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FDI AND ECONOMIC GROWTH IN CEE COUNTRIES

Empirical study

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Abstract

The aim of the current paper is to emphasize the correlation between FDI inflows and GDP growth rate in selected countries from Central and Eastern Europe (CEE). The dynamic of FDI inflows and GDP growth rate have been significantly affected by the current economic crisis, which has led to a decrease in foreign capital inflows and a restrained of investment projects. However, macroeconomic imbalances and increased volatilities have determined a strong contraction of GDP growth rates in these economies, except Poland which was the most resilient to worldwide shocks. The results show a unidirectional causality between FDI and GDP growth in all cases, except Hungary. Further analysis will be developed testing the impact of foreign flows volatility on GDP growth.

1. Introduction

The globalization phenomenon has determined a strong jump in the worldwide economy, through multinationals' expansion, increased foreign capital flows international mobility enhanced by the elimination of commercial and currency barriers, creating an environment which stimulates the economic growth. Penalver (2002) has identified as fundamental vectors of globalization four catalysts for development and economic growth, amongst which FDI own a significant share of global foreign investments, along with the migration and financial markets development.

Amplified interconnections between the economies have stimulated the increase in the number of cross-border operations, through the movements of FDI and foreign portfolio flows. The correlation between FDI and economic growth has benefited of increased attention in the theoretical and empirical literature in the area, most of the studies showing that FDI inflows have the ability to enhance host country economic growth. On the other side, the studies on the potential causality between foreign portfolio inflows and economic growth is not been treated with the same interest as the other one; the impact exerted by this type of foreign flows has been highly studied, especially since the current crisis has began. From this moment forward, the importance of foreign portfolio flows in the worldwide economy has increased significantly, having the potential to encourage the economic development of host country.

The present paper is structured as following: the second section provides an insight on the relationship between FDI and economic growth, focusing as well on the dynamic of the variables, the third part is dedicated to the methodology and the data used, followed by the results obtained and their discussion, the last section of the paper is represented by the conclusion.

2. Theoretical approaches and dynamic of FDI and economic growth

Foreign direct investments have gained an important role in the development process, becoming major catalysts of economic growth. The globalization process has determined a strong impact on the dynamic of FDI, which exert a significant impact, especially in developing economies. FDI externalities are materialized in technological transfer, industrial changes, human capital development, enhancing and stimulating the exports, worldwide industrial and manufacturer productivity (Ranjan, Agrawal, 2011; Accolley, 2003).

The relationship between FDI and economic growth is highly debated in the theoretical and empirical literature. However, their connection is controversial and contradictory, some studies showing the existence of a positive correlation between the variables (De Mello, 1999; Chong, Baharumshah, 2010), others a negative interdependency (Moran, 1998), meanwhile there are a few number of studies which haven't identified any connection (Li, Liu, 2005).

The debates around the nexus correlation between the variables are not referring only to its presence or the absence, we also need to take into account and evaluate the possibility of a unidirectional or bidirectional causality, which will also represent the aim of this paper.

FDI inflows have the ability to stimulate the economic growth of the beneficiary country both direct and indirect, through different channels, such as: development of financial markets, technological transfer, human capital skills improvement, imitation and enhanced competition in the local market between foreign investors and the internal ones.

Financial globalization and financial markets liberalization have encouraged the development of international markets, creating the premises for emerging markets' reintegration in the global market. The efficient functioning of the international financial markets is favorable to decreasing the inherent risk associated to local companies and to multinationals. FDI inflows in the beneficiary economies are often associated with a transfer of financial assets, as well tangible and intangible assets, which will provide the required technological support for the foreign company.

Human capital plays an important role in the development process of the recipient economy and, by using modern and innovative equipments; this will require labor force training and skills to stimulate the progress of the economy, boosting it to a knowledge society (Salman, Feng, 2009; Misztal, 2010).

Central and Eastern European countries have become, starting 1990 attractive economies due to their progresses on their transition process from the central economy to market economy. The transition process, along with the increased type of needs has determined the launch of new opportunities for the investors searching for markets or efficiency. The financial, monetary and legislative reforms have transformed the CEE countries into important competitors on the European markets beneficiaries. The dynamic of FDI inflows in Romania, Czech Republic, Hungary, Bulgaria and Poland are shown in figure 1 (appendices).

The evolution of FDI inflows in the selected economies emphasizes, first of all, the progresses made by these countries on their path to market economies and second of all, highlights the strong impact exerted by the European Union integration. The global economic crisis has determined a significant contraction in the dynamic of foreign direct investments, the decrease in Romania was in

2009 of 65.17 %, meanwhile in Bulgaria and Czech Republic, the decreases were 65.64 %, respectively, 54.63 %.

During the current imbalances, these economies are facing liquidity problems, difficult access to financial resources which has led to a decrease in the number of investment projects implemented by foreign investors. The contraction of economic growth, during the period 2008 – 2009 emphasizes the unsustainable character of their economic performances, as their growth was mainly due to higher consumption stimulate by the domestic credits. The GDP growth rate in Central and Eastern European countries shows an oscillatory evolution till 2007, after that has recorded a sharp decrease (with exception of Poland) (figure 2 appendices).

Growth forecasts are very optimistic, national and international policy makers are implementing adequate policies to reestablish the global equilibrium on the financial markets and to boost the economic activities which will ensure the growth recovery.

3. Econometric analysis - data and methodology

The study of the causal relationship and its nature between FDI inflows and economic growth in Central and East European countries is the main purpose of this paper. To achieve our goal, we will carry out a Granger Causality test whose results will provide us a deeper perspective on the influence that FDI inflows might have on stimulating these countries' growth.

To carry out the analysis, we have collected data for the FDI inflows and GDP growth rate for the selected countries, over the period 1993 - 2013, using UNCTAD database and World Bank database. The first step into our analysis is to test if these two variables are stationary using Augmented Dickey – Fuller Test.

Testing the existence of a unidirectional or bidirectional causal relationship between FDI and economic growth in selected countries is implemented through the Granger causality analysis. This analysis allows us to check whether there is any type of causal connection between the two temporal series. Granger causality takes into account that time series FDI inflows Granger influences the other time series GDP growth rate, unless the GDP growth rate is rather explained by the past values of FDI inflows than the historical values of GDP rate.

The regression correlations that we test through the Granger causality test are as following:

$$PIB_t = \sim_0 + \sum_{i=1}^{n} \sim_i PIB_{t-i} + \sum_{i=1}^{n} {}_i ISD_{t-i} + e_t$$

$$ISD_t = \mathsf{a}_0 + \sum_{i=1}^{n} \mathsf{a}_i ISD_{t-i} + \sum_{i=1}^{n} \_ {}_i PIB_{t-i} + e_t$$

where $\sim_0$ and a_0 are constants, $\sim_i$, ${}_i$, a_i, $\_ {}_i$ are the equation parameters, meanwhile e_t is the error term.

4. Results and discussion

The results of the Augmented Dickey – Fuller test are presented in the table 1, a – e). The results emphasize that the two variables selected are both integrated at first difference in the case of Romania and Poland. In the case of Hungary and Czech Republic, FDI inflow is stationary at level, meanwhile Bulgaria is the single case where FDI are stationary at second difference and GDP growth rate at first difference.

Once we have established the degree of integration that FDI inflows and GDP growth rate have, in each case, we can proceed with the Granger Causality analysis. The results are presented in table 2. The results of the Granger causality test demonstrate the existence of FDI inflows Granger cause the development of the economy, measured by the dynamic of GDP growth rate, in the case of Bulgaria (p = 0.0006) and in the case of Romania (p = 0.0064).

This correlation also emphasizes that for these two economies, FDI inflows are very important in achieving a higher rate of development, stimulating them in the catching-up process. The externalities these flows generate in the beneficiary economy consist in technology transfer, boost the exports and enhance human capital mobility, increasing also the competitiveness in the recipient economy. In Hungary, there is no correlation between FDI inflows and economic growth. We can interpret this result by considering that the foreign investors are attracted by this economy for several other reasons and not its level of development.

In the case of Czech Republic and Poland, the causal relationship between FDI inflows and GDP growth rate, but in their cases the correlations is running from the GDP growth rate towards FDI inflows. Amongst Central and Eastern European countries, these two economies record the higher level of development and the results proof that foreign investors are attracted to the potential they offer.

5. Conclusion

Foreign direct investments are an important catalyst for economic development, exerting a significant influence on achieving a higher rate of economic rate. The current economic crisis has determined a strong impact on the dynamic of worldwide FDI inflows, which, in 2009 have faced a sharp contraction.

Central and Eastern Europe countries have gained a major position amongst the European FDI beneficiaries. These developing economies have proved to be more resilient to the current

instabilities and fragilities, but they have managed to attract higher shares of FDI inflows (although these volumes are lower than the pre-crisis values).

The analysis of the relationship between FDI inflows and GDP growth rate shows the existence, in all cases, except Hungary, of a unidirectional causal correlation between the two variables. Bulgaria and Romania develop their economies using and attracting increased FDI inflows, meanwhile in Czech Republic and Poland, the higher level of internal economic development influences the volume of FDI inflows.

Further analysis could be carried out by taking into account a dummy variable which will count the impact the crisis has had on FDI inflows and economic growth or by testing the impact of FDI volatility on economic growth.

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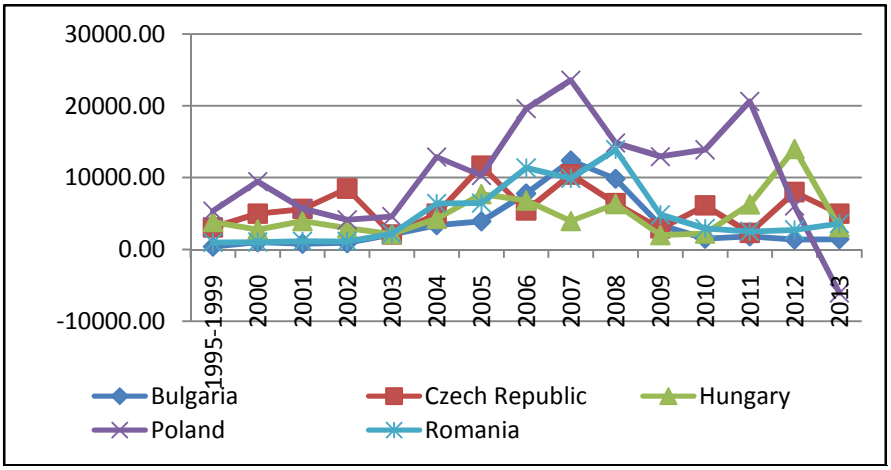
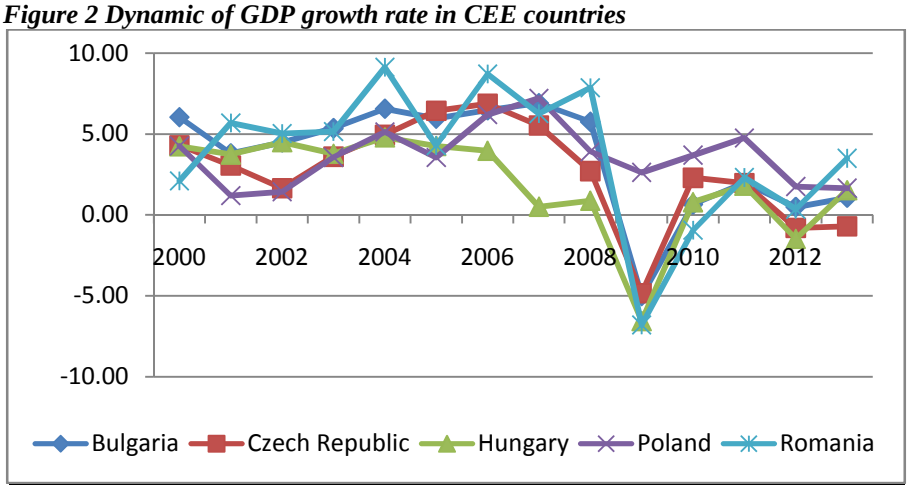
Appendices

Figure 1 Dynamic of FDI in selected CEE countries



Source: made by author, based on data collected from UNCTAD Database

Figure 2 Dynamic of GDP growth rate in CEE countries



Source: made by author, based on data collected from World Bank Database

Table 1 a) Augmented Dickey Fuller test results in the case of Bulgaria

	Level		1st difference		2nd difference	
Variable	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.
FDI	-2.318449	0.1790	-2.792054	0.0844	-3.147817	0.0477*
GDP	-2.973668	0.0567	-7.473969	0.0000*		

Table 1 b) Augmented Dickey Fuller test results in the case of Czech Republic

	Level		1st difference		2nd difference	
Variable	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.
FDI	-3.793723	0.0114*				
GDP	-2.478554	0.1366	-4.441383	0.0034*		

Table1 c) Augmented Dickey Fuller test results in the case of Hungary

	Level		1st difference		2nd difference	
Variable	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.
FDI	-3.452949	0.0234*				
GDP	-2.593124	0.1125	-6.533711	0.0001*		

Table 1 d) Augmented Dickey Fuller test results in the case of Romania

	Level		1st difference		2nd difference	
Variable	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.
FDI	-1.731591	0.3997	-4.631251	0.0023*		
GDP	-2.768170	0.0826	-4.977821	0.0012*		

Table 1 e) Augmented Dickey Fuller test results in the case of Poland

	Level		1st difference		2nd difference	
Variable	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.
FDI	-1.479229	0.5208	-3.069715	0.0484*		
GDP	-2.241538	0.1997	-4.354548	0.0044*		

Table 2 Granger Causality results

Bulgaria	*F-Statistic*	*Prob.*
LN_FDI does not Granger Cause LN_GDP	17.3970	0.0006
LN_GDP does not Granger Cause LN_FDI	0.65955	0.5382
Czech Republic	*F-Statistic*	*Prob.*
FDI does not Granger Cause LN_GDP	1.16532	0.3475
LN_GDP does not Granger Cause FDI	17.3209	0.0088
Hungary	*F-Statistic*	*Prob.*
FDI does not Granger Cause LN_GDP	0.84722	0.4548
LN_GDP does not Granger Cause FDI	2.24052	0.1527
Poland	*F-Statistic*	*Prob.*
LN_FDI does not Granger Cause LN_GDP	0.06602	0.9365
LN_GDP does not Granger Cause LN_FDI	12.6683	0.0198
Romania	*F-Statistic*	*Prob.*
LN_FDI does not Granger Cause LN_GDP	17.6587	0.0064
LN_GDP does not Granger Cause LN_FDI	0.27053	0.7679