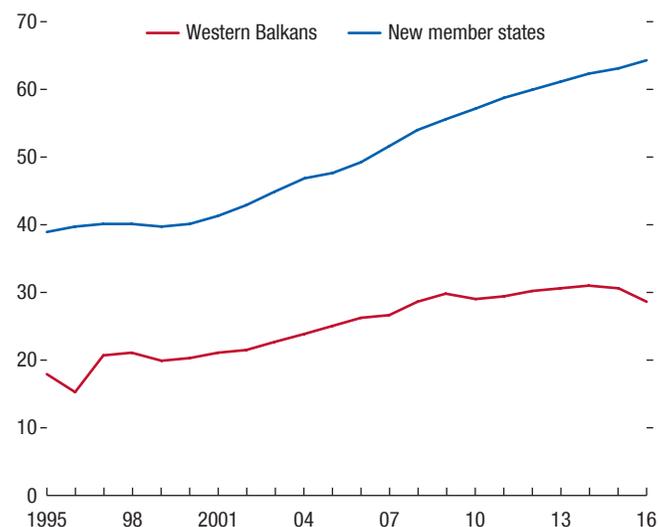


### 3. Banking Challenges in the Western Balkans: Prospects and Challenges

Income convergence in the Western Balkans has stalled at low levels.<sup>1</sup> Measured in purchasing-power-parity (PPP) terms, income levels in the region today are less than 30 percent what they are in the euro area (Figure 3.1). Equally noteworthy, the ratio has not changed since 2008. This is in sharp contrast to the experience of the New Member States of the European Union (EU), where relative incomes have continued to grow strongly since the global financial crisis and are now at nearly two-thirds those of the euro area. There are many reasons for this disappointing performance,<sup>2</sup> including an unfinished transition, exemplified in some countries by a large swath of inefficient state-owned enterprises; shortcomings in the rule of law and the business environment; limited human capital, exacerbated in some countries by significant emigration of qualified human resources, or “brain drain”; and scant and poor-quality public infrastructure. While acknowledging these issues, this chapter focuses on another important plank for the region’s development: the health of its banking sectors. Implicit is the assumption that, even if reforms in the other areas bring about high-quality bankable projects, their potential, and with it overall economic growth, will not be fully realized if banks are not in a good position to fund them.

In many ways, banks in the region are still reeling from the effects of a boom-and-bust cycle that was as severe as it was in other parts of Eastern Europe. In the precrisis boom years, most countries in the Western Balkans saw foreign parent banks finance

**Figure 3.1. GDP per Capita**  
(Percent of euro area PPP GDP per capita)



Sources: IMF, *World Economic Outlook*; and World Bank, World Development Indicators.  
Note: PPP = purchasing power parity.

and fuel a credit boom that boosted growth but also contributed to rising imbalances. When the global financial crisis broke, this foreign funding suddenly stopped, and the boom ended. The result was a pronounced slowdown in GDP growth, a large increase in nonperforming loans (NPLs), and a sharp drop in profitability.

This legacy is constraining credit growth at a time when credit is most needed. In most countries in the region, credit-to-GDP ratios are still below the levels predicted by fundamentals. Boosting credit penetration thus appears necessary to reinvigorate income convergence. Unfortunately, credit growth remains timid, despite a modest improvement in recent years, and the factors holding it back are unlikely to be resolved soon:

- *Insufficient funding:* Eight years after the trough, parent bank funding has at best stabilized, and further contractions cannot be ruled out. Foreign banks see limited

Prepared by a staff team consisting of Ezequiel Cabezon, Dilyana Dimova, Patrick Gitton, Haonan Qu, Alaina Rhee, Ruud Vermeulen, and Jason Weiss, under the supervision of Bas Bakker and Jacques Miniane. Special thanks to Plamen Iossifov for the codes for the credit gap estimation.

<sup>1</sup>In this chapter, “Western Balkans” or “Western Balkan countries” refers to Albania, Bosnia and Herzegovina, Kosovo, Macedonia, Montenegro, and Serbia. “New Member States” refers to Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, and Slovenia.

<sup>2</sup>For more details, see IMF 2015a.

prospects in the region, and many of them are following global trends toward self-funded subsidiaries. In addition, some parent banks of important subsidiaries in the Western Balkans have themselves faced stress in the past, while others remain vulnerable. In addition, restructuring plans by Greek banks submitted as part of the EU-led bailout envisage a significant scaling back of their activities in the Western Balkans, and some Greek banks have in fact started to sell their subsidiaries in the region. Also, global and EU regulatory changes are having significant indirect effects on Western Balkan banking systems via the dominance of foreign subsidiaries. The region's banks have been successful in attracting deposits since the crisis, but it remains to be seen whether in a region of historically low savings deposits alone will suffice to propel credit penetration forward. Meanwhile, fresh capital from non-EU groups has been limited, not least because they see that some countries already have too many banks, limiting the upside.

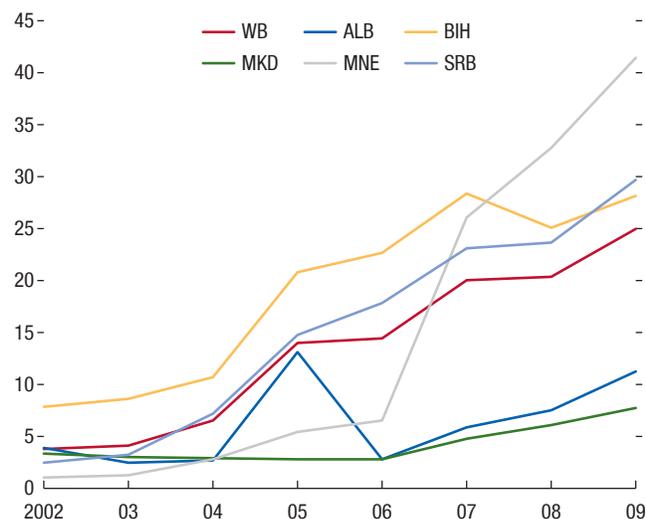
- *High levels of nonperforming loans and impaired profitability:* NPLs are gradually declining, and profitability is increasing. Yet in many countries NPLs are still at levels that are far from healthy. Econometric analysis in this chapter shows that weakened balance sheets are a large, negative damper on credit growth. Further analysis shows that, in the absence of forceful policy action, it will take a long time to repair balance sheets via the ongoing macro recoveries.
- *Structural nonbank factors:* Weak bankruptcy and insolvency regimes in some countries are perpetuating the debt overhang, with knock-on effects on banks. Uncertain property rights mean that a range of assets cannot be easily collateralized, while weak judiciaries make banks wary of lending for fear that debts will not be recovered.

In this setting, policymakers are advised to take a range of policy actions to speed up the healing

of the banking system and mitigate risks. These actions include strengthening balance sheets, expanding funding bases, and tackling nonbank structural obstacles to credit. Specifically:

- *Elevated levels of nonperforming loans in most of the Western Balkans require a multipronged policy response.* Comprehensive asset quality reviews, as done in Serbia, would help shed an honest light on both the scale of impaired assets and the adequacy of banks' provisions. These reviews should be followed by a requirement that vulnerable banks draft time-bound remedial action plans that are supervised. Country authorities should also take steps to reduce impediments to NPL write-offs and facilitate more active markets for NPLs and distressed assets.
- *Expanding funding bases is key.* Managing external deleveraging, including potentially disruptive episodes, will be key to maintaining adequate funding bases across the region. As such, the authorities should remain in close communication with parent banks and home supervisors. At a minimum, Western Balkan supervisors should ensure that banks under their authority maintain updated contingency plans for any such event. In parallel, it is paramount to implement policy measures that help diversify bank funding sources and thus reduce dependence on external parent funding. Realistically, though, the development of local capital markets or initiatives that could boost domestic savings will take time to bear fruit. Similarly, enhancing the attractiveness of the region to new banking groups will require that some countries face the fact that they already have too many banks, which deters the upside perceived by foreign groups.
- Addressing weak bankruptcy and insolvency regimes, improving cadastral systems, and speeding up slow court procedures and judgments cannot be sidestepped if the region is to realize the full potential of financial intermediation. This chapter proposes concrete recommendations in this regard.

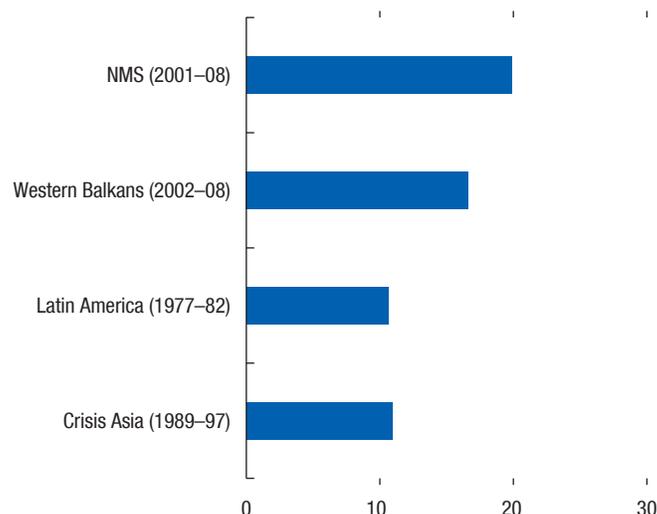
**Figure 3.2. Foreign Banks' Funding to All Sectors, to Peak**  
(Foreign bank funding per GDP)



Sources: Bank for International Settlements (BIS); International Financial Statistics; and IMF staff estimates.

Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

**Figure 3.3. Leveraging Episodes**  
(Increase in foreign bank funding, all sectors, percent of GDP)



Sources: Bank for International Settlements; International Financial Statistics; and IMF staff estimates.

Note: Western Balkans does not include Kosovo. NMS = new member states.

## The Boom and Bust

Much of what ails banks in the region today stems from the boom-and-bust cycle of the past 15 years. Understanding the cycle as it affected the region's banks is thus key to evaluating future prospects.

While much has been written about the boom and bust in the New Member States of the European Union (Bakker and Gulde 2010, Bakker and Klingens 2012), much less has been said about the equally sharp cycle that gripped Western Balkan banking sectors.<sup>3</sup> During the precrisis boom years, external bank funding across the Western Balkans rose by more than 500 percent or by 20 percentage points of GDP (Figure 3.2). This regional picture masks important variations across countries: Montenegro experienced a larger increase than the others (by 40 percent of GDP, one of the largest in the world), followed by Serbia and Bosnia and Herzegovina. At the other end, the ramp-up in funding was less noticeable in Albania and Macedonia. When measured in percent of GDP, the rise in external funding prior to the crisis was

<sup>3</sup>An important exception is IMF 2015a.

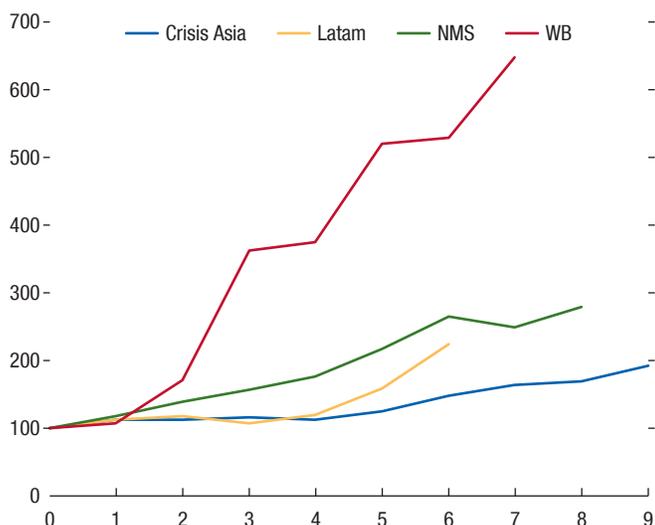
comparable to that in the New Member States and double that in Asia and Latin America before their famous banking crises (Figure 3.3). In percentage terms, the increase in funding was much higher in the Western Balkans than in other regions, owing to the low starting base.

The rise in external funding reflected both push and pull factors. On the supply side, much of the banking system in Southeastern Europe was foreign owned (Figure 3.4), and for the parent banks, banking in the Western Balkans was very profitable. In the region, foreign banks accounted for between 70 and 95 percent of banking sector assets before the crisis. In turn, the foreign presence was and remains dominated by EU banks, which before the crisis accounted for about 90 percent of total foreign banks by assets.<sup>4</sup> On the demand side, credit penetration in the region was low, and pent-up demand high.

The large expansion of funding led to a big jump in credit penetration. Across the region, credit-to-GDP ratios increased by an average of

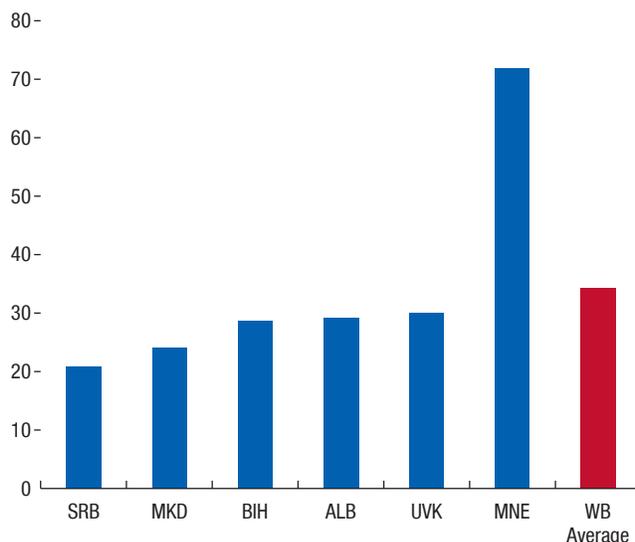
<sup>4</sup>As discussed below, this picture has changed slightly with the entry of non-EU groups in recent years.

**Figure 3.4. Foreign Bank Funding, Lead-up to Peak**  
(100 = funding/GDP at previous trough  $t = 0$ )



Sources: Bank for International Settlements; International Financial Statistics; and IMF staff estimates.  
Note: Latam = Latin America; NMS = EU new member states; WB = Western Balkans.

**Figure 3.5. Western Balkans Private Credit to GDP**  
(Change over 2001–08)



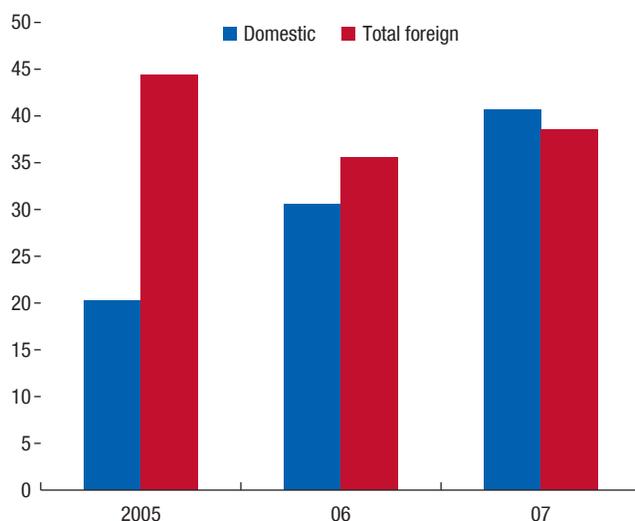
Sources: International Financial Statistics; Monetary and Financial Statistics; and IMF staff estimates.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes. WB = Western Balkans.

30 percentage points of GDP in the 2000s up to the crisis, ranging from 20 percentage points in Serbia to 70 percentage points in Montenegro, one of the largest jumps in the world (Figure 3.5). Consistent with the push from parent funding, foreign banks increased credit faster than domestic banks (Figure 3.6). Adding to financial stability concerns, a large proportion of credit was in foreign currency (IMF 2016). In flow terms, this credit expansion benefited households most, although on a stock basis corporate loans still dominated banks' books (Figure 3.7).

The credit boom contributed to rapid growth (Figure 3.8), but also led to rising imbalances. Between 2003 and 2008, current account deficits increased most sharply in Montenegro and Serbia, followed by Albania and Macedonia (Figure 3.9). By 2008, the current account deficit in all Western Balkan countries was in double digits.

As in other regions, the onset of the global financial crisis brought about a reversal in external funding, though less severe than elsewhere. The decline in external funding averaged about 8 percentage points of GDP across the

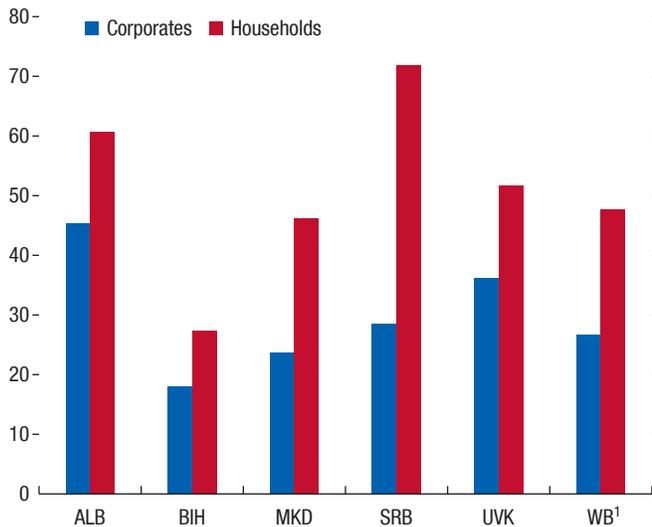
**Figure 3.6. Western Balkans: Bank Credit Growth by Ownership**  
(Percent)



Sources: Bankscope, Monetary and Financial Statistics; and IMF staff estimates.

region, ranging from almost no change or even a slight increase in Albania and Macedonia to a 20 percentage point of GDP decline in Montenegro (Figure 3.10). Still, the deleveraging itself was significantly less sharp than in the New

**Figure 3.7. Credit Growth by Sector**  
(Average annual year over year, 2004–08, percent)

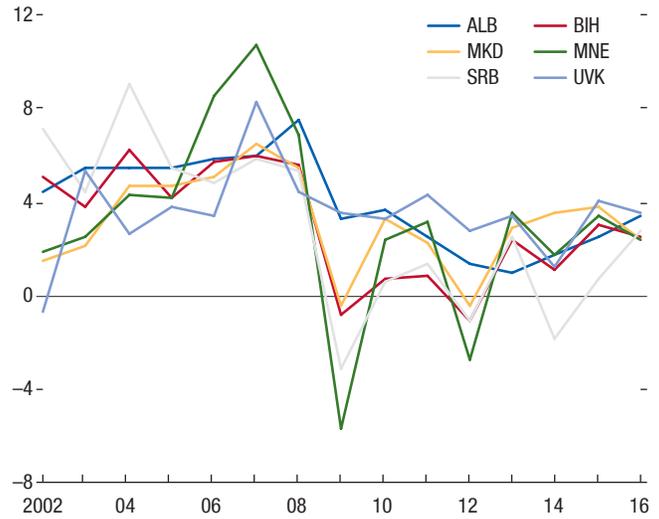


Sources: Monetary and Financial Statistics; and IMF staff estimates.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes. WB = Western Balkans.  
<sup>1</sup>Excluding Montenegro.

Member States during the same period. It was also less severe than in Asia and Latin America during their respective crises (Figure 3.11). This is partly because banks in the region were not particularly highly leveraged despite the sharp run-up in credit, because the starting level was low. For instance, loan-to-deposit ratios were below 100 percent in all countries but Montenegro (and in the case of Albania and Kosovo, well below). Montenegro had a loan-to-deposit ratio of 147 percent in 2008, comparable to such ratios in the Baltics, and consequently suffered the largest external deleveraging.

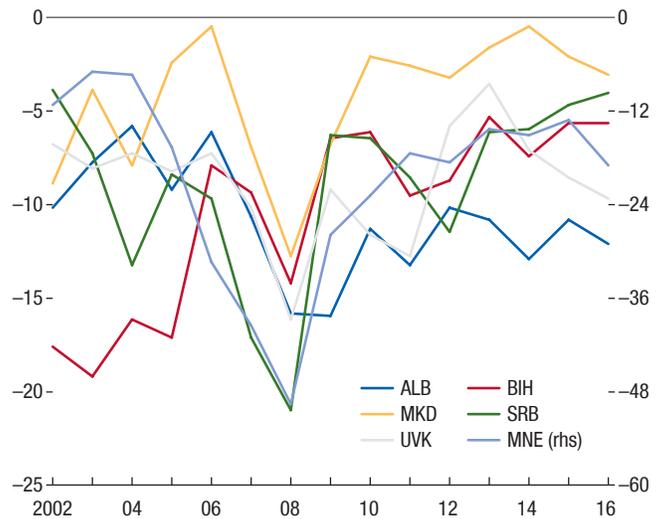
The sudden stop in external funding, the increase in global uncertainty, and lower external demand led to a sharp decline in growth, which fell by an average of 4½ percentage points in the aftermath of the crisis. With credit hit both from the funding (supply) side as well as from lower demand, credit growth went from about 30 percent before the crisis to about zero after, closely mirroring developments in the New Member States (Figure 3.12). Not surprisingly, the country with the biggest run-up during the leveraging episode

**Figure 3.8. Real GDP Growth**  
(Percent)



Sources: IMF, *World Economic Outlook*, and IMF staff estimates.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

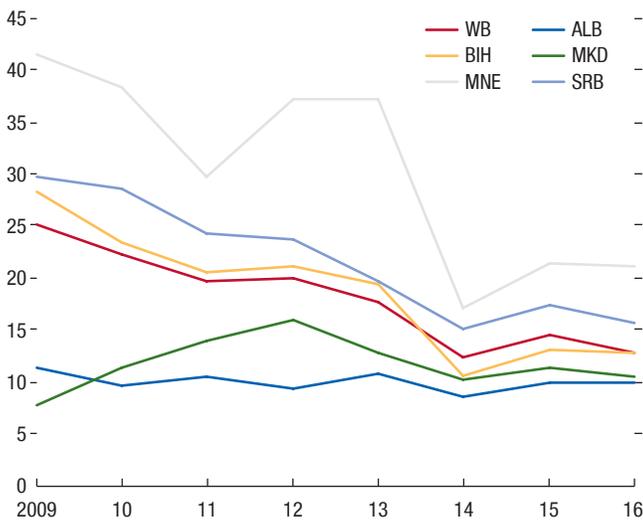
**Figure 3.9. Current Account**  
(Percent of GDP)



Sources: IMF, *World Economic Outlook*, and IMF staff estimates.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

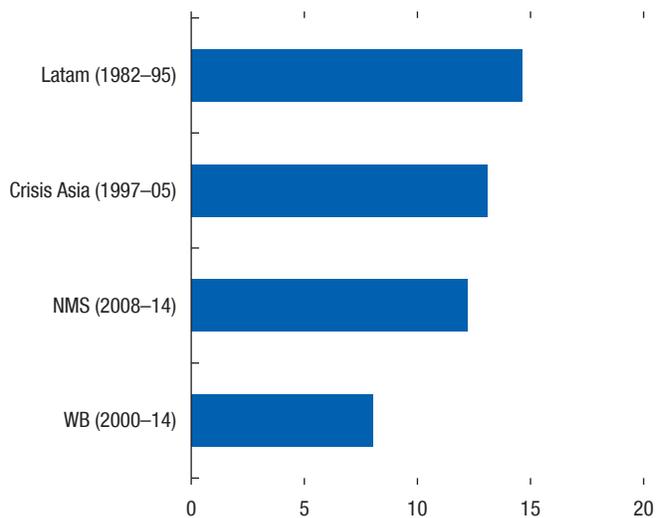
(Montenegro) suffered the largest crash in terms of credit (and GDP) growth (Figure 3.13). But credit growth fell by more than 15 percentage points in every country in the region, with EU-owned banks experiencing the sharpest falls, as expected (Figure 3.14). And just as household credit

**Figure 3.10. Foreign Banks' Funding to all Sectors, Postcrisis**  
(Percent of GDP)



Sources: Bank for International Settlements; International Financial Statistics; and IMF staff estimates.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes. WB = Western Balkans.

**Figure 3.11. Deleveraging Episodes**  
(Drop in foreign bank funding, all sectors, percentage points of GDP)



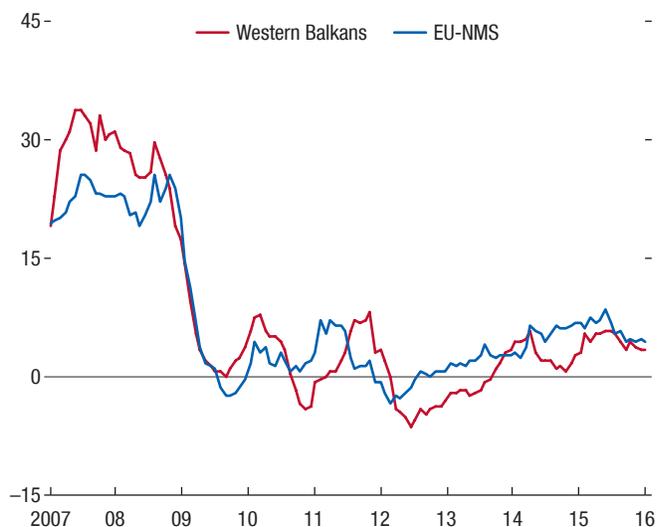
Sources: Bank for International Settlements; Central Bank of Kosovo; International Financial Statistics; and IMF staff estimates.  
Note: Latam = Latin America; NMS = new member states; WB = Western Balkans.

outpaced credit to firms during the boom, it also suffered the biggest slowdown.<sup>5</sup> Credit growth has since picked up a bit from its trough, but it remains well below precrisis levels.

The feedback loops between the financial sector and the overall economy crystallized in a sharp increase in NPLs and a decline in profitability that are both still hurting banks today. This was notably true in Montenegro and Serbia, which suffered the two largest growth slowdowns in the region, but also in Albania. Given the extent of the growth and credit slowdown in Montenegro, it is perhaps surprising that NPLs did not increase more there, but this could reflect the extent to which they were moved off balance sheets (Figure 3.15). Going by NPL data, the greatest distress was found in the corporate (often real estate) rather than the household sector. Corporate NPLs were higher not just because corporate loans represented a higher share of the total, but also because the NPL ratio within the corporate loan book was typically twice as high as for household loans, except in Kosovo. In the face of such NPLs

<sup>5</sup>In terms of levels, however, household credit continues to outpace corporate credit.

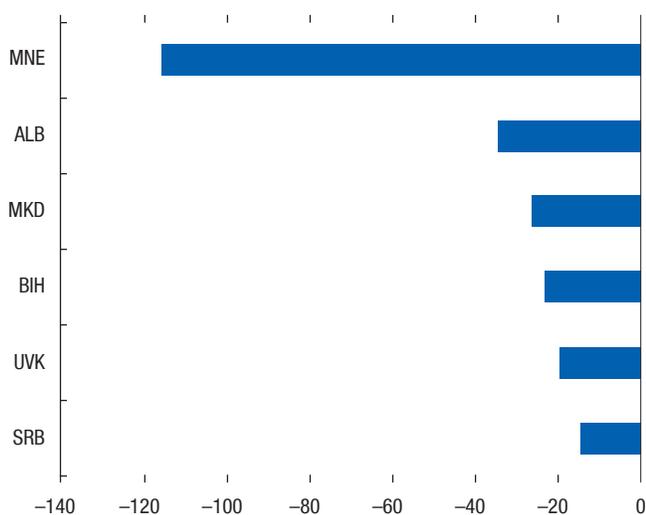
**Figure 3.12. Real Credit to the Domestic Private Sector**  
(Percent change; seasonally adjusted smoothed growth rate against average of previous 12 months<sup>1,2</sup>)



Sources: Haver Analytics; International Financial Statistics; and IMF staff estimates.  
Note: NMS = new member states.  
<sup>1</sup>Regional average based on weighted stocks of credit measured in euros.  
<sup>2</sup>Smoothed growth rates measure the growth against previous 12-month average.

**Figure 3.13. Decline in Real Credit Growth to the Domestic Private Sector, 2007–08 to 2010–11**

(Percentage points; seasonally adjusted smoothed growth rate against average of previous 12 months<sup>1</sup>)



Sources: Haver Analytics; International Financial Statistics; and IMF staff estimates.

Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

<sup>1</sup>Smoothed growth rates measure the growth against previous 12-months average.

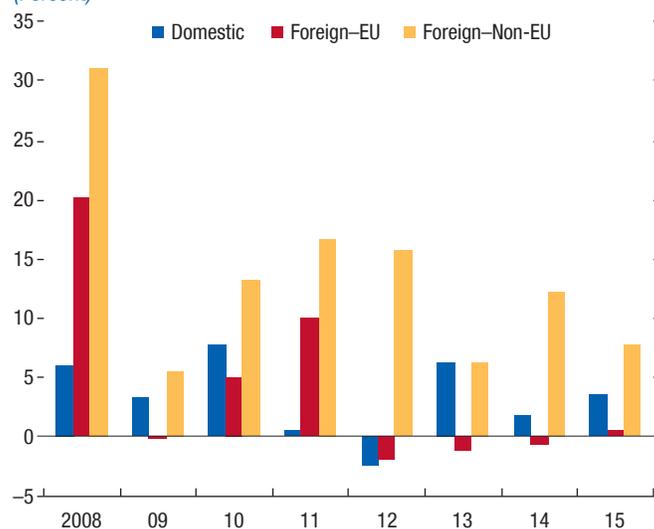
and mounting loan loss provisions, return on equity fell between 10 and 35 percentage points after the crisis (Figure 3.16). This occurred despite concerns that NPL provisioning rates overstate actual loan loss coverage because of optimistic collateral valuations (Box 3.1).

On balance, strong foreign ownership has served the region well but lessons need to be learned. Foreign banks were key to introducing modern banking practices to the region, as well as improving governance in the sector and access to credit.<sup>6</sup> Nevertheless, the lessons from heavy reliance on foreign funding should not be forgotten. In good times these flows can amplify credit booms to unsustainable levels, and they are difficult for policymakers to control. In times of tight global liquidity, reliance on foreign funding exacerbates the retraction of credit supply, again

<sup>6</sup>High foreign ownership is largely a legacy of economic transition, during which banks were privatized so that strategic foreign investors could quickly introduce modern banking practices and secure financial stability.

**Figure 3.14. Western Balkans: Bank Credit Growth by Ownership**

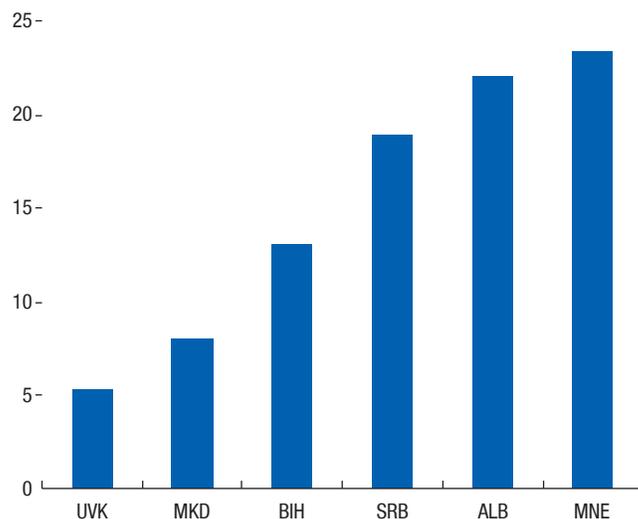
(Percent)



Sources: Bankscope; Monetary and Financial Statistics; and IMF staff estimations.

**Figure 3.15. Nonperforming Loans: Trough-to-Peak Change**

(Percentage points)



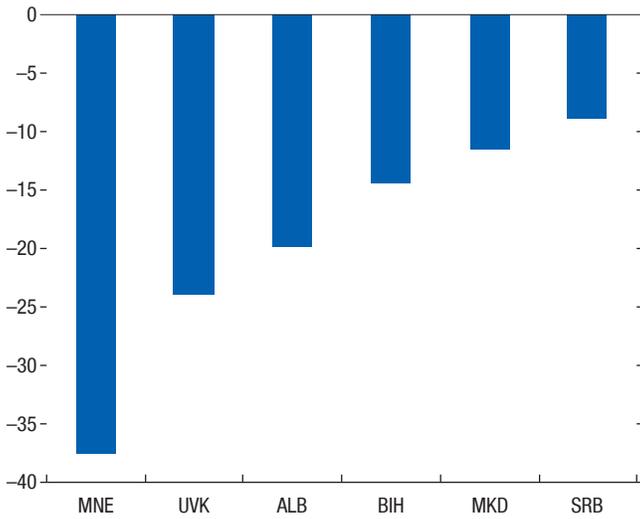
Sources: Country authorities; IMF, Financial Soundness Indicators; and IMF staff estimates.

Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

with little scope for domestic policymakers to counteract.

In short, Western Balkan banking systems endured a similar (though much less talked about) boom and bust as other banking systems in Eastern

**Figure 3.16. Return on Equity: 2007-to-Trough Change**  
(Percentage points)



Sources: Country authorities; and IMF staff estimates.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

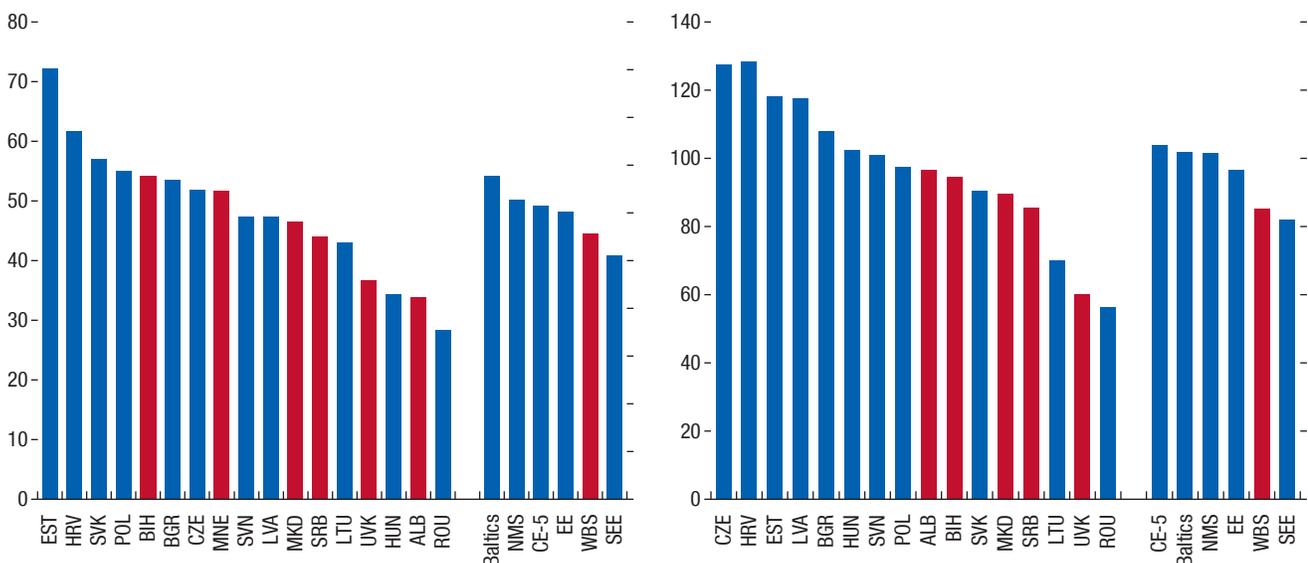
Europe. Despite some intraregional variation, the overall picture that emerges is of banking systems still reeling under high NPL levels, low profitability, and weak credit. Can banks in the region escape this cycle and contribute to sustained economic growth?

## Looking Ahead

### Are Current Levels of Credit Intermediation Sufficient?

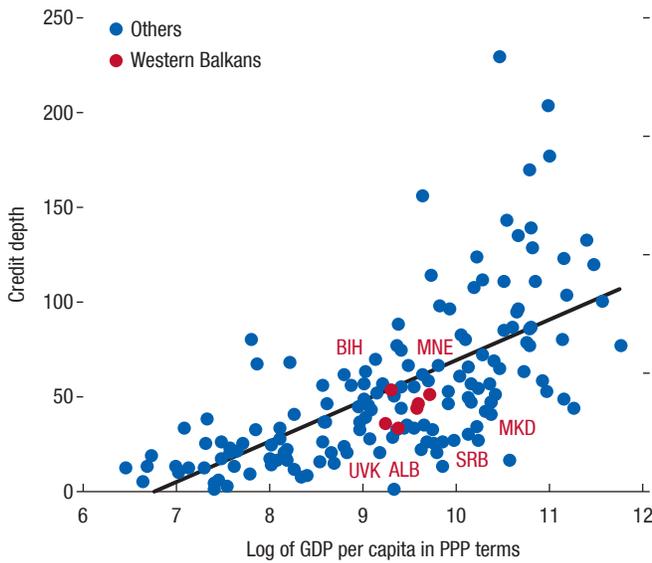
Compared with other countries of Central and Eastern Europe, financial intermediation levels in the Western Balkans are relatively low. The average credit-to-GDP ratio in the Western Balkans (45 percent) is below the average for Eastern Europe and below that for all Eastern European regions except Southeastern Europe (Figure 3.17). The contrast with other regions is even more pronounced in the bank-assets-to-GDP ratio, because nonlending activities of banks in the Western Balkans are largely limited to holding cash and government securities.

**Figure 3.17. Emerging Europe: Financial Depth**  
(Bank credit to the private sector (lhs) and bank assets (rhs), percent of GDP, 2016)



Sources: International Financial Statistics; World Bank, Global Financial Development database; and IMF staff estimates.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes. lhs = left-hand side; rhs = right-hand side.

**Figure 3.18. GDP per Capita and Credit Depth in 2016**  
(Bank credit to the private sector, percent of GDP<sup>1</sup>)

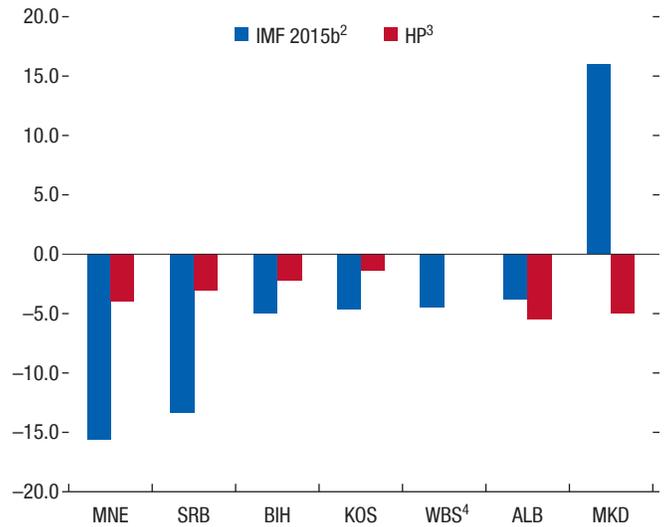


Sources: International Financial Statistics; *World Economic Outlook*; and IMF staff estimates.  
Note: PPP = purchasing power parity. Country abbreviations are International Organization for Standardization (ISO) country codes.  
<sup>1</sup>The sample includes all countries for which data are available.

Low financial intermediation reflects in part low incomes in the region, but credit to GDP still seems to fall short after adjusting for income and other fundamentals (Figure 3.18). Poorer countries tend to have low credit-to-GDP ratios. Once this is taken into account, financial intermediation levels in the Western Balkans no longer stand out dramatically. Nevertheless, they are all lower than can be explained by income alone, notably in Albania and to a lesser extent in Kosovo, Macedonia, and Serbia. More systematic analysis—panel regressions based on the May 2015 *Regional Economic Issues: Central, Eastern, and Southeastern Europe* that account for income, interest rate levels, and country-specific effects—appears to confirm that credit-to-GDP ratios are below levels predicted by these fundamentals except in Macedonia.<sup>7</sup> While the gaps are

<sup>7</sup>See Annex 3.1 for details. It should be noted that the May 2015 *Regional Economic Issues: Central, Eastern, and Southeastern Europe* is not the only model to estimate the level of fundamentals-consistent credit. We settled on this model because it is relatively parsimonious in terms of data requirements, an advantage in this region. It should be noted, though, that other models could have found different

**Figure 3.19. Estimated Credit Gaps in 2016**  
(Actual minus fundamentals-consistent level of private credit in percent of GDP)



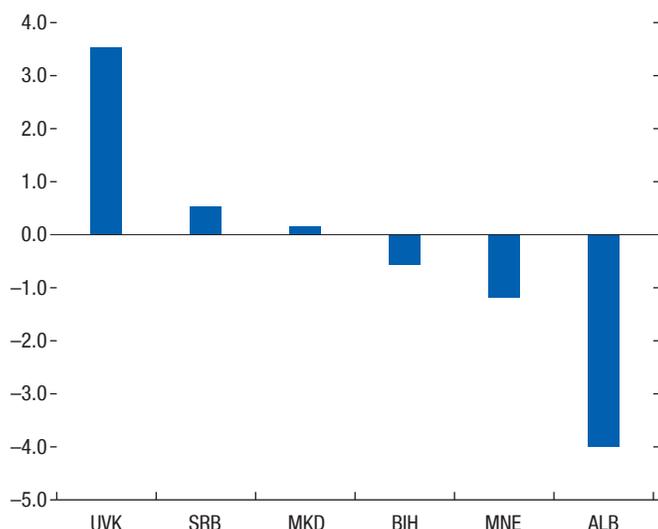
Sources: IMF staff estimates using *World Economic Outlook*; International Financial Statistics; Bank for International Settlements; World Bank, World Development Indicators and other data; and World Bank FinStats.  
<sup>1</sup>The fundamentals-consistent or long-run level of private sector credit is estimated for 34 European countries based on a reduced form relationship between per capita private credit and its key demand and supply determinants over 1995–2016 (see IMF 2015b). Private credit includes domestic bank and nonresident credit.  
<sup>2</sup>Calculated as actual minus the Hodrick–Prescott (HP) filter of domestic bank credit to the private sector.  
<sup>3</sup>Simple averages.

small in Albania, Bosnia and Herzegovina, and Kosovo, they are close to 15 percentage points of GDP in Montenegro and Serbia (Figure 3.19). Similarly, comparing the bank-credit-to-GDP ratio with its long-term trend (here proxied by its Hodrick–Prescott filter)<sup>8</sup> also shows small but consistently negative gaps (that is, actual falling short of the trend). The story is consistent across countries: credit-to-GDP ratios were below their fundamental values in the early 2000s; rapid gains during the boom put them above their fundamental values; and the declines during the boost have brought them back down below those values.

credit gap levels, perhaps even a different sign. Moreover, there is estimation uncertainty within a single model.

<sup>8</sup>This can be considered the credit equivalent of the output gap.

**Figure 3.20. Credit to GDP, Change from Trough to 2016**  
(Percentage points)

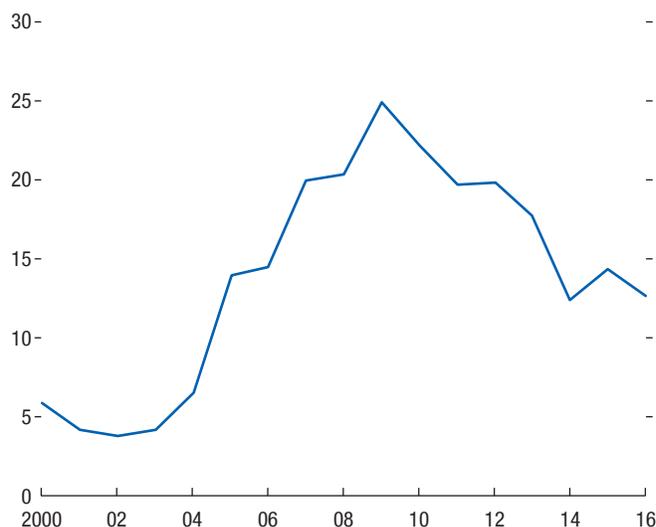


Sources: Monetary and Financial Statistics; and IMF staff estimates.  
Note: Change from 2012 for countries with no trough. Country abbreviations are International Organization for Standardization (ISO) country codes.

## Can Credit Intermediation Be Bolstered Going Forward?

Despite the need to bolster financial penetration, the credit recovery remains timid, with credit-to-GDP ratios moving sideways or contracting (Figure 3.20). Relative to the end of 2013 (close to the trough for most countries), credit growth increased by about 3 percentage points on average across the region. However, this masks significant cross-country variation. While credit growth fell over this period in Albania and stayed flat in Macedonia, it improved by more than 5 percentage points in Kosovo and 10 percentage points in Montenegro (though from a very low base). Notably, credit is clearly outpacing nominal GDP in Kosovo; in other countries, the credit-to-GDP ratio moved sideways (Macedonia and Serbia) or contracted, notably in Albania. Understanding the reasons for this weak credit performance is key to understanding prospects going forward.

**Figure 3.21. External Bank Claims on Western Balkans<sup>1</sup>**  
(Percent of GDP, all sectors)



Sources: Bank for International Settlements; IMF, International Financial Statistics; and IMF staff estimates.

<sup>1</sup>Does not include Kosovo. 2016 uses GDP projections.

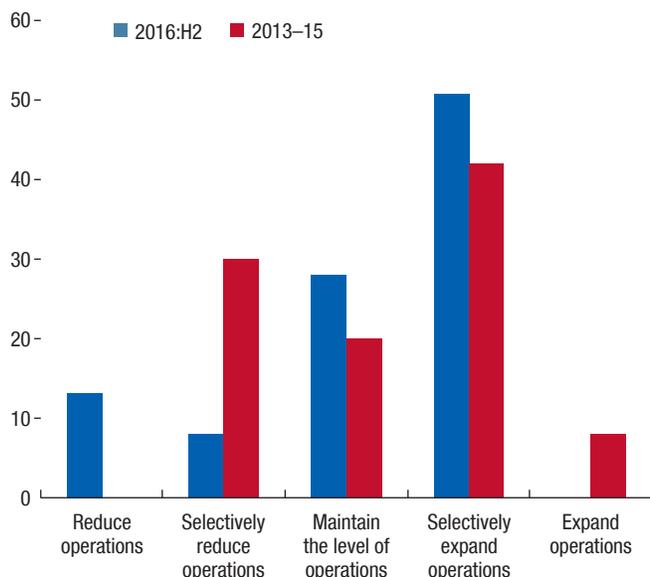
### Weak Funding

Funding constraints appear to be a key reason for continued modest credit growth. In particular, parent bank funding has not returned to the region's banks following the sharp deleveraging.<sup>9</sup> After a modest recovery in 2015, parent funding fell again slightly last year and remains more than 10 percentage points of GDP below its peak (Figure 3.21). Moreover, prospects for a turnaround in parent funding do not seem particularly promising, and there is a possibility that foreign funding will continue to contract. There are various factors supporting this stance (Figure 3.22):

- *Foreign banks see limited prospects in the region.* This phenomenon is, at some level, a vicious circle. Limited prospects are influenced by current modest profitability, which in turn influences funding decisions, which limit opportunities and profits. In the latest European Investment Bank survey, no

<sup>9</sup>In this context, it is worth noting that the largest three foreign banks in the Western Balkan countries account on average for almost half of the market share in the region. In contrast, they account for less than 6 percent of the assets of their parent groups on average.

**Figure 3.22. Group-Level Response of Long-Term Strategies in CESEE (Percent)**



Source: European Investment Bank: Central, Eastern, and Southeastern Europe Bank Lending Survey.

Note: H2 = second half of the year.

foreign banking group said it plans to expand operations in the region, slightly more than half said they will only selectively expand operations, and the rest said they will either maintain or reduce operations.

- *Parent bank stress.* Some parent banks of key subsidiaries in the Western Balkans have themselves faced stress in the past, and others remain vulnerable. This stress has impinged on the region's banking systems, either via pressure to consolidate capital at the parent level or in some cases via outright deposit outflows in the subsidiaries themselves when depositors lost confidence in the group (Box 3.2). In addition, the restructuring plans submitted by Greek banks as part of the EU-led bailout foresee significant scaling back of activities in the Western Balkans. Greek banks have in fact started to sell their subsidiaries in the region.<sup>10</sup>

<sup>10</sup>This would of course be positive going forward if the subsidiaries are sold to banking groups on a more solid footing.

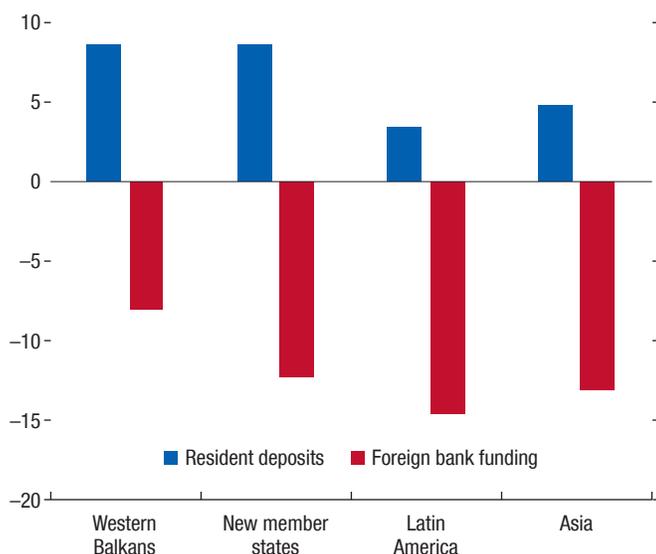
- *Global regulatory changes.* In addition to stress at specific banks, global and EU regulatory changes are having significant indirect effects on Western Balkan banking systems via the dominance of foreign subsidiaries (Annex 3.2). To give but one example, as of January 2018 risk weights on government bond exposures in non-EU countries will be gradually adjusted (the risk weights are currently at zero), even when funding is in local currency. This is a particular worry in Southeastern Europe, where banks are significant buyers of government securities.

Western Balkan banks were able to mitigate the decline in foreign funding via deposit growth. Resident deposits increased by close to 8 percentage points of GDP between the peak and trough of parent funding (2014),<sup>11</sup> making up for the decline in external funding (Figure 3.23). Bosnia, where deposit growth was disappointing, has been an exception. In contrast, the New Member States saw a similar increase in deposits but a sharper decline in parent funding postcrisis, for a net loss. In comparison, Latin America and Asia did much worse after their crises, with a significantly sharper decline in external funding barely mitigated by deposit growth. Deposit growth in the Western Balkans held up in part because the region's economies suffered comparatively less during the global financial crisis than other economies in Europe.

However, deposit growth is unlikely to be enough on its own to fund a meaningful expansion in credit in the medium to long term. Assuming deposits continue to grow in line with recent trends and that this deposit growth funds an expansion in credit, credit-to-GDP ratios would rise more than 10 percentage points over the next 10 years in Montenegro and Serbia—between 5 and 10 percentage points in Kosovo and Macedonia. But they would contract

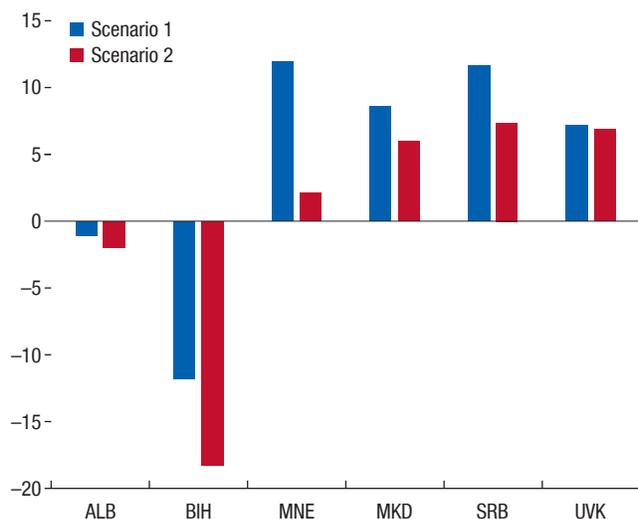
<sup>11</sup>However, as mentioned previously, parent bank funding did not stop falling in 2014 (and in fact declined in 2016 as well). The increase in parent bank funding in 2015 means that, strictly speaking, the trough was recorded in 2014. The level at the end of 2017, however, could be below what it was in 2014.

**Figure 3.23. Change from Peak to Trough**  
(Percent of GDP)



Sources: Bank for International Settlements; International Financial Statistics; Monetary and Financial Statistics; World Bank; Central Bank of Kosovo; Central Bank of Montenegro; and IMF staff estimates.  
Note: Regional weighted average for deposits; aggregate for foreign funding. Residential deposits not available for Latin America and Asia. Deposit data in real terms for Latin America and Asia.

**Figure 3.24. Change in Credit to GDP, 2016–26**  
(Percentage points)

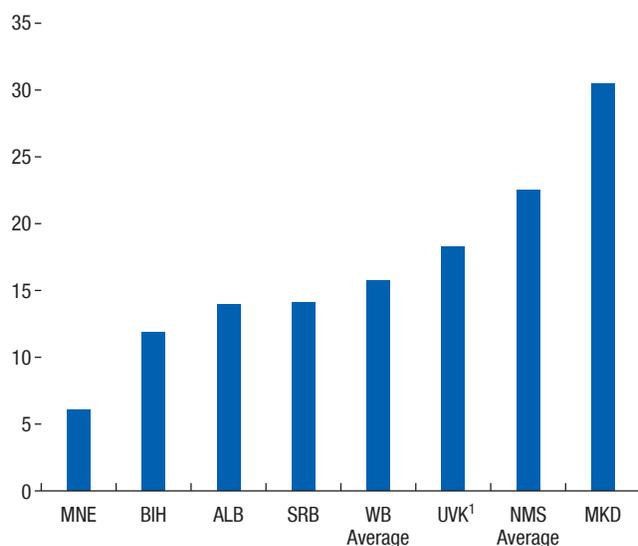


Sources: Monetary and Financial Statistics; International Financial Statistics; and IMF staff estimates.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes.  
Scenario 1: 2026 credit projected by applying 2010–16 average annual deposit growth to 2016 credit level.  
Scenario 2: Scenario 1 minus potential deleveraging. For each country, half of the postcrisis decline in foreign funding to banks is subtracted from 2026 credit level.

significantly in Bosnia, and stay about flat in Albania (Figure 3.24). And these projections assume no further external deleveraging. If foreign funding contracts by half of the decline to date, credit-to-GDP ratios can be expected to fall dramatically in Bosnia, stay about flat in Albania and Montenegro, and grow by only 5 percentage points in Kosovo, Macedonia, and Serbia.<sup>12</sup> This is in part because the region’s low saving levels limit the medium-term upside for deposit deepening (Figure 3.25). In four of the six Western Balkan countries under study saving rates are below 15 percent of GDP. And the region’s average is more than 5 percentage points of GDP lower than in the New Member States.

Fresh capital could be provided by new foreign groups, but their interest in the region has been modest to date. Among a number of mergers and

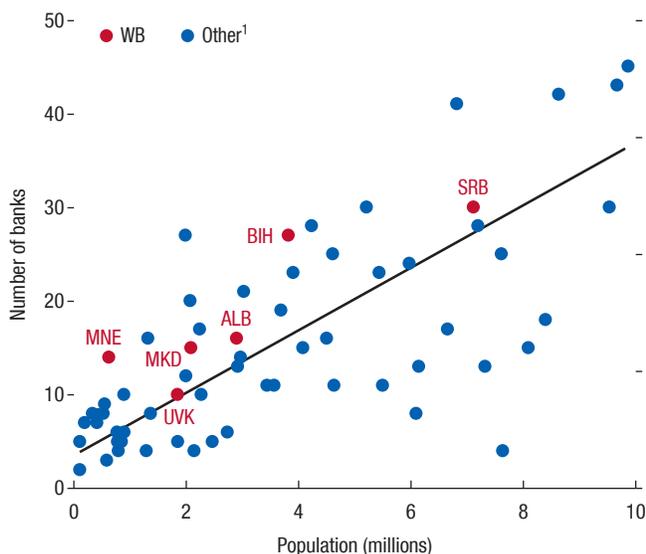
**Figure 3.25. Gross National Savings, 2016**  
(Percent of GDP)



Sources: World Economic Outlook; and World Bank World Development Indicators.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes. NMS = EU new member states; WB = Western Balkans.  
<sup>1</sup>2015 for Kosovo.

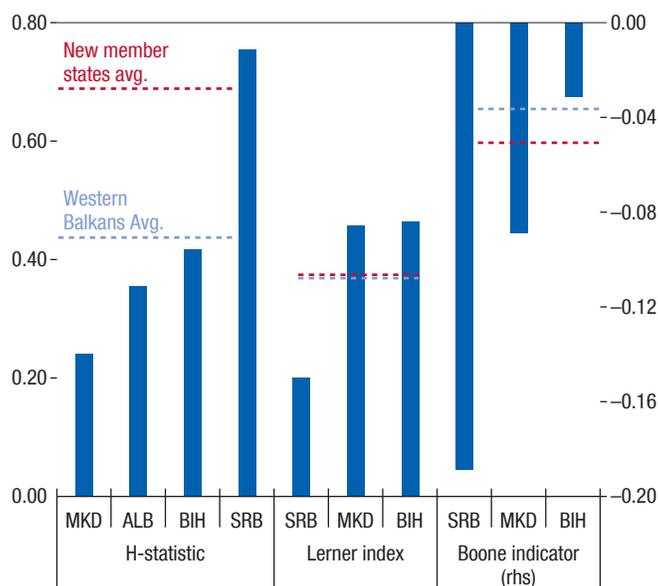
<sup>12</sup>It is true that loan-to-deposit ratios in the region are below 100 percent—sometimes significantly, as in Albania—potentially creating space to fund credit. Against this backdrop, it should be noted that banks in the region are significant purchasers of government securities.

**Figure 3.26 Overbanking in the Western Balkans**  
(Population against number of banks in 2015)



Sources: IMF, Financial Access Survey; World Bank, FinStats; IMF, *World Economic Outlook*; and national central bank data.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes. WB = Western Balkans.  
<sup>1</sup>All other countries with a population below 10 million for which data are available (51 total), excluding other financial corporations. Not plotted are DNK and SWE.

**Figure 3.27. More Indicators of Overbanking<sup>1</sup>**



Sources: World Bank; and IMF staff estimates.  
Note: No data available for some Western Balkan countries.  
<sup>1</sup>For the H-statistic, a higher value indicates more competition. For the Lerner index and Boone indicator a lower value indicates more competition.

acquisitions during postcrisis restructuring in the region, some involved non–Western European groups (US-based and Turkish companies), filling the void left by the Western European groups (Table 3.1). New entrants to the market from abroad were rare during the period, although Kosovo attracted investors from Slovenia and Turkey, reflecting better market conditions and higher potential relative to its peers. Investors from the United Arab Emirates opened a bank in Serbia that started operations in 2015.

Why has interest from new investors been limited? Certainly, factors similar to those deterring

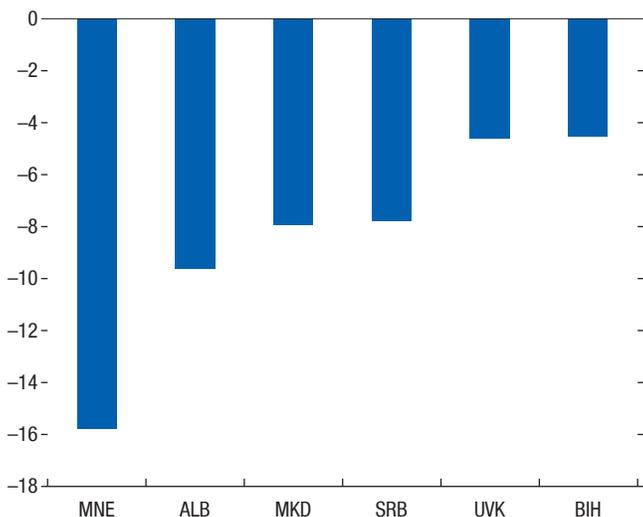
existing foreign groups are at play: low cyclical profitability, perceptions of limited growth prospects, and structurally low saving rates. In addition, new entrants have to face the fact that, in some countries in the region, there may already be too many banks (Figure 3.26). When looking across a large sample of similar-scale countries at the relationship between population and number of banks, all countries in the region lie at or above the predicted (sample average) value. Bosnia and Herzegovina and Montenegro stand out in this regard, but Albania, Macedonia, and Serbia are not exempt. Only Kosovo seems to have an average number of banks relative

**Table 3.1. Major Bank Ownership Transactions (2009–17)**

	Within the European Union	With the United States	With Turkey	New Foreign Entrants	Other
ALB	1	1	0	0	0
BIH	1	1	0	0	1
MKD	3	0	2	0	0
MNE	0	1	0	0	1
SRB	4	1	1	1	3
UVK	0	0	0	3	0

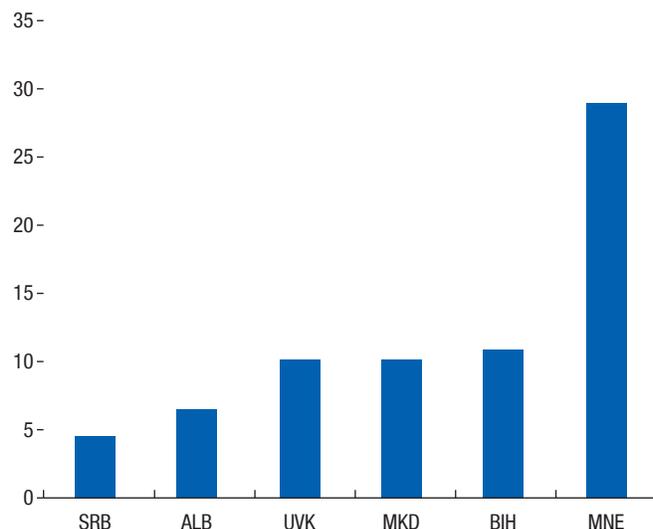
Sources: Bankscope; country authorities; and Fitch.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

**Figure 3.28. Nonperforming Loans: Peak-to-Latest Change**  
(Percentage points)



Sources: Country authorities; Financial Soundness Indicators; and IMF staff estimates.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

**Figure 3.29. Return on Equity: Trough-to-2016 Change**  
(Percentage points)



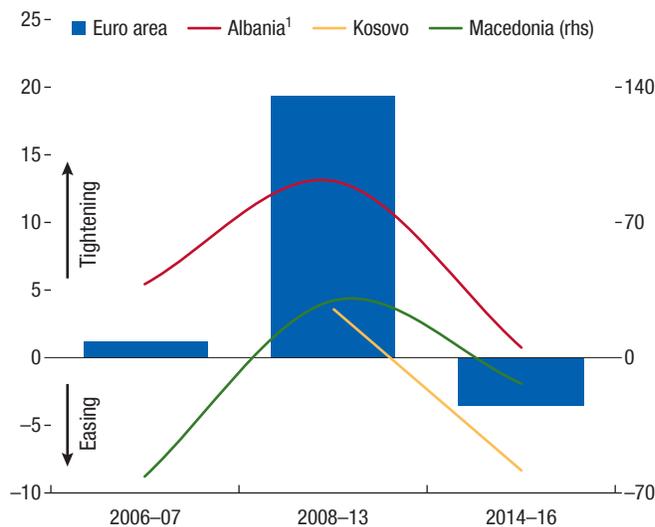
Sources: Country authorities; and IMF staff estimates.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

to its population. Other indicators such as the H-statistic, Lerner index, and Boone indicator also suggest that bank competition is particularly fierce in Serbia (Figure 3.27). While healthy bank competition may benefit consumers and the country, too much competition in the presence of imperfect regulation could lead to risk-taking above the social optimum, and would likely deter potential entrants.

*Impaired Balance Sheets*

Balance sheets have improved in the region in recent years as the economy has recovered from the postcrisis slump. GDP and domestic demand have bounced back from the trough in line with the global economy and domestic policy efforts. Various countries in the region are now growing north of 3 percent, better than before but below what would be desirable from an income convergence perspective (and well below precrisis levels in most countries). The economic recovery has brought NPL ratios down (Figure 3.28) and increased bank profitability (Figure 3.29), and bank lending standards have eased with improved confidence in economies and in the banks themselves (Figure 3.30).

**Figure 3.30. Lending Standards Applied to Corporate Loans**  
(Percent, net balance; positive values = tightening of lending standards)



Sources: Country authorities; European Central Bank; and IMF staff estimates.  
Note: rhs = right-hand side.  
<sup>1</sup>Albania data start in the first half of 2007.

However, asset impairment is still above precrisis levels, and weak balance sheets remain an important drag on credit growth (ECB 2015). The decline (increase) in NPLs (profitability) shown above, while welcome, falls far short of fully repairing the damage brought about by the

**Table 3.2. GDP Growth Needed to Bring Nonperforming Loan Ratios to 2007 Levels<sup>1</sup>**  
(Percent)

	NPL Ratio		Actual (2016)	GDP Growth	
	2007	2016		Needed (three year) <sup>2</sup>	Needed (five year) <sup>2</sup>
Albania	3.4	18.3	3.4	7.1	4.2
Bosnia and Herzegovina	3.0	11.8	2.5	4.2	2.5
Kosovo	4.1	4.9	3.6	0.8	0.5
Macedonia	7.5	6.3	2.4	...	...
Montenegro	3.2	11.1	2.4	3.8	2.3
Serbia	8.4	17.0	2.8	4.1	2.5

Source: IMF staff estimates.

Note: NPL = nonperforming loan.

<sup>1</sup>Assuming no new NPL formation on top of the existing stock.<sup>2</sup>GDP growth needed to bring the existing NPL stock back to 2007 levels in a period of three (five) years.

crisis. Econometric analysis using bank-by-bank data that disaggregate credit developments into demand factors (proxied by GDP) and supply factors (NPL ratio, provisioning ratio, liquidity ratio, loan-to-deposit ratio, equity to net loans, and return on equity)<sup>13</sup> shows that supply factors explain about half of the postcrisis credit slowdown (Figure 3.31).<sup>14</sup> Perhaps more relevant, as recently as 2016, credit supply factors still explained about 40 percent of the difference in credit growth relative to the precrisis period, despite recent improvements in balance sheets. Put another way, if NPLs, profitability, and other bank-specific factors were back at precrisis levels, credit growth today would be about 10 percentage points higher even at current levels of aggregate and credit demand. These results are quite consistent across all countries in the region. And, not surprisingly, weak balance sheets have been and remain a bigger drag on credit in EU-owned banks that experienced a greater boom and bust. At the same time, the model result that weak demand explains about half of the credit slowdown should not be overlooked. After all, GDP growth remains well below precrisis (unsustainable) levels despite the recent recovery, and many borrowers remain trapped in a debt overhang, not least because of inefficient restructuring and insolvency frameworks, slow courts, and other issues, as discussed below.

<sup>13</sup>See Annex 3.1 for details.<sup>14</sup>Note that in the econometric model we count NPLs as a supply constraint to credit, when in fact NPLs are also a sign of distressed borrowers and hence could be a demand constraint as well. Adjusting for this in the model does not materially change the key results.

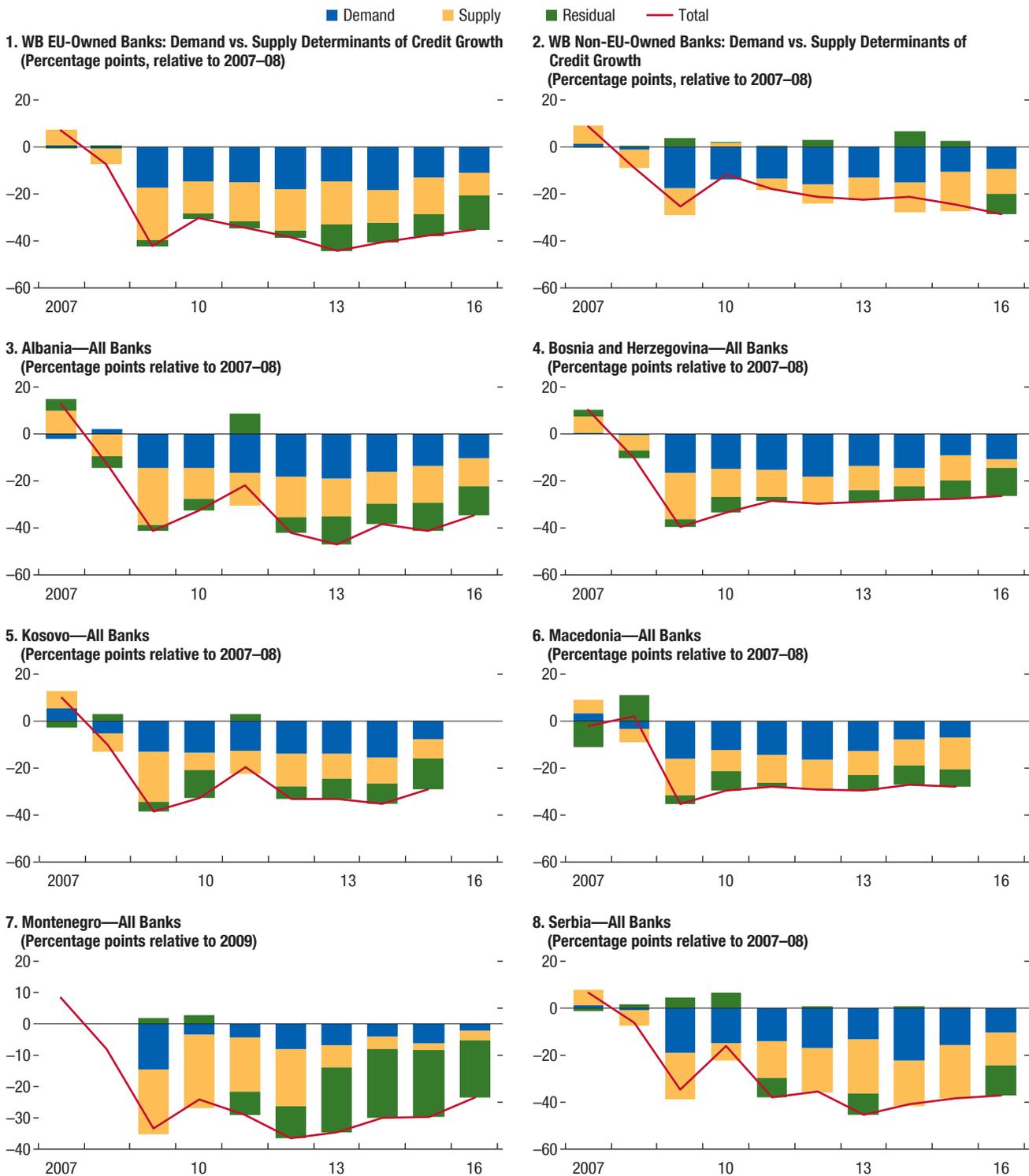
If impaired balance sheets are a problem, an important question is whether banks can ride the ongoing recovery to grow out of their balance sheet issues. The answer is that this would be a risky strategy. The main reason balance sheets have started to improve is less the recent recovery and more the forceful policy action undertaken in the region (see below). Another way to see this is to consider the counterfactual question: without additional policy efforts, how fast would the region's economies need to grow for banks' NPLs to return to 2007 levels? Econometric modeling of NPLs (see Annex 3.4) shows that, in all countries except Kosovo and Macedonia, reducing NPLs in three years via growth alone would require significantly faster expansions than those currently observed (Table 3.2).<sup>15</sup> Alternatively, countries would need to sustain their current (relatively positive) growth rates for another five years to reduce NPLs to healthy levels. The first scenario is highly unlikely. The second scenario is still a stretch, and the wait would be costly. The bottom line is that policy efforts to repair balance sheets need to be sustained, and the current recovery should not give rise to complacency.

## Nonbank Structural Factors

In addition to issues such as bank funding and impaired balance sheets, other nonbank factors have constrained and will continue to constrain

<sup>15</sup>Moreover, this exercise simply considers the current stock of NPLs and assumes no new NPL formation going forward; hence the estimated time needed to clear NPLs is a lower bound.

**Figure 3.31. Western Balkans: Demand versus Supply Determinants of Credit Growth**



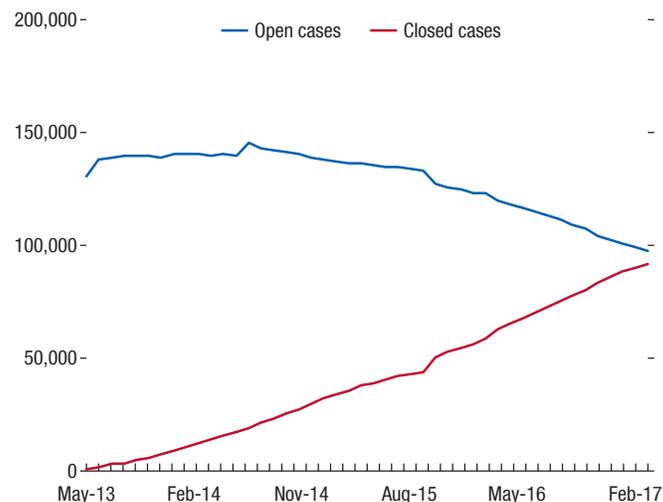
Source: IMF staff estimates.  
Note: WB = Western Balkans.

credit provision in the Western Balkans. Across much of the region, large gaps in land titling and cadastral systems impede the collateralization of land and real estate property, and in other cases delay foreclosure when property is collateralized. These gaps are often a legacy of the wars in the 1990s, but not always. In Macedonia, the public real estate registry does not provide prices for real estate transactions or details on properties and is not regularly updated. In Kosovo, many properties are not recorded at all. In some countries, the lack of a regulated appraisal profession or licensing standards combined with an illiquid real estate market make valuation difficult. Even if property is properly titled and valued, difficulty executing the collateral if necessary limits its value as collateral *ex ante*—cultural factors such as the stigma of purchasing an acquaintance’s repossessed property from a bank also play a role.

Poor credit registries have been another bottleneck. Credit registries play a critical role in enhancing disclosure and making information available for creditors to make informed decisions about borrowers. Unfortunately, credit registries in the region are either incomplete (covering, for instance, only secured debt or only a subset of borrowers), in the process of being set up, or simply lacking altogether in some countries. And, for many firms in the region, particularly smaller ones, financial disclosure forms are either incomplete or untrustworthy, compounding the information asymmetry between borrowers and lenders.

Slow court procedures have also driven weak credit supply across the Western Balkans. Understaffed courts and large case backlogs throughout the region have meant that recovering assets through the court system can be extremely slow. This, in turn, leads banks to withhold credit and discourages the cleanup of NPLs. However, some countries in the region have taken steps in recent years to alleviate or circumvent such bottlenecks (see Vienna Initiative 2017). One promising avenue introduced in various countries in the region is using private enforcement agents tasked (by the creditor) with enforcing

**Figure 3.32. Kosovo: Court Backlog Clearance**  
(Cumulative)



Source: USAID Contract Law Enforcement.

court orders. Kosovo introduced a system of private enforcement agents in 2014, which has significantly reduced court backlogs and eased asset recovery (Figure 3.32). Montenegro introduced a similar system. In both countries, however, the reforms remain a work in progress, as discussed below.

Weak insolvency regimes also discourage banks from lending, and such regimes are particularly damaging in a debt overhang context. The sharp increase in private debt across most of the Western Balkans in the run-up to the financial crisis means that banks have often had to deal with highly indebted borrowers. This is an ongoing problem in the region, reflecting weak insolvency regimes in many countries. In some Western Balkan countries, the insolvency of firms is too narrow (that is, debt restructuring often excludes debts in serious financial distress or insolvency). Lengthy court procedures lead to low reorganization prospects. Regarding personal insolvency, some countries in the region, such as Kosovo, Macedonia, and Serbia, have yet to introduce a dedicated framework.

In short, funding constraints, impaired balance sheets, and nonbank structural factors are holding back credit. And, as we have seen, the odds of

these issues getting resolved are small, which does not bode well for financial intermediation prospects in the region. Bold policy actions are thus called for.

## Policy Recommendations

### Clean up Balance Sheets

Elevated levels of nonperforming loans remain a major issue in most of the Western Balkans and require a multipronged policy response.<sup>16</sup> Except in Kosovo, aggregate NPL ratios are high (in Albania and Serbia they are above 15 percent) and continue to discourage new lending. Approaches to dealing with these issues are emerging in various countries (Box 3.3):

- *Asset quality reviews:* The first step is always to shed an honest light on the problem, both in terms of the scale of impaired assets as well as the adequacy of banks' provisions. Serbia completed a comprehensive asset quality review in 2015 that covered the top 14 banks, or some 88 percent of banking sector assets. It resulted in significant adjustments in bank capital ratios.
- *Supervised action plans:* Once the true scale of the problem is established, authorities should require vulnerable banks to draft time-bound remedial actions that include, where necessary, capital injections by shareholders to cover actual and anticipated losses and resolution plans. As part of these action plans, impediments to loan restructuring must be tackled head-on. The authorities can play a key facilitation role here by coordinating multiple lenders, sharing information, and monitoring progress.
- *Development of distressed asset markets:* Beyond the two previous measures, country authorities should take additional steps to reduce impediments to NPL write-offs and facilitate more active markets for NPLs. Measures

can include providing tax and regulatory incentives for banks to write off NPLs and removing entry barriers to the market for distressed assets (for example, nonbank financial institutions and private asset management companies). For example, in Bosnia and Serbia retail NPLs can be sold only to banks. Albanian authorities recently created a category of nonbank financial institutions specializing in administering NPLs that are subject to lower capital requirements.

- *Elimination of tax disincentives for NPL sales:* In Albania, an NPL write-off is considered tax-deductible for provisions and write-offs, but if the collateral on the debt is recovered (or income is received from the sale of the NPL), it is considered extraordinary income and is taxed at a higher rate. In Serbia, recognizing write-offs for tax purposes and adjusting the treatment of debt forgiveness for personal income tax purposes will also support NPL market development. The Bosnian authorities should eliminate existing uncertainty over whether NPL transactions are subject to the value-added tax.
- *Enhanced supervision:* Efforts should continue to bolster bank supervision in order to ensure that banks apply proper credit underwriting standards and risk management practices. In hindsight, the large increase in NPLs following the crisis revealed weak risk management and lax credit standards before the crisis, which should have been spotted by supervisors.
- *The macro-financial impact of NPL cleanup should be manageable.* NPLs are about 6 to 7 percent of GDP in Albania, Bosnia and Herzegovina, and Serbia and less than half in Kosovo and Macedonia. This is much less than in, for example, Slovenia in 2012 (18 percent of GDP), where a banking crisis necessitated a large capital injection by the government in state-owned banks. NPLs net of provisions are 25 percent of capital in Montenegro and less in other countries. By comparison they were 85 percent of capital

<sup>16</sup>See Table 3.3 for detailed country-by-country recommendations.

in Slovenia in 2012. Moreover, because most banks are foreign owned, any capital shortfalls would typically be covered by the private sector and not by the government.

## Expand Funding Bases

Managing external deleveraging, including potentially disruptive episodes, will be key to maintaining adequate funding bases across the region. As discussed in detail previously, external funding is unlikely to return in force, and could potentially continue to wither. As such, authorities should closely monitor banks and remain in close communication with parent banks and home supervisors in the event that any additional pullout from the region occurs. In this context, the Vienna Initiative will continue to play a crucial role.<sup>17</sup> In some cases, deeper and more targeted measures than those discussed in Box 3.3 may be in order, particularly in cases of either disruptive deleveraging due to a crisis affecting the parent group directly, or sharp deposit withdrawals triggered by lack of confidence in the parent. At a minimum, Western Balkan supervisors should ensure that banks under their authority maintain updated contingency plans for any such event.

In some countries, attracting fresh capital from new banking groups or even from private equity investors (with day-to-day management provided by bank experts) will require tackling overbanking. Country authorities should respect market discipline and let weak banks fail if their failure does not pose a systemic risk. They should also

avoid granting licenses to banks or other investors that lack robust business plans (supported, in the case of private equity investors, by a credible investment horizon) or sufficient capital bases. Encouraging consolidation, including through takeover of exiting banks by banks already operating in the country, would help further.

Looking toward the medium term, countries should also consider policy measures to diversify bank funding sources and expand domestic savings. For most of the banking systems in the Western Balkans, residential deposit bases are sufficient to maintain current levels of lending but not to foster meaningful financial deepening, even with somewhat greater rates of deposit growth. The development of local capital markets where banks could issue corporate bonds could help expand the funding base. Setting up private sector pension funds and insurance companies would help create demand for bank bonds and could more generally spur domestic saving. However, capital markets are nascent or nonexistent in most of the Western Balkans and will not be a meaningful alternate funding source in the near term. For example, there have been few bond issuances in Albania (one in 2016), because most nonfinancial companies do not comply with the necessary accounting and transparency standards, and banks are liquid and easily funded with deposits. Building capacity at the supervisory level to oversee capital markets and deepen secondary government bond markets should be a first step in financial development.

## Tackle Nonbank Structural Obstacles to Credit

Improving land and property titling will be key to facilitating the use of property as collateral and the development of mature mortgage markets. The legacy of the 1990s wars, during which thousands of property records were stolen, lost, or destroyed, will not be easily overcome. However, there have been ongoing efforts in the region (often with the support of donors) to improve the capacity of municipal cadastral offices—

<sup>17</sup>The Vienna Initiative and related agreements with foreign banks were a key part of the IMF program design in Bosnia and Herzegovina and Serbia. Since 2012, Vienna 2 has focused on improving cooperation between home and host authorities while monitoring the pace of deleveraging with a view to keeping it orderly. Recommendations have been made to relevant European institutions to improve supervisory coordination and cross-border bank resolution. The initiative has been a favored venue for dialogue between the banks that are systemically important in a country and the major interlocutors of those banks: the monetary authority and regulator, the parent international banking groups, and the latter's regulators.

including using modern GPS systems—and to raise public awareness about the importance of recording transactions. This has resulted in notable increases in the number of properties recorded and reduced the time needed to record them. These efforts need to be sustained at all costs. In parallel, strengthening licensing standards and methodologies for appraisers would help improve collateral valuations and facilitate sales of collateral. Finally, it will take time to change cultural factors that limit the sale of repossessed collateral, but this should not mean that banks cannot be incentivized to sell this collateral more quickly. Along these lines, Albania recently limited the time that a bank can hold repossessed collateral to seven years and now applies a 150 percent risk weighting to such assets.

Accelerating slow court procedures is another priority. Boosting staffing and budgets in the courts would be the standard approach to address this issue. However, the recent introduction of private bailiffs to accelerate the execution of court orders is a promising alternative. Despite the attractiveness of this option, the introduction of private bailiffs is a complex reform that requires a learning-by-doing attitude. For instance, Kosovo

recently introduced variable fees for the private enforcement agents, as the flat fees introduced in the original reform meant the bailiffs were mostly going after small debtors. More generally, the licensing, training, and oversight of the private bailiffs is paramount to avoid abuses and preserve the buy-in to the reform.

Insolvency frameworks remain unfinished business. Countries that lack personal insolvency regimes to enable overindebted individuals to get a fresh start within a reasonable period should consider developing such regimes, provided institutional preconditions are met. Personal insolvency in the context of a poorly designed regime, weak institutional capacity (for example, courts, insolvency practitioners, debt counselors), or weak transparency of debtors' assets can lead to significant moral hazard. Regarding the insolvency of firms, countries where minority creditors can de facto block restructuring should put in place fast-track procedures to confirm workout plans previously approved by a majority of creditors, making such plans binding for all creditors. This would encourage out-of-court negotiations and limit threats from minority holdouts.

**Table 3.3. Summary of Key Policy Actions and Recommendations Fostering Bank Balance Sheet Repair**

	Supervision/Regulation	Legislation	Taxation / Information shortcomings / Other
ALB	<p><i>Loan classification and provisioning:</i> relax provisioning requirements for restructured loans and issue guidelines for restructuring.</p> <p><i>Write-offs:</i> introduce time limits for holding of repossessed properties (and higher risk weights) as well as for NPLs in the loss category.</p> <p><i>Sale of NPLs:</i> create new category of NPLs for AMCs subject to lower capital requirements.</p> <p><i>Other:</i> new regulation on related party / large exposures.</p>	<p><i>Bankruptcy law:</i> simplify process, expedite approval of OOCR plans, and enhance creditor protection. Introduce new personal bankruptcy law.</p> <p><i>Private bailiffs law:</i> introduce performance fees (and backload them); facilitate OOCR and integrate tax authorities in collateral execution process.</p> <p><i>Civil Procedures law:</i> tighten timelines/ grounds to appeals so as to accelerate court execution.</p>	<p><i>Taxation:</i> tax recovered amounts and NPL sales at normal rate (now considered as extraordinary income and thus taxed at a higher rate).</p> <p><i>Credit registry:</i> enhance registry to include ongoing court cases and restructured loans; introduce credit scoring.</p> <p><i>Other:</i> implement action plan to deal with top borrowers that helped improve creditor coordination.</p>
SRB	<p><i>Asset quality review:</i> review banks' credit portfolios and provisioning practices and provide bank-specific recommendations.</p> <p><i>Write-offs:</i> tighten policy to ensure timely loss recognition.</p> <p><i>Sale of retail NPLs:</i> allow sale to non-banks as well as creation of private AMCs.</p> <p><i>Other:</i> (i) improve collateral valuation incl. by tightening regulations for appraisers; (ii) introduce limits on interest accrual on distressed debt.</p>	<p><i>Bankruptcy law:</i> provide for adequate safeguards for the secured creditors' rights and better value maximization and more predictable and swift disposal of assets where assets are not strictly necessary for rehabilitation.</p> <p><i>Mortgage law:</i> strengthen appraisal standards; ensure transparency of auction procedures; facilitate the out-of-court mortgage enforcement by explicitly providing for clearance of all encumbrances/liens on the property title following the extra-judicial sales by the creditor; ensure proper limitations on a debtor's ability to file repeated objections to an out-of-court foreclosure.</p>	<p><i>Taxation:</i> remove tax disincentives to the debt write-offs.</p>
BIH	<p><i>Sale of NPLs:</i> introduce regulations and guidelines, and allow sale to non-banks.</p>	<p><i>Bankruptcy law:</i> introduce new law to facilitate liquidation, reorganization, and cross-border insolvency. Already adopted in one entity.</p> <p><i>Judicial system:</i> improve effectiveness by shortening the period of proceedings and add more commercial judges to handle the big backlog of court cases.</p> <p><i>Out-of-court restructuring:</i> introduce OOCR mechanism if needed after judicial efficiency improves.</p>	<p><i>Taxation:</i> remove uncertainty regarding VAT on NPL transactions.</p>
MNE	<p><i>Asset quality review:</i> conduct AQR to review loan classification and provisioning practices and adequacy.</p> <p><i>Loan classification and provisioning:</i> provisions should better reflect expected losses; no longer allow reclassification of assets based on collateral type only.</p> <p><i>Transfer of NPLs:</i> require banks to separate NPLs into specialized workout subsidiaries.</p> <p><i>Other:</i> develop time-bound supervisory action plans for at-risk banks, incl. recap by shareholders to cover actual and anticipated losses and resolution plans.</p>	<p><i>Private bailiffs law:</i> close loopholes that allow for multiple collections of the same debt; tighten licensing and education requirements; and strengthen the oversight and supervision of bailiffs.</p> <p><i>Consumer protection law:</i> remove the provision prohibiting creditors to liquidate residential property if it is deemed meeting "basic housing needs". Assess institutional infrastructure needed to support an improved personal bankruptcy regime, incl. creation of a mediation service and special insolvency fund.</p> <p><i>Debt restructuring law:</i> broaden coverage to include debtors in serious financial distress or insolvency; facilitate OOCR by making workout plans approved by a majority of creditors binding for all through a fast-track procedure.</p>	<p><i>Credit registry:</i> strengthen registry to ensure the reliability of financial information on debtors.</p> <p><i>Cadastral information:</i> close gaps in land titling procedures and cadastral information, particularly for rural areas.</p>

**Table 3.3. Summary of Key Policy Actions and Recommendations Fostering Bank Balance Sheet Repair** *(continued)*

UVK	<p><i>Write-offs:</i> define mandatory time limits for write-offs.</p> <p><i>Other:</i> close remaining gaps in regulation incl. for (i) country and transfer risk; (ii) collateral valuation; (iii) pre-set forbearance criteria.</p>	<p><i>Private bailiffs law:</i> close loopholes in law on enforcement procedures that allow debtors to escape enforcement actions through appeals; improve the collateral auction system; improve fee structure for bailiffs; strengthen oversight.</p>	<p><i>Cadastral information:</i> intensify efforts to bring Kosovo's cadastre system into line with international standards.</p>
MKD	<p><i>Sale of NPLs:</i> establish a licensing and regulatory regime for non-banks to manage NPLs.</p> <p><i>Write-offs:</i> provide additional incentives for NPLs write-offs by increasing capital charges or setting time limits on holding NPLs.</p> <p><i>Other:</i> improve valuation and availability of a wider set of collateral; allow covenants in loan agreements that would trigger technical default if certain conditions are breached (e.g. asset growth cap, ownership change).</p> <p><i>[NPL management:</i> issue guidelines that incl. strategy, quantitative targets with timeline, creation of NPL workout units, etc.]</p>	<p><i>Bankruptcy law:</i> introduce personal bankruptcy law.</p>	<p><i>Taxation:</i> make write-offs or collateral sale tax deductible (provisioning is already deductible and there is a tax loss carry forward mechanism such as a deferred tax asset).</p> <p><i>Cadastral information:</i> expand public registers to include regularly updated prices of all residential and commercial real estate transactions and a detailed description of properties.</p>
	<p>Policy measure completed</p> <p>Policy measure ongoing</p> <p>Policy measure recommended</p>		

Sources: IMF Country Article IV Reports, IMF Country FSAP Reports, and IMF staff recommendations.

Note: Country abbreviations are International Organization for Standardization country codes.

**Box 3.1. Are Loan Loss Provisions Sufficient?**

Optimistic valuation of real estate collateral overstates actual loan loss provisioning, because the value of the collateral reduces the capital needed to build provision reserves. If banks cannot execute collateral at the book price, losses will be larger than shown in the books.

In the Western Balkans, an illiquid real estate market is a source of concern for collateral overvaluation. Lack of reliable and robust data on real estate prices leaves significant room for discretion when determining collateral value. Central banks in the region have aimed to address these issues through regulation and guidelines for property appraisals. Two recent experiences illustrate these efforts:

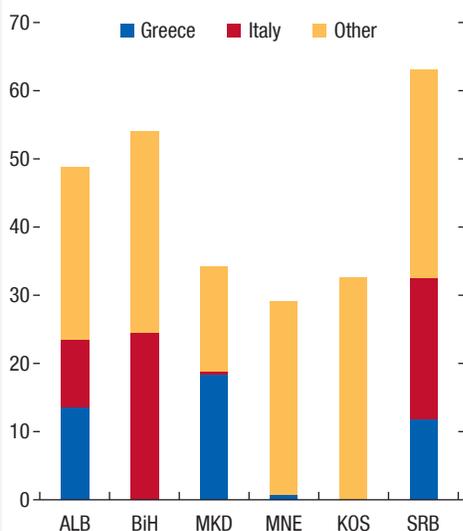
- The National Bank of Serbia in 2015 launched an asset quality review accompanied by a new regulation requiring banks to submit appraisals of collateral—by valuation experts—to the National Bank of Serbia. This information will be consolidated into a database of real estate transactions to allow for accurate collateral valuation and improve real estate appraisal practices. Adjustments to collateral values were a material driver of the Serbian asset quality review findings, which resulted in adjustments to capital of about €200 million, equivalent to a 175 basis point reduction in the adjusted capital adequacy ratio.
- The Bank of Albania responded even more aggressively by setting the value of real estate collateral to zero for the provisioning of nonperforming loans. While this does not enhance collateral valuation practices, it allays any fears of collateral overvaluation.

This box was prepared by Ezequiel Cabezon.

### Box 3.2. Spillovers from Parent Bank Stress

Foreign bank subsidiaries from European Union (EU) countries that have experienced appreciable financial stress represent a sizable share of banking systems in the Western Balkans. As of the end of 2015, claims of Italian and Greek banks, for example, accounted for an average of more than 18 percent of GDP in Albania, Bosnia and Herzegovina, Macedonia, and Serbia (Figure 3.2.1). Kosovo and Montenegro do not have meaningful exposures. Currently, concerns relate to some Greek banks

**Figure 3.2.1. Foreign Claims of BIS Banks<sup>1</sup>**  
(Percent of GDP)



Sources: Bank for International Settlements (BIS); IMF, *World Economic Outlook*; and Kosovo national authorities.  
Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

<sup>1</sup>Data for Kosovo include all banks' foreign claims.

Subsidiaries of Greek banks have been under pressure from liquidity-starved parents in recent years. The 2015 financial turbulence in Greece triggered a deposit run against the subsidiaries of Greek banks in Macedonia. Greek subsidiaries in Serbia also experienced some loss of their retail deposits during the same episode. Authorities in the region dealt successfully with the pressures via a wide range of tools, including closely monitoring banks' placements in Greek parents or other subsidiaries overseas; encouraging Greek subsidiaries to gradually eliminate exposures to Greece; instituting pre-approvals for large transactions; introducing time-bound capital flow measures aimed at preventing Greek-owned businesses from borrowing from local banks and transferring the funds to Greece; and imposing the mandatory transfer of deposits held at parent banks and group companies to accounts at the central bank.

While the turbulence has receded, the next step will be to manage the withdrawal of Greek banks from the region. The restructuring plans submitted by Greek banks as part of the EU-led bailout envisage a sizable scaling back of their activities abroad. Piraeus, Greece's largest bank in terms of assets, plans to sell its subsidiaries in Albania and Serbia (in addition to those in Bulgaria, Romania, and

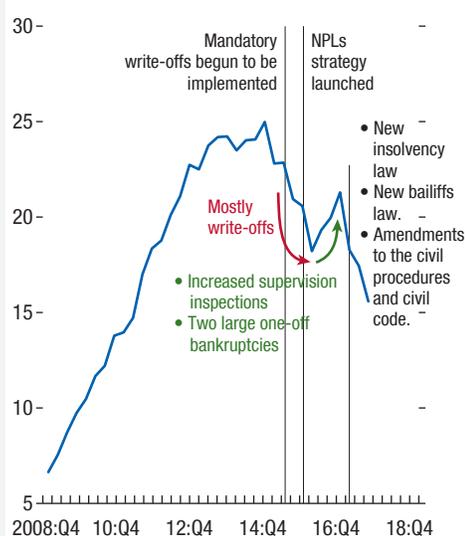
Ukraine). Greece's second-largest lender, National Bank, might have to sell its subsidiaries in Southeastern Europe by June 2018, including those in Albania, Macedonia, and Serbia. National Bank agreed in early August to sell its subsidiary in Serbia to Hungarian-based OTP. Alpha Bank announced January 31, 2017, that it has agreed with Serbia's MK Group on the sale of its 100 percent stake in the share capital of Alpha Bank Srbija.

This box was prepared by Haonan Qu.

### Box 3.3. Lessons from Comprehensive Nonperforming Loan Strategies in Albania and Serbia

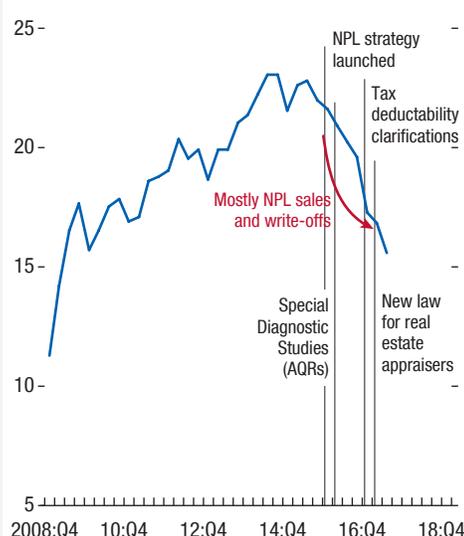
Faced with some of the highest nonperforming loan (NPL) ratios in the region, Albania and Serbia have designed comprehensive strategies to tackle the multidimensional nature of the problem (Figures 3.3.1 and 3.3.2). Launched in the second half of 2015, the strategies cover banking supervision, tax issues, court procedures, and legal aspects, among other areas. Each strategy requires a joint approach that coordinates central banks, ministries of finance, tax authorities, and the judicial system. The strategies include a write-off phase to reduce NPLs and a structural reform phase to prevent new NPLs and accelerate their resolution.

**Figure 3.3.1. Albania: Nonperforming Loans**  
(Percent of total loans)



Sources: Bank of Albania; and IMF staff estimates.

**Figure 3.3.2. Serbia: Nonperforming Loans**  
(Percent of total loans)



Sources: National Bank of Serbia; and IMF staff estimates.

The first phase, focused on write-off policies, has helped lower NPL levels. Previously, write-offs were resisted by banks due to insufficient provisions, parent group credit targets, and tax issues. While in Albania regulations on write-offs had been amended before the comprehensive strategy, write-offs accelerated after the launching of the strategy. The Bank of Albania also increased bank inspections, resulting in additional NPLs being uncovered. In Serbia, write-offs—driven by asset quality reviews tailored for each bank and by regulation amendments—also contributed to reducing NPLs after the strategy was launched. Over 2015–16, write-offs reached about 6 percent of total loans in Albania, and more than 3 percent in Serbia.

While write-offs reduced NPL ratios, slow court execution processes and low collateral recovery remained downstream problems. NPLs have been moved off balance sheets, providing incentives for renegotiation and sales. Nevertheless, NPL sales have been limited in Albania and Serbia, as asset management companies expect low recovery rates. Challenges for recovering and selling collateral are attributed to long court procedures, cultural features (in small towns foreclosed homes are hard to sell because they are associated with the previous

This box was prepared by Ezequiel Cabezon.

**Box 3.3** *(continued)*

owner), and a lack of economies of scale. Asset management companies prefer more profitable large NPL markets like Italy over small markets like Albania or Serbia.

A second phase of the strategies includes measures to improve NPL resolution by accelerating court execution, but this phase will require some time to be fully deployed. These measures have been lagging in part due to the complex coordination required to amend laws, such as insolvency and civil codes, which are needed to accelerate court processes and collateral execution. Albania approved new laws on insolvency and bailiffs (December 2016), but their implementation is pending until bylaws are issued. Serbia adopted a law regulating real estate appraisals (December 2016), which is critical for sound collateral valuation. Despite this progress, core legislation is still in the process of being approved in Serbia. The approval of draft amendments to the corporate insolvency law—submitted to Parliament in August 2007—are still pending. In both Albania and Serbia, the strategies call for out-of-court restructuring frameworks, but such mechanisms require the threat of an efficient judiciary system if out-of-court agreement is not reached.

Finally, having monitoring mechanisms in place is key to the success of the strategies. Regular reporting on progress and follow-up help ensure accountability and implementation. While Serbia's strategy requires a regular progress report every six months, Albania's strategy involves only ad hoc monitoring, which could undermine accountability and implementation.

## Annex 3.1. Estimating Fundamentals-Consistent Levels of Credit

### Estimating Credit Gaps—The Model from the IMF’s May 2015 *Regional Economic Issues: Central, Eastern, and Southeastern Europe*

The long-run relationship between private sector credit and its main determinants is estimated for 34 European countries during 1995–2016. In a stylized, reduced-form model, private sector credit is driven by per capita income that positively affects both credit demand and supply as well as the nominal interest rate on private debt, which has a negative effect on demand and a positive effect on supply. The model also includes country-specific constants:

$$\ln \frac{D_{it}}{P_{it}} = \alpha_i + \sum_{j=1}^2 \beta_j \ln \frac{D_{it-j}}{P_{it-j}} + \sum_{j=0}^1 \gamma_j \ln \frac{Y_{it-j}}{P_{it-j}} + \sum_{j=0}^1 \delta_j R_{it-j} + \epsilon_{i,t} \quad (\text{A3.1.1})$$

$\frac{D_t}{P_t}$  – Per capita private sector debt stock in thousands of 2005 PPP US dollars;

$\frac{Y_t}{P_t}$  – Per capita GDP in thousands of 2005 PPP US dollars;

$R_t$  – nominal interest rate on private sector debt;<sup>1</sup>

$i$  – country index

$t$  – time index.

<sup>1</sup>For EU countries, the implicit interest rate is calculated using sectoral accounts data as the ratio of interest payments (including financial intermediation services indirectly measured) over the average of the beginning- and end-period combined stock of debt of firms and households. For other countries, data are mostly for the lending rate, published in the IMF’s IFS database, with gaps in country coverage filled with data for the short-term interest rate published in the Organisation for Economic Co-operation and Development’s Economic Outlook database and from national data sources.

Private sector debt is composed of domestic bank credit to the nonfinancial private sector (*International Financial Statistics*—IFS) and private external debt liabilities (*World Economic Outlook*—WEO). Unless indicated otherwise, the data source for the other series is the WEO. All series are time demeaned by subtracting the mean across all countries in a given period from the individual country values.<sup>2</sup> Regression results are presented in Annex Table 3.1.1. The preferred specification is the Arellano-Bond dynamic-panel system generalized method of moments (GMM-SYS). The coefficients of real per capita income and the nominal interest rate are sizable, and their signs are consistent with theoretical priors.

To arrive at fundamentals-consistent private sector credit estimates, country- and time-specific effects are incorporated. Based on GMM-SYS regression results, the long-run relationship between private sector debt and its fundamentals is:

$$d_{it}^* = 1.62 y_{it}^* - 2.58 R_{it}^*, \quad (\text{A3.1.2})$$

in which lowercase variables are expressed in natural logarithm of per capita quantities in thousands of 2005 purchasing-power-parity (PPP) US dollars, and the asterisk indicates long-term value. Country-specific effects are included to ensure that the actual series and their fundamentals-consistent counterparts have the same means for each country in the sample and reflect the assumption that Central, Eastern, and Southeastern European countries may not converge to a common equilibrium path for private sector credit from different starting points. Common time effects are included, reflecting the assumption that the dynamics of fundamentals have the same impact on the “equilibrium” debt burdens, whether or not they are driven by common time effects or country idiosyncratic factors. Credit gaps are then calculated as the deviation of actual private sector credit from its fundamentals-consistent level.

<sup>2</sup>This removes nuisance cross-sectional dependence that creates size distortions and makes inference based on two-stage generalized method of moments estimates unreliable (Roodman 2009).

**Annex Table 3.1.1. Determinants of Real Per Capita Private Sector Debt in Europe**

Dependent variable Regression model Estimator	Log of per capita private sector debt in thousand 2005 PPP USD				
	(1)		(2)		
	OLS	FE	OLS	FE	GMM-SYS <sup>5</sup>
Lagged dependent variable	...	...	0.90 (0.012)***	0.76 (0.040)***	0.64 (0.101)***
Log of per capita GDP in thousand 2005 PPP USD	1.57 (0.035)***	1.81 (0.302)***	0.10 (0.019)***	0.38 (0.084)***	0.58 (0.252)**
Interest rate (fraction)	-2.21 (0.225)***	-0.71 (0.485)	-0.44 (0.111)***	-0.51 (0.141)***	-0.92 (0.240)***
Common intercept	-0.05 (0.017)***	-0.07 (0.031)**	0.02 (0.004)***	0.00 (0.006)	-0.03 (0.034)
Country-specific effects	No	Yes	No	Yes	Yes
Observations	619		598		
Number of countries	34		34		
Adjusted <i>R</i> -squared	0.90	0.89	0.99	0.99	...
Within adjusted <i>R</i> -squared	...	0.49	...	0.89	...
Chi <sup>2</sup> (54) <sup>1</sup>	...	...	...	...	23.17
F(2,33) <sup>2</sup>	...	50.47***	...	...	...
AR(1) <sup>3</sup>	...	...	...	...	-2.87***
AR(2) <sup>3</sup>	...	...	...	...	0.54

Source: IMF staff estimates.

Note: All variables are time demeaned. Standard errors are in parentheses. GMM = generalized method of moments; OLS = ordinary least squares; PPP = purchasing power parity; USD = US dollars.

\*Coefficient significant at 10%; \*\*significant at 5%; \*\*\*significant at 1%.

<sup>1</sup>Hansen test of overidentifying restrictions (whether the instruments, as a group, appear exogenous).

<sup>2</sup>Wooldridge test for autocorrelation in panel data (H0: no first-order autocorrelation).

<sup>3</sup>Test of (n-th) order serial correlation in regression residuals in first differences, N(0,1). Null hypothesis is no autocorrelation.

<sup>4</sup>F-test that all fixed effects are jointly zero.

<sup>5</sup>Instruments for (1) first differences equation: L(2/3). (l\_crdprs\_ppp\_r\_pc\_dt l\_gdp\_ppp\_r\_pc\_dt int\_rat\_dt); and (2) levels equation: DL.(l\_crdprs\_ppp\_r\_pc\_dt l\_gdp\_ppp\_r\_pc\_dt int\_rat\_dt), using the first 50 principal components of the GMM-style instruments.

## Annex 3.2. Impact of Global and Local Regulatory Changes

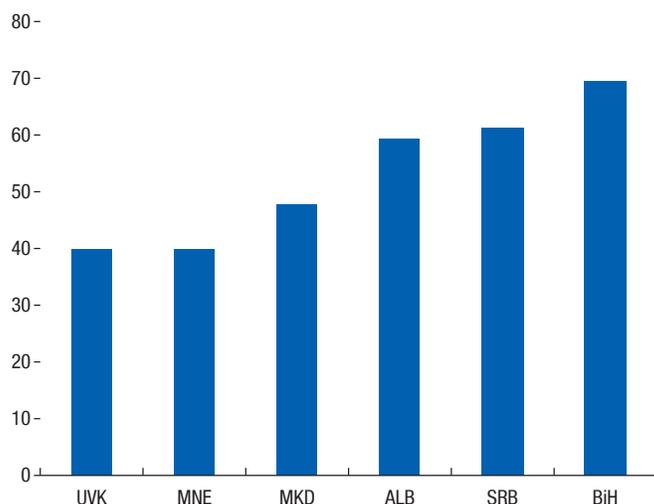
The European banking sector has experienced significant changes in its regulatory environment since the global financial crisis. New Basel III requirements and their European Union (EU) transposition can constrain the funding of international parent groups, initiating ripple effects on their Southeastern European (SEE) subsidiaries. Completion of the EU Banking Union is expected to further affect SEE banking systems. Uncertainties associated with these and other ongoing regulatory developments can lead cross-border banking groups to precautionary scaling down of operations in SEE countries.

SEE banking systems have been affected by regulatory changes implemented in home countries of cross-border banking groups. These changes include tightened regulations on the quantity and quality of capital, deleveraging, funding profiles, bail-in-able debt, and risk management practices. While both home and host countries tightened their own regulations on banks' international operations between 2006 and 2017, regulatory changes in home countries seem to have been more important in explaining the decline in foreign lending (Ichiue and Lambert 2016).

As an example of how Basel III requirements and their EU transposition constrain the funding of international parent groups, with rippling effects on their SEE subsidiaries, higher risk weights for parent banks when subsidiaries hold SEE-based securities may reduce parent funding of local banks. There are also tensions in the application of the liquidity framework, for instance with respect to the liquidity coverage ratio and the net stable funding ratio. On the asset side, liquid assets of SEE banks are to a large extent domestic central bank bills and treasury bills that do not have an investment grade. On the liability side, banks have limited options to fund themselves through alternative sources such as local bond markets.

The non-EU SEE countries will be affected by the ongoing shaping of the EU Banking Union.

**Figure 3.2.1. Share of Banking Assets under ECB's Home Supervision (Percent)**



Source: Bankscope; and IMF, Financial System Stability Assessment. Note: ECB = European Central Bank. Country abbreviations are International Organization for Standardization (ISO) country codes.

While these countries will not be members of the union, euro-area headquartered banks often have a systemically important presence in non-EU SEE countries, particularly banks from Austria, Greece, Italy, France, and Slovenia. Non-EU SEE banking systems face common challenges in the context of the Single Supervisory Mechanism, the Single Resolution Mechanism, and the potential European Deposit Insurance Scheme. Specifically:

- From January 2018 on, risk weights on government bond exposures in non-EU countries will be gradually adjusted (risk weights are currently at zero), even when funding is in local currency. For example, if an Albanian subsidiary has used local deposits to buy Albanian government bonds, the risk weights for the parents will be non-zero. This is particularly worrisome in the SEE region, because it would put banks under pressure to reduce their exposure to governments. However, Article 114 of the Capital Requirements Regulation allows for an exemption in case of “third countries, which apply supervisory and regulatory arrangements at least equivalent to those

applied in the Union.” This means that the European Banking Committee needs to decide whether SEE countries can be exempted, but there is no clarity as to the conditions for the exemptions.

- **Single Supervisory Mechanism (SSM):** For SEE host supervisors, the European Banking Authority (EBA) is the key counterpart to facilitate access to the “core” supervisory colleges of EU bank groups. As 13 of 17 euro-area-headquartered banks operating in SEE countries are deemed “significant,” the European Central Bank (ECB) has become the home supervisor of SEE-based subsidiaries. While the cooperation between the EU and SEE authorities was formalized through a memorandum signed with the EBA under the auspices of the Vienna Initiative, the memorandum does not guarantee the integration of SEE authorities into EU supervisory college activities. Reflecting the minor share of SEE EU-owned subsidiaries at the consolidated-group level, SEE authorities worry about potential negligence by centralized decision makers regarding spillovers to SEE banking systems. Moreover, there is concern that competitive distortions that negatively affect domestically owned banks—as a result of euro area bank subsidiaries’ indirect access to ECB liquidity through their parents—will be reinforced by the EU Banking Union.
- **Single Resolution Mechanism (SRM):** Subsidiaries of European globally systemically important banks (G-SIBs), as well as banks that are domestically systemically relevant (D-SIBs), may be required to issue more liabilities with high loss-absorption capacity, which would reshape SEE banks’ funding model. The issue of participation of host countries in the resolution of cross-border banks, for instance by avoiding ring-fencing and by providing domestic financial support in case of a crisis, remains problematic.

It is within reason, for example, that host subsidiaries might fall back on their core equity capital and repay their parent’s subordinated loans to prevent sudden withdrawal in case of group-wide distress. As with the implementation of the SSM, conflicts of interest between the home and the host authorities may appear if a subsidiary is systemically important in a host country but is only a minor fraction of the group.

- **European Deposit Insurance Scheme (EDIS):** Prospects for a harmonized EDIS may influence cross-border allocations of deposits. The EDIS will be necessary to complement the EU Banking Union so as prevent national governments and domestic deposit schemes from remaining as the ultimate backstop in case of a cross-border banking crisis. It is also needed to avoid a “death loop” between sovereigns and banks. The peripheral situation of SEE countries may trigger uneven levels of depositor confidence, which could lead to deposit flight toward institutions affiliated with a mutualized European safety net, possibly backstopped by the European Stability Mechanism.
- **General uncertainty regarding the above regulatory developments engenders risk in the form of precautionary scaling down of regional operations by cross-border banking.** Remaining shortcomings in the anti-money laundering/combating the financing of terrorism framework in recipient countries, economies of scale in compliance, broader reorientation of bank business models, and reputation concerns about banks dealing with offshore companies or countries may spur reevaluation of business models and precautionary retrenchment from correspondent banking relationships. As in other jurisdictions, there is anecdotal evidence of a sometimes significant decline in foreign correspondent banking relationships in the region (“derisking”).

### Annex 3.3. Contributions of Supply versus Demand Factors to Credit Growth

This annex details the estimation of demand and supply contributions to credit growth. The estimation follows the specifications in IMF 2013 and Everaert and others 2015 and tailors them to the Western Balkan region.

#### Data

The sample covers 70 banks (unbalanced panel) for the period 2006–15. Data were extracted from the FitchConnect Database. Total loans were used as a proxy given the limited availability of bank-level data on lending to the private sector.

#### Estimation Method

The estimation of demand and supply drivers of credit growth is done using ordinary least squares random effects. We tested for autocorrelation as well as for robust standard errors. As the results are relatively stable, we present the basic estimations to facilitate the presentation.

#### Identification Strategy

Demand drivers are approximated with aggregate macro variables. These can be considered exogenous for each bank. Supply drivers are approximated mostly with lagged balance sheet indicators of each bank. Among the supply drivers, the Emerging Market Bond Index spread is included to capture risk aversion of the banks in the absence of lending standards at the bank level. The contemporaneous change in provisions can be considered exogenous for two reasons: (1) a part of the provisions is dependent on the

aging of nonperforming loans (NPLs); and (2) banks' provisions largely follow the banks' business plans, which are determined ex ante based on idiosyncratic information of their customers and the forecast cycles.

Credit growth is decomposed into demand and supply contributions using the regression coefficients. The subscript  $c$  denotes country,  $b$  denotes bank, and  $t$  denotes the period.

$$\begin{aligned} Demand_{c,b,t} &= b_1 RealGDPgrowth_{c,t} + b_2 Dum. \\ &RealGDPgrowth_{c,t} + \frac{b_5}{2} NPLstogrossloans_{c,b,t-1} + \frac{b_6}{2} \\ &(Crisis * NPLstogrossloans_{c,b,t-1}) + \frac{constant}{2} \end{aligned}$$

$$\begin{aligned} Supply_{c,b,t} &= b_4 EMBIGlobalEurope_t \\ &+ \frac{b_5}{2} NPLstogrossloans_{c,b,t-1} + \frac{b_6}{2} (Crisis * \\ &NPLstogrossloans_{c,b,t-1}) \\ &+ b_7 (EUparent * NPLstogrossloans_{c,b,t-1} \\ &) + b_8 \Delta Prov. togrossloans_{c,b,t} + b_9 \\ &(Crisis * \Delta Prov. togrossloans_{c,b,t}) + b_{10} \\ &(EUparent * \Delta Prov. togrossloans_{c,b,t} \\ &) + b_{11} Liquidassetstodep._{c,b,t-1} + b_{12} \\ &(Crisis * Liquidassetstodep._{c,b,t-1}) + b_{13} \\ &(EUparent * Liquidassetstodep._{c,b,t-1}) + b_{14} \\ &Equitytonetlaons_{c,b,t-1} + b_{15} Loantodeposits_{c,b,t-1} \\ &+ b_{16} ROE._{c,b,t-1} + b_{17} (EUparent * ROE._{c,b,t-1} \\ &) + \frac{constant}{2} \end{aligned}$$

$$Residual_{c,b,t} = Creditgrowth_{c,b,t} - Supply_{c,b,t} - Demand_{c,b,t}$$

#### Results

The estimations have the expected signs and are quite robust to different specifications and to the choice of sample period.

**Annex Table 3.3.1. Data Details**

Variable	Definition	Source
Credit growth	Growth of net total loans measured in euros	FitchConnect
Real GDP growth	Real GDP growth (in percent)	<i>World Economic Outlook</i> (April 2017)
EMBI Global Europe	EMBI Global for emerging Europe (in basis points)	Bloomberg Finance L.P.
Nonperforming loan-to-gross loans ratio (1 <sup>st</sup> lag)	Nonperforming loan to gross loans ratio (in percent)	FitchConnect
Δ provisions-to-gross loans	Δ provisions to gross loans (in percentage points)	FitchConnect
Liquid assets-to-dep.& ST funding (1 <sup>st</sup> lag)	Liquid assets to total deposits and short term funding (in percent)	FitchConnect
Equity to net loans ratio (1 <sup>st</sup> lag)	Equity to net loans (in percent)	FitchConnect
Loan-to-deposits (1 <sup>st</sup> lag)	Loans to deposits (in percent)	FitchConnect
ROE (1 <sup>st</sup> lag)	Return on equity (in percent)	FitchConnect
FX depreciation (↑ = domestic currency appreciates)	Exchange rate versus euro (foreign exchange per local currency unit)	<i>World Economic Outlook</i> (April 2017)
EU parent	Dummy equal 1 if 1) bank is owned by EU parent group and 2) year > 2008	
Crisis	Dummy equal 1 if year > 2008	

Source: IMF staff estimates.

**Annex Table 3.3.2. Determinants of Credit Growth**  
Dependent Variable: Credit Growth<sup>1</sup>

	I	II	III (for simulations)
<b>Demand drivers</b>			
Real GDP growth, in percent	1.968 (0.00)**	2.797 (0.00)**	2.687 (0.00)**
x dummy crisis (= 1 if 2009–13)		–1.672 (0.04)**	–1.467 (0.07)*
<b>Supply drivers</b>			
EMBIG Europe	–0.050 (0.00)**	–0.058 (0.00)**	–0.058 (0.00)**
NPL ratio ( <i>t</i> -1)	–0.350 (0.00)**	–0.402 (0.00)**	–0.405 (0.00)**
x dummy crisis		0.079 (0.53)	0.102 (0.59)
x dummy 1 if EU Parent <sup>2</sup>			–0.041 (0.85)
Diff. prov.-to-loans ( <i>t</i> )	–2.390 (0.00)**	–2.268 (0.00)**	–2.176 (0.00)**
x dummy crisis		–1.446 (0.01)**	–1.540 (0.14)+
x dummy 1 if EU parent <sup>2</sup>			0.073 (0.95)
Liquid assets-to-dep+ST fund ( <i>t</i> -1)	0.317 (0.00)**	0.236 (0.00)**	0.239 (0.00)**
x dummy crisis		0.056 (0.51)	0.121 (0.21)
x dummy 1 if EU parent <sup>2</sup>			–0.163 (0.14)+
Equity-to-net loans ( <i>t</i> -1)	0.028 (0.67)	0.041 (0.52)	0.011 (0.86)
Loan-to-deposits ( <i>t</i> -1)	–0.019 (0.28)	–0.022 (0.19)	–0.020 (0.24)
ROE ( <i>t</i> -1)	0.164 (0.01)**	0.087 (0.17)	0.103 (0.18)
x dummy 1 if EU parent <sup>2</sup>			–0.074 (0.54)
Depreciation	–0.633 (0.04)**	–0.714 (0.02)**	–0.810 (0.01)**
Constant	18.510 (0.00)**	22.648 (0.00)**	23.579 (0.00)**
<i>N</i>	449	436	436
Banks	71	70	70
<i>R</i> -squared	0.45	0.47	0.48

+  $p < 0.15$ ; \*  $p < 0.1$ ; \*\*  $p < 0.05$

Source: IMF staff estimates.

<sup>1</sup>The estimates follow a random-effects approach to avoid reducing the degrees of freedom and to capture the ownership dimensions that would otherwise be mixed with the specific bank fixed effect. The Hausman test fails to reject the null hypothesis (random effect is adequate) at 0.71 percent.

<sup>2</sup>The EU parent dummy includes an interaction with the crisis dummy.

## Annex 3.4. The Macroeconomic and Bank-Specific Determinants of Nonperforming Loans

Since the share of nonperforming loans (NPLs) in total loans is explained by both macroeconomic and bank-specific factors, the econometric analysis uses the Arellano-Bond (1991) dynamic panel approach to isolate the persistence of NPLs and evaluate the effect of the variables of interest. The econometric model as specified is:

$$NPLratio_{i,j,t} = NPLratio_{i,j,t-1} + \sum_{k=1}^k \beta_k X_{k,i,j,t} + \sum_{n=1}^n \gamma_j Y_{n,j,t} + Z_j + u_{i,j,t}$$

in which  $X$  is a vector of bank-specific indicators for bank  $i$  in country  $j$  at time  $t$ .  $Y$  is a vector of country-specific indicators for country  $j$  at time  $t$ .  $Z$  is a fixed effect for country  $j$ , and  $u$  is the stochastic error term with errors assumed as independently and identically distributed. A lag of the dependent variable is included in some versions of the econometric specification to capture the effect of omitted explanatory variables and the persistence of the NPL ratio.

### Variables

The set of explanatory variables includes a broad range of bank-specific and macroeconomic variables. Bank-specific indicators include profitability measures (return on equity, net interest margin), provisioning, capital adequacy (Tier 1 capital to risk-weighted capital), market share (share of total banking sector deposits), and loan growth (total loans net of impaired loans). Real GDP growth is used as an indicator of general macroeconomic performance. Inflation, the lending rate, and the exchange rate vis-à-vis the euro are included as additional indicators of the state of the macroeconomic and financial environment, which affects loan quality. Another variable of importance is the private sector credit-to-GDP ratio, which acts as a proxy of the aggregate debt burden of households and businesses. Data on banks' risk-taking behavior are limited.

The relevance and expected signs of the relationships between NPLs and the selected macroeconomic variables are as follows:

- A slow economy is likely to be associated with sluggish incomes and increased financial distress, so low or negative GDP growth may contribute to high levels of NPLs.
- A hike in interest rates weakens borrowers' debt-servicing capacity, more so if loan rates are variable. Therefore, NPLs are expected to be positively related to interest rates.
- Inflation affects borrowers' debt-servicing capacity through different channels, and its impact on NPLs can be positive or negative. Higher inflation can make debt servicing easier either by reducing the real value of outstanding loans or simply because it is associated with low unemployment. However, it can also weaken some borrowers' ability to service debt by reducing real incomes when wages are sticky.
- An appreciation of the exchange rate can have mixed implications. On the one hand, it can weaken the competitiveness of export-oriented firms and adversely affect their ability to service their debt (Fofack 2005). On the other hand, it can improve the debt-servicing capacity of borrowers who borrow in foreign currency, but it makes the loans more expensive in domestic currency.

### Data

The sample covers 67 banks (unbalanced panel) for the period 2006–15. Bank-level data were extracted from Fitch. Country-level data come from the IMF's Intentional Financial Statistics and World Economic Outlook databases.

### Estimation

In order to capture the persistence of the growth of the NPL ratio, we use the Arellano-Bond (1991)

dynamic panel approach. Since NPLs are highly persistent, fixed-effect estimations can give rise to endogeneity issues. In contrast, Arellano-Bond is designed for situations with (1) “small T, large N” panels, meaning few time periods and many individuals; (2) a linear functional relationship; (3) one left-side variable that is dynamic, depending on its own past realizations; (4) independent variables that are not strictly exogenous, meaning they are correlated with past and possibly current realizations of the error; (5) fixed individual effects; and (6) heteroscedasticity and autocorrelation within individuals but not across them.

Moreover, we would like to treat real GDP and nominal effective exchange rates as endogenous, since the causality can run in both directions, and both variables can be correlated with the

error term. Simple pair-wise regressions suggest that NPLs do have a significant impact on real GDP and the nominal effective exchange rate. For the other variables included in the model this is not the case. Finally, to avoid problems of correlation among errors and to obtain additional efficiency gains, a generalized method of moments (GMM) with instrumental variables is needed for our analysis. All the issues discussed above are addressed by the Arellano-Bond difference GMM estimation, with robust standard errors.

We use this estimation to find the determinants of the NPL ratio as well as bank profitability.

## Results

The results are shown in Annex Table 3.4.1.

**Annex Table 3.4.1. Determinants of Nonperforming Loans (Arellano-Bond Estimation)**

	(1)	(2)	(3)
	Nonperforming Loan Share of Total Loans		
NPL Share, t-1	1.031***	1.171***	1.328***
<i>x Foreign EU</i>	-0.163	-0.125	-0.273
	0.11	-0.128	-0.329
	-0.499	-0.28	-0.812
<i>x Foreign non-EU</i>	-0.941***	-0.936***	-0.924***
	-0.202	-0.281	-0.179
ROE, t-1	-0.121***		-0.075
	-0.022		-0.118
<i>x Foreign EU</i>	0.162*		0.08
	-0.127		-0.133
<i>x Foreign non-EU</i>	0.534		0.91
	-1.48		-1.615
Net Interest Margin, t-1	-1.3		-1.162
	-1.311		-1.203
<i>x Foreign EU</i>	1.082		0.896
	-1.379		-1.471
<i>x Foreign non-EU</i>	1.676		1.194
	-7.487		-5.452
Capital Adequacy, t-1	0.401		0.328
	-0.267		-0.264
<i>x Foreign EU</i>	-0.611***		-0.667**
	-0.199		-0.281
<i>x Foreign non-EU</i>	-0.769		-0.706
	-1.628		-1.124
Provisioning Share, t-1	-0.006*		-0.008*
	-0.003		-0.007
<i>x Foreign EU</i>	0.001		0.016
	-0.008		-0.02
<i>x Foreign non-EU</i>	0.071		0.927
	-0.207		-0.904
GDP growth rate		-0.720**	-0.709***
		-0.291	-0.243
Inflation rate		-0.002	0.032
		-0.018	-0.06
Lending rate		-0.569	0.106
		-0.384	-0.513
Real effective exchange rate		0.059***	0.08
		-0.021	-0.058
Constant	6.382*	-4.104	-10.488
	-3.628	-12.831	-36.258
Observations	334	342	312
Number of banks	69	66	66
Number of instruments	56	56	56
AR(1) test <i>p</i> -value	0.037	0.009	0.028
AR(2) test <i>p</i> -value	0.095	0.917	0.844
Hansen test <i>p</i> -value	0.977	0.460	0.985

Source: IMF staff estimates.

Note: Robust standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## References

- Arellano, Manuel, and Stephen Bond. 1991. "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations." *The Review of Economic Studies* 58 (2): 277–97.
- Bakker, B. Bas, and Anne Marie-Gulde. 2010. "The Credit Boom in the EU New Member States: Bad Luck or Bad Policies?" IMF Working Paper 10/130, International Monetary Fund, Washington, DC.
- Bakker, B. Bas, and Christoph Kligen, editors. 2012. "How Emerging Europe Came Through the 2008/09 Crisis: An Inside Account by the Staff of the IMF's European Department." International Monetary Fund, Washington, DC. August.
- European Central Bank (ECB). 2015. "Financial Stability Challenges in EU Candidate and Potential Candidate Countries." ECB Occasional Paper No. 164. European Central Bank, Frankfurt.
- Everaert, Greetje, Natasha Che, Nan Geng, Bertrand Gruss, Gregorio Impavido, Yinqiu Lu, Christian Saborowski, Jerome Vandenbussche, and Li Zeng. 2015. "Does Supply or Demand Drive the Credit Cycle? Evidence from Central, Eastern, and Southeastern Europe." IMF Working Paper No. 15/15, International Monetary Fund, Washington, DC.
- Fofack, Hippolyte. 2005. "Nonperforming Loans in Sub-Saharan Africa: Causal Analysis and Macroeconomic Implications," World Bank Working Paper. November. Washington, DC.
- Ichiue, Hibiki, and Frederic Lambert. 2016. "Postcrisis International Banking: An Analysis with New Regulatory Survey Data." IMF Working Paper 16/88, International Monetary Fund, Washington, DC.
- International Monetary Fund (IMF). 2013. "Financing Future Growth: The Evolving Role of the Banking System in CESEE: Technical Notes." Washington, DC. April.
- . 2015a. "The Western Balkans: 15 Years of Economic Transition." EUR Regional Economic Issues Special Report, Washington, DC. March.
- . 2015b. "Central, Eastern and Southeastern Europe: Mind the Credit Gap." EUR Regional Economic Issues, Washington, DC. May.
- . 2016. "Taking Stock of Monetary and Exchange Rate Regimes in Emerging Europe." European Department, Washington, DC. November.
- Roodman, D. 2009. "How To Do Xtabond2: An Introduction to Difference and System GMM in Stata." *The Stata Journal* 9 (1) 86–139.
- Vienna Initiative. 2017. "NPL Monitor for the CESEE Region 2017H1." Luxembourg.