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FACTORS AFFECTING THE DETERMINATION OF EXCHANGE RATE IN BANGLADESH

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Abstract

The present study has attempted to identify the factors affecting the determination of exchange rate in Bangladesh by taking into account the values of BDT in terms of US dollar. Sixteen macroeconomic variables have been selected to test their impact on exchange rate of BDT. Covering a period of 15 years from 1999 to 2013 and using correlation and simple least square regression methods, this study has found that government expenditure is the most important factor in the determination of the exchange rate. Among the other factors, broad money supply, gross capital formation, primary income payments, gross domestic product, external debt stock, and gross national income are also important. On the other hand, total reserve, current account balance and deposit rate are of moderate importance. Again, inflation, lending rate, net financial account, net capital account, foreign direct investment, and primary income receipts are among the least important factors. It has also been found that increase in lending rate and primary income receipts is expected to cause appreciation of BDT and increases in all other factors are expected to cause the depreciation of BDT in relation to US dollar.

Keywords: *Determinants, Exchange Rate, BDT, US Dollar*

INTRODUCTION

Due to the heightened importance of international trade and investment along with fastened economic integration throughout the world, exchange rates among currencies have become a very common issue of concern. Fluctuation in exchange rates, especially in emerging economies has gain tremendous important in the national policies of these countries. By definition, the foreign exchange market is a market in which different currencies can be exchanged at a specific rate called the foreign exchange rate. The huge importance of the foreign exchange rate can be anticipated just by considering the influence of it on the imports and exports of a country. On the other hand, a rapid growth of international trade including both the import penetration and the export ratio has been taken place during the last decades. This growth was mainly due to the increase of the open economies and together they enhanced the significance of the foreign exchange rates (Bashir & Luqman, 2014). During the last several decades, direct investments in emerging countries have been increased substantially. For valuing such investments, considering only the country risk premium is not enough since it does not reflect a wide range of uncertainty in emerging markets. Currency risk is another important source of uncertainty which affects financial policy and cash flows of firms (Madura, 2012). Moreover, exchange rate represents a powerful economic policy tool as it influences resource allocation, growth of international trade and structural change. For a market economy, it is about the most important relative price influencing practically all other prices (Atif, Sauytbekova, & Macdonald, 2012). It also has a significant impact on the main keys of macroeconomic variables.

Today, most of the countries are adopting floating exchange rate system. Again, many developing economies have experienced high exchange rate volatility. This translates into a high degree of uncertainty for the two main monetary policy objectives that policymakers often seek to achieve: price stability and economic growth. Volatile exchange rates are associated with unpredictable movements in the relative prices in the economy. Therefore, exchange rate stability is one of the main factors that promote total investment, price stability and stable economic growth (Samara, 2009). The fluctuating nature of exchange rate and its impact on the economy has raised the question that what factors cause the fluctuations in floating exchange rates. This is truly an important question as trade is one of the channels through which a country can gain significant amounts of wealth (Bashir & Luqman, 2014). Knowing the factors that can lead to increased amounts of exports relative to imports, better terms of trade or increased productivity may allow countries to take advantage of this channel (Frankel, 2007). The only problem is that these factors are almost countless in number

and cataloguing them is a very challenging task. Therefore, many economists and researchers have attempted to isolate the most dominant of them (Faruqee, 1995). Extensive studies have concerned real exchange rate volatility, and most of them investigated the impact of exchange rate volatility rather than the sources of this volatility (Drine & Rault, 2003). In fact, understanding the mechanism of how those factors affect the exchange rate is very important to the implementation of efficient and credible national policies (Samara, 2009). Bangladesh is an emerging developing country with floating exchange rate system. This country is very rapidly progressing in her path of development, in terms of trade, finance or economy as a whole. Consequently, it is very much crucial to investigate upon the reasons or factors affecting the determination of exchange rate in this country. Though there are lot many factors working behind, this study attempts to identify the impact of 16 most influential ones among those factors. In the literature relating to exchange rate, most of the researches were conducted considering a particular country with a very few numbers of variables. Though some studies considered developing economies for analysis, there is no such research work considering the impact of so many variables on the determination of exchange rate in any developing country like Bangladesh. Therefore, this study will contribute a lot to fulfill this gap in the literature. Thus, the objective of this study is to identify the factors affecting the determination of value of Bangladeshi BDT in relation to US dollar. To achieve this objective, in the next sections, the study has presented a detailed review the related literature to determine the appropriate methodology for analysis, analyse the actual impact of the factors and the ultimate findings. At last, some concluding remarks have been added.

LITERATURE REVIEW

Exchange rate is simply the price of one currency in compare to another, determined by the interplay of supply and demand in foreign exchange markets. It is the price of a unit of foreign currency in terms of the domestic currency (Bashir & Luqman, 2014). Since the abandonment of the gold standard, countries have utilised different mechanisms in order to establish the foundation upon which to base modern exchange rates such as fixed exchange rate, currency peg, and floating exchange rate system. Today, however, most of the countries use floating exchange rate mechanism (Madura, 2012). Exchange rate can also be distinguished as nominal and real rate (Drine & Rault, 2001). Four approaches to nominal exchange rate determination are prominent in the literature. They are traditional model (forces behind the supply of and demand for foreign currency), monetary model (events that may cause money market disequilibrium), portfolio balance approach (equilibrium in the individual financial asset markets like domestic money, domestic bond and foreign bond), and purchasing power parity (PPP) approach (simultaneous attainment of current and capital account balances) (Frenkel, 1976; Rogoff, 1996; Madura, 2012; Ogun, 2012). The importance of exchange rate stability cannot be understated. It affects the performance of other macroeconomic variables like international trade and investment (Nwude, 2012; Insah & Chiaraah, 2013; Mirchandani, 2013), acts as a modifier of many other economic problems (Faruqee, 1995), guides broad allocation of production and spending in the domestic economy between foreign and domestic goods (Hyder & Mahboob, 2006), connects domestic and foreign markets for goods and assets (Oriavwote and Oyovwi, 2012), as an important relative price signals inter-sectoral growth and international competitiveness of a country in global market (Adewuyi, 2005), and in smaller scale affects real return of an investor's portfolio (Patel, Patel, & Patel, 2014). Therefore, exchange rates are among the most watched analysed and governmentally manipulated economic measures (Mkenda, 2001). However, macroeconomists are still unable to reach any concrete agreement over long-term determinants of the exchange rate (Parveen, Khan, & Ismail, 2012). Modeling the exchange rate has become a very important issue in economic studies (Raja & Ullah, 2014).

Factors affecting exchange rate can be economic, political, and psychological and also the short run or long run (Saeed, Awan, Sial, & Sher, 2012). Among other researchers, Bashir and Luqman (2014) attempted to identify the long run determinants of real exchange rate through an econometric analysis in case of Pakistan collecting time series data from 1972-73 to 2012-13 and utilising Johansen co-integration test and error correction model for examining long run and short run elasticity. The study concluded that real exchange rate is depreciated by terms of trade and price level and appreciated or negatively affected by trade restrictions and workers' remittances in the long run. Samara (2009) worked Syrian economy over the period 1980-2008. Study used the Vector Error Correction Mode and ARCH Model, and considered relative productivity, government expenditure, gross capital formation and oil prices as important factors. Nwude (2012) investigated on Nigeria using 52 years' annualised data from 1960-2011. The factors investigated were gross domestic product (GDP), balance of payment (BOP), external reserves, composite consumer price index (inflation rate), deposit rate, and lending rate. Author used the least square regression method but the results showed that there is no statistically significant relationship between the variables and exchange rate. Oriavwote and Oyovwi (2012) used parsimonious ECM test taking data from 1970 to 2010 and found that capital flow, price level, and nominal effective exchange rate are important determinants while the ratio of government spending to GDP, terms of trade and technological progress are not important determinants of the real effective exchange rate in Nigeria. Kakkar and Yan (2014) analysed the deviations of nominal exchange rates from their purchasing power parities with three factors such

as sectoral total factor productivity differentials, real interest rate differentials, and the real price of gold representing real shocks, monetary shocks, and shocks to the global financial system, respectively. In addition to having individualised impact, these three factors together were found to explain the medium to long run movements in 14 bilateral U.S. dollar real exchange rates from 1970 to 2006.

Saeed et al. (2012) undertook an econometric analysis for US dollar in terms of Pakistani rupee within the framework of monetary approach. Authors analysed monthly exchange rates from January 1982 to April 2010, considered stock of money, political instability, foreign exchange reserves and total debt of Pakistan relative to United States as a dummy variable and applied ARDL approach to co-integration and error correction model. Results confirmed that stock of money, debt, and foreign exchange reserve balance all in relative terms are significant determinants while political instability has a significant negative effect on the value of Pakistani rupee. Employing a dynamic econometric technique based on the Autoregressive Distributed Lag (ADL) model, Insah and Chiaraah (2013) covered the period 1980 to 2012. The study found positive relationship of government expenditure and negative relationship of both domestic and external debts to real exchange rate volatility in case of Ghana. Raja and Ullah (2014) conducted a panel data analysis consisting four countries considering relative interest rates, trade balance, terms of trade and net capital inflow. The results indicated that increase in interest rates and adverse trade balance has a negative significant impact while terms of trade and increase in net capital inflow results in favourable exchange rate for the home country. Patel et al. (2014) attempted to indicate main factors which are influencing currency rates to facilitate the investment in currency futures. They focused on economical formulas based on the economics theory to check health of the currency and useful prediction models for currency exchange rate. Ogun (2012) considered the weather, parallel market exchange rate, its associated premium, and corruption to identify the determinants of nominal exchange rate movements in less developed countries with flexible exchange rate system. Study found that corruption has long run and other factors have short run influences. Atif et al. (2012) compared between quarterly and annual data over the period of 1975 to 2012, applied Engle-Granger co-integration test and found that Australia's trade components and macroeconomic indicators such as output and liquidity play a significant role while interest rate and inflation play insignificant role in determination of exchange rates. Clostermann (2000) constructed a synthetic euro-dollar exchange rate over a period from 1975 to 1998 and applied co-integration approaches to identify four factors as fundamental determinants of the real euro-dollar exchange rate. Those are, the international real interest rate differential, relative prices in the traded and non-traded goods sectors, the real oil price and the relative fiscal position. Conducting a survey of United States foreign exchange traders, Cheung and Chinn (2001) found that news about macroeconomic variables most importantly interest rates, economic fundamentals, speculation and institutional customer/ hedge fund manipulation, central bank intervention and purchasing power parity affect exchange rates. Zwanzger (2008) analysed the relationship between the exchange rate movements of Chile and the United States considering monetary policy interest rate, money supply and inflation rates and copper price. Faruqee (1995) examined net foreign assets as the long-run determinants of the real exchange rate like net foreign assets, and other factors affecting trade flows using postwar data for the United States and Japan. Drine and Rault (2001) analysed the factors effecting real exchange rate in MENA countries by applying new panel data unit root tests, panel co-integration technique. The results investigate that per capita output, government consumption, real interest rate differentials and openness are factors affecting real exchange rate. Mkenda (2001) has applied Johansen co-integration analysis on time series data from 1971 to 1993 and explored that terms of trade and government consumption are depreciating real exchange rate while investment share, growth of real GDP, central bank reserves and trade taxes are appreciating real exchange rate in Zambia. Dvine and Rault (2003) used panel co-integration technique on 45 developing countries and determined that domestic investment, GDP per capita, foreign direct investment and terms of trade have depreciated the real exchange rate while share of public spending and trade policy are appreciating real exchange rate. Zalduendo (2006) has concluded that real exchange rate is appreciated by UK Brent oil price deflation; differentials in PPP based real GDP per capita and differentials in real interest rate while depreciated by government expenditure in Venezuela. Hyder and Mahboob (2006) used annual data of 1978 – 2005 to explain that terms of trade, real investment, workers' remittances, and total factor productivity differentials are significant cause of depreciation of Pak rupee while trade openness, government expenditure and capital to GDP ratio are appreciating Pak rupee. Frankel (2007) has econometrically investigated the determinants of real value of South African rand taking quarterly data from 1981 to 2006 and employing ordinary least square method. Zakaria, Ahmad, and Iqbal (2007) have used time series data from 1983 to 2004 utilising autoregressive method and deduced that terms of trade, technological progress, net capital inflows and foreign exchange reserves are causes of depreciation of bilateral nominal exchange rate of Pakistani rupee in relation to its twelve major trading partners. On the other side, rupee is appreciated by relative price of foreign tradable, trade restrictions and excess supply of domestic credits. Staník and Cerge (2007) used ATARCH model for analysing the factors affecting to exchange rate volatility in the European countries and found economic openness as the factor effecting exchange rate volatility.

Candelon et al. (2007) estimated bilateral equilibrium real exchange rates for European states using panel co-integration techniques and revealed significant link of productivity levels, openness, inflation and real exchange rate. Carrera and Restout (2008) took Latin American perspective from 1970 to 2006 for investigating behavior of real exchange rates by using non stationary panel econometrics. They explored various factors such as government spending, terms of trade, the openness, foreign capital flows. Guclu (2008) has empirically analysed the determinants of exchange regimes for the period from 1970 to 2006. Using Ordered Probit model, researcher explored that exchange rate is depreciated due to GDP, GDP per capita, openness, capital account to GDP ratio, capital account openness, terms of trade and capital account restriction. Inflation, geographical trade, and money growth may depreciate and appreciate exchange rate. On the other side, bank reserves and nationalist are causes of lower exchange rate. Rehman, Jaffri, and Ahmad (2010) have found that productivity, foreign direct investment and foreign remittances are increasing real exchange rate while openness is decreasing real exchange rate in Pakistan. They considered the period of 1993 to 2009 and employed Johansen co-integration test and monthly data for the results. Parveen et al. (2012) collected data from Economic Survey of Pakistan and International Financial Statistics from 1975 to 2010 to examine the major factors which contribute to exchange rate variability. They employ ordinary least square method for analysis of results and conclude that inflation, economic growth, exports and imports bring variation in exchange rate of Pakistan. Fida, Shah, and Zakaria (2012) have attempted to estimate the long run equilibrium real exchange rate for Pakistan economy by employing Natural real exchange rate (NATREX) for the period of 1983 to 2010. They have chosen Johansen Co-integration technique and determined that terms of trade, government expenditure and productivity are appreciating Pakistani rupee in the long run. Ajao and Igbekoyi (2013) used time series data from 1981 to 2008 to investigate the determinants of real exchange rate volatility through GARCH technique accompanying with Error correction model and co-integration technique for long run and short run determinants. The study concludes that openness, government expenditure, interest rate, and lagged exchange rate are major determinants of real exchange rate. Kia (2013) develops a monetary model of the real exchange rate using data from first quarter of 1972 – 3rd quarter 2010 of Canada. It is found that in the long run, real money supply, domestic and foreign interest rate, real GDP, real government expenditure, deficit per GDP, domestic and foreign outstanding debt per GDP, domestic and foreign externally financed debt per GDP, and commodity price are the factors affecting real exchange rate.

METHODOLOGY

This study is intended to identify the factors affecting the determination of exchange rate in Bangladesh. From the review of literature, sixteen variables have been selected to test their impact on exchange rate. Those are inflation, lending rate, deposit rate, current account balance, external debt stock, foreign direct investment, gross domestic product, gross national income, government expenditure, total foreign exchange reserve, gross capital formation, primary income receipts, primary income payments, broad money supply, net financial account and net capital account. Required data on the selected variables along with exchange rate have been collected from the website of the World Bank covering a period of 15 years from 1999 to 2015. Here, the exchange rate represents the official exchange rate determined by national authorities or in the legally sanctioned exchange market. It is calculated as annual average based on monthly averages and is represented in local currency units relative to the U.S. dollar. For analysing the relationship between and impact of the selected variables on exchange rate, correlation and ordinary least square regression methods have been used. Exchange Rate has been selected as dependent variable and the individual variables have been selected as independent variables. SPSS 16.0 has been used for these analyses. An overview of the selected factors is presented in Table 1.

Table 1: Overview of Selected Factors

S. No.	Factors	Discussion
1.	Inflation	In economics, inflation is a sustained increase in the general price level of goods and services in an economy over a period of time. Inflation here is measured by the consumer price index and reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.
2.	Lending rate	Lending rate represents the cost of borrowing. It is the bank rate that usually meets the short- and medium-term financing needs of the private sector.
3.	Deposit rate	It refers to the amount of money paid out in interest by a bank or financial institution on cash deposits.
4.	Current account balance	The sum of the balance of trade that is goods and services exports less imports, net income from abroad and net current transfers.
5.	External debt stock	The sum of public, publicly guaranteed, and private nonguaranteed long-term debt, use of IMF credit, and short-term debt.
6.	Foreign direct investment	The net inflows of investment in an economy. More specifically, it is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.
7.	Gross domestic product	The sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.
8.	Gross national product	The total domestic and foreign output claimed by residents of a country, consisting of gross domestic product (GDP) plus factor incomes earned by foreign residents, minus income earned in the domestic economy by nonresidents.
9.	Government expenditure	Includes all government consumption, investment, and transfer payments. According to World Bank (2015), general government final consumption expenditure includes all government current expenditures for purchases of goods and services.
10.	Total foreign exchange reserve	The total of a country's foreign currency deposits and bonds held by the central bank and monetary authorities including country's gold holdings, special drawing rights (SDR) and exchange reserve balances with the international monetary fund (IMF).
11.	Gross capital formation	Consists of outlays in additions to the fixed assets of the economy plus net changes in the level of inventories.
12.	Primary income receipt	Refers to employee compensation paid to resident workers working abroad and investment income.
13.	Primary income payment	Refers to employee compensation paid to nonresident workers and investment income.
14.	Broad money supply	In economics, broad money refers to the most inclusive definition of the money supply. According to World Bank (2015), broad money is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper.
15.	Net financial account	As per World Bank (2015), the net financial account shows net acquisition and disposal of financial assets and liabilities. It measures how net lending to or borrowing from nonresidents is financed.
16.	Net capital account	Net capital account records acquisitions and disposals of non-produced nonfinancial assets, such as land sold and sales of leases and licenses, as well as capital transfers, including government debt forgiveness.

RESULTS

In this section, the impacts of selected variables have been analysed. Here the positive relationship between any variable and exchange rate represents that if the value of that particular variable is increased, more units of Bangladeshi BDT is required to get one US dollar. That means, positive relationship represents depreciation of BDT in terms of US

dollar in the event of increase in that particular variable. Similarly, a negative relationship dictates appreciation of BDT in terms of US dollar if the value of that particular variable is increased.

Impact of Inflation on Exchange Rate

This study has found that there is a moderately strong correlation between inflation and exchange rate of Bangladesh and about 35.20 percent changes in exchange rate can be explained by the change in inflation as the value of R (correlation) is 0.593 and R square (regression) is 0.352. Besides, this relationship is statistically significant also, as the sig. value is 0.020 (<.05). In other words, BDT is depreciated when inflation rate increases in Bangladesh.

Impact of Lending Rate on Exchange Rate

Relationship between lending rate and exchange rate has found to be moderately negative in case of Bangladesh. Value of correlation is -0.536. On the other hand, only about 28.7 percent variations in exchange rate can be explained by lending rate. The result is also statistically significant with a sig. value of 0.039 (<.05). It represents that BDT is appreciated if lending rate increases in Bangladesh.

Impact of Deposit Rate on Exchange Rate

Relationship between deposit rate and exchange rate has found to be strongly positive in case of Bangladesh. It is demonstrated in the analysis result that about 43.20 percent change in exchange rate is influenced by the change in deposit rates, while the value of correlation is 0.657. Less than 0.05 sig. value (0.008) signifies that this result is statistically significant. It means that BDT is depreciated whenever deposit rate increases in Bangladesh.

Impact of Current Account Balance on Exchange Rate

Relationship between current account balance and exchange rate has found to be very strongly positive in case of Bangladesh. Value of correlation is 0.737. On the other hand, about 54.30 percent variations in exchange rate can be explained by variation in current account balance. A very small sig. value of 0.002 (<.05) states that the relationship is statistically significant. Overall, the result indicates that if current account balance increases, BDT is depreciated.

Impact of External Debt Stock on Exchange Rate

A very strongly positive relationship has been found between external debt stock and the exchange rate of Bangladesh. With a correlation coefficient of 0.907 and coefficient of determination (R square) of 0.823, it can be said that about 82.30 percent variation in exchange rate is influenced by external debt stock. The influence is also statistically significant as the sig. value is 0.000 (<.05). It therefore states that when external debt stock increases, BDT is devalued in terms of US dollar.

Impact of Foreign Direct Investment on Exchange Rate

Analysis shows a very weak but positive relationship between foreign direct investment and exchange rate (R = 0.189). Besides, only 3.60 percent change in exchange rate can be explained by the change in foreign direct investment. However, this result shows that the impact is statistically insignificant as the sig. value is 0.626 (>.05). This result actually represents very weak and insignificant impact of FDI on exchange rate appreciation or depreciation in Bangladeshi BDT.

Impact of Gross Domestic Product on Exchange Rate

Relationship between gross domestic product and exchange rate has been found to be very strongly positive in case of Bangladesh. Value of correlation is 0.915. On the other hand, about 83.70 percent variations in exchange rate can be explained by variation in gross domestic product. Moreover, this very strong relationship is also statistically significant as the sig. value is 0.000 (<.05). It indicates that if GDP is increased in Bangladesh, BDT is depreciated in relation to US dollar.

Impact of Gross National Income on Exchange Rate

Just like GDP, relationship between gross national income and exchange rate has found to be very strongly positive in case of Bangladesh. Value of correlation is 0.903. On the other hand, about 81.60 percent variations in exchange rate can be explained by variation in gross national income. Again, the sig. value is 0.000 (<.05) that makes the results statistically significant. It represents that BDT is depreciated if GNI increases.

Impact of Government Expenditure on Exchange Rate

This study found a significantly strong and positive relationship between government expenditure and exchange rate of Bangladesh (R = 0.937) and about 87.90 percent change in exchange rate can be explained by the change in government expenditure. This relationship is also approved to be statistically significant as the sig. value is 0.000 (<.05). It signifies that exchange rate of BDT in terms of US dollar is depreciated if government expenditure increases in Bangladesh.

Impact of Gross Capital Formation on Exchange Rate

In this study, relationship between gross capital formation and exchange rate has found to be very strong and positive (R= 0.922). Again, about 85 percent of the causes of variation in exchange rate has found to be influenced by the gross capital formation of Bangladesh. This influence is also statistically significant with sig. value of 0.000 (<.05). The result specifies that BDT is devalued against US dollar when gross capital formation increases in Bangladesh.

Impact of Primary Income Receipts on Exchange Rate

This variable has a very little relationship with exchange rate. However, this relationship is negative as correlation value R is -0.029. On the other hand, regression analysis shows a result of R square of 0.001. However, this weak and negative relationship is also statistically insignificant as the sig. value is 0.940 (>.05). That means BDT is very weak and insignificantly appreciated if primary income receipts to this country increases.

Impact of Primary Income Payments on Exchange Rate

Unlike primary income receipts, this variable has got significant positive relationship with exchange rate. Correlation value of 0.910, regression result of 0.828 and sig. value of 0.001 (<.05) represent that exchange rate of Bangladesh is very strongly, significantly and positively affected by primary income payments. In other words, it points that BDT is depreciated if primary income payment increases from Bangladesh.

Impact of Total Reserve on Exchange Rate

Total reserve of Bangladesh has found to have a very strong positive relationship (R = 0.851) with the exchange rate of this country. In addition, about 72.40 percent changes in exchange rate can be explained by the change of total reserve. Along with that sig. value of 0.000 (<.05) represents this result is statistically significant. It overall denotes that BDT is depreciated if the total reserve increases.

Impact of Broad Money Supply on Exchange Rate

In this study, a very strong and significantly positive relationship between broad money supply and exchange rate has been found. Value of R = 0.926, value of R square = 0.857 and sig. value of 0.000 (<.05) represent this relationship. It represents that BDT is significantly devalued if broad money supply increases in Bangladesh.

Impact of Net Financial Account on Exchange Rate

A moderately strong relationship between net financial account and exchange rate has been found (0.507) and only 25.70 percent change in exchange rate can be explained by the change in net financial account. But, the sig. value is 0.163 (>.05). It therefore signifies that BDT is depreciated if net financial account balance increases, but this influence is not statistically significant.

Impact of Net Capital Account on Exchange Rate

This study has found that net capital account is in much weaker relationship with exchange rate of Bangladesh. Result of regression represents that only 11.40 percent change is exchange rate is influenced by the net capital account. However, this relationship is statistically insignificant as the sig. value is 0.374 (>.05). In other words, exchange rate of BDT against US dollar is insignificantly depreciated when the balance of net capital account increases.

At this point of analysis, Table 2 represents the variables in order of their importance:

Table 2: Prioritising the Variables

S. No.	Variables	R	R square	Sig.	Impact on BDT if increased
1.	Government expenditure	.937	.879	.000	Depreciated
2.	Broad Money Supply	.926	.857	.000	Depreciated
3.	Gross capital formation	.922	.850	.000	Depreciated
4.	Primary income payments	.920	.828	.001	Depreciated
5.	Gross domestic product	.915	.837	.000	Depreciated
6.	External debt stock	.907	.823	.000	Depreciated
7.	Gross nation income	.903	.816	.000	Depreciated
8.	Total reserve	.851	.724	.000	Depreciated
9.	Current account balance	.737	.543	.002	Depreciated
10.	Deposit rate	.657	.432	.008	Depreciated
11.	Inflation	.593	.352	.020	Depreciated
12.	Lending rate	-.536	.287	.039	Appreciated
13.	Net financial account	.507	.257	.163	Depreciated
14.	Net capital account	.338	.114	.374	Depreciated
15.	Foreign direct investment	.189	.036	.626	Depreciated
16.	Primary income receipts	-.029	.001	.940	Appreciated

Source: Author's calculation based on secondary data.

From Table 2, it can be observed that government expenditure is the most important factor in the determination of the exchange rate. This variable has been followed by the broad money supply, gross capital formation, primary income payments, gross domestic product, external debt stock and gross national income. The correlation coefficient values of these seven factors are more than 0.900 and coefficients of determination are more than 80 percent in each case. Thus, these are the factors that are the most important ones influencing the exchange rate movement of BDT in terms of US dollar. Moreover, total reserve, current account balance and deposit rate have also been observed to have around 0.600 values of correlation coefficient. Again, inflation, lending rate, net financial account, net capital account and foreign direct investment are among the least important factors.

DISCUSSION

Based on the analysis results, this study has found that there is a very strong positive impact of deposit rate, current account balance, external debt stock, government expenditure, total reserve, GDP, GNI, gross capital formation, primary income payments, and broad money supply on exchange rate of BDT. Again, the study found moderately strong positive impact of inflation and net financial account, weak but positive impact of FDI and net capital account on the exchange rate of Bangladesh. It also found moderately negative impact of lending rate and primary income receipts. Among these relationships and impacts, except of net financial and capital account, FDI and primary income receipts, all other are statistically significant. Therefore, BDT is appreciated if lending rate and primary income receipts are increased. Otherwise, BDT is depreciated if all other variables are increased. Moreover, government expenditure, broad money supply, gross capital formation, primary income payments, gross domestic product, external debt stock and gross national income are the most important factors in the determination of the exchange rate. On the other hand, net financial account, net capital account, foreign direct investment and primary income receipts are among the least important factors. From the context of Bangladesh, it can be inferred that developing countries can influence their currencies to appreciate by increasing lending rate and primary income receipts and to depreciate by reducing all other factors.

CONCLUSION

The impact of fluctuation in exchange rate is unavoidable for a country adopting floating exchange rate system. This fluctuation affects a country's trade, investment, international competitiveness and lot many macroeconomic indicators. Again, the developing or emerging nations are most vulnerable to the abrupt fluctuation of exchange rates. Therefore, to identify the factors that play behind such fluctuation is of great importance to these countries. Bangladesh is a newly developing country. Therefore, it is very important for the country to know what factors affect the determination of

the value of its currency-BDT. This study has attempted to identify the most important factors by analysing the impact of 16 variables. However, there can be some other factors that may affect determination of exchange rate in Bangladesh. It is never possible for a research to include all of the factors in a single picture. Further research can be conducted to probe into more detail in order to ascertain why particular factors are more or less influential for Bangladesh and what else can have influence on the exchange rate. Researches can also be conducted to compare the fluctuation of BDT with respect to other strong currencies like British pound, euro, yen, yuan etc. and to identify whether the degree of influence differ for different currencies. The factors identified in this study deserve attention of concerned authorities to be continuously monitored.

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APPENDIX

Table A1: Data Table

Year	EXR	Inf	LR	DR	CAB	EDS	FDI	GDP	GNI	GE	GCF	PIR	PIP	TR	BM	NFA	NCA
1999	49.09	6.11	14.13	8.74	0.0	16445		45694	47265	2097	10141			1634	687394		
2000	52.14	2.21	15.5	8.56	0.0	15596		47125	48857	2154	10850			1516	820385		
2001	55.81	2.01	15.83	8.5	0.0	14924		46988	48626	2117	10848			1306	1170191		
2002	57.89	3.33	16.0	8.17	0.0	16633		47571	49626	2379	11012			1722	1340142		
2003	58.15	5.67	16.0	7.52	0.0	18385		51914	49755	2776	12151			2625	1528795		
2004	59.51	7.59	14.75	7.11	0.0	19659		56561	54778	3127	13588			3222	1745161		
2005	64.33	7.05	14.0	8.09	508	18449	-759	60278	59542	3338	14784	135	914	2825	2021408	3	263
2006	68.93	6.77	15.33	9.11	1041	20106	-729	71819	63355	3907	18776	184	1033	3877	2430569	764	367
2007	68.87	9.11	16.0	9.18	1112	21373	-650	79612	75870	4267	20841	272	1147	5277	2759929	942	587
2008	68.6	8.9	16.38	9.65	1242	22952	-1023	91631	84720	4745	24009	190	1386	5787	3213403	1497	572
2009	69.04	5.42	14.6	8.21	3837	24619	-804	102478	98684	5220	26855	40	1438	10342	3864580	3491	352
2010	69.65	8.13	13.0	7.14	1168	25752	-858	115279	110603	5851	30257	122	1618	11175	4679581	1388	622
2011	74.15	10.7	13.25	10.02	381	27326	-1183	128638	124617	6557	35274	177	1748	9175	5471020	308	520
2012	81.86	6.22	13.0	11.69	3216	26188	-1473	133356	138823	6720	37689	147	2160	12754	6402257	2738	547
2013	78.10	7.53	13.59	11.72	2058	33997	-2056	149990	162054	7674	42582	132	2640	18088	7361378	1013	725
2014	77.64	6.99	12.95	9.80	755	35665	-2497	172885	184407	9228	49407	81	2808	22320	8510719	161	496
2015	77.95	6.19	11.71	8.24	2686	38640	-3330	195079	207743	10543	56352	77	2787	27493	9778287	2186	418

[EXR= Exchange rate, Inf= Inflation, LR= Lending Rate, DR= Deposit Rate, CAB= Current Account Balance, EDS= External Debt Stock, EDI= Foreign Direct Investment, GDP= Gross Domestic Product, GNI= Gross National Income, GE= Government Expenditure, GCF= Gross Capital Formation, PIR= Primary Income Receipt, PIP= Primary Income Payment, Total reserve, BM= Broad Money, NFA= Net Financial Account, NCA= Net Capital Account]