The Financial Crisis in Greece and Its Impacts on Western Balkan Countries

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Abstract The issue of financial crisis still remains a matter of concern for Western Balkan countries and Europe as a whole. In moments when the economies of these countries recover from recessions of global financial crisis, a new crisis threatens the region. Indeed, a considerable part of the financial sector of the Western Balkan countries is from the Greek capital, and the economic interdependency among them is relatively great. Therefore, the purpose of this paper is to investigate the probability of a spillover effect of the current Greek crisis to the countries of the Western Balkans. To test for this possibility, the authors make use of a binary logit model after outlining macroeconomic data for the sample countries. The authors conclude by discussing remedies on the impact of the contagion effect on the part of policy makers. The paper provides an interesting approach to a contemporary issue, having attracted little attention in terms of the spillover effect on neighboring countries. How the issue of debt crisis is handled by respective authorities and the European Union and which strategies are followed for crisis alleviation are discussed as well.

Keywords Greek financial crisis • Western Balkan countries • Binary logit

JEL Clasification Codes C10 • E60 • C50

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1 Introduction

After a period of continuous economic growth, the financial turmoil that erupted in the developed economies affected the economies of the least developed countries, not excluding even the Western Balkans.[1] In 2009 all Western Balkan countries fall into recession, except Albania and Kosovo that still had positive economic growth (see Fig. 1). When the economies of these countries started to recover from the global financial crisis, a 'new' crisis threatened the region, despite the fact that the reasons and circumstances were different. The debt crisis which started in Greece in 2010 will have a little time lag on the Western Balkan countries, thus these countries are susceptible to the effects of the financial turbulence of Greece and the euro zone. This is mainly due to higher trade and financial integration between them, namely the share of foreign owned banks, particularly Greek, in the total assets of the region's banking system. As a consequence, the probability is high that the economic development of the entire region will slow down in the upcoming period.

The forecasts of the world economic growth for 2012 are optimistic at about 3.5 %,[2] but still the euro zone is in risk of facing debt crisis. A potential risk stems from the fact that except Greece other countries of the euro zone are in danger of default of debt as well, since warning lights are blinking again in Italy and Spain, two countries that are considered to be most susceptible to a second round of debt problems.[3] This may cause additional economic problems to the Western Balkan countries, notably to Albania, which has a relatively high economic interdependency with Italy, as the remittances by emigrants in Italy provide a source of livelihood for a great number of population.

The impact of the Greek crisis and euro zone as a whole is likely to vary significantly among Western Balkan countries, depending on the national economic situation and on their sectors' structure. These challenges that emerge as consequence of the debt crisis imply the need for rapid response, innovatively and resolutely through macroeconomic policies. Therefore, this paper investigates the probability of a spillover effect of the current Greek crisis to the countries of the Western Balkans. To test for this possibility the authors make use of a binary logit model after outlining macroeconomic data for the sample countries. The authors conclude by discussing remedies on the impact of the contagion effect on the part of policy makers. The paper provides an interesting approach to a contemporary issue, having attracted little attention in terms of the spillover effect on neighboring countries.

The paper is structured in six sections. The first section illustrates some introductory points that characterize the Western Balkan economies. The second section

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[1] The following countries are included in Western Balkan: Albania, Bosnia and Herzegovina, Croatia, Kosovo, FYROM, Montenegro and Serbia.

[2] IMF World Economic Outlook (WEO) (2012) forecast of global economic growth for year 2012.

[3] The New York Times, April 8 2012. http://topics.nytimes.com/top/reference/timestopics/subjects.

explores the economic development of the Western Balkan countries before and during the crisis by giving and analyzing statistics on main macroeconomic indicators, such as GDP growth, unemployment rate, current account balance and budget deficit. The third section discusses in short the strategies that are followed by respective authorities, namely the European Union and the International Monetary Fund (IMF), for the alleviation of the crisis. In the fourth section, we briefly explain the methodology and data that are used for the empirical results. The fifth section explores the empirical findings of the logit model and the limitations of the study while in the last section the conclusions of the study are given.

2 Economic and Financial Development in the Western Balkan Countries

The Western Balkan countries performed a strong economic growth over the past few years. The growth rate reached 6.5 % in 2007,[4] but in the last quarter of 2008 the global financial crisis affected the respective economies. As regards the Albanian economy, the crisis was transmitted through several channels causing a strong deceleration of the economic growth from 8 % to 3.3 % in 2009, despite the fact that Albania is one of the few countries in Europe that continued with a still positive GDP growth in the period of the crisis. The Republic of Kosovo also was accompanied with a positive real GDP growth during the period of crisis, but there was a decline by 4 % in 2009 compared to the previous year. The other countries were sharply affected by the global crisis, notably Croatia, Montenegro and Serbia. As regards Bosnia & Herzegovina and FYROM the effects of the crisis on real GDP growth were moderate.

The debt crisis of the euro zone, particularly linked to the Greek crisis, gradually started to give the first signal in the third and fourth quarter of 2011, and as Fig. 1 indicates, the real GDP growth started to slow down, almost in the entire region. A general growth slowdown throughout 2011 is visible for countries with available quarterly statistics. Based on sector composition and economic and financial interdependencies, there is a general perception that in 2012 there will be worse effects. Growth forecasts have been revised almost in all Balkan countries. Countries whose growth is dependent on exports will suffer more (Bartlet and Prica 2011) as in 2009 when the global financial crisis affected the economies of these countries.

While the real GDP shows slight signs of the euro zone crisis, the financial sector, capital flows and lending indicators show worrying proportions (EBRD 2011). The real credit has been weak, particularly in Croatia and FYROM.

The financial system in the Western Balkan countries is dominated by the banking sector, and it has the most important role in stabilizing the financial system

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[4] The data are provided by EBRD. The average is calculated as a simple average.

Real GDP Growth in Western Balkan Countries

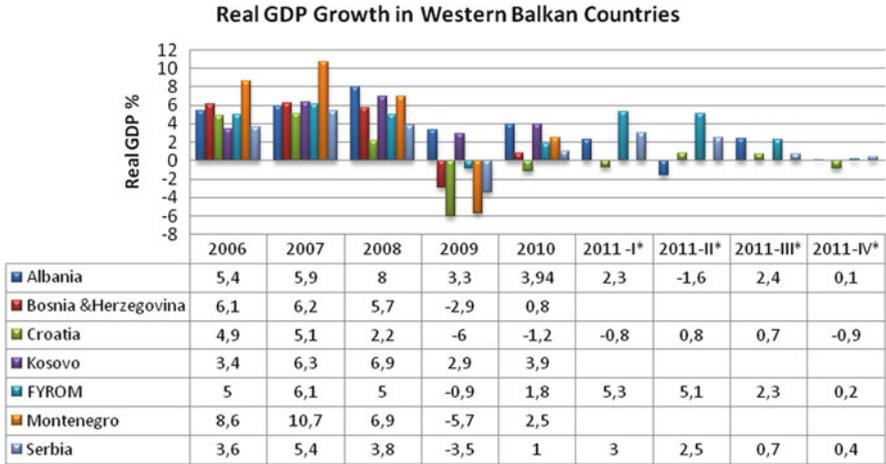|	2006	2007	2008	2009	2010	2011 -I*	2011-II*	2011-III*	2011-IV*
Albania	5,4	5,9	8	3,3	3,94	2,3	-1,6	2,4	0,1
Bosnia &Herzegovina	6,1	6,2	5,7	-2,9	0,8				
Croatia	4,9	5,1	2,2	-6	-1,2	-0,8	0,8	0,7	-0,9
Kosovo	3,4	6,3	6,9	2,9	3,9				
FYROM	5	6,1	5	-0,9	1,8	5,3	5,1	2,3	0,2
Montenegro	8,6	10,7	6,9	-5,7	2,5				
Serbia	3,6	5,4	3,8	-3,5	1	3	2,5	0,7	0,4

Fig. 1 The real GDP growth in the Western Balkan countries (Source: Countries' Statistical Agencies)

as a whole. Unlike the global financial crisis where the real sector was mostly affected and the financial system remained stable, now the roles are opposite due to the high level of exposure of these countries to the Greek financial system. The banking sector of the Western Balkan countries is highly integrated with the euro zone banks, therefore, it is expected that these countries will be affected by the Greek and euro zone debt crisis. The asset share of foreign banks in 2008 in Albania, Bosnia and Herzegovina, Croatia and FYROM reached more than 90 % (see Table 1).

Backe and Gardo (2012) claim that an increase in foreign investors' risk aversion towards the region would lead to higher risk premiums, which would raise financing costs or might even limit access to funding. This would result in a slowdown or sudden stop of capital inflows, which would particularly hit nonfinancial corporations and banks in countries with strong reliance on foreign funding. Thus, the repercussions of the current debt crisis will be felt in the long term.

The unemployment figures indicate that the Western Balkans had serious unemployment levels even before the crisis. All countries have higher unemployment rates than the EU average of 8.9 %. But while most of the countries have high yet still manageable problems, in FYROM, BiH and Kosovo more than a third, quarter and nearly half of the working force, respectively, is officially unemployed. As regards the effects of crisis, there are differences between countries in the region. One can say that Albania and FYROM did not seem to experience severe consequences, especially FYROM marked positive effects during the period 2008–2010 (see Fig. 2 below). Bosnia and Herzegovina and Montenegro experienced negative effects in 2009 and 2010 by increasing the unemployment rate by average 1.5 %. The labour market was mostly affected in Croatia and Serbia.

Table 1 Foreign banks (% ownership)

Albania	Bosnia and Herzegovina	Croatia	FYROM	Montenegro	Serbia
94	90	91	92	92	75

Source: Western Balkan countries' national banks

Unemployment Rate in Western Balkan Countries

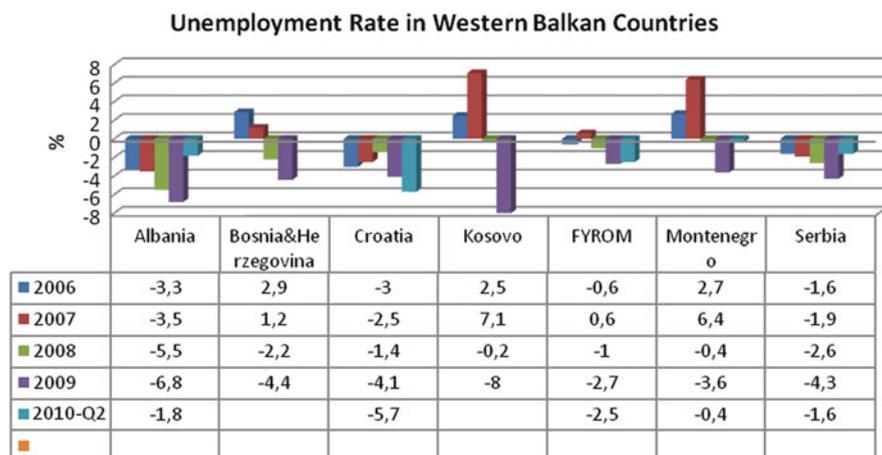|	Albania	Bosnia&Herzegovina	Croatia	Kosovo	FYROM	Montenegro	Serbia
2006	-3,3	2,9	-3	2,5	-0,6	2,7	-1,6
2007	-3,5	1,2	-2,5	7,1	0,6	6,4	-1,9
2008	-5,5	-2,2	-1,4	-0,2	-1	-0,4	-2,6
2009	-6,8	-4,4	-4,1	-8	-2,7	-3,6	-4,3
2010-Q2	-1,8		-5,7		-2,5	-0,4	-1,6

Fig. 2 Unemployment rate in Western Balkan countries (Source: EU Candidate and Pre-accession Countries Economies Quarterly-CCEQ 2011)

According to the estimated data, the unemployment rate of Croatia weakened in 2010 and in the first quarter of 2011. In the figure below it is noticeable that in Serbia the unemployment rate deteriorated further in 2010. As far as Kosovo is concerned, the unemployment rate is the highest in the region, but it was very high even before the crisis.

The current account deficit varies between countries (see Fig. 3). It was extended in some countries, in the first quarter of 2011; for instance in FYROM and Bosnia & Herzegovina it was extended by an average of 1.35 %, whereas in the other countries of the region there were not any substantial differences compared to the previous year (2010).

The deterioration of the budget deficit in 2009 reflects the effects of global financial crisis on the Western Balkan economies. For instance, it reached −6.8 % in Albania; −8.0 % in Kosovo; −4.3 % in Serbia and −4.1 % in Croatia. Data shows (see Fig. 4) that in the second quarter of 2010 the budget deficit deepened in Croatia. It is noticeable that except Albania, all other countries had met the direction of Maastricht criteria in the previous year.

In Table 2 data about the linkages of the Western Balkan countries with Greek economy are summarized. Exports are considered as a transmission channel, so the data shows that Greece is a major export market for FYROM and Montenegro and to a somewhat lesser extent for Albania.
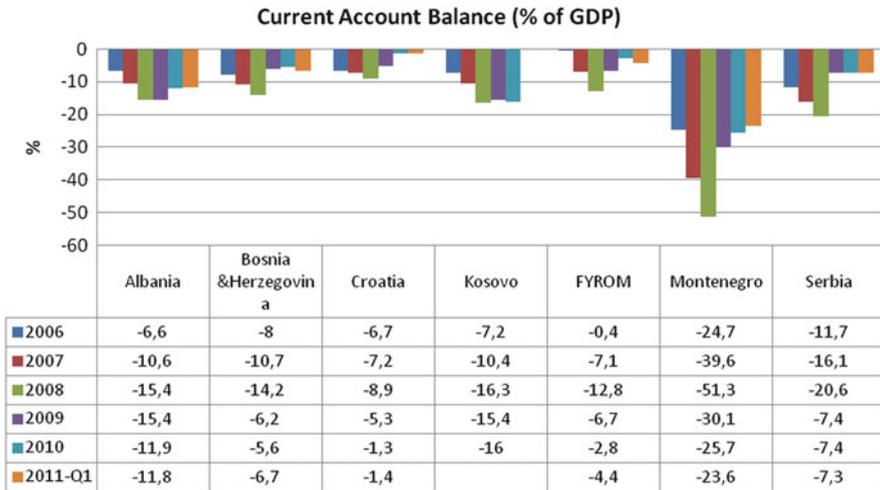
Current Account Balance (% of GDP)

	Albania	Bosnia &Herzegovina	Croatia	Kosovo	FYROM	Montenegro	Serbia
■2006	-6,6	-8	-6,7	-7,2	-0,4	-24,7	-11,7
■2007	-10,6	-10,7	-7,2	-10,4	-7,1	-39,6	-16,1
■2008	-15,4	-14,2	-8,9	-16,3	-12,8	-51,3	-20,6
■2009	-15,4	-6,2	-5,3	-15,4	-6,7	-30,1	-7,4
■2010	-11,9	-5,6	-1,3	-16	-2,8	-25,7	-7,4
■2011-Q1	-11,8	-6,7	-1,4		-4,4	-23,6	-7,3

Fig. 3 Current account of Western Balkan countries (Source: EU Candidate and Pre-accession Countries Economies Quarterly-CCEQ 2011)

Budget Deficit (% of GDP)

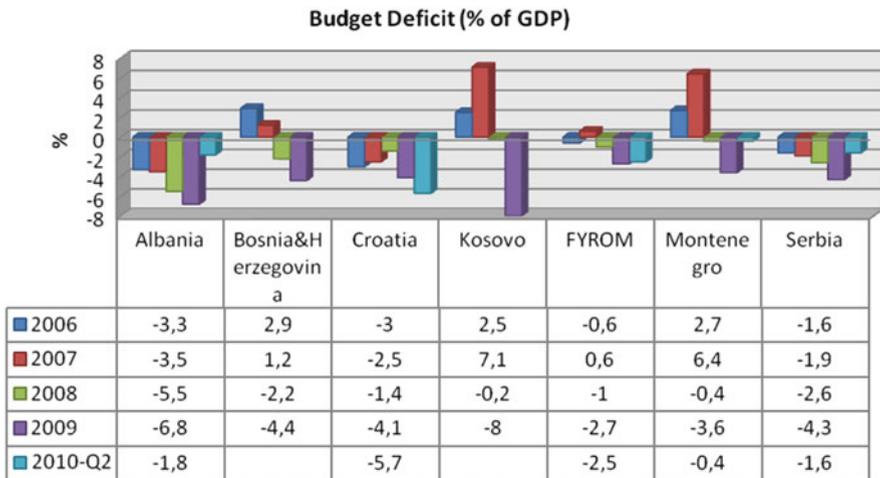|	Albania	Bosnia&Herzegovina	Croatia	Kosovo	FYROM	Montenegro	Serbia
■2006	-3,3	2,9	-3	2,5	-0,6	2,7	-1,6
■2007	-3,5	1,2	-2,5	7,1	0,6	6,4	-1,9
■2008	-5,5	-2,2	-1,4	-0,2	-1	-0,4	-2,6
■2009	-6,8	-4,4	-4,1	-8	-2,7	-3,6	-4,3
■2010-Q2	-1,8		-5,7		-2,5	-0,4	-1,6

Fig. 4 Budget deficit for Western Balkan Countries (Source: EU Candidate and Pre-accession Countries Economies Quarterly-CCEQ 2011)

Given the relatively low export bases of most western Balkan economies, the share of exports to Greece relative to GDP is fairly small in almost all countries in the region. Thus, a possible further decline in exports to Greece would in itself not be expected to distress the respective economies.

Table 2 Exports of Balkan countries with Greece, 2008

Countries	Exports to Greece, % of total goods exports	Total goods exports (% of GDP)	Exports to Greece (% of GDP)
Albania	11.6	8.9	1
Bosnia and Herzegovina	0.4	19.4	0.1
Croatia	0.3	20.4	0.1
FYROM	12.4	42.1	5.2
Montenegro	12.3	15.9	2
Serbia	2.2	18.5	0.4

Source: National statistics, IMF, Economist Intelligence Unit

3 Debt Crisis in Greece and Strategies for Crisis Alleviation

The economic policies that governments of Greece implemented in the last 30 years, have contributed to the current debt crisis. These policies have led to the almost complete des-industrialization of the economy and abandonment of the agricultural production (Papantoniou 2011). The agriculture production corresponds only to 3.3 % of GDP, while services to 78.8 % and industry to 17.9 % of GDP.

In the period of 2001–2008 Greece recorded budget deficits averaged 5 % per year, in comparison to the euro zone average budget deficit of 2 % and in 2009 the budget deficit was −15.6 %. Also its current account deficit averaged 9 % per year, compared to euro zone average of 1 %. These deficits were funded by borrowing from international capital markets, leaving the country with chronically high external debt: 129 % of GDP in 2009. When the crisis posed a direct threat to the stability of the European monetary union, Brussels intervened, asking the country to adopt a programme of economic shock therapy. After the pressures of the European Union authorities and suggestions of relevant world institutions, such as the IMF and the World Bank, the government announced tax increases and a 30 % cut to the 2 month bonuses for the public workers. Besides this, the Greek government announced a series of other measures and also agreed with the euro zone countries and the IMF to a 3 year loan package of €110 billion at an interest rate of 5.5 %. It was hoped that Greece's first adjustment plan together with this sum of funds would establish Greek access to private capital markets by the end of 2012, but these perceptions failed when it was found that this process may take much longer.

Due to the limited economic effects of these measures, the Government of Greece in collaboration with relevant European and world institutions brought five austerity packages of anti crisis measures.[5] The Greek government adopted a

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[5] Such aspects and comprehensive details on anti-crisis packages are outside the domain of this study.

fiscal consolidation programme in order to reduce the public debt and provide the framework to improve stability and growth to the economy. In addition to this the government introduced a strategy of fight against corruption and tax evasion,[6] but based on the opinions of scholars and economic experts, it is very doubtful that the problems will be overcome in the short term.

4   Methodology and Data

The idea behind the model presented in this paper consists from the approaches followed in other crisis models. The economic literature offers a large body of theoretical and empirical studies that attempt to predict crisis, see e.g., Berg et al. (1999), Kaminsky et al. (1998), Kaminsky (2006).

   Davis and Karim (2008), in a study on the ability of different early warning systems to correctly predict crises, conclude that the *econometric method* is suitable for building a global model based on data for a large number of countries, while developing a specific model for a specific country. Thus, this paper attempts to predict the probability of an eventual contagion of the crisis in the upcoming period on the economies of countries in the region following the models of early warning systems for crises,[7] i.e. the probability model over the "signals" with some modifications. We estimate a logit model by using a set of determinants of crisis in order to determine the probability of a future crisis on different indicators.

   The dependent variable of the model Y has the following values:

$$Y_{it} = \begin{cases} 1, & \textit{if incountry i at time t, there was a systemic crisis} \\ 0, & \textit{otherwise}. \end{cases}$$

The model used to estimate the probability of a crisis has the following form:

$$Prob\,(Y_{it} = 1) = F(\beta X_{it}) = \frac{e^{\beta X_{it}}}{1 + e^{\beta X_{it}}} = \frac{1}{1 + e^{-\beta X_{it}}}$$

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[6] According to estimations of Schneider et al. (2010) the average size of shadow economy of Greece in the period 1999–2007 is 29.9 %. See for details in: Schneider et al. (2010), p. 28.

[7] There are three generations of early warning models for crises.The first generation developed by Krugman (1979) was focused on macroeconomic indicators and the evolution of international reserves, the budget deficit, current account deficit and credit developments as potential indicators of a crisis. The second generation of models, which could be considered that of Obstfeld (1996), added elements of economic expectations in predicting crises, and the third generation, which was developed in the last two decades, include indicators of financial sector as potential determinants of a crisis.

Where: $Prob\,(Y_{it} = 1)$ represents the probability of a systemic crisis; Y_{it} is the binary dependent variable for country i at time t; β is the vector of parameters estimated in the model by maximum likelihood estimation method; X_{it} is the vector of explanatory variables that includes the following variables:

- Real GDP growth (as a real sector variable)
- Ratio of domestic bank loans (as financial sector variable)
- Current account deficit (as external sector variable)
- Inflation (is used to measure macroeconomic stability)
- Budget deficits (as a fiscal variable)

Other variables considered are eliminated from the model since it was found that they are statistically insignificant for this set of data. The timing of the crisis is considered to be year 2009 when almost all countries fall into recession due to global financial crisis.

The data used in the empirical research consists of a balanced panel of annual observations for the period 2000–2011 for six Western Balkans economies (Albania, Bosnia and Herzegovina, Croatia, FYROM, Montenegro and Serbia) that are taken from three main sources from the World Bank database (WDI), EBRD online data and the countries' national banks.[8]

5 Empirical Findings

In the following table are summarized the empirical results of the logit model (Table 3):

The estimation results reveal that all coefficients are statistically significant. The variables *Loans* and *Budget* deficits are highly significant at the level of significance of 1 % and the other variables are statistically significant at the level of significance of 10 %.

The LR statistic which tests the joint null hypothesis that all slope coefficients except the constant are zero is rejected at level of significance of 0 %, and the pseudo R^2 indicates relatively good goodness-of-fit of the model. The probability of a financial crisis incidence in the Western Balkan countries increases when the real GDP is decreasing and the budget surplus to GDP is decreasing, the inflation rate is increasing, the current account deficit is worsening and the share of loans in GDP is growing.

If the real GDP increases by 1 %, then the estimated probability that crisis will occur decreases by almost 3 % keeping all other variables constant. If current account increases by 1 %, the estimated probability that crisis will happen increases by almost 13 %. If loans increase by 1 %, the estimated probability that crisis will

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[8] The data for some years and some variables are not available for the Republic of Kosovo, for this reason it is excluded from the sample.

Table 3 Estimation of logit model

Variable	Coefficient	Standard error	z-statistic	P
Constant	−21.33105	9.715	1.142	0.198
Real GDP	−0.12273	1.088	−1.934	0.062
Current account	0.79152	5.877	1.924	0.088
Loans	2.03523	10.012	3.244	0.003
Budget deficits	−0.02872	3.341	−3.266	0.001
Inflation	0.19065	11.008	2.022	0.058

Pseudo $R^2 = 0.662$
Log-likelihood $= -8.6632$
LR chi2(1) $= 17.56$
Prob (LR-statistic) $= 0.0001$
No. of observations $= 72$

take place increases by almost 42 %. If budget deficits increase by 1 %, the estimated probability that crisis will occur decreases by 1.2 %. If inflation increases by 1 %, the estimated probability that crisis will take place increases by almost 5 %.

Based on the estimates above, the variables relating to the ratio of domestic bank loans and current account deficit give a sense of a strong impact in predicting the incidence of a financial crisis in the Western Balkan countries. As far as the other variables are concerned, they show a relatively low impact to an eventual incidence of a crisis.

To predict the probability of a systemic crisis in the upcoming period we take into consideration the mean value for each variable specified in the model and substitute in the above logit model; then we obtain:

$$\hat{p} = F(\beta X_{it}) = F(0.4071) = 0.563$$

Since the probability that crisis will occur is higher than 0.5, we can conclude that chances are relatively high for a systemic crisis in the upcoming period in the Western Balkan countries.

5.1 Limitations of the Study

However, the study shares the common limitations of the studies in the field. First, the sample size is relatively small; also, it is based on the annual data and not on quarterly or monthly data.[9] Second, the designed logit model defines the financial crisis as a specific event in time. In this case, only 2009 is taken as crisis time. Third, the constructed model suffers from temporal instability of the model parameters as well as of the selection of explanatory variables. Fourth, the model does not provide

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[9] It is very difficult, almost impossible, to systematize time series for quarterly or monthly data for all Western Balkan countries, even for some countries, some variables do not exist.

a direct measure of the intensity or weakness of the signal of each explanatory variable. In addition, this model does not include any variables of directly linkage of each country with Greece that can have a significant impact on the timing of a financial crisis. Due to the fact that crisis in Greece is still present, we have observed an absence of empirical studies linked with it.

6   Conclusions

The main objective of this study was to predict the probability of a systemic crisis and an eventual contagion of the debt crisis on Western Balkan countries by using a binary logit model. The estimates show that the variables such as the ratio of domestic bank loans and current account deficit give a sense of a strong impact in predicting the incidence of a financial crisis in the Western Balkan countries. Also, the probability that crisis will occur is higher than 0.5; this means that odds are relatively high for a systemic crisis in the upcoming period in the Western Balkan countries.

Developing reliable prediction models therefore can be of substantial value by allowing policy-makers to obtain clear signals when and how to take pre-emptive measures in order to mitigate or even prevent financial turmoil.

The likelihood is higher that banking and financial sector as well as the external sector as risk transmission channels may be more affected than real economy sector, particularly in terms of potential vulnerabilities that could materialize in an adverse scenario in countries with a strong presence of Greek banks such as Albania, FYROM and Serbia.

In spite of the above limitations, we contend that our logit model performs well in predicting the occurrence of financial crisis in the Western Balkan countries and as such provides a promising step towards developing a more comprehensive model which will capture more variables, such as portfolio investments variables, exports, remittances etc. by finding country-specific proxies for these omitted variables in the model. Also, increasing the resolution of the data points to quarterly or even monthly measurements could expand our findings in a more robust way.

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