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Relation Between Inward FDI Flows and Stock Market  
Development: Evidence from Emerging Economies

Luis Ramirez

## ABSTRACT

Foreign Direct Investment (FDI) flows have grown rapidly in size and importance in recent decades. They are an important source of capital in emerging markets and make up a significant proportion of GDP in many countries around the world. The international investment literature provides an extensive list of the impact of such capital flows, ranging from an increase in technological spillovers to a reduction in the market capitalization of the destination country's stock market. This paper looks at one aspect of this broader research question. It examines the impact of FDI inflows on the size and liquidity of 14 developing country stock markets over the period 2007-2016. Using panel regressions, there is no significant impact of FDI inflows on the size and liquidity of the emerging stock markets but there is statistically negative contemporaneous impact of FDI inflows on market index returns. However, the possibility of a feedback effect or two-way causality between FDI inflows and stock market development suggest that an alternate methodology (VAR analysis or Granger Causality) may have been more appropriate.

## **Introduction**

Foreign Direct Investment (FDI) flows have grown rapidly in size and importance in recent decades. They are an important source of capital in emerging markets and make up a significant proportion of Gross Domestic Product (GDP) in many countries around the world. The international investment literature provides an extensive list of the impact of such capital flows, ranging from an increase in technological spillovers to a reduction in the market capitalization of the destination country's stock market. This paper examines the impact of inward FDI flows from 1987 through 2015 for developing economies around the world, including Latin America, Africa, Eastern Europe and Far-East Asia.

This paper looks at one aspect of this broader research question. It examines the impact of FDI flows on the stock market development (SMD) of 14 emerging economies. Specifically, this study analyzes the impact of FDI inflows on the size of a destination (host) country's stock market as measured by the market capitalization of the equity market. It also looks at the impact of the FDI flows on the liquidity of the stock market as measured by the turnover and the number of securities traded on the stock market.

The paper's findings point to a lag between returns and inflows. It seems possible that it takes over a year for inflows to have an effect on returns. There is also a significant negative relation between inflows and returns. Based on the empirical results, it is also very plausible that there is a two-way causality between inflows and SMD. This is to say that the relationship can work either way and that each has the potential to affect the other in a statistically significant

manner. To test for this, a VAR would have to be run, but that is beyond the scope of this paper. FDI also failed to affect the size and liquidity of the stock market. Ultimately, the results of the paper point to an insignificant impact of FDI inflows on the size and liquidity of the market, but a statistically significant negative impact on market returns. The possible existence of a feedback loop between FDI inflows and SMD also suggests that a VAR would have provided a more accurate representation.

## **Literature Review**

The literature examined the channels through which inward FDI flows have affected growth. Foreign Direct Investment (FDI) is regarded in the studies as an investments made by a resident entity in one economy (direct investor) with the objective of establishing a lasting interest in an enterprise resident in an economy other than that of the investor (International Monetary Fund). In the context of the research, FDI does not include FPI (Foreign Portfolio Investment), as the latter is a cross border transactions and positions involving debt or equity securities, other than those included in direct investment or reserve assets (Bank of International Settlements).

Certain works highlighted a significantly positive relationship between FDI inflows and economic development, while others found FDI to have a detrimental impact on the economies of the emerging nations it affected. The empirical evidence on the impact of FDI flows on economic growth was therefore mixed, for emerging nations.

### **Positive Impact:**

Based on the ideas of Kim (2015), it has been argued that technological transfers associated with FDI are an important determinant of economic growth in developing countries. In the study, Kim took a sample of 26 emerging countries, ranging from Africa to Latin America, over the time period of 1989 through 1997 and performed three regression tests. These tests were calibrated to determine whether (1) foreign investment would have a more potent impact on economic growth compared to domestic investment, (2) the larger the proportion of foreign investment relative to total investment within the recipient country the greater the impact on economic growth, and (3) foreign investment will have stronger effect on economic growth when the capital goods brought into a recipient country are more advanced. The results suggested that the larger the proportion of foreign investment inflows relative to total capital formation, the higher the economic growth rate of developing countries. In addition, there was also evidence that foreign investments would have a more potent impact on economic growth compared to domestic investments.

Ali et al. (2014) employing a Levine-Lin-Chu Panel Unit Root Test, an Im-Pesaran-Shin Unit Root Test and a Panel Cointegration test, also found that there is indeed a long-term positive relationship between foreign direct investment and GDP growth in Argentina, Brazil, Turkey and Thailand. More so, their study highlights the positive impact of FDI by suggesting that an increase in the multiplier effect of foreign direct investment could help developing countries like Turkey maintain economic stability and to reach developed country growth levels.

According to Pekarskiene (2015), growing FDI flows are a significant factor of the globalization process, being one of the driving forces of globalization, and its main consequence.

The study analyzed the effects FDI inflows had on the globalization of Lithuania. The authors calculated the proportions of FDI inward flows or inward positions as a share of GDP. This was done to empirically test the input of FDI on economic globalization. The results pointed towards a geographical spread of inward FDI positions and flows, which reduced the dependence of the Lithuanian economy on large investing countries or big investor. Ultimately, the study concluded that a decrease in dependency resulted in the reduction of risks arising from the withdrawal of investments from the Lithuanian economy.

Gohou et al. (2012), examine how, in some cases, increased FDI levels can result in the alleviation of poverty in a continent like Africa. Gohou et al conducted a Granger causality test in order to determine the impact of FDI on the levels of poverty in African countries. The empirical results signal a strongly positive relationship between FDI and welfare improvement in Africa, although FDI's impact differs depending on the country of destination. Another takeaway from their study is that the poorer and less developed the host country, the greater the impact of FDI on poverty reduction.

Nwaogu (2015) cross-analyzes the effects of three external funding sources on the economic growth of developing countries within Africa and Latin America. The study considers Foreign Aid, FDI and remittances as they make up the three largest sources of capital coming into these continents. When looking at the impact on Africa alone, the study found that foreign aid and FDI had a statistically significant contribution to economic growth, although only FDI retains its significant effect when all three external funding sources are included in the regression. These results were based on running a dynamic spatial econometrics model on 53

African and 34 Latin American countries, in order to see whether FDI, foreign aid and remittances have any effect on their economic growth.

**Negative Impact:**

Although several studies found a positive correlation between FDI and economic development, there is also a strand of the literature that had documented the negative effects of FDI flows on developing economies. Raza et al (2014) look at the relationship between foreign capital inflows, economic growth and stock market capitalization of 18 Asian countries by performing an ARDL bound testing cointegration approach. Results indicated that FDI has a significant negative and economic growth has a significant positive relationship with the stock market capitalization, whereas, the results of workers' remittances were found insignificant in the long run.

Agbloyor et al. (2014) also found that private capital flows have a detrimental effect on economic growth in Africa. Their findings suggest that financial markets are a necessary absorptive capacity for the private financial flows; their study tested this issue empirically in the African context. Essentially, for FDI to have a positive impact on an economy, the country must first go through the trouble of developing a steady financial market. According to (Hajilee et al. 2015), financial market development has favorable long-run effects on increasing the inward flow of FDI in 11 out of 14 countries. For their test, Hajilee applied a bounds testing approach to cointegration and a Granger Causality Analysis between FDI and Financial Market Development for 14 Latin American (LAM) countries. The article found that financial market development



could act as a source of absorptive capacity in the host country, which could enable these countries to absorb the positive impact of FDI, and thus promote economic growth.

### **FDI Flows and Stock Market Development**

Although the relationship between FDI inflows and economic growth has proven inconclusive, the literature has established stock market development (SMD) as a strong positive determinant of economic growth in less developed countries. Therefore, this portion of the study will focus on one specific aspect of economic growth: Stock Market Development.

Agbloyor et al. (2013) focuses deeply on the effects of FDI inflows on Stock Market Development by testing an instrumental variable panel regression on 16 African nations. The study found an unequivocal and highly significant two-way causality between FDI inflows and SMD. A relatively well-developed stock market helps attract foreign investors, as such a market is perceived as a sign of vitality, of openness on the part of country authorities, and of a market-friendly environment. FDI inflows also promote SMD, as this capital may improve the liquidity and capitalization of the domestic stock market if the company being invested on is listed on the local market.

The findings from the same study also suggest a significant feedback between bank proxies, or variables used to measure bank activity, and FDI. FDI is associated with high technology and productivity levels. Foreign and domestic firms may need to raise financing from the domestic banking sector to facilitate the introduction of said technologies. As developed banking systems continue to compliment the activities of foreign investors, companies in

countries with well developed banking systems will continue to look attractive, thus resulting in an increase of FDI inflows. Agbloyor also argues that FDI spurs the development of a banking sector, as the more accounts of foreign multinationals result in more credit being created through the intermediation process. Due to this, the authors suggest that FDI could jumpstart financial development in Africa through the development of a financial system as it would facilitate financing and result in an efficient allocation of capital.

More so, Soumare et al. (2015) employed a two-stage least squares panel regression for stock market development and banking sector development indicators of 29 emerging markets. The tests found that FDI and SMD indicators positively impacted each other. They also concluded that their findings might depend on whether the variables used to determine causality indicate stock market development or banking sector development. Adam et al. (2009) also looked at the relationship between FDI and market development, but, in Ghana, by using multivariate cointegration test to find a long-run relationship among FDI, Ghana cedi –U.S. dollar exchange rate (XR), and market capitalization (monetary value of company traded on stock exchange) as percentage of GDP. Their findings revealed the existence of a long-run positive relationship between FDI, nominal exchange rate and stock market development.

## **Hypotheses**

Based on the literature, the first alternate hypothesis of this study is that a relation exists between Foreign Direct Investment flows and Stock Market Development. If more capital is invested on foreign companies, then the markets will get larger and be able to allocate capital more efficiently. Even if the assumption is that the companies being traded are private, the

hypothesis still stands as there will be a negative effect since more capital is going into private competitors. The decrease in market share of the public company will reduce the market capitalization of the stock market, thus having a detrimental effect on SMD. The second alternate hypothesis is that if a relation does exist, then FDI inflows will have a positive effect on Stock Market Development. More capital in the hand of these countries may result in more efficient market institutions. A developed stock market, if measured by market capitalization, will be large. Also, more inflows mean higher possible liquidity in these markets through the use of this capital to buy and sell securities in the market.

## **Data and Methodology**

### **1. Data Description**

All data, including FDI levels, was extracted from the STAT database published by the United Nations Conference of Trade and Development (UNCTAD), as well as from DataStream by Thomson Reuters. Data was then narrowed down for the 14 countries within the sample with starting points depending on when the specific country developed a stock market. The starting point for each country's time series ranged between 1987 and 2009, thus some countries such as Viet Nam had less observations than countries like Brazil. The Inflow data itself had to be taken at an annual rate since many of these countries were not covered for FDI until recently, thus limiting the observations to a maximum of 303. The Turnover Ratio, used to measure liquidity, and the Market Capitalization data, indicating size of market, were not followed closely, thus some of the early years were missing for a number of the countries. MSCI Standard returns were also compiled in their local currency, as it would provide more accurate results. The number of

listed companies was also compiled within each market to measure for size, while using Real GDP for each country as a control. Table 1 includes the summary statistics of all the variables used for this study.

## 2. Methodology

In this section, the effects of changes in Foreign Direct Investments on stock market performance of Emerging Nations within Africa, Latin America and Asia are analyzed following the intuition and application of multifactor explanations (see, Chen et al., 1986). To test this relationship, the following regressions were used:

$$(1) R_t = \alpha + \beta\pi_t + \varepsilon_t ;$$

where stock market returns are denoted by  $R_t$  and changes in Foreign Direct Investment are denoted by  $\pi_t$ . Under the null hypothesis of Foreign Direct Investment having no effect on returns, the coefficient on the changes in FDI is equal to zero,  $\beta=0$ . To control for the fact that the level of FDI across the Emerging Nations differs, we include the initial FDI level in  $t-1$  as noted in  $\psi_{t-1}$  in Eq. (2) to account for its effect on equity returns.

$$(2) R_t = \alpha + \beta\pi_t + \gamma\psi_{t-1} + \varepsilon_t$$

Moreover, to test the impact of macroeconomic variables on stock market returns—proxy hypothesis and account for inflation, Eqs. (1) and (2) were augmented in the following manner:

$$(3) R_t = \alpha + \beta\pi_t + \xi M_t + \varepsilon_t$$

$$(4) R_t = \alpha + \beta\pi_t + \xi M_t + \gamma\psi_{t-1} + \varepsilon;$$

where  $M_t$  is a vector containing macroeconomic variables, typically associated with the business cycle and are known to affect the stock market. This model allows us to determine whether changes in FDI Inflows provide additional information not captured by the business cycle fluctuations, and if not, then the coefficient on changes in economic freedom,  $\beta$ , should equal zero. Logs were also taken as appropriate.

## **Empirical Results**

Table 2 presents results based on the regressions for the sample of the 14 emerging nations for which we have data on all stock market variables. Column (1) shows the impact or effect FDI Inflows have on returns, while Real GDP is used as a constant. The results of this single regression, display a negative statistical significant relationship between FDI inflows and returns. For every dollar invested into FDI, the regression points to a loss of almost 27% of the initial value of that dollar.

The results could certainly be driven by the composition of the sample size. Although all countries included are emerging nations, each specific country had their own unique circumstances in regards to their reliance on FDI. Many of the African nations, such as Ghana, found themselves almost dependent on FDI as a source of foreign capital. This contrasts the situation within some of the Latin American countries, which are considered emerging nations, but who have had longer periods of time to develop and thus find themselves less reliant. To test

for this, regressions were run with country fixed effects and the results pointed towards FDI having a larger impact on those countries that were more reliant.

Regardless, the results of the first column fall in line with the findings of (Raza et al. 2014), which found that an increase in FDI inflow would cause a decrease in the stock market development within these countries. In their study, FDI was thought of as coming into the economy and disrupting it by competing with domestic producers, which led to a decrease in productivity from a loss of market share and ultimately caused their stock price to fall. This could be used to explain the results of the first regression in this study, especially for countries in the lower end of the economic spectrum whose markets aren't as developed and who rely on a lower number of publicly traded companies.

This study also tested for the impact of inflows on number of stocks traded, Market Capitalization as % of GDP, and Turnover Ratio as can be seen in column (2), (3) and (4) respectively. As mentioned earlier in the study, the number of stocks traded and turnover ratio were used to measure stock market liquidity, while market capitalization (as % of GDP) was used to measure the size of the stock market. Interestingly enough, all three regressions exhibited no real statistically significant relation between levels of FDI inflows and the three variables used to measure size and liquidity.

These results could be driven by the data itself. If you take a look at table 1 you will see that the number of observations (N) decreased from test to test. This is due to the lack of data on the three variables. Since this study deals with emerging nations, it proved difficult to collect the pertinent data of each variable for the years for which we had FDI data. Many of these emerging nations were not followed closely until recently, thus many of the years lacked the necessary

information for the three variables. These results contrast the findings of the studies covered in the literature review, as those studies all found at least some type of relationship between inflows and Stock Market Development. The sample of this study may also be responsible for the difference in outcomes. Most of the studies used to motivate this paper focused their sample on countries within specific continents, while this study focused on emerging nations as a whole, covering four continents, each with their own very unique economic conditions. Regardless, the results lead to a rejection of all other alternate hypotheses.

Intuitively, it also seemed logical that there may exist a lag between FDI inflows and its effects on returns. To test for this, a fifth regression was run in which inflows were lagged. The results for this test can be seen in Table 3. Column (5) backs up the findings of the first non-lagged regression, but with the added caveat that these results proved more accurate based on coefficients. Such results thus point towards the possibility of a lag existing since the negative statistically significant relationship for the first regression remained, but with more statistically accurate results. Overall, the results of the regressions suggest the existence of a statistically significant negative relationship between FDI and Stock Market Returns, but the lack of any relationship at all between FDI and the size or liquidity of a market.

## **Conclusions**

This paper examined the possible effects of Foreign Direct Investment on Stock Market Development by taking a look at 14 Emerging nations over the period 2007-2016. The regressions were meant to analyze the returns, liquidity and size of the markets to gauge the effect FDI was having on Market development. Through the use of panel regressions, it became apparent that there is no significant impact of FDI inflows on the size and liquidity of the

emerging stock markets but there is statistically negative contemporaneous impact of FDI inflows on market index returns. The results improved in accuracy after inflows were lagged and exhibited a strong relation between returns and FDI inflows based on the t-statistics. These results displayed the existence of a lag between inflows and returns as well as the negative effect FDI had on the returns of the country's respective market. This means that as a whole, a dollar of FDI brought with it a loss of returns. Investors could take a look at these results when deciding what country to invest their capital in, since the destination country may determine whether it is a sound investment or not.

The insignificant effect on liquidity also has the implications that a sudden inflow of FDI does not necessarily help stock markets become more liquid and thus allocate capital more efficiently. Perhaps, increase in FDI has no effect at all unless a developed stock market exists first. This relation would also be backed up by the results of the regressions between FDI and returns, as there appears to be a two-way causality between them. The increase in FDI inflows could also bring with it other unforeseen effects, such as tech spillover and poverty reduction as stated by Agbloyor et al. (2013).

FDI did not affect stocks traded either, but that may have to do with the limited amount of data and country specific effects. It is possible that the reason for this is that much of the money coming in is being used to finance assets that these investors hold on to due to the lack of a well-developed stock market. As a policy maker this is important if your goal is to increase investments from abroad. It then becomes a priority for those that rely on FDI inflows to encourage market friendly conditions that can attract investors. Overall the implication of this



study is that FDI could be seen as a sign of openness for investors, but with higher risk (spillover effects).

Table 1: Summary Statistics of Variables

Variables	Observations	Standard Deviation	Mean	Max	Min
Inflows/GDP	311	.34	.35	1.20	.07
Returns	311	.25	.06	1.85	-.81
Stocks Traded	259	19.41	12.90	143.2	.03
Turnover Ratio	191	60.30	39.86	467	.13
Market Cap as % of GDP	194	23.98	38.42	151.5	6.58
Real GDP	311	85,230	53,857	460,391	-65,337

Table 2: Regression Results using log of Inflows

	(1)	(2)	(3)	(4)
	ReturnsL (Lag)	Stocks Traded	Market Cap (% of GDP)	Turnover Ratio
InflowsL	-0.268*** (-5.61)	-0.530 (-0.36)	-1.283 (-0.64)	0.0767 (0.02)
RealGDP (log)	-0.00636** (-3.10)	1.950 (1.51)	2.704 (1.37)	-0.902 (-0.20)
_cons	1.784*** (8.84)	0.458 (0.03)	69.22* (2.43)	-116.8 (-1.90)
N	266	232	178	174
Adj. R-squared	0.532	0.313	0.457	0.601

t statistics in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Table 3: Regression Results of Inflows Lagged

(5)	
ReturnL (Lag)	
InflowsL (Lag)	-0.204*** (-4.87)
RealGDP (Log)	-0.00278 (-1.56)
_cons	1.583*** (8.69)
N	252
Adj. R-Squared	.530

t statistics in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

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