# RELATIONSHIP BETWEEN THE STOCK MARKET DEVELOPMENT, BANKING SECTOR DEVELOPMENT AND ECONOMIC GROWTH IN THE CEE COUNTRIES

**Lidiya Yemelyanova[1]**

**Abstract.** The stock markets of most CEE countries have been actively developing and improving over the past decades but they still do not belong to the developed markets according to MSCI classification, the financial systems of these countries tends towards the bank-oriented type. Does the level of stock market development affect economic growth in CEE countries and do these countries need to develop their stock markets accordingly? The *purpose* of this article is to identify the direction of the causal link between stock market development, banking sector development and economic growth in Central and Eastern European (CEE) countries. The subject of the research is the relationship between the stock market development, banking sector development and economic growth in the CEE countries. *Methodology.* The research is based on the annual data for two time periods 1999-2012 and 1999-2015 for the 8 and 5 CEE countries, respectively. The study is based on the Granger causality test and linear regression models. According to *results* of the research the stock market development plays an important role in attracting foreign direct investment and economic growth in CEE countries in the long-run period. There are revealed the channels of indirect influence of the stock market capitalization on the economic growth. Stock market capitalization has impact on the banking sector and gross capital formation, which in turn have impact on the economic growth of CEE countries. There is the impact of both the stock market and the banking sector development on the economic growth in CEE countries during 1999-2015. However, the impact of the stock market size on the economic growth is positive and the impact of domestic credit to private sector is negative. *Practical implications.* The study proves the reasonable need for the CEE countries to move towards further development of the stock market, improving the market infrastructure and institutional environment in order to expand the size of the stock market and thereby contribute to the economic growth of this countries. *Value/originality.* The obtained conclusion about the role of the stock market in economic growth and attraction of FDI is of great importance both for Ukraine and other countries with similar trajectory of economic development in general and similar historical aspects of the origin of stock markets in particular and should be taken into account by state leaders when making decisions on the need to create conditions for development of such element of the country's financial system as the stock market.

**Key words:** stock market development, banking sector development, economic growth, stock market capitalization, stock market liquidity, foreign direct investments.

**JEL Classification:** E44, F21, G10, O11

## 1. Introduction

The goal of any country is to achieve higher rates of economic growth. Important components of a favorable environment for growth in production are the level of financial market's development, the availability of financial resources and the quality of the institutional environment for doing business. These factors take into account both foreign and domestic investors by making investment decisions.

The stock market is an integrant part of the market economy that facilitates the efficient capital allocation, directs free funds to those sectors of the economy that it need most, providing opportunities for economic growth. Developed stock market is also a major component of the country's investment attractiveness. On the other hand, higher economic growth means a rise in output and income, which is a key prerequisite for the development and growth of the stock market.

It should be noted that economists have different opinions on the direction of the relationship between stock market development, banking sector development and economic growth, which makes the study actual.

*Corresponding author:*
[1] Ivan Franko National University of Lviv, Ukraine.
E-mail: yemelyanova_lidiya@ukr.net
ORCID: https://orcid.org/0000-0002-9276-3624

According to some scientists, the development of the stock market contributes to the inflow of foreign direct investment, which in turn is one of the drivers of economic growth. According to other scientists, the impetus for the development of the stock market is foreign direct investment, which, by providing economic growth, thereby contribute to the development of the stock market.

It is commonly believed that CEE countries have a bank-oriented model of the financial system, characterized by a financial market in which debt securities and domestic credit predominate over the equity market. These countries are characterized by a much lower level of stock market liquidity and, consequently, a low level of its development than in the countries with a market-oriented model of the financial system. In this context, how important is stock market development for CEE countries? Does the level of stock market development have influence on economic growth, and how does the level of stock market development correlate with the level of development of the banking sector in these countries?

## 2. The relationship between the stock market development and banking sector development

There are different perspectives on the relationship between the banking sector and stock market development. Since both the stock market and the banking sector contribute to the transformation of savings into investment, they can both complement each other and substitute for each other.

From the "money demand" point of view, the Modigliani-Miller theorem states that in a condition of perfect market with symmetric information, the market value of all securities issued by a firm does not depend on the funding sources of the firm and, accordingly, firms can raise capital through both the stock market and the banking sector. However, asymmetric and imperfect information prevails in the real world. Some countries distort funding sources through taxes, subsidies, and certain rules. Thus, debt or equity financing is irrelevant.

From a "money supply" perspective, the relationship between the stock market and the banking sector may be negative in the short run because of the arbitrage between interest rates and stock market returns but in the medium to long-run investors are likely to want to diversify their financial assets and allocate them between the banking sector and the stock market. Question of supplement or replace the banking sector and the stock market depends on the debt or equity financing incentives specific to each individual country (Garcia, Liu, 1999).

The question of "complementing or replacing" the banking sector and the stock market has been studied by many economists. For example, Boyd and Smith (1996) believe that stock markets and the banking

sector can complement, rather than replace, each other as sources of finance. Demirguc-Kunt and Levine (1996) showed that countries with well-developed financial intermediaries as a rule have well-developed stock markets. Accordingly, they concluded that stock markets and the banking sector complement each other and exhibit simultaneous growth (Demirguc-Kunt, Levine, 1996). Stock markets tend to complement, not replace, bank lending and bond issuance. With stock market liquidity growth in developing countries also increase the sum of capital raised through bond issues and bank loans (Levine, 1996).

According to Yartey (2008), a well-developed banking sector is an important element in the development of the stock market in developing countries. In its initial stages, the stock market is a complement to, not a substitute for, the banking sector. Accordingly, the development of the banking sector can contribute to the development of the stock market. However, when stock markets become sufficiently developed, they tend to compete with the banking sector. Yartey concluded that a significant level of banking sector development can lead to interchangeability between bank credit and equity issuance (Yartey, 2008).

## 3. The relationship between the stock market development and economic growth

Economists also have different approaches to explaining the relationship between the development of the financial sector in general, the stock market and economic growth in particular.

Gurley and Shaw (1955, 1960), and Goldsmith (1969) have shown that economic growth stimulates financial development. The constant expansion of the economy requires additional financial services and new tools. Economic development leads to the development and improvement of the financial system. At low levels of development commercial banks are the dominant financial institutions. As economies grow, however, specialized financial intermediaries and equity markets develop and prosper. (Gurley, Shaw, 1955, 1960). Goldsmith (1969) established a positive relationship between the level of financial development and the level of economic activity, but he failed to establish a causal relationship between these indicators. Later on, McKinnon (1973), Shaw (1973), King and Levine (1993) concluded in their researches that the creation of financial institutions and markets increases the supply of financial services. The financial sector increases savings and channels them into more productive investments. Accordingly, financial development can stimulate economic growth. According to the point of view, which is currently held by an increasing number of modern economists, financial development and economic growth influence each other (Garcia, Liu, 1999).

There are also different views on the causal relationship between economic growth and the development of the stock market, which, in our opinion, can be divided into three main groups.

The first group, economists, concluded that there is a bilateral relationship between stock market development and economic growth. This group includes Atje and Jovanovic (1993), Garcia and Liu (1999), and Ishioro (2013). According to the conducted studies, the developed stock market is a significant factor in economic growth, technological progress, increasing the welfare of the population. The growth of transactions mediated by the stock market leads to the growth of real incomes of the population. And vice versa, a significant growth of income leads to the development of the stock market. Accordingly, from economist's point of view, with the growth of income, its cyclical component should influence the growth of stock market volume and indices (Garcia, Liu, 1999). The existence of a large correlation between economic growth and stock market development has been proven using a stock market liquidity indicator for a sample of 40 countries for the period from 1980 to 1988 (Atje and Jovanovic, 1993). The bilateral relationship between stock market development and economic growth has been investigated using measures of stock market size as well as stock market volatility (Ishioro, 2013).

The second group of economists made the conclusion that the stock market has influence on economic growth. This group includes Levine and Zervos (1996; 1998), Masoud (2013), Regmi (2012), Bayar, Kaya and Yildirim (2014), Azam, Haseeb, Samsi and Raji (2016).

Based on an analysis of data from 41 countries from 1976 to 1993, Levine and Zervos (1996) found a positive correlation between stock market development and long-term economic growth. In addition, the economists found a strong connection between the predetermined component of stock market development and economic growth in the long-run (Levine, Zervos, 1996).

The important role of stock market liquidity is also substantiated in Levine and Zervos research (1998). Economists studied 47 countries of the world during the period from 1976 to 1993. According to economists, firstly, stock market liquidity is positively correlated with current and future levels of economic growth, even considering the presence of other political and economic factors in the model. According to economists, a liquid stock market reduces the risks and costs of projects that pay off over the long term, thereby ensuring long-term investment. Such projects are potentially more profitable, thus the stock market improves capital allocation and long-term growth prospects. Secondly, the liquidity of the stock market and the development of the banking system sufficiently anticipate future growth rates. Accordingly, economists conclude that stock markets provide important financial

services, but these services are different from banking services (Levine, Zervos, 1998).

According to Masoud (2013), there is a relationship between an efficient stock market and economic growth, both in the short and long-run. The stock market can indirectly influence economic growth through the impact of stock market development on investment (Masoud, 2013).

Regmi (2012) examines causal relationship between stock market development and economic growth in Nepal for the period 1994-2011, using unit root test, co-integration, and vector error correction models and developing NEPSE composite index as an indicator of stock market development. The finding suggests that stock market development has significantly contributed to the economic growth in Nepal (Regmi, 2012).

Bayar, Kaya and Yildirim (2014) examined the relationship between stock market development and economic growth in Turkey during the period 1999-2013 by using the Johansen-Juselius cointegration test and the Granger causality test. The empirical results indicated that there is a long-run relationship between economic growth and stock market capitalization, total value of stocks traded, turnover ratio of stocks traded and also there is unidirectional causality from stock market capitalization, total value of stocks traded and turnover ratio of stocks traded to economic growth (Bayar, Kaya, Yildirim, 2014).

Azam, Haseeb, Samsi and Raji (2016) examined the role of stock markets in economic growth for Asian countries (Bangladesh, India, China and Singapore), using annual time series cross country data over the period 1991 to 2012. The empirical findings of the study revealed that stock market development and FDI inflows play vital roles in the process of economic growth and development in these selected countries (Azam, Haseeb, Samsi, Raji, 2016).

The third group of economists made ambiguous conclusions about the relationship between stock market development and economic growth. In particular, their conclusions depend on the study period and level of the stock market development. This group includes Boubakari and Jin (2010), Arčabić, Globan and Raguž (2013), Faisal, Muhamad and Tursoy (2016), Prats and Sandoval (2016).

Boubakari A. and Jin D. (2010) noted that the relationship between the stock market and economic growth exist in countries where the stock market is liquid and active. In countries with low liquidity and underdeveloped stock markets, such a link does not exist.

Prats and Sandoval (2016) investigated the link between the stock market development and economic growth in six countries in Eastern Europe (Bulgaria, Slovakia, Hungary, Poland, the Czech Republic and Romania) from 1995 to 2012 in order to explain the transition processes. The results show evidence of the

Granger causality between economic growth variables and financial market variables. The direction of causality link depends on the country.

Faisal, Muhamad, Tursoy, (2016) revealed the positive impact of FDI on the stock market in the long-run period, while in the short-run period, the economists proved the positive impact of the stock market on economic growth and, as a consequence, on the FDI inflow (Faisal, Muhamad, Tursoy, 2016; Arčabić, Globan, Raguž, 2013).

So, in our opinion, it is important to consider the role and place of private capital flows in the stock market development and economic growth. The impact of FDI and economic growth on the stock market was described by Errunza (1983), Adam and Tweneboah (2009), Shahbaz, Lean and Kalim (2013).

Private capital flows are considered important macroeconomic factors in the development of stock markets. This indicator represents the flow of direct and portfolio investments, calculated as a percentage of GDP. Thus, in particular, Errunza (1983) argued that the long-term impact of foreign capital inflows on stock market development is much broader than the benefits of initial flows and increased investor participation in the project. Private capital flows are extremely important for the development of the stock market, as foreign investment is associated with institutional and legal reforms, adequate disclosure and appropriate listing conditions, and fair trading practices. Increased information and operational efficiency, as a rule, should cause greater investor confidence in the national stock market, which, in turn, leads to greater capital flows (Errunza, 1983).

Adam and Tweneboah (2009) examined the impact of FDI on the stock market development in Ghana. Their results indicate that there exists a long-run relationship between FDI and stock market development in Ghana. The economists have found that a shock to FDI significantly influence the development of stock market.

Shahbaz, Lean and Kalim (2013) have proved the complementary role of FDI to the stock market development in Pakistan. Moreover, domestic savings, income and inflation are the other macroeconomic variables that affect the development of stock market in Pakistan.

The important role of investments, savings and private capital flows in the stock market's development was proved in researches of Errunza (1983), Garcia and Liu (1996), Yartey (2008).

On the other hand, Chousa, Vadlamannati and Tamazian (2008) have found a strong positive impact of growth and quality of capital markets on cross border mergers & acquisitions deals and values. The interesting finding is that the quality of markets is said to have a much greater impact than growth. This proves that the more efficient the markets are, the higher the encouragement for attracting cross border mergers & acquisitions.

In earlier research we have found, that the initial level of stock market's development has played an important role in attracting foreign direct investment in CEE countries during 1999-2012 (Yemelyanova, 2015).

According to the existing of different opinions on the direction of relationship between stock market development, banking sector development and economic growth, the main purpose of the study is to identify the direction of the relationship between these indicators in the CEE countries.

## 4. Research methodology

In the research there are used the annual data of 8 CEE countries (Poland, Hungary, the Czech Republic, Slovakia, Slovenia, Lithuania, Latvia, and Estonia) for the period from 1999 to 2012, and the data of 5 CEE countries (Poland, Hungary, the Czech Republic, Slovakia, Slovenia) for the period from 1999 to 2015. Unfortunately, we were not able to collect the necessary statistics for Lithuania, Latvia, and Estonia for 2013-2015, so that is why we divided our study into two parts. The study is based on the Granger causality test and the linear regression models.

The Granger causality test is a statistical hypothesis test for determining whether one time series is useful for forecasting another. The interpretation of the results of Granger causality test is as follows: if the probability against a particular hypothesis is sufficiently high (i.e., its value < 0,05), we can reject the formulated null hypothesis and accept an alternative one.

The general view of the linear regression model is as follows:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_n x_n + \varepsilon,$$

$y$ is a dependent variable; $x_1, x_2, \ldots, x_n$ are independent variables; $\beta_0$ is the intercept constant, the value of y in absence of all predictors (i.e. when all $x$ terms are 0); $\beta_1, \beta_2, \ldots, \beta_n$ are coefficients, that indicate the impact of independent variables on dependent variable; $\varepsilon$ is the random error, which describes the random component of the linear relationship between the dependent variable and independent variables (the disturbance of the model, the part of y that x is unable to explain). That is multiple linear model because we use more than one (two or more) independent variables in our model.

## 5. Research results

In our study we researched the relationship between the stock market development, the banking sector development, economic growth, gross capital formation, FDI inflows and stocks, and portfolio equity inflows and stocks. To measure the level of the stock market development we used the indicators of the size and stock market liquidity, such as stock

market capitalization and stock traded respectively. To measure the level of the banking sector development we used domestic credit to private sector and also we used GDP per capita growth to measure economic growth.

For a better perception of the results, it was used the following legend: CAP – stock market capitalization as a percentage of GDP; ST_TRADED is the stock traded as a percentage of GDP; DCPS is the domestic credit to private sector as a percentage of GDP; GDP_pc_GROWTH is GDP per capita growth; GCF is the gross capital formation as a percentage of GDP; FDI_INFLOWS is the net inflows of foreign direct investment as a percentage of GDP; FDI_STOCKS is the foreign direct investment stocks as a percentage of GDP; PE_INFLOWS is the net inflows of portfolio equity as a percentage of GDP, PE_STOCKS is the portfolio equity stocks as a percentage of GDP.

The results of the Granger causality test are summarized in Tables 1-2. Table 1 highlights the results that directly relate to the relationship between stock market's development indicators, banking sector development and macroeconomic indicators, and Table 2 highlights the results that relate to relationships between macroeconomic indicators. Note that there are only the pairs of indicators for which the relationship has been established in at least one of the studied periods.

According to the results (Table 1), we can make a conclusion about the important role of stock market development in the economic growth of CEE countries in both time periods. So, in particular, with a probability of 0.0000 (which is < 0.05) we reject the null hypothesis "stock market capitalization does not Granger cause GDP per capita growth" and accept the alternative one "stock market capitalization is cause of GDP per capita growth".

In the same way we analyze the other pairs of indicators.

For more visual perception of information, the results of analysis are submitted in Tables 3-4, where "→" denotes the direction of the relationship, "+" denotes the presence of the specified direction of influence of one variable on another, and "-" respectively, the absence of such influence.

Table 1

**Analysis of the relationship between the level of stock market development, banking sector development and the macroeconomic indicators in CEE countries in 1999-2015**

| Hypotheses | Number of observations | | Probability | |
|---|---|---|---|---|
| | 1999-2012 | 1999-2015 | 1999-2012 | 1999-2015 |
| FDI_INFLOWS does not Granger Cause CAP | 107 | 75 | 0.6027 | 0.5343 |
| CAP does not Granger Cause FDI_INFLOWS | | | 0.0147 | 0.2122 |
| FDI_INFLOWS does not Granger Cause ST_TRADED | 107 | 75 | 0.3799 | 0.3685 |
| ST_TRADED does not Granger Cause FDI_INFLOWS | | | 0.0162 | 0.0000 |
| PE_INFLOWS does not Granger Cause ST_TRADED | 99 | 75 | 0.0109 | 0.0001 |
| ST_TRADED does not Granger Cause PE_INFLOWS | | | 0.5462 | 0.0829 |
| GDP_pc_GROWTH does not Granger Cause CAP | 110 | 75 | 0.6261 | 0.5815 |
| CAP does not Granger Cause GDP_pc_GROWTH | | | 0.0000 | 0.0000 |
| GDP_pc_GROWTH does not Granger Cause ST_TRADED | 110 | 75 | 0.9230 | 0.6147 |
| ST_TRADED does not Granger Cause GDP_pc_GROWTH | | | 0.0354 | 0.0129 |
| GDP_pc_GROWTH does not Granger Cause DCPS | 104 | 75 | 0.4478 | 0.5747 |
| DCPS does not Granger Cause GDP_pc_GROWTH | | | 0.0013 | 0.0006 |
| GCF does not Granger Cause CAP | 97 | 75 | 0.4407 | 0.7570 |
| CAP does not Granger Cause GCF | | | 0.0001 | 0.0000 |
| GCF does not Granger Cause ST_TRADED | 97 | 75 | 0.6657 | 0.9646 |
| ST_TRADED does not Granger Cause GCF | | | 0.1572 | 0.0255 |
| ST_TRADED does not Granger Cause CAP | 110 | 75 | 0.9246 | 0.5919 |
| CAP does not Granger Cause ST_TRADED | | | 0.0203 | 0.6623 |
| DCPS does not Granger Cause CAP | 104 | 75 | 0.0746 | 0.1699 |
| CAP does not Granger Cause DCPS | | | 0.0054 | 0.0253 |
| FDI_STOCKS does not Granger Cause CAP | 88 | 75 | 0.4943 | 0.2472 |
| CAP does not Granger Cause FDI_STOCKS | | | 0.0362 | 0.0262 |
| FDI_STOCKS does not Granger Cause ST_TRADED | 88 | 75 | 0.2744 | 0.9765 |
| ST_TRADED does not Granger Cause FDI_STOCKS | | | 0.0188 | 0.0067 |
| ST_TRADED does not Granger Cause PE_STOCKS | 88 | 75 | 0.5628 | 0.0162 |
| PE_STOCKS does not Granger Cause ST_TRADED | | | 0.0000 | 0.0000 |

Note: the calculations are based on 2 lags because the results were the most significant.

*Source: calculated by the author based on WDI (2013), WDI (2017).*

Table 2
**Analysis of the relationship between the macroeconomic indicators of CEE countries in 1999-2015**

| Hypotheses | Number of observations | | Probability | |
|---|---|---|---|---|
| | 1999-2012 | 1999-2015 | 1999-2012 | 1999-2015 |
| GDP_pc_GROWTH does not Granger Cause GCF | 97 | 75 | 0.3125 | 0.1301 |
| GCF does not Granger Cause GDP_pc_GROWTH | | | 0.0451 | 0.1468 |
| FDI_STOCKS does not Granger Cause GCF | 88 | 75 | 0.2307 | 0.0299 |
| GCF does not Granger Cause FDI_STOCKS | | | 0.6992 | 0.2267 |
| GDP_pc_GROWTH does not Granger Cause FDI_STOCKS | 88 | 75 | 0.3418 | 0.4133 |
| FDI_STOCKS does not Granger Cause GDP_pc_GROWTH | | | 0.0138 | 0.0093 |
| GDP_pc_GROWTH does not Granger Cause PE_STOCKS | 88 | 75 | 0.8567 | 0.8116 |
| PE_STOCKS does not Granger Cause GDP_pc_GROWTH | | | 0.0003 | 0.0013 |
| GCF does not Granger Cause PE_STOCKS | 88 | 75 | 0.6479 | 0.7179 |
| PE_STOCKS does not Granger Cause на GCF | | | 0.0242 | 0.0414 |
| PE_INFLOWS does not Granger Cause PE_STOCKS | 79 | 75 | 0.1495 | 0.0010 |
| PE_STOCKS does not Granger Cause PE_INFLOWS | | | 0.0011 | 0.0090 |

Note: the calculations are based on 2 lags, because the results were the most significant.

*Source: calculated by the author based on WDI (2013), WDI (2017)*

Table 3
**The direction of the relationship between the stock market development, banking sector development and the macroeconomic indicators in CEE countries**

| The direction of the relationship | 1999-2012 (CEE-8) | 1999-2015 (CEE-5) |
|---|---|---|
| CAP → FDI_INFLOWS | + | - |
| CAP → FDI_STOCKS | + | + |
| CAP → GDP_pc_GROWTH | + | + |
| ST_TRADED → FDI_INFLOWS | + | + |
| ST_TRADED → FDI_STOCKS | + | + |
| ST_TRADED → GDP_pc_GROWTH | + | + |
| ST_TRADED → GCF | - | + |
| CAP → DCPS | + | + |
| CAP → GCF | + | + |
| CAP → ST_TRADED | + | - |
| DCPS → GDP_pc_GROWTH | + | + |
| PE_INFLOWS → ST_TRADED | + | + |
| PE_STOCKS → ST_TRADED | + | + |

*Source: based on results from Tables 1-2.*

Table 4
**The direction of the relationship between the macroeconomic indicators in CEE countries**

| The direction of the relationship | 1999-2012 (CEE-8) | 1999-2015 (CEE-5) |
|---|---|---|
| GCF → GDP_pc_GROWTH | + | - |
| FDI_STOCKS → GCF | - | + |
| FDI_STOCKS → GDP_pc_GROWTH | + | + |
| PE_STOCKS → GDP_pc_GROWTH | + | + |
| PE_STOCKS → GCF | + | + |
| PE_STOCKS ↔ PE_INFLOWS | +* | + |

*Source: based on results from Tables 1-2. *- PE_STOCKS → PE_INFLOWS only.*

We can conclude that the stock market development and the banking sector development had impact on the economic growth in CEE countries in both time periods for both groups of countries. According to the Granger causality test, the size of the stock market influences the development of the banking sector. In addition, it should be noted that the level of the stock market development affects the inflow and volume of FDI, and not vice versa.

Also it is important to understand the nature of the impact of the stock market and banking sector development on the economic growth. Is the impact positive or negative and how intense is it? To get the answer on this question we constructed a linear regression model for 5 CEE countries (Poland, Hungary, the Czech Republic, Slovakia, Slovenia) on the basis of data from 1999 till 2015. Dependent variable is GDP per capita growth. Independent variables are stock market capitalization, stock traded, domestic credit to private sector, FDI stocks, portfolio equity stocks and gross capital formation. We included these independent variables in our model, because they had impact on GDP per capita growth according to the Granger causality test (Table 3, 4).

We made four models to investigate the role of the stock market development and banking sector development in economic growth by including various combination of independent variables in each model (Table 5).

The significance of all our models = 0.000. The highest adjusted $R^2$ is 0.356 (model 2), this means that our model 2 is the best for describing the behavior of our dependent variable. VIF for each of the independent variables in all models is < 10, this means that the multicollinearity effect is not observed and the models are suitable for further interpretation.

According to the results in model 2 (Table 5) we can make a conclusion, that stock market capitalization has a significant positive impact on the GDP per capita growth ($\beta_1$ = 0.077), gross capital formation has also a significant positive impact on the GDP per capita growth ($\beta_2$ = 0.249) and domestic credit to private

Table 5
**Factors of influence on economic growth in the CEE countries in 1999-2015**

| Independent variables | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| CAP | 0.089 (2.538)** | 0.077 (2.608)*** | 0.042 (1.795) | - |
| ST_TRADED | -0.077 (-1.129) | -0.084 (-1.900) | - | - |
| DCPS | -0.105 (-5.341)*** | -0.104 (-5.378)*** | -0.095 (-4.981)*** | -0.091 (-4.765)*** |
| GCF | 0.242 (3.323)*** | 0.249 (3.654)*** | 0.246 (3.561)*** | 0.247 (3.525)*** |
| FDI_STOCKS | 0.013 (0.629) | - | - | - |
| PE_STOCKS | -0.072 (-0.402) | - | - | - |
| Constant | 0.178 (0.078) | 0.486 (0.235) | 0.120 (0.057) | 0.786 (0.376) |
| Significance of the model | 0.000 | 0.000 | 0.000 | 0.000 |
| F-statistics of the model | 8.320 | 12.631 | 15.149 | 20.555 |
| $R^2$ | 0.390 | 0.387 | 0.359 | 0.334 |
| Adjusted $R^2$ | 0.343 | 0.356 | 0.336 | 0.318 |
| Durbin-Watson | 1.675 | 1.670 | 1.596 | 1.551 |
| Number of obs. | 85 | 85 | 85 | 85 |

Notes: t-statistics are in parentheses. ***, ** and * indicate significant at 0.1, 1 and 5 percent level respectively (p-value < 0.001, 0,01 and 0.05).

*Source: calculated by the author in SPSS on the basis of data from WDI (2013), WDI (2017).*

sector has a significant negative impact on the GDP per capita growth ($\beta_3$ = -0.495). The role of stock traded is insignificant (Sig. = 0.061, that is > 0.05). Insignificant is also the impact of FDI and portfolio equity stocks (model 1).

The main conclusion from the model 2 (Table 5) is the positive impact of stock market capitalization on the economic growth of CEE countries during 1999-2015. We should also note we have negative impact of domestic credit to private sector on economic growth. This can be explained by the impact of financial crisis 2007-2008. During 2007-2010 there was an increase of the share of domestic credit to private sector in GDP against the significant decrease in GDP per capita growth rates in CEE counties.

## 6. Conclusions

The relationship between financial market development and economic growth is the subject of study by many economists. From a theoretical point of view, the financial market, in the form of both the banking system and the stock market, turning savings into investment, is a source of economic development and, accordingly, economic growth. However, this is not always the case, as exemplified by the numerous economic crises triggered by the boom in either the credit or stock markets. Opinions of economists also differ on the direction of the relationship between financial market development and economic growth. The results of numerous studies emphasize, in particular,

the importance of economic growth in the development of the financial sector of the economy. In addition, different countries have different models of the financial system. It is logical to assume that in countries with a banking-oriented model of the financial system, the development of the banking sector will have a greater impact on economic growth, while in countries with a market-oriented model of the financial system, economic growth will be more affected by stock market development.

The purpose of this study was to identify the direction and strength of the relationship between the development of the stock market, the banking sector and economic growth in CEE countries, which are characterized by a bank-oriented model of the financial system. Given the rather low level of the stock market's development in the CEE countries, it was interesting to analyze whether these markets play a positive role in economic growth and whether CEE countries need to develop them accordingly? The study also decided to take into account the role of FDI, because they are, on the one hand, an indicator of the quality of the institutional environment, in the stock markets in particular, and on the other hand another important determinant of economic growth. In the research there are used the annual data of 8 CEE countries (Poland, Hungary, the Czech Republic, Slovakia, Slovenia, Lithuania, Latvia and Estonia) for the period from 1999 to 2012, and the data of 5 CEE countries (Poland, Hungary, the Czech Republic, Slovakia, Slovenia) for the period from 1999 to 2015.

On the basis of the conducted analysis we are able to prove that:
– firstly, in the long-run period, the stock market development plays an important role both in attracting foreign direct investment and in the economic growth of CEE countries. The similar conclusions made Levine (1996), Levine and Zervos (1996; 1998), Yartey (2008), Chousa, Vadlamannati and Tamazian (2008), Garcia and Liu (1996), Atje and Jovanovic (1993);
– secondly, the stock market capitalization can impact economic growth indirectly through such channels as the banking sector and gross capital formation;
– thirdly, there is the impact of both the stock market and the banking sector development on the economic growth in CEE countries during 1999-2015. However, the impact of the stock market size on the economic growth is positive and the impact of domestic credit to private sector is negative.

Thus, despite the fact that the stock markets of CEE countries do not belong to the group of developed markets according to the MSCI classification, they are really an important component of economic growth in the studied countries. Accordingly, the task of CEE countries is to promote the development of stock markets in the context of improving infrastructure and market regulation, increasing the level of information availability, which in turn will contribute to the entry of more investors, increase liquidity and market size and, consequently, economic growth of CEE countries.

According to the significant role of financial markets in the economic growth in such CEE countries as Poland, Hungary, the Czech Republic, Slovakia, Slovenia, the next step in our scientific researches seems to be analyzing the role of financial market in Ukraine and searching the key factors of financial market's development in Central and Eastern Europe.

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