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AN EMPIRICAL ANALYSIS OF STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH: THE CASE OF MACEDONIA[1]

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Abstract

This paper has two goals. The first goal is to investigate the influence of stock market development on economic growth for a group of 14 transition economies from the Central and South-East European (CSEE) region in the period 2002-2012, while the second is to analyze the main characteristics and specificities of the stock market in the Republic of Macedonia. To fulfil the first goal, we apply panel regression models (fixed and random effects) and a dynamic panel model (Generalized Method of Moments – GMM), while we use a single country approach and comparative analysis to examine the main characteristics of the Macedonian stock market. The estimated results indicate that stock market development is positive and significantly correlated with economic growth. Additionally, the comparative analysis of the stock market in the Republic of Macedonia suggests that the Macedonian stock market is still underdeveloped and faces a number of challenges before it can enter a new phase of development after the negative impact of the global financial crisis. Those challenges include capital market regional integration and the harmonization of legal and institutional frameworks such as bankruptcy procedures, accounting and reporting standards, public sector regulatory bodies, corporate governance and a liberalized trade regime.

Key words: *Stock markets development, economic growth, Central and South-East European countries, Republic of Macedonia.*

JEL: *E44, F3, F36, G15.*

1. INTRODUCTION

The existing theoretical and empirical literature related to finance and economic growth suggests that the financial sector has a significant positive influence on long-run economic growth (King and Levine 1993; Beck et al. 2005; 2008; Beck, Levine and Loayza 2010). The first stream of literature focused on the role of the

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banking sector in fostering economic growth, while recent empirical studies have provided insights on the importance of financial markets for economic growth.

The majority of empirical studies that look beyond the relationship between finance and growth were based on using an array of different cross-country panel regression techniques. However, recent research has addressed the important nonlinearities in the relationship between finance and growth. There is evidence that the effect of financial development is strongest among middle-income countries, whereas other studies find a declining effect from finance and growth as countries grow richer (Aghion et al. 2005; Arcand, Berkes and Panizza 2011; Beck et al. 2012).

Even though the analysis of the relationship between finance and economic growth in the Central and South-East European (CSEE) countries may be very interesting and useful for policymakers, given that some countries in this region have succeeded in establishing effective financial sectors while others have been delayed in this process during the transition and post-transition periods, there is still a lack of a sufficient number of studies in this field of research. Moreover, the findings that the finance-growth link may depend on the level of GDP per capita, and the fact that the financial systems of transition countries are relatively new and reforms for enhancing their efficiency have varied widely across the transition countries, provided additional inspiration for expanding the empirical literature related to the CSEE region.

In that context, the main aim of the paper is to investigate the relationship between stock market development as an integral part of the financial sector and economic growth for a group of transition economies from the Central and South-East European (CSEE) region in the period 2002-2012. The time period taken for observation is a relatively homogenous period, a stabilization phase of the post-transition process, including the effects of the global economic crisis. We have not included the transition period when the first progress in the development of financial system was achieved in order to eliminate the potential biases that arise from the effects of privatization on financial markets. We concentrate on the economically-driven activities within stock market development in the post-transition period and the process of reforming the financial system based on capitalist principles. To fulfil the main aim of the paper, we apply panel regression models (fixed and random effects) and a dynamic panel regression model (system GMM). The estimated results of panel regression analysis indicate that stock market development is positive and significantly correlated with economic growth in the CSEE countries in the period under analysis.

The second goal of our research is to analyze the main characteristics and specificities of the stock market in the Republic of Macedonia as a transition country by a single-country comparative analysis approach. The main findings of stock market development comparative analysis in the Republic of Macedonia suggest that the Macedonian capital market faces a number of challenges before it can enter a new phase of development after the negative impact of the global financial crisis. Those challenges include capital market regional integration and the harmonization of legal and institutional frameworks such as bankruptcy procedures, accounting and reporting standards, public sector regulatory bodies, corporate governance and a liberalized trade regime.

2. STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH

2.1. Literature review of stock market and economic growth

The existing theoretical and empirical literature related to finance and economic growth has reached a consensus that the financial sector has a significant positive influence on long-run economic growth. Greenwood and Jovanovic (1990), Levine (1991), Bencivenga and Smith (1991) have built theoretical models wherein efficient financial markets improve investment quality and enhance economic growth. According to the model of Greenwood and Jovanovic (1990) financial markets allocate investment funds to the most profitable projects by identifying information about investments characterized by the highest rate of return, while in the model of Levine, Bencivenga and Smith (1991) financial markets improve firm efficiency by eliminating the premature liquidation of firm capital, increase firms' access to finance, and increasing the proportion of resources allocated to firms.

Generally there are many channels through which the financial sector (bank and capital market) affects economic growth. Financial intermediaries (commercial and investment banks, insurance companies, and pension funds) and financial markets (stock and bond capital markets) can increase saving rates, reduce information and transaction costs, improve resource allocation and investment efficiency through well-known financial intermediation functions such as risk and liquidity management, fund pooling, screening and monitoring (King and Levine 1993; Levine 1997).

A number of studies empirically analyze the relationship between financial sector development and

economic growth (Levine 1997; Thiel 2001; Wachtel 2001). For instance, King and Levine (1993) found positive effects from financial sector development on growth by applying a cross-country regression study for 80 countries. All four proxy variables (the amount of liquid liabilities divided by GDP, the importance of commercial banks in relation to the central bank when allocating credit, the ratio of credit allocated to private enterprises to total domestic credit, and credit to private sector divided by GDPs) used in their paper somehow measure the size of banking sector. Atje and Jovanovic (1993) found a significant positive effect of the stock market on economic growth by extending the basic MRW (Mankiw et al. 1992) model with the ratio of annual value of stock market trades to GDP as a stock market development proxy variable by using 94 developed and developing countries for the period 1970-1988. Demirguc-Kunt and Levine (1996a), Singh (1997), Levine and Zervos (1998) found that stock market development plays an important role in predicting future economic growth, as well as in promoting the current economic growth. Moreover, Allen and Gale (2000) stressed the fact that financial markets promote innovative projects and long-run economic growth.

However, the cross-country regression approach has been criticized for ignoring the large differences between countries (Arestis and Demetriades 1997) and other problems related to cross-country regression analysis (Judson and Owen 1999). To address some of the econometric problems associated with cross-country growth analysis, including reverse causation and omitted variables bias (Arrelano and Bond 1991; Levine, Loayza and Beck 2000; Beck, Levine and Loayza 2000) used the Generalized Method of Moments (GMM) for panel data. The results in these papers were very similar to those obtained earlier in pure cross-country analyses.

Even though the institutional context and other specificities related to stock markers among transition economies vary widely (Okičić 2014), there have not been a sufficient number of papers examining the effects of the size and efficiency of financial systems on these economies. Among the existing papers focusing on transition countries, Koivu (2002) investigated the effects of the banking sector on economic growth with special focus on almost all CEE transition countries by using data for the period 1993-2000. The paper found that the margin between lending and deposit interest rates negatively and significantly affected growth, but the size of the financial sector had no effect. Moreover, Fink, Haiss and Vuksic (2009) found that financial intermediation measured by domestic bank credit to the private sector accelerated economic growth in nine EU accession countries, including seven CEE countries, for the period 1996-2000. At the same time, Mehl, Vespro and Windler (2006) found that financial deepening had no significant effects on the growth of South-Eastern European countries for the period 1993-2003. Other relevant studies include Masten, Coricelli and Masten (2008), who investigated the relationship between financial integration and economic growth in a sample of European countries for the period 1996-2004, and Eller, Haiss, and Steiner (2006), who examined the impact of financial sector and foreign direct investment on economic growth for 11 Central and Eastern European countries in the period 1996-2003.

The majority of these studies analyzed the impact of financial intermediation on economic growth in the CEE countries by focusing on the banking sector, with little attention paid to financial markets. In that context, the main contribution of this paper is evidence based on an investigation of stock market contributions to economic growth for the study's sample of CSEE countries.

2.2. Research Methodology Framework and Estimation Results

A variety of econometric approaches have been used to analyze the relationship between financial sector and economic growth. While earlier papers were focused on a cross-country methodology (King and Levine 1993), most recent studies are based on a panel econometric approach (Baltagi 2008) where several data specifications and methods are used. Starting form pooled OLS or fixed effects controlling for country specific effects (Fischer et al. 1998; Berg et al. 1999) to various instrumental variable methods, such as 2SLS and 3SLS methods (Falcetti et al. 2002; Dragutinović and Ivančev 2010) and dynamic panel (system GMM) methods (Staehr 2005; Falcetti et al. 2006; Josifidis et al. 2014) there are plenty of empirical studies that investigate the growth determinants in developed, developing and transition countries.

The first question here is which model should be applied, considering the sample and time period used in the empirical estimation. To identify which econometric model (fixed or random effects) is more appropriate in our case, a Hausman test has been run. The null hypothesis is that the differences in estimated coefficients between fixed and random models are not systematic (Green 2008). This test tries to answer whether the unique errors (ui) are correlated with the regressors and whether the unobserved individual effect embodies elements that are correlated with the regressors in the model (Baltagi 2008; Stock and Watson

2003). The estimated results of the Hausman test indicate that we cannot reject the null hypothesis (Prob> chi2 = 0.6948). Hence, we can conclude that there is not systematic difference in the estimated coefficients obtained by fixed and random models, so both methods might be applied. However, both models are not able to deal with several econometric problems, including endogeneity, omitted variable and error measurement problems that make the estimated results not fully convenient and reliable, and as a result might produce biased results. Moreover, the time period under observation in our empirical analysis is too short (covering the period from 2002 to 2012), under the threshold of 20 observations. Hence, to make the results more reliable, we decided to apply a dynamic panel (system GMM) regression model or Arrelano-Bond estimator (Judson and Owen 1999) as the most appropriate model.

The general form of the empirical growth equation based on a GMM estimator has a lagged dependent variable on the right-hand side:

$$g_{it} = \alpha g_{it-1} + \beta X_{it} + \gamma O_{it} + \chi CMD + \varphi I_{it} + \mu_{it} + u_{it}$$

$$i = 1,.....,\ N; t = 1,.....,\ T \qquad (1)$$

where, g_{it} is the annual rate of economic growth in country i over t, g_{it-1} is the lagged value of the annual rate of economic growth, i.e. the lagged dependent (endogenous) variable that allows for the dynamic structure of the model. The symbol, X_{it}, contains macroeconomic factors (inflation rate, bank sector development, and foreign direct investment) that vary over i and t; O_{it}, is openness, I_{it} is the investment rate measured by the fixed capital accumulation, while CMD_{it}, is the stock market capitalization as proxy variable for stock market development, an interest variable in our model. This general specification contains individual (unobservable country-specific) effects, μ_{it}, along with the independently identically distributed stochastic disturbance term u_{it}, $u_{it} \approx IID(0, \sigma_u^2))$.

The main sources of data about the rate of economic growth as a rate of real GDP per capita, investment rate measured as a ratio of fixed capital formation relative to GDP, level of openness, annual inflation rate and net inflows of foreign direct investment (FDI) are the *World Development Indicators database* of the World Bank and the *International Financial Statistic* based on the International Monetary Fund, while the data about bank credit to private sector as a percentage of GDP, stock market capitalization as a percentage of GDP, stock total value traded, stock market turnover ratio, and stock price volatility are taken from the *Global Financial Development Indicators database* of the World Bank.

The empirical estimation is based on a sample of 10 SEE countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Moldova, Montenegro, Romania, Serbia and Slovenia) and 4 CEE countries (Hungary, Slovak Republic, Poland and the Czech Republic) over the period of 2002 to 2012. The dataset constructed in the empirical study is based on the availability of dates for all of the variables included in the empirical study.

The following table presents descriptive statistics for the main variables in our empirical study.

Table 1: Descriptive statistics and variable descriptions

	Variable	Mean	Stand. dev.	Min.	Max.	Obs.
Economic growth	The rate of economic growth of real GDP, %	3.89	4.80	-14.8	14	N = 165
gBank credit	Growth rate of bank credit to private sector, %	3.27	5.33	-12.16	30.21	N = 146
gOpenness	Growth rate of Openness (sum of export and import divide by GDP), %	2.41	10.32	-33.1	43.84	N = 136
Investment Rate	Fixed capital accumulation, % of GDP	0.06	2.56	-8.33	9.74	N = 146
gFDI	Growth rate of Foreign direct investment net inflows, %	0.09	0.84	-4.60	3.81	N = 144
Inflation Rate	Inflation rate, %	5.67	4.46	-1.15	25.23	N = 165
WGI	WorldWide Governance Indicators	0.17	0.58	-0.71	1.02	N = 165
gStock market development	Growth rate of stock market capitalization, %	0.43	8.85	-38.92	38.19	N = 169

Source: Authors' calculation

The descriptive data show that there is substantial difference in economic growth, bank credit growth, inflation rate, FDI growth rate, investment rate and capital market growth across countries and over different time periods. This is expected because of the fact that the transition countries have experienced different growth paths and macroeconomic performance in the boom period before the global financial crisis and post-crisis period.

The estimated results of the growth models (fixed, random effects model and system GMM) that investigate the relationship between capital market development and economic growth for the sample of 14 CSEE countries in the 2002-2012 periods are reported in Table 2 below.

According to the estimated results based on GMM as the most appropriate method for this empirical investigation of growth determinants with a special focus on

Table 2: Estimated results by fixed effects, random effects and GMM model

DEPENDENT VARIABLE: Economic growth	Fixed effects model (1)	Random effects model (2)	System GMM (3)
INDEPENDENT VARIABLES:			
Economic growth			0.262***
L1.			(0.000)
Investment rate	0.946***	0.970***	0.642***
	(0.000)	(0.000)	(0.000)
gForeign direct investment	0.940***	0.826**	1.089***
	(0.000)	(0.044)	(0.000)
gOpenness	0.041	0.047	0.094***
	(0.253)	(0.199)	(0.001)
gBanking sector development	0.071	0.195*	0.007
	(0.290)	(0.103)	(0.885)
Inflation rate	-0.008	-0.014	-0.066
	(0.933)	(0.897)	(0.390)
gStock market development	0.111***	0.106***	0.113***
	(0.001)	(0.004)	(0.000)
Institution quality		-0.320	0.087
		(0.752)	(0.911)
Constant	3.346	4.522	2.551
	(0.000)	(0.000)	(0.000)
Hausman test (Ho: difference in coefficients not systematic) Prob>chi2	0.6948		
Breusch-Pagan Lagrange test for random effects (Ho:variances across entities is zero) Prob> chi2		0.0196	
Wald (chi2) statistics and F-test for fixed effects	19.36	131.73	307.83
	(0.000)	(0.000)	(0.000)
Sargan test (Ho: instruments are valid)			196.83
			(0.0633)
Observation	146	146	127
Number of countries	14	14	14
R-adjusted	0.516	0.426	

Note: ***statistical significance at the 1% level, **significance at the 5% level, *significance at the 10% level (in parenthesis are p values). GMM with robust standard errors is applied. Instruments used for level equations are lagged first differences of growth rate, bank credits, FDI, inflation rate, investment rate, openness and capital market development. Instruments for the first-differenced equations are lagged values of growth rate, bank credits, inflation rate, investment rate, openness and capital market development and FDI dated t-2 and earlier.

Source: Authors' calculation

the relationship between stock market development and economic growth, investment rate and FDI are the main drivers of economic growth. In particular, a percentage point increase in investment rate increases real GDP by 0.642 percentage points, while a percentage point increase in FDI increases real GDP by 1.089 percentage points. In addition, banking sector development is not found to be a significant growth determinant, which is not in accordance with previous empirical studies, while the existing findings of the empirical literature on growth determinants indicate that the banking sector is positively related with the growth rate. This can be explained by the negative effects of the global financial crisis on economic growth and the transmission channels of the crisis, especially for those CSEE countries that were more financially integrated with developed EU countries (Bartlett and Prica 2011). At the same time, the results did not find a significant influence from inflation rate as a proxy variable for macroeconomic in (stability) on the growth rate. On the other hand, our findings suggest a positive and statistically significant impact from trade openness on economic growth, which corresponds with the general growth theory and empirical studies. According to the estimated results, institutional quality as measured by the World Wide Governance Indicators does not a significant influence on economic growth. Finally, the main findings of the empirical study suggest a positive and significant relationship between capital market development and economic growth. The estimated results based on GMM show that a 1 percentage increase in stock market capitalization increases real GDP per capita by 0.113 percentage points. This result indicates that capital market development positively affects economic growth in the CSEE countries. These findings can be useful for policymakers in the process of creating policy that will not concentrate only on the banking sector, but will at the same time stimulate the development of capital markets so as to accelerate long-run economic growth.

Several post-estimation tests have been conducted in order to verify the estimated regression results. According to the Wald statistics and F-test for fixed effects models the coefficients of the explanatory variables in all three models are statistically different than zero, indicating that the explanatory variables included matter for economic growth.

The validity of the estimated results obtained by applying a GMM estimator is checked by the Sargan test for over-identifying restrictions (Sargan 1975). Rejecting the null hypothesis implies that the set of instruments is not valid and reconsideration of the instruments or the model is necessary. However, we have accepted the null hypothesis that the instruments are valid, so we can conclude that the estimated results by applying a dynamic panel (GMM) are reliable.

The main limitation of this empirical study is the short time period and the sample of countries, which do not include all of the transition countries from the CEE region. In addition, in terms of future research, the choice of a proxy variable for stock market development presents another limitation. Stock market capitalization is not a fully appropriate proxy variable for stock market development because it includes a potential price bubble effect that might produce biases in measuring the real stock market development based on extending the number of listed companies on financial markets.

4. THE MAIN CHARACTERISTICS OF THE CAPITAL MARKET IN THE REPUBLIC OF MACEDONIA

The stock market in the Republic of Macedonia has seen considerable development since the first part of its second decade of transition. Stock market capitalization defined as the value of domestic equities traded on the stock market relative to GDP has increased from 3.1 percent of GDP in 2002 to about 23.5 percent of GDP in 2007, achieving a new peak. However, the rapid development of the stock market was mainly the result of stock market trading that occurs in only several stocks that account for a considerable part of the total market capitalization. Beyond these actively traded shares, there are serious informational and disclosure deficiencies for other stocks, and serious weaknesses in the transparency of transactions on the market.

After rapid stock market growth in the period 2002-2007, the global financial crisis had dramatically negative impact on the capital market in the Republic of Macedonia (stock market capitalization decreased from 23.5 present in 2007 to 5.1 present in 2012). Table 3 presents the main indicators of the stock capital market (stock market size, depth, and market stability) in the 2002-2012 period.

Not less important is stock market depth, which refers to liquidity or the ability to buy and sell shares, and measures the activity of the stock market using total value traded as a share of GDP, giving the value of stock transactions relative to the size of the economy. This measure is also used to gauge market liquidity because it measures trading relative to economic activity (Levine and Zervos 1998).The stock value traded increased from about 1 percent of GDP in 2002 to 4.2 percent of GDP in 2007. To clearly understand the liquidity picture, we examine the turnover ratio. The turnover ratio is defined as the ratio of the value of total shares traded and market capitalization.

Table 3: The main characteristics of stock market development in the Republic of Macedonia

Year	Stock market capitalization to GDP (%)	Liquid liabilities to GDP (%)	Stock market total value traded to GDP (%)	Stock market turnover ratio (%)	Stock price volatility
2002	3.1	24.2	1.0	24.6	n.a
2003	6.1	24.3	0.5	3.8	n.a
2004	7.4	26.3	0.4	8.1	n.a
2005	8.8	29.7	1.0	18.3	n.a
2006	13.4	29.6	2.1	22.2	n.a
2007	23.5	30.7	4.2	26.8	n.a
2008	19.6	31.4	3.6	8.1	23.5
2009	9.1	36.5	1.1	7.2	26.3
2010	8.2	37.6	0.5	4.7	24.8
2011	6.2	37.8	0.4	8.0	16.0
2012	5.8	37.3	0.4	5.6	11.0

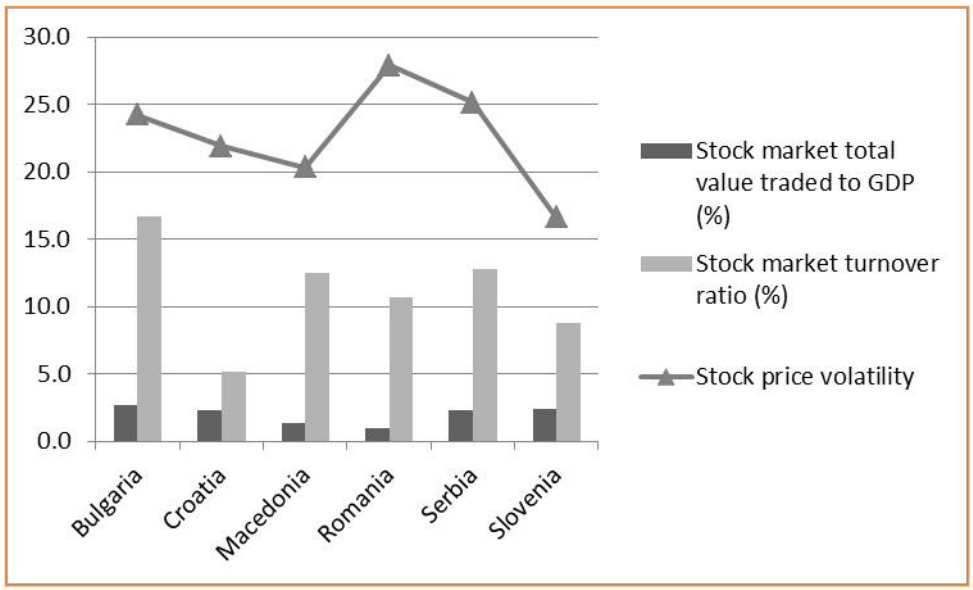
Source: Global Financial Development Indicators, World Bank

It measures the activity of the stock market relative to its size. Many analysts use the turnover as a measure of transaction costs. A high turnover ratio implies low transaction and consequently high efficiency. The turnover ratio increased from under 4 percent in 2003 to about 27 percent in 2007. It has since fallen to less than 6 percent in 2012.

Figure 6 shows a ranking of stock market capitalization in several SEE countries. As we can see, Croatia and Slovenia have the most developed capital markets in the region, while Macedonia's capital market is less developed. A similar conclusion could be drawn if we analyse liquid liabilities as a percent of GDP (also known as M3) as an indicator of financial development as a whole (the sum of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements (M2), plus travelers checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents).

The comparative analysis of stock market depth and stability, including several SEE countries, is made to complete the picture of the stock market performance across the countries in the region. As we can see from Figure 2, Bulgaria and Serbia are characterized as countries with the most stock market depth

Figure 1: Stock market capitalization and liquid liabilities to GDP (2002-2012)



Source: Global Financial Development Indicators, World Bank

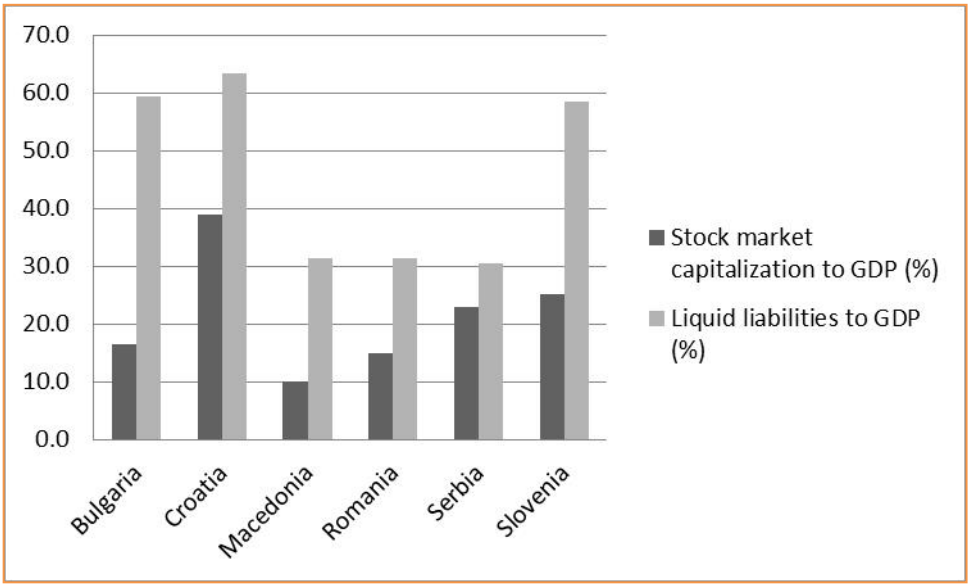
(stock market total traded value and market turnover ratio). Additionally, Macedonia and Romania have higher market turnover ratios than Croatia and Slovenia, though they have significantly less stock market total traded value, indicating that stock market traded value is not tied to market turnover ratio in the case of the analysed SEE countries. Moreover, the data about stock market price volatility show that countries with more volatile stock markets have higher stock market value traded, indicating that stock market investment is motivated by speculation for earnings and extra profit from price volatility [Figure 2].

Finally, in this sector we compare the development of the banking sector vis-à-vis the stock market development. Today, the German financial system dominates in the Republic of Macedonia, as well as everywhere throughout SEE region. Bank credits are the only source of external financing, though most CSEE countries, including the Republic of Macedonia at the beginning of the transition process, tended to support a market-based financial system (Anglo-Saxon system). However, the stock capital market in Republic of Macedonia, as well as in many CSEE countries, had a positive trend in the boom period before the global financial crisis.

The capital market is significantly less than the size of the banking sector. Only in the period before the financial crisis (from 2002 to 2007), when the capital market experienced a significant increasing trend and achieved its peak in 2007 (25.5 present of GDP) was there a convergence in the size of bank sector measured by the volume of domestic bank credits to the private sector (37 present of GDP).

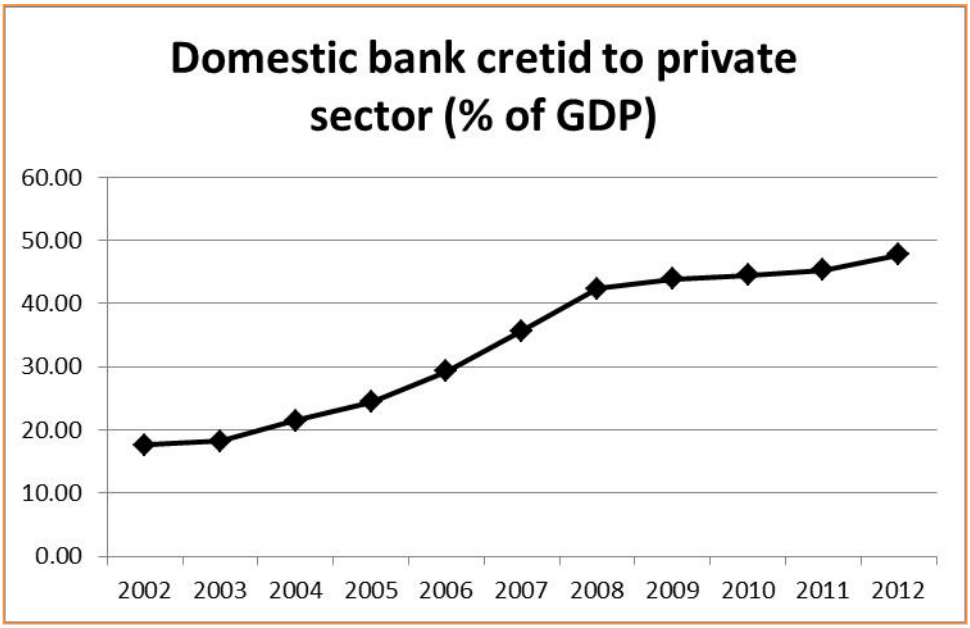
However, the capital market boom has slowed down as a result of the financial crisis and in 2012 it is near to its initial level from 2002 (5.7 present of GDP), while the bank sector reached its peak in 2012 (47.7 present of GDP). These give us an argument that the stock market boom in the Republic of Macedonia in the period from 2002 to 2007 was temporary and primarily determined by stock market trading occurring in only a few stocks (driven by speculative motives). Hence, if a country wants to enter into a new phase of capital market development, several polices should be implemented to address institutional weaknesses.

Figure 2: Stock market depth and stock market (in)stability (average 2002-2012)



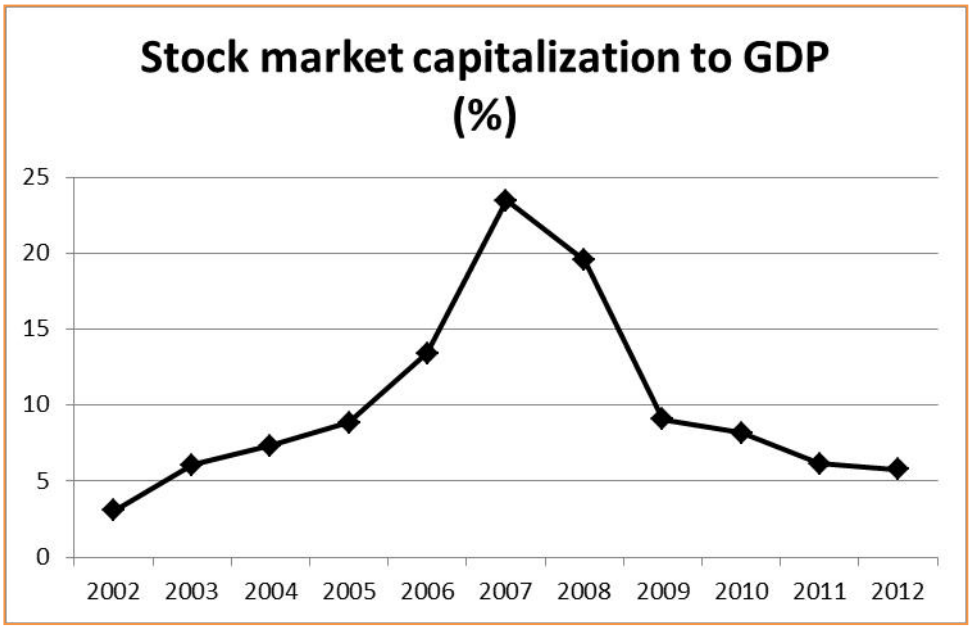
Source: Global Financial Development Indicators, World Bank

Figure 3: Banking sector development in the Republic of Macedonia (2002-2012)



Source: Global Financial Development Indicators, World Bank

Figure 4: Stock market development in the Republic of Macedonia (2002-2012)



Source: Global Financial Development Indicators, World Bank

5. CONCLUSION

The first aim of this paper is to examine the effects of stock market development as an integral part of a financial system on economic growth for a sample of 14 CSEE transition countries in the 2002-2012 periods. We used a dynamic panel econometric (system GMM) estimator as a method to address well-known problems plaguing past studies of the finance-growth nexus, such as endogeneity and omitted variable bias derived from unobserved country-specific effects. As a consistency check, we also used panel fixed and random models. The estimated results suggest that stock market development is positively associated with economic growth. More importantly, the positive impact of stock market development on economic growth is not due to potential biases induced by omitted variables, simultaneity or reverse causation. The majority of the estimated results related with growth determinants (net inflows of foreign direct investment, the degree of trade openness) are in accordance with the main findings of previous empirical studies, with the exception of banking sector development, which is not significant growth determinant in our models.

The second goal of the paper is to analyse the stock market (stock market size, stock market depth and stock market stability) in the Republic of Macedonia and to investigate stock market determinants by applying a single country approach and cross-country comparative analysis. The results indicate that Macedonia has an underdeveloped stock market, though there was rapid growth in the period before the global financial crisis. In that context, the paper identifies that the Macedonian stock market faces a number of challenges before it can enter a new phase of development after the negative impact of the global financial crisis. The first is the challenge of capital market regional integration. Several efforts have been made for the regionalization of capital markets in South-East Europe as an efficient way of addressing the problem of low liquidity. Preconditions for successful regional approaches include harmonization of the legal framework such as bankruptcy procedures, accounting and reporting standards and a liberalized trade regime.The second is the challenge of demutualization to solve governance and profitability problems. The third and most critical issue is the need to eliminate existing impediments to institutional environment. These include a wider dissemination of information on these markets, the implementation of robust electronic trading systems, and the adoption of central depository systems. In addition, sound legal and accounting frameworks, corporate governance, private sector credit evaluation capabilities, and public sector regulatory bodies should all be strengthened.

REFERENCES:

Allen, F. and Gale, D. 2000. Comparing Financial Systems. Cambridge, Massachusetts: MIT Press.

Arcand, J. L., Berkes, E. and Panizza, U. 2011. Too Much Finance? IMF Working Paper: WP/12/161.

Arellano, M. and Bond, S. 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Review of Economic Studies 58: 277–297.

Arestis, P. and Demetriades, P. 1997. Financial development and economic growth: assessing the evidence. Economic Journal 107: 783-799.

Atje, R. and Jovanovic, B. 1993. Stock markets and development. European Economic Review 37: 630–640.

Baltagi, B. H. 2008. Econometric Analysis of Panel Data. Chichester: John Wiley & Sons LTD.

Bartlett, W. and Prica, I. 2011.The variable impact of the global economic crisis in South East Europe. London School of Economics Working Paper: Research on South Eastern Europe.

Beck, T., Ross, L. and Norman, L. 2010. Financial intermediation and growth: Causality and causes. Journal of Monetary Economics 46(1): 31–77.

Beck, T., Asli, D. K, and Vojislav, M. 2008. Financing Patterns around the World: Are Small Firms Different? Journal of Financial Economics, forthcoming.

Beck, T., Asli, D. K. and Levine, R. 2005. SMEs, Growth and Poverty: Cross-Country Evidence. Journal of Economic Growth: 197-227.

Beck, T., Berrak, B., Felix, K. R. and Neven, T. V. 2012. Who Gets the Credit? And Does it Matter? Household vs. Firm Lending across Countries. B.E. Journal of Macroeconomics: Contributions 12.

Beck, T., Levine, R. and Loayza, N. 2000. Finance and the sources of growth. Journal of Financial Economics 58: 261-300.

Bencivenga, V. R. and Smith, B. D. 1991. Financial intermediation and endogenous growth. Review of Economic Studies 58(2): 195–209.

Berg, A., Eduardo, B., Ratna, S. and Jeromin, Z. 1999. The Evolution of Output in Transition Economies: Explaining the Differences. International Monetary Fund Working Paper: WP/99/73.

Demirguc-Kunt, A. and Levine, R. 1996. Stock market development and financial intermediaries - stylized facts. The World Bank Economic Review 10(2): 291–321.

Dragutinovic Mitrovic, R. and Ivancev, O. 2010. Driving Forces of Economic Growth in the Second Decade of Transition. Economic Annals 185: 7-32.

Eller, M., Haiss, P. R. and Steiner, K. 2006. Foreign Direct Investment in the Financial Sector and Economic Growth in Central and Eastern Europe: The Crucial Role of the Efficiency Channel. Emerging Markets Review 7(4).

Falcetti, E., Lysenko, T. and Sanfey, P. 2006. Reforms and growth in transition: Re-examining the evidence. Journal of Comparative Economics 34: 421–445.

Falcetti, E., Raiser, M. and Sanfey, P. 2002. Defying the odds: Initial conditions, reforms, and growth in the first decade of transition. Journal of Comparative Economics 30: 229–250.

Fink, G., Haiss, P. R. and Vuksic, G. 2009. Contribution of Financial Market Segments at Different Stages of Development: Transition, Cohesion and Mature Economies Compared. Journal of Financial Stability 5: 431-455.

Fischer, S., Sahay, R. and Carlos, A. V. 1998. From Transition to Market: Evidence and Growth Prospects. International Monetary Fund: Working Paper 52.

Greenwood, J. and Jovanovic, B. 1990. Financial Development, Growth, and the Distribution of Income. The Journal of Political Economy 98 (5): 1076-1107.

International Monetary Fund. 2015. International financial statistics. https://www.imf.org/external/data.htm (accessed 10th February 2015).

Josifidis, K., Allegret, J.P., Gimet, C. and Pucar, E. B. 2014. Macroeconomic policy responses to financial crises in emerging European economies. Econ. Model: 577–591.

Judson, R. and Owen, A. 1999. Estimating dynamic panel data models: a guide for macroeconomists. Economics Letters 65: 9-15.

King, R. G. and Levine, R. 1993. Finance and growth: Schumpeter might be right. Quarterly Journal of Economics 108: 717–738.

Koivu, T. 2002. Do efficient banking sectors accelerate economic growth in transition countries? BOFIT Discussion Papers 14.

Levine, R. 1991. Stock Markets, Growth, and Tax Policy. J. Finance 46(4): 1445–65.

Levine, R. 1997. Financial development and economic growth: Views and agenda. Journal of Economic Literature 35(2): 688–726.

Levine, R. and Zervos, S. 1998. Stock markets, banks, and economic growth. American Economic Review 88: 537–558.

Levine, R., Norman, L., and Beck, T. 2000. Financial Intermediation and Growth: Causality and Causes. Journal of Monetary Economics 46(1): 31-77.

Mankiw, N. G., Romer, D. and David, N.W. 1992. A contribution to the empirics of economic growth. Quarterly Journal of Economics 107: 407-437.

Masten, A. M., Coricelli, F. and Masten, I. 2008. Non-linear growth effects of financial development: Does financial integration matter? Journal of International Money and Finance 27(2): 295-313.

Mehl, A., Vespro, C. and Winkler, A. 2006. Financial Sector Development in South-Eastern Europe: Quality Matters" in Financial Development, Integration and Stability: Evidence from Central, Eastern and South-Eastern Europe, edited by K. Liebscher, J. Christl, P. Mooslechner and D. Ritzberger-Grunwald. Cheltenham, UK: Edward Elgar.

Okičić, J. 2014. Causal Relationship between Trading Volume and Security Returns: A Case of the South Eastern European Region. Regional Economic Development in the Balkan Region. London: Cambridge Scholars Publishing: 132-149.

Sargan, J. D. 1975. Testing for misspecification after estimating using instrumental variables. Mimeo (London School of Economics).

Singh, A. 1997. Financial liberalization stock markets and economic development. The Economic Journal 107: 771–782.

Staehr, K. 2005. Reforms and economic growth in transition economies: Complementarity, sequencing and speed. The European Journal of Comparative Economics 2: 177-202.

Stock, J. H. and Watson, M. W. 2003. Introduction to Econometrics: Pearson.

The World Bank. 2015. The Global Financial Development Database. http://data.worldbank.org/data-catalog/global-financial-development (accessed 10th February 2015).

The World Bank. 2015. World Development Indicators Database. http://data.worldbank.org/indicator (accessed 10th February 2015).

Thiel, M. 2001. Finance and economic growth – a review of theory and the available evidence. http://europa.eu.int/economy_finance (accessed 10th November, 2016).

Wachtel, P. 2001. Growth and finance: what do we know and how do we know it? International Finance 4 (3): 353–362.

William, H. Greene. 2012. Econometric Analysis: Pearson.