Evaluating the Impact of the Key Factors on Foreign Direct Investment: A Study Based on Bangladesh Economy

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Abstract—Foreign Direct Investment is considered as one of the engines of initiating economic growth in recent times. It is also widely believed that foreign investment benefits the host economy in a number of ways. This study evaluated the impact of the key factors on FDI from Bangladesh point of view as the Bangladeshi government has initiated several incentive packages for foreign investors to achieve its vision 2020. However, this study has used econometrics techniques in order to run multiple regressions on time series data. This study has performed analyses by using correlation matrix, stationary test, and multiple regression analysis. Correlation matrix has been used to test for multicollinearity, and the stationary test has been performed by using Augmented Dickey-Fuller (ADF) statistic. Data on key determinants and FDI have been collected for the time period between 2000 and 2015. The results of this study indicated that trade openness and exchange rates are found to be the key determinants of FDI inflows in Bangladesh. On the contrary, GDP, interest rate, and inflation are found to be insignificant in attracting FDI inflows in Bangladesh even though GDP and inflation have got their expected signs. This study recommends that the government of Bangladesh should focus on ways to increase transparency, ways to reduce corruption, mobilization of domestic resources, control inflation rate, stabilise exchange rates, and keep interest rates at a tolerable level so that more foreign investment could be attracted.

Key Words—Bangladesh Economy, Exchange Rate, Foreign Direct Investment, Gross Domestic Product, Inflation, Interest Rate, Trade Openness.

I. INTRODUCTION

It is widely believed by many policymakers and economists that productivity of an economy is positively influenced by foreign direct investment (FDI) [1]. Many empirical types of research also opined that FDI creates positive externalities for the host economy through the implementation of foreign technology and technical know-how [2]. Externalities occurred by FDI may originate in the form of licensing, employee training, the establishment of a linkage between foreign and domestic firms, imitation, and the introduction of new processes. Along with these benefits, FDI brings direct capital financing which plays an important role in the modernization of host country economy and promotion of economic development [3].

In the past decade, perhaps the growth in foreign direct investment (FDI) is the clear mark of globalization. Since 1986, the average annual growth rate of FDI has been 23% which is twice the growth rate of trade volume [8]. In the past decade, most of the international investments have taken place in OECD countries until the Asian financial crisis in 1997. Since 1997, the share of FDI hosted by developing nations increased significantly by as much as 77% [8]. Compared to the developed world, flows of FDI to developing nations are greater [3]. The comparison was measured as a share of host country gross domestic product (GDP).

Bangladesh has experienced a significant increase in FDI flows during the last couple of years. Gross FDI inflows during the quarter January-March 2016 reached US$ 547.28 million [19]. The size of disinvestment during the period recorded US$ 136.60 million which was 24.96% of gross FDI inflows [19]. Hence, net FDI inflows in Bangladesh during the quarter January-March 2016 recorded US$ 410.68 million. Gross FDI inflows during FY 2016 (July-March) reached US$ 1962.15 million [19]. The size of disinvestment during the period recorded US$ 412.94 million which was 21.05% of gross FDI inflows [19]. Hence, net FDI inflows in Bangladesh during FY 2016 (July-March) recorded US$ 1549.21 million which were increased by US$ 205.28 million or 15.27% compared to FDI inflows (Net) (US$ 1343.93 million) during FY 2015 (July-March) [19].

Some dominating factors like interest rate, inflation rate, GDP, trade openness, and exchange rate have a significant role to play in attracting FDI. It has been demonstrated by [4] that higher rate of inflation resembles volatility in resource prices which may demotivate foreign investors. GDP is another key factor because higher or consistently improving GDP indicates higher investment opportunity [12]. According to the investigation of [1], there is a positive relationship between high interest rate and FDI inflows. It is because of the fact that foreign investors get a higher incentive for their investment. However, [11] pointed out that an economy’s openness to the outside world is an effective factor to attract FDI. Furthermore, disruption in exports and

Figure 1: Quarterly FDI Inflows (Source: Bangladesh Bank)
investments may occur in an economy when higher levels of exchange rate volatility prevail [5].

The primary objective of this study is to evaluate the impact of the key factors on FDI from Bangladesh point of view. Micro empirical literature has found ambiguous results concerning the impact of key factors on FDI while macro empirical literature has found an exogenous positive effect [5]. The benefit or advantage of FDI may be limited to the host country’s absorption capacity and other macroeconomic factors. This study focused on investigating the impact of major macroeconomic variables on FDI apart from the interest rate.

II. LITERATURE REVIEW

A. Theoretical Review of Literature

It has been evident in extant literature that investment could be viewed from two perspectives. One of the perspectives is Hayekian, and the other is Keynesian [6]. From the Hayekian point of view, investment is considered as the optimal adjustment to equilibrium [7]. As a result, the optimal amount of investment is dependent on the optimal speed of investment. For example, if a firm intends constructing a factory the optimal investment decision will be dependent on how fast it intends to build it or how much it will spend in doing so. On the contrary, from the Keynesian point of view, investment is considered as a behavioural aspect. From this point of view, investment is largely dependent on the behaviour of the businesses of what they think would be an optimal investment for a particular period [8].

[2] has critically examined more than 58 extant researches and has finally argued that much of the research that were conducted to find out the determinants of investment are developed based on the neoclassical theory of optimal capital accumulation. According to neoclassical theory of optimal capital accumulation, a firm’s anticipated capital requirement is determined by neoclassical production function, profit maximization, factor prices, and degree of perfect competition [9]. The neoclassical theory of optimal capital accumulation is considered as the close alternative to the views expressed by [18]. However, some of the empirical studies have challenged this theory by claiming that a firm’s anticipated capital requirement can be financed anyway [10][4][7].

According to the investment function proposed by [18], the relationship between investment and interest rate remains in naive form. Firms determine their investment needs and rank them according to their relative importance and then faced with a given rate of interest [11]. When it comes to choosing an investment option foreign investors, analyse host country’s GDP potential and growth and compares it with their expected return [12]. Besides, when the exchange rate remains reasonably high for the foreign investor, it motivates them to invest [15]. In addition, inflation rate and trade openness act as the measurement of sustainability of the economy and exposure to the outside world [13]. [13] further argued that both trade openness and inflation are important factors of FDI.

B. Empirical Review of Literature

There are several empirical types of research that focused on studying the impact of different macroeconomic variables on FDI [13][6][14][3]. By using a simple and multiple regression analyses [3] analysed the FDI scenario on the Indian economy. The study has found that major determinants of FDI in developing countries include inflation, political stability, infrastructural strength, labour cost, exchange rate, interest rate, and corporate tax rate. On the other hand, the investigation of [4] has found that trade liberalization is an important long-term determinant of FDI for African nations. Similarly, [5] has found that efficient investment policy and framework promotes FDI in African nations. However, according to [6], lower level of inflation signals internal economic stability of a country. In the case of FDI, host country’s internal economic stability is measured by observing the volatility in the inflation rate. Foreign investors are always concerned about the future profitability of their investment, and any form of instability may introduce uncertainty in attracting foreign capital [7]. [7] further argued that an economy in stable state attracts more FDI and therefore a lower level of inflation is desired.

The study performed by [11] has argued that excessive regulation on domestic investment policies are one of the major causes of decreased level of FDI in African nations. However, the investigation of [11] on Asian economies has revealed that relatively higher trade openness and supportive investment policies help to attract higher FDI inflows. Consequently, the analysis of [8] has found that FDI is largely dependent on the macroeconomic factors of an economy. [8] further argued that there is a positive association between trade openness and FDI inflows. According to the investigation of [1], there is a positive relationship between high interest rate and FDI inflows as foreign investors get a higher incentive for their investment. However, [1] further pointed out that the impact could be negative especially when foreign investors prefer raising funds by using host country’s capital market.

Many empirical studies have acknowledged that economic growth and FDI are positively correlated [9][1]. [9] has found that GDP and FDI are positively correlated which implies that economies having continuous GDP growth are subject to higher FDI inflows. Similarly, [9] have also argued that higher level of GDP motivates foreign investors as a higher level of GDP is subject to higher level of investment opportunities. On the contrary, according to the investigation of [16], FDI may get affected due to exchange rates via the imperfect capital market channel. If the host country’s currency depreciates against foreign currencies, it increases the wealth of foreign investors and raises FDI, but domestic investors suffer loss. When overvalued exchange rates prevail in an economy, it links up foreign currency shortage, large current account deficit, corruption, and crises in the balance of payment [16]. Therefore, empirically, FDI and exchange rate are negatively associated.

III. METHODOLOGY

In order to perform this study, the time period between 2000 and 2015 has been considered to collect data on FDI and key factors. This study has considered data on different economic variables which are collected from the International Financial Statistical year book, World Bank Development Indicator, and Bangladesh Bank. The purpose of this study was to analyse the impact of key factors on FDI in Bangladesh using time series data. This study has used some proxy variables in order to assess the impact of FDI. GDP has been used as a proxy for market size, inflation (INF) has been used as a proxy for economic stability, exchange rate (ER) has been used as a proxy for
financial market variability, interest rate (IR) has been used as a proxy for central bank monetary policy tool, and trade volume (TO) has been used as a proxy for openness to the outside world. As time series data constitute some problems, therefore, this study has performed several diagnostic tests in order to make the model and variables free from those problems. This study has performed correlation matrix, stationary test, and multiple regression analysis. Correlation matrix has been used to test for multicollinearity, and the stationary test has been performed by using Augmented Dickey-Fuller (ADF) statistic. This study has utilized both SPSS and EViews software packages to perform the analyses.

A. Empirical Model

In order to determine the relationship between key factors, FDI, and other explanatory variables, Ordinary Least Squares (OLS) was used. The model used in this study is specified below:

\[ FDI = \beta_0 + \beta_1 GDP + \beta_2 INF + \beta_3 IR + \beta_4 ER + \beta_5 TO + \mu \]

In this model, FDI is the parameter that has been estimated, and it measures the slope of the regression equation. GDP, INF, IR, ER, and TO are the independent variables used to measure their impact on FDI. And, \( \mu \) is the error term of the model which captures other factors that may cause variation in dependent variable FDI but not included in the model.

B. Variables

Foreign Direct Investment (FDI) – Net inflows of FDI in Bangladesh between 2000 and 2015 has been used in this study. Data on FDI has been collected from the World Bank Development Indicator and Bangladesh Bank. This study has assessed the impact of selected independent variables on FDI individually.

Trade Openness (TO) – [10] has found a positive association between trade openness and FDI inflows. Determination of trade volume is performed by summing up the exports and imports and then dividing by the nominal GDP [10]. GDP is used as a proxy for trade openness which is required to have a positive correlation with direct investment according to [10]. A higher degree of trade openness is desired for attracting foreign capital because a higher degree of trade openness directs an economy towards external market which is more open for foreign investment.

Gross Domestic Product (GDP) – Many empirical studies have acknowledged that economic growth and FDI are positively correlated [9][1]. The Foreign capital stock has a positive association with growth rates of GDP, and it is empirically true that flows of FDI increase in economies having increasing GDP over time. As a result of increased foreign capital flow, the host economy experiences increased economic activities. Therefore, empirically, there is a positive association between FDI and GDP.

Interest Rate (IR) – In the simplest term, this study defines interest rate as the cost of borrowing. Alternatively, the interest rate is defined as the charge which is required to be paid for the use of money. Real interest rate is the most attracting factor for FDI as it is the host country’s return on investment offered to the foreign investors. According to the investigation of [1], there is a positive relationship between high interest rate and FDI inflows as foreign investors get a higher incentive for their investment. However, [1] further pointed out that the impact could be negative especially when foreign investors prefer raising funds by using host country’s capital market. In general, there is a positive association between FDI inflows and interest rate.

Exchange Rate (ER) – Exchange rate is used in this study in order to measure the international competitiveness of Bangladesh. According to the investigation of [16], FDI may get affected due to exchange rates via the imperfect capital market channel. If the host country’s currency depreciates against foreign currencies, it increases the wealth of foreign investors and raises FDI, but domestic investors suffer loss. When overvalued exchange rates prevail in an economy, it links up foreign currency shortage, large current account deficit, corruption, and crises in the balance of payment. Furthermore, disruption in exports and investments may occur in an economy when higher levels of exchange rate volatility prevail. With respect to FDI, the expected sign of exchange rate is negative.

Inflation (INF) – According to [6], lower level of inflation signals internal economic stability of a country. In the case of FDI, host country’s internal economic stability is measured by observing the volatility in the inflation rate. Foreign investors are always concerned about the future profitability of their investment, and any form of instability may introduce uncertainty in attracting foreign capital [7]. It is further argued that an economy in stable state attracts more FDI and therefore a lower level of inflation is desired [7]. Consequently, the expected sign of inflation is negative in relation to FDI.

IV. FINDINGS

A. Analysis of Results

This study has used time series data in order to perform the analyses. For this reason, this study required to determine if the time series data used are stationary. It was important because particular trend could be followed by the selected time series data. Moreover, economic theories require that time series data are subject to de-trending procedures [12]. If not, unauthentic outcomes could be generated by the specified model. Following table provides the result of the stationary test performed by using EViews.

Table 1: Stationary Test Result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intercept and Trend</th>
<th>Order of Integration</th>
<th>Probability</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI</td>
<td>-</td>
<td>I(1)</td>
<td>0.0116</td>
<td>Stationary</td>
</tr>
<tr>
<td>GDP</td>
<td>3.2067**</td>
<td>I(1)</td>
<td>0.0001</td>
<td>Stationary</td>
</tr>
<tr>
<td>ER</td>
<td>4.8969***</td>
<td>I(1)</td>
<td>0.0112</td>
<td>Stationary</td>
</tr>
<tr>
<td>INF</td>
<td>3.2301**</td>
<td>I(1)</td>
<td>0.0000</td>
<td>Stationary</td>
</tr>
<tr>
<td>TO</td>
<td>6.8166***</td>
<td>I(1)</td>
<td>0.0000</td>
<td>Stationary</td>
</tr>
<tr>
<td>IR</td>
<td>8.1963***</td>
<td>I(1)</td>
<td>0.0000</td>
<td>Stationary</td>
</tr>
</tbody>
</table>

***, **, * are 1%, 5 % and 10% respectively
In order to perform unit root test, this study has used ADF test statistic. Individual test for each variable at first order integration with trend and intercept indicates that all the variables have passed the test with being statistically significant at 1% level of significance except for FDI and ER. Both FDI and ER have passed the test with being significant at 5% level of significance. Econometrics theories state that, for a variable to be stationary, the ADF statistic of the variable must be greater than its critical values irrespective of significant levels. The critical value for the variables at 1% level of significance is -3.679, at 5% level of significance is -2.9639, and at 10% level of significance is -2.621. From the above table, it could be observed that the ADF statistic for all the variables fulfils the criteria of having greater value than its critical values. Therefore, it could be said that all the variables used in this study are stationary. This implies that the mean, variance, and auto-covariance of the selected variables remain unchanged irrespective of time lags they are measured.

Econometrics theories state that variables having a higher degree of correlation in between are subject to multicollinearity problem. From the correlation matrix presented above it could be observed that neither variables exhibit higher degree of association among them except for the correlation between FDI and ER. However, the coefficient of the correlation between FDI and ER could not be considered as high but moderate which implies that neither of the selected variables exhibits multicollinearity problem.

Table 2: Summary of Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>GDP</th>
<th>ER</th>
<th>INF</th>
<th>TO</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI</td>
<td>Pearson Correlation</td>
<td>.267**</td>
<td>.635**</td>
<td>-.202</td>
<td>.244**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.275</td>
<td>.000</td>
<td>.232</td>
</tr>
<tr>
<td>N</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 3 provides that the coefficient of trade openness is statistically significant at 5% level of significance. The expected sign of trade openness was positive and results indicate it has its expected sign. This implies that trade openness trade openness has a positive impact on FDI. Furthermore, this finding suggests that an economy having an open trade situation or that facilitates more international trade or provides an efficient environment for significant international trade with the outside world is likely to attract more FDI inflows. The coefficient of trade openness is 0.102 which indicates that a 1% unit increase in TO will result in an increase in FDI by 0.102 units. Empirical finding presented by [5] and [14] argued that FDI flows increase to more open trade regimes i.e. more open trading economies attract more FDI inflows. As a result, it is likely that a country having higher trade openness will attract more FDI as TO is proven to be one of the important determinants of FDI inflows to an economy.

Interest Rate (IR) - From Table 3 it is evident that the coefficient of interest rate is -0.078 which did not get its expected sign. The coefficient of interest rate was not statistically significant at 5% level of significance. The expected sign for interest rate was positive, but Table 3 points out that it has a negative sign which indicates that higher rate of interest is not the key factor to attract higher FDI in Bangladesh. Therefore, this study rejects the alternative hypothesis and accepts the null hypothesis; the i.e. higher rate of interest does not have an effect on FDI in Bangladesh.

Inflation (IF) - Table 3 provides that the coefficient of inflation is -0.038 which is not statistically significant at 5% level of significance and it has its expected sign. Inflation is being used in this study to measure the macroeconomic stability of Bangladesh. The analysis has found that the variability in the inflation rate in Bangladesh is not significant which implies that it is not significantly affecting FDI inflows. This implies that stability in a macroeconomic environment of Bangladesh is not the key factors of FDI inflows.
Exchange Rate (ER) - The results presented in Table 3 indicates that the coefficient of the exchange rate (ER) is statistically significant at 5% level of significance. The expected sign for ER was negative, and it did not get its expected sign while its coefficient (0.008) indicates that if ER increases by 1% unit, it will cause FDI to increase by 0.008 units. Therefore, a positive relationship between GDP and FDI could be observed according to this finding. This finding clearly demonstrates that the variability or volatility in the exchange rate will cause FDI inflow to increase. However, as the coefficient of ER is statistically significant therefore it could be said that it is one of the key determinants of FDI in Bangladesh. Depreciation of the domestic currency may have a negative or positive impact on the FDI inflows. But, a real depreciation of host country’s currency may cause a reduction in FDI inflows due to a lower level of exchange rate. Empirical observations presented by [15] and [17] argued that when the currency of the host country depreciates against the FDI incoming currency, it necessarily increases the wealth of foreign investors. As a result, foreign investors get motivated to make an investment in the host country. According to [15], depreciation of the host country currency reduces the cost of resources and makes import expensive which leads to higher FDI inflows.

V. CONCLUSION AND RECOMMENDATION

A. Conclusions

This study was aimed at finding out the impact of key factors on foreign direct investment in Bangladesh. Based on time series data this study has used an econometric model and performed the analysis considering the time period between 2000 and 2015. According to the results of this research, trade openness and exchange rate are found to be the key determinants of FDI inflows in Bangladesh. On the contrary, GDP, interest rate, and inflation are found to be insignificant in attracting FDI inflows in Bangladesh even though GDP and inflation have got their expected signs. Based on this finding it could be inferred that this study could not found any significant impact on interest rate, GDP, and inflation rate on FDI in Bangladesh.

B. Policy Recommendations

- In order to attract more FDI inflows in Bangladesh, it is imperative to formulate sound foreign investment policy that protects foreign investment as well as the interest of the economy.
- The quality of foreign investment must be ensured by the government through mobilizing domestic resources and empowering private sector for productive investment. It is crucial to ensure an efficient domestic market to increase efficiency from both domestic and foreign investors.
- In order to make a sure effective performance by the domestic firms, the Government of Bangladesh must focus on increased trade openness. Increased openness towards the outside world will enable domestic firms to participate directly in the global economy. In addition to that, the government should focus on developing more liberalized foreign investment policies to attract more FDI.
- The government of Bangladesh has liberalized its trade policies although it is not enough for attracting high inflows of FDI. What the government should focus is to reduce regional trade barriers and facilitate infrastructure in rural areas of the country.
- Transparency and corruption are two major challenges for attracting higher FDI. The government should increase the level of surveillance to ensure transparency and fight corruption at all levels of macroeconomic issues to increase investor confidence.
- Although this study has found no significant impact of GDP on FDI but it must not be neglected and may be due to smaller sample size. Therefore, the government must find ways to promote local production and create more job opportunities to attract FDI.
- Infrastructural facility and energy supply are two major factors of production in this industrial era. Government must ensure infrastructural development and efficient supply of energy for boosting production.
- In Bangladesh, inflation rate is relatively stable, and government should always monitor inflation through Bangladesh Bank and Ministry of Finance to reduce investment risk.
- The government of Bangladesh should reduce exchange rate volatility through formulating an efficient monetary policy so that foreign investors could be attracted.

C. Limitations and Scopes for Future Research

First and most vital limitation of this study is smaller sample size of data. This study has been carried out based on 15 years data while future researches on this issue may consider larger sample size. Second, the variables used in this study to examine the impact on FDI are some obvious factors that affect FDI, but there were some other variables that may also affect FDI either positively or negatively. This study did not include those variables in this study, and future studies must consider those variables for higher acceptability. Furthermore, this study did not compare the findings from Bangladesh economy with other similar economies. Therefore, future studies should focus on these limitations to improve the outcome.

VI. REFERENCE


