

The Determinants of Foreign Direct Investment in Bangladesh

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Abstract

The aim of this paper is to explore, by estimating a linear regression model, the determining factors of foreign direct investment (FDI) inflows in Bangladesh over the period of 2005-2015. The study has used secondary data from publications issued by the Bangladesh Bank (BB) and other statistical reports. In the model, dependent variable is FDI and Independent variables are Market Size, Inflation, Openness, Corporate tax rate, Domestic Investment, Labor Force, Average Exchange Rate, Real interest rate. The result shows that Market Size, Openness, Labor Force, Average Exchange Rate and Real interest rate have positive effect on FDI inflow. On the other hand corporate tax rate and Domestic Investment have negative effect on FDI inflow.

Keywords: Foreign Direct Investment (FDI), Determinants, Economic Growth, Bangladesh.

1. Introduction

Bangladesh is one of the countries in Asia that has benefited from foreign direct investment inflow. (FDI) has emerged as the most important source of external resource flows to developing countries over the years and has become a significant part of capital formation in these countries, despite their share in global distribution of FDI continuing to remain small or even declining. The role of the foreign direct investment (FDI) has been widely recognized as a growth-enhancing factor in the developing countries (Khan, 2007).

FDI may be undertaken by individuals as well as business entities and has three components, namely equity capital, reinvested earnings and intra-company loans. The demand for capital formation in developing nations can be met by FDI through capital investment which can augment economic growth (Firebaugh, 1992). This concept is supported by Mello (1999) who concluded that foreign investment is an important element to fill the resource gap in many developing nations. For instant, FDI has enabled economic growth in South and East Asia by increasing capital formation (Fry, 1999). Moreover, Romer (1993) states that foreign investment is useful to build physical infrastructure such as roads and factories. Improved physical infrastructure, in turn, will increase the absorptive capacity of the host country, which may attract further FDI.

Despite liberalization in some sectors and recent efforts in establishing Bangladesh as an attractive location for FDI in South Asia, it has not been quiet successful in attracting foreign investment because of its poor infrastructure and a weak business environment (World Bank, 2006) and also as Bhattacharya(2005) suggested, so far FDI has not decisively contributed to reducing the two key weaknesses of Bangladesh: high unemployment and widespread poverty, coupled with a scarcity of foreign exchange.

The determinants of FDI in the SAARC region, mostly because data are not always available for all countries and major macroeconomic variables. Zafar (2013) examines the impact of a variety of factors (trade openness, market size, and cost of capital, among others) on FDI inflows into Bangladesh, India and Pakistan using time series data over the period 1991 to 2010. These studies conclude that there is a very strong and positive relationship between economic growth and FDI flows in this region.

2. Objectives of the Study

The aim of the study is to find out the key determinants of foreign direct investment (FDI) inflows in Bangladesh during the period 2005-2015.

3. Literature Review

Foreign capital inflows play an important role in supplementing and complementing resources of developing countries in their efforts towards higher levels of development. There is global race for attracting FDI, but how much it can contribute to host country's economic development is a matter of assessment.

Quader (2009) applied extreme bounds analysis to the data of the various catalyst variables of FDI inflows in Bangladesh. They found FDI and domestic investment have a positive effect on economic growth.

Azam (2010) examined the impacts of exports and FDI on economic growth of South Asian countries namely Bangladesh, India, Pakistan and Sri Lanka with simple log linear regression model using secondary data ranging from 1980 to 2009 and found that due to promotion of exports, economic growth of each country would increase. He also found FDI as positively significant at 1% level of significance for Bangladesh and Pakistan, while for India it's insignificant and in case of Sri Lanka though it is significant but with unexpected negative sign.

Mottaleb (2007) studied the determinants of FDI and its effect on economic growth in developing countries. He studied panel data of FDI flows of sixty low-income and lower middle income countries and found that FDI has

an important effect on economic growth of third world countries by creating bridge between the gap of domestic savings and investment and familiarizing the up to date technology and management skill from developed countries.

Pradhan et al. (2011) study the determinant of FDI in seven SAARC countries over the period 1980 to 2010. Zafar (2013) examines the impact of a variety of factors (trade openness, market size, and cost of capital, among others) on FDI inflows into Bangladesh, India and Pakistan using time series data over the period 1991 to 2010. These studies conclude that there is a very strong and positive relationship between economic growth and FDI flows in this region.

Lehman (2002) found that structural change in external accounts of a country takes place due to FDI inflows. Trade openness and host country risks are found to increase affiliate profitability of FDI and earning repatriations are not determined through constant dividend payout ratio. Woodward (2003) claimed that FDI flows have contributed substantially to current account deficits.

Alfaro et al. (2004) also carried out a similar examination of the association of FDI and GDP growth. The study also showed that countries with a strong financial system are more capable of exploiting the potential of FDI.

Barro (1995) examines the issue and finds a significant negative relationship between inflation and economic growth, considering variables like fertility rate, education, etc constant.

Yin Yun Yang et al. (2000) discovered that rising prices (inflation) also influences FDI GDP) as an important determinant of FDI inflows.

An important study by **Abbas et al. (2011)** conducted an examination on the influence of FDI and CPI on the GDP's of SAARC member nations. The study concluded that the general model in these countries developed a positive relationship between Foreign Direct Investment and GDP while negative relationship between Consumer Price Index and GDP.

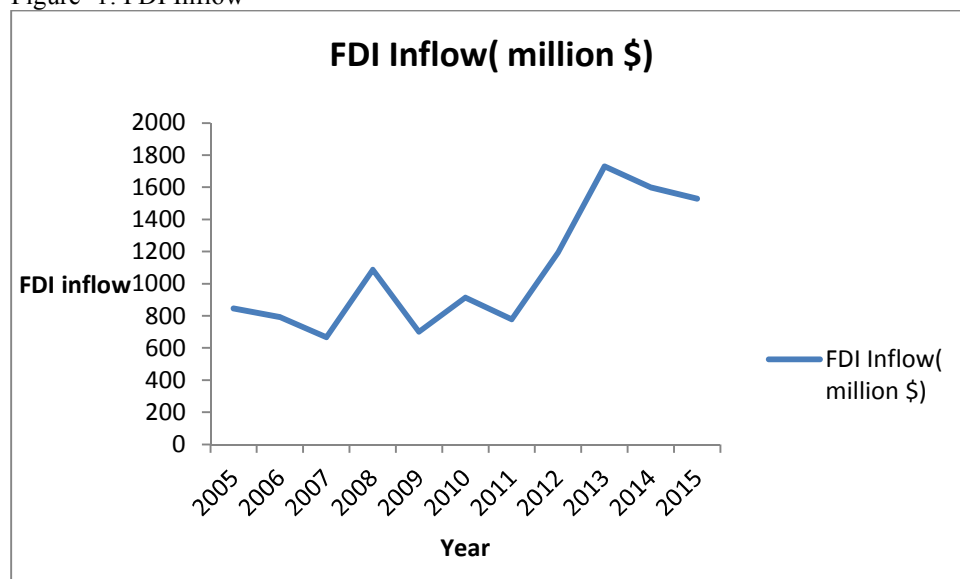
4. FDI in Bangladesh

The current scenario of FDI in Bangladesh is not still satisfactory enough but given the availability of abundant resources, skilled and cheap labor forces, a stable and consistent political atmosphere, effective monetary and fiscal policy, improvement of infrastructure and long term strategic planning to stimulate FDI might be able to make the condition favorable to attract FDI in Bangladesh. Bangladesh needs FDI for its ongoing development process. It is an effective weapon for developing the economy and achieving the country's socio-economic objectives. Bangladesh is in the process of conversion from a agricultural economy to a modern economy through which a considerable change in global flows of trade and finance including a flow in FDI.

4.1 Total FDI inflow

The trend of Inflow of FDI in Bangladesh has increased over the 1980s as compared to earlier periods and this same momentum continues in 1990s as well. The total inflow of FDI has been increasing over the years. During the period of 1977-2010, total inflows of FDI were USD 8927.9 million, among which the total inflows of FDI during 2006-2010 was USD 4158.63 million.

Figure -1: FDI Inflow



(Source: Survey Report, Statistics Department, Bangladesh Bank)

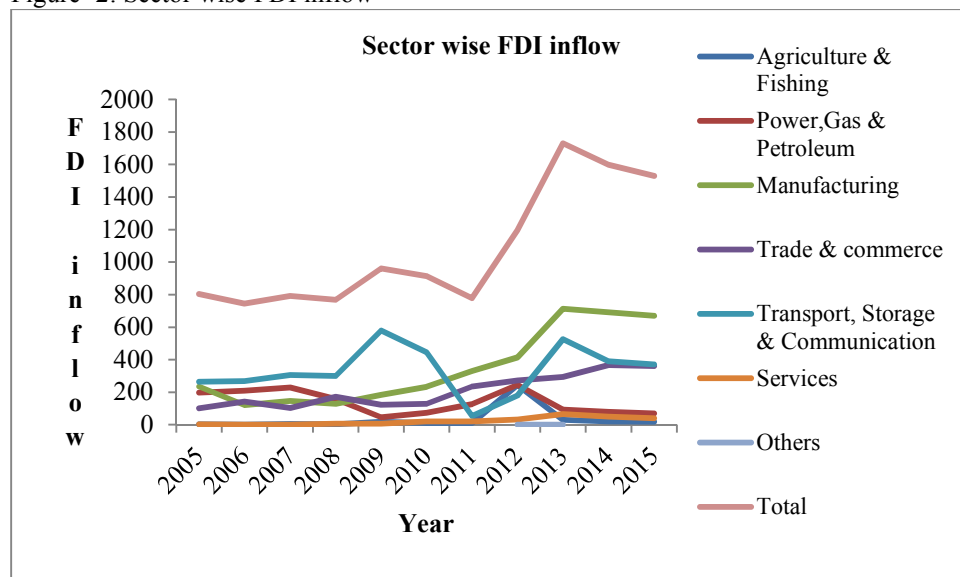
The figure- 1 shows an inconsistent proceeding of FDI inflows during the period. In 2005 to 2007 there

was falling trend continued for many reasons. Serious political unrest during the period discouraged foreign investment and it took quite some time to regain the confidence of foreign investors. There were also some other factors that force this declination in the inflows. After that, there was very good news for Bangladesh. The FDI inflow was increased in 2008 to US\$ 1086.3 million and declined in 2009 to US\$ 700.16 then the steady rise from 2010 to 2013. It rose to US\$ 1730.63 million in 2013 but slumped to in 2014 and 2015.

4.2 FDI inflows in different sectors

Sector-wise analysis of FDI reveals the fact that a shift has been made by the foreign investors in their investment in Bangladesh (Annex Table-3.). The table shows the trend of FDI towards power and energy, manufacturing and telecommunications, whereas the neglected sectors were agricultural, Services and trade and commerce. In 2005, the main focus of investment was in the manufacturing sector. The success in textiles through the ready-made garments (RMG) industry was a vital part of this investment. The figure shows the shift of FDI in the sectors in Bangladesh. The reduction in FDI shares of manufacturing demonstrates that its stronghold position for foreign investment is in declining state. On the other hand, telecom sector is gaining prominence during present years. In 2008 the telecommunications sector overtook manufacturing sector as the leading recipient of FDI. Due to increased privatization efforts by the government, telecom has emerged as one of the fastest growing sectors in the Bangladesh economy.

Figure- 2: Sector wise FDI inflow



(Source: Survey Report, Statistics Department, Bangladesh Bank)

From the figure- 2, it has clearly shown that the investment in various sectors has changed quite a lot. The investment in fishing and agriculture and power, gas and petroleum sector was highest in 2012 which was 245 million dropped to 18 million and 70 million in 2015. In 2013, the manufacturing sector had highest investment which was 713 million and also highest investment in 2015 which 670 million. In Trade & commerce and Transport, Storage & Communication the investment was 360 and 370 million in 2015. The government should take a close look in this matter and take necessary steps to identify the causing factors and to rectify those to improve our present sectors declining situation.

5. Methodology of the Study

This research examines time series data over a period of ten years from 2005 to 2015 (Appendix-1). To test the hypothesis, linear regression analysis was conducted using FDI inflow as the independent variable, and Market Size, Inflation, Openness, Corporate tax rate, Domestic Investment, Labor Force, Average Exchange Rate, Real interest rate as the three dependent variables.

The historical data (from 2005 to 2015) of FDI inflow, Market Size, Inflation, Openness, Corporate tax rate, Domestic Investment, Labor Force, Average Exchange Rate, Real interest rate has collected from publications issued by the Bangladesh Bank (BB) and other statistical reports. Since BB is the source of both FDI inflow data and macroeconomic data, any inconsistencies in generating data will be minimized.

5.1. Model Selection: On the basis of existing literature we have developed the following model to find the major determinants of FDI of Bangladesh:

$$FDI_t = \beta_0 + \beta_1 MS + \beta_2 INF + \beta_3 OPN + \beta_4 CT + \beta_5 DI + \beta_6 LF + \beta_7 AER + \beta_8 RIR$$

Where,

FDI = Foreign Direct Investment

MS = Market Size (which reflects the GDP)

INF= Inflation Rate

OPN = Openness

CT = Corporate Tax Rate

DI= Domestic Investment

LF =Labor Force

AER = Average Exchange Rate

RIR= Real Interest Rate

The above model is built for the purpose of testing hypotheses is as follow:

Hypothesis:

H₀ : Market Size, Inflation, Openness, Corporate tax rate, Domestic Investment, Labor Force, Average Exchange Rate, Real interest rate have no positive and significant relationship with FDI Inflow.

H₁ : Market Size, Inflation, Openness, Corporate tax rate, Domestic Investment, Labor Force, Average Exchange Rate, Real interest rate have positive and significant relationship with FDI Inflow.

6. Data analysis and relevant findings

The study has applied linear regression technique for examining the Impact of some determinants on the FDI inflow in Bangladesh. The result and output of regression analysis have been summarized as follows:

In this study Descriptive statistics is the first step. It helped to describe relevant aspects of phenomena of FDI and provides detailed information about each relevant variable.

Table -1: Descriptive result

| Variable | Mean | Std. Deviation |
|-----------------------|---------|----------------|
| FDI Inflow | 10.4909 | 1.71374 |
| Market Size | 6.1636 | .36407 |
| Inflation | 7.1818 | 1.16174 |
| Openness | 13.3455 | 1.09851 |
| Corporate tax rate | 28.4091 | 1.26131 |
| Domestic Investment | 25.3545 | 1.52667 |
| Labor Force | 95.5364 | .20627 |
| Average Exchange Rate | 1.3836 | .12339 |
| Real interest rate | 6.8364 | 1.66292 |

Descriptive results show the mean and standard deviation of the different variables used in the study. Table – shows the Descriptive results for FDI inflow in Bangladesh for the period under consideration.

Table- 2: Regression Result

| Independent Variables | Estimated Coefficient | Standard Error | t Statistic | Significance |
|--------------------------|-----------------------|----------------|-------------|--------------|
| (Constant) | -13.959 | 524.016 | -.027 | |
| Market Size | -.114 | 1.398 | -.081 | .045* |
| Openness | .731 | .942 | .775 | .039* |
| Corporate tax rate | 2.441 | 1.607 | 1.519 | .226 |
| Domestic Investment | 1.606 | .616 | 2.608 | .280 |
| Labor Force | -1.243 | 5.677 | -.219 | .041* |
| Average Exchange Rate | 28.178 | 16.199 | 1.739 | .080** |
| Real interest rate | -2.182 | .538 | -4.055 | .027* |
| R Square = .918 | | | | |
| Adjusted R Square = .726 | | | | |
| F Statistic = 0.003 | | | | |
| Durbin Watson = 2.10 | | | | |

*Significant at the 5% level

**Significant at the 10% level

Model Summary provides an overview of the results. Of primary interest are the R Square and Adjusted R Square values, which are .918 and .726, respectively. We learn from these that the weighted combination of the predictor variables explained approximately 82.2% of the variance of FDI inflow. Using the standard regression procedure where all of the predictors were entered simultaneously into the model, R Square Change went from zero before the model was fitted to the data to .918 when the variable was entered.

The value of intercept of the model is labeled as the Constant and has a value here of -13.959. With the exception of corporate tax rate and Domestic Investment, all of the predictors are statistically significant.

Market Size, Openness, Corporate tax rate, Domestic Investment, Labor Force, Average Exchange Rate and Real interest rate were used in a standard regression analysis to predict FDI inflow. The prediction model was statistically significant, $F(7, 3) = 4.786$, $p < .005$, and accounted for approximately 82.2% of the variance of FDI inflow ($R^2 = .918$, Adjusted $R^2 = .726$).

The result shows that Market Size, Openness, Labor Force, Average Exchange Rate and Real interest rate have positive effect on FDI inflow. On the other hand corporate tax rate and Domestic Investment have negative effect on FDI inflow.

7. Conclusion

The main objective of the study is to determine the major determinants of FDI in Bangladesh. In order to sustain the economic growth and continue the increasing status of FDI inflow, Bangladesh needs to identify the major determinants by which the FDI inflow is more affected. To test the null hypothesis: Market Size, Inflation, Openness, Corporate tax rate, Domestic Investment, Labor Force, Average Exchange Rate, Real interest rate have no positive and significant relationship with FDI Inflow, The study has used Linear regression analysis. The result shows that Market Size, Openness, Labor Force, Average Exchange Rate and Real interest rate have positive effect on FDI inflow. On the other hand corporate tax rate and Domestic Investment have negative effect on FDI inflow.

Bangladesh cannot ignore the importance of foreign investment for sustainable growth. As the corporate tax rate and Domestic Investment have negative effect on FDI inflow, the government of Bangladesh must have to take consideration on the two factors while making the policies to ensure a smooth flow of FDI in Bangladesh.

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Appendices

Appendix-1

| Year | FDI Inflow (in %) | Market Size (in %) | Inflation (in %) | Openness in (%) | Corporate tax rate (in %) | Domestic Investment (in %) | Labor Force (in %) | Average Exchange Rate (in %) | Domestic bank credit | Foreign Exchange reserve (%) | Real interest rate |
|------|-------------------|--------------------|------------------|-----------------|---------------------------|----------------------------|--------------------|------------------------------|----------------------|------------------------------|--------------------|
| 2005 | 1.35 | 5.9 | 6 | 11.9 | 30 | 24.2 | 95.7 | 1.62 | 1 | 5.04 | 8.9 |
| 2006 | 1.13 | 6.4 | 7 | 13.4 | 30 | 24.3 | 95.8 | 1.49 | 1 | 5.84 | 8.93 |
| 2007 | 0.95 | 6.9 | 7.2 | 14.1 | 30 | 24.2 | 95.7 | 1.44 | 1.2 | 7.39 | 8.95 |
| 2008 | 1.27 | 6 | 9.1 | 15.1 | 30 | 24 | 95.6 | 1.45 | 1.07 | 7.72 | 7.89 |
| 2009 | 0.82 | 5.7 | 8.9 | 14.6 | 27.5 | 24 | 95 | 1.44 | 1.9 | 8.39 | 7.34 |
| 2010 | 0.91 | 6.1 | 5.4 | 11.5 | 27.5 | 24.2 | 95.5 | 1.43 | -0.3 | 10.76 | 5.46 |
| 2011 | 1.02 | 6.3 | 6 | 12.3 | 27.5 | 25.2 | 95.5 | 1.34 | 2.7 | 10.17 | 5 |
| 2012 | 1.08 | 6.6 | 6.6 | 13.2 | 27.5 | 26.8 | 95.5 | 1.22 | 2.6 | 9.24 | 4.47 |
| 2013 | 1.2 | 6.2 | 7.6 | 13.8 | 27.5 | 27 | 95.5 | 1.27 | 2.3 | 11.47 | 5.44 |
| 2014 | 0.91 | 5.9 | 7.6 | 13.5 | 27.5 | 28 | 95.6 | 1.26 | 2.2 | 12.36 | 6.42 |
| 2015 | 0.9 | 5.8 | 7.6 | 13.4 | 27.5 | 27 | 95.5 | 1.26 | 2.2 | 12.35 | 6.4 |

Appendix-2

| Year | FDI Inflow(million \$) |
|------|-------------------------|
| 2005 | 845.26 |
| 2006 | 792.48 |
| 2007 | 666.36 |
| 2008 | 1086.31 |
| 2009 | 700.16 |
| 2010 | 913.32 |
| 2011 | 779.04 |
| 2012 | 1194.88 |
| 2013 | 1730.63 |
| 2014 | 1599 |
| 2015 | 1529 |

Appendix-3

| Year | Agriculture & Fishing | Power, Gas & Petroleum | Manufacturing | Trade & commerce | Transport, Storage & Communication | Services | Others | Total |
|------|-----------------------|------------------------|---------------|------------------|------------------------------------|----------|--------|---------|
| 2005 | 2.07 | 198.4 | 235.51 | 101.8 | 263.96 | 2.04 | | 803.78 |
| 2006 | 1.37 | 209.32 | 120.94 | 142.19 | 269.01 | 1.07 | | 744.61 |
| 2007 | 4.57 | 229.93 | 147.46 | 103.84 | 305.12 | 1.82 | | 792.74 |
| 2008 | 3.65 | 157.92 | 128.92 | 171.26 | 299.92 | 7.02 | | 768.69 |
| 2009 | 19.14 | 46.89 | 183.96 | 122.53 | 579.62 | 7.77 | | 960.59 |
| 2010 | 10.95 | 73.66 | 233.74 | 128.8 | 445.99 | 19.68 | | 913.02 |
| 2011 | 11.53 | 127.19 | 330.25 | 234.82 | 54.5 | 20.39 | | 779.04 |
| 2012 | 244.94 | 244.94 | 414.98 | 272.75 | 179.04 | 32.6 | 0.03 | 1194.89 |
| 2013 | 29.72 | 93.67 | 712.88 | 295.05 | 527.09 | 65.18 | 0.19 | 1730.63 |
| 2014 | 20 | 80 | 692.3 | 366.7 | 390 | 50 | | 1599 |
| 2015 | 18 | 70 | 670 | 360 | 370 | 41 | | 1529 |