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## A DEBATE ON DIFFERENT EXCHANGE RATE REGIME AND MACROECONOMIC PERFORMANCES IN SEE COUNTRIES

*The global economic crisis impacted economies all over the world. Economies with smaller pre-crisis vulnerabilities went into the recession later and found the way out earlier. The SEE countries seem to be more precrisis vulnerable to financial and real shocks. In this paper 5 countries are observed – Serbia, Croatia, Montenegro, FYR of Macedonia and Bulgaria. This paper analysed the exchange rate regime choice and macroeconomic performances in the SEE countries. It has been discussed if theoretical advantages and disadvantages of fixed and floating exchange rate regimes prove to be accurate during the financial crisis. Since all the countries faced capital reversals and trade shocks they had to deal with rising external shocks. Adjustment mechanisms to these shocks differed subject to a chosen exchange rate regime. Special emphasis is made on the impact the different exchange rate regimes have on their current account deficits and finally on the structure of their external debt. The paper argues that the vulnerabilities in the region were too big and the financial crisis hit the countries too strong that the exchange rate regime choice, despite its great significance in solving economic difficulties, was not the most important factor in economic policy of authorities.*

*Keywords:* external debt, twin deficit, KW test, SEE, exchange rate regime, macroeconomic performance of a country.

*JEL:* F31, F32, F41.

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## ДИСКУСІЯ ЩОДО ВПЛИВУ ВАЛЮТНОГО РЕЖИМУ НА МАКРОЕКОНОМІЧНІ ПОКАЗНИКИ КРАЇНИ: НА ПРИКЛАДІ ПІВДЕННО-СХІДНОЇ ЄВРОПИ

*У статті показано, що нещодавня світова економічна криза вплинула на всі без виключення країни світу, але країни, більш стабільні до неї, менш постраждали від кризи і раніше знайшли вихід з неї. Країни Південно-Східної Європи ще до кризи були більш схильні до фінансових та реальних економічних шоків. Проаналізовано валютну політику та її вплив на макроекономічні показники 5 країн досліджуваного регіону – Сербії, Хорватії, Чорногорії, Македонії та Болгарії. Показано, що теоретичні переваги та недоліки фіксованого та плаваючого валютного режиму проявили себе у реальній практиці даних країн повною мірою. Всі досліджувані країни постраждали від відтоку капіталу і торговельних шоків, що значно підвищило їх валютні ризики. Механізми боротьби з даними шоками значною мірою визначались обраним валютним режимом, оскільки валютний режим у даній ситуації вплинув на стан балансу рахунків, структуру зовнішнього боргу тощо. Зроблено припущення про те, що докризова нестабільність у регіоні була настільки великою, а вплив самої фінансової кризи настільки потужним, що валютний режим втратив своє визначальне значення у боротьбі з макроекономічними проблемами.*

*Ключові слова:* зовнішній борг, подвійний дефіцит, KW-тест, Південно-Східна Європа, валютний режим, макроекономічні показники країни.

*Рис. 3. Табл. 8. Літ. 32.*

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## ДИСКУССИЯ О ВЛИЯНИИ ВАЛЮТНОГО РЕЖИМА НА МАКРОЭКОНОМИЧЕСКИЕ ПОКАЗАТЕЛИ СТРАНЫ: НА ПРИМЕРЕ ЮГО-ВОСТОЧНОЙ ЕВРОПЫ

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*В статье показано, что недавний мировой экономический кризис повлиял на все страны мира без исключения, однако страны, более стабильные до него, меньше пострадали от кризиса и ранее нашли выход из него. Страны Юго-Восточной Европы ещё до кризиса были более склонны к финансовым и реальным экономическим шокам. Проанализированы валютная политика и её влияние на макроэкономические показатели в 5 странах данного региона – Сербии, Хорватии, Черногории, Македонии и Болгарии. Показано, что все теоретические преимущества и недостатки фиксированного и плавающего валютного режима проявили себя в реальной практике данных стран в полной мере. Все страны исследуемого региона пострадали от оттока капитала и торговых шоков, что значительно повысило их внешние риски. Механизмы борьбы с данными шоками в значительной мере определялись выбранным валютным режимом, поскольку валютный режим в данной ситуации повлиял на состояние текущих счетов, структуру внешнего долга и т. п. Сделано предположение о том, что докризисная нестабильность в регионе была настолько велика, а влияние самого финансового кризиса настолько сильным, что валютный режим потерял своё решающее значения в борьбе с макроэкономическими проблемами.*

*Ключевые слова:* внешний долг, двойной дефицит, KW-тест, Юго-Восточная Европа, валютный режим, макроэкономические показатели страны.

### **1. A debate on hard pegs vs. flexible exchange rate regimes**

Debates on an appropriate exchange rate regime for a country have always been present. Countries facing disinflation may find the pegs regime to be a more appropriate solution. The advantage of using the exchange rate as a nominal anchor lies in a higher probability that private agents will adjust faster. Its significance increases when the exchange rate is pegged to a certain currency, such as the euro, for example, rather than to the currency basket. The negative side of using the exchange rate as a nominal anchor lies in the fact that its targeting may cause the balance of payments problem and possibilities for conducting an independent monetary policy are limited. The situation in 1980s and early 1990s suggests that intermediate regimes may provide important advantages – to capture some of the benefits of both extremes while avoiding heavy costs.

In the modern world the role played by international capital flows, FDI, portfolio investment and the domestic financial systems is crucial in determining the performance of exchange rate regimes. Just when pegged regimes were gaining respectability as providing nominal anchors, several pegs, including crawling pegs, faced speculative pressures from investors being sceptical of the regimes sustainability. Many such episodes were associated with expensive financial crises, especially in the emerging markets. An influential view predicted that exchange rate regimes would move in a bipolar manner to the extremes of hard pegs or free floats (Eichengreen, Hausmann, 1999; Fischer, 2001). An increasing number of countries did announce their intent to allow a greater exchange rate flexibility. However, among developing and emerging market economies, the de jure announcement to float did not typically translate into de facto fully floating exchange rates. Countries, as it appeared, had a "fear of floating" (Calvo, Reinhart, 2002). It seems to be a typical case with Croatia nowadays, too.

There are two problems here. First, in the case of hard pegs such as currency boards or dollarisation, currency crises are ruled out, but banking crises are still possible and without a monetary influence they cannot be maintained (Chang, Velasco, 2001). Second is the problem of "original sin" (Eichengreen, Hausman,

1999). Because many countries in the SEE region are financially underdeveloped and they have had history of high inflation, they are not able to borrow externally except in foreign currencies such as euro. This exposes them to the serious problems of both maturity and currency mismatches. In the face of a currency crisis, devaluation can lead to serious balance sheet problems, widespread bankruptcies and debt defaults.

## 2. Exchange rate regimes in the SEE region

An exchange rate regime choice is an important determinant of the economic policy of each country. It influences many macroeconomic variables. Although the selected countries are similar in many ways, a lot of distinctions derive from the exchange rate regime. In the SEE region there is a range of exchange rate systems from fixed exchange rate such as dollarisation and currency board (FYR of Macedonia, Bulgaria, Montenegro) to flexible exchange rates with bigger or smaller levels of floating (Croatia and Serbia).

*Table 1. Foreign Exchange Systems in the selected SEE countries*

Country	Foreign Exchange regime
Bulgaria	Currency board arrangement (euro)
Serbia	Managed floating exchange rate regime
Croatia	Managed floating exchange rate regime
Montenegro	Dollarisation
FYR of Macedonia	Fixed exchange rate regime (euro)

*Source:* Official web-sites of the central banks in the region.

Even though they have different systems, one common characteristic among the selected countries can be highlighted, and that is the fact that their currencies are in some way connected to the euro – the rate is either fixed or in a fluctuation zone of the euro. This is rather logical, considering that all these countries are either already in the European Union (Bulgaria) or aspiring to enter the Union, which in return, as a part of the integration process claims for their national currencies to be linked to the euro. All the countries thinking to join the European Monetary Union have to spend 2 years in ERM II. This mechanism allows fluctuations of +/- 15% of the daily exchange rates in relation to euro.

When analyzing pros and cons of specific exchange rate regimes, researches usually rely on the theory of optimal exchange rate regimes and the theory of optimal currency areas, which typically evaluate such regimes by how effective they are in reducing the variance of domestic output in an economy with sticky prices.

Generally, fixed exchange rates have been more efficient if a country is facing primary shocks from money supply or demand, or the so called nominal shocks. Fixed exchange rate provides a mechanism to accommodate those changes with less output volatility, while floating exchange rate in that case, through inflation and consequently depreciation transmits nominal shocks into real ones. On the other hand, a flexible exchange rate could be a better solution if a country is facing shocks to productivity or terms of trade, or the so called real shocks (Grubisic, 2005). Flexible exchange rate gives a speedy response to a change in relative equilibrium prices, like the relative price of tradables with respect to nontradables. In the case of real shocks, hard peg determine the decrease in the demand of domestic money which would lead to automatic outflow of hard currency and increase the debt (Calvo, Mishkin, 2003).

### 3. Exchange rate regimes and twin deficits

The twin deficits hypothesis claims that a reduction in budget deficit causes a reduction in trade deficit. Proponents of flexible exchange rates, argue that these regimes are more efficient in levelling the balance of payments disequilibrium. Also, since the external balance is automatic, it helps the country in achieving internal balance or other economic objectives. On the other hand, the advocates of fixed exchange rates contend that this regime does not have a degree of uncertainty and should increase the volume of international trade and investments (Domac, Peters, Yuzefovich, 2001.)

Vladimir Popov (2011) analysed the responses to external financial shocks – the outflow of capital, and found that the countries that devaluated their currencies experienced a smaller slowdown than the countries that did not devalue and allowed their money supply contract.

**Table 2. Current account balance (in % to GDP) in the selected SEE countries**

	2007	2008	2009	2010	2011 Est	2012 Proj	2013 Proj
Bulgaria	-26,8	-23,0	-8,9	-1,5	0,3	-1,6	-2,8
Serbia	-15,9	-21,4	-7,1	-7,2	-7,6	-8,8	-8,5
Croatia	-7,3	-9,0	-5,1	-1,3	-1,0	-1,3	-1,0
Montenegro	-39,5	-50,6	-29,6	-24,6	-19,4	-19,7	-20,0
FYR of Macedonia	-7,0	-12,8	-6,8	-2,2	-2,8	-5,0	-6,2

Source: the table is prepared by the authors using the data of IMF (2011 and 2012).

Since all the countries have the current account deficit regardless their exchange rate regimes, it is the strong evidence that all the countries of the region under study have a high dependency from external financing.

**Table 3. Fiscal balance (in % to GDP) in the selected SEE countries**

	2007	2008	2009	2010	2011 Est	2012 Proj	2013 Proj
Bulgaria	3,5	3,0	-0,9	-3,9	-2,0	-1,3	-1,3
Serbia	-1,9	-2,7	-4,5	-4,6	-4,6	-3,9	-2,8
Croatia	-2,1	-1,3	-4,2	-5,1	-5,2	-4,0	-3,3
Montenegro	6,7	-3,1	-5,3	-4,7	-6,3	-5,2	-4,3
FYR of Macedonia	0,6	-0,9	-2,7	-2,5	-2,6	-2,6	-2,5

Source: the table is prepared by the authors using the data of IMF (2011 and 2012).

All the countries in the region had budget deficits in 2009–2012 and according to the forecast for 2013, the trend of budget deficit will continue. According to the criteria of having both trade and budget deficits, the whole of the SEE region had twin deficits from 2009 till 2012, with the same forecast for 2013.

**Table 4. Current account and fiscal balance (in % to GDP) in the selected SEE countries**

	2007	2008	2009	2010	2011 Est	2012 Proj	2013 Proj
Bulgaria	-23,3	-20,0	-9,8	-5,4	-1,7	-2,9	-4,1
Serbia	-17,8	-24,1	-11,6	-11,8	-12,2	-12,7	-11,3
Croatia	-9,4	-10,3	-9,3	-6,4	-6,2	-5,3	-4,3
Montenegro	-32,8	-53,7	-34,9	-29,3	-25,7	-24,9	-24,3
FYR of Macedonia	-6,4	-13,7	-9,5	-4,7	-5,4	-7,6	-8,7

Source: Prepared by the authors using the data of IMF(2011 and 2012)

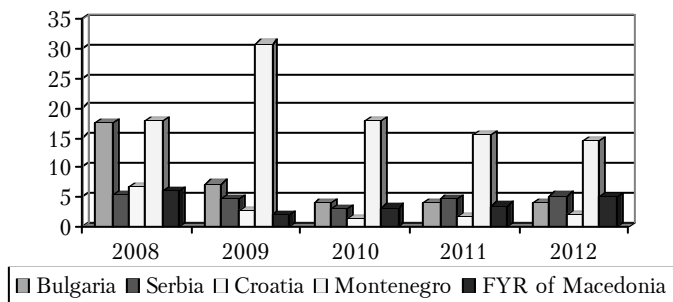
Note: All the data used for Tables 2, 3 and 4 for 2011 are estimations, for 2012 and 2013 - the IMF forecasts.

#### 4. Exchange rate regimes and FDI

Transition economies are becoming the target of significant capital inflows thanks to the successfully accomplished stabilisation program and attractiveness due to the EU integration. Having in mind a low saving level and the lack of internal sources for economic growth inducement there was a necessity for external financing. Capital liberalisation has a significant effect on the exchange rate regime. It considers that capital inflows can be more easily controlled under a flexible regime, because the exchange rate uncertainty discourages variable and speculative flows. Rapid inflows under the flexible regime would cause an exchange rate appreciation (Josifidis, Beker, Supic, 2008).

When a currency depreciates, there could be two potential implications for FDI. First, it reduces the country's wages and production costs relative to those of its foreign counterparts. A country experiencing real currency depreciation increases attractiveness as a location for receiving productive capacity investments. By this relative wage channel, the exchange rate depreciation improves the overall rate of return to foreigners contemplating an overseas investment project in this country. Also, volatility of exchange rate impacts FDI flows. Theoretical arguments for volatility effects are broadly divided into production flexibility arguments and risk aversion arguments. The more volatile exchange rates are, the bigger compensation the investors will expect because they are facing additional risk related to the returns on investment (Grubisic, Ivanovic, Fabris, 2011). By the production flexibility arguments, more volatility is associated with more FDI ex ante, and more potential for the excess capacity and production shifting ex post, after exchange rates are observed.

Since all the countries in the region under study have deficit in the current account balance, there are two ways for equilibrium in balance of payment. The desirable option is capital inflows from abroad and the other option is wasting official reserves. They all have had significant capital inflow during the past few years, but since the crisis began, FDI are more modest.



Source: Prepared by the authors using the data of IMF (2011 and 2012)

Figure 1. FDI balance in % to GDP in the selected SEE countries

Foreign direct investment has proved to be resilient during financial crises. There are many examples in the recent past that can prove this hypothesis. In East Asian countries, this kind of investment was remarkably stable during the global financial crises of 1997–1998. On the contrary, other forms of private capital flows, portfolio equity and debt flows, and particularly short-term flows, were subject to large reversals during the same period. The resilience of FDI was also evident during the

Mexican crisis of 1994–1995 along with the Latin American debt crisis of the 1980s. Consequently, the resilience of FDI could lead many countries to prefer FDI over other forms of capital flows.

Despite the strong theoretical case for the advantages of free capital flows, the conventional understanding seems to be that many private capital flows pose countervailing risks. Ricardo Hausmann and Eduardo Fernandez-Arias (2000) consider international debt flows, especially of the short-term variety as "bad cholesterol", because it is usually driven by speculative consideration, such as interest rate expectations and exchange rate expectations and it is the first to run for the exits in times of trouble. Opposite to that, FDI is viewed as "good cholesterol" since it is not usually driven by speculative interests and cannot leave so easily at the first sign of trouble.

**Table 5. FDI and portfolio investments in the selected SEE countries (in mln EUR)**

Country		2008	2009	2010	2011	2012	2013	2014
Bulgaria					Prel	Proj	Proj	Proj
	FDI	62 12	2498	977	1577	1593	1684	2091
	Port	-774	-589	-660	-419	296	-1337	435
Serbia					Proj	Proj	Proj	Proj
	FDI	1800	1400	900	1500	1800	1500	1700
	Port	-100	-100	100	100	100	100	200
Croatia					Est	Proj	Proj	Proj
	FDI	3248	1527	408	1043	949	955	1216
	Port	-810	421	477	646	1437	289	228
Montenegro					Est	Proj	Proj	Proj
	FDI	582	1066	552	389	381	429	480
	Port	-16	-42	-12	-16	-24	-25	-26
FYR of Macedonia					Est	Proj	Proj	Proj
	FDI	137	158	302	200	365	429	457
	Port	104	-62	-42	202	-208	-23	34

Source: Prepared by the authors with the IMF data (2011 and 2012).

As it can be seen from Table 5, there were FDI inflows in the whole period. This was not the case with portfolio investment. On the other hand, as Kosta Josifidis, Jean-Pierre Allegret and Emilija Beker Pucar (2011) concluded, all the countries in this region experienced a significant reduction in FDI regardless of their exchange rate regimes, but export decreases were bigger in the cases of the fixed exchange. It sounds reasonable, especially bearing in mind that depreciations automatically improve the competitiveness and to some extent neutralises the initial shocks.

### 5. Exchange rate regimes and external debt

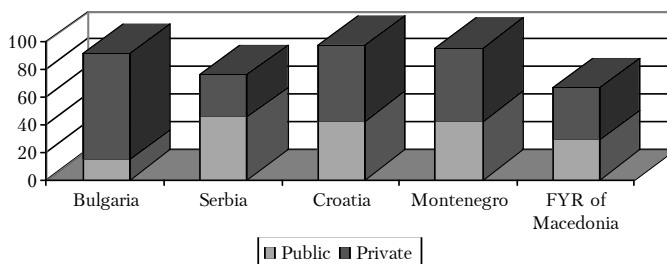
All the countries in the SEE region have the history of high level of indebtedness over the years. Since, some of them (Bulgaria) have already joined the European Union, and the rest of them are aspiring to enter the Union, they are expected to comply with the Stability and Growth Pact limits for the government budget deficit of 3% of GDP and government debt of 60% to GDP. Moreover, the fiscal situation has to be judged as sustainable in the medium term. As we can see from Table 6 in 2010 and 2011 the majority of the selected countries have external debts around or higher than 100% of GDP.

Table 6. External debt (in % of GDP) in the selected SEE countries

		2007	2008	2009	2010	2011	2012 Proj
Bulgaria	Total	94,3	105,1	108,3	102,8	91,9	94,0
	Public	18,6	15,5	15,6	14,9	15,5	18,5
o/w foreign currency denominated		14,5	12,1	12,2	11,1	11,0	14,5
	Private	75,7	89,6	92,7	87,9	76,4	75,5
Serbia	Total	62,5	66,7	79,1	82,2	75,3	70,1
	Public	35,6	34,2	38,2	44,9	44,1	44,5
o/w foreign currency denominated		31,3	30,0	31,8	36,0	32,8	30,5
	Private	26,9	32,5	40,9	37,3	31,2	25,6
Croatia	Total	76,7	84,8	101,1	103,6	101,9	101,6
	Public	32,9	29,3	35,8	42,2	46,7	53,8
o/w foreign currency denominated		26,1	23,9	27,4	31,4	34,7	38,5
	Private	43,8	55,5	65,3	61,4	55,2	47,8
Montenegro	Total	74,1	90,8	93,5	96,4	99,9	107,3
	Public	27,5	31,9	40,7	42,4	46,9	50,2
o/w foreign currency denominated		14,3	12,4	12,3	11,8	10,8	10,1
	Private	46,6	58,9	52,8	54,0	53,0	57,1
FYR of Macedonia	Total	47,6	49,2	56,4	59,9	66,7	69,9
	Public	24,0	20,7	23,8	24,8	28,6	32,3
o/w foreign currency denominated		14,7	13,7	16,5	17,0	21,6	25,1
	Private	23,6	28,5	32,6	35,1	38,1	37,6

Source: Prepared by the authors using the data of IMF (2011 and 2012).

As Alberto Bagnai (2010) noticed, no operational "convergence" criterion is defined on external indebtedness, there is not an "excessive external deficit" procedure, possibly triggered by some ceiling analogous to the 3% of fiscal deficit parameter. However, the recent experience shows that all European countries that faced severe financial crises featured a high level of external indebtedness, more often than just the presence of sustainable levels of public indebtedness. The actual crisis demonstrates the importance of monitoring closely the external indebtedness of the Eurozone peripheral countries.



Source: Prepared by the authors using the data of IMF (2011 and 2012)

Figure 2. Structure of the external debt in the selected SEE countries

The tendency shows that all the countries are determined to reduce their external debts, but it is uncertain whether they succeed. Considering the criteria of public debt, the highest figures have Serbia and Montenegro, around 44%, but it should be noticed that Serbian authorities recently introduced the Law on the Budget System, which prescribes that the maximum for a government debt is 45% to GDP. In 2010 only Bulgaria and FYR of Macedonia fitted the criteria about the fiscal deficit of 3% to GDP.

As expected, the public debt of all the considered countries is growing since the crises started and even worse, much of the public debt is denominated in foreign currency, which affects the credit ratings of the countries under study.

**Table 7. Standard and Poor's ratings in December 2012 in the selected SEE countries**

Country	Standard & Poor's rating
Bulgaria	(BBB) / stable
Serbia	(BB-) / negative
Croatia	(BB+) / stable
Montenegro	(BB-) / negative
FYR of Macedonia	(BB) / stable

Source: www.standardandpoor.com.

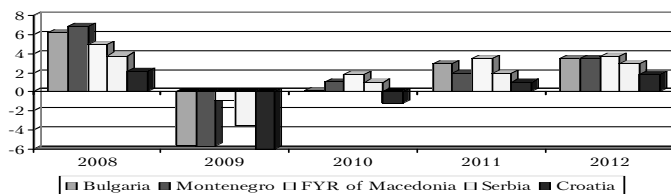
It should be noticed that for Standard and Poor's bond is considered investment grade if its credit rating is BBB- or higher. Bonds rated BB+ and below are considered to be a speculative grade.

According to rating agencies, there were no SEE countries with the sufficient foreign currency reserves to cover foreign debt maturing in 2012, should today's problem evolve into a crash that forces the state to step in. Foreign banks and foreign companies with subsidiaries in the region holding most of the debt will not bolt or ask for their loans back en masse. They will be amendable to rolling over the debts or restructuring them so as not to pull the rug out from under their own markets in SEE. However, these foreign "parent" banks active in the region cannot afford to refinance during the global financial crisis, and since the SEE states cannot help them finance by setting aside funds, that leaves the IMF and the EU.

#### 6. Exchange rate regimes and economic growth

Based on Kenneth S. Rogoff et al. (2003) a flexible exchange rate gives better results in the area of growth than the fixed one. It is based on the fact that under the flexible regime, shock absorption is bigger and the economy is suffering less from real shocks, so economic growth is less impacted. But on the other side, the fact that the exchange rate can float and uncertainty about its motion could have negative effects on trade activities and investments.

Eduardo Levy-Yeyati and Federico Sturzenegger (2000b) in their research on the relations between growth and exchange rate regime got the following conclusions: 1. Fixed exchange rate regimes are associated with lower per capita output growth rate. The estimates range from 0.7 to 1 % a year according to the specification for nonindustrial economies. For industrial economies the exchange rate regime is not related to growth performance. 2. Similarly, fixed exchange rate regimes are associated with higher output volatility only in the case of nonindustrial countries. They have no significant impact on volatility within the group of developed economies.



Source: Prepared by the authors using the data of IMF (2011 and 2012)

**Figure 3. Economic growth in the selected SEE countries**



Generally, the growth rates in the region support Levy-Yeyati and Sturzenegger findings, countries with fixed exchange rates have had a higher output volatility during the period of the financial crisis 2008–2012.

### 7. Statistical analysis

ANOVA analysis could be a useful tool to test statistically whether different exchange rate regimes produce similar effects on the considered variables, such as current account, fiscal balance and external debt. However, due to big differences in their levels and volatilities by countries, as well as the assumption on normality of distribution which could not be seriously tested for such a small sample, the results of ANOVA analysis could be misleading.

Instead, we create a set of dummy variables using the following rule: if a change of the considered variable is regarded as positive (in the sense of decrease in, e.g., fiscal deficit) relative to previous year, then the dummy variable takes the unit value, otherwise, it takes a zero value. Further, we apply the non-parametric alternative to standard ANOVA testing, Kruskal-Wallis (KW) one-way analysis of the variance test. KW test is generally applied to test null whether samples originate from the same distribution. Therefore, our hypothesis in line with the KW rationale is that the distribution of change in given variables by countries is not affected by the exchange rate regime. The results of testing are provided in the following table.

**Table 8. The results of the KW test**

	Current account	Fiscal balance	Total external debt
hi-Square	1.289	0.470	4.284
df	3	3	3
Asymp. Sig.	0.732	0.925	0.232

*Source:* Authors' calculations.

Significances obtained by the KW test suggest not rejecting null for regarded variables. Thus, there is no statistical evidence that the choice of specific exchange rate regime brings about significant improvement in the current account, fiscal deficit and total external debt.

### 8. Concluding remarks

The choice of an exchange rate regime is an important element of economic policy. In the modern world the role played by international capital flows, FDI, portfolio investment and the domestic financial systems is crucial in determining the performance of exchange rate regimes. It shows the level of financial integration which is an important element of the Mundell-Fleming's model and the related principle of impossible trinity. In today's economy when most countries are financially integrated, they are moving to either pure float or monetary union and analysis in the region supported the bipolar view.

According to the criteria of having both trade and budget deficits, the whole of the SEE region had twin deficits in 2009, 2010, 2011 and 2012 with the same forecast for 2013. That fact proves that regardless of the specific exchange rate regime all of them have a high dependency from external financing. Since all the countries in the region under study have deficit in their current account balance, there are two ways for equilibrium in the balance of payment. The desirable option is capital inflows from abroad and the other option is wasting official reserves. They all have had a sig-

nificant capital inflow during the past few years, but since the crisis began, FDI became more modest. The data from the region prove that FDI investments are resilient during financial crises, which was not the case with portfolio investments.

All the countries in this region have the history of the high level of indebtedness over the years. As expected, the public debts of all the considered countries is growing since the crises started and even worse, much of the public debt is denominated in foreign currency, which affects the credit ratings of these countries. According to the rating agencies, there is no country in the SEE region with the sufficient foreign currency reserves to cover foreign debt maturing in 2012, should today's problem evolve into a crash that forces the state to step in. They will be amendable to rolling over debts or restructuring them so as not to pull the rug out from under their own markets in SE Europe.

Finally, the growth rates in the region support Levy-Yeyati and Sturzenegger findings that the countries with fixed exchange rates have had a higher output volatility during the period of the financial crisis (2008–2012).

The authors used the non-parametric KW test to check the hypothesis that distribution of change in the given variables by the countries is not affected by the exchange rate regime. Significances obtained by the KW test suggest not rejecting null for the regarded variables. Thus, there is no statistical evidence that the choice of specific exchange rate regime brings about significant improvement in the current account, fiscal deficit and total external debt.

As the findings indicate, although the exchange rate regime is a very important determinant, in some areas, pre-crisis vulnerabilities were too big and the financial crisis hit the countries too strong that the specific regime could not fully reveal its advantages.

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