

Ion POHOAȚĂ  
Oana-Ramona SOCOLIUC  
Delia-Elena DIACONAȘU  
„Alexandru Ioan Cuza” University of Iasi  
delia\_diaconasu@yahoo.com

# THE SUCCESS OF EMERGING CAPITAL MARKETS IN DETERMINING ECONOMIC GROWTH

Empirical  
study

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## Keywords

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Economic development  
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F62, G11, G15

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## Abstract

*Capital markets are regarded as “the barometer” of economic activity at the national level, but among emerging markets, the position of this segment in the economy is far from ideal. The answers that we try to offer are concerning the contribution of capital markets to the economic welfare of nations in transition from Central and Eastern Europe, using Granger causality tests. Our findings highlight that in this geographical area, the relation between capital markets and economic growth is a bidirectional one. However, although both the establishment of stock exchanges and their liberalization represented governments’ strategy of economic development, their objective was not fully achieved. Institutional transformations are required in order to attract foreign investors.*

## 1. Introduction

Capital market success is translated by the relationship between investors, economic agents who need money and financial intermediaries. When the optimization of distribution and redistribution process of financial resources is verified, along with risks reward, the capital market can be considered the “barometer” of economic activity. However, among emerging markets, the position of stock exchanges in economy is far from being ideal, despite the accelerate development from the last decades.

The idea that financial development promotes economic development was presented, for the first time, in Joseph Schumpeter concerns. The artisans of this theory argue that financial development can be considered a “supplier of advance” (Goldsmith, 1969; Mckinnon, 1973). A critical position towards this idea comes from Joan Robinson. She tolerates that only economic development creates demand for financial instruments, not vice versa (Robinson, 1979). A dispute of real interest is that of Nobel Prize winners from 1995 and 1990. While Robert Lucas is against the relation from financial development to real sector development, Merton Miller embraces this perspective. Therefore, the diametrically opposed views from erudite personalities in the field, makes it difficult to accurately state who is closer to the truth.

We start from the idea that stock exchange is an instrument of governments meant to facilitate, optimize and control economic development strategy. This involves the fact that capital markets should perform several functions, like financing the economy through primary market, providing secondary market liquidity, evaluating financial assets, and others. In order for these functions to be properly accomplished, several exigencies are required: efficiency, transparency, fairness and adaptability (Prisacariu *et al.*, 2005).

The aim of this research is to investigate the relationship between stock markets and

economic growth in Central and Eastern Europe (CEE). The motivation of this study is induced from the perspective that researches in this field are contradictory. Several papers either emphasize that in CEE the strongest nexus is from economic growth to capital market, (e.g. Braşoveanu *et al.*, 2008), either underline an inverse relation (e.g. Gurgul and Lach, 2012).

Our results generally support the bidirectional causality between stock market indices and economic growth across CEE countries.

The remainder of this paper is structured as follows. Section 2 describes the literature review. Section 3 presents the hypothesis, the data and the methodology used. Section 4 reports our empirical results. Section 5 concludes.

## 2. Literature review

There is a growing body of literature emphasizing the influence between the development level of capital market and economic development, perceived in both directions. In such circumstances, the academic researches delineate four main judgment perspectives: the unidirectional relationship (the effect of capital market development on the economic development and vice versa), the bidirectional relationship or its complete absence.

From the first point of view, using a functional approach based on five functions and two channels, Levine provides a reference study highlighting the influence of capital market on economy (Levine, 2005). The five functions are illustrated by: pooling and trading risks, optimizing funds allocation by acquiring a priori information, post-trade monitoring management, mobilizing efficient savings and increasing specialization with direct implication on transaction costs reduction. With regard to the two channels pointed out by Levin, these are illustrated by capital accumulation and technological innovation. Through such goals the author demonstrates that developed financial

systems reduce the external financing constraints, the mechanism promoting thus a long-term economic growth.

Among the emerging capital markets there are numerous viewpoints which advocate the influence coming from the financial sector towards economy (Beck and Levine, 2004; Rousseau and Sylla, 2005; N'zue, 2006; Cooray, 2010). The exponents of such idea provides arguments related to capital efficient allocation, savings mobilization by offering attractive instruments, risk diversification, entrepreneurship development, the adoption of new technology, etc.

The second perspective is highlighted by critical positions regarding the previously mentioned relationship. In other terms, this approach is considering the nexus capital market-economy as being ambiguous and uncertain. According to Kominek (2003), Zang and Kim (2007), Naceur and Ghazouani (2007) the economic development from the last decades was supported by technological progress within which the development of capital markets played a passive role. In such conditions, there is only one influence direction, coming from the economy to the stock market. Positive economic dynamics stimulate the demand for financial vehicles and capital market responds accordingly. Even though it seems to be fair, it is hard to reveal the fact that financial markets are able to respond automatically to the economic activity. Such relationships might find their explanation in the light of another approach, which brings into discussion the structure of the financial system.

On the one hand, the German-Japanese model assumes that optimizing resources allocation and corporate governance through the banking sector, especially in developing nations, is materialized in economic development (Stiglitz, 1985; Stulz, 2000). Furthermore, according to Luintel, capital markets are considered as being responsible for increasing

information asymmetry (Luintel *et al.*, 2008).

On the other hand, the Anglo-Saxon model highlights the positive influence of capital market development in improving economic performance, on the basis of reducing monopoly power exerted by the banks (Beck and Levine, 2004). Competition is able to encourage innovative and value-add activity to the detriment of conservative banking approach. There is also a third theory, of financial services, with conciliatory valences, given the fact that it reduces the importance of delineating the banking sector from the one that is mainly based on capital market. A World Bank Report stated that shaping an environment with efficient financial services is much more important than their delivery form (Caprio and Honohan, 2001). We agree with this last hypothesis because we do not believe that the competition between the two segments among emerging markets is plausible for being brought into discussion. Obviously, their financial systems have banking system as dominant component, while the stock market suffers numerous mutations in the path towards development. Moreover, according to the existent literature in the field, there is no solid empirical evidence to demonstrate the link between economic growth and a certain structure of financial intermediation neither for developed markets.

At the confluence of opinions for and against the relationship between capital markets development and economic progress we find the third perspective. The advocates of the bidirectional influence such as Majid (2007), Dawson (2008), Enisan and Olufisayo (2009) consider that economic expansion is able to increase the demand for financial products, while a developed capital market is able to generate economic growth through technological evolution and innovations of products and services.

The fourth viewpoint emphasizes the neutral relationship between capital market and economic development. Such position seems to be justified by the case of poorly developed markets. As Mazur and Alexander (2001) and Singh (2008) pointed out, for the particular case of poor economies with rudimentary capital markets, long-term benefits could be achieved only through the progress of the banking system and not through stock markets.

### 3. Data and methodology

The countries that are the subject of this study are: the Czech Republic, Poland, Hungary, and Romania with the related stock market indices:

- PX-50 Index for Prague Stock Exchange;
- WIG for Warsaw Stock Exchange;
- BUX for Budapest Stock Exchange;
- BET-C for Bucharest Stock Exchange;

Beside stock market index, we will use the GDP growth rate.

The motivations for choosing this sample are multiple. First, in these countries the transition to market-oriented economic system meant financial resurgence. After the collapse of communist equity exchanges have been re-established and reforms and strategies were implemented in order to make solid and viable security markets. Second, CEE markets are closely related in terms of trade and geographical proximity. Third, European Union members are aspiring to join the euro area. We use quarterly frequency data expressed in local currency. The data was collected from Thomson Reuters Data stream, the sample period being from April 1998 to December 2013.

Several papers investigate the existence of causality among stock market indices and economic growth. This study formulates and tests the following hypothesis concerning the causality between these variables:

- ‘Unidirectional causality’ hypothesis: increasing GDP growth rate is positively associated with higher level of stock index returns. According to this view, there exist a nexus from economic growth to stock market development.

In order to examine the relationship between stock market development and economic growth we use Granger causality method for four states.

The quartely returns are calculated as:

$$R_{it} = \ln(P_t/P_{t-1}) \times 100$$

where:  $R_{it}$  refers to the daily return;  $P_t$  refers to index price on day  $t$ ;  $P_{t-1}$  refers to index price on day  $t-1$ .

The Granger-causality test requires that the data series are stationary; otherwise inference from the F-statistic might be spurious because the test statistics will have non-standard distributions. In this respect, we perform the Augmented Dickey-Fuller (ADF) tests on each transformed series.

Granger causality measures are constructed to explore the causal relationship between two time series. The idea of Granger causality is a pretty simple one, namely that a time series  $X_t$  Granger-causes another time series  $Y_t$  if  $Y_t$  can be predicted better by using the past values of  $X_t$  than by using only the historical values of  $Y_t$ .

In this article, we suppose that  $Y_t$  and  $X_t$  are GDP growth rate and stock index return, respectively. Testing causal relations between the two series can be based on the following bivariate autoregression:

$$\begin{aligned} GDP_t &= \alpha_0 + \sum_{k=1}^n \alpha_k GDP_{t-k} + \sum_{k=1}^n \beta_k R_{t-k} + u_t \\ R_t &= \gamma_0 + \sum_{k=1}^n \gamma_k R_{t-k} + \sum_{k=1}^n \theta_k GDP_{t-k} + u_t \end{aligned}$$

where:  $\alpha_0$  and  $\gamma_0$  are constants,  $\alpha_k$ ,  $\beta_k$ ,  $\gamma_k$ ,  $\theta_k$  are parameters, and  $u_t$  are uncorrelated disturbance terms with zero means and finite variances.

The null hypothesis that  $GDP_t$  does not Granger-cause  $R_t$  is rejected if the coefficients in the first equation are jointly significantly different from zero using a standard joint test. A bi-directional causality relation exists if both  $\alpha_k$  and  $\beta_k$  coefficients are jointly different from zero.

#### 4. Empirical results

Table 1 shows the results of ADF test. As can be seen, all the series are stationary, so we can proceed to perform the Granger causality test.

Table 2 displays the results for Granger-causality test. The empirical results from Granger-causality tests highlight, in all cases, a bidirectional relation between stock market development and economic growth in CEE countries. Therefore, we invalidate our hypothesis of unidirectional linkage. We expected that economic development supports capital market development because it is hard to imagine that a financial institution can develop independently of the economic environment. Given the findings from the literature in the field (Kominek, 2003; Braşoveanu *et al.*, 2008), what we did not expect was the impact of capital market on real economy growth. This can be due to the economic crisis. Gurgul and Lach (2012) explains that negative shocks from the international market started to be felt within CEE stock markets from the end of 2007. Therefore, the stock exchanges have experienced drops, although the main macroeconomic indicators did not decline. In the following year the condition of many companies worsened dramatically, and thus the prices of shares declined. In consequence, output and demand fell.

#### 5. Conclusions

National financial systems, whether are based on financial markets or banks suffer

in the context of globalization various mutations. In this context the national and international dimensions of these markets has increased considerably, and with it, their importance. Several emerging markets are still marked by liberalization, European integration and globalization, as appropriate. All these are aimed to increase the role of capital markets in economic development.

In general, the results of the causality analysis indicated the existence of a significant bidirectional relation between GDP growth and stock market in CEE countries.

In terms of policy implications, the causality between capital market development and economic growth is important because it has consequences on the best economic strategy for enhancing the growth, in particular, of economies in transition.

We recognize that our study have inherent limitations. For example, our test suffers from the omission of some variables. Other drawbacks are the aggregate level of variables and quarterly data frequency.

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Table 1  
*Augmented Dickey-Fuller Unit Root Results*

<i>The Czech Republic</i>	
<i>Null Hypothesis (Level):</i>	<i>F-Statistic</i>
<i>CZ_GDP has a unit root</i>	-5.097641*
<i>CZ_PX has a unit root</i>	-5.744270*
<i>Hungary</i>	
<i>Null Hypothesis (Level):</i>	<i>F-Statistic</i>
<i>HU_GDP has a unit root</i>	-5.945672*
<i>HU_BUX has a unit root</i>	-6.030380*
<i>Poland</i>	
<i>Null Hypothesis (Level):</i>	<i>F-Statistic</i>
<i>PO_GDP has a unit root</i>	-5.972856*
<i>PO_WIG has a unit root</i>	-5.552213*
<i>Romania</i>	
<i>Null Hypothesis (Level):</i>	<i>F-Statistic</i>
<i>RO_GDP has a unit root</i>	-5.213845*
<i>RO_BETC has a unit root</i>	-5.952329*

Note. CZ\_GDP, CZ\_PX, HU\_GDP, HU\_BUX, PO\_GDP, PO\_WIG, RO\_GDP, RO\_BETC represent GDP growth rate and stock market index afferent to Czech Republic, Hungary, Poland and Romania. The test is made after the variables have been logarithmic transformed and differentiated. Statistically significant at 1% (\*), 5% (\*\*) and 10% (\*\*\*)

Table 2  
*Granger Causality Results at country level*

<i>The Czech Republic</i>	
<i>Lags: 1</i>	
<i>Null Hypothesis:</i>	<i>F-Statistic</i>
<i>CZ_PX does not Granger Cause CZ_GDP</i>	5.88294**
<i>CZ_GDP does not Granger Cause CZ_PX</i>	8.23563*
<i>Hungary</i>	
<i>Lags: 1</i>	
<i>Null Hypothesis:</i>	<i>F-Statistic</i>
<i>HU_GDP does not Granger Cause HU_BUX</i>	3.85626***
<i>HU_BUX does not Granger Cause HU_GDP</i>	5.56009**
<i>Poland</i>	
<i>Lags: 1</i>	
<i>Null Hypothesis:</i>	<i>F-Statistic</i>
<i>PO_WIG does not Granger Cause PO_GDP</i>	2.27876***
<i>PO_GDP does not Granger Cause PO_WIG</i>	7.17160*
<i>Romania</i>	
<i>Lags: 1</i>	
<i>Null Hypothesis:</i>	<i>F-Statistic</i>
<i>RO_GDP does not Granger Cause RO_BETC</i>	7.03820**
<i>RO_BETC does not Granger Cause RO_GDP</i>	7.98046*

Note. CZ\_GDP, CZ\_PX, HU\_GDP, HU\_BUX, PO\_GDP, PO\_WIG, RO\_GDP, RO\_BETC represent GDP growth rate and stock market index afferent to Czech Republic, Hungary, Poland and Romania. Statistically significant at 1% (\*), 5% (\*\*) and 10% (\*\*\*)