The binding constraint on growth in less developed Western Balkan countries

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Abstract

The study applies an adjusted growth diagnostic approach to identify the actual binding constraint on financing growth-enhancing in the West Balkan countries. This group of economies includes combined structural and systemic transformation problems. The results of the analysis indicate that the binding constraint on credit and investment growth in the region is the high and still increasing share of non-performing loans primarily in the private household sector due to policy failures. The analysis is performed in comparison with a group of advanced transition economies. Single-country and panel regressions indicate that in demand side factors do not play a constraining role in the West Balkan countries but in the advanced transition economies.

JEL classification: G21, G28

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1. **Introduction**

The overarching objective of the study is the identification of the binding constraint on growth in the countries of the Western Balkans (WBs). This region includes the successor states of socialist Yugoslavia and Albania and was selected for its combination of underlying structural and systemic transformation problems that are typical of many European (and some non-European) emerging markets. Initiating systemic transformation from a middle-income position and with some degree of industrialization, all WB countries experienced huge losses in welfare, productivity and social capacities during their transition to a market economy, a move that was further aggravated by ethnic conflicts and national wars of independence in some regions during the 1990s. Labor emigration, traditional for former Yugoslavia, is on-going in most post-Yugoslav countries as well as in Albania. After a period of recovery in these countries, economic stagnation followed in 2009. Since then, not only has growth been experiencing a downward trend, but investment and financing are also low, thus hindering the start of a sustained economic growth and catch-up process. A second aim of the study is to take advantage of an adjusted growth diagnostics (GD) approach in the quest for the binding constraint on growth. The approach applied herein deviates from the original and from those in the literature in two respects. While the original approach holds a supply-side perspective and is devoted to developing countries, this study first tests possible demand constraints on growth, a factor that may be important in countries with some degree of industrialization. Second, while the existing literature applies the GD approach to single countries, the investigation herein covers a region of independent countries that have some relevant commonalities. These two deviations present novelties to the extant literature.

The remainder of the study is organized in five consecutive steps. Section 2 assesses the applicability of the original GD approach to a region of countries with mixed features including underdevelopment and systemic transformation. Thus, it argues for an adjusted diagnostic tree that includes possible demand-side as well as supply-side constraints. Sections 3 to 6 present steps in the identification of the binding constraint on growth. The results indicate that financial intermediation (section 3) and the size

and increase of non-performing loans (npls) in the banking sector are important factors (section 4). Section 5 focuses on the causes of the npls in the WBs by separating the possible impacts of losses on effective demand and on the impacts of market and policy failures, which constitute supply-side constraints, on growth via npls. Section 6 presents systematic evidence of the prevailing constraints on lending and growth by running country and panel regressions. This section is unique with respect to the existing GD literature as it adds to the typical qualitative analysis econometric techniques, and it determines that aggregate demand has, at best, minimal relevance on lending to the corporate sector in the WBs region, while npls on the supply-side do have such relevance. Section 7 presents policy and methodological implications.

2. A review of methodological foundations and applications of the GD approach

The GD approach brings the numerous and side-by-side existing constraints on growth (factors related to policy, markets, institutions, geography and resource endowments) into a diagnostic order. Identifying a constraint to be a binding one in a given period of time does not exclude other constraints, but rather sets the agenda for prioritizing policy actions. The actual binding constraint is important in that it implies it may be replaced by another constraint once the policy action successfully resolves the initial constraint. Hausman et al. (2006) suggest using the original diagnostic or decision tree, which has been applied in the majority of previous studies[1] With respect to low levels of private investment and entrepreneurship, Hausman et al. (2006) formulate two possible explanations (in their diction: 'decisions') at the first branch of the tree - either the real rate of return is too low or the cost of finance is too high. When it is not the low rate of return, the binding constraint can be determined by turning to the high cost of finance branch. Using stepwise exclusion of possible barriers to growth at each juncture of this branch, the binding constraint can be identified. Of course, given that the original tree is not a dogma, the diagnostician may draw a different tree related to his/her specific research question. However, whatever decision tree the diagnostician might wish to design, two fundamental issues require critical discussion - the original GD tree is a single-country approach, and it is a supply-side approach.

The first characteristic distinguishes it from policy conclusions á la the Washington consensus wherein, not surprisingly, the GD approach is the outcome of the debates between 1995 and

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[1] I abstain from presenting the figure in Hausman et al. (2006) as it is well-known and can be found in almost every paper on the GD approach.

2006 regarding the appropriateness of the consensus on policy reforms in developing countries at the end of the 1990s. For these policy reforms, the Washington consensus claims a best practice approach derived from then prevailing textbook economics and applicable to every developing country experiencing economic troubles. Disappointing results in the 1990s led to the argument that the quality of institutions is important and their improvement should be included in the reform prescriptions. However, while policy reforms could be narrowed to the well-known '10 commandments' of the original Washington consensus, the field for institutional reforms appears boundless, as noted by Rodrik (2006, p. 980), 'So open ended is the agenda that even the most ambitious institutional reform efforts can be faulted ex-post for having left something out' (Rodrik 2006, p. 980). Carlin (2010) observes a transfer of high quality, a credible market and public institutions to East Germany by virtue of unification, yet the costs of these institutional transfers were high and performance was, in many ways, similar to that of its comparators in other transition regions (Carlin 2010). The question remains, however which institutions should be identified to enter a growth-enhancing policy concept and how should these institutions be identified. The logical answer is quite simple - it depends on the particularities of a given country at a given point or period of time. This factor differentiates the GD approach from the earlier 'one size fits all' reform concepts.

The original and widely used GD approach does not differ from the earlier concepts with respect to its supply-side perspective as it excludes constraints on effective demand.[2] GD is rooted in the neoclassical theory of endogenous growth, which explains growth by the provisions of resources to the production process. Thus, growth is a real sector phenomenon. The basic concept is that growth is the result of additional physical or human capital (productive capacity), and the typical diagnostic tree is shaped by political, geographic and institutional constraints on physical capital and entrepreneurship. However, low private investment could be due to underutilized capacities and pessimistic forecasts regarding the future state of the economy by the real sector, which might prefer to reduce debt and borrowing. Nevertheless, despite many theoretical and practical shortcomings and ambiguities (for an overview, see Felipe et al., 2011), the GD approach may be a useful practical methodology for determining a possible binding constraint on growth when it is applied to economies where supply-side constraints are important. However, as this cannot be assumed *a*

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[2] Rodrik (2010) presents a different tree that includes supply- and demand-side constraints. However, his understanding of demand-side constraints does not differ from the original scheme, as he explains a low demand for private investment by the typical supply-side factors of this scheme.

priori, it must be tested. Apparently, supply constraints may be prevalent in developing countries. Kalecki (1966) notes that the typical problem of a developing (or underdeveloped) economy is the coincidence of unemployment (or underemployment) and fully utilized capacities. The existing stock of physical capital, which is not quite high enough to employ the entire labor force, may be fully utilized at the same time. On the other side, the typical problem of a developed capitalist economy is the lack of effective demand as the source of the coincidence of unemployment and underutilized capacities. Accordingly, developing countries must speed up structural transformation (Rodrik, 2010). The major problem of a developing economy is, namely, the transformation from a rural, agricultural society to an industrial society. Typically, a developing country abounds with labor but is lacking in physical capital. According to neoclassical predictions, a short supply in capital should increase the real returns on investment, while the problem with the high cost of finance could be solved by financial liberalization and state finance programs.

With this in mind, we consider countries that may not have a structural transformation problem but need to more quickly engage in systemic transformation from a socialist to a market economy. Such a transition country suffers output losses due to the lack of effective demand for the previously produced industrial commodities. The typical transformation problem is the re-allocation of labor and capital between industries and regions, which is partly coupled with transitory high unemployment, while a developing country is characterized by permanent unemployment or underemployment. If a transition economy also has a developed industrial basis, such as the Czech Republic, this industrial basis may constitute a demand constraint according to Kalecki, and thus, changes in effective demand will lead the reallocation and growth processes. This understanding is the essence of the critical literature on the application of supply-side solutions to transition countries such as East Germany (former GDR), the Czech Republic, Slovak Republic, and Poland (see Brada and King, 1992; Bhaduri and Laski, 1997). However, if the transition country shows increased signs of a developing economy, it must also solve the dual problem of a structural and a systemic transformation, and thus, the diagnostician must assess whether, and the degree to which, growth is supply constrained in one period or demand constrained in another.

Accordingly, most of the GD literature investigates developing countries. The only exception is Carlin's study on East Germany as a successor of highly industrialized

German Democratic Republic (Carlin, 2010) when it was already part of unified Germany. With almost unlimited access to public finance as well as international capital markets, Carlin concluded that neither government failures nor the high cost of finance was the binding constraint affecting industrialized East Germany but rather that the problem was due to market failures with respect to the labor market and the increase in East German wages. However, Carlin's study rules out the negative demand shock in a highly industrialized region as East Germany was part of an advanced market economy. Earlier investigations of East Germany emphasize the existence of a massive demand shock for East German producers after the unification (Gabrisch, 1995). The shock was attributed to the severe overvaluation of the GDR currency against the *Deutsche Mark*.

A look into Rodrik's homepage[3] reveals that European transition countries experiencing dominating development and, thus, supply-side problems were subject to GD. In a study by Sen and Kirckpatrick (2011) on Kosovo's early years, the authors, using data from 2004 to 2006, find the binding constraints on growth to be the high costs of and restricted access to finance, the poor provision of public goods and weaknesses in the rule of law. This result, however, seems inconclusive as there are too many binding constraints on both main branches of the decision tree. A related study on Moldova (Stratan and Chistruga, 2012) finds the restrictive access to domestic finance responsible for the excessively high costs associated with interest rates and transaction costs. Babych and Fuenfzig (2012) determine that human capital and road infrastructure are the binding constraints on growth in Georgia. Kuzmanovic and Sanfey (2014) identify micro risks resulting from government failures to be the binding constraint in Serbia, followed by constraints on access to finance. All of the aforementioned countries belong to the group of developing countries according to the World Bank classification.[4]

Carlin's study of East Germany and Lea et al. (2011)'s study of northeastern Afghanistan uncover another methodological problem. Specifically, can the GD approach be reasonably applied to a region of a country or – in the opposite direction – to a group of countries? It seems that the regional approach eliminates those possible constraints in the decision tree where the central government is responsible for certain policy actions, such as fiscal and monetary policies. In such an event, the diagnostician cannot be certain that

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[3] http://www.hks.harvard.edu/fs/drodrik/GrowthDiag.html. Last accessed 22 September 2014.
[4] http://data.worldbank.org/about/country-and-lending-groups#Europe_and_Central_Asia. Last accessed 29 October 2014.

the identified supply constraint is the actual binding constraint. On the other hand, more than one country raises the question of whether it would be best to apply a more general and textbook approach, such as the Washington consensus, and to recommend policies that fit all circumstances. The fact that countries differ in history, institutions, resources, initial distortions and other initial conditions implies that customization in the diagnostic is critical (Leipziger and Zagha, 2006), and from this results the spare use of econometric techniques. Nonetheless, cross-country studies may help to identify growth bottlenecks at the macro and micro levels due to the availability of more data, as in the study by Loayza et al. (2005). Therefore, the answer is a pragmatic one that requires an understanding of the similarities among the countries.

What are the conclusions with respect to the WB countries? Socialist Yugoslavia was a middle-income economy with glaring regional contrasts in levels of development and prosperity. Socialist Albania was and is a developing economy at the upper middle-income per capita level as Serbia is. Today, while Croatia and Slovenia are listed as high-income economies, only Slovenia is a member of the OECD (since 2010) and, hence, is accepted as an advanced economy. However, in 2008, after a decade of economic recovery and growth, the labor force participation rate approached 60 % in Croatia. In the other countries, the rate was near or below 50 %, with high shares of employment in the shadow economy or in low-productive agriculture. For comparison, the ratio was at approximately 70 % in Germany and 60 %, on average, in the new member states of the EU (sources: Eurostat and national statistics). Therefore, it is not *ex ante* to hypothesize whether growth is constrained by bad management of the structural transformation process typical of developing economies or by bad management of the systemic transformation process including demand management and market failures typical of transition countries. All countries form a geographic region much as the various regions of a single state form a geographic region. It is more plausible for a multi-country study to examine neighboring countries than countries that are spread throughout the world. Second, all of the neighboring countries share related histories, cultures, institutions, and even languages (Slavic ones and Albanian). Particularly, seven of the countries exhibit distinctive features common to the Yugoslav-type start-up model, which is different from that of East Germany, which has a completely different history and economy when unified with West Germany. Third, all of the countries have a specific relation to the European Union in

that their internal and external policies are influenced by the Union. Furthermore, all of the countries are accession or pre-accession candidates, while Croatia is already a member. Thus, it is concluded that group convergence between them and the Union is currently in progress.

The diagnosis that follows covers the period between 2007 and mid-2014 and includes seven countries - Albania, Bosnia and Hercegowina ('BiH'), Croatia, Kosovo, Macedonia, Montenegro and Serbia (WB-7). The choice of the period is dominated by the availability of data. Comparisons are performed with the five new member states of the EU (NMS-5) that are already OECD members. These include the Czech Republic, Hungary, Poland, the Slovak Republic (all since 1994) and Slovenia (since 2010). Croatia is spatialized to the WB-group because it entered the EU in 2013, though it is not yet a member of the OECD.

3. A first step: focus on returns and cost

Private investment must be financed. Given that financing overwhelmingly involves debt financing in the WBs, bank credit dominates as everywhere throughout Europe. Figure 1 provides a first glimpse of financing and illustrates the quarterly development of bank credit to the non-financial private corporate sector. The peak of strong credit growth in the recovery period since the late 1990s was achieved in six out of the seven WB countries in September 2008 (when Lehman Brothers defaulted); Montenegro was the outlier; here the peak was a couple of years earlier The countries of the region entered a period of stagnation a short time later (roughly two quarters later). The beginning of the period of stagnation in the NMS-5 countries was similar, though there was some recovery in Poland in 2011/2012, which was followed again by a slump. Clearly, the evidence provided in Figure 1 for both groups includes the impacts of external and internal supply and/or demand shocks, each of which might exhibit moments of dominance.

(Insert Figure 1 about here)

The quest for the binding supply constraint begins with the traditional first question:[5] Is a decline in the return to economic activity the barrier to (the recovery of) investment and

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[5] The informed reader will notice that this question presents the first level of the diagnostic tree in Hausman et al. (2006).

credit, or is it an increase in the cost of finance, which then implies that many private investment projects will not be financed when the (expected) returns to economic activity are lower than the real cost of the finance? We use proxies for both indicators (returns and costs) as they cannot be directly observed. For the real rate of return, the incremental capital output ratio (ICOR) provides some insights.[6] The ICOR assesses the marginal amount of investment capital necessary for the economy to generate the next unit of production or aggregate income and is defined as $ICOR = \frac{I}{\Delta Y} = \frac{(I/Y)}{(\Delta Y/Y)}$ where $\Delta Y/Y$ is the real rate of change of the gross domestic product (GDP) and I/Y is the share of the gross fixed investment in the GDP. The measure, however, has some shortcomings. For example, it does not correct for changes in income distribution or different inflation rates for investment goods and the GDP. Additionally, the return is generated by the existing capital stock, while new capital could yield higher returns. The cost of finance cannot be measured by itself, but rather, it is measured with the real interest rate on long-term investment credit in the foreign exchange (FX) market. While the interest rate is a price signal, the costs of finance are determined also by non-price signals such as the amount of credit, the currency, the duration, the industry and/or the collateral. A high interest rate does not necessarily signal high financial costs as credit offices of banks may be willing to soften the non-price components of the credit. This choice of FX lending is justified by the high euroization in the region's financial intermediation. The common use of the Euro and other international reserve currencies follows from the lower nominal interest rates in these currencies compared to financing in local currency. Therefore, what matters is the interest rate on FX loans and the inflation rate of the lending currency.

Figure 2 provides the results of the calculations for the period 2002 to 2013. The ICORs in the WB countries tend to be lower than those in the NMS-5 countries, suggesting somewhat higher real returns on investment. A negative ICOR, such as that for Macedonia and the Czech Republic, signals even negative returns. The real interest rates also tend to be higher in WB countries as evidenced by the mean values in the right panel of figure 2. For both groups, interest rates on Euro credits are substantially higher than those in the Euro area. Surveys among credit officers of banks revealed persistent restrictions with respect to the amount of credit, currency, duration or collateral since the

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[6] Other indicators used in the literature assess social returns like income of human capital or returns of some sectors (infrastructure). The ICOR reflects macroeconomic returns.

outbreak of the crisis (Vienna Initiative 2013, European Investment Bank 2014), thus suggesting the tentatively high cost of borrowing at least since the outbreak of the output and lending crisis in 2009 compared to the expected returns on investment in the WB countries. Accordingly, the binding supply side constraint in the NMS-5 seems to be the low return on investment.

(Insert Figure 2 about here)

4. A second step: focus on the determinants of the cost of finance

There are at least three candidates for the high cost of lending in WB countries - liquidity shortages, low competition, and high default risks.

The liquidity argument: Interest rates might be high if the credit market is tight due to poor access to international finance or the low depth of financial intermediation. Poor access to international finance is apparently the least likely constraint. All WB countries opened their financial sectors to international financial corporations, mainly EU banking groups, and liberalized cross-border capital flows. The dynamic growth in lending before the outbreak of the global financial crisis indicates that it is not the poor access to finance, which could be eased by lifting the legal restrictions. Rather, the reason for such fall in lending is found in the lending restrictions imposed by the local banks and funding restrictions imposed by the international owners. Furthermore, there is another possible candidate for liquidity shortages - the low level of financial intermediation. Table 1 illustrates the financial sector assets in percent of the GDP. It is noted that these are far below those in the Euro area, and they seem to be somewhat lower than those in the NMS-5. Macedonia shows the lowest share, followed by Serbia. A low level restricts the flow of liquidity and drives up lending rates for the corporate sector. However, as this source of liquidity shortage is a structural determinant, it may not explain the previous boom in lending followed by a severe drop.

(Insert Table 1 about here)

Low competition: While low competition among banks may drive up lending rates, this is not a striking feature of the region, with the exception of Kosovo. Table 2 presents a selection of the most common concentration measures in the literature. The Boone index, which captures direct lending by international banks, signals lower competition

throughout the region compared to that of the Euro area. Because direct lending is rather low in the West Balkans for the overwhelming foreign ownership of local banks, the Hirschman-Herfindahl index is not necessarily less meaningful than the Boone index, and it shows two extreme cases: The first is that market power is high in Kosovo, which has only eight banks, and accordingly, high lending-deposit spreads signal high cost of borrowing for corporations. The second extreme case is that competition is strong in Serbia, which has 33 banks.

(Insert Table2 about here)

Credit default risk: The cost of finance may be high when the risk of default is high. When banks fear higher risks, they expand capital adequacy ratios and loan-loss reserves, and furthermore, the liquidity they provide to the credit market is restricted. Capital adequacy ratios are, by far, higher in the banking system of the WB countries than in the Euro area, and they are also somewhat higher than in the NMS-5 countries (Table 3, last column). Also, leverage ratios were lower than in the EU illustrating the absence of undercapitalized banking systems.[7] However, the main problem is the strong increase in loan-loss reserves during the recent crisis, an increase that reflects the increasing risk of default due to the share of non-performing loans[8] (npls) in gross loans in the banking sector. Figure 3 compares the ratio of npls in total bank credits for two periods (2002 to 2008 and 2009 to 20013), and Figure 4 adds the split between non-financial corporations and private households. Banks do not only increase their reserves and withdraw liquidity, but they also suffer from higher refunding costs and bear costs of depreciation, thus resulting in increased lending rates. The severe decline in lending depicted in Figure 1 finds its reflection in the increase in the npls, as shown in Figures 3 and 4.

(Insert Figures 3 and 4 about here)

5. A third step: focus on the causes of the npl problem

The diagnosis would not be complete without an identification of the causes of the npl problem. Apparently, there are external and internal causes. Jakubik and Reiniger (2013), applying a dynamic panel analysis to 9 central-east and south European Countries, test for several possible impact factors. While their study incorporates Russia and the Ukraine, only

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[7] Data from Federal Reserve Bank of St. Louis online database; not shown here.
[8] Claims overdue 90 days or more are classified as non-performing according to international standards. However, the classification suffers from different definitions in different countries (Barisitz 2011).

Croatia from the WB region was included. They found GDP growth to be the primary driver correlated negatively with the development of npls. This assessment is based on the size of the coefficient of the variables. The GDP variable showed the highest coefficient when compared to the stock market index, past credit growth, and exchange rate changes.

However, there may be additional causes of the npls that are particularly relevant to the WB region. For example, there is evidence suggesting that information asymmetries may play a role in npls, especially as the vulnerability of a loan portfolio depends on the quality of risk analysis prior to lending. Risk management was apparently poor throughout the WB region during the boom period even though international standards were implemented with the arrival of international banks in the region. The standards, however, were damaged because credit committees sought to gain market shares in situations where credit registers were still underdeveloped or non-existent.[9] Consequently, loans were granted to new clients with unknown credit histories. This situation has improved because public or private registers are now in place in all countries.

A second source of high npls is the lack of foreign exchange hedging. A lack of hedging appears to have been a major source of inefficient FX lending structure when borrowers do not earn wages in foreign currency. This is evident when examining mortgage lending to private households. According to the Albanian National Bank, close to 49 % of all bank credits were not hedged against exchange rate instability. The Croatian National Bank reports a share of 93 % for the first quarter of 2013. FX hedging, which requires forward markets and leads to risk sharing between contract partners are underdeveloped in the West Balkan region.

Lack of a market for doubtful debts is another obvious cause of npls. In advanced market economies as well as in some transition countries, asset management companies (AMCs) address doubtful bank portfolios and play a major role in npl resolution and recovery. This market, while well developed in Poland due to appropriate regulations, is still in a very embryonic state in the West Balkan countries due to the lack of transparency in npl classification and the lack of regulations for international AMCs.

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[9] This is a finding the author gathered from many interviews in banks of the region.

Policy failures must also be considered as a source of npls. A specific policy failure occurred in Albania when the public sector built up payment arrears vis-à-vis the private corporate sector. This was a main contribution to the increase in npls in that country between 2009 and 2012. However, a region-wide factor for the increase in npls was the bailout expectations in the banking sector. The inactivity of the commercial banks to facilitate npl recovery and resolution was egregious as lenders preferred to wait for government bailouts of over-indebted corporations and private households. This behavior is only partly rooted in weak law enforcement, e.g., collecting collaterals. However, completely irrevocable debt, which requires liquidation of borrower equity, involves only a fraction of the npls, while a large fraction could be recovered with a temporary adaption of credit conditions and other resolution schemes. Governments and regulation authorities have even encouraged bailout expectations by their forbearance and created a new wait-and-see option for banks. When governments launch enterprise restructuring programs coupled with subsidies, such as in Serbia, banks might wait and see and expect governments to restructure insolvent banks at high fiscal costs rather than be forced to create their own restructuring plans. Regulation authorities in most countries attenuated the classification of assets and the rules for dealing with non-performing loans.

6. **The final step: econometric testing of demand and supply factors**

Econometric testing in GD is rather rare. When applied, however, a traditional micro based production function is used with growth as the dependent variable and the typical input factors (Loayza et al. 2005). This section follows another path based on the results presented in the previous sections, which have led us to hypothesize about the role of non-performing loans in the banking sector. That is, high or rising npls are the main drivers for the high cost of finance via the deprivation of liquidity, higher nominal interest rates and a deterioration of non-price components of lending. This, in turn, reduces the ability and willingness of the private corporate sector to borrow. The aim of the following regression analysis[10] is to add systematic evidence. The number of explanatory variables is reduced due to the small sample size or to the absence of data for institutional variables at all. The dependent variable is the rate of change of bank credit to the non-financial corporate sector (variable CSCR). The explanatory variables include lagged variables of non-performing loan ratios (NPLCS: corporate sector, NPLPH: private households). The lagged real GDP rate of change enters the tests as the economy's aggregate demand side.

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[10] All calculations are performed using the Eviews-8 software.

Lagged variables mitigate the possible problem of endogeneity between the dependent variable and the regressors. Consistent with the literature, the credit rate of change should exhibit some degree of persistence. Hence, the one-period lagged CSCR rate is added. Because the CSCR variable is in nominal terms, consumer price inflation rate (IFR) completes the set of explanatory variables, thus implying that a positive sign of the coefficient reveals that banks consider to maintain lending levels in real terms. The data were collected from national banks and mostly provided by the Vienna Institute of International Studies (WIIW)[11]. They cover the period from 2007q1 to2014q2. CSCR, GDP and IFR are annualized quarterly rates of change. Multicollinearity may be relevant as Jakubik and Reiniger (2013) find the real rate of growth to be a major determinant for the development of the npl ratio. The treatment of a possible problem includes assessing the size of the problem by calculating variance inflation factors (VIF) and not to focus on multicollinearity when values are less than 10.

The analysis is conducted in two steps. The first step includes single-country estimations for those countries that provide a minimum of unlagged observations. This step is equivalent to the traditional GD single-country approach. From the WB region, tests include Albania (only npl ratios, no split between sectors), Croatia and Macedonia; included from the NMS-5 region are the Czech Republic, the Slovak Republic and Poland. The number of observations before adjustments is 30 (27 for Poland). Unit root tests produce different outcomes for the variables, while the ADF test reveals CSCR to have a unit root, and the Phillips-Perron and KPSS tests report no unit root. The results show similar results for the other variables, though the results differ among the countries. Hence, no unambiguous conclusion can be drawn, and tests are thus based on rates of change with respect to the CSCR, IFR and GDP and on first differences with respect to npl variables. This has the advantage of reducing possible non-linearities in the levels, which, while the non-linearities may represent feedback between variables, they also increase the threat of biased coefficients. The chosen lag for all variables except the inflation rate IFR is one period due to the small number of observations as this may reduce the effectiveness of the models. To avoid possible problems of heteroskedasticity and autocorrelation of unknown form, econometric literature proposes using the generalized method of moments (GMM). However, the small panel size does not promise larger efficiency gains when one uses additionally lagged variables as instruments for an already

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[11] Available on request only.

limited number of observations. Therefore, the test equation is a linear OLS regression according to

$$CSCR_{i,t} = \alpha_0 + \alpha_1 CSCR_{i,t-1} + \alpha_2 IFR_{i,t} + \alpha_3 \Delta NPLCS_{i,t-1} + \alpha_4 \Delta NPLPH_{i,t-1} + GDP_{i,t-1} + \varepsilon_{i,t}$$
(1)

where i captures the country, t denotes time, and ε is the stochastic error term. The Harvey test for homogeneity is performed, and recursive estimations (CUSUM and CUSUM-squared) test for stability and forecast quality

The second step adds dynamic panel estimates. Panel data techniques allow mitigating the threats of heteroskedasticity and omitted variable biases in regressions. The latter is important with respect to possibly relevant institutional variables, which the models do not consider due to the lack of appropriate time series data. The higher number of observations also offers an opportunity to experiment with more lags and sub-periods. Nevertheless, the sizes of the panels with respect to both periods and units are too small to apply with great credit GMM techniques. Thus, two panels are estimated. The first panel includes five WB countries and excludes Kosovo (no quarterly GDP data) and Albania (no npl ratios for the corporate and household sectors). The second panel includes data from the five NMS countries. Tests on panel stationarity indicate that the CSCR and the first differences of the npl ratios are, again, stationary. In contrast to the single-country approach, the inflation rate and the GDP rate of change are now unambiguously panel stationary. Equation (2) describes the regression model for panels $p=1...4$, i is the country involved in the panel, t denotes the quarter, and τ represents the lag

$$CSCR_{i,p,t} = \alpha_0 + \alpha_{1,p} CSCR_{i,p,t-1} + \alpha_{2,p} IFR_{i,p,t} + \alpha_{3,p} \Delta NPLCS_{i,p,t-\tau} + \alpha_{4,p} \Delta NPLPH_{i,p,t-\tau} + ...$$
(2)
$$.... + \alpha_{5,p} GDP_{i,p,t-\tau} + \eta_{t,p} + \delta_{i,p} + \varepsilon_{i,t,p}$$

Panel regressions entail fixed effects (period η and cross-section δ), and ε is the stochastic error term. Redundant fixed effects tests (F-statistics) are applied to determine which fixed effects specifications are preferred in the regressions.

Table 3 presents the estimation results for the single-country approach. As expected, lending to the corporate sector shows some persistence in all cases, while inflation does not play a role for lending dynamics. With respect to the main question, there is no conclusion for Albania and Croatia as all variables are insignificant except the lagged dependent variable. With respect to Macedonia, there is strong evidence for the impact of change in demand as the GDP has a positive sign and is highly significant. This picture is repeated for all three countries from the NMS group. In the case of Poland, lending to corporations also suffers from the npl problem. In no country does the inflation rate exert an impact on lending and the adjusted R-squared values are implausibly high either due to the prevalence of unit roots in the data and/or to problems of multicollinearity. The standard error of regression shows reasonable values and provides a better description of the explanatory power of the regression, while the Durbin-Watson (DW) statistics signal slight or no serial correlation, a finding confirmed by the Q-statistics of squared residuals, which reject the null of serial correlation. Harvey F statistics suggests that one cannot reject the null hypothesis of homoskedasticity except for Croatia. Hence, the error term is "white noise" in five out of the six cases. CUSUM and CUSUM-squared tests report stability in the equations for Croatia, the Czech Republic and Poland, though not for Macedonia or the Slovak Republic. Variance inflation factors close to unity or below signal minimal to no correlation between the regressors. The main problem is related to the unit roots in the data as they affect the efficiency of regression output. In regressions with first differences of all variables (not shown here), the adjusted R-squared values are heavily downsized to levels of less than 0.55 and, in some cases, even to negative levels, thus confirming the suspicion of biased regression results in Table 3. However, while these regressions repeat the same results in signs and significances in *grosso modo* for all six economies, the first differences of the GDP rate of change or the inflation rate do not share the same intuitive economic understanding. Additional regressions with other lags do not change the sign structure, but do change the level of significance. For example, npl ratios become weakly significant with negative signs in the cases of Macedonia and Poland. A striking result of regression results as presented in Table 3 is the insignificance of the npl variables, with the exception of Poland, although coefficients often take a negative sign, which is consistent with the idea that an increase in npl ratios has a negative impact on bank lending to the corporate sector. A possible explanation for insignificance is that the single country regressions encompass two states of the economy, roughly described as pre-crisis and crisis periods with two different regimes – a demand

driven and a supply driven one. This issue can be better analyzed using a panel approach that includes more observations.

(Insert Table 3 about here)

Table 4 presents the panel estimation results with a slightly changing lag-structure for the npl-variables. Regressions include the entire period (panels 1 and 3) as well as the crisis period between 2009q1 and 2014q2 (panels 2 and 4). In the case of the WB group, no demand effect is evidenced in the two periods, not even with higher lags of the GDP variable. Thus, the Macedonian peculiarity seems to be an anomaly of minor relevance for the entire region. However, lending to the corporate sector is affected by changes in the npl ratio. A somewhat surprising result is that non-performing loans of the private household sector are the binding constraint, while npls to the corporate sector are not. A possible explanation is that banks prefer to reduce lending to the household sector, thereby protecting lending to the corporate sector. This emphasizes the bailout expectations on the banking sector in the region as described above. Significant period effects signal that differences among the countries involved are important.

(Insert Table 4 about here)

With respect to the economically more advanced countries of the NMS-5 group, panel results confirm the single-country results on a broader scale, that is, lending is dominantly demand driven. Regressors are reduced to the NPLCS ratios as no data for private households are available for Slovenia. Npl-ratios do not show any significant impact on bank lending although the signs are negative. Interestingly, inflation implies that banks are ready to hold the real credit levels. However, results with cross-section effects are likely not robust enough. Redundant fixed effects tests suggest using period effects, but then, the GDP variable assumes a negative sign, and becomes insignificant. Standard errors of regression are at reasonable levels. The relatively high VIFs in the WB region do not necessarily signal that we must be overly concerned with collinearity given that the low number of observations contributes to higher VIFs.

7. Policy and methodological conclusions

The main objective of this study was to identify the binding constraints on growth in the economically less advanced countries of the Western Balkans. The results of the analysis

indicate that the binding constraint on growth in the region is the high and still increasing share of npls primarily in the private household sector. This conclusion does not ignore systemic constraints in the financial sector, law enforcement, etc. as these constraints, which are due to the level of systemic transformation to an advanced market economy, may disappear over the medium term. The main issue for growth enhancing policies in the West Balkans is the resolution and recovery of npls. Accordingly, disregarding this issue may hinder opportunities for innovation and long-run growth. Inaba et al. (2005) contend that the authorities' forbearance against banks in their unwillingness to resolve the npl issue is responsible for the so-called lost decade in Japan. Krueger und Tornell (1999) argue similarly in the case of Mexico's slow recovery. The Turkish example (2001-2004) demonstrates that it is possible to reduce npls to a non-detrimental level in a few years. The recent Irish example, (Central Bank of Ireland, 2013) presents a definitive line of action by the central bank, while the most recent example of Slovenia (Banka Slovenije. 2013) offers additional insight into how to improve the quality of assets in the banking sector. In the face of the bail-out expectations in the banking sector, the core of an appropriately tailored approach should consist of incentives and sanctions that prompt banks to solve the npl problem of households and corporations using their own capabilities. While it is not necessary to involve a large amount of government money to bail out the over-indebted non-financial corporate sector or the private households, it is not only necessary but also possible to delegate the task to the banking sector as, apparently, there is no banking crisis in any of the WB countries. On the contrary, the banking sector is appropriately capitalized and capable of disposing of sufficient loan-loss and other reserves.

The second objective of the study was to test the applicability of the growth diagnostics approach to countries with structural and systemic transformation problems. The answer is positive when the original supply-side approach is completed by demand-side factors. Thus, the schematic application of the original approach should be replaced by a procedure that is more appropriate for the country or multi-country region under consideration. This adjustment reveals that the WB countries considered suffer from low credit supply, which hampers investments in productive and competitive capacities, while in the economically advanced five new member states of the EU, growth is hampered by demand constraints. The lack of sufficient robustness of estimation results calls for further research and, above all, for an improvement in the dataset.

Literature

Babych, Y. and Fuenfzig, M. 2012. "An Application of the Growth Diagnostics Framework: The Case of Georgia'. International School of Economics at Tbilisi State University (ISET), Working Paper 01-12.

Banka Slovenije. 2013. „Full report on the comprehensive review of the banking system". https://www.bsi.si/en/banking-supervision.asp?MapaId=1601; online-Zugriff am 27. Oktober 2013.

Barisitz, S. 2011: "Non-performing Loans in CESEE – What Do They Comprise?". Österreichische Nationalbank, Focus on European Economic Integration, Q4/11, S. 46-68.

Bhaduri, A. and Laski, K. (1997): "Lessons to be drawn from main mistakes in the transition theory". In: Zecchini, S. (ed.): "Lessons from the Economic transition". Springer: 103-121.

Brada, J. C, and King, A. E. (1992): "In There a J-Kurve for the Economic Transition from Socialism to Capitalism?" Economics of Planning, 25, 37-53.

Carlin, W. 2010: "Good Institutions are not enough: Ongoing Challenges of East German Development". Institut für Wirtschaftsforschung Halle (IWH). 20 Jahre Deutsche Einheit. Von der Transformation zur europäischen Integration. Tagungsband, Sonderheft 3/2010, S. 9-35.

Central Bank of Ireland. 2013. "Ireland: From NPL Forbearance to NPL Resolution - An Evolving Supervisory Toolkit". Powerpoint-Presentation für die Weltbank "Vienna Financial Sector Advisory Center (FINSAC), mimeo.

European Investment Bank. (2014): CESEE Bank Lending Survey. H2-2013

Felipe, J., Usui, N., and Abdon, A. (2011): "Rethinking the growth diagnostics approach: questions from the practitioners". Journal of International Commerce, Economics and Policy, Vol. 2, No. 2, 251-276.

Gabrisch, H. (1995): "Ostdeutschland und Mittel- und Osteuropa – Ein Vergleich der gesamtwirtschaftlichen Entwicklung." In: Pohl, R. (ed.): „Herausforderung Ostdeutschland. Fünf Jahre Währungs- und Wirtschafts- und Sozialunion". Analytica, p. 185-201.

Hausmann, Ricardo; Rodrik, Dani; Velasco, Andrés. 2006: "Getting the Diagnosis Right". Finance & Development, vol. 43, number 1. http://www.imf.org/external/pubs/ft/fandd/2006/03/hausmann.htm

Inaba, N., Kozu, T., Seine, T. and Nagahata, T. 2005. „Non-performing loans and the Real Economy: Japan's Experience". BIS Paper No. 22, www.bis.org/publ/bppdf/bispap22g.pdf

Jakubik, P. and Reininger, T. 2013: "Determinants of Nonperforming Loans in Central, Eastern and Southeastern Europe." Oesterreichische Nationalbank, Focus on European Economic Integration, Q3/13, S. 48-66.

Kalecki, M. (1966): „The Difference between Crucial Economic Problems of Developed and Underdeveloped Non-Socialist Economies." In: Osiatyński, J. (ed.): "Collected Works of Michał Kalecki", Clarendon Press Exord, 13-21.

Kornai, J. (1993): Transformational Recession. A General Phenomenon Examined through the Example of Hungary's Development'. Collegium Budapest – Institute for Advanced Study; Discussion Paper No. 1.

Krueger, A. and Tornell, A. 1999. „The Role of Bank Restructuring in Recovering from Crises: Mexico 1995-98." NBER Working Paper No. 7042, www.econ.ucla.edu/people/papers/Tornell/Tornell238.pdf. Zugriff: 14. 11. 2013.

Kuzmanovic, M., and Sanfey, P. 2014. "Diagnosing growth constraints in southeastern Europe: The case of Serbia'. European Bank for Reconstruction and Development, Working Paper No. 167.

Lea, Nicolas, Gorter, Joost and Juergen Ehrke, Juergen. 2011. "Constraints to Growth in Northeastern Afghanistan A Regional Growth Diagnostic. Balkh, Kunduz, Takhar and Badakhshan". GIZ. Deutsche Gesellschaft für Internationale Zusammenarbeit. http://www.hks.harvard.edu/fs/drodrik/Growth%20diagnostics%20papers/Constraints%20to %20Growth%20in%20Northeastern%20Afghanistan.pdf , accessed 22 September 2014.

Leipziger, D., and R. Zagha. 2006. "Getting Out of the Rut" Finance and Development43(1), p. 16.

Loayza, N., P. Fajnzylber, and C. Calderón. 2005. "Economic Growth in Latín America and the Caribbean: Stylized Facts, Explanations, and Forecasts." World Bank Study, World Bank and Central Bank of Chile Working Paper NO. 265, June.

2004.Rodrik, D. 2006. 'Goodbye Washington Consensus, Hello Washington Confusion? A Review of the World Bank's "Economic Growth in the 1990s: Learning from a Decade of Reform'. Journal of Economic Literature, Vol. 44, No. 4 (Dec., 2006), pp. 973-987.

Rodrik, Dani. 2010: "Diagnostics before Prescription." Journal of Economic Perspectives, Volume 24, Number 3, 33-44.

Sen, K., and Kirckpatrick, C. (2011) 'A Diagnostics Approach to Economic Growth and Employment Policy in Low Income Countries: The Case of Kosovo.' *Journal of International Development*, 23, pp. 132-154.

Stratan, A., and Christruga, M. (2012) 'What drives high cost of finance in Moldova?' Annals of the „Constantin Brâncuşi" University of Târgu Jiu, Economy Series, Issue 1/2012, pp. 38-46.

Vienna Initiative. 2013. "CESEE Deleveraging and Credit Monitor", *Quarterly Deleveraging Monitor* 2Q 2013. http://vienna-initiative.com/

World Bank. (2013). Private and Financial Sector Development Europe and Central Asia Region. "Western Balkan Financial Sectors". Financial Sector Outlook No. 2, p. 3

Statistical sources

Bank of Albania – online: Statistics: http://www.bankofalbania.org/web/Statistics_Entry_230_2.php?kc=0,3,0,0,0

Central Bank of BiH. http://www.cbbh.ba/

Central Bank of Kosovo: http://www.bqk-kos.org/

Croatian National Bank. 2013. http://www.hnb.hr/

Eurostat online: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database; latest access: November 2012; series has ceased.

Federal Reserve Bank of St, Louis data base online: http://research,stlouisfed,org/fred2/categories/32264;

European Central Bank: http://www,ecb,europa,eu/stats/pdf/130708_ssi_table,pdf?ce6d18fbad7f569f26c3c7e013f03ce9.

National Bank of the Republic of Mazedonia. Financial Stability Indicators. http://www.nbrm.mk/default-en.asp?ItemID=7AC5135E1C568A419A7E1B7EC93725D8

National Bank of Montenegro: http://www.cb-mn.org/

National Bank of Serbia. 2013b "Consolidated Sheet of the Banking System. http://www.nbs.rs/internet/english/80/.

WIIW – Wiener Institut für Internationale Wirtschaftsvergleiche, worksheets plus online data base: http://data.wiiw.ac.at/

Tables

Table 1: Debt vs. market financing and structure of debt financing (averages 2007-2011)

	In % of GDP			Shares in % of all financial sector assets			
	Financial sector assets	Stock market capitalize-tion	Commer-cial banks	Central bank	Mutual Funds	Insurances	Pension funds
WB-7							
Albania	64.7	n.a.	89.5	10.5	0.0[a]	2.2[b]	0.0[c]
Bosnia and Herzegowina	60.8	n.a.	86.7	0.2	6.9	6.3	n.a.
Kosovo	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Croatia	105.6	54.8	77.7	0.2	5.1	8.0	9.0
Macedonia	49.6	19.5	85.9	2.6	1.8	6.0[b]	3.6[c]
Montenegro	73.1	81.9	100.0	0.1	0.0	0.0	0.0
Serbia	50.4	32.1	91.5	0.8	n.a.	7.1	0.6
NMS-5							
Poland	62.8	33.3	53.2	0.0[e]	9.1	16.6	21.2
Slovak Republic	80.3	5.9	76.1	0.0	5.9	10.3	7.7
Czech Republic	57.8	27.0	66.1	0.3[d]	5.0	18.9	9.7
Hungary	80.6	23.0	59.6	1.2	15.0	11.0	13.2
Slovenia	116.2	29.9	81.2	0.3	4.9	12.0	1.5
Memorandum: Euro area[d]	189.0	54.0	71.2	0.9	8.5	16.9	3.0

[a] 2009-2010 [b] 2009, [c] 2007-2010, [d] 18 countries. [e] 2008.

Sources: Calculations based on Federal Reserve Bank of St, Louis online database; accessed14 October 2013.

Table 2: Banking system indicators: concentration, spreads, capital ratios

	Concentration		Lending-Deposit Rate	Capital Adequacy Ratio
	Boone Index[a]	Hirschman-Herfindahl Index[b]		
	Ø 2007-2010	*2010*	*Ø 2007-2011*	*2013*
WB-7				
Albania	-0.013	1400	6,7	17.0
BiH	-0.036	999	4,2	17.0[h]
Kosovo	k. A.	2000	10,3[d]	17.2[h]
Croatia	-0.057	1362	7,8	20.8
Macedonia	-0.064	1578	3,5	17.3
Montenegro	-0.090	1467	6,4[e]	14.7[h]
Serbia	-0,089	629	7,2	20.4
NMS-5				
Poland	-0,078	568	k. A.	15.7
Slovak Republic	0,035	1221	k. A.	15.9
Czech Republic	-0,074	999	4,7	16.4
Hungary	-0,062	872	2,5	16.6
Slovenia	-0.017	1150	3.2[f]	11.9[h]
Memorandum: Euro area[g]	-0,041	1099	k. A.	12.7[i]

[a] Unweighted average; [b] New member states and Euro area countries: 2012. [c] June 2012; [d] 2008-2011; [e] 2011-2012; [f] 2008-2010; [g] 11 countries. [h] 2012. Unweighted average 2007-2011.

Table 3: Results of selected country regressions with OLS (period: 2007q1-2014q2); dependent variable: CSCR

	Albania	Croatia	Macedonia	Czech Republic	Slovak Republic	Poland
Constant	1.335	0.929	-0.309	1.121	-3.904**	-3.330*
CSCR(-1)	0.920***	0.759***	0.850	0.663***	0.777***	0.787***
IFR	-0.883	0.366	0.244	-0.148	0.323	0.087
ΔNPL(-1)	0.783	---	---	---	---	---
ΔNPLCS(-1)	---	-1.949	-1.410	-0.669	0.471	-1.037*
ΔNPLPH(-1)	---	0.922	0.687	-0.955	-1.783	-3.024
GDP(-1)	0.100	0.150	0.329**	0.833***	0.493**	1.297***
			Diagnostic statistics			
Adj. R-squared	0.934	0.786	0.931	0.957	0.940	0.929
S.E. of Regr.	4.191	3.753	3.038	1.615	2.480	3.055
DW stat.	1.737	1.722	1.572	2.348	1.774	1.811
Harvey F stat.	1.288	4.836***	0.713	0.319	1.513	0.771
VIF[a]	1.054	1.338 (1.521)	1.017 (1.323)	1.054 (1.025)	0.751 (0.725)	0.255 (0.236)
Observations[b]	28	29	28	28	28	26

[a] ΔNPLCS and ΔNPLPH as predictors for GDP; value in brackets: ΔNPLPH; for Albania: ΔNPL. [b] After adjustments.

Table 4: Results of panel OLS regressions; dependent variable: CSCR

	WB-5		NMS-5	
	Panel 1	Panel 2	Panel 3	Panel 4
Period	2007q1-2014q2	2009q1-2014q2	2007q2-2014q2	2009q1-2014q2
Constant	1.008	1.014	-1.016	-1.907***
CSCR(-1)	0.810***	0.769***	0.785***	0.781***
IFR	-0.033	-0.077	0.203*	0.215**
ΔNPLCS(-1)	0.118	0.180	-1.347**	-0.326
ΔNPLCS(-2)	-0.329	-0.206	-0.830	-0.294
ΔNPLPH(-1)	-1.685**	-2.002**	---	---
GDP(-1)	0.052	-0.002	0.423***	0.453***
		Diagnostic statistics		
Adj. R-sq.	0.892	0.842	0.914	0.810
DW stat.	1.520	1.520	1.436	1.328
S. E. of Reg.	3.378	3.350	3.370	3.378
F-stat. (probab.)	0.000	0.000	0.0000	0.000
Period/Cross F	1.518*	1.659*	2.102*	2.447
VIF[a]	9.464 (9.428)		1.349	
Observations[b]	96 (5)	84 (5)	127 (5)	104 (5)
Fixed effects	period	period	cross[c]	cross[c]

[a] ΔNPLCS and ΔNPLPH as predictors for GDP; estimation for the entire period; value in brackets: ΔNPLPH. [b] Cross-sections in brackets. [c] Estimated with cross-section weights.
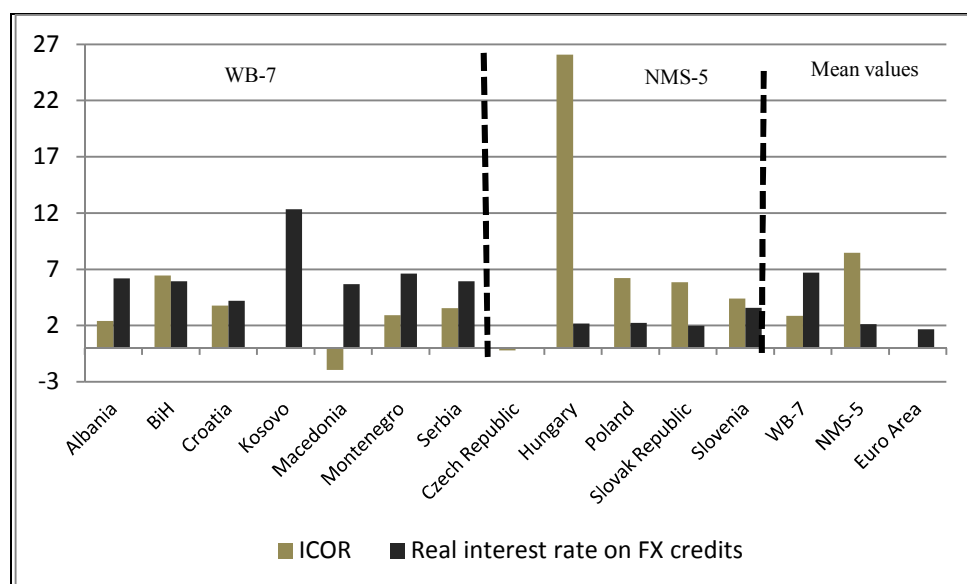
Figures

Figure 1: Quarterly credit to the non-financial private corporate sector in % against the previous year
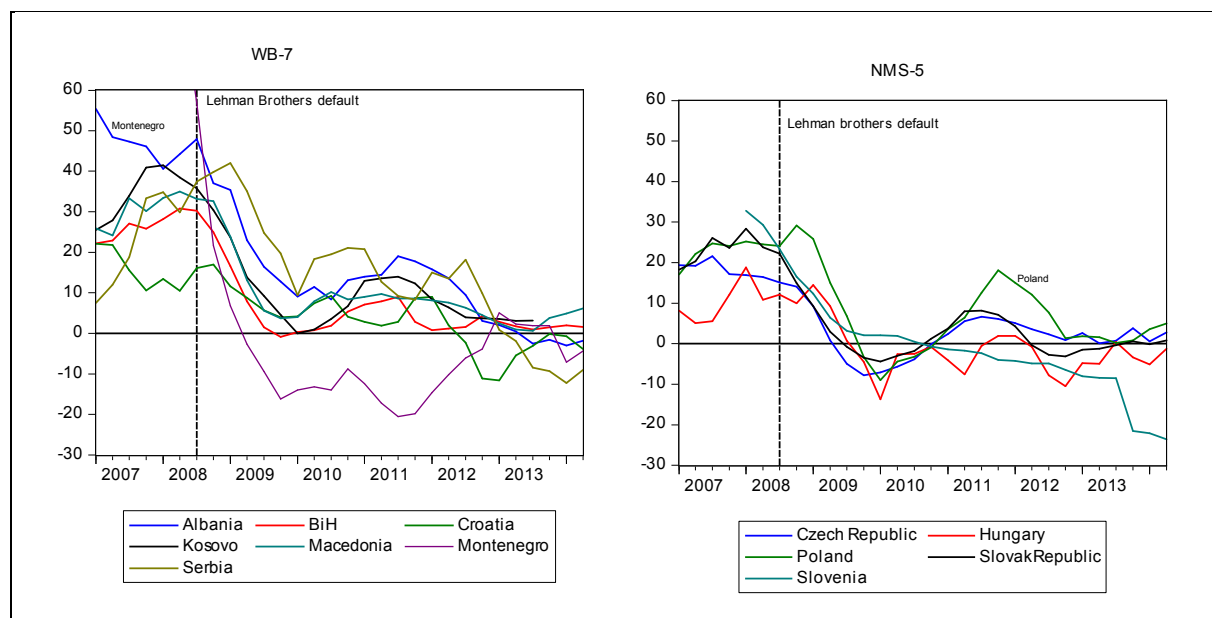
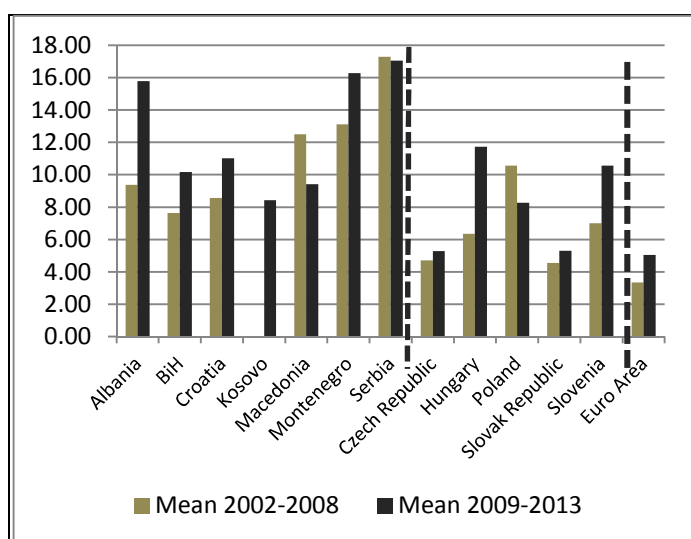Sources: Based on WIIW monthly data worksheets.

Figure 2: ICORs[a] and real interest rates[b] (means 2002-2013)

[a] Calculations based on fixed capital investment. [b] Real interest rate: Nominal interest rate of local Euro loans minus the Euro area inflation rate (HCPI). Investment credit: In most cases from 1 to 3 or 5 years, various periods for the initial rate fixation; for BiH: outstanding loans; Serbia: non-financial corporations only.
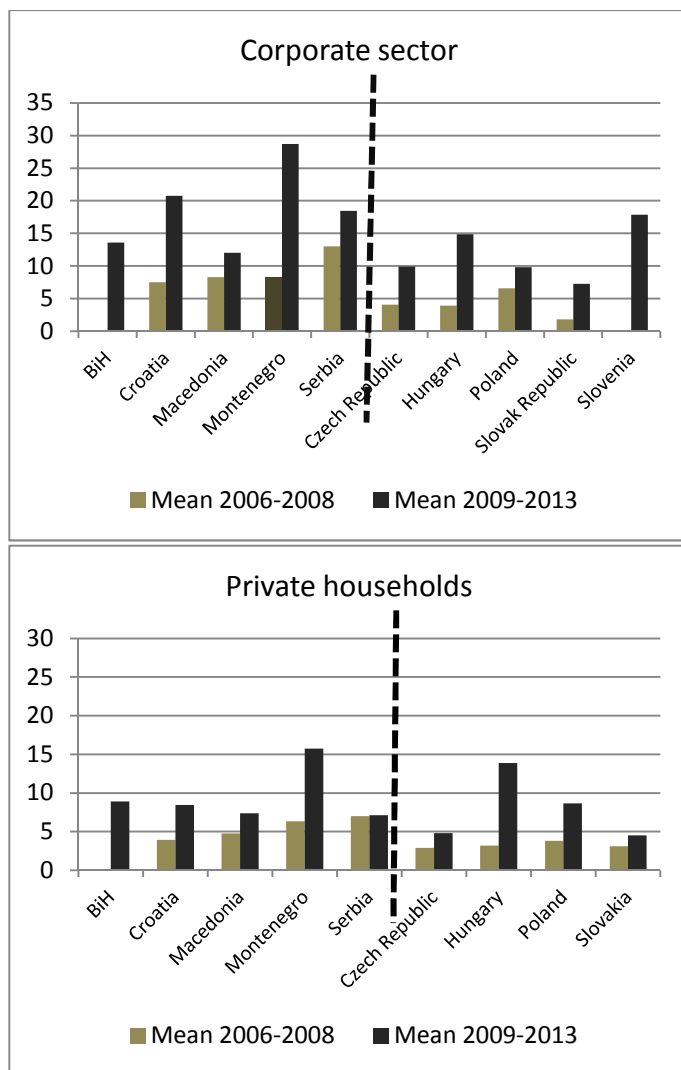
Sources: Calculations based on WIIW data base /(ICORs), National Banks data and Eurostat (nominal interest rates and Euro area inflation).

Figure 3: Non-performing loans in % of all credits of the banking sector (period mean values)

Sources: Calculations based on the online database of the Federal Reserve Bank of St. Louis accessed on 13 October 2014 (2002-2011); monthly data worksheets of the WIIW (2012 and 2013 and complete for Montenegro); World Bank (2013b) (Kosovo).

Figure 4: Non-performing loans in % of all credits of the banking sector to non-financial corporations and private households (period mean values)[a]

Corporate sector

Private households

[a] No private household data available for Slovenia.

Sources: Calculations based on monthly worksheets of the WIIW; fourth quarter; data for Serbia 2006-2008 only 2008.