THE DETERMINANTS OF FOREIGN DIRECT INVESTMENTS FLOWS IN BRICS

Dan PÎRLOGEANU

„Alexandru Ioan Cuza" University of Iaşi

Abstract

The aim of this paper is to study the determinants of FDI inflows in BRICS countries between 2000 – 2015. In recent years, the development of the global economy has lead to remarkable growth of foreign direct investment. Developing contries, especially these in this group have surpassed most of the developed countires, in FDI volume. The study is organized in two parts: a brief literature review of the main determinants of FDI and, a short presenation of the evolution of FDI inflows in BRICS and an analyze of these determinants. The impact of the considered determinants is analyzed with the Pearson correlation test. The variables taken into account are: infrastructure, market size, market openess, natural resources, human resources, political stability, exchange rate, external debt, inflation, wages, tax rates, GDP and FDI stock.

Keywords: Foreign direct investments, determinants, BRICS, FDI inflows

Introduction

Foreign direct investment is seen (Griffin & Pustay, 2007) as the ownership or control of at least 10 percent of the voting rights or the subscribed capital of a resident enterprise. Foreign investment is defined as a package of capital, technology, management that allow a foreign firm to operate and deliver goods and services on a foreign market (Farrel, 2008).

Dunning (1977) formulates the "eclectic theory" on foreign direct investment. The results obtained using this theory and the multitude of factors that influence the activity of the multinational companies have made this theory the most accepted in the literature.

The model proposed by this theory proposes, explains why a multinational company can open a foreign subsidiary through location theory. Dunning suggests that companies may be interested in investing in other

countries if they have the following advantages: ownership, localization and internalization.

As international production has shifted to emerging markets, MNCs are intersted to invest in efficent projects in these markets. To attract FDI the goverments must indentify the major determiannts of FDI and facilitate the process, in order to raise the level of investments.

BRICS is an acronym that refers to the member countries: Brazil, Russia, India, China and South Africa. The acronym was invented by Jim O'Neill in his 2001 work Building Better Global Economic BRICs. The economies of these countries are characterized by the potential to reach developed countries due to the size and size of very large populations. In the initial phase, the group was named BRIC, later becoming BRICS by introducing South Africa in 2010.

Literature review – a brief theoretical survey on FDI determinants

The impact of potential determinants of FDI have been present in many studies, but there is no general theory that has been accepted. Market Size it is seen as an important factor for inward FDI. Shatz & Venables (2000) show that in order to measure market size it is best to use PIB/per capita as an indicator. Kravis & Lipsey (1982) describe infrastrucutre as a main determinat of inward FDI and that in the case of countries with the same economic development, the one with the best infrastructure will attract more FDI. Market openess shows that an economy will accept foreign investors. Wheeler & Mody (1992) observe that investors are intersted in markets with a high degree of openess. Agodo (1978) explains that natural resources are an important factor of inward FDI for developing countries. Hollander (1984) shows that the quality of the work force and state spends on education are important in attracting foreign capital flows.

Schneider & Frey (1985) study the importance of political risk to explain FDI inflows and they prove that political risk can affect the decision of MNC's from USA to invest abroad. Campa (1993) employs that exchange rates volatility will affect FDI decisions. High external debt rates can position a country in default and Ostadi (2014) explains that high levels of debt will have negative consequences on FDI inflows. Rogoff & Reinhart (2003) state that inflation growth will have an negative impact on FDI. High wages, especially in developing countries will discourage FDI inflows (Charkrabarti, 2001).

Tax rates will influence the MNC's decisions, especially when taxes and high, therefore reducing FDI inflows. Artige (2005) emphasises that GDP growth is an important criteria in atracting FDI, showing that countries with purchasing power are prefered for horizontal FDI, and low purchasing power for verital FDI.

The analysis of FDI inflows determinants in BRICS

BRICS contries ocupy a large area, 22% of the globe surface and 40% of total population. Economic growths in these countries have attracted more than 24% of world FDI from 2000 untill 2015. Semnificative growth were between 2003 and 2008, especially in China and Russia.

The economic crisis that started in early 2008 had an low impact on BRICS and the worst period for FDI flows was 2007 – 2009. Starting from 2010, FDI started to rise, especially in China, India and Brazil. Russia's economy was hard hit by the oil price drop and the Crimeea conflict, managing to attract only 6.468 millions of dollars from FDI in 2015.

Brazil impelled new FDI politics to attract MNC's from Asia. Those measures made the flows to rise up with 280% in 2010, compared to 2009. China lost it's leasding postion in 2015 for USA, as a result of pollution reglemantation and protection of local companies. India started a new plan „Make in India" in order to catch up with China, hoping to reach it's level of FDI inflows by 2020.

Figure 1 – Evolutions of FDI inflows in BRICS (millions of dollars), 2000 – 2015
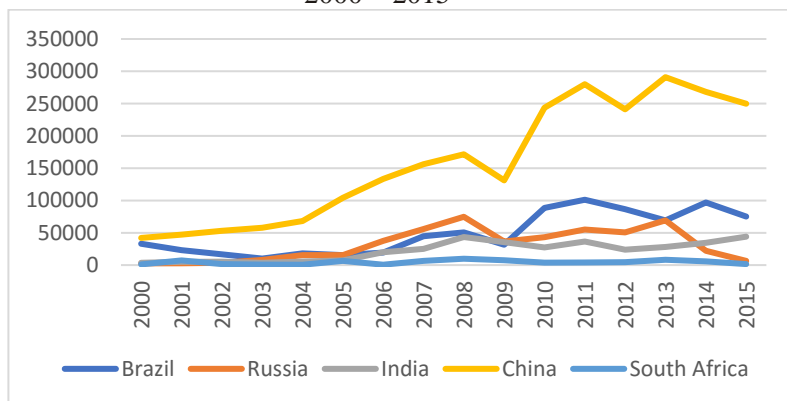
In order to understand the factors that attract FDI in BRICS, the study presents a statistical correlation to identify the bonds between the variables. Pearson coefficient is noted with r and it is defined by:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[\,n\sum x^2 - (\sum x)^2\,]\,[\,n\sum y^2 - (\sum y)^2\,]}}$$

Table 1 – Variables, description and sources

Indexes	Definitions	Source
Infrastructure	LPI INDEX (index of logistic performances)	lpi.worldbank.org
Market size	GDP/per capita (dolari)	data.worldbank.org
Market openness	Imports + Exports / GDP (%)	data.worldbank.org
Natural resourse	Earnings from the exploitation of natural resources (% GDP)	data.worldbank.org
Human resources	Percentage of the population enrolled in university studies (%), own processing	www.unctad.org
		www.bluenomics.com
		en.unesco.org
		www.tradingeconomics.com
Political stability	Political Stability and Absence of Violence/Terrorism (PV.EST)	data.worldbank.org
Exchange rate	Exchange rate volatility against US dollar	www.bluenomics.com
External debt	The total amount of external debt (trillion dollars), own processing	www.bluenomics.com
		www.cia.gov/library/publications/the-world-factbook/
Inflation	Consumer price index (%)	data.worldbank.org
Wages	Medium wage (dollars), own processing	data.worldbank.org
		www.wageindicator.org
		www.ilo.org
Tax rates	Total level of taxes on profit (%), own processing	www.bluenomics.com
		www.businessinsider.com
		www.oecd.org
		www.accounting-degree.org
GDP	Gross Domestic Product (dollars)	data.worldbank.org

FDI stock	Foreign Direct Investment (FDI) stocks measure the total level of direct investment	www.unctad.org

For the analyse of the determinants presented in Table 1 it was used the program SPSS v20. The results obtaind from the correlation are presented in Table 2. For the interpretation of the values, the value of the Pearson correlation coefficient and the significance value Sig. at a threshold lower than 0.05, will be taken into account.

Table 2 – The result from Pearson correlation test

Coeficient Pearson/Determinant		Brazil	Russia	India	China	South Africa
infrastructure	Pearson Correlation	.716**	.586*	.519*	.914**	.766**
	Sig. (2-tailed)	.002	.017	.040	.001	.001
	N	16	16	16	16	16
Market_size	Pearson Correlation	.967**	.837**	.987**	.986**	.959**
	Sig. (2-tailed)	.001	.002	.001	.001	.001
	N	16	16	16	16	16
Market_openess	Pearson Correlation	-.484	-.870**	.769**	-.345	.340
	Sig. (2-tailed)	.057	.002	.001	.191	.197
	N	16	16	16	16	16
Natural_resources	Pearson Correlation	.331	-.570*	.160	-.089	.452
	Sig. (2-tailed)	.210	.021	.553	.743	.079
	N	16	16	16	16	16
Human_resources	Pearson Correlation	.953**	.727**	.970**	.941**	.839**
	Sig. (2-tailed)	.002	.001	.001	.002	.001
	N	16	16	16	16	16
Political_stability	Pearson Correlation	-.246	.625*	.156	-.513	.619*
	Sig. (2-tailed)	.359	.013	.578	.050	.014
	N	16	15	15	15	15
Exchange_rate	Pearson Correlation	-.372	.027	.717**	-.913**	.060
	Sig. (2-tailed)	.156	.921	.002	.001	.825
	N	16	16	16	16	16
inflation	Pearson Correlation	-.301	-.833**	.711**	.155	-.184
	Sig. (2-tailed)	.257	.001	.002	.567	.496
	N	16	16	16	16	16
External_debt	Pearson Correlation	.707**	.742**	.932**	.958**	.705**
	Sig. (2-tailed)	.002	.001	.002	.032	.002
	N	16	16	16	16	16
wages	Pearson Correlation	.919**	.815**	.980**	.963**	.857**

	Sig. (2-tailed)	.002	.001	.002	.003	.003
	N	16	16	16	16	16
Tax_rates	Pearson Correlation	-.774**	-.805**	-.831**	-.868**	-.812**
	Sig. (2-tailed)	.003	.003	.002	.001	.001
	N	16	16	16	16	16
GDP	Pearson Correlation	.972**	.833**	.990**	.987**	.964**
	Sig. (2-tailed)	.001	.001	.001	.002	.001
	N	16	16	16	16	16

The results show that all variables taking into account have a positive effect on FDI, except natural resources. Between natural resouces and FDI stock there is no significant correlation. In the case of China the correlation for infrastructure and FDI stock is close to 1, explaining that there is a near perfect correlation. Brazil and South Africa show a strong correlation, and there is a moderate correlation between infrastructure and FDI stock in Russia and India.

Market size measured as GDP/per capita obtains a value close to 1 in all five countries, showing that there is a tight correlation between this index and FDI stock. Market openness shows significant correlation only in Russia and India, but is negative in Russia, that can be explained by the dependece of the russian economy on gas and oil trade. Human resources measured by percent of universtiy enrollment is close to 1 in the case of Brazil, India and China and it presents a strong correlation in the case of Rusia and South Africa.

Political stability obtains moderate values only in Rusia and South Africa. These values may be due to inter-ethnic conflicts within those states and to the revolt of the population, which may influence the decision of foreign investors to a small extent. Exchange rate has a positive effect on FDI only in India. Rupee appreciation can grow the profits of MNC's interested to enter in this market. In case of China, appreciation of the yuan is negative, lowering the competitive of the exports. The Pearson coefficient is close to -1, emphasising that yuan appreciation leads to a decision to disinvest.

India is the only country in the BRICS group where inflation has a moderate positive impact on FDI stock. The high inflation is boosted due to strong increase in consumption and food demand. In the case of Russia, rising inflation has a negative influence on foreign direct investment, owing to fiscal and government policies, leading to an unstable macroeconomic situation.

The Pearson correlation coefficient obtains approximate values close to 1 for China and India and strongly significant values in the other three countries of the BRICS group, in the case of external debt. Between external debt and FDI stock there is a positive correlation due to the emerging countries' difficulties in generating economic growth, infrastructure development and global competitiveness without external borrowing needed to strengthens these elements in order to attract foreign investors.

Tax growths can lead to a disinvest decision, because it can lead to lower profits, and there is a strong negative correlation between tax rates and FDI stock in all the countries from BRICS. GDP growth positively influences the attraction of foreign investors, obtaining a near perfect correlation in all the cases.

Conclusions

In conclusion, globalization brings new opportunities to maximize profits for multinational companies through the economic growth of the new world power poles in the BRICS, where the volume of foreign direct investment exceeded the one in developed countries. The motivation to start foreign investment projects is motivates by the high returns that there opportunities bring, as long as the political, economic and natural risks don't reach excessice levels.

References:

1. Agodo, O. (1978). „The determinants of US private manufacturing investments in Africa: Journal o f International Business Studies". (Winter 1978)
2. Artige, L. (2005). "Evidence on the Determinants of Foreign Direct Investment: The Case of Three European
3. Campa, Jose M. (1993). "Entry by Foreign Firms in the U.S. Under Exchange Rate Uncertainty." Review of Economics and Statistics. 75(4)
4. Charkrabarti, A. (2001). "The Determinants of Foreign Direct Investment: Sensitivity Analyses of Cross-Country Regressions." Kyklos. 54(1)
5. Dunning (1977). „The Distinctive Nature of Multinational Enterprise". George Allen and Unwin, London
6. Farrell, R. (2008). „Japanese Investment in the World Economy: A Study of Strategic Themes in the Internationalisation of Japanese Industry". Britain: Edward Elgar
7. Griffin, R. & Pustay, M. (2007). „International Business". Prentice Hall, 5th edition
8. Hollander, A. (1984). „Foreign location decisions by US transnational firms: an empirical study". Managed and Decision Economics. volume 5
9. Kravis, I. B.. Lipsey. R. E. (1982). "Location of Overseas Production and Production for Exports by U.S. Multinational Firms." Journal of International Economics
10. Ostadi, H. (2014). „The relationship between external debt and foreign direct investment in D8 member countries (1995-2011)". WALIA journal 30(S3): 18-22

11. *Reinhart, Carmen M. & Kenneth, S. Rogoff (2003). "Debt Intolerance." Brookings Papers on Economic Activity (1)*
12. *Schneider, F. & Frey. B. (1985). "Economic and Political Determinants of Foreign Direct Investment." World Development. 13(2)*
13. *Shatz, H. J. & Venables. A. (2000). "The Geography of International Investment". The World Bank. Policy Research Working Paper (2338).*
14. *Wheeler, D. şi Mody, A. (1992). "International Investment Location Decisions". Journal of International Economics 33*