

## IS THE CAPITAL MARKET IMPORTANT FOR THE ECONOMIC GROWTH IN THE EU?

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**Abstract:** *The European Commission's plan to mobilize the capital in Europe by launching the project of the Capital Markets Union, expected to be accomplished by 2019, is strongly based in the characteristics of the European financial system, relying heavily on the banking industry. The importance of capital markets and financing venues was emphasized by the financial crisis that started in 2007, seriously affecting the banking industry, and whose effects can also be seen today. In this article, we analyse the relationship between economic growth and some variables that characterize the capital markets in the 28 member states of the European Union. We use annual data for the 2000-2015 time frame, in order to capture the multiple economic cycles in Europe, corresponding to each of the 28 member states at the beginning of 2017 (even though the accession to the EU occurred later than 2000, as is the case of Central and Eastern European countries). We used data reflecting economic growth, stock markets returns, market capitalization as percentage in GDP and stocks traded value as percentage in GDP. We start the analysis by checking the existence of some causality relations between the analysed variables, by conducting a pairwise Granger causality test. The results show that the variables characterizing the capital markets are in the Granger causality relation with the economic growth. We also use the panel data regression to find a relation between the selected variables, and the obtained results. The conclusion reveals the existence of a positive relation between the economic growth and the other three variables, for the selected countries and time period. These results reveal the importance of the capital market as a way of financing companies throughout Europe, as the market capitalization (the size of the capital market) and traded value (as a measure of liquidity and activity in the capital market) are directly related to the economic growth. Stock market returns are also positively related to economic growth, a result that shows the potential use of the first variable as an indicator of the future economic trends. These results are of importance for a diverse scale of users, from individual investors, to institutional investors (more interested in the development of capital markets and mechanisms), but also for decision-makers from each and every member state and European institutions, involved in shaping and implementing the Capital Markets Union plan.*

**Keywords:** *capital markets; economic growth; market capitalization.*

**JEL classification:** *C23; G15; G10.*

### 1. Introduction

The Capital Markets Union, promoted by the European Commission and intended to be operational by the year 2019, is the most important project involving the free

movement of capital in the European common economic space. It aims to address the heavy reliance of the European companies on the banking system, by providing an alternative venue for enterprise financing and establishing a genuine single European capital market.

This process involves adopting large scale measures throughout Europe, included in the Action plan on Building the Capital Markets Union, in order to unlock the disposable capitals from the European Union and direct them toward the companies, including toward small and medium enterprises.

In this respect, it is important that every member state assesses the possible benefits and costs associated to the Capital Markets Union project, in order to find the proper measures necessary to foster the economic growth and activity.

Therefore, the analysis of the relationships between macroeconomic variables and alternative measures of activity in the capital markets becomes relevant in the process of designing the measures necessary to implement the Capital Markets Union.

The relationship between these variables is widely analysed in the economic literature, the conclusions drawn being dependent on the selected variables, data or methodology, as well as on the selected countries included in the analysis.

In this article, we use annual data for the 28 member states of the European Union, in order to assess the relationship between economic growth and stock market returns, market capitalization and traded value. The article consists of five parts, the first being the Introduction, the second part being dedicated to a brief analysis and overview of the relevant financial literature, the third being concerned with the data and the methodological issues, the fourth presenting the results and the fifth containing the most relevant conclusions.

## **2. A Brief Overview of the Relevant Financial Literature**

The relationships between economic growth and sectorial variables was widely studied in the financial literature, as many researchers and practitioners tried/are trying to find the answers and reasons for the financial markets' evolution during different time intervals. The globalization process enabled the financial investors from the developed countries to have an easier access to less developed countries, such as the emerging ones.

Bekaert and Harvey (1997) found the relation between capital markets and economic growth, by analysing 18 emerging markets around the globe (from Europe, Asia, Latin America and Africa) during the 1986-1992 time frame. They stressed the role that capital markets play on the economic development of the countries that promoted the financial liberalization measures and established sound basis for the capital markets' functioning.

Demirguc-Kunt and Levine (1996) used data for forty-four developed and developing countries during the 1976-1993, related to the capital market development (considering, for example, the liquidity and financial integration measures), in order to find the relation to the economic growth. They find that the countries with better-developed capital markets have also better-developed banking systems and nonbank financial intermediaries sector. But more important, Demirguc-Kunt and Levine found that the capital market's development is positively and significantly correlated with long-run economic growth for the analysed countries.

Mishkin (2005) stressed the role the financial development has on economic growth, by assessing the negative effects of the financial liberalization. Although the financial liberalization can lead to economic development, it also increases the risks of the financial contagion phenomenon.

More recent, Demirguc-Kunt, Feyen and Levine (2013) found that the impact that capital market depth has on economic growth is much stronger for the countries that have more developed capital markets. As such, the authors argue that as the countries develop, the relationship between the economic growth and the development of the capital market becomes stronger.

Kaserer and Rapp (2014) analysed the role of the capital markets in Europe and found that there is a significant and positive relationship between the capital market size and economic growth. But this relation is related to the capital market's capacity to provide funds for long-term investments, especially from institutional investors, such as the pension funds, mutual and hedge funds, or the private equity funds.

Rapp (2016) analysed the relationship between the financial sector structure and economic growth in the Danish case, emphasizing the positive and significant relationship between these two indicators. Moreover, referring to Denmark, Schularick and Steger (2007) analysed the relationship between the international capital market and economic growth, considering two eras of financial globalization, the first (according to the economists, the one that spans over 1880-1914) and the recent one. For the first era of globalization, the authors collected data for 24 countries during the 1880-1914 timeframe, covering more than 80% of the global GDP in 1914. For the recent era of globalization, Schularick and Steger used observations for 54 developing and developed countries, during 1980-2002. They found that, for the selected countries, it cannot be supported the idea of an effect of financial markets' openness on economic growth.

Alongside economists and researchers, the importance of the financial sector for the economic growth is also revealed by policymakers, as the former president of the European Central Bank, Willem Duisenberg, emphasized in a speech delivered to the conference "The Single Financial Market: Two Years into EMU" (ECB, 2001). The President of ECB pointed to the complementary relation between the capital market and the banking system in the European Union and the need for new measures to ensure financial integration.

Still, a large spectrum of researchers neglects the role of capital markets in the development of the economic activity within a country, by a narrow approach on the role the stock markets play in the economy (seen as a trading venue, and not a financing one). For example, considering data from the 1970-1985 timeframe and for 5 countries, Mayer (1988) draws the conclusion that the stock markets are not important for the economic growth, since the corporate investment using equity issuance means of financing is low.

Also, Stiglitz (1989) stresses the limitations of the government in conducting measures that help the development of capital markets, and, therefore, the limitations of the financial intermediaries' role in creating the proper conditions for economic growth.

In the Romanian case, Cioacă (2015) analysed the characteristics of the capital market, observing that one of the main problem is liquidity (market depth and total traded volume are low), that also influences the informational efficiency. Also, Cioacă (2015) analysed the market concentration for the Romanian capital market, showing that the capital market is moderately concentrated, but with a consolidation

trend. Therefore, in order to design proper measures to enhance economic growth, it can also be considered the design of a strong capital market, starting from a good knowledge of its characteristics.

The impact of the financial crisis on the Romanian capital market was also studied in Armeanu and Cioacă (2015), with an emphasis on the bankruptcy risk that was present for the listed companies at the Bucharest Stock Exchange.

Moreover, the capital markets from the Central and Eastern Europe and their exposure to financial contagion was studied by Armeanu, Enciu, Obreja and Cioacă (2016), revealing the large impact the developed capital markets have on the returns and volatility of the less developed capital markets.

### 3. Methodology and data

In order to assess the relationship between economic growth and the variables that characterize the capital markets, we use data panel analysis and a regression of the following type:

$$y_{it} = \alpha + X'_{it}\beta + \mu_i + \vartheta_{it} \quad i=1, \dots, N; t=1, \dots, T$$

where  $i$  is the cross-section dimension,  $t$  is time,  $\alpha$  and  $\beta$  are the equation's coefficients,  $X'_{it}$  the  $i$ 's observation for the explanatory variables,  $\mu_i$  is the specific effect and  $\vartheta_{it}$  is the residual value.

We estimate the model using the fixed effect model and random effect model, therefore conducting the Hausman test in order to assess which model is appropriate.

In order to assess the impact the capital markets have on economic growth, we considered the time series corresponding to the 28 member states of the European Union, for the 2000-2015 time frame. We considered the data corresponding to the states that entered in the European Union after 2000, such as Cyprus, Estonia, Latvia, Lithuania, Malta Poland, Czech Republic, Slovakia and Hungary (with the accession date May 1st 2004), as well as Romania and Bulgaria (that entered in the European Union from January 1st, 2007) and Croatia (that entered the European Union starting July 1st, 2013).

For each country, we considered annual data for economic growth (during 2000-2015) and for variables that characterize the capital market, such as the market returns (calculated using the representative indexes from each European Union member state), market capitalization as percentage in GDP and stocks traded value as percentage in GDP (using the concepts and definitions given by the World Bank). We choose the last two indicators in order to find a relationship between the economic growth and the size and dynamics of the capital markets, sectors that are intended to be financing venues for companies.

The data were collected from the European Central Bank, World Bank, market operators and Federal Reserve Bank of St. Louis.

### 4. The Results

Data for the 2000-2015 time frame were used to study the existence of the relationships between the economic growth (variable GDP\_GR) and time series that characterize the dynamics of the capital markets (S\_P – annual market returns, STOCKS\_GDP – the value of shares traded, as percentage in GDP and MAR\_CAP – the market capitalization expressed as percentage in GDP). We used data panel

analysis, aiming to find a model that relates the economic growth with the variables specific to the capital markets.

For selected data series, we use the pairwise Granger causality test, in order to find the possible correlations between those variables, the results being presented in Table 1.

**Table 1:** The Pairwise Granger Causality Tests for selected variables (2000-2015)

Pairwise Granger Causality Tests

Date: 04/18/17 Time: 10:24

Sample: 2000 2015

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
S_P does not Granger Cause GDP_GR	392	81.9722	2.E-30
GDP_GR does not Granger Cause S_P		8.17855	0.0003
MAR_CAP does not Granger Cause GDP_GR	392	17.2390	7.E-08
GDP_GR does not Granger Cause MAR_CAP		2.13650	0.1195
STOCKS_GDP does not Granger Cause GDP_GR	392	4.28818	0.0144
GDP_GR does not Granger Cause STOCKS_GDP		1.88952	0.1525
MAR_CAP does not Granger Cause S_P	392	5.04904	0.0068
S_P does not Granger Cause MAR_CAP		3.44563	0.0329
STOCKS_GDP does not Granger Cause S_P	392	7.81851	0.0005
S_P does not Granger Cause STOCKS_GDP		7.09460	0.0009
STOCKS_GDP does not Granger Cause MAR_CAP	392	0.94547	0.3894
MAR_CAP does not Granger Cause STOCKS_GDP		7.60827	0.0006

Source: own calculation

Analysing the data from Table 1, we can see that there is no causality relationship between the economic growth and the stocks traded value and market capitalization, expressed as percentage in GDP. Despite this, there is an inverse causality relationship, as the market capitalization percentage in GDP and the stocks traded values as percentage in GDP both influence the economic growth (considering the probabilistic values, that are below an usual threshold of 5%).

We can also observe the direct relationship between the economic growth and the market returns, as both causality relations are significantly statistic (the probability value for the first null hypothesis from Table 1 is 2.E-30, and the probability value for the second nul hypothesis is equal to 0.0003).

Moreover, considering the variables that characterize the capital market, we can observe that there are some causality relationships, as the one between the market returns and the market capitalization expressed as percentage in GDP (one of the ofetn used measures for the development of a capital market), or the one between the market returns and the stocks traded value as percentage in GDP (that

expresses the liquidity and the companies' openness to financing using the capital markets mechanisms).

Starting from these results, we developed a regression model based on panel data, where the dependent variable is the economic growth, and the independent variables are the time series that characterize the capital markets. The results are shown in Table 2.

**Table 2:** The proposed model for GDP\_GR variable, fixed effect (2000 – 2015)

Dependent Variable: GDP\_GR

Method: Panel Least Squares

Date: 04/18/17 Time: 10:18

Sample: 2000 2015

Periods included: 16

Cross-sections included: 28

Total panel (balanced) observations: 448

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.046361	0.405547	0.114318	0.9090
S_P	0.006443	0.005138	1.253882	0.2106
STOCKS_GDP	0.020184	0.008274	2.439502	0.0151
MAR_CAP	0.031191	0.007129	4.375088	0.0000

#### Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.196920	Mean dependent var	2.319530
Adjusted R-squared	0.139144	S.D. dependent var	3.737413
S.E. of regression	3.467658	Akaike info criterion	5.391522
Sum squared resid	5014.281	Schwarz criterion	5.675559
Log likelihood	-1176.701	Hannan-Quinn criter.	5.503492
F-statistic	3.408360	Durbin-Watson stat	1.313463
Prob(F-statistic)	0.000000		

Source: own calculation

Analysing the data from Table 2, we can observe that the proposed model explains 19.6920% of the changes in the economic growth and the 3 selected variables characterizing the capital markets, out of which 2 are statistically significant (market capitalization and the stocks traded volume expressed as percentage in GDP).

We can also see that the values for the 3 coefficients characterizing the capital market (S\_P, STOCKS\_GDP, MAR\_CAP) are all positive, emphasizing the existence of a positive relationship between the dynamics of the economic activity (measured by the economic growth of the GDP) and the financing venue represented by the capital market.

For example, the positive relationship between the economic growth and the market returns (although not statistically significant) confirms the results obtained by a large spectrum of empirical results, as well as researches done by other economists and

practitioners, emphasizing the importance the capital market has on estimating the new economic trends and changes in the dynamics (that stress the fact that an accurate estimation of the capital market's movement is important for estimating the dynamics of the economy as a whole, therefore being of interest for the monetary and fiscal policymakers in a country).

Moreover, the positive relationship between the capital markets' dynamics (as it is assessed by the stocks traded volume expressed as percentage in GDP) and the economic growth stress the importance the capital market has on financing the companies, at least considering the trading activity impact has on the institutional investors' interest. As such, the existence of a liquid capital market is a necessary condition for the attractiveness of this financing venue for the companies interested in obtaining financial resources that are needed to develop new activities and projects. Also, from the institutional investors' standpoint, besides the reasons related to the general economic, social or judicial stance within a country, the liquidity of the country's capital market is an important condition that influences the investment decision (as the number of trading sessions needed to implement an investment/dis-investment decision is important for the expected returns and institutional investors' strategy, faced with a many alternatives markets to invest).

Also, the positive relationship between the market capitalization expressed as percentage in GDP and the economic growth is important, as it emphasizes the potential the capital market can have in development of an economy of a member state from the European Union. Considering this, the development of the non-banking financial sector, where the capital market is the main financing venue for the companies, that is complementary to the banking system, is important in adopting by the interested companies the decision of using the stock exchange's mechanisms to finance the operations (that constitutes the demand for financial resources), as well as for the local or foreign institutional investors (that cumulates the supply for financial resources). Actually, that is the main driving aim for the Capital Markets Union project, that is expected to be done by 2019, in order to provide an alternative financing mechanisms for European companies, especially the small and medium enterprises.

The existence of some important companies listed on the stock exchanges gives positive signals in the financial field related to their capacity as financing venue for the interested companies, where there are clear advantages for investors, given by the transparency and reporting requirements from the corporate governance codes and regulations of every stock exchange.

In order to check whether this model is appropriate for the selected time series, we used the Hausman test for the random effect model. The results are shown in Table 3.

Analysing these results, we can see that the Hausman test shows that the fixed effect is appropriate, as the null hypothesis is rejected (the probability value for the null hypothesis, saying that the random effect model is appropriate, is null).

As such, the model presented in Table 2, based on panel data regression with fixed effects, is appropriate and relevant for the selected time series, emphasizing the positive relationships between the economic growth and the variables characterizing the dynamics of the capital markets, such as the market returns, stocks traded value and market capitalization, expressed as percentage in GDP.

**Table 3:** The model for GDP\_GR variable, random effect (2000 – 2015)

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	41.316343	3	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
S_P	0.006443	0.011898	0.000002	0.0003
STOCKS_GDP	0.020184	-0.008699	0.000042	0.0000
MAR_CAP	0.031191	0.014569	0.000026	0.0010

Cross-section random effects test equation:

Dependent Variable: GDP\_GR

Method: Panel Least Squares

Date: 04/18/17 Time: 10:10

Sample: 2000 2015

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Cross-sections included: 28

Total panel (balanced) observations: 448

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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S_P	0.006443	0.005138	1.253882	0.2106
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## Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.196920	Mean dependent var	2.319530
Adjusted R-squared	0.139144	S.D. dependent var	3.737413
S.E. of regression	3.467658	Akaike info criterion	5.391522
Sum squared resid	5014.281	Schwarz criterion	5.675559
Log likelihood	-1176.701	Hannan-Quinn criter.	5.503492
F-statistic	3.408360	Durbin-Watson stat	1.313463
Prob(F-statistic)	0.000000		

Source:own calculation



## 5. Conclusions

Using annual data for the 2000-2015 time frame, for the 28 member states of the European Union, we studied the existence of relationships between the variables used to describe the macroeconomic dynamics, such as economic growth, and the ones that characterize the capital markets, such as the market returns, the stocks traded volume and market capitalization expressed as percentage in GDP. Therefore, we used data panel analysis, finding a positive relation between the capital markets's characterizing variables and the economic growth for the selected countries.

The existence of this relation is important for a large spectrum of users, from retail investors, interested in finding an alternative for their investments using the disposable income and resources, to institutional investors, that are interested in finding investment alternatives among the possible classes of countries around the globe, according to their investment strategies and mandates. Moreover, these results are of importance for policymakers from the European Union's member states, considering the initiatives of Capital Markets Union, a project launched in 2015 and expected to be operational by 2019 (even though the process is still analysed and adapted, as the European Union faces new challenges, such as the results of the June, 2016, UK's referendum, that reveals the choice of the British people to leave the European Union).

These results can be further refined, by including in the model some other explanatory variables, such as dummy variables, that can be used to differentiate the results according to the clusters where the European Union's member states are allocated (such as the MSCI classification, in developed countries, emerging countries, or frontier countries). Moreover, this analysis can be further refined by considering quarterly data for the selected variables, an option that can better reflect the capital markets' moves and their impact on the other analysed macroeconomic variables. Also, we can consider other macroeconomic variables in this model, such as the GDP per capita, that can emphasize the relationship between these variables and development stage of the non-banking financial sector (and, especially, to the capital markets).

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