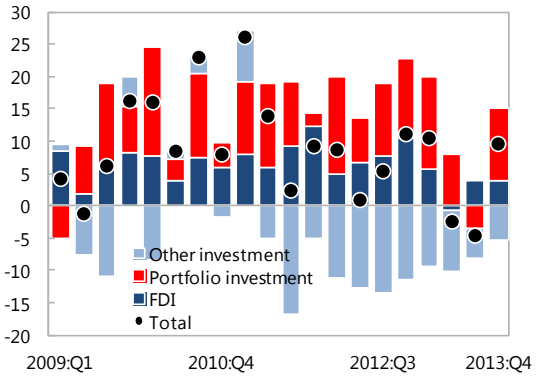
[1]Prepared by Plamen Iossifov and Jessie Yang.

The two largest economies—Russia and Turkey—have exhibited divergent growth patterns from the rest of CESEE (Figure 1). In Turkey, growth accelerated and rotated to domestic demand in 2013, but recent monetary policy tightening, macro-prudential measures, and sizable exchange rate adjustment are expected to contain private domestic demand—and hence overall GDP growth—going forward. In Russia, growth decelerated sharply in 2013 and—at 1.3 percent for the year as a whole—was weaker-than-expected and appears to reflect a substantial slowdown in growth potential. Signs of deceleration in household credit growth have become evident in Russia since 2013:Q2, but also most recently in Turkey (Figure 2).

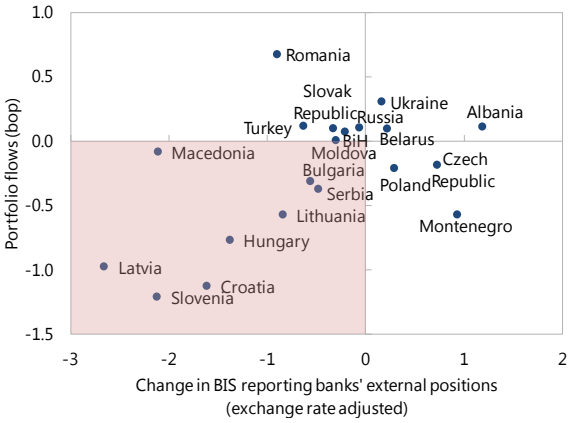
In January 2014, emerging markets (EMs), including in CESEE, came under renewed pressure, albeit temporarily, on concerns about slower growth and policy gaps. In comparison to

Figure 2. Financial Developments

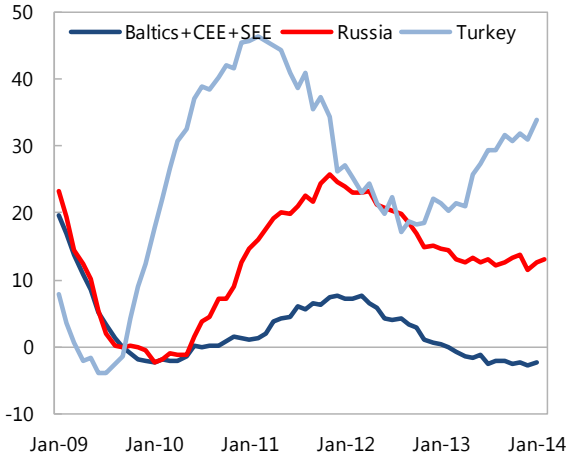
Baltics+CEE+SEE: Capital Flows
(Billions of US dollars)



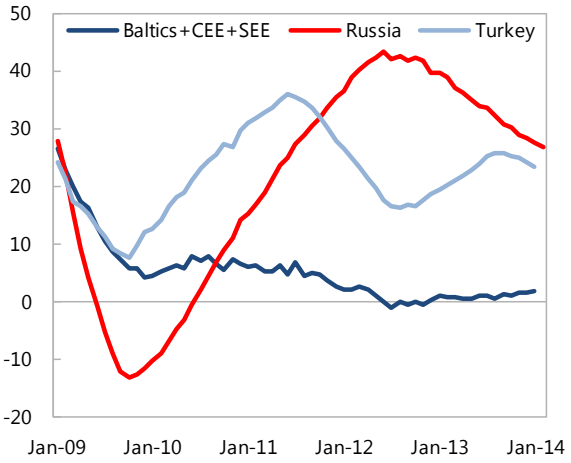
Portfolio Flows vs Changes in External Positions of BIS reporting banks, 2013:Q3 (Percent of GDP)



Credit to Nonfinancial Corporations
(Percent change, yoy, nominal, exchange-rate adjusted)



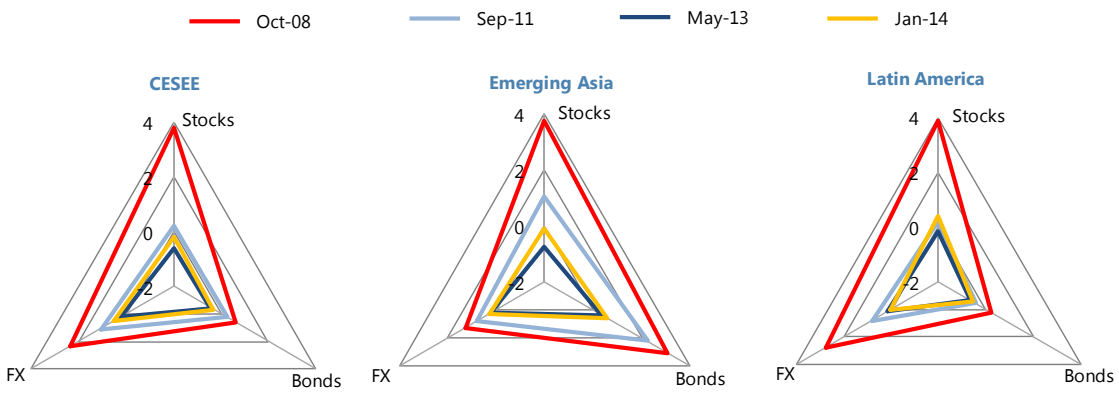
Credit to Households
(Percent change, yoy, nominal, exchange-rate adjusted)



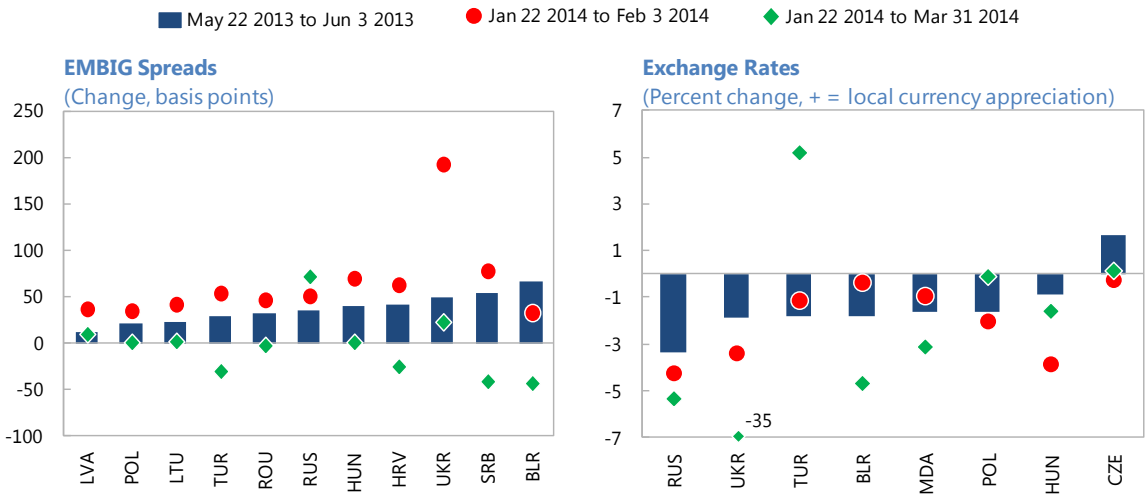
Sources: BIS, Locational Banking Statistics; EBRD; Haver Analytics; IMF, WEO database; and IMF staff calculations.

previous EM "risk-off" episodes since the start of the global financial crisis (Figure 3), financial stress in CESEE markets during the two post-taper talk EM sell-offs—summer 2013 and January 2014—was much less than that experienced in October 2008, but comparable to the 2011 episode at the height of the euro area crisis. In the recent episodes, pressures in CESEE were mainly felt in the bond and FX markets, and while weakness in CESEE bond markets was broad based (at least initially), FX pressures were concentrated in a few countries among the floaters (Figure 3—red dots show the January 2014 sell-off). While a subsequent rally has led to tighter spreads for many CESEE countries (Figure 3—green dots), market pressures may re-emerge as the US monetary policy normalization proceeds or in response to global or regional shocks.

Figure 3. Financial Stress in CESEE and Other EMs during "Risk-Off" Episodes



Notes: These charts show the levels of financial stress in stock, bond and FX markets experienced during four different "risk-off" episodes. Stock market stress is computed as the y-o-y change in the stock index multiplied by minus one, so that a decline in equity prices corresponds to increased stock-market related stress; bond market stress is based on JPMorgan EMBI spreads; exchange market stress captures both depreciation and decline in international reserves. Each variable is standardized, i.e., demeaned (using the arithmetic mean) and divided by its standard deviation using monthly data for 1996M11–2014M2 (data availability varies by country). A positive value indicates stress relative to a country's historical experience. Source: IMF Research Department



Sources: Bloomberg; and IMF staff calculations.

While January 2014 market pressures appear to have been linked to external and fiscal vulnerabilities, other country specific factors played an important role as well. In *Russia*, the ruble depreciation was, in part, due to accelerated reduction of rules-based FX interventions by the central bank as it aims to adopt a full-fledged inflation-targeting regime by 2015. In *Hungary*, the central bank's continued easing contributed to depreciation pressures. In *Turkey*, the accumulation of FX deposits by residents in domestic banks played an important role in the initial slide of the lira that was reversed after a policy rate hike on January 28, 2014.

The escalation of the political crisis in Ukraine introduced new risks for the region. Bonds and FX markets in Ukraine, Russia, and to a lesser extent, in Belarus and Moldova came under renewed pressure in February–March 2014, on concerns about sanctions against Russia following the Crimea referendum, possible negative confidence effects on investment and growth, and regional spillovers (Box 2).

The region's recovery is expected to continue in 2014, though it will likely be weaker than previously expected. The recovery and still accommodative monetary conditions in the euro area will likely support stronger growth in CEE countries (Figure 4). However, overall CESEE growth is now expected to be lower—at 1.9 and 2.6 percent in 2014 and 2015, respectively—than envisioned in the October 2013 WEO (Figure 4 and Annex 1). Outside CEE, growth has been revised down in most countries, with largest revisions for Russia and Turkey. Further slowdown in Turkey will be driven by monetary tightening, which was partly in response to external pressures. The worsening outlook for growth and investment in Russia may be further dented by geopolitical tensions. Russia's PMI had fallen below 50, indicating contraction, in January 2014 (Figure 5, left panel).

Domestic demand is expected to be a key driver of growth in 2014 (Figure 5, right panel)**.** The reasons vary by country but tend to be linked to expanding private consumption supported by monetary easing and improving labor markets, higher investment due to better confidence and, where applicable, increased absorption of EU funds. In Turkey, the contribution of net exports is expected to increase following sharp exchange rate depreciation, while private consumption will likely slow as macro-prudential measures and tighter monetary policy take effect.

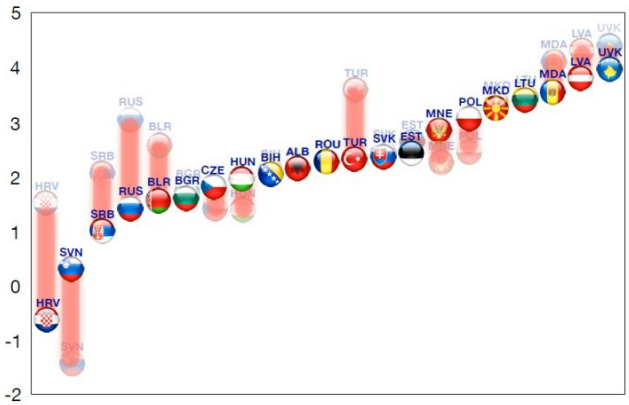
Figure 4. CESEE: GDP Growth Forecasts

Real GDP Growth Forecasts: WEO October 2013 vs WEO April 2014 (Percent)

	WEO April 2014			WEO October 2013		
	2013	2014	2015	2013	2014	2015
Baltics	3.0	3.2	3.7	3.2	3.4	3.7
CEE	0.9	2.5	2.7	0.7	1.9	2.3
SEE	2.1	1.7	2.3	1.4	2.0	2.6
Other CIS[1]	0.5	1.7	2.7	1.0	2.7	3.2
Russia	1.3	1.3	2.3	1.5	3.0	3.5
Turkey	4.3	2.3	3.1	3.8	3.5	4.3
CESEE[1]	1.8	1.9	2.6	1.7	2.7	3.3

Note: Highlighted are downward revisions relative to WEO October 2013.
[1]Projections for Ukraine in 2014 and 2015 are not included.
Souce: IMF World Economic Outlook database.

Real GDP Growth Forecasts for 2014 (WEO April 2014)
(shadows show revisions compared to WEO October 2013)
(Percent)



Box 2. Potential Spillovers from Regional Geopolitical Tensions[1]

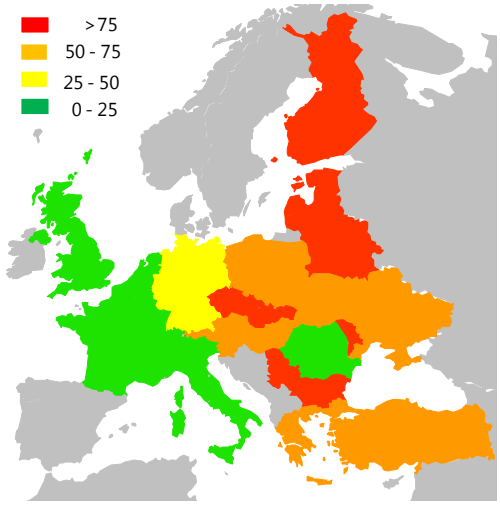
Further escalation of geopolitical tensions could affect European countries through trade and financial channels. Several countries—among them the United States, the European Union, Canada, and Japan—imposed sanctions on Russia following the Crimea referendum. The immediate market reaction was muted, but intensification of sanctions and counter-sanctions may lead to larger spillovers. Contagion could spread through the real (trade, remittances) and financial (asset valuation, banking) channels. Moreover, an extended period of geopolitical tensions could affect confidence in both advanced and emerging Europe.

For most of Europe, real economic linkages with Russia and Ukraine are limited outside the energy sector. Neighboring countries, like Moldova, Belarus, and the Baltics, would, however, be severely affected by lower Russian growth through trade and remittances flows. Central European economies (Hungary, Slovenia, the Czech and Slovak Republics, and Poland), Finland, and some SEE countries (e.g., Serbia and Bulgaria) have moderate export exposures to Russia and Ukraine (2–5 percent of GDP). Among the larger euro area countries, Russia's real linkages are the strongest with Germany and the Netherlands. Interconnectedness through FDI flows matters mainly for neighboring countries, such as Moldova and Belarus, and some SEE countries (e.g., Bulgaria and Montenegro). Financial centers (Cyprus, Luxembourg) also report high two-way FDI flows with Russia.

Europe's dependence on Russian gas—a sizable share of which transits through Ukraine—and oil exposes the region to energy price shocks, in case of disruption of oil and gas markets. About 40 percent of Europe's consumption of natural gas is supplied by Russia, with dependency ratios even higher for most of central and southeastern Europe. Russia also supplies about one-third of Europe's crude oil. Most CESEE countries are very reliant on Russian oil and gas to meet their energy needs (with the share of Russian supplies in total gas consumption ranging between 40 and 100 percent), but so are some euro area countries (Germany, Austria, and Finland).

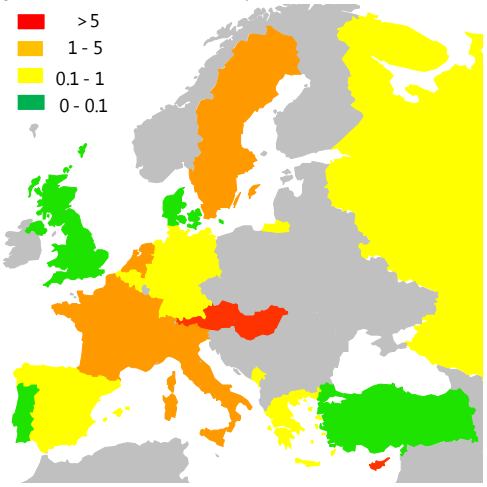
Most European countries have limited direct financial links with Russia and Ukraine, but are vulnerable to contagion emanating from confidence effects and common investor linkages. Cyprus, Austria and Hungary are most exposed to the Russian and Ukrainian banking markets, with asset exposures of 4–13 percent of national GDP, mostly through their banks' local subsidiaries. The exposures are arguably not large enough to imperil parent banks. However, a sustained deterioration in the operating environment in Russia and Ukraine could have a significant impact on bank profitability. Conversely, Switzerland and some euro area member states could benefit from safe haven status if tensions intensify.

Dependence on Russian gas 2012 (percent)



Source: BP.
Notes: Share of Russian imports in total gas consumption. Countries with missing data are shaded in gray.

Banking sector's combined exposures to Russia and Ukraine, 2013:Q3[1] (Percent of investor GDP)

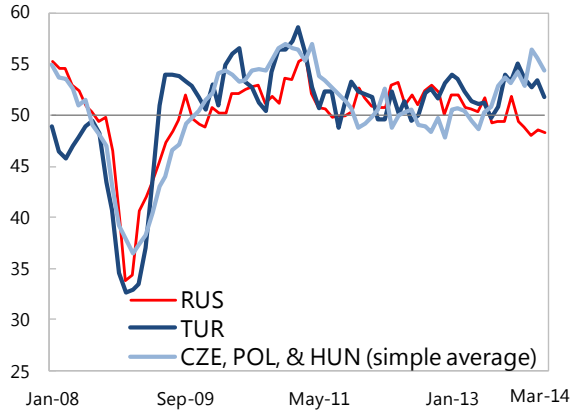


Sources: BIS, Bankscope, and Fund staff estimates.
Notes: [1] Unless otherwise noted, data refer to the consolidated financial claims of banks headquartered in Europe on residents of Russia and Ukraine at end of 2013:Q3. Austrian data is as of 2012:Q3 (for Russia) and 2013:Q1 (for Ukraine). In the case of Cyrprus, Greece, Hungary, Montenegro and Russia, data is for end-2012 and reflects total assets of their banks' local subsidiaries in Russia and Ukraine (only Ukraine in the case of Russia). Countries with missing data are shaded in gray.

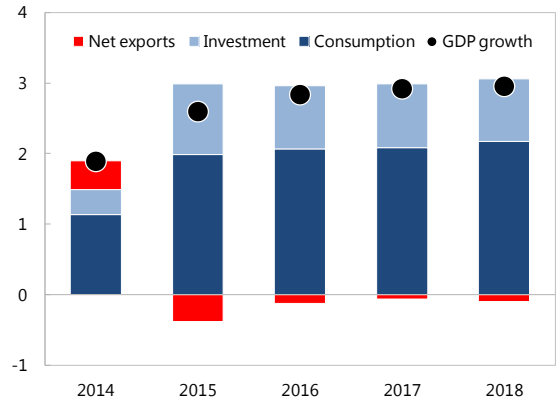
[1]Prepared by Johannes Wiegand and Jessie Yang.

Figure 5. CESEE: PMIs and Growth Outlook

Purchasing Managers Index: Manufacturing
(Seasonally adjusted; 50+ = expansion)



Contributions to CESEE Real GDP Growth, 2014–18
(Percent)



Sources: Haver Analytics; Markit Purchasing Mangers Surveys, and IMF, World Economic Outlook database.

The balance of risks is tilted to the downside, reflecting the possibility of a protracted period of weak growth in the euro area, surges in financial market volatility along the path towards higher interest rates globally, an escalation of geopolitical tensions in the region, as well as delayed resolution of crisis legacies:

- **Growth in the euro area** could remain weak, aggravating current disinflationary trends. As a result, inflation expectations could become un-anchored, further complicating efforts to restore public debt sustainability, repair private sector balance sheets, and rebalance within the euro area. Furthermore, financial stress in the euro area could reemerge and bank-sovereign-real links re-intensify because of stalled or incomplete delivery of policy commitments at the national or euro area level (e.g., an effective Single Resolution Mechanism), or missteps in completing the asset quality review and stress tests, including stemming from the lack of adequate backstops. The consequences could include a worsening of financial fragmentation and credit transmission and further deleveraging pressures.

- **Rising geopolitical tensions** surrounding Russia and Ukraine pose appreciable downside risks to recovery, particularly if sanctions and counter-sanctions intensify. While for most countries, real linkages with Russia are limited outside the energy sector, further escalation of tensions could generate significant regional spillovers through trade, financial, remittances, and confidence channels (Box 2).

- **The tightening of global financial conditions** as monetary policy normalization in advanced economies proceeds may be accompanied by bouts of market volatility, affecting all EMs, including in CESEE. This could affect bank funding flows to the region, exacerbate liquidity

constraints on sovereigns and leveraged banking sectors, and trigger portfolio flow reversals from countries with external or fiscal imbalances and policy gaps.

- Finally, **delayed resolution of crisis legacy problems**, including repairing private sector balance sheets, addressing high levels of NPLs, structural and fiscal challenges, could further hamper growth prospects, especially in SEE.

Table 1 summarizes staff's assessment of the relative likelihood and impact of these risks on CESEE.

Table 1. CESEE Regional Risk Assessment Matrix 1/

Source of Risks	Relative Likelihood	Relative Impact
Protracted period of low growth in the euro area	**High**	**Medium-High**
Surges in global financial market volatility (in the context of tightening in global financial conditions)	**High**	**Medium**
A sharp increase in geopolitical tensions surrounding Russia and Ukraine	**Medium**	**Medium-High**

1/ The relative likelihood of risks is the staff's subjective assessment of the risks surrounding the baseline ("low" indicates a probability below 10 percent; "medium" a probability between 10 and 30 percent; and "high" a probability of 30 percent or more)

II. FUNDING STRUCTURES AND VULNERABILITIES

The analysis presented below focuses on the following questions:

A. **What are the prevalent funding structures in CESEE countries?** What countries/sectors are most reliant on external funding and in particular, on relatively less stable forms of funding or on a few sources of funding or types of creditors? Which countries are most exposed to FX risk?

B. **How does the external environment affect funding conditions for CESEE?** What are the key drivers of the cost of external funding for CESEE borrowers? Which lender and borrower characteristics might render the recipient CESEE countries more vulnerable to a cutback in foreign portfolio investment or foreign bank funding?

C. **Which CESEE countries are more vulnerable to external financial shocks?** To gauge relative vulnerabilities to external shocks, the analysis of funding structures (from A) and sensitivity of funding costs and flows to changes in external funding conditions (from B), is supplemented with an assessment of vulnerability to abrupt exchange rate adjustments.

D. **How would changes in external financial conditions affect growth and debt dynamics in CESEE countries?** Using the IMF's Flexible Suite of Global Models (FSGM), which allows a general equilibrium analysis of the global economy, we explore possible implications of (1) a faster US recovery and (2) a faster US recovery plus risk premium shocks for CESEE countries differentiated by their external fundamentals and sensitivity to external conditions.

A. Funding Structures in CESEE

A high reliance on foreign funding makes CESEE countries particularly sensitive to changes in external financial conditions, as well as rollover and FX risks. The latter is exacerbated by the high level of financial euroization in the region. Many CESEE countries, especially smaller ones, tend to depend on a relatively few common creditors in banking and bond markets, which makes them and the region as a whole vulnerable to spillovers.

Most CESEE countries are highly reliant on external funding, more so than other EMs. Gross external liabilities—including foreign direct investments (FDI), cross-border lending and portfolio investments—stood at around 90 percent of the region's GDP at the end of 2012, some 20 percentage points higher than at end-2008 (Figure 6). The Baltic States (*Baltics*) and the Central and Eastern European countries (*CEE*) are most financially open, with total gross external liabilities at almost 150 percent of GDP. The Southeastern European EU members (*SEE-EU*) and non-EU countries (*SEE-non EU*) have a similar dependence on foreign funding, with gross external liabilities around 120 percent of GDP. Russia and Turkey, the two largest economies in the region, are on the other end of the spectrum, with external liabilities at 60 and 80 percent of GDP, respectively. The reliance

on external funding is, on average, much higher in CESEE than in other emerging market economies (Figure 6).

The external funding structures in CESEE tend to be skewed towards FDI and cross-border lending. FDI is by far the most important funding instrument, accounting for 45 percent of region's total external liabilities, followed by cross-border lending (30 percent of GDP) and portfolio investment (20 percent of GDP) (Figure 6).

But there are differences in funding patterns across sub-regions, likely reflecting differences in the quality of local institutions, financial depth and macroeconomic fundamentals:

- The Baltic States have the highest dependence on cross-border lending among all CESEE countries, with a stock of cross-border loans close to 70 percent of GDP at end-2012.
- In contrast, FDI is the dominant funding instrument for *CEE*, accounting for over half of their total foreign liabilities. This is likely linked to the quality of the legal and institutional framework in these countries, which facilitates longer-term engagement of non-residents in the economy, and a high integration of CEE countries into euro-area production supply chains.
- The funding structures of *SEE-EU* and *SEE-non EU* are similar. Both groups seem to depend almost equally on FDI and cross-border lending, with each accounting for 50–60 percent of their respective GDP.
- In Belarus, Moldova and Ukraine (*East3*), cross-border lending is the dominant form of foreign financing, although its stock as a share of GDP is not very different from some other sub-regions.
- Russia and Turkey have their external funding evenly distributed across different instruments.

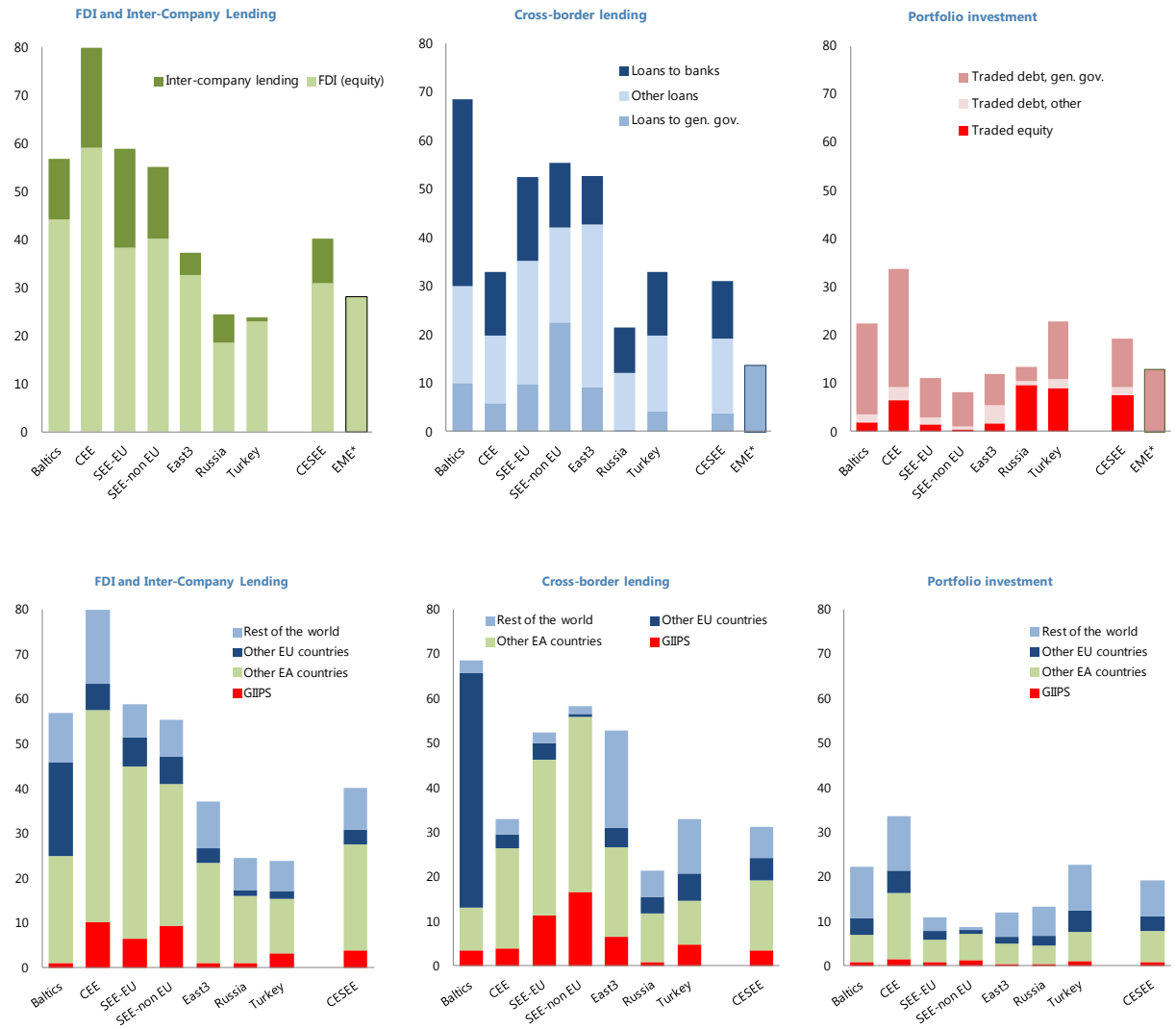
Portfolio investment is less important than FDI or cross-border lending, and consists mostly of sovereign bonds. The EU member states and Turkey account for the bulk of traded sovereign debt. The largest economies—Russia, Turkey, and Poland—account for about 90 percent of all foreign equity investments in CESEE, suggesting that market size matters.

Who Are the Main Creditors?

European Union (EU) countries are the main foreign creditors of CESEE countries. They account for about three-quarters of the region's total external funding at end-2012 (Figure 6, bottom panels). Most of this funding (over 80 percent) comes from the euro area, including some 12 percent from countries that had been hardest hit by the crisis—Greece, Ireland, Italy, Spain, and Portugal (GIIPS).

Figure 6. CESEE External Funding Patterns by Region, Instrument, and Creditor

(End-2012, in percent of GDP)



Note: The sub-groups are defined as: (i) *Baltics*: Estonia, Latvia and Lithuania, accounting for about 2 percent of the region's 2012 US dollar GDP; (ii) *CEE*: the Czech Republic, Hungary, Poland, the Slovak Republic and Slovenia (21 percent); (iii) *SEE-EU*: Bulgaria, Croatia and Romania (6 percent); (iv)*SEE-non EU*: Albania, Bosnia and Herzegovina, Kosovo, Macedonia, Montenegro and Serbia (2 percent); (v) *East3*: Belarus, Moldova and Ukraine (6 percent); (vi) Russia (45 percent); and (vi) Turkey (18 percent).

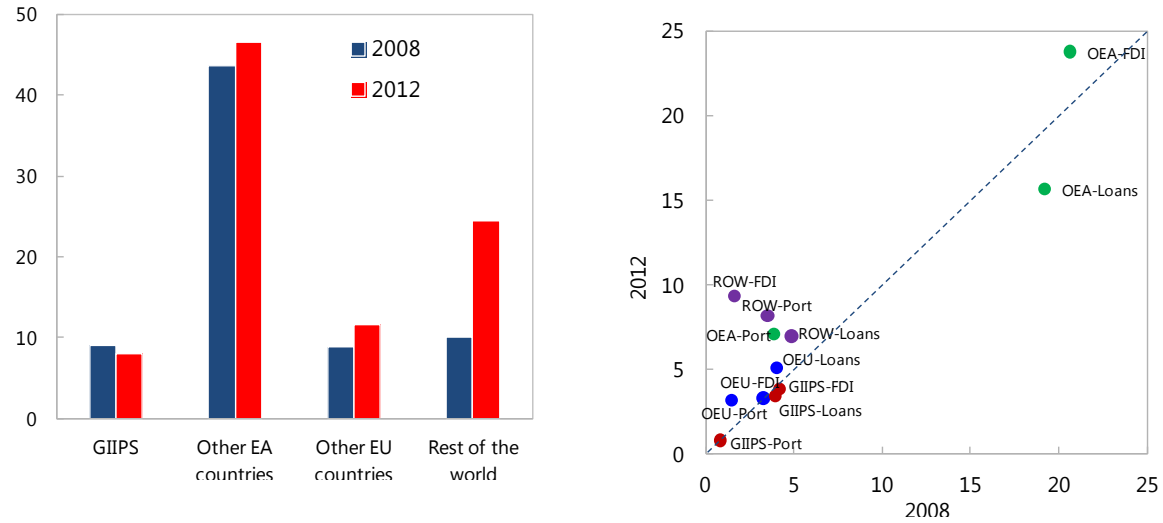
* Other emerging market economies include Argentina, Brazil, Chile, China, Colombia, Egypt, India, Indonesia, Jordan, Kazakhstan, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Peru, Philippines, Saudi Arabia, South Africa, Thailand, Tunisia, and Venezuela.

Sources: IMF, Coordinated Direct Investment Survey (CDIS); IMF, Coordinated Portfolio Investment Survey (CPIS); IMF, International Investment Positions (IIP) statistics; IMF, RES Bank Contagion Module; IMF, World Economic Outlook (WEO) database; BankScope database; country authorities; and IMF staff estimates.

The relative importance of western creditors varies across sub-regions and seems to be linked to geographic proximity. The share of external funding coming from the EU is about 90 percent in *SEE-EU* and *SEE-non EU*, 80 percent in *Baltics* and *CEE*, and about two thirds in *East3*, Russia and Turkey. Nordic countries have their largest presence in *Baltics*, accounting for about 75 percent of cross-border loans received by this sub-region, while funding from Greece and Italy is most relevant for *SEE-non EU* (see Figure 6 bottom panels).

Non-EU investors' positions vis-à-vis CESEE more than doubled during the crisis (Figure 7, left panel), from less than 10 percent of the region's GDP in 2008 to about 25 percent in 2012.[5] The largest hike happened in FDI, going up from 1½ percent of the region's GDP to almost 10 percent. Portfolio investment and cross-border lending have both increased as well, rising by 4½ and 2 percentage points, respectively (Figure 7, right panel). The US accounted for most of the increase in portfolio investment, while the bulk of new FDI was channeled through offshore financial centers.

Figure 7. External Funding Patterns by Region of Investor, 2008 vs 2012 (Percent of GDP)



Sources: IMF, Coordinated Direct Investment Survey (CDIS); IMF, Coordinated Portfolio Investment Survey (CPIS); IMF, International Investment Positions (IIP) statistics; IMF, RES Bank Contagion Module; IMF, World Economic Outlook (WEO) database; BankScope database; country authorities; wiiw FDI database; and IMF staff estimates.

Meanwhile, funding from EU member states has increased only moderately. The aggregate positions of non-GIIPS euro area countries went up by about 3 percentage points of GDP, with the rise in FDI and portfolio investment more than offsetting a sizable drop in cross-border lending. For non-euro area member states, small increases in portfolio investment and cross-border lending also raised their positions by about 3 percentage points. Total investment by GIIPS in CESEE stayed virtually flat during this period.

[5] Main investors in this group include some advanced economies outside the EU (such as the United States, Japan, and Switzerland) and Russia.

Who Are the Main Borrowers?

Both public and private sectors in CESEE countries rely on external borrowing (Figure 8).[6] Despite large differences in the size of external debt, most CESEE governments use both domestic and foreign financing. The public sector's reliance on foreign financing—measured by the share of external debt in total public debt—ranges from 25 percent in the case of Russia to around 90 percent in Latvia and Lithuania, with an average of around 55 percent. The average foreign funding reliance for the private sector is somewhat higher than that of the public sector, around 65 percent. Countries with the highest external debt exposure in the public sector include Hungary, Serbia, and Lithuania. Countries with the highest external debt exposure in the private sector include Hungary, Latvia, Estonia, Bulgaria, and Croatia.

The public sector external debt increased rapidly since 2008, in contrast with the private sector external debt. Figure 8 shows that in 2008 the private external debt stock was, on average, over 50 percent of GDP in CESEE countries, while public external debt was only about 10 percent. Between 2008 and 2012, the stock of public sector external debt increased in all CESEE countries, reflecting the need for higher public borrowing (part of which was official assistance) due to the crisis and the ensuing recession. As a result, public sector external debt has more than doubled to over 20 percent of GDP. In contrast, the private sector foreign debt remained, on average, the same (relative to GDP) during 2008–12.

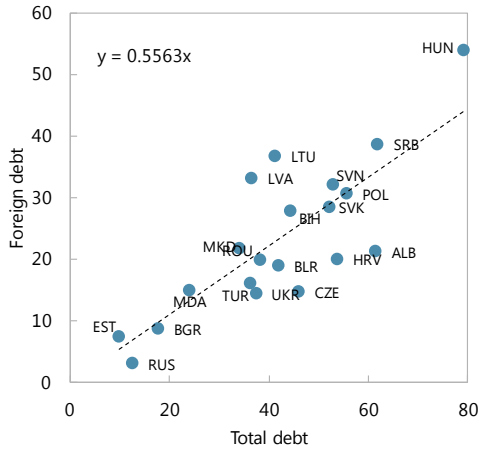
For the CESEE private sector, bank loans are the main form of external borrowing. For the region as a whole, it accounts for over 70 percent of private sector external borrowing. The split of cross-border lending between direct cross-border loans to nonfinancial firms and lending to local banks is, on average, around 55 percent to 45 percent. But it differs greatly across countries: in the Baltic states and some Central European economies (Hungary, Slovenia), lending to banks is prevalent, while in Croatia, Ukraine and Moldova, direct cross-border lending to nonfinancial firms plays a disproportionately larger role (Figure 8).

For the CESEE public sector, the prevalent form of external funding seems to depend on the depth of financial markets in each country. Governments in most EU member states and Turkey raise funding primarily in the bond market, with significant participation by non-resident investors (Figure 8). However, for countries where bond markets are less developed, such as Bosnia and Herzegovina and Albania, loans are the main external funding instrument.

[6] Public sector here covers only the general government. External liabilities of central banks, while non-trivial in some euro area countries and those with IMF supported programs, are quite small in most CESEE countries.

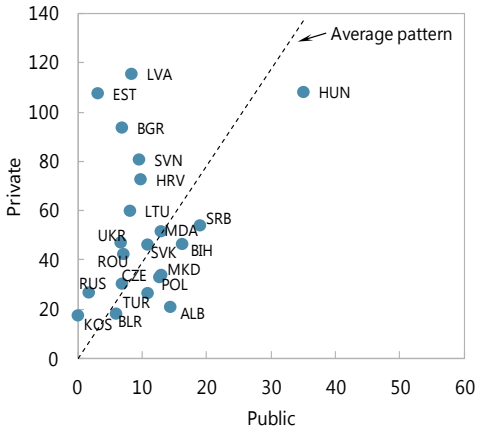
Figure 8. CESEE: Reliance on External Funding of Private and Public Sectors (Percent of GDP)

Public Sector Funding, 2012

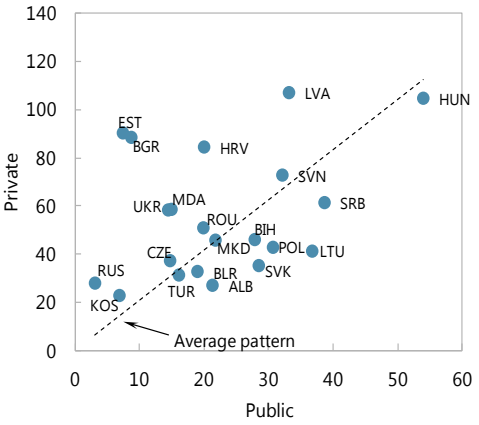


Nonfinancial Private Sector Funding, 2012

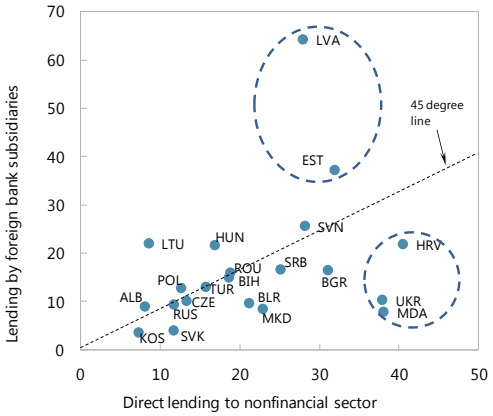
External Funding, 2008



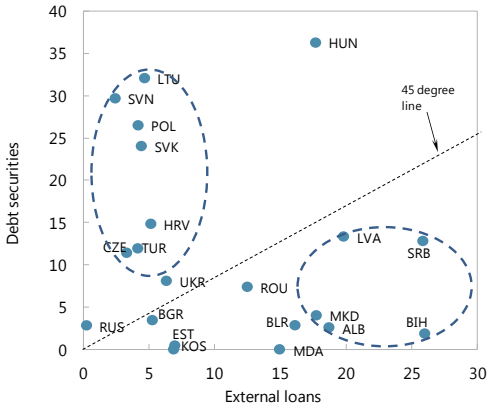
External Funding, 2012



Private Sector External Borrowing, 2012



General Government External Funding, 2012



Sources: IMF, International Investment Positions (IIP) statistics; IMF, World Economic Outlook (WEO) database

What Are Potential Risks?

While a large share of FDI in total external funding for the region provides a degree of stability, a high reliance on foreign funding exposes borrowers to external shocks. Both the size and the composition of external funding matter, as they determine financing needs and exposures to rollover, interest rate and currency risks.

The majority of CESEE countries have sizable negative net international investment positions (NIIPs) and large financing needs. For most CESEE countries foreign asset positions tend to be outweighed by foreign liabilities, resulting in NIIPs of below -50 percent of GDP (Figure 9, panel 1). Furthermore, in most CESEE countries gross external debt is over 50 percent of GDP and rollover needs—short-term debt by remaining maturity—exceed 20 percent of GDP (Figure 9, panel 2).

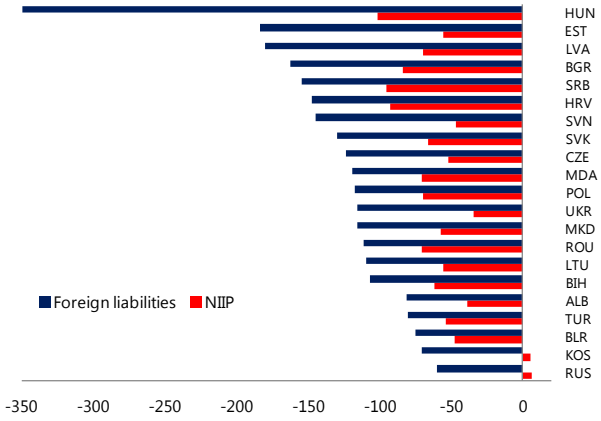
The rollover risk also depends on the composition of external funding. In Figure 9, panel 3, external debt of the private sector is decomposed into debt obligations to affiliated entities (intercompany and parent bank lending) and debt obligations to unaffiliated entities (direct cross-border bank loans and debt securities). Latvia, Hungary, and Estonia stand out as having the highest private sector external debt. However, taking out funding from affiliated entities, which is typically viewed as relatively more stable, reveals that Croatia, Ukraine, and Moldova have the highest reliance on external borrowing from unaffiliated lenders.[7] In a similar vein, Figure 9, panel 4 decomposes the public sector external debt into debt from official sources and debt from private sources. It highlights Hungary, Lithuania, and Poland as most reliant on funding from foreign banks and institutional investors. Of course, foreign bank loans and foreign market financing may have different near-term stability properties simply because bonds can be sold while loans can only be rolled off. In the case of subsidiaries of foreign banks, the amount of parent funding that could be withdrawn immediately is limited by the amount of excess liquid assets held by the subsidiary.

Foreign currency exposure is another risk linked to external borrowing, which is further compounded by a high degree of euroization of domestic financial systems in CESEE. The overall level of FX denominated or FX-linked private nonfinancial sector debt is very high in a number of CESEE countries, notably in Croatia and Serbia (Figure 9, panel 5). For instance, in Croatia, domestic loans exposed to FX risk exceed 50 percent of GDP. Public debt exposed to FX risk is also high in some countries: 50 percent of GDP in Serbia, followed by 36 percent in Croatia. While this means that banks in these countries face FX-induced credit risk, the net open FX positions of most banking systems in CESEE are generally small, ranging from -7 percent to +18 percent of bank capital, with the average for CESEE countries (3 percent) now below the pre-crisis level (8 percent).

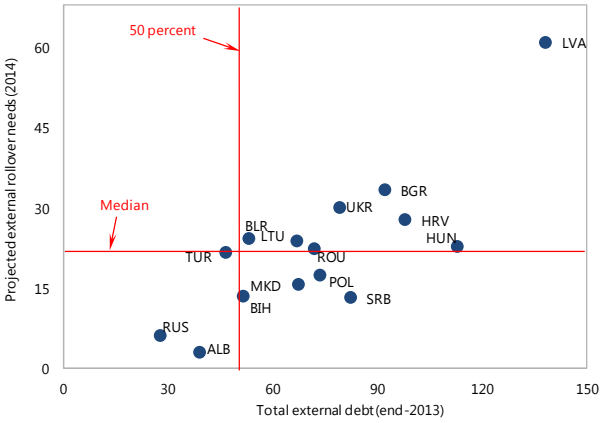
[7] A comparison of standardized volatility measures for different funding flows suggests that inter-company lending is one of the most stable funding sources (next only to equity FDI). The evidence on the stability of parent bank funding vs direct cross-border lending to unaffiliated entities is, however, mixed and depends on sample and sample period.

Figure 9. CESEE External Funding Structures and Risks

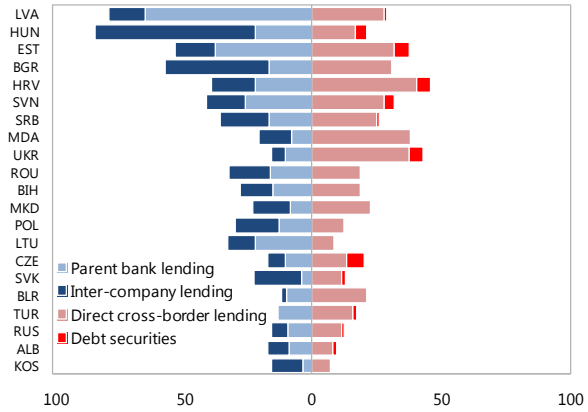
External Liabilities and NIIP
(Percent of GDP, 2012)



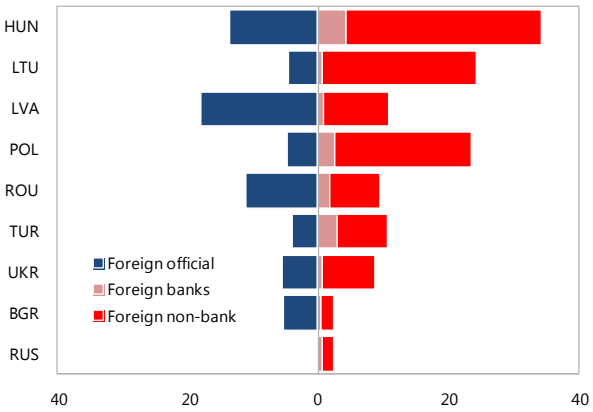
External Debt and Rollover Needs
(Percent of GDP)



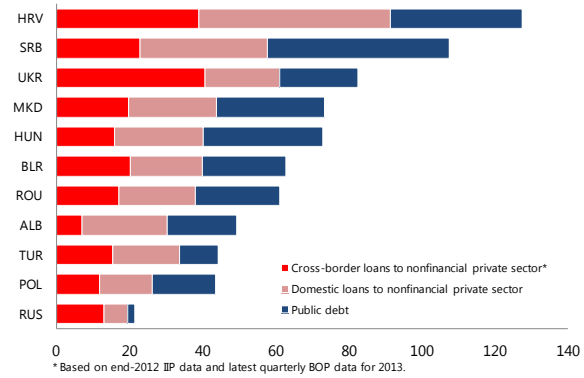
Private Sector External Debt Structures
(Percent of GDP, 2012)



Foreign Investor Base for Public Debt
(Percent of GDP, 2013:Q2)



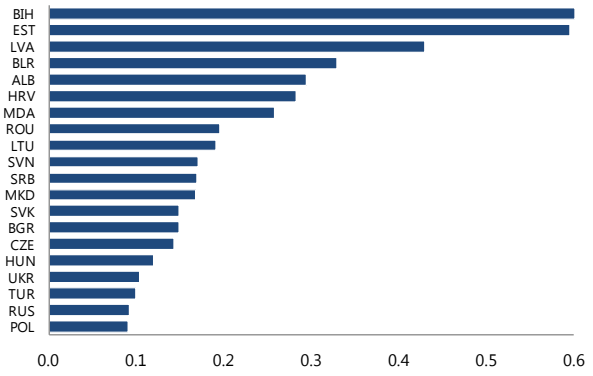
FX Denominated or FX Linked Debt[1]
(Percent of GDP, 2013)



* Based on end-2012 IIP data and latest quarterly BOP data for 2013.

[1] Countries with missing information, those that adopted the euro or have currency board arrangements are not included

Creditor Concentration



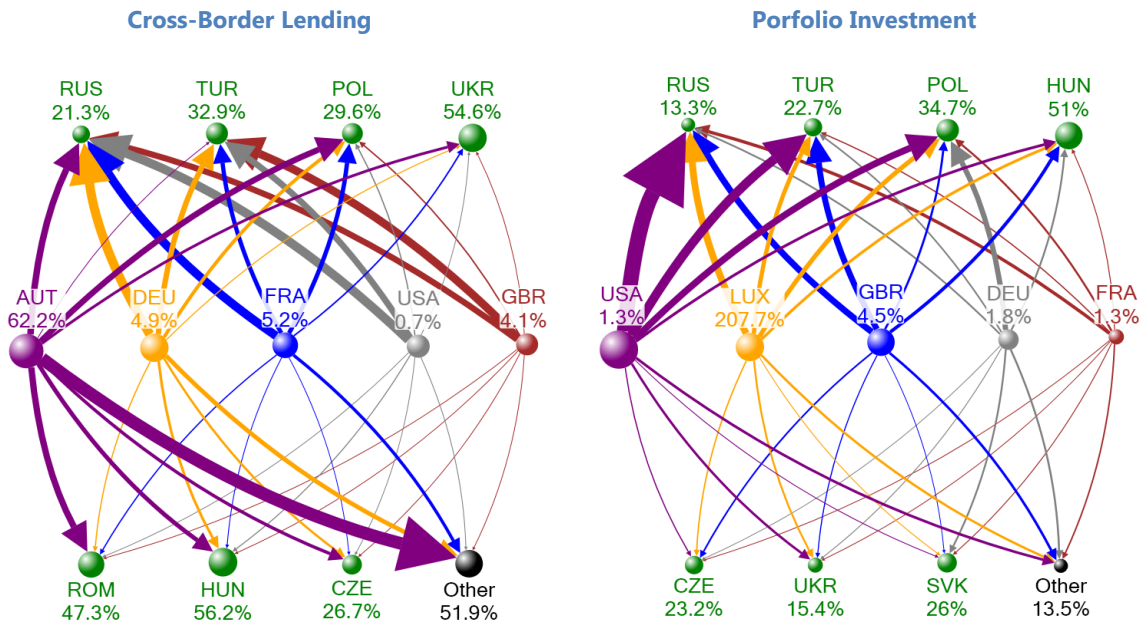
Note: Reported are Herfindahl indices for cross-border lending and portfolio investment. Higher values indicate more concentrated investor base.

Sources: EBRD; IMF, Coordinated Direct Investment Survey (CDIS); IMF, Coordinated Portfolio Investment Survey (CPIS); IMF, International Investment Positions (IIP) statistics; IMF, RES Bank Contagion Module; IMF, Sovereign Investor Base Dataset for Emerging Markets; IMF, World Economic Outlook (WEO) database; and IMF staff estimates.

Most CESEE countries tend to borrow from a relatively few common creditors. Figure 9, panel 6 shows the Herfindahl index for CESEE countries by source countries of cross-border bank loans and portfolio investment. Unsurprisingly, smaller countries tend to face higher creditor concentration. In the banking market, for example, Austrian banks serve as the largest cross-border lenders to the region, on a scale equivalent to over 60 percent of Austria's GDP. A shock to a country in which Austrian banks have high exposure, or a shock in Austria itself, could prompt readjustment of the entire portfolio of regional exposures by Austrian banks. Figure 10, right panel highlights the US as the largest single source country of portfolio investment to the region, making CESEE bond and equity flows/prices sensitive to changes in financial conditions in the US. That said, the euro area as a whole is still the largest source of portfolio investment for CESEE region. In most cases, these exposures (Figure 10) are dominated by a few large institutions—cross-border banks or global asset management companies.

Finally, some CESEE economies depend more on income transfers than on capital inflows. This is particularly the case for relatively less wealthy countries, i.e., Southeastern Europe, Ukraine, and Moldova, which are highly dependent on remittances (see Annex IV).

Figure 10. Cross-Border Lending and Portfolio Investment: Top Creditors



Note: Shown in charts are top 5 cross-border lenders and portfolio investors to the CESEE region, and how their loan/investment portfolios are allocated across the region. Balls in the middle row represent creditors/ investors, larger balls indicate larger USD exposures to the region (exposures *in percent of creditors' GDP* are reported in the labels). The top and bottom rows indicate recipients ordered by the total receipt of cross-border lending/portfolio investment, larger balls indicating larger total loans/investment received *in percent of the recipient's GDP* (also reported in the labels). The width of arrows indicates the amount of bilateral cross-border lending/portfolio investment from the creditor/investor to the recipient country.

Sources: IMF, Coordinated Direct Investment Survey (CDIS); IMF, Coordinated Portfolio Investment Survey (CPIS); IMF, International Investment Positions (IIP) statistics; IMF, RES Bank Contagion Module; IMF, World Economic Outlook (WEO) database; BankScope database; country authorities; and IMF staff estimates.

B. Global Environment and Funding Conditions for CESEE

Given their funding structures, CESEE countries are highly susceptible to changes in the external environment, with some differences across countries and instruments. For cross-border bank flows, global liquidity conditions and degree of reliance on parent bank funding seem to matter most. For portfolio flows and bond spreads/yields, policy and bond market rates in advanced economies, as well as global investor risk appetite are more important. But domestic factors matter as well. More robust macroeconomic and financial sector fundamentals would generally help offset the negative impact from less favorable external financing conditions.

Higher policy and bond market rates in advanced economies, higher global investor risk aversion and tighter global liquidity conditions tend to increase EM spreads and lower funding flows to EMs. This is supported by previous studies and by the empirical analysis for CESEE countries presented here. The latter considers several aspects of global financial conditions[8]: (i) key policy rates in advanced economies; (ii) key benchmark bond market rates (in the US and in the euro area); (iii) global investor risk appetite (as measured by the S&P 500 Volatility Index (VIX)); and (iv) global liquidity conditions (Figure 11). The main results are summarized in Table 2.

Table 2. Key External Drivers of CESEE Bond Spreads/Yields, Portfolio and Bank Flows

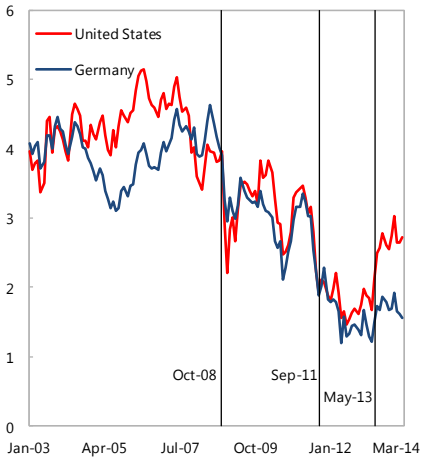
	CDS/EMBIG spreads	Local bond yields	Portfolio flows	Cross-border bank flows
Key policy rates in advanced economies	(+)***	(+)***	(—)***	n.s.
Key benchmark bond market rates in advanced economies	(+) ***	(+)***	(—)***	(—)***
Global investor risk aversion	(+) ***	(+) ***	(—) ***	(—) ***
Global liquidity conditions: • G4 Financial leverage 1/ • Price index of global liquidity 2/	 n.s. (+)***	 n.s. (+)***	 n.s. (—)***	 (+)*** n.s.
Share of variance explained by:				
• External factors	48% (avg.)	31% (avg.)	22% (avg.)	26.2%
• Local factors	38% (avg.)	47% (avg.)	16% (avg.)	29.7%

Notes: 1/ *G4 Financial Leverage* = noncore liabilities over the sum of core and noncore liabilities, where (a) *core liabilities* are total resident deposits in commercial banks and other depositary corporations in the euro area, Japan, the United Kingdom, and the United States (similar to broad money aggregates, such as M3) and (b) *noncore liabilities* are defined as total nonresident deposits in commercial banks and other deposit corporations as well as loans and securities (other than shares) of commercial banks, nonbanks and other financial intermediaries. In contrast to core liquidity, this series includes liabilities across financial institutions; 2/ *Price index of global liquidity*= marginal cost of *noncore funding*; constructed as the common component driving a large set of variables such as interest rate spreads, asset prices, credit volume as well as lending condition surveys that capture the costs of noncore funding (as in Chen et al (2013)). It is measured in standard deviations from the average. n.s. = not significant

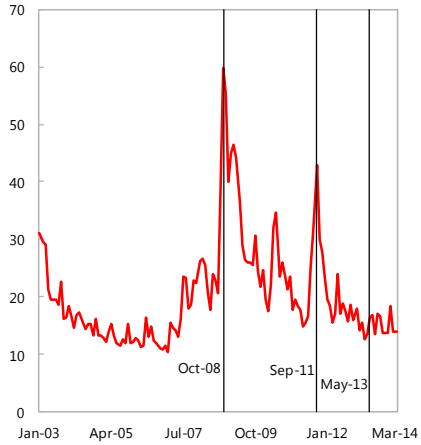
[8] See IMF (2014c) for a detailed discussion of various aspects of global liquidity.

Figure 11. Global Financial Conditions and External Funding Flows to CESEE

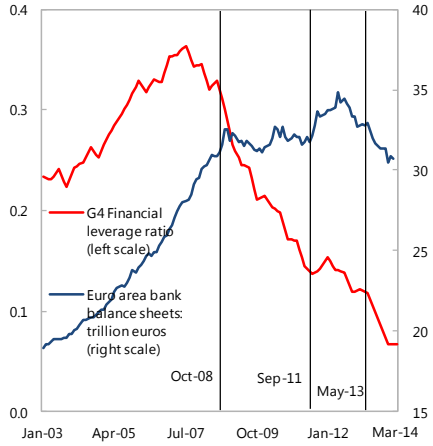
US and German LT bond yields (percent)



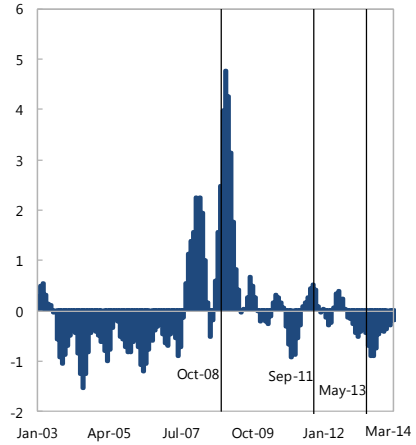
VIX (percentage points)



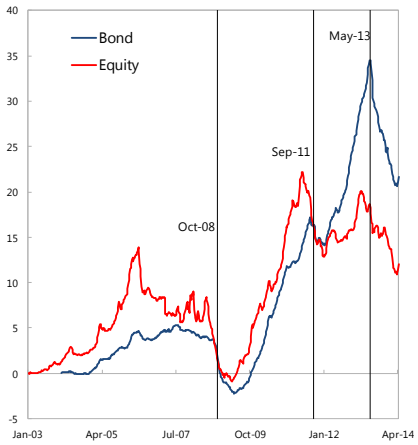
G4 financial leverage and euro area bank assets



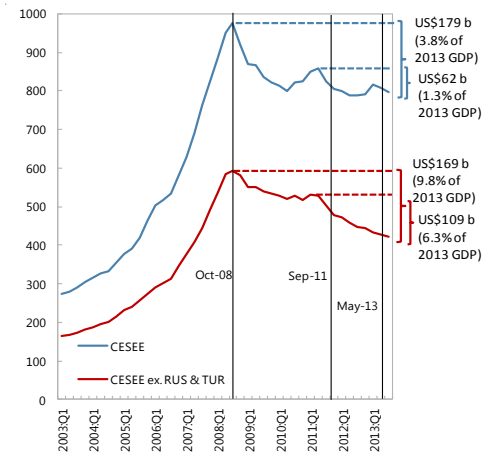
Price index of global liquidity (see Table 2)



Cumulative EPFR flows into CESEE mutual funds and ETFs (Billions of US dollars)



External position of BIS-reporting banks vis-à-vis CESEE (Billions of US dollars)



Sources: Haver Analytics, Bloomberg, ECB, EPFR Global, and BIS.

Different aspects of global liquidity seem to matter for spreads and for different types of funding flows. For cross-border bank flows, the G4 financial leverage (ratio of noncore bank funding to total funding) seems to be an important driver, while for spreads and portfolio flows, it is not relevant, and what matters is the price of global liquidity (marginal cost of noncore bank funding) (see Table 2). External factors are relatively more important in explaining sovereign spreads and portfolio flows, while domestic factors appear to be relatively more important in explaining bank flows and local bond yields (Table 2). Box 3 discusses the behavior of portfolio and bank flows during different stages of the global financial crisis.

Box 3. Global Financial Environment and Foreign Funding Flows to CESEE

October 2008—September 2011: The start of the global financial crisis was marked by a freeze in wholesale funding markets and a spike in global risk aversion. Global financial conditions eased following liquidity support provided by the advanced economy central banks (the VIX and the liquidity price index came down to more moderate levels—Figure 11, panels 2, 4), but cross-border bank liabilities continued to shrink (G4 global leverage—Figure 11, panel 3). During this period, CESEE countries saw a *decline in cross-border foreign bank funding*, while *portfolio inflows surged*, partly driven by increased sovereign bond issuance due to worsening of the fiscal situation in CESEE countries after the onset of the crisis (Figure 11, panels 5, 6).

September 2011—May 2013: The downbeat economic reports renewed fears of slowing economic recovery causing a sharp spike in risk-aversion in September 2011 (Figure 11, panel 2). The US Fed reacted by launching QE3 in October 2011. In Europe, growing concerns about spreading sovereign debt crisis and deepening economic downturn since early 2011 triggered a number of policy responses by the ECB culminating in the establishment of the OMT framework in late summer 2012. First, deteriorating conditions in the euro area and other advanced economies led to *a sharp reversal in portfolio flows* to CESEE in mid-2011 (Figure 11, Panel 5). Then, portfolio inflows to CESEE resumed, but only after European financial markets stabilized in 2012 H2. *External positions of foreign banks vis-à-vis CESEE continued to decline*, after a brief stabilization in 2011 H1 (Figure 11, Panel 6).

May 2013—now: The announcement of prospective tapering of the US QE in May 2013 triggered a bout of market volatility and an increase in long-term bond yields (the US 10-year Treasury bond yield rose 100 bps between May 2013–January 2014, while the increase in German yield was more moderate—Figure 11, panel 1), the liquidity price index has increased, while cross- border bank assets and liabilities continued to decline. Improved Fed communications since then helped reduce volatility even as the actual tapering commenced. Since May 2013, the CESEE region as a whole has seen continuous portfolio outflows, as well as a steady decline in cross-border bank funding (Figure 11, Panels 5, 6) and EMs faced a renewed bout of turbulence in January 2014.

What makes countries vulnerable to foreign bank funding reductions?

Banking systems in countries with weaker macroeconomic and banking sector fundamentals or those that are highly reliant on foreign parent bank funding (especially if parent banks have less robust balance sheets) are more likely to experience cross-border bank funding reductions. These risks can increase if foreign lenders come under deleveraging pressure from tighter global financial conditions or amid the euro area AQR/stress tests.

Foreign bank funding for CESEE has been on a declining trend since 2009. By 2013:Q3, the cumulative reduction of the BIS reporting banks' external positions vis-à-vis CESEE, excluding Russia and Turkey, has reached almost 10 percent of GDP, and close to 4 percent of GDP for the CESEE region as a whole (including Russia and Turkey) (Figure 11, panel 6), with some countries affected much more than others (Figure 12 top left panel).[9] This reduction took place in two distinct phases:

- *First*: After the default of Lehman Brothers, advanced economy banks came under severe liquidity pressure and were forced to stop new lending or sell assets.
- *Second*: In mid-2011, the sovereign debt crisis in the euro area led to renewed deleveraging pressures, as European banks faced higher funding costs as well as increased market and regulatory pressures to improve capital ratios. While the second deleveraging phase has been triggered by bank balance sheet pressures (supply factors), with many European countries slipping into recession, weak credit demand played an increasingly important role. The second phase also saw the start of the transition to a new funding model for cross-border banks, whereby foreign subsidiaries were encouraged to become more reliant on local deposit funding.[10]

G4 financial leverage, reliance on parent funding and loan-to-deposit ratios of CESEE banks seem to have been the most important drivers of foreign bank flows. These findings are in line with other empirical research. For example, previous studies highlight how global liquidity affects foreign bank flows to EMs by reducing risk premia.[11] In order to identify the key drivers of foreign bank flows, changes in external bank positions were analyzed over 2009–13 using a range of factors—global liquidity conditions, parent bank characteristics, and host country macroeconomic and bank fundamentals—as potential explanatory variables (Annex V). Figure 12, top right panel shows both actual average quarterly changes (in percent of GDP) of external positions of BIS-reporting banks vis-à-vis CESEE countries and model-based values.[12] Despite sizable deleveraging that already occurred, parent bank funding still represents a large share of bank funding in several CESEE countries in the region and loan-to-deposit ratios, albeit lower than at the start of the crisis, are still well above 100 percent in many CESEE countries (Figure 12, bottom panels).

While external factors have been important in both deleveraging phases, domestic drivers appear to have been more relevant in the second phase (see Annex V). The following factors mattered more or only in the more recent deleveraging phase:

[9] External positions of BIS reporting banks measure gross international claims of bank offices in the respective reporting countries, including inter-office positions, on the bank and/or non-bank sectors of host countries. For discussion of quarterly developments in external positions of foreign banks in CESEE see http://vienna-initiative.com.

[10] See IMF (2013a) and Impavido et al. (2013) for a detailed analysis of the transition to the new banking model.

[11] See McGuire and Tarashev (2008), Addjiev, Kuti, and Takas (2012), Bruno and Shin (2014), and Cerutti (2013).

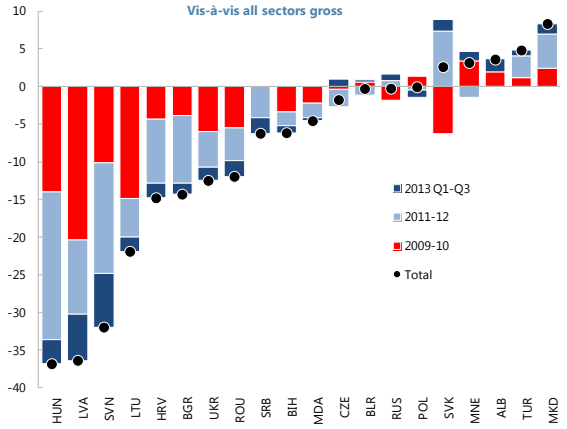
[12] The model tends to underestimate the extent of reduction in exposures of BIS-reporting banks. The in-sample forecast error is particularly high for Hungary, likely due to the fact that specific policies antagonistic to foreign owned banks are not captured in the estimation.

- *Parent bank characteristics* are significant only in the second phase. This may be related to increased pressures to restructure Western parent banks' balance sheets, and also possibly to the commitments that parent banks made under the Vienna Initiative I to support foreign subsidiaries during the first deleveraging phase.

- *Host country macro characteristics* appear to be significant in the more recent period. This is likely linked to significant deterioration in economic conditions across the region along with continued pressures on European banks to repair their balance sheets.

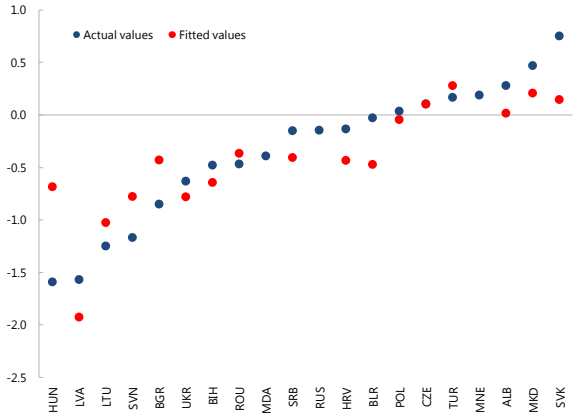
Figure 12. Developments in External Positions of BIS-Reporting Banks in the CESEE Region

External Positions of BIS-Reporting Banks, 2009:Q1–2013:Q3
(Change, percent of 2013 GDP, exchange-rate adjusted)



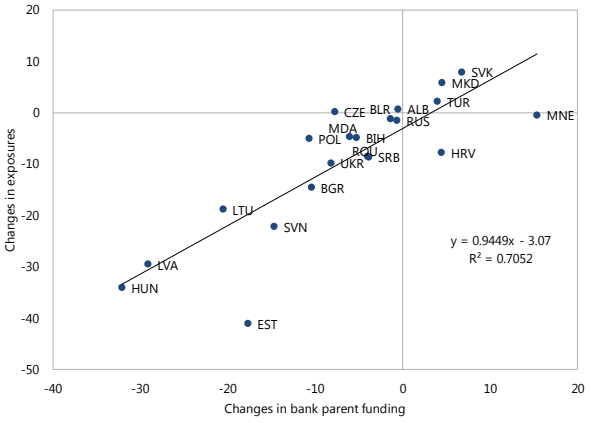
Sources: BIS, Locational Banking Statistics; and IMF staff calculations.

External Positions of BIS-Reporting Banks, 2009:Q2–2013:Q3
(average quarter-on-quarter change, percent of GDP)



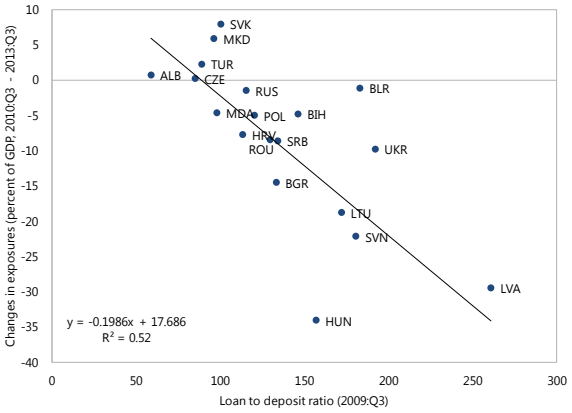
Sources: BIS Locational and Consolidated Statistics (Tables 6 and 9); IMF, WEO; and IMF staff calculations.

Changes in External Positions of BIS-reporting Banks and Reliance on Parent Bank Funding
(Percent of GDP, 2010:Q3–2013:Q3)



Sources: BIS Locational and Consolidated Statistics (Table 6 and 9); IMF, WEO; and IMF staff calculations.

Changes in External Positions of BIS-Reporting Banks and Loan-to-Deposit Ratios



Sources: BIS Locational and Consolidated Statistics (Table 6); IMF, WEO; and IMF staff calculations.

- *Host country banking sector characteristics*, such as profitability, asset quality and loan-to-deposit ratios, became more important in the more recent deleveraging phase, when parent banks began to shift the funding model of subsidiaries away from parent and wholesale funding and towards local deposits. Also, this is the period when most host country banking systems saw a significant deterioration in asset quality and profitability.

What are the drivers of the CESEE sovereign bond yields/spreads?

Tighter global financial conditions will likely exert upward pressure on CESEE sovereign bond yields/spreads, but better fundamentals and more robust policy frameworks should help offset such pressure. A significant increase in foreign investor participation in the CESEE local bond markets has increased their sensitivity to changes in financial conditions in the euro area and in the US.

How do local and external factors affect sovereign bond prices in CESEE? The sensitivities to external factors are broadly similar for local currency bonds and foreign currency bonds, but there is a significant variation in sensitivities to domestic factors (Annex VI).[13] In general, better domestic fundamentals—such as better growth prospects, lower fiscal and current account deficits—tend to push sovereign bond spreads/yields lower, while less favorable domestic factors—such as higher public sector debt or lower market liquidity—tend to push spreads/yields higher. Yields on local currency bonds are also affected by domestic monetary conditions/policy rates. A higher share of foreign investor holdings of local government bonds tends to reduce local bond yields, in part by deepening the local bond markets, but also increase the sensitivity of bond yields to external shocks.[14]

In May 2013 and the following months, less favorable external conditions were putting upward pressure on sovereign bond spreads across *all* CESEE countries, while better domestic fundamentals tended to offset the impact in *some cases*. Between May 2013 and August 2013, sovereign (EMBIG/CDS) spreads of Ukraine, Belarus, and Turkey widened the most, while other CESEE countries saw spreads widen by less or drift back relatively quickly to their pre-taper talk levels (Figure 13)[15]. The model-based decomposition of changes in spreads between May 2013 and January 2014 shows that upward pressures came predominantly from external factors and in some cases (e.g., Ukraine, Serbia) also from domestic factors, while in other countries spreads were supported by improvements in domestic fundamentals. In both Ukraine and Turkey, some of the spread widening was due to political uncertainties (not fully captured in the model).

[13] Also, see, for example, Heinz and Sun (2014), González-Rosada and Levy Yeyati (2008), Hartelius (2006).

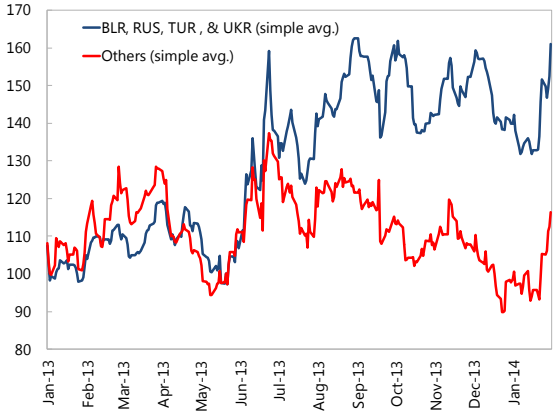
[14] This is consistent with Ebeke and Lu (2014), who found that increased foreign holdings of local currency bonds have reduced bond yields but increased yield volatility. Similarly, Arslanalp and Tsuda (2014) find that foreign investor flows into EM sovereign debt markets have increased dramatically during 2010–12, which helped reduce local government bond yields, but also increased, by various degrees, EMs' exposure to external funding shocks.

[15] EMBIG spreads of Ukraine, Belarus, Serbia, and Croatia, were already over 300bps before May 22.

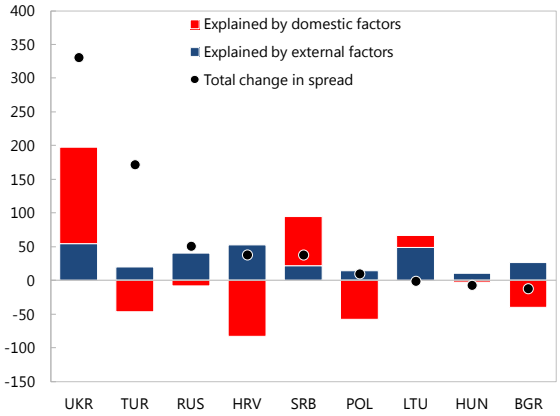
External factors matter for local bond yields as well, but tend to be less important than local factors in most CESEE countries. CESEE local government bond yields also experienced upward pressures from external factors between May 2013–January 2014, while improvements in domestic fundamentals in many countries—growth outlook and current account balance, and in some cases, fiscal balance—were pushing in the opposite direction (Figure 13). In some cases, deteriorating domestic conditions contributed to higher yields as well: in Ukraine (higher fiscal deficit and public debt, worsening growth outlook and lower international reserves), in Russia (lower growth and reduced current account surplus), and Serbia (higher debt and fiscal deficit). Large unexplained residuals may be related to political instability (Ukraine) or to the fact the certain liquid regional markets (Poland) may be treated as "proxies" for other less liquid markets in the region.

Figure 13. CESEE: EMBIG Spreads and Local Government Bond Yields 1/

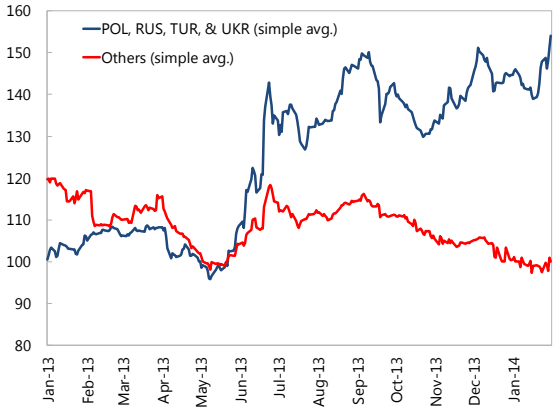
EMBIG Spreads Indices, Jan. 2013–Jan. 2014
(May 21, 2013 = 100)



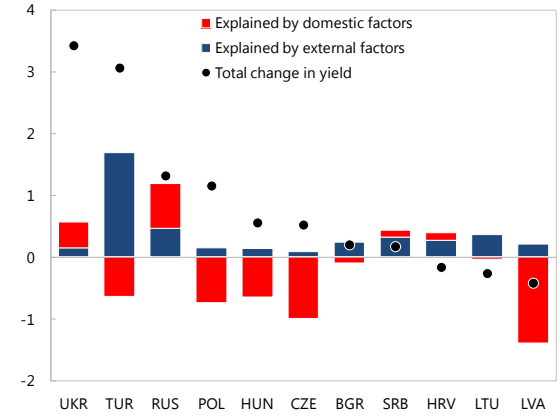
Change in EMBIG Spreads, May 2013–Jan. 2014
(Basis points)



Local Government Bond Yields, Jan. 2013–Jan. 2014 (Indices, May 21, 2013 = 100)



Change in Local Government Bond Yields, May 2013–Jan. 2014 (Percentage points)



Sources: Bloomberg; and IMF staff calculations.

1/ Countries included in the blue line are the ones that experienced larger than 30% widening in spreads/yields during May 21 2013–Jan 31 2014. The charts show model-based decomposition of changes in bond spreads/yields. The external factors include key policy rates and benchmark bond market rates in advanced economies, VIX, and the price index of global liquidity etc. The domestic factors include market expectations of GDP growth, fiscal balance, current account balance, etc. (See Annex VI).

What makes countries vulnerable to portfolio flow reversals?

While external factors—global risk appetite and global liquidity conditions—are important drivers of portfolio flows, having strong fundamentals helps mitigate portfolio flow reversals in times of tighter global financial conditions. The dominant role of institutional investors in CESEE bond markets is not a guarantee of stability: while institutional investor flows are generally more resilient and differentiated across countries, they also tend to react more strongly and persistently to extreme shocks than retail investor flows. Moreover, investor concentration appears to be high, especially in smaller CESEE countries, making portfolio flows vulnerable to allocation decisions of a few fund managers.

Compared to bond spreads/yields, portfolio flows to CESEE countries are explained by a more diverse set of factors. Still, external factors, such as the VIX, the price of global liquidity, the US and German government bond yields, tend to be significant drivers of portfolio flows to CESEE countries. Domestic variables, such as growth, fiscal balance, current account balance, forward exchange rates, are also relevant in explaining the behavior of portfolio flows. In some cases, policy variables such as the central bank policy rate (Poland) or the level of international reserves (Ukraine) are significant as well (Annex VI). These findings are broadly consistent with earlier studies.[16]

Moreover, the composition of the investor base also matters for the stability of portfolio flows. It is worth distinguishing between two types of portfolio investors: *retail investors* (mutual funds that manage retail money) and *institutional investors* (such as pension funds and insurance companies that tend to have a longer-term strategic investment focus). Institutional investors appear to be the dominant investor group in CESEE markets though their relative importance varies by country (Figure 14, panels 1–2; institutional investors often account for the bulk of foreign investor positions not covered by the EPFR data).

Institutional and retail investors tend to behave differently[17]:

- *Institutional investors seem to differentiate across countries more than retail investors.*[18] Institutional investors appear to have been using a more differentiated approach before and after May 2013 by consistently reducing or maintaining exposures to specific countries (Figure 14, panel 4). In contrast, mutual fund investors continued to invest in most CESEE bond and equity markets before pulling back from all after May 2013.

[16] See, for example, Forbes and Warnock (2011), IMF (2014a), etc.

[17] This analysis is contributed by Luis Brandao-Marques, Johannes Ehrentraud, Hibiki Ichiue, and Hiroko Oura (all IMF's Monetary and Capital Markets department), and is part of the background analysis for Chapter 2 of the April 2014 *Global Financial Stability Report*. *Mutual fund investors* in the EPFR database are considered to be largely retail investors, though some mutual fund shares are held by "institutional investors," defined by EPFR as mutual fund shares targeted at institutional investors or those with shares above US$100,000.

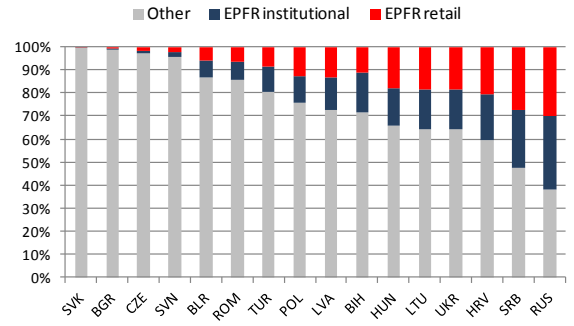
[18] Since portfolio flows covered in both EPFR and BNY data do not cover the universe of mutual funds and institutional investors, the results should be interpreted with some caution.

- *Retail investor flows exhibit higher sensitivity to changes in global financial conditions than institutional investor flows.* Institutional investor flows to CESEE have been broadly resilient or even increased since the tapering announcement in May 2013, while retail investors have been withdrawing (Figure 14, panel 3).

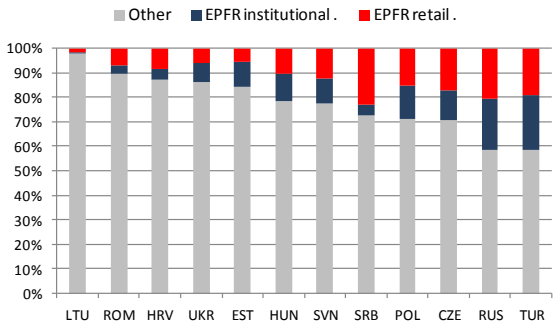
- *However, institutional investors tend to react more strongly to extreme shocks than retail investors.* When faced with extreme shocks, such as the global financial crisis and sovereign downgrades to below investment grade, institutional investors tend to withdraw from EMs more strongly and persistently than mutual funds (Chapter 2 of the April 2014 GFSR).

Figure 14. Institutional and Retail Investors in CESEE

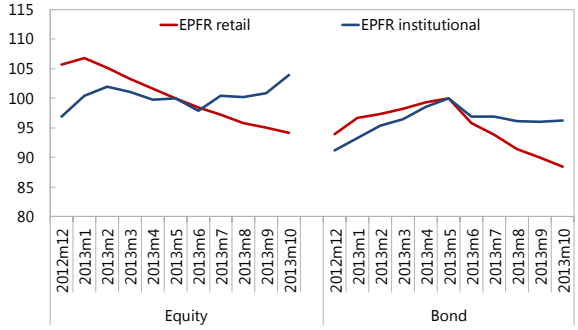
Shares of EPFR Institutional and Retail Investors in Foreign Bond Investment in CESEE (percent, end 2012)



Shares of EPFR Institutional and Retail Investors in Foreign Equity Investment in CESEE (percent, end 2012)

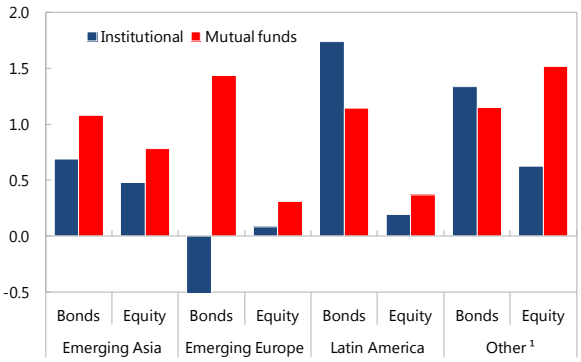


Portfolio flows during the 2013 selloff episode
(Cumulative flows average across countries; May 2013 = 100)



Sources: Emerging Portfolio Fund Research; and IMF staff calculations.
Note: For equities, sample includes Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Serbia, Slovenia, Turkey, and Ukraine. For bonds, sample additionaly includes Bralus and Slovakia, but excludes Bulgaria and Estonia.

Portfolio Inflows, by Region and Investor Type
(Net inflows between October 2008 and September 2013; percent of GDP)



Sources: Bank of New York Mellon; Emerging Portfolio Fund Research; and IMF staff calculations. Chart 2.5.4 in Chapter 2 of the April 2014 GFSR.
[1]Others include Egypt, Israel, and South Africa.

Note: EPFR data cover only a part of institutional investor position.

Investor concentration is high in many CESEE markets, especially in smaller markets, where it has been, on average, higher than in larger markets and rising (see Annex VII), implying that these markets may be more exposed to idiosyncratic risks and contagion through common investors.

C. Which CESEE Countries May be Vulnerable to External Financial Shocks?

While most countries in CESEE region have greatly improved their current account positions, vulnerabilities to external shocks persist due to a build-up of private debt during the boom years or due to an increase in public debt since the global financial crisis. As a result, external financing needs tend to be notably higher, on average, for CESEE countries compared to other EMs. Also, many CESEE banking systems continue to rely heavily on non-deposit funding, mainly from foreign parent banks.

Vulnerabilities to external financial shocks may stem from three sources—stock, flow, and external fundamentals.[19] While stock vulnerabilities provide a sense of magnitude of potential impact of persistent tightening in funding conditions, flow vulnerabilities are more relevant for gauging the intensity of funding pressures over the near term.

- *Stock vulnerabilities*. Much of the region accumulated large private sector debt during the boom years, benefitting from abundant global liquidity and favorable investor sentiment in the run-up to EU membership. While private debt remains elevated across the region, public debt burden has also gone up since the crisis. To the extent this debt, private or public, carries exchange rate risks or is funded from less stable sources, there are related vulnerabilities (as discussed in Section A).

- *Flow vulnerabilities*. The impact and pass-through of financial market stress is also a function of how large financing needs are and how sensitive the market pricing of country risk is to changes in external conditions (as discussed in Section B). During recent episodes of market turbulence, often countries with relatively low public or private sector debt (Turkey and Russia for example) faced stress for reasons unrelated to stock problems.

- *External fundamentals*. In addition to the above, an overvalued exchange rate or low levels of international reserve buffers could also be a source of vulnerability to external funding shocks.[20]

What are the most common sources of vulnerabilities in the region? [21]

- *The private sector appears to be more vulnerable than the public sector.* The private sector is vulnerable less than a third of CESEE countries (six) either because of a high debt stock that carries exchange rate or financing risks, or because of a sizable CA deficit and large foreign debt falling due (see Box 4). In contrast, the public sector is vulnerable in only three CESEE countries.

[19] Ukraine is not included in the analysis presented in this section.

[20] Exchange rate overvaluation reflects IMF country teams' assessment taking into account both exchange rate and current account developments relative to their fundamentals. For the purposes of this analysis, a country was considered vulnerable on account of weak external fundamentals if its estimated exchange rate misalignment was greater than 10 percent or if its actual reserves were below 75 percent of the IMF's composite metric. For details on the IMF's composite reserve adequacy metric, see http://www.imf.org/external/np/pp/eng/2011/021411b.pdf.

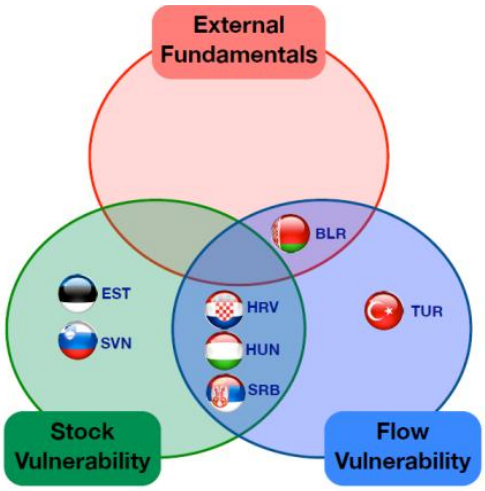
Croatia, Serbia and Hungary exhibit *both* high public and private sector vulnerabilities, which implies that a negative external shock could be particularly damaging.

- *Stock positions are a somewhat more common source of vulnerability than flow positions.* A little less than a quarter of CESEE countries (five) face stock vulnerabilities, particularly in the private sector, due to high loan-to-deposit ratios and private debt exposed to financing or exchange rate risks. Five countries demonstrate flow vulnerabilities, mostly due high level of or elevated CDS spreads since the taper talk.

- *External imbalances are a concern only for a few countries***.** With the exchange rates mostly considered in line with fundamentals, and foreign exchange reserves adequately covering potential drains, the risk of sudden exchange rate adjustment is limited (see Box 4). Belarus stands out as having both very low reserve buffers and significantly misaligned exchange rate.

There are relatively few CESEE countries that can be characterized as particularly vulnerable to external financial shocks based on our metrics. Although about a third of CESEE countries appear in at least one of the three vulnerability categories (Figure 15), only four countries demonstrate vulnerability on multiple fronts: *Belarus, Croatia, Hungary, and Serbia*. For *Turkey*, an elevated current account deficit financed largely by short-term portfolio flows and significant external financing needs create flow vulnerabilities. For *Estonia* and *Slovenia*, vulnerabilities are a result of high private sector debt funded by direct cross border loans and high loan-to-deposit ratios.

Figure 15. CESEE Countries' External Vulnerabilities



A country is included in the stock (flow) sphere if vulnerabilities are high in public or private sector. For external sector, a country is shown if the exchange rate is misaligned by more than 10% or reserves coverage is less than 75% of the IMF's adequacy metric. Ukraine is excluded from this analysis. Source: IMF staff estimates.

[21] A country was included among those with stock vulnerability if either its public debt stock exceeded the threshold value for both indicators as described in Box 4 or if it's private debt stock exceeded the threshold value in at least two of the three indicators. For the flow vulnerability category, a country was included if both indicators carried an above threshold value (also as defined in Box 4).

Box 4. Vulnerability of CESEE Countries to External Financial Shocks[1]

Stock vulnerability of the private sector is captured by (i) the share of domestic credit to nonfinancial private sector exposed to currency risk, (ii) the share of private debt financed by less stable funding flows, namely borrowing from abroad excluding intra-company credit and credit from parents to subsidiaries, and (iii) the loan to deposit ratio of the banking sector. Stock vulnerability of the public sector is gauged by: (i) the overall stock of public debt and (ii) the share of public debt exposed to currency risk to assess private sector's *flow vulnerability* we look at (i) projected CA balance in 2014 and (ii) external debt falling due (remaining maturity) in 2014, both in percent of GDP. The assessment of flow vulnerabilities in the public sector is based on (i) fiscal financing needs in 2014 (in percent of GDP) and (ii) the average level of sovereign risk premium since the first tapering announcement in May 2013 as captured by the CDS spreads. Vulnerabilities to *abrupt exchange rate adjustment* are captured by (i) significant overvaluation of the exchange rate, and/or (ii) inadequacy of foreign exchange reserves.

Given that the benchmark for several indicators is based on the CESEE region rather than all EMs (see footnotes), this assessment mostly depicts *relative* rather than *absolute* vulnerabilities among CESEE countries. To the extent the region generally carries an elevated level of debt, more countries may be considered vulnerable. The goal here is to gauge the *likely relative impact of external funding shocks on different CESEE countries* rather than to provide a comprehensive assessment of vulnerabilities and of crisis risks, which would have to be grounded in predictive power of various indicators.

	Private Sector					Public Sector				External fundamentals	
	Stock			*Flow*		*Stock*		*Flow*			
	Domestic credit to private sector in FX or FX-linked (% of GDP, end-2013) 2/	Private debt from less stable source (% of GDP, end-2012)	Loan to deposit ratio (December 2013)	Current account balance (% of GDP, 2014)	External debt falling due (% of GDP, 2014)	Public debt exposed to FX risk (% of GDP, end-2013)	Stock of public debt (% of GDP, 2013)	Fiscal financing needs (% of GDP, 2014)	Average CDS spreads, May 22 2013 - March 31, 2014 3/	Exchange rate misalignment	Reserves buffers
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)	(xi)
Serbia	35	26	114	-5	16	51	66	19	374	Moderate	215%
Croatia	55	46	109	1	30	36	60	20	332	Moderate	97%
Hungary	24	21	102	3	26	33	79	20	279	None	152%
Slovenia	3	32	137	6	31	23	73	16	296	None	
Latvia	0	29	145	-2	61	28	32	8	124	None	
Bulgaria	41	32	96	0	33	12	18	4	122	None	133%
Belarus	20	21	150	-10	21	23	37	17	777	Significant	14%
Macedonia	24	23	91	-4	18	30	36	14	...	Moderate	103%
Turkey	18	17	110	-6	23	11	36	10	212	Moderate	116%
Bosnia and Herzegovina	37	19	125	-8	14	30	43	5	...	Moderate	120%
Estonia	1	38	150	-1	47	0	11	2	65	None	
Romania	21	19	108	-2	23	23	39	9	189	None	147%
Slovak Republic	0	13	90	3	31	7	55	10	85	None	
Lithuania	31	9	123	0	25	28	39	7	124	None	
Poland	14	13	114	-2	18	17	57	10	84	None	139%
Albania	23	10	53	-10	3	19	70	28	...	None	164%
Czech Republic	27	20	82	-1	20	19	48	10	59	None	
Russia	7	13	121	2	8	2	13	2	182	Moderate	147%
Threshold	29	30	110	-6	18	29	60	18	200	Significant	75%

Sources: Bloomberg; EBRD; IMF, International Financial Statistics database; IMF, International Investment Positions statistics; IMF, World Economic Outlook database; national authorities; and IMF staff calculations.

1/ Countries are highlighted in red if the indicator value is above the threshold. The thresholds for 11 indicators are the following. For (i), (ii), (vi) and (vii), the threshold values indicate the top quartile for the CESEE region; for (iii), the threshold is 110, which captures the informal target expressed by some foreign parent banks in the context of deleveraging since the global financial crisis; for (iv), threshold represents bottom quartile of emerging market economies; for (v) and (viii), the threshold values represent top quartile for emerging market economies; for (vii), the threshold represents the 60% of GDP debt limit under the EU's Stability and Growth Pact; for (ix), the threshold roughly represents the lower bound of average CDS spreads for BB-rated sovereigns in CESEE region during Mary 22, 2013–present; for (x), an exchange rate overvaluation of more than 10% represents significant, between 5-10% represent moderate overvaluation, below 5% represent none ; and for (xi), the threshold indicates actual international reserves to be less than 75% of the IMF's reserves adequacy metric.

2/ Bulgaria, Bosnia and Herzegovina and Lithuania are not highlighted as they have a currency board which makes high stock of FX related domestic credit less of a concern. Lithuania intends to adopt the euro in 2015.

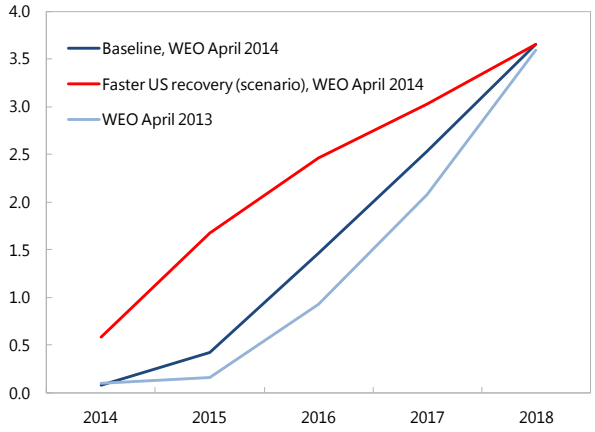
3/ For Belarus, reported is the average EMBIG spreads during May 22, 2013–March 27, 2014.

D. How Would Tighter Financial Conditions Affect Growth and Debt Dynamics in CESEE Countries?

Simulation analysis suggests that tighter global monetary conditions and higher financial market volatility (manifested in higher CESEE risk premiums) will have a negative impact on growth and debt dynamics for CESEE countries, though the impact will likely be manageable for the region.

Since May 2013, the expected US interest rate path has shifted upward, signaling tighter global financial conditions ahead. Figure 16 shows the expected US short-term interest rates as of April 2014, compared to the path that had been expected in April 2013 (before the taper talk). Between April 2013 and October 2013, the WEO forecasts for many CESEE countries have been revised down reflecting a combination of tighter external financing conditions and an ongoing slowdown in major EMs. Figure 17 shows that the GDP growth has been, on average, revised down for CESEE countries, while public debt has been, on average, revised up. External debt, on average, has also been revised down, possibly due to higher external funding costs.

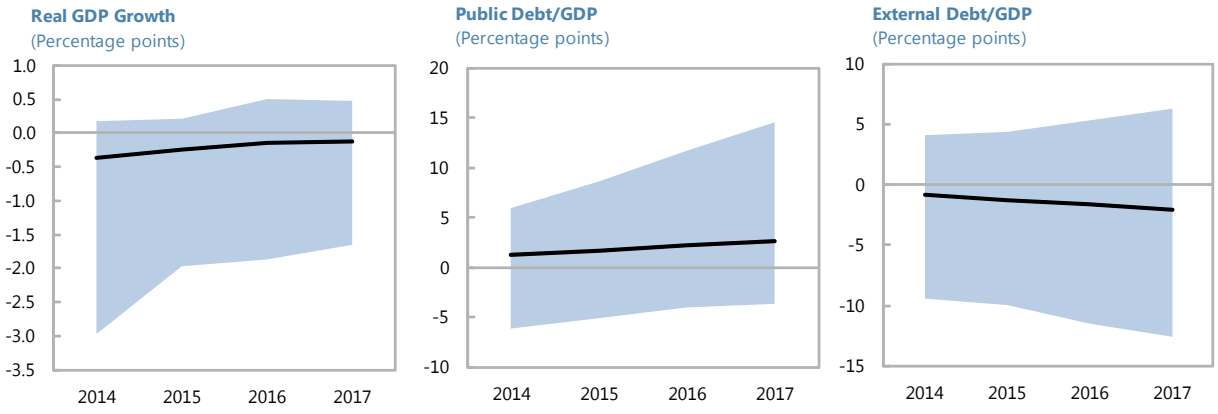
Figure 16. 3M US T-bill Rates (percent)



Source: IMF, World Economic Outlook (WEO) database.

Figure 17. Differences between April 2013 and October 2013 WEO Forecasts for CESEE Countries

simple average; range between max and min across countries



Source: IMF, World Economic Outlook (WEO) database

The baseline outlook is for the US monetary policy normalization to occur in the context of stronger growth, **but there is a risk that bouts of volatility may occur along the transition path**. In order to examine both positive spillovers from higher growth and potential negative spillovers from tighter financial conditions, we consider two scenarios:

(1) *A faster US recovery* (same as *the faster US recovery scenario* in the April 2014 WEO, with the US interest rate path shown as the red line in Figure 16) with a positive impact on growth globally,

(2) *A faster US recovery plus risk premium shocks for CESEE countries*, where faster-than-baseline US recovery is accompanied by accelerated monetary policy normalization which brings about spikes in market volatility and higher risk premiums in EMs, including in CESEE.

In the FSGM simulations[22], financial shocks are transmitted through several channels:

- *Higher interest rates* affect the consumption and investment decisions of households and firms. For example, firms' borrowing costs, which reflect the policy rate, the sovereign and corporate risk premiums and also the state of the economy, rise in the downside scenario causing a slowdown in investment.

- *A higher cost of funding for the public sector* increases expenditure on debt servicing, particularly hurting countries with high fiscal financing requirements. At the same time, weaker revenues stemming from slower growth reduce fiscal balances and thereby raise public debt burdens.

- *Currency depreciations* help exports particularly for more open economies. This together with import compression helps improve current account balances and also improves external debt dynamics over time.

- *Policy responses* to higher foreign interest rates and sovereign risk premiums depend on the state of the economy, policy framework and available policy space:

    - For countries with *fiscal policy room* reflecting relatively low debt and deficits, automatic stabilizers are allowed to work to reduce the negative effect on the real economy.

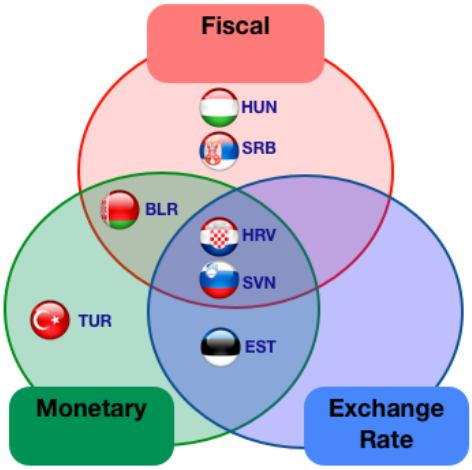
    - For countries with floating exchange rate regimes and *below target inflation*, policy interest rates are allowed to decline to counter real sector weakness.

    - On the other hand, policy responses to stem market pressure (such as a policy rate hike) may have adverse effects on the economy. For example, higher foreign interest rates may have a larger impact on real GDP in fixed exchange rate countries than in floating exchange rate countries with below target inflation.

[22] The Emerging Europe module used in the FSGM simulations was developed by Ben Hunt and Patrick Blagrave (both IMF's Research Department).

Some countries that are vulnerable to external shocks also lack policy space to cushion their impact. Whether a country has fiscal policy space is based on staff's assessment taking into account the level of public debt and the fiscal deficit (including relative to targets set under the EU's Stability and Growth Pact, where relevant). For example, most of the CESEE countries that are vulnerable to external shocks (shown in Figure 15) lack fiscal policy space, with the exception of Turkey and Estonia (see Figure 18). In countries with fiscal policy space, automatic stabilizers are allowed to work in a downturn to reduce the impact. A country is deemed to have monetary policy space if it has a floating exchange rate regime and current inflation is below the target inflation rate. Similarly, a country is considered to have exchange rate policy space if it has a flexible exchange rate regime.

Figure 18: CESEE Countries Vulnerable to External Shocks: Lack of Policy Space



Inclusion in a sphere means lack of policy space.
Source: IMF staff estimates.

More vulnerable countries are assumed to face higher risk premium shocks. For the purposes of this analysis, we use three buckets—very sensitive (VS), sensitive (S), and less sensitive (LS)—to differentiate countries by their degree of sensitivity to external shocks taking into account (i) underlying vulnerabilities (Box 4) and (ii) exposure to regional geopolitical risks (Box 2). Belarus, Croatia, Hungary, Serbia, and Turkey fall into the VS group based on (i), while Moldova, Russia, and Ukraine are added to the VS group on account of geopolitical risks (Box 2). Based on the sensitivity analysis (Box 5), countries in the VS group are assumed to face a risk premium shock that is about 2½ times larger than the increase in the US interest rates (difference between red and dark blue lines in Figure 16); countries in the S group experience a risk premium shock that is roughly 1½ times larger than the rise in US rates, and countries in the LS group experience a rise in risk premiums that is half of the increase in US rates.[23] In light of the simplicity of the assumptions as well as the fact that the model cannot account for all the relevant factors, the results should be interpreted as illustrative.

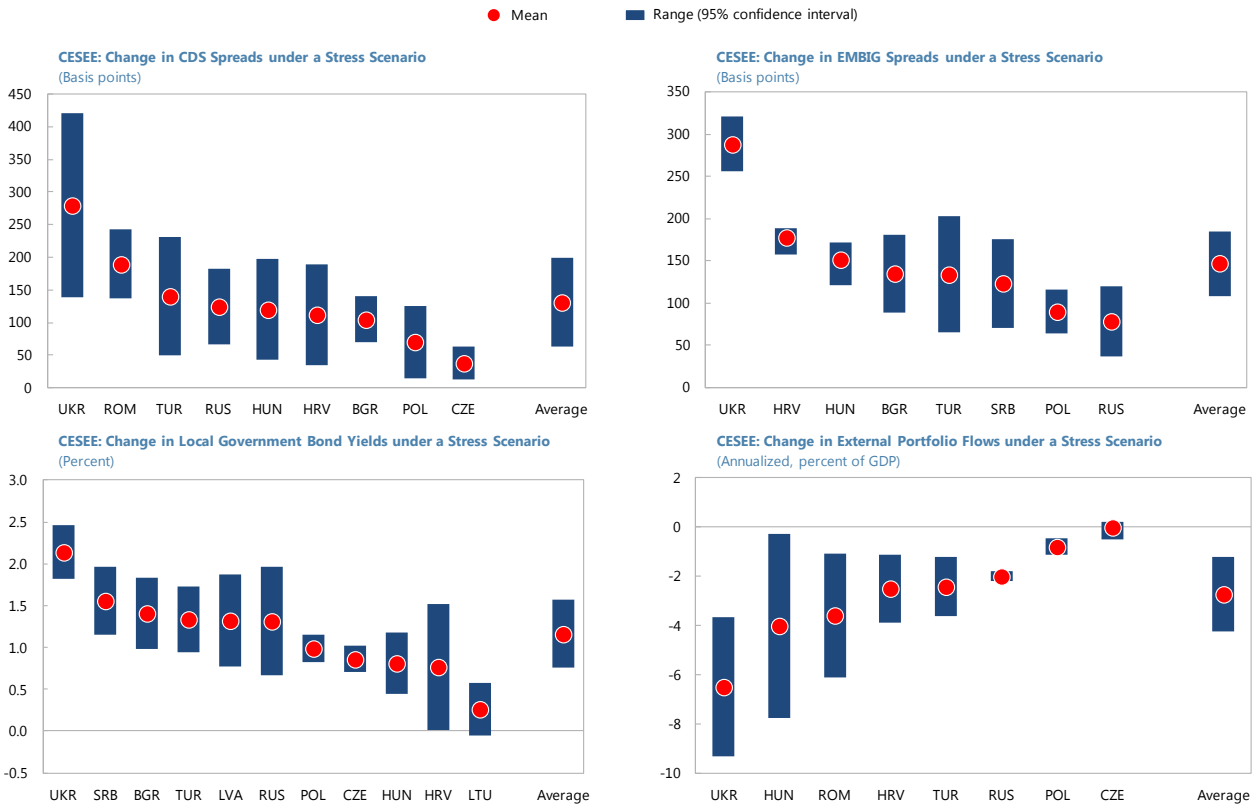
The simulations suggest that a faster US recovery will have a positive, albeit relatively small, impact on CESEE growth, while a faster US recovery accompanied by tighter and more volatile financial conditions in CESEE would be negative for growth and debt dynamics, but overall manageable (Figure 19):

[23] Given that the empirical analysis (used in Box 5) includes the crisis period, one could argue that the sensitivity to the same external shocks would be lower under more normal conditions. Hence, the factor of 2½ is applied only to the VS group. Estonia and Slovenia are part of the CESEE euro area block, which is included in the S group, along with the majority of other CESEE countries, with the exception of the Czech Republic, which is in the LS group.

Box 5. Sensitivity Analysis of Funding Costs and Portfolio Flows

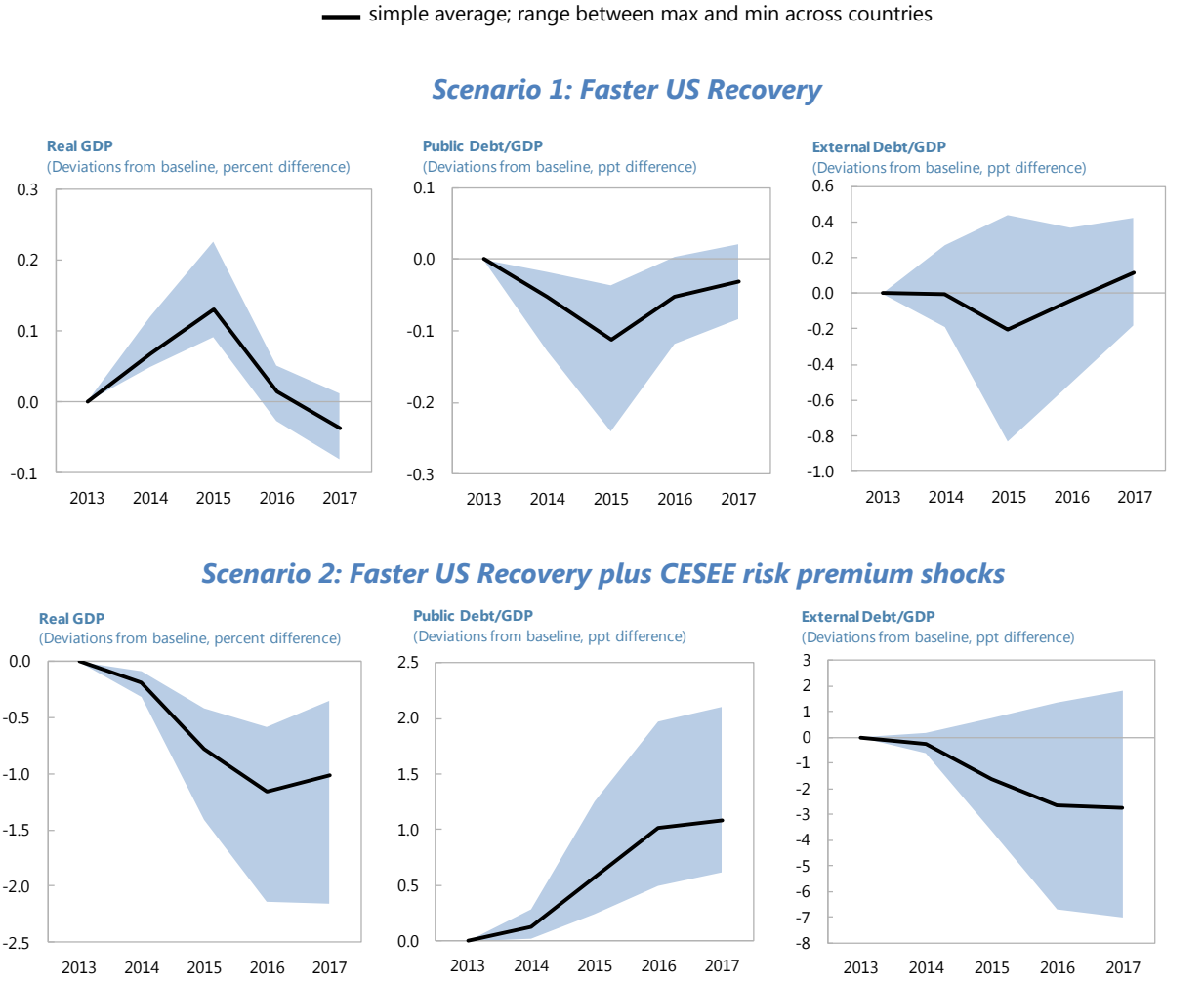
Borrowing costs in CESEE countries could rise because of higher benchmark rates (foreign or local) or because of higher risk premiums due to tighter global liquidity conditions. CESEE sovereigns that raise funding directly from international capital markets may face higher borrowing costs due to rising benchmark rates and (possibly) higher market price of sovereign credit risk (especially where domestic fundamentals are relatively weak). Private borrowers will be affected as well, because sovereign spreads are typically used in pricing of corporate bonds and are also a key parameter for western parent banks in assessing the risk-premium on funding for their subsidiaries and for direct cross-border lending. Domestic interest rates may rise either because higher foreign interest rates are passed-through to local market rates or because increased bank funding costs are passed on to their clients.

The sensitivity of the risk premiums and portfolio flows in CESEE countries to tighter external financial conditions can be gauged using empirical analysis of CESEE sovereign bond spreads/yields and portfoilio flows (see Annex V). The Figures below present the model-based changes in the CDS, EMBIG spreads, local sovereign bond yields and portfolio flows for CESEE countries in response to the following changes in external financial conditions: US 10-year bond yields rise by 50 bps, the US-German bond spread rises by 25 bps, and the VIX goes up by 20 bps (changes in other external factors are calibrated based on their correlation with the US 10-year bond yield after the Lehman crisis). Under such a scenario, CDS spreads, EMBIG spreads and local bond spreads, on average, rise by 120–150 bps, or 2.4–3 times the increase in the US bond yields. Many countries that are particularly sensitive to external shocks based on empirical models (below) are also the ones that are identified as susceptible to external shocks based on balance-sheet indicators (Box 4).



Source: IMF staff estimates.

Figure 19. Real GDP, Public and External Debt of CESEE Countries under *"Faster US Recovery"* and *"Faster US Recovery plus CESEE risk premium shocks"* Scenarios



Source: IMF staff estimates

- *Impact on output*: Under the scenario with tighter global financial conditions (scenario 2), moderate output losses are generated through lower domestic consumption and investment despite some gains from higher demand in the US and currency depreciations in CESEE. When EM financial conditions tighten along with faster US recovery, GDP levels in CESEE countries are 0.35–2.14 percent lower than in the baseline in 2017, with Turkey, Russia, and Ukraine showing the largest output declines.

- *Impact on current account and external debt dynamics*: Declining domestic demand compresses imports, which together with higher exports benefitting from nominal exchange rate depreciation, result in improving current account balances. External debt as a share of GDP is lower than in the baseline.

- *Impact on public debt dynamics:* The decline in output causes fiscal balances to deteriorate in the region. The increase in the public debt-to-GDP ratio relative to the baseline ranges between ½ to 2 percentage points in 2016/17.

The impact of a faster-than-expected US monetary policy normalization and tighter external funding conditions on CESEE countries could be less than implied by the simulations due to a number of factors:

- *Higher share of fixed-rate or long maturity debt* would limit the impact from rising interest rates. While most international bonds of CESEE countries are issued at fixed-rates (Annex VIII), the terms on cross-border loans may vary significantly across countries. The model assumes a generic maturity structure for all countries.

- *Active sovereign debt management*, such as pre-financing during relatively more favorable market conditions, and varying maturity or currency composition of the new debt to lower yields, could partly offset the effect of tighter external funding conditions (Annex VIII).

- *The ECB policy response* could help offset some of the tightening in global financial conditions as the US tapering proceeds.

- *The US Fed communication strategy* could help reduce sudden changes in market perceptions about the US monetary policy stance and hence, the likelihood of unexpected sharp spikes in financial market volatility and market bond yields. Recent IMF staff analysis (IMF, 2014d) shows that during May 21, 2013–September 5, 2013, local bond yields in major CESEE markets have been to a large extent driven by the US monetary shock.[24]

Finally, the nature of shocks leading to tighter global financial conditions matters as well, with tightening driven mainly by good news about growth prospects likely having more benign effect on EMs than tightening driven by increased risk aversion or policy missteps.

[24] Positive monetary shocks are identified as innovations—e.g. an unexpected tightening in monetary policy—that drive up 10-year U.S. Treasury bond yields, while depressing equity prices. In contrast, good news shocks (e.g., positive growth surprises) raise both bond yields and equity prices, while bad news shocks (e.g., negative growth surprises) drive up bond prices and depress equity prices. More details can be found in the forthcoming IMF 2014 Spillover Report.

III. POLICY PRIORITIES

Many countries in the region have limited policy space given fixed exchange rate regimes, elevated fiscal deficits and public debt, and/or above-target inflation. For those with flexible exchange rate regimes, monetary and exchange rate policies can and should be used during episodes of market volatility. In addition, preventive measures, such as securing external credit lines, and targeted liquidity provision could be helpful. Most countries still need to address crisis legacies, including high levels of NPLs. Over the medium term, as growth becomes more robust, most countries need to rebuild fiscal space both to lower vulnerabilities and provide room for policy support.

Many of the countries that are vulnerable to external shocks have limited policy space. Most CESEE countries weathered the taper-related financial turbulence in summer 2013 and January 2014 well, and monetary policy in most countries remains very accommodative. However, as extraordinary expansionary monetary policies in advanced economies are reversed, the CESEE region, like other EM regions, may face external funding pressures. Investors, instead of treating CESEE as one block, have become increasingly mindful of differences among countries (as discussed in Section II.B). Therefore, the extent of external funding pressures may be closely linked to economic fundamentals, and countries with relatively weak fundamentals that also lack policy space may be especially vulnerable.

To mitigate the impact of external shocks, the near-term policy priorities include:

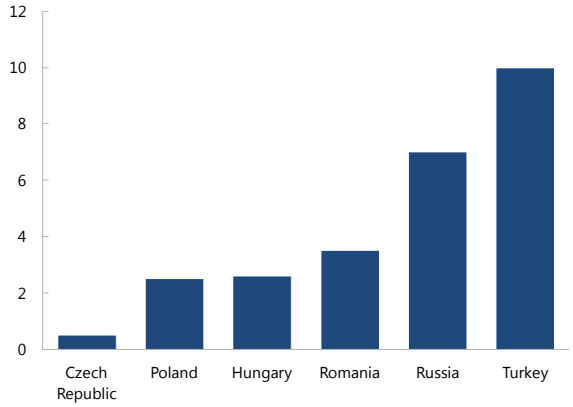
- *Exchange rate flexibility* would allow better absorption of external shocks. Monetary policy is more constrained in CESEE given that about half of the countries have fixed or tightly managed exchange rate regimes. While greater exchange rate flexibility would enhance the CESEE region's ability to mitigate shocks, this option is constrained by the large stock of FX denominated liabilities of the corporate and household sector (as discussed in Section II.A). During recent market turmoil, exchange rate interventions have been limited as most floating currencies were allowed to move. In the event of renewed FX pressures, such flexibility should be allowed, and intervention should be limited to smooth unusually high FX volatility. Adequate foreign exchange reserves in most countries, as noted in Box 4, would allow room for such intervention.

- *Monetary policy* remains a first line of defense. As the region enters into a period of tighter global liquidity, policy rates will have to delicately balance the trade-off between fending off financial market pressures and supporting any fallout on the real economy. In the floating exchange rate regime countries, policy rates have generally been on an easing cycle until recently, reflecting low inflationary pressures and the need to support the real economy (Figure 20). Such support remains appropriate unless FX market pressures rise. To the extent growth is picking up on the back of stronger domestic demand, policy rates could usefully be used to counter market pressures.

- *Targeted liquidity provision.* In the event of financial turbulence and drying-up of liquidity, central banks could provide targeted liquidity support in domestic or FX markets through reduction of reserve requirements or other measures.

- *Addressing crisis legacies,* such as high NPLs and debt overhangs, would lower the risk of reduced supply or higher cost of external bank funding. The crisis and related economic weaknesses have left countries with high levels of NPLs and, in some cases, constrained private sector balance sheets. These factors continue to hold back credit and domestic demand as discussed in Section I.

Figure 20. Nominal Policy Rates in Selected CESEE Countries (April 2014)



Source: IMF Staff estimates.

- *Close cooperation with lenders to prevent abrupt outflows*. Strong cross-border financial linkages highlight the importance of international coordination. For CESEE country authorities, this entails: (i) improving home-host coordination on supervision and regulation; (ii) careful evaluation of available institutional choices for CESEE countries in the evolving European/international financial architecture (e.g., banking union opt-in for EU member countries); and (iii) active participation in regional/global discussions, such as the Vienna Initiative.

From the medium to long term perspective, policy actions in the following areas can increase CESEE economies' resilience to external financing risks and boost their growth potential:

- *Strengthening fiscal positions* will not only help mitigate the negative effect from higher interest rates in advanced economies, but also create policy space to counter downturns. Little less than a half of the CESEE region's governments currently lack fiscal policy space either because of an elevated debt stock or a sizable structural fiscal deficit. Rebuilding fiscal buffers[25] in the medium term would lower borrowing needs, reduce rollover risks, and—by improving fundamentals—help lower risk premiums (as shown in Section II.B). Given that growth is still fragile, consolidation will need to be mindful of the recovery. In this regard, growth-promoting investment through enhanced utilization of EU structural funds, as some countries are currently doing, is welcome.

[25] This will have to be done largely through expenditure-based consolidation in view of the relatively high public spending ratio in many CESEE countries compared to other EMs.

- *Boost growth potential through structural reforms*. As discussed in the October 2013 REI (IMF, 2013c), weak growth in the region is largely a structural problem and reflects low potential growth. This in turn reflects weak competitiveness in the tradable sector, poor business environment, and inflexible labor markets. Removing these rigidities would help CESEE countries better cope with external shocks, particularly in light of low exchange rate flexibility.

- *Effective use of macro-prudential tools*. CESEE countries need to make greater use of macro-prudential tools to: (i) prevent external vulnerabilities from building up again; and (ii) improve external funding structures to enhance resilience. In countries that experienced a post-crisis lending boom benefiting from high global liquidity (for example, Turkey), recent macro-prudential measures are a welcome step.

- *Diversifying funding sources and deepening the local investor base* would help enhance resilience to external financial shocks and also reduce CESEE markets' vulnerability to idiosyncratic shocks and contagion through common lenders *(*discussed in Section II.A).

ABBREVIATIONS

Abbreviation	Full Name
ALB	Albania
AE	Advanced Economies
AQR	Asset Quality Review
BGR	Bulgaria
BIH	Bosnia and Herzegovina
BIS	Bank for International Settlement
BLR	Belarus
BNY	Bank of New York
CDIS	Coordinated Direct Investment Survey
CEE	Central and Eastern Europe
CESEE	Central, Eastern, and Southeastern Europe
CIS	Commonwealth of Independent States
CPIS	Coordinated Portfolio Investment Survey
CZE	Czech Republic
EA	Euro Area
EBA	European Banking Authority
EM	Emerging Markets
EMBI	J.P. Morgan Emerging Bond Index
EPFR	Emerging Portfolio Fund Research
ESR	External Sector Report
EST	Estonia
FDI	Foreign Direct Investment
FSGM	Flexible System of Global Models
FTSE	Financial Times and the London Stock Exchange
FX	Foreign Exchange
GDP	Gross Domestic Product
GIIPS	Greece, Ireland, Italy, Portugal, and Spain
HRV	Croatia
HUN	Hungary
IIF	Institute of International Finance
IIP	International Investment Positions
IMF	International Monetary Fund
LTU	Lithuania
LVA	Latvia
MDA	Moldova
MKD	Macedonia
MNE	Montenegro
NIIP	Net International Investment Positions
PMI	Purchasing Managers Index
POL	Poland
QE	Quantitative Easing
ROU	Romania
RUS	Russia
SEE	Southern Eastern Europe
SRB	Serbia
SVK	Slovak Republic
SVN	Slovenia
TUR	Turkey
UKR	Ukraine
UVK	Kosovo
VIX	Chicago Board Option Exchange Market Volatility Index
WEO	World Economic Outlook

ANNEXES

Annex I. CESEE: Growth of Real GDP, Domestic Demand, Exports, and Private Consumption, 2012–15

(Percent)

	Real GDP Growth				Real Domestic Demand Growth				Real Exports Growth (goods and services)				Real Private Consumption Growth			
	2012	2013	2014	2015	2012	2013	2014	2015	2012	2013	2014	2015	2012	2013	2014	2015
Baltics[1]	4.2	3.0	3.2	3.7	1.5	2.6	4.2	4.4	9.7	5.4	4.7	5.6	4.7	4.8	4.0	3.8
Estonia	3.9	0.8	2.4	3.2	5.5	1.4	3.9	3.9	5.6	1.9	4.7	4.8	4.9	4.2	4.2	4.2
Latvia	5.2	4.1	3.8	4.4	2.4	2.4	4.6	5.1	9.4	1.0	3.1	5.4	5.8	5.4	5.2	4.8
Lithuania	3.7	3.3	3.3	3.5	-0.7	3.2	4.0	4.2	11.8	9.5	5.7	6.1	3.9	4.8	3.2	3.2
Central Europe[1]	0.7	0.9	2.5	2.7	-1.7	-0.4	2.0	2.7	4.1	3.6	5.8	6.0	-0.2	0.3	1.7	2.3
Czech Republic	-1.0	-0.9	1.9	2.0	-2.9	-0.7	1.3	2.1	4.5	0.1	4.1	5.0	-2.1	-0.1	1.2	2.1
Hungary	-1.7	1.1	2.0	1.7	-3.5	0.8	1.8	1.6	1.7	5.3	5.6	5.1	-1.7	-0.1	0.7	1.1
Poland	1.9	1.6	3.1	3.3	-0.1	-0.3	2.6	3.4	3.9	4.3	6.7	6.9	1.2	0.8	2.3	2.8
Slovak Republic	1.8	0.9	2.3	3.0	-4.5	-0.9	1.4	2.3	9.9	4.5	4.8	5.0	-0.2	-0.1	1.2	2.4
Slovenia	-2.5	-1.1	0.3	0.9	-6.4	-2.5	-1.5	0.4	0.6	2.9	4.2	4.1	-4.8	-2.7	-0.9	0.7
Southeastern Europe-EU[1]	0.2	2.1	1.6	2.2	1.0	-0.9	0.8	2.3	-1.8	9.4	5.1	5.3	1.0	0.2	1.2	2.2
Bulgaria	0.6	0.9	1.6	2.5	3.1	-0.8	0.7	2.8	-0.4	8.9	6.9	6.0	3.7	-2.3	0.3	2.2
Croatia	-1.9	-1.0	-0.6	0.4	-3.2	-0.5	-1.5	0.1	0.9	-2.5	0.5	2.0	-3.0	-0.7	-0.6	1.4
Romania	0.7	3.5	2.2	2.5	1.4	-1.1	1.5	2.6	-3.0	12.8	5.7	5.9	1.1	1.4	2.1	2.5
Southeastern Europe-non-EU[1]	-0.6	2.1	1.9	2.6	-1.1	-1.4	1.6	3.0	-0.3	11.5	7.6	7.2	-2.1	-0.4	0.2	2.6
Albania	1.3	0.7	2.1	3.3	-3.0	-0.6	2.9	5.0	-3.4	3.6	7.1	7.1	-1.3	-2.0	0.5	4.1
Bosnia and Herzegovina	-1.2	1.2	2.0	3.2	-1.9	-1.4	2.9	2.6	-3.0	8.0	9.0	10.0	-1.9	-1.2	2.1	2.8
Kosovo	2.5	2.5	3.9	4.5	...	...	...	...	...	...	...	...	...	...	...	...
Macedonia	-0.4	3.1	3.2	3.4	2.0	-0.6	3.8	3.7	0.0	4.6	7.6	9.0	-3.0	4.3	3.4	3.4
Montenegro	-2.5	3.4	2.8	2.9	-0.7	1.0	7.0	7.2	-0.9	4.9	0.9	3.7	-5.4	4.9	6.2	4.3
Serbia	-1.5	2.5	1.0	1.5	-0.9	-2.2	-0.5	1.8	1.8	18.0	7.9	5.8	-1.8	-1.4	-2.2	1.5
European CIS countries[1]	2.9	1.2	1.4	2.3	5.2	1.2	2.5	3.2	0.8	1.9	4.7	3.3	8.3	5.3	2.9	3.5
Belarus	1.7	0.9	1.6	2.5	2.6	7.6	3.1	2.4	10.1	-17.0	2.5	3.0	10.7	10.9	3.8	2.7
Moldova	-0.7	8.9	3.5	4.5	0.6	4.5	3.0	1.9	1.7	10.7	3.2	7.8	1.0	3.7	2.4	2.9
Russia	3.4	1.3	1.3	2.3	5.5	0.9	2.4	3.3	1.4	4.3	4.8	3.3	7.8	4.9	2.9	3.6
Ukraine	0.2	0.0	...	...	4.0	0.0	...	...	-7.7	-8.5	...	...	11.6	5.7	...	...
Turkey	2.2	4.3	2.3	3.1	-1.8	6.2	0.5	3.1	16.7	0.1	5.6	6.1	-0.6	3.9	0.3	2.5
CESEE[1,2]	2.0	1.8	1.9	2.6	1.8	1.5	1.9	3.0	4.4	2.8	5.3	4.8	3.9	3.4	1.9	2.9
Emerging Europe[1,3]	2.2	2.0	1.9	2.6	2.2	1.7	1.9	3.1	4.2	3.0	5.4	4.8	4.4	3.6	2.0	3.0
New EU member states[1,4]	0.8	1.3	2.4	2.7	-0.9	-0.3	1.9	2.7	3.2	5.0	5.6	5.8	0.4	0.6	1.7	2.4
Memorandum																
Euro Area[1]	-0.7	-0.5	1.2	1.5	-2.2	-1.0	0.9	1.0	2.5	1.3	3.3	4.1	-1.4	-0.7	0.6	1.0
European Union[1]	-0.3	0.2	1.6	1.8	-1.5	-0.4	1.4	1.5	2.3	1.7	3.6	4.4	-0.6	0.0	1.0	1.4

Source: IMF, World Economic Outlook database.

[1] Weighted average. Weighted by GDP valued at purchasing power parity.

[2] Includes Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, Turkey, and Ukraine.

[3] CESEE excluding Czech Republic, Estonia, Latvia, Slovak Republic, and Slovenia.

[4] Includes Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, and Slovenia.

Annex II. CESEE: CPI Inflation, Current Account Balance, and External Debt, 2012–15

(Percent)

	CPI Inflation (Period average)				CPI Inflation (End of period)				Current Account Balance to GDP				Total External Debt to GDP			
	2012	2013	2014	2015	2012	2013	2014	2015	2012	2013	2014	2015	2012	2013	2014	2015
Baltics[1]	3.2	1.3	1.6	2.2	2.7	0.8	2.1	2.2	-1.3	-0.1	-0.9	-1.2	98.8	90.5	87.7	81.6
Estonia	4.2	3.5	3.2	2.8	3.6	3.2	2.8	2.5	-1.8	-1.0	-1.3	-1.5	96.1	85.1	79.3	72.8
Latvia	2.3	0.0	1.5	2.5	1.6	-0.4	2.4	2.5	-2.5	-0.8	-1.6	-1.9	139.2	134.8	131.4	122.0
Lithuania	3.2	1.2	1.0	1.8	2.9	0.5	1.7	1.8	-0.2	0.8	-0.2	-0.6	73.1	64.4	62.4	58.8
Central Europe[1]	3.8	1.2	1.2	2.3	2.8	0.8	2.0	2.4	-1.8	-0.2	-0.5	-0.8	78.2	75.3	73.0	69.9
Czech Republic	3.3	1.4	1.0	1.9	2.4	1.4	1.2	2.0	-2.4	-1.0	-0.5	-0.5	51.9	52.4	51.7	48.8
Hungary	5.7	1.7	0.9	3.0	5.0	0.4	2.9	3.0	1.0	3.1	2.7	2.2	130.7	115.9	114.5	105.7
Poland	3.7	0.9	1.5	2.4	2.4	0.7	2.1	2.5	-3.5	-1.8	-2.5	-3.0	74.4	71.1	67.6	65.0
Slovak Republic	3.7	1.5	0.7	1.6	3.4	0.4	1.6	1.6	2.2	2.4	2.7	2.9	77.6	84.5	83.0	82.2
Slovenia	2.6	1.6	1.2	1.6	2.6	0.7	1.3	1.8	3.3	6.5	6.1	5.8	90.0	84.4	87.1	86.9
Southeastern Europe-EU[1]	3.1	2.9	1.3	2.3	4.4	0.8	2.4	2.4	-2.9	-0.1	-0.9	-1.6	86.4	80.8	74.3	69.2
Bulgaria	2.4	0.4	-0.4	0.9	2.8	-0.9	0.5	1.3	-0.9	2.1	-0.4	-2.1	96.2	95.9	95.1	90.3
Croatia	3.4	2.2	0.5	1.1	4.7	0.3	1.0	1.4	0.0	1.2	1.5	1.1	105.1	103.4	98.1	94.2
Romania	3.3	4.0	2.2	3.1	5.0	1.6	3.5	3.1	-4.4	-1.1	-1.7	-2.2	77.3	69.7	61.6	56.4
Southeastern Europe-non-EU[1]	4.8	4.4	2.8	3.0	7.4	1.5	3.5	3.0	-9.6	-5.9	-6.8	-7.2	69.1	67.0	66.1	62.9
Albania	2.0	1.9	2.7	2.8	2.4	1.9	2.6	3.0	-9.3	-9.1	-10.3	-12.4	37.9	39.7	41.4	43.2
Bosnia and Herzegovina	2.0	-0.1	1.1	1.5	2.0	-0.1	1.1	1.5	-9.7	-5.6	-7.5	-7.0	52.9	52.1	52.1	50.7
Kosovo	2.5	1.9	1.8	1.5	3.7	1.5	1.5	1.5	-7.7	-6.8	-7.7	-6.9	...	...	...	...
Macedonia	3.3	2.8	1.8	2.3	4.7	1.4	2.3	2.3	-3.0	-1.8	-3.9	-5.5	70.7	64.9	62.1	61.9
Montenegro	3.6	2.2	0.2	1.1	5.1	0.3	0.9	1.1	-18.7	-15.0	-17.9	-21.9	115.1	120.4	120.7	128.1
Serbia	7.3	7.7	4.0	4.0	12.2	2.2	5.3	4.0	-10.7	-5.0	-4.8	-4.6	92.6	87.4	86.1	78.5
European CIS countries[1]	7.2	6.5	6.4	5.9	6.5	6.3	5.9	5.9	2.5	0.4	1.7	1.2	33.6	32.7	30.4	32.0
Belarus	59.2	18.3	16.8	15.8	21.8	16.5	16.3	15.4	-2.7	-9.8	-10.0	-7.8	54.2	50.1	49.8	48.6
Moldova	4.6	4.6	5.5	5.9	4.0	5.2	5.2	6.5	-6.0	-4.8	-5.9	-6.4	82.3	80.4	80.9	78.8
Russia	5.1	6.8	5.8	5.3	6.6	6.5	5.3	5.3	3.6	1.6	2.1	1.6	29.0	28.3	29.5	31.2
Ukraine	0.6	-0.3	...	...	-0.2	0.5	...	...	-8.1	-9.2	...	...	76.6	76.6	...	...
Turkey	8.9	7.5	7.8	6.5	6.2	7.4	8.0	6.0	-6.2	-7.9	-6.3	-6.0	43.0	45.8	52.3	52.0
CESEE[1,2]	6.3	5.0	4.8	4.7	5.4	4.6	4.9	4.6	-0.6	-1.4	-0.6	-1.0	50.1	49.1	49.2	49.0
Emerging Europe[1,3]	6.6	5.4	5.1	5.0	5.7	4.9	5.3	4.9	-0.6	-1.5	-0.8	-1.2	48.2	47.0	46.9	47.0
New EU member states[1,4]	3.6	1.6	1.3	2.3	3.2	0.8	2.1	2.4	-2.0	-0.2	-0.6	-1.0	81.4	77.6	74.4	70.7
Memorandum																
European Union[1]	2.6	1.5	1.1	1.4	2.3	0.9	1.3	1.4	1.0	1.9	1.9	2.1	...	...	...	...

Source: IMF, World Economic Outlook database.

[1] Weighted average. CPI inflation is weighted by GDP valued at purchasing power parity, and current account balances and external debt are weighted by GDP in US dollars.

[2] Includes Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, Turkey, and Ukraine.

[3] CESEE excluding Czech Republic, Estonia, Latvia, Slovak Republic, and Slovenia.

[4] Includes Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, and Slovenia.

Annex III. CESEE: Evolution of Public Debt and General Government Balance, 2012–15

(Percent of GDP)

Table A3. CESEE: Evolution of Public Debt and General Government Balance, 2012–15[1]

(Percent of GDP)

	General Government Balance				Public Debt			
	2012	2013	2014	2015	2012	2013	2014	2015
Baltics[2]	-2.0	-1.9	-1.7	-0.5	42.2	40.0	40.3	38.5
Estonia	-0.2	-0.4	-0.4	0.2	9.8	11.3	10.9	10.3
Latvia[3]	0.1	-1.3	-1.1	1.3	36.4	32.1	32.7	29.3
Lithuania	-3.3	-2.1	-1.9	-1.8	41.0	39.3	39.5	39.1
Central and Eastern Europe[2]	-3.8	-4.3	-3.4	-3.0	56.4	59.0	55.4	56.1
Czech Republic	-4.4	-2.9	-2.8	-2.5	45.7	47.9	49.2	49.9
Hungary	-1.6	-2.8	-2.6	-2.6	79.8	79.2	79.1	79.2
Poland	-3.9	-4.5	-3.5	-3.0	55.6	57.5	49.5	50.1
Slovak Republic	-4.5	-3.0	-3.8	-3.8	52.4	54.9	58.6	59.8
Slovenia[3]	-4.3	-14.6	-6.0	-4.6	54.3	73.0	74.9	77.9
Southeastern Europe-EU[2]	-2.4	-3.0	-2.6	-1.8	37.6	39.4	41.3	41.1
Bulgaria[3]	-0.5	-1.9	-1.9	-1.7	17.5	17.6	21.7	21.1
Croatia[3]	-3.9	-5.5	-4.6	-3.4	54.0	59.8	64.8	67.4
Romania	-2.5	-2.5	-2.2	-1.4	38.2	39.3	39.7	39.0
Southeastern Europe-non-EU[2]	-5.2	-4.7	-5.3	-5.4	54.9	57.8	59.9	61.6
Albania[3]	-3.3	-6.2	-6.7	-6.0	62.4	70.5	71.7	71.2
Bosnia and Herzegovina	-2.6	-2.2	-1.2	-1.5	44.6	42.7	42.4	40.9
Kosovo[3]	-2.6	-2.5	-2.2	-2.2	...	...	...	...
Macedonia	-3.9	-4.0	-3.8	-3.2	34.1	35.8	36.3	38.0
Montenegro[3]	-5.9	-2.4	-2.8	-6.3	54.0	56.8	58.8	63.4
Serbia[3]	-7.7	-6.0	-7.8	-8.0	62.4	65.8	69.7	73.4
European CIS countries[2]	0.1	-1.5	-0.7	-0.9	15.4	16.2	13.7	13.6
Belarus[3,4]	0.5	-0.8	-2.9	-3.0	38.5	36.7	34.4	32.7
Moldova[3]	-2.2	-1.8	-2.5	-3.3	24.5	24.4	24.5	25.4
Russia[3]	0.4	-1.3	-0.7	-0.8	12.7	13.4	13.0	12.8
Ukraine[3]	-4.5	-4.5	...	...	37.4	41.0	...	...
Turkey[3]	-2.3	-2.1	-2.9	-2.9	36.2	35.8	35.9	36.0
CESEE[2,5]	-1.9	-2.6	-2.6	-2.3	30.3	31.3	30.4	30.8
Emerging Europe[2,6]	-1.2	-2.2	-1.9	-1.8	28.9	29.7	28.4	28.8
New EU member states[2,7]	-3.3	-3.8	-3.1	-2.5	50.7	52.6	50.4	50.7
Memorandum								
European Union[1]	-4.2	-3.3	-2.9	-2.3	86.6	88.7	89.0	88.4

Source: IMF, World Economic Outlook database.

[1] As in the WEO, general government balances reflect IMF staff's projections of a plausible baseline, and as such contain a mixture of unchanged policies and efforts under programs, convergence plans, and medium-term budget frameworks. General government overall balance where available; general government net lending/borrowing elsewhere.

[2] Average weighted by GDP in US dollars.

[3] Reported on a cash basis.

[4] General government balance: the measure reflected augmented balance, which adds to the balance of general government outlays for banks recapitalizations and related to called guarantees of publicly-guaranteed debt.

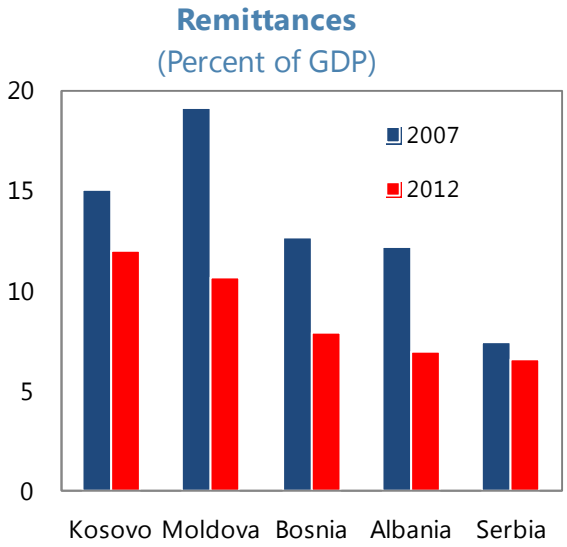
[5] Includes Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, Turkey, and Ukraine.

[6] CESEE excluding Czech Republic, Estonia, Latvia, Slovak Republic, and Slovenia.

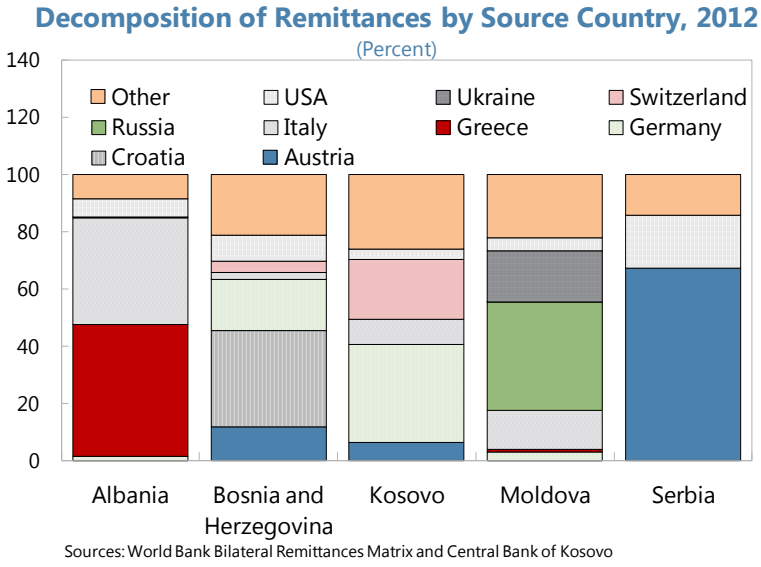
[7] Includes Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, and Slovenia.

Annex IV. Remittances as a Source of External Vulnerability[1]

Exposure to volatile *capital flows* has long been known to be a source of vulnerability for many emerging economies. However, some economies in CESEE depend more on *income transfers* than on capital inflows, in particular remittances from their Diaspora—i.e. nationals living abroad. In 2012, Kosovo and Moldova recorded remittances of more than 10 percent of GDP; in Bosnia & Herzegovina, Albania, and Serbia remittances exceeded 5 percent of GDP.[2] Reported remittances arguably *under*estimate dependence on the Diaspora, as the distinction between remittances and labor income is often unclear, and as FDI also often originates with emigrants, in particular investments in real estate and in small businesses.[3]



Dependence on Diaspora inflows exposes a country to economic conditions in the Diaspora's host countries. Between 2007 and 2012, the location of the Diaspora appears indeed to have been important for the stability of remittances receipts. In Kosovo and Serbia, remittances remained relatively resilient, as growth and employment in the main host countries—Germany and Switzerland for Kosovo, Austria for Serbia—held up well. By contrast, in Albania, Moldova and Bosnia, remittances receipts fell sharply, as key host countries—Italy, Greece, Croatia, Ukraine—struggled with economic difficulties. This impeded the migrants' ability to earn money and send it home



Sources: World Bank Bilateral Remittances Matrix and Central Bank of Kosovo

[1] Prepared by Ghada Fayad (SPR) and Johannes Wiegand.

[2] Further, remittances exceeded 2 percent of GDP in Bulgaria, Lithuania, Macedonia, and Montenegro.

[3] Inclusion of labor income increase Moldova's remittances in 2012 to around 25 percent, for example.

To analyze the link between remittances and Diaspora host country conditions more formally, in the following the elasticities of remittances to changes in host and home country conditions are estimated, using panel data for 6 Balkan countries for 1999-2011.[4] Specifically, remittances are regressed on measures of home and host country GDP per capita. Host country GDP is proxied by euro area GDP, as Balkan emigrants are unevenly spread across different euro area countries.

Host country per capita GDP is by far the most important factor driving remittances. There is also evidence of an altruistic motive, as shown in the positive coefficient on the income gap variable (column 2) and the negative coefficient on home country GDP per capita (column 1). Emigrants' remittances are thus stronger at times when the recipient country is in recession. However, the impact of host country per capita GDP is about 5 times larger than the coefficient on home country per capita GDP. The results are robust to different specifications, such as proxying host country economic conditions with Germany's per capita GDP instead of the euro area's.

Determinants of Migrants' Remittance Transfers in the Balkans, 1999-2011

Dependent variable: Remittances per Capita$_t$	(1)	(2)
Home Country GDP per capita$_{(t-1)}$	-0.49*	
Host Country GDP per capita	2.67**	
Host-Home GDP per Capita diff$_{(t-1)}$		1.75**
Observations	68	68
R-squared	0.22	0.29
Country FE	YES	YES

[a]*significant at 10 percent level; **significant at 5 percent level; ***significant at 1 percent level.

[b]All variables are expressed in logarithmic terms. Regressions include constants and are estimated with robust standard erros. In equations including home country GDP on the right side, we use lagged values to attenuate reverse causality bias.

[c]We control for home and host realinterest rates in regression (1) and for their differential (host-home) in regression(2) to capture the investment motive to remittances. The latter has the expected negative sign but is statistically insignificant.

[4] For details see Nina Budina, Ghada Fayad and Xingwei Hu, "Growth and Kosovo's External Environment", in: *International Monetary Fund* (2013): Republic of Kosovo, Selected Issues Paper, pp. 2-6. The countries included in the sample are Albania, Bosnia & Herzegovina, Croatia, Kosovo, Macedonia, and Serbia.

Annex V. Determinants of Cross-Border Bank Funding Flows to CESEE Countries[1]

Changes in the BIS reporting banks' external positions are modeled as a function of external funding conditions, parent bank, host country macro and banking sector characteristics.[2]

Data: the dataset covers most CESEE countries[3] over 2009:Q2–2013:Q3 which encompasses two distinct deleveraging phases (2008:Q2–2010:Q2 and 2011:Q2–2012:Q2). Changes in BIS locational (exchange rate adjusted) data on external positions are used as dependent variable.

Explanatory variables: *External financial conditions* are captured by G-4 financial sector leverage, VIX, price index of global liquidity, US 10-year government bond yield and the spread between US and German 10-year government bonds.[4] The two global liquidity indicators (G4 leverage ratio and price index of global liquidity) are defined in Table 2 of the main text. *Parent bank characteristics* are summarized by a weighted average of CDS spreads of parent banks of all subsidiaries in any given host country (see Box AV.1 for details). *Host country macro characteristics* include changes in sovereign CDS spreads, lagged nominal GDP growth, bank credit growth, current account balance (% of GDP) and general government debt (% of GDP).

Box AV.1. Country level CDS index for parents.

This is done in two steps. Firstly, for each parent from the same home country with subsidiary in any given host country, we average the CDS spreads, weighted by the share of their subsidiaries' market shares in the host country as of end of 2012. This allows us to obtain a one-to-one mapping of home and host countries. Secondly, we average the CDS spreads obtained in the previous step across home countries weighted by an indicator of parent bank funding dependence developed in Cerruti (2013). More formally:

$$\overline{\overline{CDS}_{hs,t}} = \sum_{hm \in HM} \overline{CDS}_{hm,hs,t} \psi_{hm,hs,t}$$

where $\overline{CDS}_{hm,hs,t} = \sum_{p \in P} CDS_{p,hm,hs,t} \omega_{p,hm,hs,2012Q4}$ is the weighted average CDS of all parents $p \in P$ from home country $hm \in HM$ in host country hs at time t; $\omega_{p,hm,hs,2012Q4}$ is the market share of the foreign affiliate of parent p from home country hm in the host country hs at time $t = 2012Q4$; and $\psi_{hm,hs,t}$ is the indicator of parent bank funding dependence of host country hs on home country hm at time t.

[1] Prepared by Gregorio Impavido.

[2] External positions of BIS reporting banks measure gross international claims of bank offices in respective given reporting countries, including inter-office positions, vis-ã-vis banks and/or non-bank sectors of host countries.

[3] Albania, Belarus, Bosnia, Bulgaria, Croatia, Czech R., Estonia, Hungary, Latvia, Lithuania, Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, Turkey, and Ukraine.

[4] While host banks mainly funds themselves in euros, parent banks fund themselves also in dollars. Hence, the USD-DEU spread captures the funding pressure that banks in host countries face through the funding environment of parents.

Host country banking characteristics include lagged ROA, ROE, NPL, loan-to-deposit ratio and an indicator of the level of parent bank funding as a share of GDP constructed on the basis of BIS reporting banks consolidated data as described in Cerutti (2013).

Methodology: The base estimation follows a pooled OLS regression[5] of the form: $\mathbf{Y} = \mathbf{X}'\boldsymbol{\beta} + \mathbf{u}$

The dependent variable $\mathbf{Y}$ is the quarterly change in the ratio of exchange rate adjusted stock of BIS bank external positions (claims) on GDP expressed in percentage points.[6] Three different dependent variables are used: claims vis-à-vis all sectors, banks, and non-banks in each CESEE host country.

The set of regressors $\mathbf{X} = [\boldsymbol{\alpha} \quad \boldsymbol{\delta\Gamma} \quad \boldsymbol{\delta H} \quad \boldsymbol{\delta K} \quad \boldsymbol{\delta\Lambda}]$ contains the subset of global liquidity indicators $\boldsymbol{\Gamma}$, the subset of parent bank characteristics $\mathbf{H}$, the subset of host country macro characteristics $\mathbf{K}$, the subset of host country banking sector characteristics $\boldsymbol{\Lambda}$, the intercept $\boldsymbol{\alpha}$, and a step dummy $\boldsymbol{\delta}$ to allow for slope changes in the two distinct deleveraging phases experienced by the region.

Results are reported in Table AV.1: Focusing on results for "all sectors", the interpretation of parameters is as follows:

- A one p.p. increase in the G4 leverage ratio at time t increases gross inflows to all sectors in time $t+1$ by 0.33 p.p. in GDP in both deleveraging phases.
- A one unit increase in global risk appetite increases gross inflows to all sectors by 0.15 p.p. in GDP only in the first deleveraging phase.
- A one p.p. increase in the cost of dollar funding (relative to euro funding) decreases inflows by almost 5 p.p. in the first deleveraging phase.[7]
- A one unit increase in the host country credit risk has a negligible but significantly different from zero impact on gross inflows to all sectors and only in the second deleveraging phase.
- A one p.p. increase in parent funding increases gross inflows to all sectors by 0.21 p.p. in GDP in the second deleveraging phase suggesting.
- A one p.p. increase in the loan-to-deposit ratio of host banks decreases gross inflows by 0.02 p.p. in the second deleveraging phase.

[5] We also investigated panel fixed effects and/or OLS LSDV. We nevertheless opted for reporting only pooled OLS since: (i) estimated parameters did not change drastically with the different estimators as; (ii) regressors used capture much of the cross country heterogeneity that would have been left unexplained by the country dummies.

[6] We also investigated gross flows both adjusted and unadjusted for exchange rate changes. However, we opted for exchange rate adjusted shares over GDP as: (i) we wanted to isolate variability in the data due to exchange rate valuation effects; and (ii) we wanted to benchmark changes in flows relative to the size of the economy so as to measure how important changes in gross flows are for a given country.

[7] As measured by the difference between the 10Y UST bond yield and 10Y German bond yield.

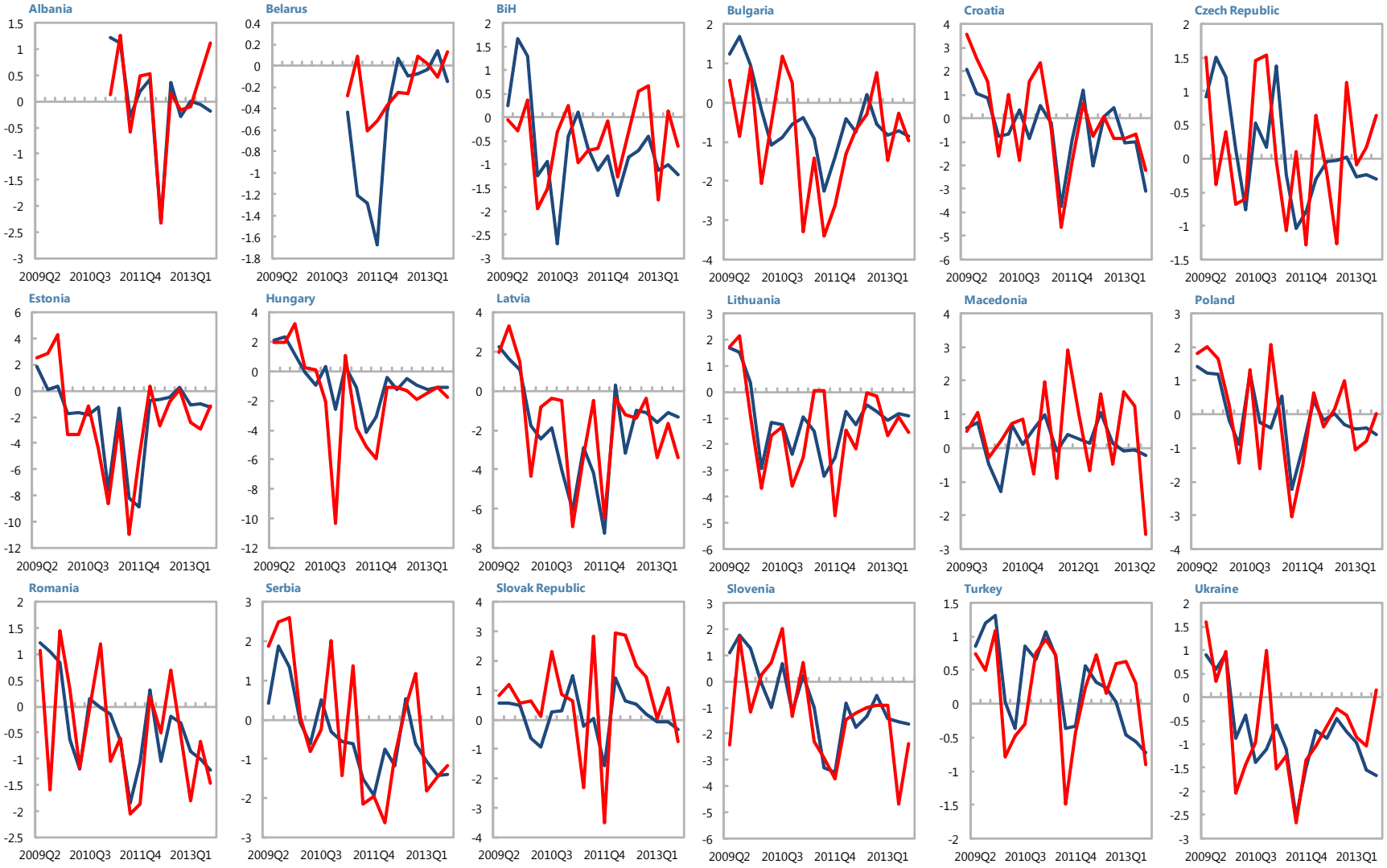
Table AV.1. Quarterly Change in External Positions of BIS Banks (percentage points in GDP, FX adjusted)

Regression	Claims on: All sectors	Banks	Non Banks
	Global liquidity conditions		
Phase 1 - Lagged G4 leverage	0.333**	0.371***	-0.038
	(0.043)	(0.004)	(0.669)
Phase 2 - Lagged G4 leverage	0.330*	0.384***	-0.054
	(0.051)	(0.003)	(0.560)
Phase 1 - Lagged VIX	-0.149***	-0.115**	-0.034
	(0.004)	(0.023)	(0.112)
Phase 2 - Lagged VIX	-0.015	-0.020*	0.005
	(0.288)	(0.097)	(0.571)
Phase 1 - Lagged Y10 USD-DEU spread	-4.664***	-3.365**	-1.300**
	(0.001)	(0.011)	(0.022)
Phase 2 - Lagged Y10 USD-DEU spread	-0.037	0.020	-0.057
	(0.926)	(0.956)	(0.791)
	Parent bank characteristics		
Phase 1 - Change in parent CDS	0.005	0.004	0.001
	(0.155)	(0.210)	(0.435)
Phase 2 - Change in parent CDS	-0.001	0.000	-0.001**
	(0.325)	(0.609)	(0.021)
	Host country characteristics		
Phase 1 - Change in host country CDS	0.000	0.000	-0.000
	(0.761)	(0.519)	(0.698)
Phase 2 - Change in host country CDS	-0.003**	-0.001	-0.002***
	(0.035)	(0.371)	(0.009)
Phase 1 - Lagged real GDP growth	0.017	0.020	-0.003
	(0.726)	(0.670)	(0.902)
Phase 2 - Lagged real GDP growth	0.086	0.019	0.066**
	(0.125)	(0.652)	(0.029)
	Host bank characteristics		
Phase 1 - Change in parent funding/GDP	0.105*	0.002	0.104***
	(0.070)	(0.981)	(0.000)
Phase 2 - Change in parent funding/GDP	0.213***	0.123***	0.090**
	(0.001)	(0.004)	(0.011)
Phase 1 - Lagged ROE	0.049***	0.048***	0.001
	(0.002)	(0.005)	(0.869)
Phase 2 - Lagged ROE	-0.025	-0.004	-0.021***
	(0.198)	(0.802)	(0.002)
Phase 1 - Lagged LD ratio	0.011**	0.011**	0.001
	(0.013)	(0.014)	(0.830)
Phase 2 - Lagged LD ratio	-0.016***	-0.012***	-0.004***
	(0.000)	(0.000)	(0.008)
Phase 1 - NPL ratio	0.040	0.046	-0.005
	(0.338)	(0.321)	(0.705)
Phase 2 - NPL ratio	-0.044*	-0.016	-0.028***
	(0.080)	(0.442)	(0.004)
Number of observations	309	309	309
R-squared	0.563	0.487	0.361

Notes: Robust pval in parentheses; *** p<0.01, ** p<0.05, * p<0.10

Figure AV.1. Changes in External Positions vis-à-vis All Sectors

(Percent of GDP, quarter-over-quarter)



Sources: BIS Consolidated Statistics (Table 6 and 9); IMF World Economic Outlook database; and IMF Staff calculations.
Note: External exposures are exchange-rate adjusted.

Annex VI. Empirical Analysis of the Determinants of Sovereign CDS and EMBIG Spreads, Local Government Bond Yields, and Portfolio Flows for CESEE Countries[1]

Empirical studies on the determinants of sovereign spreads, local currency government bond yields, and portfolio flows tend to find that both external and domestic factors matter. For example, Heinz and Sun (2014) find that sovereign CDS spreads in emerging and advanced countries in Europe are largely driven by the VIX[2], the bid-ask spread in the CDS market, and by market expectations of the future growth prospects, fiscal and/or current account balances. Hartelius (2006) estimates determinants of EM sovereign bond spreads using a set of country-specific and common external explanatory variables. González-Rosada and Levy Yeyati (2008) find that global financial conditions account for a significant share of the variance in EM bond spreads. IMF (2013) studies the impact of external shocks on local currency bond yields using both external variables and domestic variables.

Explanatory variables: To explore factors influencing spreads, local government bond yields, and portfolio flows in CESEE countries, we construct a large dataset of potential explanatory variables. The dataset includes the VIX, global liquidity indicators (see Table 2 in the main text), the US and German 10-year treasury bond yields, BB+ rated corporate bond yield spreads (over the US 10-year treasury), the Federal Fund Futures prices (1 month out contract), and the FTSE Emerging Europe Index. The dataset also includes market forecasts of the GDP growth, the fiscal balance, and the current account balance, the one-year forward exchange rate, public debt, and the share of foreign investor holdings of local currency government bonds for individual countries.

Methodology: We estimate an "equilibrium" relationship between the dependent variable and the external and domestic factors, i.e., a linear equation for CDS or EMBIG spreads (or other dependent variable) with selected external and domestic variables as the explanatory variables, without including any short-term dynamics. The estimation is implemented country by country, and also as a panel for CDS and EMBIG spreads.

Results

The results for CDS and EMBIG spreads are shown in Tables VI.1 and VI.2.[3] In general, benign external conditions such as a low price of global liquidity, a low Fed Fund Futures price, and a low VIX contribute to low CDS and EMBIG spreads for most countries. In addition, a lower US corporate bond yield spread also reduces CDS and EMBIG spreads. Strong domestic fundamentals, such as high growth, a low fiscal or current account deficit reduce CDS and EMBIG spreads. Smaller CDS bid-ask spreads are associated with lower CDS and EMBIG spreads.

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[1] Prepared by Yan Sun.

[2] VIX is a ticker symbol for the Chicago Board Options Exchange Market Volatility Index, a popular measure of the implied volatility of S&P 500 index options.

[3] Full results including those of dynamic estimation are not reported but are available upon request.

Table AVI.1. Emerging Europe: Estimation Results for Sovereign CDS Spreads

Dependent Variable: CDS	HUN	POL	ROM	RUS	TUR	UKR
VIX	-0.050	0.230***	0.200***	0.224***	0.208***	0.050
	(1.41)	(0.62)	(0.81)	(1.45)	(2.21)	(2.66)
Price index of global liquidity	-0.080	0.020	0.009	0.276***	-0.008	-0.049*
	(9.21)	(4.69)	(7.44)	(11.27)	(15.80)	(15.87)
BB+ bond yield spread	0.398***	0.462***	0.557***	0.054	0.126*	0.223***
	(9.00)	(3.86)	(4.96)	(10.21)	(13.05)	(25.03)
Fed Fund future (1 month out)	-0.226***	-0.048	-0.204***	0.088***	0.007	-0.326***
	(2.91)	(1.47)	(3.90)	(2.64)	(7.02)	(14.93)
General government debt, percent of GDP	0.720***	0.570***	0.285***	0.682***	0.819***	0.052
	(0.63)	(0.62)	(0.98)	(0.42)	(1.01)	(2.83)
GDP growth (current year, forecast)	0.149***	0.041	0.063	-0.103***	0.036	-0.510***
	(3.07)	(1.94)	(1.94)	(2.14)	(3.01)	(3.52)
GDP growth next year (forecast, adjusted*)	-0.176***	-0.082	0.015	-0.176***	0.085***	-0.151***
	(10.06)	(11.14)	(9.16)	(9.02)	(15.74)	(25.13)
Bid-ask spread (adjusted*)	-0.043*	-0.020	0.053**	0.138***	0.092*	-0.041
	(1.09)	(0.44)	(0.57)	(1.52)	(7.38)	(7.60)
Deficit next year (forecast, adjusted*)	-0.015	-0.043*	-0.028	-0.020	-0.071*	-0.044
	(2.50)	(1.29)	(4.40)	(2.68)	(6.33)	(12.91)
CA balance (forecast, adjusted*)	0.111***	-0.154***	0.060***	0.013	-0.110***	0.113***
	(3.04)	(2.16)	(2.20)	(3.05)	(9.21)	(4.82)
Observations	142	159	135	159	157	106
R-squared	0.87	0.83	0.90	0.94	0.82	0.91

Standardized coefficients, robust standard errors in parentheses. Constants are not reported.
*** p<0.01, ** p<0.05, * p<0.1

Table AVI.2. Emerging Europe: Estimation Results for Sovereign EMBIG Spreads

Dependent Variable: EMBIG	BGR	LTU	POL	RUS	SRB	TUR
VIX	0.251***	0.121	0.492***	0.191***	0.208***	0.245***
	(0.608)	(1.082)	(0.645)	(1.023)	(1.299)	(1.695)
Price index of global liquidity	0.018	-0.349***	0.007	0.096*	0.257***	0.076
	(5.671)	(17.905)	(5.321)	(8.342)	(11.131)	(11.774)
BB+ bond yield spread	0.427***	1.047***	0.322***	0.869***	0.062	0.094
	(4.233)	(18.240)	(4.865)	(6.825)	(11.197)	(9.693)
Fed Fund future (1 month out)	-0.283***	-0.113*	0.112**	0.035	0.122***	0.043
	(2.332)	(124.995)	(1.809)	(4.141)	(3.157)	(6.373)
General government debt, percent of GDP	0.149***	-0.038	0.114**	0.488***	0.691***	0.735***
	(0.264)	(4.582)	(0.605)	(0.558)	(0.472)	(0.659)
GDP growth (current year, forecast)	-0.227***	-0.083	-0.195***		-0.118***	-0.069
	(1.712)	(2.613)	(2.100)		(2.249)	(2.726)
GDP growth next year (forecast, adjusted*)	-3.336***	0.386	-2.429**	0.739**	-3.966***	
	(7.618)	(13.030)	(12.360)	(4.422)	(9.310)	
Bid-ask spread (adjusted*)	0.146**	0.011	0.044	-0.272**	0.561***	0.837**
	(0.503)	(2.485)	(0.393)	(1.938)	(1.902)	(6.410)
Fiscal balance next year (forecast, adjusted*)	-1.135***	0.536**	0.005	-0.518	-0.398**	-0.567**
	(3.549)	(9.079)	(1.779)	(6.752)	(3.020)	(3.984)
CA balance (forecast, adjusted*)	0.180*	0.243	-1.897***	-0.041	0.234	-1.760***
	(0.906)	(5.054)	(2.461)	(2.890)	(2.961)	(5.926)
Observations	141	51	160	81	160	158
R-squared	0.913	0.880	0.827	0.952	0.926	0.855

Standardized coefficients, robust standard errors in parentheses. Constants are not reported.
*** p<0.01, ** p<0.05, * p<0.1

In comparison with CDS and EMBIG spreads, drivers for local currency bond yields and portfolio flows show greater variability across countries (Table VI.3. and VI.4). While similar external variables such as the VIX, the price of global liquidity, treasury bond yields in the US or Germany, etc. and domestic variables are significant in explaining local currency bond yields and portfolio flows, their role varies more across countries and additional factors are found to be relevant. For example, higher share of foreign investor participation in local bond markets generally helps lower bond yields. Forward exchange rates affect bond yields and portfolio flows in economies with floating currencies. In some countries, high central bank policy rates lead to higher local government bond yields and higher flows. The level of international reserves also affects yields or portfolio flows although the sign varies. General market conditions in emerging Europe, as reflected in the FTSE Emerging Europe Index also affect portfolio flows.

Table AVI.3. Emerging Europe: Estimation Results for Local Government Bond Yields

Local government bond yield (in %)	CZE	HUN 1/	POL	RUS	TUR	UKR
VIX	0.327***	0.324***		0.242***		
	(0.004)	(0.009)		(0.014)		
US 10-year treasury bill yield				0.384***	0.393***	0.200**
				(0.107)	(0.349)	(0.126)
German 10-year treasury bill yield			0.901***			
			(0.115)			
BB+ bond yield spread		0.237**	0.180**		0.515***	
		(0.072)	(0.038)		(0.200)	
Fed Fund future (1 month out)		0.094**			0.430***	
		(0.021)			(0.214)	
GDP growth (current year, forecast)	0.220***		0.393***	0.273***		-0.354**
	(0.015)		(0.028)	(0.028)		(0.039)
General government debt, percent of GDP			0.869***	0.650***	0.495***	
			(0.018)	(0.028)	(0.213)	
Share of local currency debt held by foreigners		3.298***	-0.487***	-0.462***	0.265**	-0.385***
		(0.007)	(0.014)	(0.017)	(0.111)	(0.006)
GDP growth next year (forecast, adjusted*)		4.946**			0.286***	
		(0.054)			(0.452)	
Fiscal balance next year (forecast, adjusted*)	-1.804***					
	(0.051)					
CA balance (forecast, adjusted*)		-5.172***				
		(0.026)				
CA balance next year (forecast, adjusted*)	-0.987***			-0.636***	-0.048***	
	(0.060)			(0.088)	(0.147)	
Policy rate (adjusted*)	3.728***	9.230***	0.099***		0.028***	-5.515***
	(0.055)	(0.017)	(0.053)		(0.103)	(0.074)
Foreign reserves to GDP ratio (adjusted)	-0.784***		0.114***		-0.099***	
	(0.022)		(0.027)		(0.366)	
Forward Exchange Rate (1y)	0.558***	0.068**	0.466***	0.134*	0.123**	
	(0.009)	(0.001)	(0.076)	(0.036)	(1.316)	
Observations	122	164	119	100	86	116
R-squared	0.845	0.790	0.872	0.791	0.956	0.434

Standardized coefficients, robust standard errors in parentheses., constants are not reported

*** p<0.01, ** p<0.05, * p<0.1

1/ For HUN, debt is unadjusted, For TUR, growth is unadjusted.

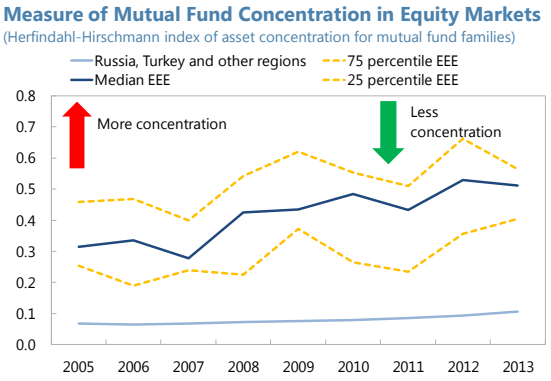
Table AVI.4. Emerging Europe: Estimation Results for Net External Portfolio Flows

Net external portfolios (in percent of GDP)	CZE	HUN	POL	ROM	RUS	TUR
VIX		-0.238**		-0.445***		-0.343***
		(0.006)		(0.004)		(0.002)
US 10 year treasury yield		-0.371*		-0.525**		-0.406***
		(0.079)		(0.054)		(0.022)
German 10-year treasury bill yield			-0.912***			
			(0.056)			
Price index of global liquidity					-0.428***	
					(0.014)	
FTSE-EM Europe					0.393**	
					(0.000)	
Forward Exchange Rate (1y)	-0.300**			-0.219**		
	(0.017)			(0.047)		
GDP growth (current year, forecast)	-0.413***				-0.445***	
	(0.014)				(0.004)	
Share of local currency debt held by foreigners			-0.813***			
			(0.009)			
GDP growth (next year, forecast)		0.488**				
		(0.056)				
Fiscal balance next year (forecast, adjusted*)			-3.636***			
			(0.042)			
Policy rate (adjusted*)			4.199***			
			(0.052)			
Change in FTSE-EM Europe	0.005**		0.001***			
	(0.000)		(0.000)			
Change in forward exchange rate		-0.016*				
		(0.004)				
Change in share of local currency debt held by foreigners						0.440***
						(0.016)
Change in US 10 year Treasury bill yield						
Observations	34	54	34	39	32	38
R-squared	0.370	0.273	0.600	0.265	0.401	0.788

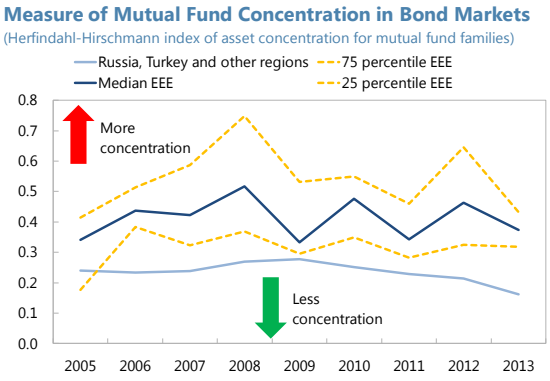
Standardized coefficients, robust standard errors in parentheses. Constants are not reported
*** p<0.01, ** p<0.05, * p<0.1

Annex VII. Portfolio Investment from Retail and Institutional Investors in CESEE[1]

Investor concentration in smaller CESEE countries appears to be high, making their portfolio flows vulnerable to the decisions of a few fund managers. Investor concentration in smaller CESEE countries is generally higher than in other major EMs or in larger markets in the region (such as Turkey and Russia) for both bonds and equities. In particular, the concentration among CESEE equity mutual funds appears to have been rising in recent years. Investor concentration is also notable among hedge funds, and has also been on the rise since the global financial crisis.

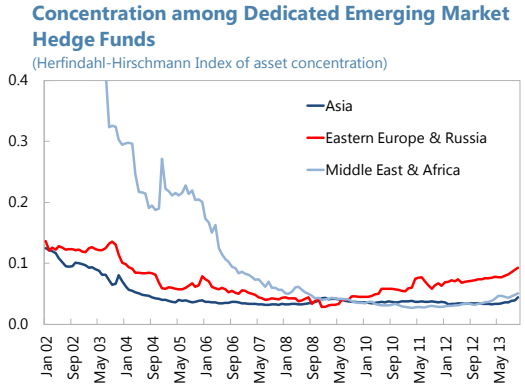


Sources: Emerging Portfolio Fund Research; and IMF staff estimates.

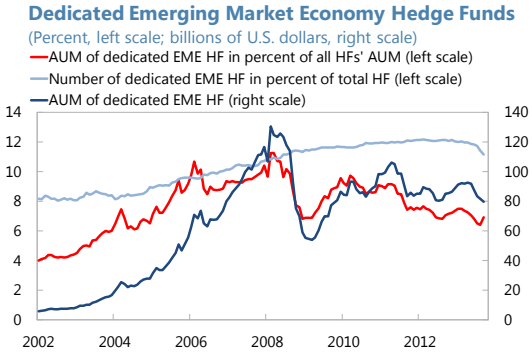


Sources: Emerging Portfolio Fund Research; and IMF staff estimates.

Note: Other economies include Brazil, Indonesia, and South Africa. EEEs include Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Poland, Romania, Serbia, Slovakia, Slovenia, and Ukraine. Russia and Turkey are the average of the two.



Sources: Eurekahedge; and IMF staff estimates.



Source: Hedge Fund Research; and IMF staff calculations.
AUM = assets under management; and HF = hedge fund.

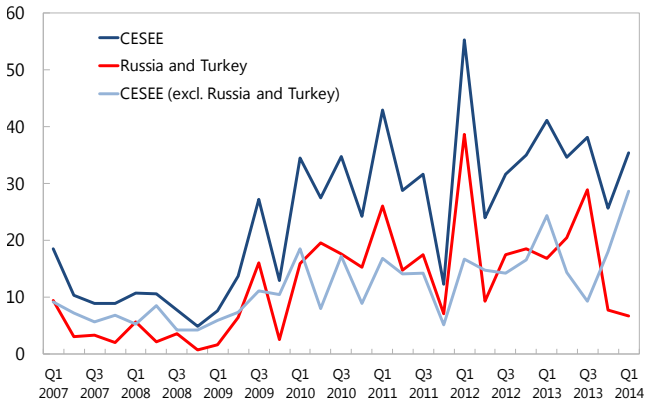
[1] Prepared by Luis Brandao-Marques, Johannes Ehrentraud, Hibiki Ichiue, and Hiroko Oura (all IMF Monetary and Capital Markets Department), based on Chapter 2 of the April 2014 *Global Financial Stability Report*.

Annex VIII. CESEE Sovereign Bond Issuance Trends post Taper Talk[1]

How did tighter global financial conditions since May 22 2013 affect the CESEE sovereign bond issuance? A comparison of the volumes and terms of issuance during *May 22, 2013–March 2014* and *August 2012–May 21, 2013* reveals that: (i) external sovereign bond issuance by CESEE countries has declined in H2 2013, but recovered in Q1 2014; (ii) there was no uniform increase in average yield to maturity, but some tendency towards shortening of maturities; (iii) the share of bond issues in foreign currencies has declined or remained little changed for most countries, except Russia and Turkey; and (iv) most of the issuance has continued to be in fixed interest rate terms (on average, the share of floating or variable rate issues has been around 5 percent).

Sovereign bond issuance in CESEE

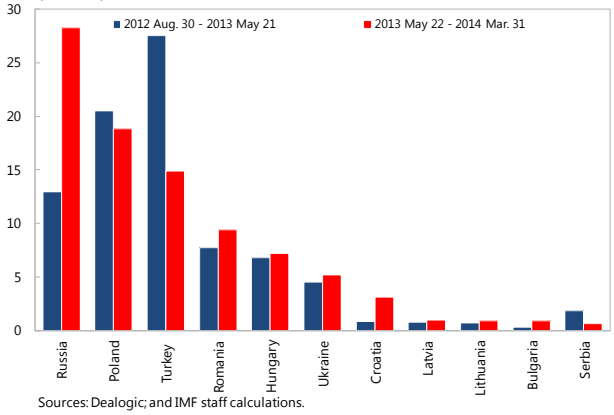
(Billions of euros)



Sources: Dealogic; and IMF staff calculations.

Share in total CESEE sovereign bond issuance

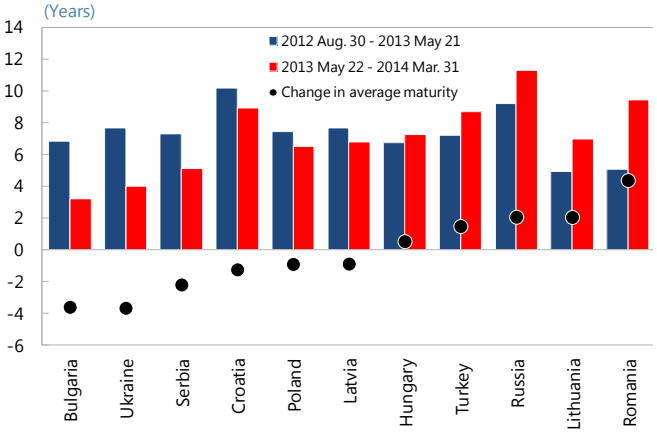
(Percent)



Sources: Dealogic; and IMF staff calculations.

Average maturity of sovereign bond issues

(Years)



Sources: Dealogic; and IMF staff calculations.

Currency of Denomination

	Period 1		Period 2		Change in the share of non-local currencies
	Local	*Non local*	*Local*	*Non local*	
Bulgaria	86	14	97	3	-12
Croatia	0	100	32	68	-32
Hungary	47	53	55	45	-8
Latvia	11	89	8	92	2
Lithuania	37	63	50	50	-13
Poland	77	23	76	24	1
Romania	60	40	53	47	7
Russia	100	0	34	66	66
Serbia	0	100	0	100	0
Turkey	88	12	69	31	18
Ukraine	40	60	62	38	-22
Montenegro	n.a.	n.a.	0	100	n.a.
Average	49	51	54	46	1

Sources: Dealogic; and IMF staff calculations.

Note: Period 1 = 2012 Aug. 30 – 013 May 21
Period 2 = 2013 May 22 – 2014 Mar. 31

1 Prepared by Ferdinand Heinz and Jessie Yang.

REFERENCES

Arslanalp, S., and T. Tsuda, 2014, "Tracking Global Demand for Emerging Market Sovereign Debt," IMF Working Paper 14/39 (Washington: International Monetary Fund).

Cerutti, E., 2013, "Banks' Foreign Credit Exposures and Borrowers' Rollover Risks Measurement, Evolution and Determinants," IMF Working Paper 13/9 (Washington: International Monetary Fund).

Chen S., P. Liu, A. Maechler, C. Marsh, S. Saksonovs, and H. S. Shin, 2012, "Exploring the Dynamics of Global Liquidity," IMF Working Paper 12/246 (Washington: International Monetary Fund).

Ebeke C., and Y. Lu, 2014, "Emerging Market Local Currency Bond Yields and Foreign Holdings in the Post-Lehman Period—a Fortune or Misfortune?" IMF Working Paper 14/29 (Washington: International Monetary Fund).

Forbes, Kristin J. and Warnock, Francis E., 2011, "Capital Flow Waves: Surges, Stops, Flight, and Retrenchment," NBER Working Paper No. 17351, Aug, (Cambridge, MA: National Bureau of Economic Research)

Heinz F.H., and Y. Sun, 2014, "Sovereign CDS Spreads in Europe—The Role of Global Risk Aversion, Economic Fundamentals, Liquidity, and Spillovers," IMF Working Paper 14/17 (Washington: International Monetary Fund).

González-Rosada, Martín, and E. Levy Yeyati, 2008, "Global Factors and Emerging Market Spreads," *The Economic Journal, November*, Vol. 118, pp. 1917–36.

Hartelius, K., 2006, Box 1.5 in the *Global Financial Stability Report*, April, pp. 28–31, (Washington: International Monetary Fund).

Impavido, G., H. Rudolf and L. Ruggerone, 2013, "Bank Funding in Central, Eastern and South Eastern Europe Post Lehman: a "New Normal"?" IMF Working Paper 13/148 (Washington: International Monetary Fund).

International Monetary Fund (IMF), 2011a, *Regional Economic Outlook,* Chapter 4 (Washington, October).

———, 2011b, February, "Assessing Reserve Adequacy,"(Washington).

———, 2013a, *Regional Economic Issues* (Washington, April).

———, 2013b, *Global Financial Stability Report*, Chapter 1 (Washington)

———, 2013c, *Regional Economic Issues* (Washington, October).

———, 2014a, *Global Financial Stability Report*, Chapter 2 "How do Changes in the Investor Base and Financial Deepening affect Emerging Market Economies?" (Washington, April).

———, 2014b, *World Economic Outlook*, Chapters 1-2 (Washington, April).

———, 2014c, February, "Global Liquidity – Issues for Surveillance," (Washington).

———, 2014d, *Western Hemisphere Regional Economic Outlook* (Washington, April).