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SCIENTIFIC REVIEW

Assessing a Currency Substitution Persistency in the Western Balkan Region

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ABSTRACT
The study aims to examine the euroization phenomenon in seven Western Balkan countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Romania, Serbia and Macedonia) between 2000 and 2015 and a number of –specific challenges faced by the region. More precisely, the paper analyzes the impact of the latest global financial crisis on the extent of currency substitution persistency by exploring the trends before, in wake of the financial crisis, and after the financial crisis. The study employed several indicators as a proxy variable for measuring of the overall level of currency substitution or euroization and cross country analysis in selected countries (liability euroization, credit euroization and deposit euroization and asset substitution- overall euroization index). Finally, the study found that deposit euroisation, credit euroization, and liabilities euroization in seven Western Balkan countries is still high with relatively high degree of heterogeneity. In some countries of the Western Balkan region the process of euroisation was further intensified in spite of the consequences of the latest global financial crises, while in the other ones the crisis years were marked by the trend of de-euroisation. In overall, this study does not find any significant evidence on significantly increases or decreases in currency substitution at the region sub-samples. Finally, Student t-test results indicate that there is no significant difference in means of before, in wake and after the financial crises at level of Western Balkan region.

Key words: *credit euroization, deposit euroization, liability euroization, Western Balkan region*

JEL Classification: F41, G01, E52

INTRODUCTION

The question of euroisation has been on the forefront of the economic debate. It is very natural that this debate intensifies and leads the economic analysis process during and after crisis. The Western Balkan economies are known as the highly euroised countries. It seems impracticable to report all available leadership definitions within the scope of this paper. Due to this, it will be contented with definitions which are distinguishable and relevant to approach in question. The terms euroisation and dollarization are used interchangeably to describe a situation when residents of a country hold foreign currency and when the assets and liabilities, including bank loans, deposits, as well as non-banking assets are denominated in foreign currency (Izeand Levi Yeyati, 2003).

Euroisation is especially a widespread phenomenon in transitioning economies which needs to be carefully considered and comprehended. Among the transitioning economies the Western

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Balkans is one of the most euroised regions in Europe characterized by a history of political uncertainty, macroeconomic instability, conflicts as well as by the hyperinflation (Bechmannand Scheiber, 2012).

The study explores the dynamics of euroization as a widespread phenomenon in the Western Balkans, by focusing on seven countries in the region (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Romania and Serbia). Post-socialist development characterized by disparities in levels of economic development across the region is the main reason for selecting the Western Balkan region for this research. In order to define variables needed to conduct the analysis, a detail research on previous writings on this topic has to be made. The findings of number studies are shown in literature review section.

This paper first of all aims to discuss the concept of euroisation and make a twofold contribution to the current debate. Firstly, is to examine the impact of latest global financial crises on the trends of euroisation of deposits, loans, and liabilities in selected countries. Secondly, it evaluate if there is consistency in the impact of euroisation over the years across countries.

In this study, the main research question is to investigate whether the latest financial crisis caused any changes in euroization level in the Western Balkan region?

There are no many researches on analysis trend of euroisation in post crises period in Western Balkan region. Main reason may be found in the lack of data especially in long term. Most of the researches were conducted in pre crises period. Consequently, the significance of this paper is to provide more information about trends of euroization in selected transition countries in post crises period.

This paper consist of the following sections: The second section of this paper contains literature review, and followed by methodology. The fourth section contains cross-country analysis, and paper ends with conclusion and recommendations.

LITERATURE REVIEW

In the literature on monetary theory and system, there exist many works on dollarization/euroization and its advantages and weaknesses, but very limited number of academic work has been carried out about trend of euroization in crises and post crises period. The term euroisation is described by Winkler, et al. (2004) as a term which refers to the situation when a country uses the currency of another country. The term is used interchangeably with the term dollarization. However, the term dollarization is used more frequently than the term euroisation, and suggests the replacement of the national currency in general.

A large number of indicators of euroisation can be found in research literature. The choice of a concrete indicator to analyze the quantitative data depends on the characteristics of the economy and its purpose to be used. Traditional approaches to the measurement of euroisation are mainly based on foreign currency deposits. Reinhart, et al. (2003) describes the dollarized economy as one in which economic entities hold a part of a foreign currency portfolio, and / or the one in which the private and public sector borrow in foreign currency. Thus, financial euroisation implies the euroisation of deposits and / or loans. On the side of banking assets, the level of euroization is most often measured by the ratio of FX loans or FX indexed loans to total loans.

Financial euroisation is actually asset and liability euroisation, while the term real euroisation is used for the situation when the foreign currency is set for the local prices and wages (Winkler et al., 2004).

Fischer (1982) suggests that the country which adopts foreign currency benefits from the elimination of costs related to the exchange of domestic currency for the foreign one. Moreover, dollarization can lead to improvement in a country's economic integration with the economy whose currency is adopted (Dallas and Tavlas, 2001; Frankel and Rose, 1998). As a result of higher integration, the GDP levels and business cycles may converge with the issuing country (Dallas and Tavlas, 2001). Also, shocks between euroized and the foreign country become more symmetrical, business cycles become more synchronized, and the integration further improves (Winkler et al., 2004).

Barro and Gordon (1983) argue that the financial euroisation can benefit the country since it is fostering macroeconomic stability by solving the problem with credibility that arises when a domestic central bank is not able to pre-commit itself to a low rate of inflation. By adopting the monetary policy of the foreign country with a high degree of credibility, the level of inflation and interest rates in the domestic economy is expected to converge to the level in the foreign country (Winkler et al., 2004). If the convergence works, the output costs associated with disinflation in the low environment should be avoided (Országhová, 2015).

Ize and Levi Yeyati (2003) describe financial euroisation as the situation when assets and liabilities are held in foreign currency; while Calvo and Veigh (1992) discuss that the process of euroization begins with substitution function of money as a store of value, which is the most vulnerable function in the periods of inflation. Within the balance sheets of households, asset euroisation is referred as the situation when households hold deposits in foreign currency, whereas the liability euroisation represents their obtained loans in foreign currency (Calvo and Veigh, 1992).

When it comes to the banks' balance sheets, the asset euroisation refers to the situation when banks are lending in foreign currency, while raising deposits in foreign currency refers to liability euroisation (Calvo and Veigh, 1992).

Ivanov, et al. (2011) defines the deposit euroisation as the tendency of households, enterprises, and even governments, to hold deposits in foreign currency.

The Western Balkans region is an area characterized by a long history of political uncertainty, macroeconomic instability, and distrust in the quality of institutions (Bechmann & Scheiber, 2012). The region as whole has a long history of hyperinflation, which is one of the driving forces for euroisation (Bechmann & Scheiber, 2012). However, the countries of Western Balkanswere characterized by the abundant supply of foreign capital inflows, which made foreign currency lending easily accessible at low interest rates. The easy access to foreign currency lending caused the liability side of banks' balance sheets to become heavily dominated in foreign currency (Országhová, 2015). Also, the countries' economic and financial links with the countries in Eurozone as well as the overall EU integration process intensified the process of euroisation (Fabris et al., 2004). Luci et al., (2006) investigated the level of euroisation in Albania, by taking into account foreign deposits and foreign currency in circulation. They found very high level of euroisationin Albania (45%). Merollari and Mosko (2015) investigated the level of euroisation in Albania between 2007 and 2014 and suggested that the level of euroisation is relatively high, even though the official euroisation did not take place yet. The results of the study indicate that the ratio of the foreign currency deposits to the total is over 30% and therefore the tendency towards euroisation is high.

As it is argued by Galac (2012), euroisation in Croatia is a consequence of a set of historical events in both economic and financial spheres. Besides the events, it is influenced also by the monetary and prudential measures of the Croatian National Bank and by the attempts by banks to minimize their financing costs (Galac, 2012).

Madzova et al. (2014) discuss that the process of intense euroisation in Macedonia started in 2002 when the euro was adopted as the exchange rate anchor. However, they found the extensive use of euro in the banking system of Macedonia was followed by the process of de-euroisation, which implies the decrease in the level of liquid assets, deposits, and loans in foreign currency.

Euroisation in Serbia was investigated by Chailloux et al. (2010) who claim that the phenomenon is rooted in a history of instability in macroeconomic terms. Chailloux et al. (2010) also argue that after the process of intense euroisation, the process of de-euroisation has started, so that the borrowers have become more interested in the local currency borrowing.

METHODOLOGY

The paper examines the trend of currency substitution persistency seen through the case of the selected Western Balkan countries. It analyzes qualitatively pre-determinants of the latest financial crisis and statistically describes selected countries' indicators sourced from the World Bank data, National Central banks annual reports and IMF database.

The study has divided the years into three different sub periods: 2000-2007 (pre-recession period), 2008-2009 (recession period) and 2010-2015 (post-recession). Data for all variables used in the study are sourced an annual basis. The rationale behind this division is to compare the countries' trend of currency substitutions before, during and after the crisis and to explore whether the trend of currency substitution is influenced by the global financial crises.

The analysis involved the manipulation of data with an aim of getting the results which would answer the research question. Due to data consistency problems, a relatively short time series of annual data was employed in order to measure changes in the level of currency substitution. In much of the existing professional literature, we encounter various variables for measuring the degree of dollarization / euroization.

In order to examine how the latest financial crisis influences on the changes in the degree of currency substitutions of the Western Balkan countries, a set of certain variables need to be determined and tested. By examining of previous researches on measuring euroisation it is possible to note that some authors employed a whole range of variables to measure the level of euroisation of a particular national economy (Ize and Levi Yeyati, 2003; Calvo and Veigh, 1992; Ivanov, et al. 2011).

Accordingly, some variables as deposits, loans and liabilities, between 2000 and 2015, are employed to estimate the extent of currency substitution in the selected transition countries hit by latest financial crises. Credit euroization is measured as the ratio of foreign currency denominated loans to total loans; liability euroization is measured as the ratio of foreign currency denominated liabilities to total liabilities; and deposit euroization is measured as ratio of foreign currency denominated deposits to total deposits. Furthermore, euroization index (Roeinhart, et al., 2003 and IMF) as the ratio of foreign currency bank deposits to M3 (broad money) is used to measure the level of asset substitution and represents proxy variable for euroization. For the sake of our analysis , the study employs a descriptive statistical analysis (mean) to assess certainty level of currency substitutions across the Western Balkan region while for the purposes of estimating the significance of the difference in means between numerical variables, a parameter t-Test: Two-Sample with unequal variances is used.

The first indicator used in many studies is deposit dollarization (Ize and Levy Yeyati, 2003). Another important point that we can speak about is liability euroization. Also as a measure of euroisation is increasingly used by indicator of liability euroization(Barajas and Morales, 2003). This indicator is calculated as the ratio of foreign currency denominated liabilities as percentage of total liabilities. The inclusion of this indicator is based on recent experiences from the recent financial crisis as the private and public sector liabilities in developing countries were largely denominated in foreign currency.

Based on an overview of research problem, and the aims of the study, this paper set out the main hypotheses as follows.

H1: There is no significant difference in means of before, in wake and after the financial crises for our variables

H0: There is significant difference in means of before, in wake and after the financial crises for our variables.

CROSS-COUNTRY COMPARISON ANALYSIS

Financial Sector development

The degree of financial intermediation, as measured by the ratio of banking sector assets' to GDP, is one of the most representative indicators of the maturity of the banking sector. As shown in Figure 1, the Western Balkan region is characterized by a relatively high degree of heterogeneity. Between 2000 and 2015, the average percentage of bank assets to GDP ranges between 55.69% (Romania) and 111.6% (Croatia).

With the exception of Croatia (121.6% of GDP) and Bulgaria (106.2% of GDP) where the size of the banking system in relation to GDP is predominantly above 100% of GDP, the level of financial intermediation in other Western Balkan countries is predominantly below 90%. If we neglect the banking sector of Romania, in other analyzed EU member states (i.e. Bulgaria, and Croatia), the banking sector made the progress in its development showing greater saturation in comparison to the other countries in the region. Analyzed as a percentage of GDP, it was found that Croatia has the most developed banking sector (121.6% of GDP) measured by total assets of banks while the least development was observed in Romania (75% of GDP).

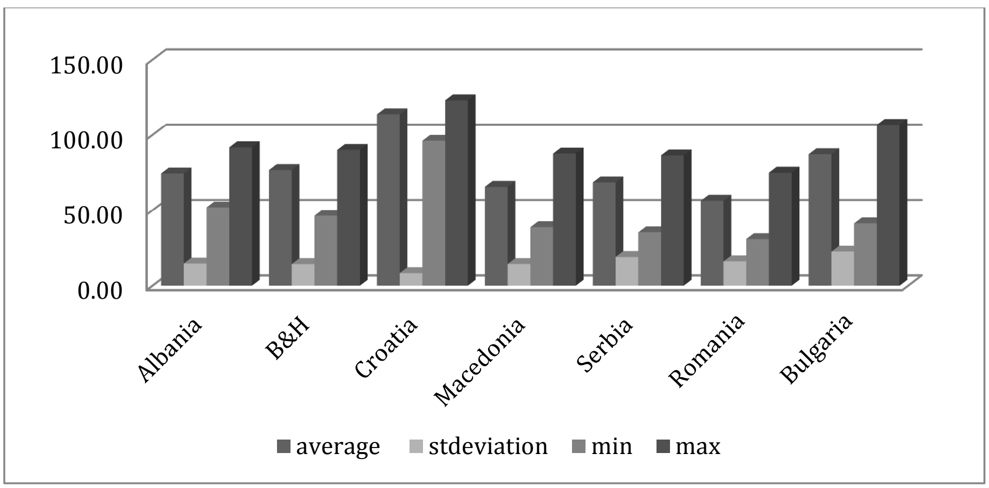

Figure 1. Total assets of banks as % of GDP (2000-2015)

Source: The authors' elaborations on Global Financial Development Database (GFDD), National CBs

Furthermore, the ratio of private sector credit to GDP provided by the banking sector to measure of financial development reveal significant differences between the Western Balkan countries (figure 2). In our case it varies widely across the countries.

In the three new EU member states the ratio has grown slowly in the range between 45.00% (Romania), 73.25% (Croatia) and 75.50% (Bulgaria). Bulgaria's standard deviation is high showing us that the country has experienced significant fluctuations in evolution of its banking sector.

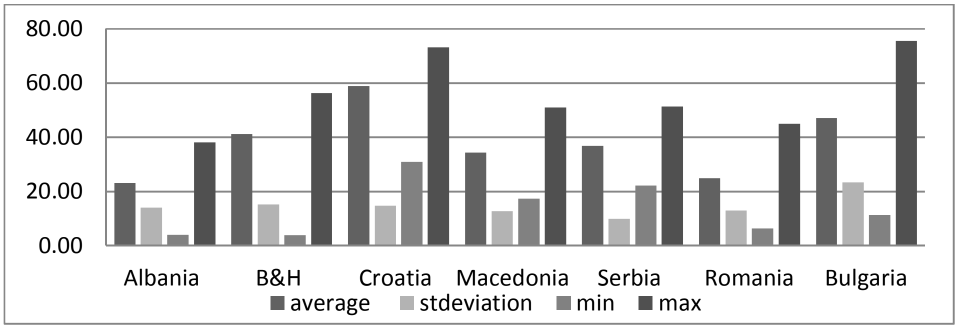

Figure 2. Bank private credit to GDP (%), 2000-2015

Source: The authors' elaborations on Global Financial Development Database (GFDD), National CBs

Among the other countries of the Western Balkan region out of EU the highest ratio was found in B&H (56.37%) and it doubled several times between 2000 and 2015. The highest value in relative terms for this ratio was found in Bulgaria, (75.50%), while the lowest one was recorded in Albania (38.26%) and Romania (45%).

Moreover, the highest share of deposits in GDP (Figure 3) was recorded in Albania (71.7%) and Slovenia (69%), with the lowest in Romania (34.4%) and Serbia (47.15 %). The reason for lower ratio in Romania and Serbia may be found in excessive of hyperinflation in the middle of 1990s.

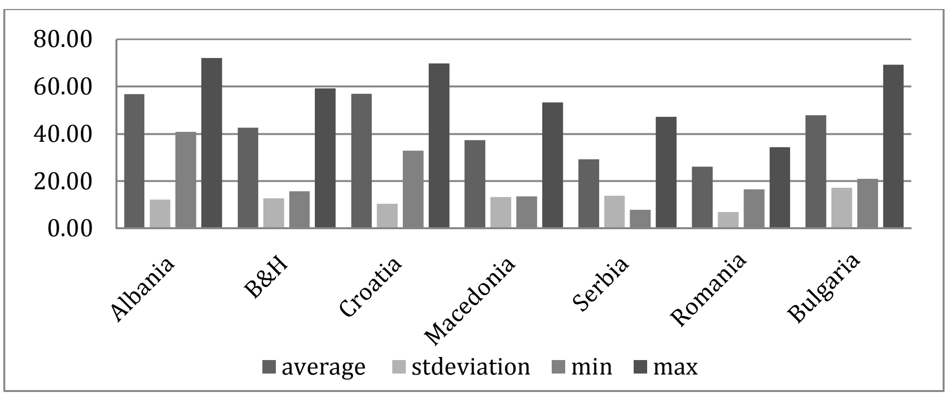

Figure 3. Bank Deposits to GDP (%) for Selected Western Balkan Countries (2000-2015)

Source: The authors' elaborations on Global Financial Development Database (GFDD), National CBs

Our cross-country comparisons of average total deposits to GDP ratio indicates that Serbia (47.15%) and Romania (34.4%) with their ratio are lagging significantly behind other analyzed countries.

The demand for loans has been steadily increasing over the period 2000-2015. The positive trends in terms of economic growth, privatization revenues, as well as restored confidence in the banking system have created a basis for the creation of deposits potential.

(De) Euroization in Western Balkan countries

During the period of transition only few Western Balkan countries established financial system similar to the ones in advanced transition countries. The level of euroization significant varies among countries in the region. Cross-country comparisons of euroization deposits as measured by FX deposits to Total deposits show some differences in terms of euroization deposits across region in the years before the crisis, in the wake of crisis and after the crisis (Figure 4).

As it can be seen from Figure 4, the growth of euroization deposits is generally found in Albania and Serbia as a notable exception. More specifically, in pre-crisis period, FX deposits amounted to the 63.21% of the total deposits, which increased to 72.25% in the wake of crisis, and 75% in post-crisis period. As presents, Croatia is among the countries with the highest extent of euroization deposits.

In the pre-crisis period the ratio amounted to 68.23%, while the period of de-euroisation was experienced during the crisis as result deposit withdrawals. After the crisis, however, there was high degree of euroisation deposits when compared to the one in the pre-crisis period. On the other side, Macedonia recorded fall of the deposit euroisation and the ratio had declined significantly compared to pre crises period. In the meantime, when pre crisis and crisis periods are compared, it can be seen that there was a slight decline in deposit euroisation during the crisis.

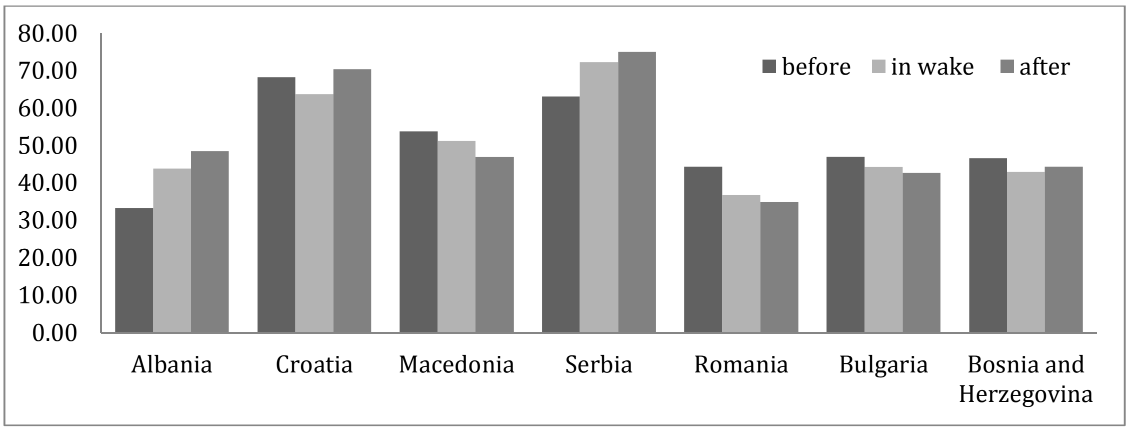

Figure 4. Deposit euroization, between 2000 and 2015

Source: IMF Country Reports, different issues

After the crisis, a trend of further deposit euroisation was found in Albania, Croatia Serbia and Bosnia and Herzegovina. The data for Macedonia, Romania and Bulgaria shows the decline in deposit euroisation. In case of Romania, the crisis period was marked by the 7.54% decline in deposit euroisation, while in the post-crisis period there was only 1.92% decline. In Bulgaria, the data indicates that the trend in de-euroisation deposit before, during, and after the crisis was similar. However, in the case of Bosnia and Herzegovina, the crisis period was marked by deposit de-euroisation, while in the post crisis-period the ratio of foreign-currency denominated deposits in total deposits increased to 44.47%, which is lower than 46.65% as experienced in pre-crises period.

When the comparison is made across countries, it can be said that the tendency towards holding euroization deposits in Albania and Serbia increased during the financial crisis while in the case of Romania, Bulgaria, Serbia, Croatia, Bosnia and Herzegovina, and Macedonia recorded de-euroisation of deposits in the wake of crises. Moreover, in the post-crisis period, the data on Albania, Croatia, and Serbia shows the trend of growth euroisation deposit. However, the data on Macedonia, Romania, and Bulgaria show that deposit de-euroisation occurred in the years following the financial crisis.

Further, considering Western Balkan countries the differences in the extent of credit euroization in Serbia, Albania, Croatia, Macedonia, Romania, Bulgaria, and Bosnia and Herzegovina, in pre-crisis, in the wake of crises, and post-crisis period are given in Figure 5. As it can be seen from Figure 5, the post-crisis period was affected by decline of credit euroization in Albania and Macedonia.

On the other side, in the post-crisis period the credit euroisation has slightly risen in Romania and Bulgaria. However, Croatia and Bosnia and Herzegovina experienced the opposite trends. Additionally, in Croatia the ratio decreased (68.85%) in the wake of crisis, and increase in post-crisis period (73.86%). Interestingly, in case of Bosnia and Herzegovina there was recorded rise of credit euroization in the wake of crisis (73.6%) and decline in post crises period (64.61%). However, the trend of credit de-euroisation occurred in post-crisis years, with the number of FX loans being lower than the one in pre-crisis years. The similar trend was occurred in Macedonia. Specifically, credit euroization increased by 1.45% in the wake of crisis and a decline of 7.13% in post-crisis period.

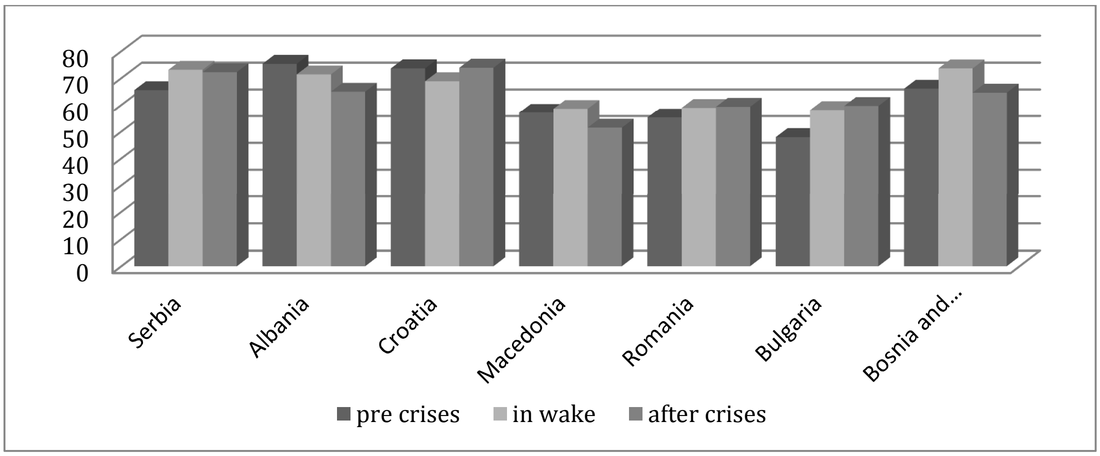

Figure 5. Credit euroization, between 2000 and 2015

Source: IMF Country Reports, different issues

Figure 6 shows some interesting differences in the percentage of liabilities euroization in selected countries in pre-crisis, crisis, and post-crisis period. Serbia (77.5%) and Croatia (77.5%) are considered countries with very high euroization ratios across the years, while the data on Albania (41.4%) and Romania (43.25%) shows the lowest values when compared to the other countries.

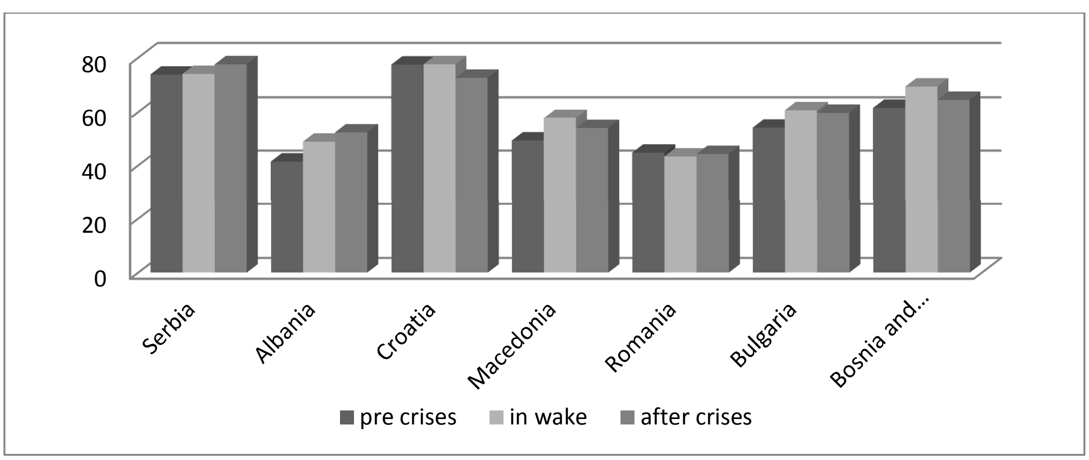

Figure 6. Liabilities euroizations, between 2000 and 2015

Source: IMF Country Reports, different issues

The overall euroisation trend in Serbia was high, with a sharper increase in post-crisis years in comparison with the pre-crisis period.

The rise of euroisation liabilities was also experienced in the economy of Albania, reaching 41.4% in pre-crisis period, 48.7% in the wake of crisis, and 52.13% in post crises period. In case of Croatia, the increase in liabilities' euroisation was recorded during the financial crisis (77.55%), to slightly decline in post-crisis period to the value lower than the one in pre-crisis years (72.58%). Macedonia, Bosnia and Herzegovina, and Bulgaria experienced the same trend in liabilities' euroisation. Thus, there was an increase in liabilities' euroisation during the crises, with de-euroisation trend in post-crisis period. However, the number of foreign currency denominated liabilities remained higher than the one in pre-crisis period.

In the case of Romania there was a different trend when compared to other countries considered in the study. As Figure 6 reveals, there was liabilities' de-euroisation in Romania in the wake of financial crisis (43.25%). After the crisis, the euroisation trend occurred again, but the value remained lower than the one before the crisis (44.13%).

Finally, we included an indicator euroization index (EI) used by Roeinhart, Rogoff and Savastano, 2003 and IMF in our study to measure overall level of euroization or asset substitution. Figure 7 presents average EI across countries between 2000 and 2015. Most countries of Western Balkans are high-euroization countries with notable exception of Romania.

A closer look at the data reveals that all countries of the Western Balkan (with exception of Romania, Macedonia and Bosnia and Herzegovina) increased its euroization ratio from pre crises to post crises period.

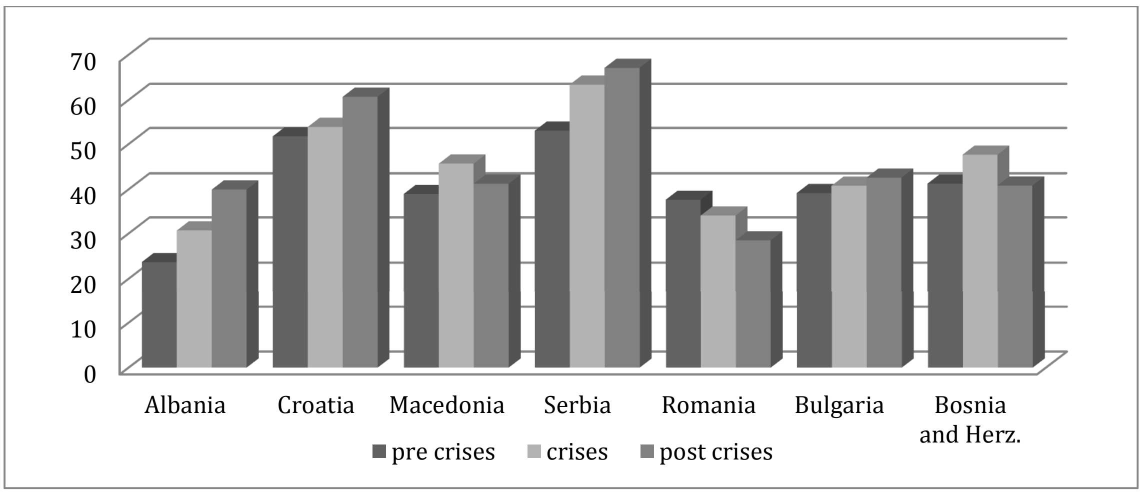

Figure 7. Euroization index (EI), between 2000 and 2015

Source: IMF Country Reports, different issues

Although the phases of the euroization are similar by countries there are some striking differences among them. First, while the euroization ratio is increasing continuously as of pre crises period until post crises period (in Albania, Croatia, Serbia and Bulgaria), the decline of the extent of euroization (in Romania, Macedonia and Bosnia and Herzegovina) starts in post crises period. Second, the euroization ratio has recovered significantly better in Albania (9.29%) and Croatia (6.9%) from the crisis than in Serbia (3.72%) and Bulgaria (1.72%). Third, while the trend of euroization slowed during the global crisis, its level is still high in some countries as follows: Croatia (60.67%), Serbia (67.08%), Bulgaria (42.57%) and Macedonia (41.19%).

Student's t-test is employed to explore the variations in the level of de euroization the countries of the Western Balkan region over the three sub periods. It examines statistically different from one to another sub periods (before of the financial crisis, in wake of the financial crisis, and after the financial crisis).The means for the three sub periods are the same for selected variables is tested as the main hypothesis.

The following hypothesis is tested:

H0: μ1 =μ2= μ3

Where μ1 is the mean for pre-crisis period (2000-2007), μ2 is the mean for post-crisis period (2008-2009) and μ3 is the mean for (2010-2015). It compares the average Deposit euroization, credit euroization, liability euroization and euroization index calculated for pre-crisis period with the average the ratios calculated for crises and post crises period. A hypothesis test examines critical values associated the mean with test statistics. Our basic assumption: if p-value is less than or equal to the significance level (P≤ α = 95% confidence interval for the mean of a group), the null hypothesis is rejected. And vice versa if P-value ≥ α, the null hypothesis is not rejected.

Table 1 below provides a summary of a Student's t- test results for the three sub periods under review.

Table 1. Student's t- Test Results

	Pre-crisis (2000-2007)	**Crisis (2008-2009)**	**p-value***	**Crisis (2008-2009)**	**Post Crisis (2010-2015)**	**p-value***	**Pre-crisis (2000-2007)**	**Post crises (2010-2015)**	**p-value**
Deposit euroization	50.86%	51.07%	0.95	51.07%	51.86%	0.84	50.86%	51.86%	0.71
Credit euroization	62.98%	66.08%	0.22	66.08%	63.73%	0.31	62.98%	63.73%	0.71
Liability euroization	57.39%	61.60%	0.27	61.60%	60.59%	0.79	57.39%	60.59%	0.20
Euroization index	41.51%	45.10%	0.30	45.1%	45.8%	0.84	45.51	45.8%	0.09

*α =95%,p=0.05

Source: Author`s elaborations on data from IMF Country Reports, different issues

Analysis of the results by Student's t-test for dependent samples has shown that there is no significant difference in means of before, in wake and after the financial crises for our variables. Analyzing the average values for our variables, before, during the crisis and after the crisis, a statistically significant difference is not found (p> 0.05) and mean values has remained almost unchanged over time. Accordingly, our main hypothesis is accepted.

CONCLUSION

The study aimed at investigating the changes in the extent of deposit, credit, liability and asset substitution before, in the wake of crises, and after the latest financial crisis in seven Western Balkan countries. Findings our study indicates that overall the deposit euroization in the post-crisis period are higher than their pre-crisis levels in three countries (Albania, Croatia and Serbia). While this decrease is more pronounced from the crisis to post-crisis period for Macedonia and Romania, the deposit euroization for Bosnia and Herzegovina has increased from crisis to post crises period. The trend with deposit euroisation was quite different in Croatia, where the increase in FX deposits occurred in the wake of the crisis, which was preceded by the sharp decrease in crises period.

Also, overall credit euroization has increased in the post-crisis period in Croatia, Romania and Bulgaria over crisis period levels. The study found that the credit euroisation of Bosnia and Herzegovina was affected by the financial crisis in the way that the number of FX denominated credits increased in the wake of crisis, while after the crisis there was a trend of decline of credits held in foreign currency. In Macedonia, the crisis influenced on the fall of credits held in foreign currency in post crises period in comparison to crises period.

When the liability euroisation is taken into consideration, Macedonia and Croatia had the situation of the sharp decrease of the FX liabilities in post-crisis period, while in Albania the euroisation of liabilities sharply increased during and after the crises.

The level of overall euroisation measured by euroization index in all four countries was high over the years and it is still sizeable in some of selected countries with exception of Romania, Macedonia and Bosnia and Herzegovina.

Furthermore, Student t-test results indicate that there is no significant difference in means of before, in wake and after the financial crises at level of Western Balkan region. In overall, this study does not find any significant evidence on significantly increases or decreases in currency substitution for the region sub-samples.

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