THE EFFECT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH IN THE EUROPEAN UNION

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Abstract: Foreign direct investment (FDI) is seen as a major mechanism for development, and with international trade, a fundamental part of an open and successful international economic system. This paper examines the effect that FDI has on economic growth in the case of the European Union (EU). The initial assumption of the paper is that FDI has a positive impact on economic growth. Correlation and regression analysis were used to examine the interdependence between FDI and gross domestic product (GDP), as a measure of economic growth. The results of the research show a negative interdependence between FDI and GDP and that there is no positive impact of FDI on the value of GDP in the EU in the observed eleven-year period (from 2005 to 2015).

Key words: foreign direct investment, economic growth, European Union, multinational corporations, host country, spillover effects.

INTRODUCTION

The international movement of capital is one of the most important factors for the development of the world economy, especially in the case of developing and less developed countries. The importance of FDI, as a form of international capital movement, is in the existence of positive externalities created by multinational corporations (MNCs). FDI has a positive effect on economic growth in the host country through the inflow of capital, job creation, technology and knowledge spillovers and increased competition. FDI may facilitate growth by promoting technical innovation also (Bevan and Estrin, 2004, p. 776). Over the past decade, foreign direct investments have been playing an increasingly relevant role in the process

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of functional integration of the world economy (Crescenzi and Petrakos, p. 2016). FDI has become a key component of the economic strategies put forward by most developed and developing countries (Villaverde and Maza, 2015, p. 209).

However, a great debate about the impact that FDI has on economic growth can be found in the literature. Thus, depending on the model of economic growth, there are several channels through which FDI can affect economic growth. In Robert Solow's neoclassical growth model, FDI is seen as the perfect substitute for domestic capital and as such, have a direct impact on economic growth through its contribution to the total net equity. This is because technology and technological progress are seen as exogenous variables. Hence, FDI can affect economic growth if it enhances technological progress (Iamsiraroj and Ulubaşoğlu, 2015, p. 201). Since the basic assumption of the neoclassical growth model is diminishing returns on capital, the effect of FDI on economic growth will be present and significant only in the short term.

Unlike the neoclassical model, the endogenous growth model differs foreign from the domestic capital and can be affected by crowding-in or crowding-out domestic investment. If foreign capital causes the crowd-in effect of domestic capital, then the effect of FDI on growth will be even greater. In the endogenous growth model, FDI may affect growth in the long term through technology and knowledge spillover effects. The basic assumption of this model is that technological progress is an endogenous variable. Also, the model recognizes the role played by country-, industry-, and firm-specific factors in determining the extent of which total gross investment and the rate of technology generation and diffusion enhance growth (Mehic et al., 2013). To conclude, the endogenous growth theory emphasizes the key role of foreign companies in raising capital, knowledge and positive externalities in the host economy caused by technology spillover, that have a greater impact on growth than domestic investment.

The aim of the paper is to investigate the existence of a relationship between FDI and GDP in the case of the EU countries in the period from 2005 to 2015. The basic assumption of this paper is that FDI has a positive effect on economic growth. Correlation and regression analysis were used to investigate this relationship. The FDI inflows and value GDP were used as variables in the analysis.

The paper consists of the following parts: the introduction followed by the concept and basic form of FDI, while the fourth part is about the effects of FDI on the host country. The fifth part reviews the empirical research on the effect of FDI on economic growth, and in the sixth part, the results are presented. The seventh part concludes.

THE CONCEPT OF FOREIGN DIRECT INVESTMENT

Foreign direct investments are one of the forms of international movement of capital. Another form of international movement of capital is foreign portfolio

investments (FPI). The main difference between these two types of investment capital is in the control and management functions. FPI involve capital investment in the property, while the management and, to a large extent, control functions have been transferred to managers. In the case of FDI, ownership, management and control functions are integrated, and stand in the hands of investors. Itay and Razin (2005) pointed out that portfolio investment projects are managed less efficiently than direct investment projects, due to the problem of intermediation between managers and owners. Direct investors, who act effectively as managers of their own projects, are more informed than portfolio investors regarding changes in the prospects of their projects. This information enables them to manage their projects more efficiently. This effect generates an advantage, with an added value in the capital markets, to direct investments relative to portfolio investments.

The share of FDI in total international investment capital flows is higher than FPI. Also, there is the greater the stability of FDI, especially in developing countries. FDI is presumed to be more stable and less prone to reversals than other forms of capital flows (Harms and Méon, 2013). FDI growth rates, especially in the case of MNCs, were significantly higher than the growth in international trade over the last two decades (Antevski, 2008, p. 134).

We can find different ways of defining FDI in literature. Foreign direct investments are real investments in the production factors: in capital goods, land or reserves, where the investor is included both in investment and in management, retaining control over the usage of invested capital (Salvatore, 2009, p. 430). According to Kindleberger, foreign direct investment is a direct investment in a company abroad in order to gain permanent control over production, trade and finance of companies in which they invest (Jovanović Gavrilović, 2004, p. 100). However, the most widely accepted definition is the one given in the OECD Benchmark Definition of Foreign Direct Investment: FDI reflects the objective of establishing a lasting interest by a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor. The lasting interest implies the existence of a long-term relationship between the direct investor and the direct investment enterprise and a significant degree of influence on the management of the enterprise. The direct or indirect ownership of 10% or more of the voting power of an enterprise resident in one economy by an investor resident in another economy is evidence of such a relationship (OECD, 2008, p. 48).

In the modern development stage FDI assumes the role of a key development factor, and with trade, become the main mechanism of the globalization of the world economy, or business enterprises (Nestorović, 2015).

THE BASIC FORMS OF FOREIGN DIRECT INVESTMENT

FDI can be viewed and interpreted based on different criteria. So, in everyday practice and professional literature, we can find numerous of their divisions. In the widest sense, FDI can be classified into three types: horizontal, vertical and mixed FDI (Kovačević, 2004).

Horizontal FDI (also known as market-seeking FDI) are investments in overseas production. They arise when companies locate production of the same products, or groups of related products, in several plants in different countries. New plants can be formed in one of the following ways: greenfield investments, mergers and acquisitions. The main objective of the horizontal investment is the production for the local market, in which case the classical exports from the home country is being substituted with production in the host country. In this way, savings in costs (transport and customs), and prompt response to local preferences are achieved. This type of FDI makes up the largest part of FDI flows at the global level, as well as between developed countries, which characteristics are high income and demand, and high production costs.

Vertical FDI arise when multinational companies locate individual operations in the chain of production and marketing at plants in different countries. They are also called resource-seeking FDI because they are determined by low labor costs, geographic proximity and regional integration. The main goal of this type of FDI is the export of products to the home country's market or to the world market, but not to the local market as is the case with horizontal FDI. These are investments originating from developed countries to developing countries, which are also led by the cost principle, while a relative abundance of human capital can play an important role.

Mixed FDI includes investments that are not purely neither horizontal nor vertical. They include the internationalization of activities that reduce risk, but that does not generate visible positive synergies on the cost and yield side. The company's management is strongly motivated to reduce a specific risk of a company, in which case a mixed FDI is a smart choice. However, decisions on investments abroad are often determined by a combination of factors, so one location may have competitive advantages because of cost or because of the large domestic market.

FDI can also be classified as greenfield investments, brownfield investments and mergers and acquisitions.

Greenfield investments are a form of investment funds in the construction of new, or expansion of existing facilities, where the investor agrees to build new buildings, halls, factory plants on the leased land. These investments are very attractive for countries in transition because they allow the transfer of technology and know-how, new jobs and production capacity. However, the effects on the host country may be negative because the MNCs, that are able to produce considerably

cheaper products, could displace domestic industry that is unable to withstand the high competitive pressure.

Unlike greenfield investments that are a completely new investment, brownfield investments represent taking over existing companies or their parts. In this case, the investor buys all the land and all facilities that were used for production.

Merger refers to the joining of two or more companies, while one company remained unchanged until the second or other cease to exist. Companies that cease to exist transfer its rights and obligations to the new company. The result of mergers is expanding production capacity and more competitive newly created company. There are following types of mergers, depending on the relationship of the companies before the merger:

- horizontal merger - formed by the integration of the company that produced or sold the same or similar products and were in a competitive relationship,
- vertical merger - formed by the integration of the companies that participated in and the different stages of production or sales of the same product,
- conglomerated merger - formed by the integration of companies that previously did not operate in the same or similar activities.

The acquisition represents the purchase of one company by another, whereby the buyer assumes all assets and liabilities of the purchased company. We can distinguish a friendly acquisition, in which both parties participate in the negotiations and purchases is realized by mutual benefit, and a hostile acquisition, whereby the buyer does not inform the company of another purchase intent. When we talk about which form of FDI has a greater effect on economic growth, Neto et al. (2008) proved that whereas greenfield investments exert a significant and positive influence on economic growth in both developed and developing countries, mergers and acquisitions tend to have a negative effect on economic growth in developing countries, and no effect in developed countries.

Which form of direct investment the foreign company chooses will depend on several factors: their own desires, interests and objectives, the available options, specific political and economic situation in the country, development of the economy that is attempting to invest in, etc.

THE EFFECTS OF FOREIGN DIRECT INVESTMENT ON THE HOST COUNTRY

The effects of FDI are generally positive and mutual, for the host country and the investor. FDI brings a whole range of direct but also indirect effects in the host country. However, all these positive effects will not be achieved if someone does not know how or when to do it. In addition to the positive spillovers of knowledge and technology, as a key factor stands receptive capacity of the domestic human

capital (Antevski, 2009). In the literature, we find the following direct and indirect positive and negative effects of FDI inflows.

Kurtishi-Kastrati (2013) points out following direct effects:

1. Transfer of capital, technology and management.

   • MNCs contribute to economic growth via FDI in the host country, not only by providing capital but also by crowding-in additional domestic investment, as it increases the total growth effect on FDI. For example, Feldstein (2000) emphasizes a number of advantages that are related to unrestricted capital flows, such as: international flows of capital reduce the risk faced by owners of capital by allowing them to diversify their investments; the global integration of capital markets can contribute to the spread of best practices of corporate governance, accounting rules, and legal traditions; the global mobility of capital limits the ability of governments to pursue bad policies.

   • MNCs, with FDI, also bring technology that is more advanced and environmentally cleaner. And since the effect of technological progress on economic growth is more widely accepted with the formation of the endogenous growth theory, we can say that inflow of this technology promotes economic development and industrialization.

   • In addition to capital and technology, FDI can bring in the host country management and knowledge that will be transferred through training of the workforce. Lall and Streeten (1977) emphasize three kinds of managerial benefits: managerial efficiency in operations arising from better training and higher standards; entrepreneurial capability in seeking out investment opportunities; externalities arising from training received by employees.

2. The effects on employment. The impact of FDI on employment can be direct and indirect. Direct effects occur when MNCs employ workers in newly opened factories. Indirect effects occur when new jobs are created in local factories that are suppliers of a new factory, or when new jobs are created as a result of increased local demand for employees in the new factory. The effect on employment, either direct or indirect, is considered one of the most prominent effects of FDI on the host country. However, studies have shown that this effect is greater in developed than in developing countries.

3. The balance of payment effects. There are several ways in which FDI can affect the balance of payments of the host country. First, the one-time effect in the form of capital inflows. Then, it comes to improvement of the balance of payments position if FDI is a substitute for imports of goods and services. Finally, profit generated by FDI increases revenue from corporate income tax in the host country.

4. Effects on international trade. FDI can increase the volume of exports from the host country if the use of FDI is oriented on manufacturing products for

export. For example, Blomström and Kokko (1996) analyzed empirical evidence of FDI on host country effects and came to the conclusion that global companies played an important role in export growth in their host countries. However, the authors found that the precise nature of the impact of FDI varies between industries and countries.

5. The effects on competition. FDI and the presence of MNCs can accelerate economic development through encouraging domestic competition, thus leading to greater productivity, lower cost and more efficient allocation of resources.

Besides the above-mentioned direct effects of FDI on the host country, studies have shown that FDI produced a series of indirect effects. This phenomenon is called the spillover effect. This effect occurs when a company that was formed with the help of FDI produces certain benefits for other stakeholders, without being able to appropriate them or collect the full market price for them. These benefits are called positive externalities. As well as direct effects, the spillover effects largely depend on the absorption power of the host country.

When it comes to FDI and the spillovers, it is usually emphasized the positive spillovers of technology and knowledge, as both are a public good and cannot be completely contained as property MNCs. Blomstöm (1991) mentions the spillover effects by the company to its competitors (intra-industry spillovers) and to its suppliers and customers (inter-industry spillovers). There are several ways intra-industry spillovers can be developed. One of them is the increased competition pressure on domestic firms which, entering more competitive foreign firms, will be motivated to adopt more efficient methods of doing business. Another way of intra-industry spillover relates to workforce training and management in MNCs that may become available for the entire economy. Another way of this kind of the spillover is technology transfer. However, the level of technology spillover depends on the host country characteristics. Borensztein et al. (1995) suggest technology spillover is only possible if there is a minimum of human capital in the host country. To a large extent, the host country's technological capability, in terms of a well-educated workforce, determines what sort technology is possible to transfer. For example, the cost of transferring specific technologies decreases with increasing capabilities in the host economies. The other mentioned channel is the inter-industrial spillover and it refers to the benefits that local suppliers and customers of MNCs can have. The inflow of new technologies can stimulate local suppliers to improve the quality of its product and reduce costs. However, as Blomstöm (1991) suggested, before drawing strong conclusions about inter-industry spillovers, more research is needed.

The negative effects on the host country are following (Kurtishi-Kastrati, 2013):

1. The negative effects on employment in the form of rising unemployment as a result of downsizing.

2. The negative effects on competition. Foreign MNCs may have greater economic power than local competitors. In this case, MNCs may be able to draw on funds generated elsewhere to subsidize its costs in the host market, which could drive local companies out of business and allow the firm to monopolize a market.

3. Negative effects on the balance of payments can occur in two ways. First, in the case of FDI inflow of capital which will be later, in the form of profits, outflow from the host country of the parent company. Another negative effect on the balance of payments occurs when MNCs purchased inputs from abroad.

Aničić et al. (2011) also mentioned some negative effects on the host country:

1. reduction, rather than increasing, domestic savings and investments, including the impact on GNP through the repatriation of profits,

2. crowding out local companies from capital markets,

3. rising unemployment as a result of downsizing,

4. increased demand for foreign currency and the appreciation of the exchange rate,

5. support to local monopolies and the creation of new,

6. disturbance of regulation,

7. creation of instability through increased financial risks in the market,

8. efforts to protect annuity of technology instead of technology transfer.

In addition to these negative economic effects, there are also non-economic effects that have a negative impact on the host country, namely: environmental pollution, degradation of natural resources, inhumane working conditions and so on. Underdeveloped countries that are scarce in capital often accept these negative effects as a compensation for a number of positive effects that are expected from FDI.

REVIEW OF EMPIRICAL RESEARCH

Previous empirical research on the relationship between FDI and economic growth are numerous. However, the results and conclusions obtained in studies of the effects that FDI has on economic growth are far from uniform. Although not the only, GDP is usually taken as an indicator of economic growth of the country. Using a different methodology and data, a large number of researchers have shown that there is a positive impact of FDI on economic growth. One of the earlier studies are conducted by Borensztein et al. (1995) and the authors came to the conclusion that FDI is an important channel of technology transfer and contribute to economic growth to a greater extent than domestic investment. Also, the contribution of FDI to economic growth is higher if it is interacting with the human

capital in the host country. Their results indicate that FDI is more efficient than domestic capital only if there is a minimum threshold stock of human capital in the host country. They also investigated the effect of FDI on domestic investment, namely, whether the inflow of foreign capital crowds-in or crowds-out domestic investment. In theory, the effect could have either sign: MNCs may displace domestic firms by competing in product and financial markets. On the other hand, FDI can contribute the expansion of domestic firms by complementarity in production or by increasing their productivity through advanced technology spillover effects. The results of their research show a crowding-in effect: a one-dollar increase in total net FDI inflow leads to the increase in total investment in the host country of more than one dollar. Therefore, the authors come to the conclusion that FDI, in addition to its effect on technological progress, contributes to economic growth by increasing total capital accumulation in the host country.

A number of authors have investigated a link between FDI and economic growth of transition countries. For example, Stanišić (2008) in his research came to the result that there is no positive correlation between FDI and economic growth in Southeastern European transition countries, using data from 1997 to 2006. A possible explanation for this negative correlation could be in the process of transition. Because of the structural reforms in these countries, there is a decrease in productivity and employment in inefficient domestic firms. This drop can neutralize or even overcome the positive effect of FDI on economic growth. For these reasons, a positive relationship between FDI and economic growth was not found. Nestorović (2015) examined the contribution of FDI to the economic development of sixteen transition countries with the regression analysis. The results obtained show a positive impact of FDI on economic growth, but given that correlation is not statistically significant, the impact is not large. Ivić and Mitić (2015) also investigated the way in which FDI can affect the transition countries. They used correlation analysis between FDI and GDP for eleven transition countries in the period from 1993 to 2013. The authors come to the conclusion that there is a significant level of connection between FDI and GDP, namely: FDI inflows are more favorable channel of foreign accumulation compared to conventional loans in the international financial market, and that countries that have used the FDI achieved faster economic growth, as well as many other positive effects such as new jobs, improvement of trade and balance of payments, faster integration of domestic economy in the international market etc.

It is worth noting that the results of some studies indicate the existence of a negative correlation between FDI and economic growth. In a study by Carkovic and Levine (2002), it was concluded that FDI does not have a robust independent influence on growth. They used the Generalized Method of Moments (GMM) panel estimator to extract consistent and efficient estimates of the impact of FDI flows on economic growth. Unlike past work, the GMM panel estimator exploits

the time-series variation in the data, accounts for unobserved country-specific effects, allows for the inclusion of lagged dependent variables as regressors, and controls for the endogeneity of all the explanatory variables, including international capital flows (Carkovic and Levine, 2002). By accounting for simultaneity, country-specific effects, and lagged dependent variables as regressors, the authors found that there is not reliable cross-country empirical evidence supporting the claim that FDI per se accelerates economic growth. Herzer (2012) also proved the lack of positive correlation between FDI and economic growth in the case of 44 developing countries over the period from 1970 to 2005. However, there are large differences in the effect of FDI on economic growth across countries. More specifically, an increase in the FDI-GDP ratio is associated with a long-run decrease in GDP in about 60% of the countries, while in about 40% of the cases, an increase in the FDI share is associated with a long-run increase in GDP. In general, regardless of the sign, the effect is small.

When it comes to examining the relationship between FDI and economic growth in the EU countries, there is no great amount of papers, as in the case of developing countries. Moudatsou (2003) examined the effects of FDI on economic growth in the EU and came to the conclusion that there is a positive effect of FDI on economic growth, both directly and indirectly (through trade reinforcement). The results showed that these effects, unlike in developing countries, are unconditional and does not depend on the level of human capital. Tang (2015), opposite to Moudatsou, found no evidence that FDI contributes to economic growth in the EU.

FOREIGN DIRECT INVESTMENTS AND GROWTH IN THE EUROPEAN UNION - CORRELATION AND REGRESSION ANALYSIS

There are three main statistical and analytical indicators related to FDI: flows, stocks and income (Antevski, 2008, p. 135).

- FDI flows represent new investment over the period (usually a year). Total flows are divided by instruments that were used for investment: equity (ownership in subsidiaries), and shares in subsidiaries and associated companies; reinvested earnings as part of earnings that is not distributed to investors; other FDI capital (borrowing and lending of funds, debt instruments and commercial loans between investor and direct investment company).

- FDI stocks represent the value of existing investments at end of period (usually a year) and are classified into two categories: equity and reinvested earnings, which includes the value of the company's own equity, including the value of its own reserves accumulated from earlier reinvested earnings; other FDI capital

which is a debt stock between the direct investor and the direct investment company.

- FDI income is attributable to direct investors during the given period, i.e. income increase. It is divided into three categories: dividends payable in the given period and affiliates profits remitted to the direct investor, without deduction of income tax; reinvested earnings; and interest on loans, which account for the interest accrued during the given period to the loans given to the affiliates, without deduction of income tax.

The intensity of FDI, measured as a percentage of GDP, is also a very important indicator. It represents a ratio of the average inward and outward FDI flows and GDP. However, in theory of international trade, the most used indicator is FDI flows. Therefore, as a macroeconomic indicator, the subject of our interest is the FDI inflows and their effect on GDP.

Flows (inflows and outflows) of FDI are given in table 1. As we can see from the table 1, in the initial years of the observed period inflows and outflows of FDI increased continuously. This trend will continue until 2007, while in 2008, a slight drop in FDI was recorded. This decline is due to the global economic crisis that occurred in early 2008 and which extended from the US to the rest of the world. It affected all segments of the economy, including FDI. Negative trend of FDI continues in 2009 when FDI decreased dramatically by more than 50%. In 2010, a slight increase of FDI was recorded. This increase continues in 2011. However, due to the second wave of the crisis and the specific financial and fiscal crises that have affected certain Member States, in particular, Greece, a fall in FDI was recorded.

Table 1: Flows of FDI in the EU in US$

YEAR	FDI (INFLOW)	FDI (OUTFLOW)
2005	924.875.214.746	1.023.675.620.199,1
2006	1.072.987.793.742	1.306.686.744.900,8
2007	1.627.218.911.944	1.975.551.467.698,6
2008	1.077.163.479.058	1.526.594.563.398,3
2009	445.477.851.651	456.998.260.065,9
2010	601.531.671.139	685.723.535.167,3
2011	841.462.619.729	939.888.911.166,3
2012	699.863.771.796	627.073.522.000,8
2013	602.625.694.505	596.152.199.722,9
2014	376.238.986.036	348.508.532.921,3
2015	421.321.358.835	440.302.393.466,8

Source: Worldbank (http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators Accessed 22.09.2016.)

Source: Author's calculation

Table 2 shows the results of descriptive statistics based on data from table 1.

Table 2: Descriptive statistics (FDI inflow and FDI outflow)

	N	Min	Max	Mean	Std. Deviation	Variation Coefficient (%)
FDI INFLOW	11	376.238.986.036	1.627.218.911.944	790.069.759.380	372.678.378.993,12	47,17
FDI OUTFLOW	11	348.508.532.921,3	1.975.551.467.698	902.468.704.609,2	515.372.445.962,27	57,10
Valid N	11					

According to the results of descriptive statistics, it can be seen that in the analysed period there is a higher minimum value of FDI inflow than FDI outflow. However, greater maximum and mean values of FDI outflow than FDI outflow are recorded in the period from 2005 to 2015. The calculated value of the variation coefficient shows that there is more variability of FDI outflow in relation to FDI inflow in the EU in the analysed period.

Table 3 presents the GDP and the GDP growth rate for the EU for the period from 2005 to 2015. As in the case of FDI, the global economic crisis has had an impact on GDP, so in 2008 decrease in the GDP level was recorded. Thus, already in 2009, significant consequences of the global economic crisis affected the EU economy, so GDP declined by about 1.069 million US$. Besides the global economic crisis, the decline of the GDP is due to the Eurozone debt crisis, and especially due to problems that occur in Greece, Spain and Italy due to implementing austerity measures in the public sector.

Table 3: GDP in US$ and annual GDP rate in the EU

YEAR	GDP	GROWTH (%GDP)
2005	14.334.011.439.138,0	2,09
2006	15.295.130.473.683,3	3,39
2007	17.685.550.146.489,5	3,12
2008	19.029.134.448.898,9	0,50
2009	17.020.888.550.380,2	-4,39
2010	16.946.058.883.844,3	2,08
2011	18.321.253.083.347,7	1,76
2012	17.249.382.954.724,7	-0,48
2013	17.986.267.255.955,0	0,19

2014	18.516.744.672.413,1	1,36
2015	16.229.464.160.142,9	1,95

Source: Worldbank (http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators Accessed 22.09.2016.)

Table 4 shows the results of descriptive statistics based on data from table 3.

Table 4: Descriptive statistics (GDP and GDP growth rate)

Source: Author's calculation

	N	Min	Max	Mean	Std. Deviation	Variation Coefficient (%)
GDP (% OF GROWTH)	11	-4,39	3,39	1,05	2,15	204,7
GDP	11	14.334.011.439.138	19.029.134.448.898	17.146.716.915.364	1.415.728.323.639	8,25
Valid N	11					

Results of descriptive statistics in Table 4 show that recorded negative GDP growth rate in the European Union in the observed period was up to -4,39, the maximum growth rate was 3,39, while the average rate of growth was modest and amounted to 1,05. When it comes to the absolute value of GDP, any significant difference between the minimum and maximum values has not recorded. Also, the value of GDP has significantly less variability measured by the coefficient of variation as compared to all other observed variables (GDP growth rate, but also FDI inflow and FDI outflow).

Graph 1 has been derived based on the GDP changes from table 3 and it shows the movement of the GDP growth rate in percentage.

Graph 1: GDP trend (growth in %)
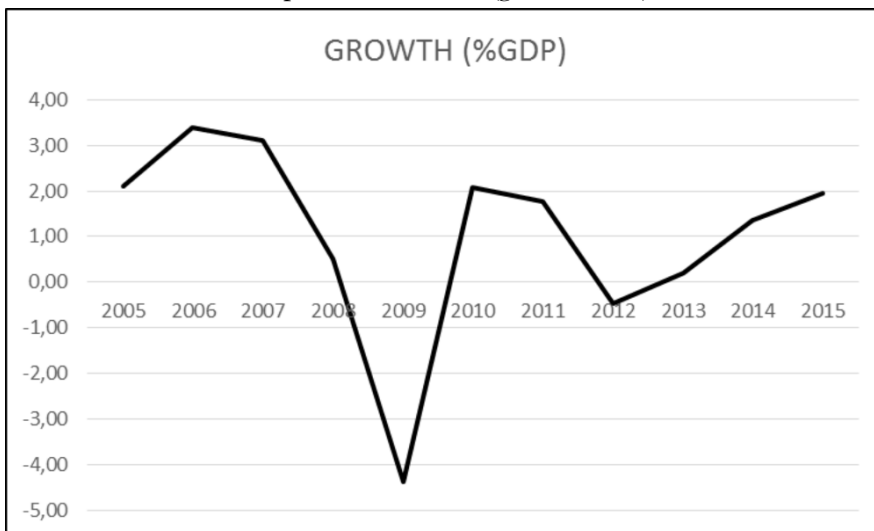
Source: Worldbank (http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators Accessed 22.09.2016.)

As we can see on the graph 1, the GDP growth rate has been growing constantly until 2007. Big drop to only 0.5% was recorded in 2008, a year after the global economic crisis emerged in the US. However, it is still positive, even though the EU economy, due to the expansion of the US crisis already operates in difficult circumstances. The negative growth rate of -4.93% recorded in 2009, tells us that the EU economy was in a serious economic crisis. The crisis has altered the perspectives of investors regarding the risk associated with developed economies (Bitzenis and Vlachos, 2016, 118). We can see from table 1 that FDI inflows had risen in 2010, which, along with other factors, reflected positively onto GDP growth rate. Thus, in 2010 a growth rate of 2.08% was recorded, which represents a major step forward compared to the previous year. The negative growth rate was again recorded in 2012 due to the aforementioned second wave of the crisis, but at significantly higher level than in 2009. Already in 2013, the EU economy has recovered, and positive growth rate was recorded, which has continued to grow ever since.

For the purposes of correlation and regression analysis in this paper, we will use the inflow of FDI and the value of GDP as a determinant of economic growth. The starting hypothesis of this paper is the assumption that FDI has a positive effect on the movement of GDP, and thus on economic growth.

Table 5 presents the analysis of the interdependence between FDI inflows and GDP in the EU. Interdependence is tested by calculating the Pearson correlation coefficient between these variables.

Table 5: Results of correlation analysis

		GDP
FDI	Pearson Correlation	*-0.031*
	Sig. (2-tailed)	0.927
	N	11

Source: Author's calculation

The calculated value of the Pearson correlation coefficient indicates that there is a negative interdependence between the inflow of FDI and GDP in the EU, in the observed eleven-year period (2005 to 2015). The value of the Pearson correlation coefficient is -0.031. The obtained results are not statistically significant, and they are valid only for the analysed period in the selected group of countries.

Table 6 shows the results of the examination of the impact of FDI inflows on the value of GDP in the period from 2005 to 2015 in the EU.
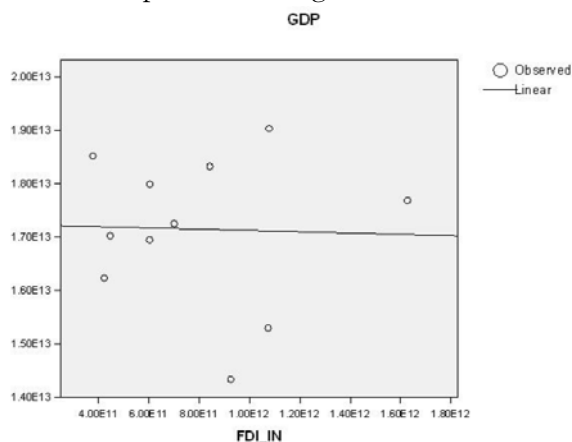
Table 6: Results of regression analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17240748400295.890	1096424634966.456		15.725	0.000
	FDI INFLOW	*-0.119*	1.266	-0.031	-0.094	0.927

Note: Dependent variable GDP; R^2=0.001
Source: Author's calculation

Graph 2: Linear regression model

Source: Author's presentation

The results of simple regression analysis (Table 6 and Graph 2) indicate that B= -0.119, meaning that there is no positive effect of FDI on the value of GDP in the EU in the observed period. According to this result, it can be concluded that the initial hypothesis of the research is rejected.

The specificity of the observed period from 2005 to 2015 can be another limitation of the research. The global economic crisis in the mentioned period can be a potential cause of the given negative correlation and regression coefficients. By calculating the Pearson correlation coefficient between FDI inflow and GDP in the years before the crisis (from 2005 to 2008) leads to its value of 0.477. The positive value of the Pearson correlation coefficient of 0.288 is obtained also if we observe the relationship between FDI inflow and GDP in the years during and after the global economic crisis (from 2009 to 2015). Due to an even shorter period of observation, the values of the coefficients are not statistically significant, but it indicates a possible cause negative correlation between FDI inflow and GDP in the conducted research based on data on the observed variables in the period from 2005 to 2011.

CONCLUSION

The investments represent an important incentive factor for economic growth and development of any economy. In this circumstance, it is not essential whether the investments are domestic or international, especially for open economies such as the economies of the EU. However, it is believed that FDI is a major constituent of a total investment, therefore being more desirable than domestic investment since they bring numerous other benefits to the host country as well.

The initial hypothesis of the research is that FDI has a positive effect on economic growth. This relationship between FDI and GDP, as a measure of economic growth, was investigated by correlation and regression analysis. Interdependence between these two variables is tested by calculating the Pearson correlation coefficient. The negative value of the Pearson correlation coefficient (-0.031) tells us that there is no positive relationship between these variables. Also, the negative value of the regression coefficient (B = -0.119) shows that there is no positive impact of FDI on economic growth in the EU, thus the initial hypothesis is rejected. Obtained results are not significant and should be taken with caution because of the short period of observation (only eleven years). The global economic crisis in the reporting period can be one of the causes of the given negative coefficients.

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UTICAJ STRANIH DIREKTNIH INVESTICIJA
NA EKONOMSKI RAST EVROPSKE UNIJE

Apstrakt: Strane direktne investicije se posmatraju kao glavni mehanizam za razvoj i koje, zajedno sa međunarodnom trgovinom, predstavljaju temelj otvorenog i uspešnog međunarodnog ekonomskog sistema. Ovaj rad istražuje uticaj koji strane direktne investicije imaju na ekonomski rast u slučaju Evropske unije (EU). Polazna pretpostavka ovog rada je da strane direktne investicije imaju pozitivan uticaj na ekonomski rast. Korelaciona i regresiona analiza su korišćene da se ispita međuzavisnost stranih direktnih investicija i bruto domaćeg proizvoda, kao mere ekonomskog rasta. Rezultati istraživanja pokazuju negativnu međuzavisnost stranih direktnih investicija i bruto domaćeg proizvoda, kao i da ne postoji pozitivan uticaj stranih direktnih investicija na vrednosti bruto domaćeg proizvoda u EU u posmatranom jedanaestogodišnjem periodu (od 2005. do 2015. godine).

Ključne reči: strane direktne investicije, ekonomski rast, Evropska unija, multinacionalne korporacije, zemlja domaćin, efekti prelivanja.