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Foreign Capital Inflows and Economic Growth in Bangladesh

Abstract

This study is conducted to illustrate the relationship between foreign capital inflows and the economic growth of Bangladesh. The main aim of this study is to find out the contribution of foreign capital inflows to the economic growth of the country. By applying the pairwise Granger causality test (1969) based on time series data for the last 20 years, this study found that there is no causality of GDP with different sources of foreign capital revealing that foreign capital inflows do not have any significant impact on the economic growth of Bangladesh. There is a unidirectional relationship between Foreign Direct Investment (FDI) and external debt and another unidirectional relationship between external debt and remittance (RM). This unidirectional relationship shows that FDI granger causes ED, and ED granger causes RM. This shows that the sources of foreign capital are moving together for Bangladesh. Bangladesh is one of the lowest foreign capital receivers compared to other Asian countries. So, to reap the benefits of foreign capital inflows like other developing and emerging economies, Bangladesh should develop proper policies and provide incentives to investors to make it an attractive destination for foreign investors.

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1. Introduction

Foreign capital can be defined as the total amount of capital an economy gets from its nonresidents in the form of foreign direct investment, foreign debt, foreign portfolio investment, remittance, and so on. For decades, foreign capital inflow has remained an important factor for development in many developing and emerging economies. It brings economic development by increasing the level of domestic capital for a country. Foreign capital inflow has a positive and significant impact on economic growth, and it plays a significant role in the formation of the fiscal policies of countries (Ekwe, Inyama, 2014). There is a positive relationship between FDI and economic growth (Liang, Shah & Bifei 2021). Along with this, Romer (1993) also argues that foreign investment makes it

easy to transfer technology and business know-how to poorer countries. With reference to various studies, Japan, South Korea, Hong Kong, Singapore, and Taiwan can be used as examples to show how foreign capital brings development to an economy. But efficient use of foreign capital depends on various factors of the home country, like an efficient management system of capital and the stock market, proper infrastructure, an institutional framework, and different economic policies related to the use of foreign capital.

Though foreign capital inflow is beneficial for an economy, it is sensitive to global financial crises and foreign exchange movements. Many developing and emerging economies experienced a decline in their foreign capital inflows due to the global financial crisis of 2007-2009 and the

great recession of late 2000, which caused financial instability. To ensure the benefit of foreign capital, it is essential to have a steady and sound flow of foreign capital in an economy. Despite the fact that numerous studies have been conducted to determine the impact of foreign capital inflows on the economic development of developing and emerging economies, those studies cannot specify the importance of foreign capital on the economic development of Bangladesh. This study will contribute to evaluating the significance of foreign capital inflows in the economic development of Bangladesh. Throughout this study, the principal target was to find out whether Bangladesh, which is a developing economy, is reaping the benefits of foreign capital inflows like many other developing economies or not. To accomplish this target, a Granger causality test was run based on four variables named foreign direct investment (FDI), remittance (RM), and foreign debt (ED), which were considered the main sources of foreign capital, and GDP was considered an indicator of economic development for Bangladesh. Data were collected for the last 20 years from the Bangladesh Bank (Department of Statistics), the World Bank, and the websites of trading economies.

This study found that there is no causality between GDP and different sources of foreign capital, revealing that foreign capital inflows do not have any significant impact on the economic growth of Bangladesh. But there is a causality among different sources of foreign capital in Bangladesh. Though it is clear that the economic growth of Bangladesh is not influenced by the movement of foreign capital inflows like many other developing economies, Bangladesh can accelerate its economic growth by raising the amount of foreign capital by using different techniques and incentives to make Bangladesh an attractive destination for foreign investors.

This paper is divided into five sections, including the introduction. Section II provides the reviews of the earlier theoretical and empirical literature. Section III describes the method of research and sources of data. The next section, Section IV, presents the empirical findings and discussion, and the last section, Section V, contains the conclusion of this study.

2. Literature Review

Foreign capital remains one of the important development factors for many developing and emerging economies. The sources of foreign capital are diverse, like – foreign direct investment (FDI), foreign portfolio investment, foreign or external debt, foreign official aid, remittances, export earnings, and so on. Foreign direct investment refers to investing in the business of the host country, on the other hand, foreign portfolio investment refers to investing in financial assets like in the financial market of the host country. Foreign or external debt is money borrowed by a government or business from another country's government, private lenders, or international institutions like the World Bank, IMF, ADB, and so on. Remittance is the amount of money that is sent by the citizen of a country back to their country earned from a foreign country (J.B. Maverick & Andy Smith 2022).

Foreign capital inflow has a positive and significant impact on economic growth, and it plays a significant role in the formation of the fiscal policies of countries (Ekwe, Inyama 2014). This study also compared their results with one of the studies (Mallik and Chowdhury 2001) where they showed that there is an existence of a positive and significant relationship between inflation and economic growth during the development stage. Sethi (2013) tried to examine the relationship between foreign capital inflows and economic growth in India and

found that a long-run equilibrium relationship is restored in economic growth and Foreign Direct Investment (FDI), and in economic growth and Foreign Portfolio Investment (FPI), where this study also found that private foreign capital inflows have a positive and direct impact on economic growth. Using the Pooled Ordinary Least Square (OLS) estimation approach, Haq, Anwar, and Akram (2017) attempted to analyze the impact of foreign capital inflows on economic growth in selected Asian countries from 1990-2013 and found that the long-run economic growth of those selected countries is largely explained by foreign capital inflows. Their study also indicated that physical capital and trade openness are also key determinants of economic growth. After a study on 113 developing countries from the period 2000 to 2009 by Liang, Shah and Bifei (2021), it was found that there is a positive relationship between FDI and economic growth.

Domestic capital, foreign direct investment, and foreign aid are positively related to the economic development of Cameroon, both in the short and long run. However, the increasing number of laborers has a negative impact on the economic development of this developing country (Fambon, 2013). In addition, this study also suggests that the government should formulate sound economic and fiscal policies that will encourage domestic savings and investments as well as attract foreign investment by convincing foreign investors and donors. Sahoo & Sethi (2017) in their study on India showed that domestic investors have a long-term positive relation to the economic development of India, whereas unutilized use of foreign capital had a negative effect on the economic development of India. In their study, they suggest that the government should formulate policies in such a way that they will utilize both domestic and foreign capital for the growth benefits of the country.

Foreign direct investment, imported capital goods, and human capital play significant roles in increasing the efficiency levels of the economy in less developed countries. To absorb the benefits from FDI externalities, foreign technology transfer should be facilitated, which requires important policy formulation by the governments of those countries (Mastromarco, 2008).

Romer (1993) argued that foreign investment makes it easier to transfer technological and business know-how to poorer countries. In another study, Rappaport (2000) claimed that foreign investment not only increases the productivity of fund-receiving firms but increases the productivity of all firms. Blomstrom, Lipsey, and Zejan (1994) argued that FDI can be a good signal for economic success. A country's economic growth from foreign direct investment also depends on its level of income, the number of people who go to school, its financial development, and how open it is to international trade (Levine, 2002).

Baharumshah, Lesman & Devadason (2015), based on 80 countries' cross-sectional dataset for the period of 1975-2007, concluded that among different types of foreign capital inflows, foreign capital inflows derived from the private sector have a significant nonlinear impact on financial development when the financial market crosses its threshold level. Countries with any level of financial market development can gain a positive impact from any kind of foreign capital inflow by ensuring a certain level of efficiency in their financial market development.

Chorn & Seik (2017), based on a study of 77 developing countries for a period of 15 years (1997-2012), concluded that both foreign direct investment and official development aid have a considerable positive effect on economic growth. However, foreign direct investment has a more influential effect on economic growth compared to official development aid. But

for both types of foreign capital inflows, the marginal impact on economic growth declines when per capita increases. On the other hand, in a study based on foreign capital inflows and economic growth of Pakistan by Jawaid and Saleem (2017), it was found that though foreign capital inflows have a significant economic influence on economic growth in the long run, only remittance and external debt have a positive effect, and foreign direct investment has a negative impact on the economy.

Ali & Sharafat (2014) also showed that foreign capital inflows had a negative impact on economic growth in the long run where the source of foreign capital was foreign direct investment, foreign debt, or worker's remittance. According to the study, adequate infrastructure development, the development of a proper macro-economic framework and policy, human resource development, the utilization of domestic resources, and financial development are required for an economy's long-run growth.

Prasad, Rajan, and Subramanian (2007) found that the growth rate of nonindustrial countries was linked to the flow of capital out of those countries. This finding was especially important for developing countries with weak financial markets, limited ability to take in foreign resources, and economies that are valued too high.

After analyzing the contribution of foreign capital inflow to various South Asian and East Asian countries, Siddiqui (2015) commented in his study that foreign direct investment benefits developing countries through increased productivity levels and improving economic conditions. As a result, various industrial policies must be developed and implemented to ensure a country's long-term economic growth.

In developing countries, foreign capital comes from three main sources: foreign direct investment, foreign debt, and remit-

tances. But the effectiveness of that capital on productivity as well as on economic growth cannot be realized because of poor governance, corruption, and weak institutional framework. The contribution of foreign capital can be embedded in economic growth if the corruption level can be controlled in developing nations. Among various sources, the foreign capital gained from foreign direct investment is more sensitive to corruption. But if the regulatory and political systems can be managed in the proper way with the assistance of the government and international organizations, the effect of foreign capital inflow can be fully realized by the economies of developing nations (Borja 2017). Mallick & Moore (2008), in a study based on 60 developing countries, concluded that private FDI flow has positive effects on all income groups of countries regarding capital formation. Although the flow of foreign capital contributes to the level of investment in middle-income countries, this is not the case in low-income countries. As a result, while middle-income countries can gain an advantage for their economies through foreign capital investment, low-income countries cannot benefit from foreign capital inflows due to differences in domestic policy.

Long-run capital flows are associated with higher per capita income, but they were vulnerable during the financial crisis, which caused per capita income to be significantly lower than average for at least two years, resulting in massive output losses for an economy. But there is also some explanation where it was also mentioned that for some capital-importing countries, there is faster economic growth for a particular period of time after facing a financial crisis.

Though a lot of studies have been conducted related to foreign capital inflow and economic growth of developing and emerging countries, the relationship between foreign capital inflow and economic growth specifically for Bangla-

desh cannot be determined from the findings of those studies. Throughout this study, it will be attempted to determine the relationship between foreign capital inflow and the economic growth of Bangladesh.

3. Research Method

3.1 Description of Variables and Sources of Data

The required data for conducting the study was collected from secondary sources such as the Bangladesh Bank (Department of Statistics), the World Bank, and the website of trading economies. The annual data was selected for the time period from 2001 to 2020. The variables chosen for this study are Foreign Direct Investment (FDI), External Debt (ED), Remittance (RM), and Gross Domestic Product (GDP). The variables FDI, ED, and RM are considered as the source of foreign capital, and GDP is considered as the indicator of economic growth (Sethi 2013).

3.2 Methodology

Granger Causality Test

The pair-wise Granger Causality test (1969) has been used in this study to measure the impact of foreign capital on economic growth for the last 20 years in Bangladesh. Granger causality is a statistical hypothesis testing system where one time series is used to forecast the value of another time series, originally developed by Clive Granger. This test is being widely used in different financial-economic analyses for its computational simplicity. The Granger Causality test, proposed by Professor Clive Granger (1969), entailed the following two regression equations.

$$X_t = a_0 + b_i \sum_{i=1}^n X_{t-i} + C_i \sum_{i=1}^n Y_{t-i} + e_t$$

$$Y_t = d_0 + \delta_i \sum_{i=1}^n y_{t-i} + \beta_i \sum_{i=1}^n x_{t-i} + \varepsilon_t$$

For this study, the data were analyzed on their first difference as the data were found stationary on their level by the unit root test. The regression equation on their first difference can be written in the following ways (Sethi 2013).

$$X_t = \alpha_1 + \sum_{i=1}^n \lambda X_{t-i} + \sum_{j=1}^n \delta_j Y_{t-j} + U_{1t}$$

$$Y_t = \alpha_2 + \sum_{i=1}^n \alpha X_{t-i} + \sum_{j=1}^n \beta_j Y_{t-j} + U_{2t}$$

In the above equation α , β , λ , and δ are parameters, U is a white noise error term. α , β , λ , and δ are matrix for every time series i . The time series X_t is called granger cause of another time series Y_t for at least one of the parameters for the selected time series is $i=1$. The following possible outcomes may occur for those equations:

1. Y_t causes X_t
2. X_t causes Y_t
3. Bio-directional feedback relation, and
4. Y_t and X_t are independent.

Both equations respectively postulate that current Y is related to its past values of itself as well as that of X , and for X , its current value also depends on its past values and on values of Y as both are considered as dependent and independent variables. The variables selected for this study are Foreign Direct Investment (FDI), Foreign Debt (ED), and Remittance (RM) which are considered the sources of foreign capital, and Gross Domestic Product (GDP) is considered an indicator for economic development. The result can be described in three ways, like a unidirectional causality from X to Y , which indicates that if coefficients of lag in equation X are statistically different from 0 as a group, and the set of estimated coefficients of lag for Y is not statistically different from 0. A bi-directional causality exists when X causes Y and Y causes X . And there is no causality when X and Y are both not useful

in estimating values for one another. In this study, only two unidirectional causalities were found.

3.3 Unit Root Test

A unit root test is conducted to test whether the variable of a time series is non-stationary or following a unit root. To ensure the validity of the result derived from this test, it is mandatory that the time series be stationary; otherwise, the result of the study will be spurious and misleading (Sethi 2013). If the data is stationary, then the test will be performed at the level values of the data or on the first difference of the values of the data if the time series is found non-stationary. In this study, all the time series data was found non-stationary by using both the Dickey-Fuller test and the Phillips and Peron tests. For the purpose of running this test, all data was converted to their first difference to make it stationary. Optimum lag lengths were determined by Akaike Information criteria, which are automatically assigned by e-views for this test. The selected lag length is 2. The autoregressive (AR) process for the Dickey-Fuller test (1979) entails the following equation.

$$Y_t = \alpha + \rho Y_{t-1} + \epsilon_t$$

In the equation α and ρ are parameters, and ϵ is noise term. Y_t will be called stationary if the value of ρ is between -1 and 1, the time series is non-stationary if $\rho = 1$, and the selected series will be explosive if ρ is greater than 1. The test was conducted by subtracting $Y_{(t-1)}$ from

both sides of equations which took the following form of equation.

$$\Delta Y_t = \alpha + \lambda Y_{t-1} + \epsilon_t$$

Where, Δ is the first difference operator, and $\gamma = \rho - 1$. The null and alternative hypothesis are -

$$H_0: \gamma = 0$$

$$H_1: \gamma > 1$$

Another unit root test conducted for this study was Phillip- Peron test (1988). This test is robust with respect to unspecified autocorrelation and heteroscedasticity in the disturbance process of the test equation. The equation for the test is following with null and alternate hypothesis are -

$$H_0: \gamma = 0$$

$$H_1: \gamma > 1$$

$$\Delta Y_t = \alpha + (\rho-1) Y_{t-1} + \epsilon_t$$

4. Empirical Analysis

This section of the study will delineate the impact of foreign capital inflows on the economic growth of Bangladesh using the pair-wise Granger causality test. The result of the descriptive statistics for the level values of data is mentioned in Table 1. From the descriptive statistical result, the characteristics of the data set can be evaluated like whether the data are normally distributed or not, average value, central tendency, dispersion, and so on. Among these data sets, except external debt, all are normally distributed.

Table 1: Summary Statistics for ED, FDI, GDP, RM

	ED	FDI	GDP	RM
Mean	23.54	1.351	145.75	11.135
Median	21.48	1.296	121.95	12.205
Maximum	44.20	2.831	323.05	24.770
Minimum	16.17	0.052	53.991	2.5000
Std. Dev.	7.483	0.887	87.237	5.9334
Skewness	1.492	0.134	0.7441	0.2177
Kurtosis	4.461	1.795	2.249	2.5690
Jarque - Bera	9.20	1.269	2.315	0.3128
Probability	0.010	0.530	0.3142	0.8552
Sum	470.97	27.03	2915.043	222.71
Sum Sq. Dev.	1063.995	14.97	144595.6	668.91
Observations	20	20	20	20

Table 2 shows the unit root test results for the data set that were analyzed for this study. Both the Dickey-Fuller test and the Phillips-Peron tests were performed and found that the time-series data is nonstationary at their level but stationary at their first difference. The null hypothesis of the unit root test is that the data set has a unit

root and all selected time series data for this study couldn't be rejected for having p values greater than .05 at a 5% level of significance. But the null hypotheses were rejected for all time-series data at their first difference for having p values less than .05.

Table 2: Unit Root Tests Result for FDI, ED, RM and GDP

Levels				
Variables	DF	p-value	PP	p-value
FDI	-1.58	0.47	-1.55	0.48
ED	3.82	1.00	3.72	1.00
GDP	6.84	1.00	4.15	1.00
RM	-0.27	0.90	0.78	0.99
First Difference				
Variables	DF	p-value	PP	p-value
FDI	-4.64	.0021	-4.64	.002
ED	-6.41	.0001	-6.45	.0001
GDP	-4.83	.0015	-4.94	.001
RM	-3.64	.018	-4.35	.004

Granger Causality Test

The validity of the result derived from the Granger causality test depends on whether the selected variables are stationary or nonstationary. The Phillip and Peron tests revealed that the data were stationary, so for the purposes of the test, the values of the data on their first difference were used. Selecting the optimum lag length is also indispensable for this test, and for this study, the length was selected using annual Akaike Information criteria.

The result of the pair-wise Granger causality test is listed in Table 3. The Granger causality test provides three types of relationships named – bio directional, unidirectional, and no causality among the selected variables. In this study, there are only two unidirectional relationships that exist among all those selected variables. There is a unidirectional relationship between Foreign Direct Investment (FDI) and External debt (ED) and another unidirectional relationship is between External

debt (ED) and Remittance (RM). This unidirectional relationship shows that FDI granger causes ED, and ED granger causes RM. This relationship shows that the source of foreign capital is moving together for Bangladesh. But this study does not show any particular relationship between GDP and foreign capital inflows, meaning that GDP cannot be explained by foreign capital inflows. There is no bio-directional causality among selected variables. No causality of GDP with different sources of foreign capital shows that foreign capital inflows do not have any significant impact on the economic growth of Bangladesh. One important observation of this study is that there is causality between the sources of foreign capital, meaning that FDI, ED, and RM are interrelated; when one variable is increasing, others are also moving together. From this study, we can say that even though different sources of foreign capital are linked to each other, they don't have a significant effect on Bangladesh's economic growth.

Table 3: Pair-wise Granger Causality test for ED, FDI, GDP, RM

Dependent variable	Explanatory variable	Lag length	F-statistics	P-value	Remarks
ED	ED, GDP	16	1.49653	0.2662	Causality from ED to GDP
GDP	GDP, ED	16	1.34427	0.3004	Causality from GDP to ED
FDI	FDI, GDP	16	1.12758	0.3585	Causality from F DI to GDP
GDP	GDP, FDI	16	0.22312	0.8036	Causality from GDP to FDI
RM	RM, GDP	16	0.97363	0.4080	Causality from RM to GDP
GDP	GDP, RM	16	3.23221	0.0787	Causality from GDP to RM
FDI	FDI, ED	17	5.50438	0.0201	Causality from FDI to ED
ED	ED, FDI	17	1.25184	0.3208	Causality from ED to FDI
RM	RM, ED	17	1.05252	0.3792	Causality from RM to ED
ED	ED, RM	17	4.61580	0.0326	Causality from ED to RM
RM	RM, FDI	17	2.39681	0.1331	Causality from RM to FDI
FDI	FDI, RM	17	1.78416	0.2097	Causality from FDI to RM

Conclusion

This study examined the impact of foreign capital inflows on the economic development of Bangladesh and found that foreign capital does not have any significant impact on the economic growth of Bangladesh. Bangladesh is a developing country with the aim of being developed by 2041, when per capita income will be more than \$12,500 and poverty will be a thing of the past. To achieve this objective, the government has taken several steps where foreign capital can be an important determinant to accelerate obtaining this objective because many studies show that foreign capital plays a significant role in the economic growth of various developing and emerging

economies. After analyzing the contribution of foreign capital to the economic growth of Bangladesh for the last 20 years, it can be concluded that foreign capital inflows are not playing any significant role. Bangladesh is one of the lowest foreign capital receivers compared to other Asian countries. In 2021, total foreign capital inflows in the form of foreign direct investment, remittance, and external debt were about 0.5%, 7%, and 13%, respectively, compared to GDP for Bangladesh. So, to reap the benefits of foreign capital inflows, Bangladesh should take proper policy and give incentives to investors to make it an attractive destination for foreign investors.

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