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TSLS ESTIMATION OF STOCK MARKET INDICES IN SOUTH-EASTERN EUROPEAN COUNTRIES, AS COMPARED WITH WORLD STOCK EXCHANGE CENTRES IN THE FINANCIAL CRISIS

***Abstract**: We tested the hypothesis of procyclicality for economic activity and the stock exchanges of southeastern European countries relative to the main world Stock Exchange Centers via TSLS methodology in order to demonstrate the dependence of small financial markets on large ones and to investigate the spillover effect, i.e., the degree and pace of integration of 'new' financial markets into larger ones. Our estimates for the southeastern countries support the hypothesis of an increase in stock exchange indices in the period of transition, due to the opening of the market economy followed by large capital inflows. The observed countries that are already in the EU wing (Bulgaria, Romania and Slovenia) or those in the process of joining (Croatia and Montenegro) were found to be more dependent on the global financial markets and more exposed to adverse co-movements than other transitional southeastern countries (e.g. Bosnia and Herzegovina and Serbia).*

Key words: Stock Markets, Integration, European Union, TSLS

JEL-Classification: E44, F36, F43, G15

1. INTRODUCTION

Over the past several years, economic science has intensively dealt with financial market integration. There is a great deal of empirical literature on the procyclicality of the stock market as a sign of financial integration and it covers the countries of Central and Southeastern Europe as well as Asia and the Americas.

Research into the matter intensified with the development of the European Union and its enlargement into an ever-widening circle of countries. Existing literature on this topic includes research into the stock markets of transition countries that have

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* statements of in the paper are statements of the author and they do not express the opinion of the institution or its councils

already joined, or are joining, the European Union, in order to examine the level of financial integration in the EU. The financial market of a member country that is well integrated in the global financial market constitutes a key feature because it boosts stability against economic and financial vulnerability and enhances economic growth (Schularick and Steger 2006). Trade links between Central and Southeastern European countries and the EU gradually became stronger, leading to further economic integration by the time of formal accession.

With the re-intensified process of monetary integration in the European monetary union, theories of cyclical movement in financial markets multiplied. The interest of many discussions was increasingly based on examinations of the financial momentum transfer from developed markets to emerging markets that were, in general, less developed financial markets. The discussion was further fanned by recent financial crises that spread beyond national borders, creating a 'contagion effect'. Drawing upon the methods used by authors who have dealt with the correlation of stock market indices, we researched and analyzed the correlation of stock market indices in transition countries, relative to the stock market centers of Europe and the world. This was performed with the aid of cointegration analysis and TSLS (Two-Stage Last Square) estimation.

The aim of this study is to research the stock markets of Bulgaria, Bosnia and Herzegovina, Croatia, Montenegro, Serbia, Slovenia and Romania as a representative group of SEE countries and compare them to the stock exchange centers of developed countries such as the United Kingdom and the United States. After the collapse of communist and socialist regimes in the beginning of the 1990s, a number of Central and Eastern European (CEE) economies established capital markets as part of their transition process for adopting the mechanisms of a market economy (Égert and Kocenda 2007). Some authors have found a strong correlation between transition countries and developed financial markets but a weak correlation between themselves and some others, *au contraire*.

We test the hypothesis of spillover (the movement of stock exchange indices' prices) in stock-trading financial centers (the U.S. and UK) to the smaller financial markets of Southeast Europe (SEE) that we observe individually (comprising countries of the European Union (Bulgaria, Romania and Slovenia), EU candidate countries (Croatia and Montenegro) as well as some of the less-developed transition countries of Southeastern Europe as potential EU candidate countries (Bosnia and Herzegovina and Serbia).

The test of stock indices with regard to the main economic indicators in Southeast European countries is based on monthly bases data during 2004-2010.

Evidence of integration among stock markets is important, particularly for long-term investors, since that means that the national stock markets share a single common trend. There is a great deal of empirical literature on the macroeconomic factors influencing stock market indices.

The following chapters are structured thusly: In chapter 2 the theoretical background of the empirical analysis and the macro-economic environment and stock exchange development in the observed SEE countries are presented. An overview of existing empirical literature and different methodologies on the subject of assessing financial integration and testing the procyclicality of stock indices can be found in the chapter

3. The methodology and the data for the empirical analysis are explained in chapter 4 same as result and discussion; and the implication of the empirical analysis are revisited in the conclusion (chapter 5).

2.THE THEORETICAL BACKGROUND OF EMPIRICAL ANALYSIS AND THE MACRO-ECONOMIC ENVIRONMENT AND STOCK EXCHANGE DEVELOPMENT IN SOUTHEASTERN EUROPE

There has been a growing amount of literature showing the strong influence of macroeconomic variables on stock markets. The authors of stock market integrations proved that the main economic variables, such as real GDP, trade balances, exchange rates, interest rates and consumer price indexes are significant in their relation to the indices of the stock market. Table 1. presents a summary of potential explanatory variables of the stock exchange indices. The outcome of all these studies suggests that, with minor degrees of variation, fundamental macroeconomic dynamics are indeed influential factors for stock market returns.

Table 1. Overview of the empirical literature on macro-economic factors influencing stock market indices

Explanatory variable(s)	Reference	Explanation of theoretical background
GDP Trade volume Industrial production index FDI	Aizenman and Noy (2005)	The positive wealth effect is manifested through the rising stocks. Financial integration is positively associated with real per capita GDP, educational level, banking sector development, monetary growth, credit growth, stock market development, the legislation of the country and government integrity. GDP growth presumes a rise of the industrial production index and the rise of trade. Industrial production affects stock returns positively, primarily through increasing the expected cash flow. Capital inflows is the sum of FDI, portfolio flows, trade credits and loans. The strongest feedback between FDI and manufacturing trade is based on the argument that larger inflows of FDI will lead to a higher volume of trade as well as other benefits such as increased rates of total factor productivity growth or higher output growth rates.
Exchange rate and Interest rate	Knif et al. (2008)	The exchange rate as an important explanatory variable has a significant negative impact on stock exchange indices followed by negative interest rates. A reduction in interest rates reduces the costs of borrowing, which have a positive effect on the future expected returns for the firm. Also, an increase in interest rates would make stock transactions more costly. Investors would require a higher rate of return before investing. This will reduce demand and lead to a price depreciation.

Consumer Price Index	Knif et al. (2008) Mohammad and Abdelhak (2009)	There is no consensus in theories and empirical evidence about the influence of inflation on stock exchange. The influence of inflation on stock exchange volatility could be negatively or positively correlated to the stock exchange. Fisher hypothesis about positive correlation between inflation and stock exchange volatility could be explainded with the fact that the market rate of interest comprises the expected real rate of interest and expected inflation. This hypothesis, when applied to stock markets, postulates a positive one-to-one relation between stock returns and inflation.

I. The Macroeconomic environment in Southeastern Europe

A financially united Europe is a challenge because it eliminates some of the specific national risks and enables investors to diversify their portfolios across various countries. Countries of the SEE region are all still in the process of transitioning (which mostly began in the 90's) from an old autocratic socialist system towards a market economy. Some countries in the region went through less painful changes in their system, while others went to war. All these circumstances influenced the direction, speed and course of economic and financial integration into the EU. Even the most developed countries of the SEE region are faced with challenges when trying to reach the standards of the most developed market economies.

Recent economic research has shown that Bulgaria and Romania, which joined the EU in January 2007; Slovenia, which became an EU member in 2004 and introduced the Euro in 2007; and Croatia, which is in the process of negotiations (Croatia will become EU member in 2013 or 2014), are countries that have gone much further in their development than other countries in the region. Governments and other state bodies of countries of the SEE region have recently started implementing demanding reforms, which have resulted in a record inflow of foreign investments and a better entrepreneurial climate. One of the signs of recent progress in the region, which is very encouraging, is a huge inflow of direct foreign investment in the last few years (expecially before the crisis started), mostly directed to Bulgaria, Romania and Croatia. Less encouraging is the fact that the investments are directed more to real estate and financial services, which means less of a probability of realizing export income than if investments were directed towards production.

After 2000, most Southeastern European countries recorded economic growth with low inflation and progress in the field of market reforms. The average economic growth of South East European (SEE) countries in the last ten transition years was higher than in the EU. Still, the GDP *per capita* in countries of the Southeastern region shows a gap when compared to the developed countries of Western Europe, suggesting that there is long way ahead of them. It is important to study the Southeastern European region (approx. 55 million people) as a whole. It is also important to consider the geographic and strategic connections between the countries of the region, with their individual differences, level of development and their EU accession status.

Obviously, clear links are visible between the implemented reforms and economic growth. It is significant that no country in the region has expressed the wish to

return to the previous economic system. All drawbacks aside, once a country becomes a member of the EU or its candidacy is announced, it becomes a powerful magnet for investors, especially in the private sector. A large portion of increased direct foreign investments have been closely connected to the process of privatization in the region, and there are still many sectors in the region where strategic sales are possible.

In most SEE countries in 2010, the recession has slowed down real GDP. There are lower capital inflows and domestic credit has negatively impacted domestic demand. Most SEE governments, either alone or with IMF and EU support, have tried to reconstruct the public sector and cut expenditures. The effects of the recession are still obvious in rising unemployment -- especially in Croatia, Serbia and Bosnia and Herzegovina. Due to lower domestic and foreign demand, and lower commodity prices, current account deficits continue to narrow in most SEE countries. It seems that all governments and central banks in the SEE region are aware of the importance of stabilization and low inflation for economic growth, but every country has chosen a different approach for monetary policy, exchange rate policy and state intervention. Still, all countries in the region are prone to high deficits in their balance of payments, proving the fact that certain countries have been living beyond their realistic possibilities.

Table 2. Macro economic environment SEE (2004/2005/2006/2007/2008/2009/2010)

	GDP real (annual % change)	Unemployment (LFS, in % of workforce)	FDI inflow (% of GDP)	Industrial production real change (Annual %)	Gross foreign debt (% of GDP)
Bosnia and Herzegovina	6.3/3.9/6.1/6.2/5.7/-2.9/-1	44.1/44.7/44.2/42.9/40.6/42.7/43.2	4.9/5.6/6.2/13.5/5.0/1.5/0.1	12.1/10.6/11.6/6.7/10.8/-1.2/-4.7	57.9/57.1/58.4/59.7/61.2/49
Bulgaria	6.2/6.2/6.3/6.2/6.0/-3.5/0	12.2/10.1/9.0/6.9/5.6/6.4/7.5	14.2/16.4/15.0/28.7/17.5/9.6/3.9	6.7/6.7/5.9/9.2/0.8/-17.6/-3	69.0/78.4/81.0/86.0/89.5/107.9/105.6
Croatia	4.3/4.3/4.7/5.5/2.4/-5.8/-1.8	18.0/17.9/16.6/14.8/13.2/15.4/15.0	4.6/8.3/6.6/8.1/6.7/2.6/2.7	5.1/5.1/4.5/5.6/1.6/3.6/-9.3/1.0	82.4/85.3/86.2/86.3/86.2/85.8/85.8
Montenegro	4.4/4.2/8.6/10.7/6.9/-5.7/2.0	27.7/30.3/29.6/19.3/17.2/19/20	3.0/21.0/21.7/19.9/17.9/30.6/21.0	13.8/1.9/1.0/0.1/-2.0/-32.3/41.7	29.3/28.3/23.5/27.5/29/38.3/43.5

Romania	4.1/4.2/7.9/6.2/ 7.1/8.2/-6.2/0	5.8/5.4/4.3/4.2/ 4.2/6.3/8.5	6.6/9.3/5.0/ 5.8/6.6/ 4.2/3.0	8.4/2.0/7.1/ 5.4/6.4/-13.0/3	31.0/39.4/40.4/ 31.3/37.8/56.6/ 62.5
Serbia	8.3/5.6/5.2/6.9/ 5.5/-3.1/2.7	20.8/21.8/21.6/ 18.8/14.7/17.4/ 19.5	3.9/5.9/13.8/6.3 /6.0/4.7/2.0	7.1/0.8/4.4/3.3/ 0.9/-12.2/5.8	63.8/50.3/36.2/ 61.8/65.3/74.6/ 79.9
Slovenia	4.1/4.4/5.9/6.9/ 3.7/-8.1/1.2	6/6.5/6.0/4.8/4. 4/7/7.5	0.9/-0.2/-1.0/- 0.6/1.0/-1.5/0.7	4.4/3.3/6.2/6.1/ 6.2/-1.5/-10/2	58.5/71.0/ 96.5/100.5/104. 5/113.4/116.4

Source: European Commission, EU Candidate and Pre-Accession Countries Economic Quarterly (2010) and UniCredit CEE Quarterly (2010).

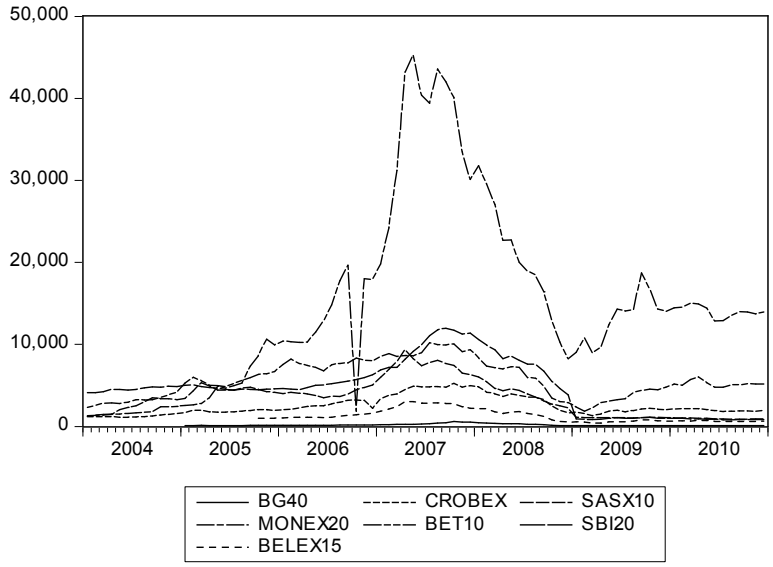
II. Stock Markets in SEE

Emerging capital markets in the transition countries of Southeastern Europe are becoming increasingly important for both institutional and individual investors. Southeastern transition countries slowly started opening up to the world market during the end of 1980's and the beginning of the 1990's, and established a local exchange as part of their transition process towards adopting the mechanisms of a market economy (Syllignakis and Kouretas 2006).

The stock markets of SEE have tried to adapt their standards to an international one, by improving the disclosure practices of firms, order execution, ownership rights, and by bringing down limitations to international capital flows (Syllignakis and Kouretas 2006). However, they still remain small, fragmented and underdeveloped in comparison with the capital markets of developed countries.

Following the removal of restrictions on capital flows, the opening up to foreign investors, the creation of appropriate corporate governance structures and the establishment of ownership rights, both market capitalization and daily trading volumes increased rapidly in the SEE's during transition. However, since the equity markets in these countries are still relatively small when compared with developed ones, they tend to exhibit higher volatility, possibly because of their sensitivity to even relatively small portfolio adjustments (Égert and Kočenda, 2007).

Stock markets in the SEE's received massive FDI in the course of 2004, which boosted stock indices in almost all countries (see Figure 1). The dramatic increase in stock prices in the EU accession countries following the announcement of EU enlargement was a result of market integration and the subsequent re-pricing of systematic risk (Dvorák and Podpiera, 2006).



Symbols: CROBEX (Croatia), SBI20 (Slovenia), SASX-10 (Bosnia and Herzegovina), BELEX15 (Serbia), MONEX20 (Montenegro), BG40 (Bulgaria), BET10 (Romania).

Figure 1. Indices of the SEE countries (01:2004 – 12:2010)

3. EMPIRICAL LITERATURE OVERVIEW AND DIFFERENT METHODOLOGIES OF ASSESSING FINANCIAL INTEGRATION

Our model is based on large amount of empirical evidence of Adam et al. (2002), Baele et al. (2005), Baltzer et al. (2008) and others who pointed out that transition from centrally planned to market economies has led to rapid financial developments boosted by a strong, foreign, primarily EU banking presence.

A number of studies have analyzed how stock market integration affects stock market returns and investigated if stock market returns become more correlated in a more integrated market (see: Table 3). Baele et al. (2005) investigated comovements between the stock markets in the new EU member states of Central and Eastern Europe in the period from 2000 to 2007 and found empirical evidence that the stock markets of entrant countries in the EU area were more exposed to adverse comovements, volatility, and persistence after their accession. This result suggests that the flip side of financial-market integration is stronger cross-country shock propagation.

Baltzer et al. (2008) found that financial markets in the New Member States are significantly less integrated than those of the EU financial market and that they are more susceptible to euro market shocks after EU accession. Nevertheless, there is strong evidence that the process of integration is well under way and has accelerated since accession to the EU.

Baele et al. (2005) investigated to what extent globalization and regional integration led to increasing equity market interdependence in the case of Western Europe, as the region faced a unique period of economic, financial and monetary integration. They measured volatility spillovers (by the regime-switching model) from the EU and US markets to 13 local European equity markets and proved that increased trade integration, equity market development and low inflation contributed to an increase in EU shock spillover intensity and that there was evidence for a contagion from the US market to a number of local European equity markets during periods of high world market volatility.

The process of integration should increase cross-border investments among countries, which have joined the EU and are in the process of joining the European and Economic Monetary Union. The current diversity in the degree of financial development across the EU can be a great opportunity, at a time where these areas have become increasingly financially integrated.

Table 3. Empirical Literature Overview

Author(s)	Methodology and Economics	Results
Égert and Kočenda (2007)	The authors applied a Dynamic Conditional Correlation GARCH model to five-minute tick intraday stock price data to study the correlations of stock market movements among three developed countries: France, England and Germany, and three transition countries: Hungary, Poland and Czech Republic.	The authors found a strong correlation in stock market movements among the developed countries (German and French and US). The same could not be said for the transition countries, except for Hungary, which stood out somewhat as the most "lively" financial market with the highest business cycle correlation, as well as the country with the highest extent of banking sector depth and quality.
Dvorák and Podpiera (2006)	The authors observed an increase in stock prices in candidate countries, after EU enlargement was announced. They investigated the hypothesis that the rise in stock prices was the result of the reprising of systematic risk, due to the integration of accession countries into the world market by beta-convergence method.	They found that firm-level stock price changes were positively related to the difference between a firm's local and world market betas. The evidence suggests that at least part of the stock price increase can be explained by the difference between stocks' local and world betas. Stocks that had a high local beta but a low world beta experienced a higher price increase than other stocks.
Syllignakis and Kouretas (2006)	The authors researched the relationships between seven CEE countries and two developed stock markets, i.e. the German and US markets by Granger Methodology and Dynamic Conditional Correlation (DCC).	They found that the Czech Republic, Hungary, Poland, Slovenia and Slovakia have significant common trends with German and US financial markets, while the Estonian and Romanian markets are segmented, and that market interrelationships strengthened during

	They also applied the Markov Switching ARCH-L (SWARCH-L) model to study for the structural breaks in volatility.	the Russian and Asian crises.
Savva and Aslanidis (2007)	The authors investigated the degree of stock market correlation among five new EU members and the euro zone by STCC-GARCH to demonstrate the correlation between the Czech and Polish markets and the eurozone.	They demonstrated that the correlation between the Czech and Polish markets and the euro zone has been increasing over the past years, although the phenomenon cannot be said to be widely present in all the transition countries. They have also shown that new EU members have closer ties with the eurozone market than with the US market.
Onay (2007)	The author examined the long-term financial integration of second-round acceding and candidate countries with the European Union and the US stock markets during the accession process. He used the Engle-Granger (1987) causality test to present evidence of a casual flow from European and US equity markets to the Croatian stock market and from the Turkish Stock market to the Bulgarian stock market.	The long-term stock market interdependence indicated no long-term relationship between the second-round countries and the EU and US stock markets. The results indicated that the completion of accession negotiations with Bulgaria and Romania and ongoing negotiations with Croatia and Turkey have not yet resulted in the complete financial integration of these markets with the European Union.

4. METHODOLOGY, DATA, RESULT AND DISCUSSION

I Data specification

Based on the studies investigating the correlation of stock market indices and macro economic variables in the empirical literature, we constructed a data set of explanatory variables that are usually included in models: capital inflow (in *bn* of domestic currency, in real terms); the exchange rate express as the price of one unit of foreign currency in units of domestic currency; the real GDP (in *bn* of domestic currency deflated by GDP deflator); government debt expressed as percentage of GDP; the industrial production index; short-run (6 months) interest rates (p.a.); the consumer price index and trade balance (in *bn* of domestic currency deflated by GDP deflator). We relied on the internal database of the CCEQ and EIPF (2010)[1] and on the databases of the national statistical bureaus of individual countries, especially for the US and UK.

All the nominal variables expressed in national currencies were corrected by an individual country's appropriate deflator(s) (using the December of 2010 as the base) and converted into EUR by using the exchange rate of December 2010.

A monthly time series was used for the period from January 2004 to December of 2010, in selected SEE countries.
The local stock price indices (closing prices) were used for each of the examined stock markets: CROBEX (Croatia), SBI20 (Slovenia), SASX-10 (Bosnia and Herzegovina), BELEX15 (Serbia), MONEX20 (Montenegro), BG40 (Bulgaria), BET10 (Romania), FTSE100 (UK) and DOW JONES (US). Stock indices' data (closing) were collected on national stock exchanges and adapted to monthly average indices from January 2004 to December 2010.
In order to control for a potential endogenity problem, several instrumental variables were employed in regressions: broad money (in *bn* of domestic currency, in real terms), credit volume (in *bn* of domestic currency, in real terms), the export of goods and services expressed as a percent of GDP, the import of goods and services expressed as a percent of GDP, capital outflows (in *bn* of domestic currency, in real terms) and wages as the average wage per employee (deflated by consumer price index).

II Methodology
In different estimations for the empirical evidence of a relationship between stock-exchange indices and main (macro) economic indicators, we used methods such as correlations cointegration and cross-country regressions. The methods primarily used in measuring financial integration are OLS (Ordinary Least Squares) and TSLS (Two-stage Least Squares).
In the course of our research we used TSLS (Two-stage Least Squares) regression. The Two Stage Least Squares (TSLS) method was used for every country to avoid an endogenity problem, which could arise in an estimation with too-correlated explanatory variables, which were substituted by employing suitable instrumental variables (see the description in the *Data Explanation*).
The two-stage least squares (TSLS) method is a method that is a special case of instrumental variables regression. There are two stages: in the first stage, TSLS finds the portions of the endogenous and exogenous variables that could be connected to the instruments. The second stage is the regression of the original equation, with all the variables replaced by the fitted values from the first-stage regressions. TSLS Instrumental variable methods rely on two assumptions: instrumental variables are uncorrelated with the disturbances - instruments are distributed independently of the error process (i.e. instruments are valid), and the instruments are sufficiently correlated with the included explanatory variables in the equation (i.e. instruments are not weak). To provide a TSLS estimation, we have to satisfy the order condition for identification (there must be at least as many instruments as there are coefficients in the equation).
Before applying linear regression methods, we eliminated the overly correlated explanatory variables for every country.
There are two primary methods to examine the degree of cointegration among indices: the Engle-Granger methodology (1987) which is bivariate (testing for cointegration between pairs of indices) and the Johansen-Juselius technique. Johansen and Juselius is a multivariate technique and allows for more than one

cointegrating vector or common stochastic trend to be present in the data.[2] We used the Johansen methodology to find cointegrated variables (see: Table(s) 4.).

Table(s) 4. Test of cointegration

Test of cointegration - Bosnia and Herzegovina (Sample: 2004:1 2010:12)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.476628	90.52460	95.75366	0.1085
At most 1	0.305987	52.97179	69.81889	0.5064
At most 2	0.259384	31.78644	47.85613	0.6239
At most 3	0.139569	14.37058	29.79707	0.8192
At most 4	0.092275	5.651882	15.49471	0.7362
At most 5	0.000632	0.036653	3.841466	0.8481

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.476628	37.55281	40.07757	0.0937
At most 1	0.305987	21.18535	33.87687	0.6702
At most 2	0.259384	17.41586	27.58434	0.5444
At most 3	0.139569	8.718695	21.13162	0.8545
At most 4	0.092275	5.615229	14.26460	0.6629
At most 5	0.000632	0.036653	3.841466	0.8481

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Test of cointegration - Bulgaria (Sample: 2004:1 2010:12)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.375445	55.97882	69.81889	0.3788
At most 1	0.308119	34.32587	47.85613	0.4841
At most 2	0.174022	17.38214	29.79707	0.6118
At most 3	0.154156	8.587558	15.49471	0.4049
At most 4	0.019082	0.886235	3.841466	0.3465

Trace test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.375445	21.65295	33.87687	0.6345
At most 1	0.308119	16.94373	27.58434	0.5848
At most 2	0.174022	8.794581	21.13162	0.8486
At most 3	0.154156	7.701323	14.26460	0.4099
At most 4	0.019082	0.886235	3.841466	0.3465

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Test of cointegration - Croatia (Sample: 2004:1 2010:12)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.386598	100.0761	125.6154	0.5994
At most 1	0.364013	71.72955	95.75366	0.6630
At most 2	0.267142	45.48006	69.81889	0.8152
At most 3	0.176040	27.45348	47.85613	0.8365
At most 4	0.136781	16.22275	29.79707	0.6965
At most 5	0.113617	7.691737	15.49471	0.4989
At most 6	0.011938	0.696571	3.841466	0.4039

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.386598	28.34659	46.23142	0.8640
At most 1	0.364013	26.24950	40.07757	0.6854
At most 2	0.267142	18.02657	33.87687	0.8763
At most 3	0.176040	11.23073	27.58434	0.9592
At most 4	0.136781	8.531011	21.13162	0.8683
At most 5	0.113617	6.995167	14.26460	0.4897
At most 6	0.011938	0.696571	3.841466	0.4039

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Test of cointegration - Montenegro (Sample: 2004:1 2010:12)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.165118	24.66525	47.85613	0.9273
At most 1	0.119159	14.19832	29.79707	0.8293
At most 2	0.077630	6.839386	15.49471	0.5964
At most 3	0.036432	2.152500	3.841466	0.1423

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.165118	10.46694	27.58434	0.9773
At most 1	0.119159	7.358929	21.13162	0.9384
At most 2	0.077630	4.686886	14.26460	0.7807
At most 3	0.036432	2.152500	3.841466	0.1423

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Test of cointegration - Romania (Sample: 2004:1 2010:12)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.460929	137.0314	159.5297	0.4236
At most 1	0.387212	101.1928	125.6154	0.5640
At most 2	0.307248	72.78809	95.75366	0.6250
At most 3	0.275956	51.49725	69.81889	0.5717
At most 4	0.205635	32.76884	47.85613	0.5696
At most 5	0.183965	19.41653	29.79707	0.4633
At most 6	0.080924	7.625251	15.49471	0.5063
At most 7	0.045993	2.730865	3.841466	0.0984

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.460929	35.83863	52.36261	0.7498
At most 1	0.387212	28.40467	46.23142	0.8614
At most 2	0.307248	21.29084	40.07757	0.9398
At most 3	0.275956	18.72841	33.87687	0.8381
At most 4	0.205635	13.35231	27.58434	0.8646
At most 5	0.183965	11.79128	21.13162	0.5684
At most 6	0.080924	4.894386	14.26460	0.7551
At most 7	0.045993	2.730865	3.841466	0.0984

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Test of cointegration - Slovenia (Sample: 2004:1 2010:12)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.113771	17.14854	47.85613	0.9988
At most 1	0.090564	10.14330	29.79707	0.9781
At most 2	0.065604	4.637347	15.49471	0.8461
At most 3	0.012026	0.701731	3.841466	0.4022

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.113771	7.005239	27.58434	0.9998
At most 1	0.090564	5.505953	21.13162	0.9908
At most 2	0.065604	3.935616	14.26460	0.8661
At most 3	0.012026	0.701731	3.841466	0.4022

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Test of cointegration - Serbia (Sample: 2004:1 2010:12)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**

None	0.493698	70.30019	95.75366	0.7125
At most 1	0.328091	45.11716	69.81889	0.8271
At most 2	0.312351	30.40474	47.85613	0.6981
At most 3	0.255771	16.54912	29.79707	0.6731
At most 4	0.126426	5.619088	15.49471	0.7400
At most 5	0.016566	0.618089	3.841466	0.4318

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.493698	25.18303	40.07757	0.7560
At most 1	0.328091	14.71241	33.87687	0.9804
At most 2	0.312351	13.85562	27.58434	0.8325
At most 3	0.255771	10.93003	21.13162	0.6543
At most 4	0.126426	5.001000	14.26460	0.7417
At most 5	0.016566	0.618089	3.841466	0.4318

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Test of cointegration - UK (Sample: 2004:1 2010:12)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.351473	60.49772	69.81889	0.2204
At most 1	0.237925	35.38074	47.85613	0.4281
At most 2	0.157863	19.62153	29.79707	0.4489
At most 3	0.101341	9.656403	15.49471	0.3081
At most 4	0.057894	3.458995	3.841466	0.0629

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.351473	25.11698	33.87687	0.3771
At most 1	0.237925	15.75920	27.58434	0.6861

At most 2	0.157863	9.965131	21.13162	0.7480
At most 3	0.101341	6.197408	14.26460	0.5880
At most 4	0.057894	3.458995	3.841466	0.0629

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Test of cointegration - US (Sample: 2004:1 2010:12)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.392390	84.78936	95.75366	0.2232
At most 1	0.358215	59.87826	69.81889	0.2391
At most 2	0.301887	37.70318	47.85613	0.3151
At most 3	0.195966	19.73445	29.79707	0.4410
At most 4	0.133928	8.828749	15.49471	0.3815
At most 5	0.032256	1.639410	3.841466	0.2004

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.392390	24.91110	40.07757	0.7730
At most 1	0.358215	22.17507	33.87687	0.5941
At most 2	0.301887	17.96873	27.58434	0.4978
At most 3	0.195966	10.90570	21.13162	0.6567
At most 4	0.133928	7.189339	14.26460	0.4670
At most 5	0.032256	1.639410	3.841466	0.2004

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

We employed a set of instrumental variables: capital outflows, broad money, credit volume, exports, imports, and wages, which we expected to be correlated with the endogenous variables. The correlation between capital inflows and capital outflows is based on the theory that capital outflows stimulate capital inflows[3] conditioned by interest rate and exchange rate dynamics. We could also substitute wages for capital inflows due to the fact that average lower wages usually could be one trigger for increasing the capital inflows in some countries.[4] The interest rate could be substituted with instruments such as broad money and credit volume to deposit ratio, because interest rates positively impact the supply of money[5] (lower interest rates

due to a broader supply of money), savings (higher interest rates increase deposits) and credit demand[6] (lower interest rates increase a credit demand). Trade balance is substituted with instrumentals such as the export and import of goods and services, because in economic theory the balance of trade (or net exports) is the difference between the monetary value of exports and imports of output in an economy over a certain period[7] conditioned also by exchange rate dynamics.

The choice of suitable instrumental variables in regression can eliminate bias that can arise from the correlation between the vector of explanatory variables and the error term. We constructed a set of instrumental variables that should be correlated with the endogenoues variables but not with the error term.

When disturbances are heteroskedastic or autocorrelated, these test statistics are no longer valid.

The Hansen-Sargan test for over-identifying restrictions addresses the first assumption, whereas the weak identification tests address the second assumption. The probability of the J-statistic is the Sargan statistic, which provides evidence for the instrumental quality of every regression. In models where there are the same numbers of instruments and parameters, the value of the optimized objective function will be greater than zero. The coefficients for the probability of the J-statistic (See: Table 6) show evidence for the validity of instrumental variables that we used in equations. The Kleibergen-Paap test, with the rejection of the null hypothesis, also suggested that chosen instruments are not weak (Kleibergen and Paap 2006).

All variables were seasonally adjusted (Eviews 7, Stata 10) on the basis of monthly data from 2004 to 2010 for individual regressions.

We used the Augmented Dickey-Fuller (1979) test to test a series for the presence of a unit root. According to the test results given in Table 5. all variables are stationary in the form dlog (x) i.e. integrated of order 1.[8] To determine the lag length, we used Schwarz Information Criterion because the Schwarz criterion and its parsimonious model perform better over a longer period of research (Ashgar and Abid 2007) and also Akaike and Hannan-Quinn Information Criterion (Akaike 1987). A maximum of twelve lags was considered for each variable when determining the lag length.

The Q-statistics were estimated to check autocorrelation in the residuals by a test statistic for the null hypothesis that there is no autocorrelation of residuals with high probabilities and low Q-statistics. The results indicated that residuals are not serially correlated and, therefore, suitable for analysis.

Table 5. The stacionarity (Augmented Dickey-Fuller) – Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, Romania, Slovenia, UK, US.

Variable	Level	dlog(x)
Bosnia and Herzegovina		
Explanatory variables		
Capital inflows	-1.519463 (0.5169)	-7.487408 (0.0000)
Exchange rate	-2.060072 (0.2613)	-7.501354 (0.0000)
GDP	-1.841999 (0.3579)	-7.487507 (0.0000)
Government debt	-0.729311 (0.8309)	-7.799926 (0.0000)

Interest rate	-1.412194 (0.5704)	- 7.730569 (0.0000)
CPI	-1.703108 (0.4245)	-7.546126 (0.0000)
Instrumental variables		
Import	-0.681956 (0.8430)	-7.538228 (0.0000)
Export	-2.076671 (0.2546)	-7.558208 (0.0000)
Broad money	-1.320412 (0.6145)	-7.536226 (0.0000)
Capital outflows	-0.643561 (0.8523)	-7.834857 (0.0000)
Bulgaria		
Explanatory variables		
Capital inflows	-2.736568 (0.0755)	- 5.682076 (0.0000)
Exchange rate	-1.479341 (0.5352)	-6.782330 (0.0000)
GDP	-2.290735 (0.1791)	-6.675052 (0.0000)
Interest rate	0.013955 (0.9550)	-7.208205 (0.0000)
CPI	-1.012705 (0.7413)	-7.185594 (0.0000)
Instrumental variables		
Credit volume	-1.018239 (0.7393)	-7.992614 (0.0000)
Capital outflows	-1.092905 (0.7131)	-28.92508 (0.0001)
Croatia		
Explanatory variables		
Capital inflows	-0.339837 (0.9120)	-7.886450 (0.0000)
Exchange rate	-2.097463 (0.2465)	-7.941583 (0.0000)
GDP	-1.177484 (0.6786)	-7.653876 (0.0000)
Government debt	-0.325044 (0.9143)	-7.797593 (0.0000)
Interest rate	-1.120162 (0.7023)	-7.503458 (0.0000)
CPI	-1.514457 (0.5195)	-3.928294 (0.0084)
Trade balance	-3.052527 (0.0359)	-5.768902 (0.0000)
Instrumental variables		
Export	-0.423745 (0.8978)	-7.593808 (0.0000)
Import	-0.339942 (0.9120)	-7.639171 (0.0000)
Broad money	-1.181171 (0.6770)	-7.494325 (0.0000)
Credit volume	-1.198583 (0.6696)	-7.489654 (0.0000)
Capital outflows	-1.255038 (0.6446)	-7.490632 (0.0000)
Wages	-2.836835 (0.0593)	-6.722329 (0.0000)
Montenegro		
Explanatory variables		
Capital inflows	-1.822104 (0.3665)	-7.617867 (0.0000)
Industrial production index	-2.149160 (0.2268)	-7.486085 (0.0000)
Interest rate	-2.038036 (0.2702)	-7.575173 (0.0000)
CPI	-1.061543 (0.7252)	-7.560369 (0.0000)
Trade balance	-1.239984 (0.6514)	-7.756068 (0.0000)
Instrumental variables		
Capital outflows	-0.568097(0.8693)	-8.548238 (0.0000)
Export	-1.596232 (0.4778)	-7.346082 (0.0000)
Import	-1.268819 (0.6384)	-7.665820 (0.0000)
Broad money	-1.887304 (0.3360)	-7.642325 (0.0000)
Credit volume	-1.553540 (0.4998)	-7.483316 (0.0000)
Wages	-1.471949 (0.5408)	-7.495584 (0.0000)
Romania		
Explanatory variables		
Capital inflows	-2.438796 (0.1358)	-7.490519 (0.0000)
Exchange rate	-1.700858 (0.4256)	-7.504324 (0.0000)
GDP	-2.023947 (0.2761)	-7.506694 (0.0000)
Government debt	-1.697693 (0.4272)	-7.629119 (0.0000)

Industrial production index	-2.374390 (0.1533)	-5.604936 (0.0000)
Interest rate	-2.205056 (0.2067)	-7.564535 (0.0000)
CPI	-2.326215 (0.1673)	-7.567559 (0.0000)
Trade balance	-1.742166 (0.4052)	-7.509881 (0.0000)
Instrumental variables		
Capital outflows	-2.034335 (0.2718)	-6.918463 (0.0000)
Export	-2.018571 (0.2783)	-7.488000 (0.0000)
Import	-1.949181 (0.3081)	-7.495754 (0.0000)
Broad money	-2.163382 (0.2216)	-7.495420 (0.0000)
Credite volume	-0.744394 (0.8269)	-7.518892 (0.0000)
Wages	-2.163382 (0.2216)	-7.495420 (0.0000)
Slovenia		
Explanatory variables		
Government debt	-0.655269 (0.8495)	-7.764576 (0.0000)
Industrial production index	-1.529764 (0.5118)	-7.486216 (0.0000)
Interest rate	-1.612754 (0.4698)	-7.614093 (0.0000)
CPI	-2.611275 (0.0967)	-7.484535 (0.0000)
Trade balance	0.732888 (0.9918)	-6.564382 (0.0000)
Instrumental variables		
Capital outflows	-0.703200 (0.8377)	-7.677232 (0.0000)
Broad money	-1.664467 (0.4438)	-7.510614 (0.0000)
Credite volume	-1.348877 (0.6010)	-7.713439 (0.0000)
Wages	-2.424865 (0.1394)	-7.509257 (0.0000)
Serbia		
Explanatory variables		
Capital inflows	-1.452391 (0.5465)	-5.916902 (0.0000)
Exchange rate	-1.826177 (0.3626)	-5.919421 (0.0000)
GDP	-0.988005 (0.7478)	-6.026810 (0.0000)
Government debt	-2.577316 (0.1064)	-6.770576 (0.0000)
Trade balance	-1.434915 (0.5592)	--7.523202 (0.0000)
Instrumental variables		
Capital outflows	-2.557147 (01107)	-6.354348 (0.0000)
Export	-0.870225 (0.7905)	-7.164186 (0.0000)
Import	-1.605430 (0.4735)	-7.529788 (0.0000)
Broad money	-0.807850 (0.8094)	-7.561000 (0.0000)
Credit volume	-1.630387 (0.4609)	-7.693368 (0.0000)
Wages	-0.143519 (0.9392)	-7.676490 (0.0000)
UK		
Explanatory variables		
Capital inflows	-1.537946 (0.5076)	-7.668838 (0.0000)
Government debt	-0.347485 (0.9107)	-7.770721 (0.0000)
Interest rate	-1.150030 (0.6901)	-7.501963 (0.0000)
CPI	-1.101910 (0.7096)	-7.709727 (0.0000)
Trade balance	-2.208325 (0.2056)	-7.488406 (0.0000)
Instrumental variables		
Capital outflows	0.798905 (0.9932)	-6.285938 (0.0000)
Export	-1.300943 (0.6236)	-6.758820 (0.0000)
Import	-1.446661 (0.5534)	-6.737773 (0.0000)
Broad money	2.351797 (0.9987)	-7.123869 (0.0000)
Wages	-1.156366 (0.6875)	-7.738844 (0.0000)
US		
Explanatory variables		

Capital inflows	-1.903570 (0.3285)	-6.873146 (0.0000)
GDP	-3.264892 (0.0211)	-6.836804 (0.0000)
Government debt	-0.170276 (0.9680)	-7.178274 (0.0000)
Industrial production index	-0.978112 (0.7550)	-9.125373 (0.0000)
CPI	-2.256955 (0.1896)	-7.002641 (0.0000)
Instrumental variables		
Capital outflows	-2.829422 (0.0603)	-7.703700 (0.0000)
Export	-1.640020 (0.4554)	-6.049594 (0.0000)
Credit volume	0.550101 (0.9871)	-7.031661 (0.0000)
Wages	0.550101 (0.9871)	-7.031661 (0.0000)

III Results and discussion

Strong correlation was found among the main economic indicators and stock exchange indices of the SEE countries. The obtained results confirmed the significant influence of the chosen explanatory variables on the stock exchange indices in observed SEE countries such as positive impact of capital inflows, GDP, inflation, industrial production and trade balance; and also the negative impact of exchange rate, interest rate and government debt.

The complete results provide evidence of the higher volatility of macroeconomic factors such as government debt, exchange rate, GDP, trade balance and short-term (sixth-month) interest rate that usually increase the volatility of stock exchange indices.

Evidently, stock exchanges in SEE transition countries reacted in similar ways to significant capital inflows and the opening of markets in the observed period, despite individual differences among the individual countries (see: Figure 1). The significant increase in stock prices in the EU accession countries clearly followed the announcement of EU enlargement (for Bulgaria, Romania and Slovenia and subsequently Croatia and Montenegro) and obviously was a result of market integration and the subsequent re-pricing of systematic risk.

Stock market performance definitely illustrates the state of the country's economy. Rising stock prices in the SEE countries in the scope of our interest provide evidence about economic growth in the region in the light of the financial integration process which goes together with EU integration process as well.

Stock prices increase usually go together with large FDI as well as the implementation of reforms regarding EU integration. European financial markets have faced crucial structural and institutional adjustments, with the aim of accelerating financial integration. This integration is, additionally, positively associated with real economy symptomatic through real per capita GDP, educational level, banking sector development, monetary growth, credit growth, stock market development, the legislation of the country and government integrity.

The positive influence of GDP, capital inflows, industrial production and trade balance, which is obvious in countries' regressions - improves the theory that foreign direct investments in developing economies have grown rapidly following positive financial and political transformations.

The stock markets of SEE have tried to adapt their standards to international ones, by improving: the disclosure practices of firms, order execution, ownership rights, and by bringing down limitations to international capital flows because it is widely

excepted that economic growth and prosperity is possible only when capital markets work efficiently (see: Syllignakis and Kouretas 2006, Mohammad and Abdelhak 2009).

Table 6. TSLS Estimation by individual country (9)

Dependent variable: dlog(x) (01m 2004 to 12m 2010)									
Variable	**BIH**	**BUG**	**CRO**	**MN**	**ROM**	**SLO**	**SER**	**UK**	**US**
C	-	-	-	-0.215463 (-1.702011) (0.1042)*	-	-	-	-	0.013661 (3.052326) (0.0224)**
dlog (CAP)	0.094581 (/) (2.076309) (0.0543)*	0.144803 (-9) (2.063302) (0.0557)*	0.349682 (-11) (4.541061) (0.0001)***	0.853256 (-8) (2.253319) (0.0356)**	0.300636 (-11) (16.06167) (0.0000)***	-	0.106363 (-12) (3.416035) (0.0142)**	0.241479 (-4) (5.516286) (0.0000)***	0.009603 (-7) (5.342431) (0.0018)***
dlog (EXR)	-18.39730 (-8) (-2.096159) (0.0523)*	-6.127371 (-3) (-2.304564) (0.0349)**	-6.157387 (-12) (-2.785870) (0.0098)***		-1.835372 (-2) (-15.79663) (0.0000)***	-	-2.762409 (-2) (-6.468528) (0.0006)***	-	-
dlog (GDP)	0.172721 (-7) (4.227345) (0.0006)***	0.184615 (-4) (2.360444) (0.0313)**	0.064962 (-8) (2.249863) (0.0331)**		0.144385 (-1) (5.312749) (0.0060)***	-	0.204522 (-12) (3.748504) (0.0095)***	-	0.016774 (-12) (3.647964) (0.0107)**
dlog (GVD)	-0.762530 (-5) (-4.975444) (0.0001)***	-	-3.865007 (/) (-5.338394) (0.0000)***		-5.247041 (-6) (-2.37E+08) (0.0000)***	-2.227578 (-12) (-2.449278) (0.0211)**	-0.326172 (-1) (-1.981371) (0.0948)**	-1.282403 (-9) (-2.839178) (0.0113)**	-2.641411 (-10) (-2.200500) (0.0701)*
dlog (IND)	-	-	-	0.786717 (-6) (5.536044) (0.0000)***	0.081773 (-12) (14.44746) (0.0000)***	0.114558 (-12) (2.838874) (0.0085)***	-	-	0.077040 (-12) (3.462961) (0.0134)**
dlog (INT)	-0.712238 (-4) (-2.772183) (0.0136)**	-1.222261 (-9) (-4.153112) (0.0007)***	-0.331848 (-12) (-2.278367) (0.0312)**	-1.219462 (-4) (-2.296666) (0.0326)**	-	-0.757411 (-12) (-4.169434) (0.0003)***	-	-0.408849 (-1) (-3.417262) (0.0033)***	-
dlog (CPI)	0.031565 (-12) (3.021754) (0.0081)***	0.259213 (-1) (2.814706) (0.0125)**	0.160875 (-3) (1.987594) (0.0575)*	1.106634 (-9) (2.264863) (0.0348)**	0.306795 (-6) (2.705974) (0.0538)*	0.062012 (-9) (1.963031) (0.0600)*	0.164701 (-11) (3.315223) (0.0161)**	0.051032 (-8) (1.970110) (0.0653)*	0.086575 (-8) (9.391181) (0.0001)***
dlog (TRB)	-	-	1.156284 (-12) (2.506115) (0.0188)**	8.244719 (-7) (3.098824) (0.0057)***	0.396077 (-12) (16.95547) (0.0001)***	-	0.275458 (-1) (4.888631) (0.0027)***	0.080764 (-12) (2.792757) (0.0125)**	0.194419 (-12) (2.045499) (0.0879)*
R-squared	0.805790	0.739891	0.723396	0.615588	0.849065	0.696547	0.924336	0.683060	0.833986
Adjusted R-squared	0.732962	0.658607	0.659564	0.500265	0.622663	0.651591	0.848672	0.589843	0.667973
S.E. of regression	0.044816	0.057566	0.068147	0.461932	0.030442	0.029262	0.029485	0.014520	0.009916
S.D. dependent. var	0.086725	0.098524	0.116797	0.653443	0.049557	0.049574	0.075794	0.022672	0.017209
J-statistic[i] probability	(0.822996)	(0.335170)	(0.553863)	(0.794457)	(0.406006)	(0.333457)	(0.423190)	(0.462557)	(0.423190)
Kleibergen-Paap test [ii]	(0.0000)	(0.0002)	(0.0004)	(0.0021)	(0.0011)	(0.005)	(0.007)	(0.0003)	(0.005)

Symbols: BIH – Bosnia and Herzegovina, BUG – Bulgaria, CRO – Croatia, MN – Montenegro, ROM – Romania, SLO – Slovenia, SER – Serbia, UK – United Kingdom, US – United States. Variables:
CAP: capital inflows; EXR: exchange rate; GDP: gross domestic product; GVD: government debt; IND: industrial production index; INT:- interest rate in p.a.; CPI: consumer price index; TRB: trade balance.
Instrumental variables:
BM: broad money; CV: credit volume; EXP: export of goods and services; IMP: import of goods and services; COF: capital outflow; WAG: average wage per employee.
Notes: dlog(x) is used. The time lag of the variables is given in brackets; (t-Statistics) are in brackets below and (probabilities)*** are in brackets below (t-Statistics).
Significance levels are denoted as: *** significant at 1%; ** significant at 5%; * significant at 10%.
[i] J-probability (Hansen-Sargan test) give us evidence of validity of instrumental variables.
[ii]The Kleibergen-Paap test - low probability rejects the null hypothesis that instrumental variables are not valid.

Obviously, development of the financial markets was not homogenous across the SEE region. The completion of EU accession of *Bulgaria*, *Romania* and *Slovenia* and ongoing negotiations with *Croatia* and *Montenegro* have not yet resulted in the complete financial integration of these markets with the European Union (see Onay 2007). *Bulgaria*, *Romania* and *Slovenia*, as countries that are already in the EU, had, in the last decade, experienced strong capital inflows coupled with particularly high asset valuations and buoyant demand conditions due to their announcement of EU accession (see Dvorák and Podpiera 2006). *Croatia* and *Montenegro*, as EU candidate countries, have also seen strong capital inflows in the last decade connected with the announcement of potential EU membership (see: Dragota et al. 2007).

The process of integration should increase cross-border investments among countries, which have joined the EU and are in the process of joining the European and Economic Monetary UnionCapital flows originated from wealthier European countries, with higher GDP and capital per capita endowments, and to feed into catching up economies, with lower GDP per capita and endowments, thus facilitating their convergence.

GDP growth presumes a rise of the industrial production index and trade liberalization due to closer trade connections between the EU and candidate countries as it is confirmed in our results (see: Onay 2007). The strongest feedback between FDI and manufacturing trade is based on the argument that larger inflows of FDI will lead to a higher volume of trade as well as other benefits such as increased rates of total factor productivity growth or higher output growth rates (see: Aizenman and Noy 2005).

EU accession definitely provides better market access for Southeastern European firms and increased assistance from the EU budget, which leads to greater consumer confidence in light of the prospects of EU membership (see: Dvorák and Podpiera 2006). Beyond direct trade links, openness in general make economies less prone to move with others (see: Onay 2007). The implication of a significant positive trade balance in *Croatia* and *Montenegro* we see also in the summer seasons (tourism-oriented countries due to regional characteristics) and in trade liberalization regimes in those countries in the observed period.

To conclude, the liberalization of the market is definitely connected with EU accession and other regional and international trade integration (see Baltzer et al. 2008).

The empirical evidence of significant negative coefficients of government debt is clearly confirmed in the results of individual countries regressions (see results for: *Croatia*, *Romania* and *Slovenia* in Table 6) due to the global recession that started at the end of 2008. It provides us with evidence that the accession of the SEE countries in the EU required the implementation of reforms that lead to further economic expansion. The reforms in *Croatia* started in 2005 when the official negotiation process began (see and accelerated especially in the 2011 due the end of negotiation process regarding EU and the entry data (probably it will be in the end of 2013). Definitely the most important factors driving the acceleration of financial integration are related to the policy measures undertaken by the New Member States in order to meet European financial standards, including the liberalization of capital accounts, as well as legal and institutional reforms (see: Mohammad and Abdelhak 2009, Muradoglu 2009).

Most reforms in *Slovenia* were done from 1996 to 2004 and in *Bulgaria* and *Romania* from 2001 to 2004, when they were motivated to join the EU.

The results also imply that the observed transition countries of SEE were also exposed to the global financial crisis that started in 2008 which is reflected in the empirical evidence of the procyclicality of government debts in almost all observed SEE countries, including developed ones such as the UK and the US (developed countries as a starting points of the crisis spillover). Recession obviously spread beyond the national and regional borders creating a 'contagion effect' (only occurs if such linkages become stronger in a crisis period) (see: Ciutacu et al. 2009).

The government debts of *Slovenia* and *Romania*, as current EU members, provide us with clear evidence that reforms affecting budgetary discipline do not end after EU accession. In June 2010, the *Slovenian* government introduced a supplementary budget (reducing the government budget deficit) with plans to increase taxes and cut spending (reforming the pension and health care system) while the *Romanian* government is in the middle of taking measures (such as public sector restructuring and expenditure cuts) towards government spending. The flexibility of fiscal policy in much of the SEE countries could be improved by lowering the high share of nondiscretionary expenditures in total and also the high level of public spending. Definitely, public sector wage bills and transfers are particularly large in most of the SEE countries, reflecting the still generous and often unreformed social security systems that these countries cannot afford.

The evidence of negative exchange rates are followed by negative interest rates impact on the stock market returns in the SEE countries. This were also proved by other authors (see: Knif et al. 2008, Alam and Uddin 2009) and confirmed in the theory that exchange rate volatility has significant implications on the financial system of a country, especially the stock market.

Another important evidence of the recent crisis, beside government debt empirical results, we found in the procyclycality of the interest rates in the SEE countries (see interest rate results for *Bulgaria*, *Montenegro, Slovenia* and *Croatia* in Table 6). The

interest rates should also be an important factor in explaining stock market returns (see: Konan 2008) because it can influence the level of corporate profits, which in turn influences the price that investors are willing to pay for the stock through expectations of higher future dividends payments. The transition from planned to market economies in the SEE region has led to rapid financial developments, which were further boosted by a strong, mainly EU, banking presence (see: Baltzer et al. 2008).

A reduction in interest rates reduces the costs of borrowing, which have a positive effect on the future expected returns for the firm. Also, an increase in interest rates would make stock transactions more costly. Investors would require a higher rate of return before investing. This will reduce demand and lead to a price depreciation. A rather high interest rate is typical for transition countries due to insufficient accumulation and credit supply potential (especially in the financial crisis). The strong presence of foreign banks in those countries in the last decade did not seriously help in reducing interest rates, but helped in the supply of different financial products and services to the government, companies and households. Foreign banks saw transition countries as a new market for applying their various financial products and services. The privatizations boosted confidence in banks, which in turn, led to increasing monetization with rapid deposit growth. Together with enhanced access to foreign loans by the new private banks, this has helped fuel a boom in lending in most of the region (see: Festić et al. 2009).

Interest rate of the SEE countries such as *Montenegro* are constantly increasing due the banks' need for large quantities of deposits, which leads to higher interest rate loans to citizens, companies and the government. There is significant competition among lending institutions.

The high results of the *Bulgarian* interest rate is a confirmation of the fact that *Bulgaria* has the highest interest rates among EU member states that have yet to introduce the Euro (the effective interest rates in *Bulgaria* in the end of 2010 has been 9.38%).

The influence of inflation on stock exchange volatility could be negatively or positively correlated to the stock exchange (there is no consensus in theory) (see: Knif et al. 2008). Inflation and the stock exchange in all observed SEE countries are positively correlated in our research (see especially high coefficient for *Montenegro's* CPI in Table 6), confirming the Fisher hypothesis about positive correlation between inflation and stock exchange volatility.

Strong negative exchange rates impact on stock exchange indices (*Romania, Bulgaria, Bosnia and Herzegovina, Croatia* and *Serbia*) strengthens the theory that stock price movements may influence, or be influenced by, exchange rate movements and a depreciating currency that has a negative impact on stock market returns -- especially in the long-run due to exchange rate depreciation (see: Stavárek 2005).

The depreciation of exchange rates has adverse effects on exporters and importers. Exporters have an advantage over other countries' exporters and increase their sales and their stock prices go higher (see: Baele's et al. 2005). However, in the early 1990s most Southeastern and Central European countries pegged their currencies to

the dollar or currency baskets, which contained the dollar and European currencies, exchange rate strategies have been gradually redirected towards the euro.

5. CONCLUSION

This empirical research demonstrated that the opening of the transition economies of the SEE region go hand in hand with massive capital inflows, which boosted stock indices, followed by GDP growth, and an increase in industrial production and liberalization of trade. On the other hand, global recession started in the middle of 2008, obvious in the volatility of the interest rates and government debt, provides us with evidence that recent financial crises are slowly overflowing, creating a 'contagion effect' and, with EU enlargement, into an ever-widening circle of countries. All countries in the region are prone to high deficits in their balance of payments proving the fact that certain countries of the SEE region have been living beyond their realistic possibilities in the years before the global financial crisis that started in the end of 2008.

It seems that, as closer is country to its way to EU – it is more exposed to global recession. Less developed SEE countries such as Serbia, BiH and Montenegro, we found less connected to the EU and world financial market.

But financial system of Southeastern transition countries in general (Croatia, Bulgaria, Bosnia and Herzegovina, Montenegro, Romania, Slovenia and Serbia) definitely is related to European and world financial systems, as seen through the main stock indices centers in the world (i.e. the UK and the US) and the spillover effect from more developed financial markets to less developed ones can already be noted. That spillover effect could be positive (economic growth in general) or negative (financial crisis) as we give evidence in this study.

Notes:

1) Source: http://ec.europa.eu/economy_finance/db_indicators/cpaceq/index_en.htm (2010), EIPF (internal data base).
2) It allows testing for the number as well as the existence of these common stochastic trends and involves determining the rank of a matrix of cointegrating vectors. Cointegrated markets exhibit common stochastic trends that limit the amount of independent variations between markets (Chen and Knez 1995).
3) The removal of capital outlow controls has been shown to stimulate a net inflow of capital (Reinhart and Talvi 1998).
4) Any tendency for labour to push down wages and the costs of production and raise the returns on capital may attract a capital inflow (Eicher et al. 2009).
5) It has been proven that monetary policy responds positively and significantly to stock returns and it is hard to conceive of any instruments that would affect the stock market without affecting the path of interest rates (Rigobon and Sack 2001). Interest rate shocks have a positive effect on the supply of money (Brueckner and Schaber 2002).
6) Interest rate changes impact the credit volume and quality of assets (Gentle et al. 2005).
7) The export and import of goods and services are employed instruments, which is substitute for a trade balance as one endogenous variable (Aizenman and Noy 2005).
8) The logarithmic approximation is accurate in certain cases such as when the rates of change in variables are reasonably small (Lutkepohl and Xu 2009).

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