

FOREIGN DIRECT INVESTMENT AND POST CRISIS ECONOMIC GROWTH. EVIDENCE FROM EUROPEAN UNION

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Abstract:

Various studies have analyzed the link between foreign direct investment (FDI) and economic growth, relationship that became even more important after the financial crisis started in 2008. This paper aims to analyze such a relationship for European Union's taking into account the fact that the financial crisis had a strong impact on the EU countries. In order to highlight this we use a regression model (least square method) based on unbalanced panel data. We found that economic growth has a significant influence over the level of FDI, and moreover a positive influence. The interesting fact is that the level of GDP from the previous year is influencing the level of FDI from the current year. Moreover, the dummy variable included in the model to capture the financial crisis effect has a significant impact on FDI.

Keywords: foreign direct investment, post crisis, economic growth, challenges, European Union.

JEL Classification: F13, F21, O11.

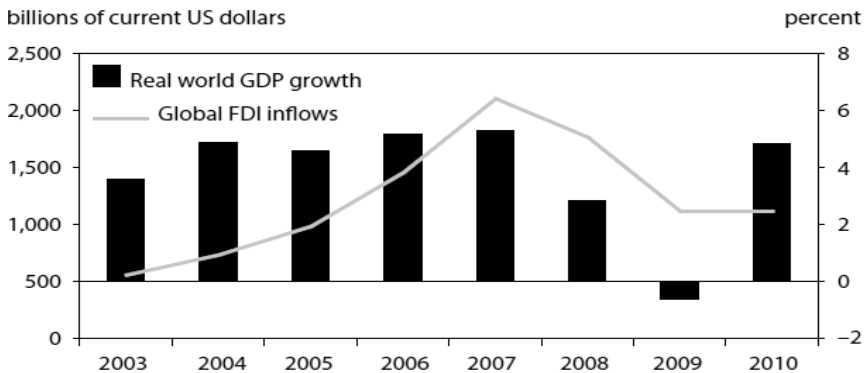
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1. Introduction

The current phase of globalization has seen a dramatic increase of FDI, reaching in 2007, the year before FDI was affected by the global financial and economic crisis, a record high of almost 1,500 billion euro (European Parliament, 2012), with the EU being the largest source of FDI in the entire global economy. However, in 2008 and 2009 FDI has declined due to the global financial and economic crisis (Figure 1).

Figure 1: The foreign direct investment (FDI) recession (2003–2010)



Source: Poulsen, L.; Hufbauer, G. (2011), p. 20

Our study is part of a broader and more detailed analysis of the relationship between the global financial crisis and the FDI that aims to study, to analyze and to argue the macroeconomic and microeconomic effects of the global crisis on FDI, in this case on the EU countries. Thus, the authors have investigated the impact of the recent global crisis on FDI for Romania (Dornean et al., 2012a) and also for Central and Eastern European countries from EU (Dornean et al., 2012b). We found that economic growth has a significant influence over the level of FDI, and moreover a positive influence both in Romania and CEE countries. Another result was that the dummy variable included in the model to capture the financial crisis effect had a significant impact on FDI, a negative one in CEE countries, while in Romania

the financial crisis did not affect directly the level of FDI, but the link between financial crisis and GDP growth had a powerful influence on FDI.

According to another study that we have done (Dornean and Sandu, 2012) the financial crisis had a strong impact on the EU countries. The most affected ones were the non-euro area countries, due to the fact that their economies had a higher sensitivity to market shocks and they had not been able to manage the crisis in order to limit the effect of the crisis. Almost all countries started to feel the effects of the financial crisis in the late 2008, but the peak was recorded in 2009, when EU countries experienced dramatic fall of the GDP, at the same time with a large increase of the budget deficit and the public debt. Overall, all EU member states were faced with the economic crisis, but the most affected country was Greece and the less affected was Poland.

Given that the crisis started in Western countries and economic growth is by far the most important determinant of FDI, it comes as no surprise that FDI flows to and from developed countries have declined more sharply than the corresponding flows to and from emerging economies (Poulsen and Hufbauer, 2011, 22). Thus, developed countries were the most affected in 2008 where FDI flows declined by about 25% (UNCTAD, 2009, 8), while worldwide FDI declined by 15%.

We are agree with Onwuamaegbu and Sauvart (2011) that the impact of the crisis on FDI has been different in developing and developed economies and that the economic growth is the most important FDI determinant for attracting investment.

Taking into account all these considerations regarding FDI and due to the importance of FDI for the development of the countries and their economic relationship, our paper will analyze the relationship between the FDI flows, economic growth and the financial crisis which started in 2008, emphasizing the case of European Union.

The structure of the current paper is as follows: section 2 presents a short literature review on the relationship between FDI, growth and crisis. In section 3, we describe the methodology used, we show the data selection process and the characteristics of our sample and we report our results. Finally, we present our main conclusions.

2. Literature review on the relationship between FDI, growth and crisis

A significant number of studies found similar results regarding the linkage between FDI and economic growth, through a comprehensive empirical analysis, using countries from around the world as samples. Alfaro et al. (2000) pointed out the positive influence of FDI on economic growth, emphasizing the importance of local financial markets in this process.

Furthermore, these results are confirmed by a series of studies which analyzed countries from different parts of the world. For Asia, Zhang (2001) found that the positive effect of FDI in promoting economic performance is stronger in the coastal part of China than the inland area. Moreover, Choong et al. (2004) emphasized that, for Eastern Asian countries, it is very important the development level of the financial sector. This can be seen as a source of competitive advantage in attracting FDI by host countries and, in the end, in promoting economic growth, results that are valid also for Taiwan (Chang, 2006), Malaysia and Thailand (Chowdhury and Mavrotas, 2006). This positive linkage between FDI and economic growth was also found for 18 Latin American countries (Bengoa and Sanchez-Robles 2003), and it could be improved by several elements from the host country, namely: adequate human capital, economic stability or liberalized markets. The same relationship was found to be true for other 10 African countries (Esso, 2010). But the results stated above were not confirmed by the empirical analysis conducted by Carkovic and Levine (2005), through which it was pointed that the FDI do not exert an independent influence on economic performance and their influence depends by other determinants of economic growth.

Regarding the relationship between the recent global crisis and FDI, the empirical study conducted by Ucal et al. (2010) revealed that the financial crisis had a powerful influence on FDI. After recording an upturn in the year(s) before the crisis, the level of FDI decreased in the followings years. Of course, FDI can be seen as a growth's vector for host countries and it can play a very complex and important role in micro economic responses to the financial crisis. This aspect is supported by the empirical analysis conducted by Alfaro and Chen (2010), through which, it is emphasized the importance of FDI in economic growth, volatility and economic interdependence across the countries in order to minimize the negative aspects of financial crisis.

In their study, Poulsen and Hufbauer (2011) compared the current FDI recession with the response in FDI to past crisis and they found that the global scale of the current crisis has led to a greater FDI response than after

individual country crises in the past. Compared with global economic downturns since the 1970s, the current FDI recession has also been greater in magnitude. Also, Sachs (2009) noticed that the impact of the recent crisis was different from a region of the world to another, highlighting that Asia experienced a quicker recovery due to stimulus packages.

Even in the recent years there was a high interest in the economic literature on the topics related to Asian crisis, all these studies emphasizing the post-crisis evolution of FDI. In this sense, the empirical study done by Park et al. (2009) stated that the fall of FDI level in six Asian host countries (Indonesia, South Korea, Malaysia, Philippines and Thailand) persisted more than a decade after the crisis. Going deeper into the problem, Moon et al. (2011) connected the FDI evolution after the crisis with the level recorded before the crisis. Their findings showed that countries with a higher level of FDI before the crisis will experience a milder recession and a more gradual recovery. This is the reason why Sachs (2009) support a normative environment for sustainable FDI in which the civil society had to have the most important role and the government regulation only to help achieve the desired results.

In the literature there are identified new players which might influence the FDI level. Regarding this issue, Ramamurti (2009) analyzed the role of sovereign wealth funds (SWFs), private equity (PE) funds and emerging market transnational corporations (TNCs) on the FDI level. Even if, all these categories of players were more active in FDI during the crisis, the author found that only the emerging markets TNCs had a powerful impact on FDI level, being capable of a sustained contribution to FDI flows.

Moreover, the changes in the FDI flows were depending on the industry level. In his paper, Hufbauer (2009) showed that companies from all types of industries, and even from the biggest industries, such as health care, biotech or renewable energy, were cutting down their international activities. Even if the author is sceptical about FDI recovery, he presume that FDI flows for the emerging markets will recover faster than developed economies, that's why he militate for an open investment climate, in order to help countries to facilitate and retain foreign investments.

Furthermore, some authors were interested in analyzing the solutions for FDI recovery. Moran (2009) studied the manner in which corporate social responsibility (CSR) programs were affected by the crisis, but most important, the role of these programs for facilitating FDI recovery. The main idea

emphasized by the author is the initiation of a new CSR agenda that focuses on socially responsible issues that operations of foreign investors could add to the actual system.

Another aspect took into account by the researchers is represented by the policy and regulatory actions regarding FDI. Price (2009) identified new frontiers in FDI protectionism such as climate change, domestic stimulus and crisis response, national security or competition for resources, managed by developing countries that restrict investors from developed countries.

With this paper, we aim to put another piece to the whole picture regarding this topic, by analyzing this relationship between FDI level and GDP growth for EU countries.

3. Methodology

3.1. The model

The starting point of the model used in this paper is represented by the hypothesis of Growth-led FDI that relates with the Multinational Corporations theory. The framework for this hypothesis is defined by the Eclectic Paradigm or OLI (Ownership, Location and Internalization) described by Dunning (2000) and firstly discussed in 1977. The location sub-paradigm of countries states that a MNC with some ownership advantages will choose to invest in countries with a location advantage, such as the market size (usually proximate by GDP) or the degree that the country has economic relations with other countries (usually approximate by the sum between imports and exports as percentages of GDP). The argumentation of the theory is that an increase in the market size or the degree of economical openness of the host country will led to an increase in the FDI level, because the investors expect a greater profitability.

In our paper, we will expand the model, because we want to capture the financial crisis effect on FDI, so the basic model will be given by Equation (1).

$$FDI_{i,t} = \alpha_0 + \alpha_1 \cdot GROWTH_{i,t-1} + \alpha_2 \cdot CRISIS + \varepsilon_{i,t}$$

where $FDI_{i,t}$ - the level of FDI for country i and year t as percentages of GDP; $GROWTH_{i,t-1}$ - the economic growth for country i in year $t-1$ (percentage change of GDP); $CRISIS$ - is a dummy variable taking 1 for years 2009, 2010, 2011 and 0 otherwise; $\alpha_0, \alpha_1, \alpha_2$, - the model's parameters and $\varepsilon_{i,t}$ - error term. The econometric

method that will be used to estimate the regression model is least square method (LS) based on unbalanced panel data.

The model selection for European Union countries is emphasized by the Granger Causality test presented in Table 1, which show the fact that GDP growth is influencing FDI evolution and not the opposite case (when FDI influences the values of GDP growth).

Table 1: Pairwise Granger Causality Tests

Null Hypothesis	F-Statistic	Prob.
FDI does not Granger Cause GDP	0.4534	0.6357
GDP does not Granger Cause FDI	5.5408	0.0042***
TRADE does not Granger Cause FDI	33.9561	0.0000***
FDI does not Granger Cause TRADE	1.2501	0.2874

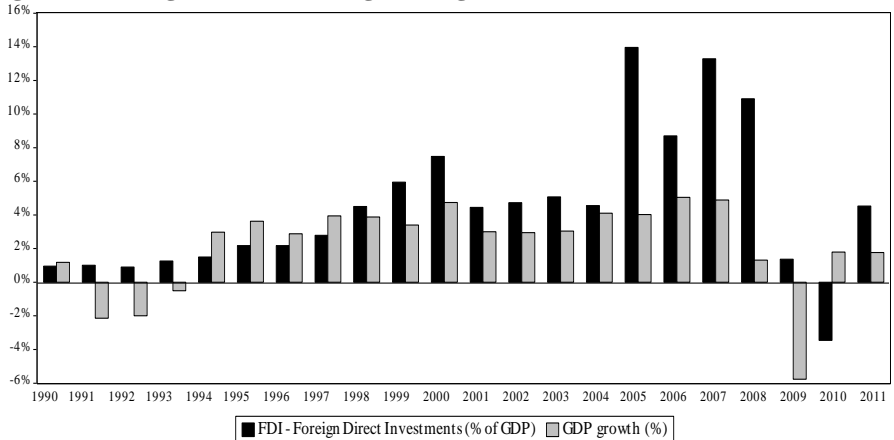
*** - Indicates significant at the 0.01 level

Another aspect, that we are interested in, is represented by the robustness of our regression model. In order to accomplish this goal, we picked Trade Openness, a proxy for the degree to which the country has economic relations with other countries, in the same manner presented in the paper of Carkovic and Levine (2005). Based on table 3, we can see that our regression model is valid, economic growth and financial crisis maintain their sign and significance.

3.2. Data and descriptive statistics

Data for European Union countries is available for the period 1990 – 2011 from World Bank for FDI, GDP growth, imports and exports as percentages of GDP (as a proxy for Trade openness). Officially, the financial crisis started in September 2008, when Lehman Brothers filed for Chapter 11 bankruptcy protection, followed by other financial institutions (e.g. Merrill Lynch, American International Group). EU countries have experienced the financial crisis more aggressively after the beginning of 2009. In 2009, the level of average GDP growth at EU level reached the minimum of -5.77%, compared to the level of 2008 of 1.32%. A worst situation was recorded by FDI (EU average level) that has fallen from 10.91% in 2008 to 1.36% in 2009. The evolution of EU27- FDI (average) and EU27 - GDP growth (average) can be clearly observed in Figure 2.

Figure 2: Average FDI and average GDP growth for EU countries (1990 - 2011)



Source: based on data from World Bank, available at <http://data.worldbank.org/indicator>.

The descriptive statistics for average series at EU level for FDI, GDP growth, crisis and trade openness, and further the country level statistics for FDI and GDP growth are given in Table 2.

For the analyzed period we observe that the highest level of average FDI is recorded in Lithuania (10.62%), while the lowest level belongs to Ireland (0.73%). On the other hand, if we are talking about average GDP growth, we see that the highest value belongs to Hungary (4.76%), while the lowest level is recorded for Italy (0.82 %). Financial crisis affected the European Union and if we analyze this more deeply we are able to see that the financial crisis had a powerful impact on GDP growth, due to fact that in 2009, all EU countries recorded a GDP drop between -2.89% (Portugal) and -17.92% (Romania). So the most affected countries from the EU, which recorded a drop in GDP greatest than 10% were represented by: Romania (-17.92%), Lithuania (-17.66), Latvia (-13.71), Bulgaria (-11.7%), Slovenia (-11.59%) and Slovak Republic (-10.68%).

Even if the impact of financial crisis on GDP growth of EU countries was almost immediately, when we speak about the FDI, there is another scenario. In FDI case, the impact was less dramatic, because there were 10 countries which recorded an increase in the level of FDI in 2009. The highest increase was recorded by Ireland (15.35%), while the lowest by Poland (0.5%). On the other side, the rest of EU countries recorded a decrease in the level of FDI. Regarding this aspect, the lowest decrease was recorded for Portugal (-0.7%), while the highest decrease was recorded for Luxembourg (-153.2%).

Table 2: Descriptive statistics

Variable	Me an	Median	Max.	Min.	Std. Dev.	Skew ness	Kurtosis
<u>UE - average series</u>							
FDI (%)		4.47	13.96	-3.45	4.26	0.72	3.17
	4.49						
GDP growth (%)	2.18	2.98	5.04	-5.76	2.67	-1.49	4.79
CRISIS (dummy)	0.13	0	1	0	0.34	2.12	5.49
Trade openness (%)	100. 20	102.72	119.3 8	76.23	13.79	-0.29	1.86
Country level series	FDI (% of GDP)			GDP Growth (%)			
	Mean	Max.	Min.	Mean	Max.	Min.	
Austria	3.22	26.65	-6.71	2.25	4.35	-3.78	
Belgium	7.45	36.43	0.00	1.88	3.74	-2.78	
Bulgaria	7.59	32.95	0.02	1.06	6.70	-9.12	
Cyprus	5.43	10.51	0.31	3.56	9.40	-1.67	
Czech Republic	4.15	10.83	0.00	1.94	7.02	-11.62	
Denmark	2.93	22.50	-3.75	1.60	5.53	-5.67	
Estonia	6.73	22.49	0.00	3.67	11.74	-14.07	
Finland	2.84	9.27	-3.69	1.94	6.21	-8.54	
France	2.22	4.16	1.03	1.60	3.68	-3.15	
Germany	1.34	11.14	-0.36	1.72	5.26	-5.13	
Greece	0.80	2.07	0.00	1.70	5.94	-7.10	
Hungary	8.96	51.90	-16.07	1.00	4.80	-11.89	
Ireland	10.5	26.15	-5.88	4.76	10.92	-6.99	
Italy	1	2.08	-1.08	1.02	3.65	-5.49	
Latvia	0.73	9.43	-0.17	0.82	12.23	-32.12	
Lithuania	3.91	8.22	0.00	1.13	10.25	-21.26	
Luxembourg	2.87	172.72	-	3.87	8.64	-4.08	
Malta	10.6	27.78	161.2	3.50	6.77	-2.65	
Netherlands	2	16.39	4	2.30	4.68	-3.67	
Poland	8.59	6.30	-10.01	3.73	7.09	-7.02	
Portugal	5.10	6.26	-1.33	1.76	5.14	-2.91	
Romania	3.08	9.34	0.14	1.06	9.43	-12.90	
Slovak Republic	2.73	11.85	0.59	2.42	10.49	-14.57	
Slovenia	3.21	7.17	0.00	2.13	6.87	-8.90	
Spain	2.74	6.69	0.00	2.41	5.05	-3.74	

Sweden	1.60	23.42	-0.71	2.19	6.56	-5.03
United Kingdom	3.03	11.05	1.33	2.04	4.28	-3.97
	4.92		-0.48			
	3.95		0.19			

Source: authors' calculation

In order to capture through the regression model the characteristics of FDI and GDP growth (both being time series), we apply the Augmented Dickey Fuller (ADF) test to see if the time series are stationary. According to the results (Table 3), both series are stationary.

The Augmented Dickey-Fuller test has the following hypothesis:

H0: time series (FDI/GDP growth) has a unit root (the series is not stationary);

H1: time series (FDI/GDP growth) doesn't have a unit root (the series is stationary).

Table 3: Stationarity Test Results

Variable	FDI (%)	GDP growth (%)
H ₀ : I(1)	100.44 ^{***}	150.37 ^{***}

*** - Indicates significant at the 0.01 level

3.3. Results

The empirical analysis is split in two parts. First, we conducted the Augmented Dickey Fuller Test and secondly we estimated the regression model. The first step was necessary to check whether the series are stationary in order to apply the appropriate regression model. Based on results from Table 3, we can see that both series are stationary. The results from the regression model estimation are summarized in Table 4.

Table 4: FDI, Economic growth and Crisis

Variable ^a	Constant	GDP growth	Crisis	Trade Openness	R-squared	R-squared (adjusted)
Basic model	0.0452 ^{***} (0.0073) ^b	0.4279 ^{***} (0.1366)	-0.0333 ^{**} (0.0166)		0.0358	0.0322
Model robustness	-0.0277 ^{**} (0.0129)	0.2856 ^{**} (0.1332)	- 0.0541 ^{***} (0.0165)	0.0797 ^{***} (0.0118)	0.1133	0.1082

^a – dependent variable is represented by foreign direct investment.

^b - (standard errors in parentheses).

*, **, *** - Indicates significant at the 0.1 level, 0.05 level and 0.01 level.

Our findings suggest that economic growth has a significant influence over the

level of FDI and, moreover, a positive one. These results are according to authors cited in section 2 of our paper (Ucal et al., Poulsen and Hufbauer, Alfaro and Chen etc.). An expected and interesting result is that the dummy variable included in the model to capture the financial crisis effect has a significant impact on FDI. Moreover, the sign of this variable is negative, like we expected it to be. Financial crisis is a phenomenon that is hard to capture through a single variable, but the magnitude of the financial crisis started in 2008 in Unites States, amplified the effects, so the crisis had a powerful negative effect on EU countries, including on FDI flows. After 2009 when FDI recorded the largest decrease, in 2010 decreased with 4.81% while in 2011 the FDI start to recover, increasing with 7.99%, more than GDP growth.

4. Conclusions

The recent global crisis has affected the economies of all countries in the world, including the EU countries and has given rise to new challenges for the European Union unity and stability.

In this paper we have analyzed the relationship post crisis between the FDI and economic growth in European Union. The results show that economic growth affects directly the level of FDI; the interesting fact is that, the level of GDP from the previous year is influencing the level of FDI from the current year. In their previous papers, the authors have investigated the impact of the recent global crisis on FDI for Romania (Dornean et al., 2012a) and also for Central and Eastern European countries from EU (Dornean et al., 2012b), and found that the level of economic growth is influencing the level of FDI, but within the same year. Moreover, the dummy variable included in the model to capture the financial crisis effect has a significant impact on FDI. The results seem to be logical, because financial crisis is a phenomenon that is hard to capture through a single variable, being characterized by a series of macroeconomic interactions.

The regression model might have some limitations due to the small size of the sample, only 22 annual observations for the period 1990 – 2011 and the fact that for some countries and years we do not have data, which is the reason why we have used unbalance panel data analysis.

Further research can replicate our analysis using more detailed data in order to assess the overall impact of the crisis on the quantity and patterns of FDI flows by region, sector and mode of entry. We expect that the results will be very useful if there is a pattern for different categories of countries, regarding the main effect of the financial crisis and the interaction with

economic growth over the FDI.

Taking into account our findings, the present study is very important in supporting the regulatory environment, in order to attract more FDI, because the global financial crisis posed new challenges for the national foreign investment policies.

According to the European Parliament (2013), the EU's and the United States' share in the world's relative GDP is declining while the emerging countries are rapidly increasing their performance. Thus, while the EU accounted for 25 % of world GDP in the year 2000 (measured at purchasing power parity - PPP) at the launch of the Lisbon Strategy, it is now estimated that it will account for only 18 % of world GDP in 2020, signifying a decline of 28 % in its relative economic performance, that represent a new challenge for EU economic growth and stability.

In this context, EU competitiveness and economic success cannot exist without well-protected foreign direct investments. For this reason, national policies to promote FDI are not enough, but the EU authorities want a common European international investment policy under the Europe 2020 Strategy.

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