Determinants of Balance of Payments: A Case Study in Bangladesh

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Abstract

This paper attempts to empirically review the Bangladesh’s balance of payments. The study assessed the determinants of balance of payment performance in Bangladesh using time series secondary data for the period 1976-2018. The study adopted regression model, normality test, descriptive statistics etc to estimate the relationship between balance of payments and interest rate, inflation, foreign direct investment, exchange rate and grants using stata. However every variable was significant except the interest rate. The study recommends that the government of Bangladesh should focus more on the variables which are significant along with other variables such as terms of trade, gross capital formation and political stability for the better management of Bangladesh’s balance of payments.
Chapter 1

1.1 Introduction

Balance of payment of any country is a systematic record of all financial exchanges between the inhabitants of that nation and of the inhabitants of the rest of the world in a given period. The equalizations of installment exchanges include all the receipts of and installments by a nation amid a given year.

The Bangladesh Bank takes after a classificatory programme for BOP introduction as per the 5th version of the IMF’s Balance of Payments Manual. The Balance of Payments could be a measurable explanation for a given period appearing Exchanges in merchandise, administrations and income between an economy and the rest of the world. Balance of payment is a record of all exchanges made between on particular nation and all other nation amid an indicated timeframe. BOP compares the dollar distinction of the sum of exports and imports counting all monetary exports and imports. BOP can be utilized as an financial and political soundness degree. A negative adjust of installment implies that more cash is streaming out within the nation than coming in and vice-versa.

1.2 Background of the study

Balance of payment is a factual explanation designed to provide, a comprehensive record of an economy's exchanges with the rest of the world for a given timeframe. Its important elements are the current account and the financial account. The payment of foreign currency is debit and it is not a favorable item. Basically speaking, imports are debits and exports are credit. If credits are greater, i.e. exports will be more, than it is a favorable sign for the economy and is known as a favorable balance of payment. If debits are greater, i.e. imports are surplus, than it is a unfavorable sign for the nation and is known as an unfavorable balance of payment. Due to its
dependence on imports, Bangladesh had an unfavorable adjust of installments for numerous years. Separated from the reliance on imports, there are a few other causes like the Global Recession of 2008, slow production growth, less imports, fiscal policies, depreciation of Bangladeshi Taka and low foreign exchange remittances.

When all determinants of the BOP are incorporated, it must whole to zero, and there can be no generally excess or deficit. For instance, if a country imports are greater than its exports, its trade balance will be in deficit, but the brief drop will have to be counter adjusting in different ways-such as by funds attained from its outside speculation, by running down reserves of by receiving loans from other nations.

Generally, there have been distinctive approaches to the concerns of how to address the disparity, and there have too been contentions almost whether they are an issue that ought to influence governments.

1.3 Problem statement

One of the main focuses of the Bangladesh government since independence has been to achieve external balance in its balance of payments with other objectives such as sustainable economic growth, improved standards of living etc.

In order to enhance stable balance of payments, different policies have been taken such as import substitution, increase exports, liberalization of capital flows, trade regulation, and suitable exchange rates regimes etc. These policies were intended to spur economic activities, lead to low inflation rates, achieve stable exchange rates and price stability with favorable balance of payments.
However, even after the implementation of these polices there has been persistent imbalances in the BOP. The continuous unfavorable BOP can lead to debt crisis, currency instability; impede economic growth and unstable macroeconomic environment. This study is aimed at filling this gap by identifying the determinants which can lead to a more favorable balance of payments. The research paper is focused in finding the factors of trade balance. The focal objective of our study is to discover the viable variables of balance of trade of a country. So the problem statement for this research is ‘Identify the critical determinants that impact the balance of payments of Bangladesh.’

1.4 Research Questions

To accomplish the goal and the object of the study, the research question has been constituted by relying on the background and the problem statement as following:

How the determinants such as interest rate, inflation, foreign direct investment, exchange rate and grants influence THE BALANCE OF PAYMENTS?

The research is aiming to answer the following questions:

- To examine the relationship between inflation and balance of payments?
- To study the relationship between interest rate and balance of payments?
- To analyze the relationship between foreign direct investment and balance of payments?
• To examine the relationship between exchange rate and balance of payments?

• To study the relationship between grants and balance of payments?

1.5 Research Objectives

The aim of this research is to distinguish the appropriate determinants that affect the balance of payments in accordance with reviewing and comparing the findings.

This research work on the determinants of balance of payments of Bangladesh will be conducted based on two categories of objectives. They are,

• Broad Objective: This research will be conducted to identify and analyze several important factors which impact the balance of payments of Bangladesh.

• Specific Objective: The specific objectives of this study includes,

  o To identify the relationship between exchange rate and bop
  o To study the relationship between interest rate and bop
  o To examine the relationship between inflation and bop
  o To identify the relationship between foreign direct investment and bop
  o To analyze the relationship between grants and bop
• To derive policy solutions that can be used to achieve stable and favorable balance of payments in Bangladesh

1.6 Significance of the Study

This paper shall provide a conceptual and theoretical appraisal of balance of payments. The study shall determine the actual compelling variables of adjust of exchange of a nation. The study shall also help us to find the main variables of balance of trade and their impact and more specifically the study hubs to find the dynamic relation of trade balance of Bangladesh.

1.7 Scope and Limitations of the Study

The scope of the research was limited to lack of availability of data. Adequate records, distributions, truths, and figures were not accessible. These imperatives limited the scope of the genuine examination. The time frame for the research was very limited and so was the funding for the research.
Chapter 2

LITERATURE REVIEW

Various studies have attempted to measure short-term and long-term relationships between trade balance and its variables in different countries using diverse theoretical and methodological approaches. Most of the significant writing has been found in articles on comparable perspectives of adjust of installment. On the grounds of the data gathered, an effort has been created to form a summary of the prevailing literature. According to research by Amelia Santos-Paulino and Professor Tony Thirlwall, published in the February issue of the Economic Journal, developing countries such as Bangladesh should lose import regulations more slowly than export impediments. This is actually because it takes longer for exporters to reply to exchange liberalization than it will for imports to surge in, presumably inflicting genuinely difficult alter of installments troubles. (Cf. Hossain 2006)

This study is an attempt to assess the impact of trade liberalization not solely on export growth, however conjointly on import growth, trade balance and balance of payments in a comprehensive and efficient way. Hossain and Alauddin (2005) discuss about the method of exchange liberalization in Bangladesh and its impacts on trade development and structure, imports, GDP and other macroeconomic factors with special attention on exports. By utilizing ARDL-based econometric investigation and ARDL-based co-integration methods they observationally found exchange liberalization has had a positive impact on development, showing that both anti-export inclination decrease and import-GDP proportion have had a major long-term affect on trades.
Balance of Trade and Economy of Bangladesh

The economy of Bangladesh is of a developing country. Its per capita financial gain in 2008 was calculable at US$ 1500 (adjusted by per chasing power parity). According to the International Monetary Fund (IMF) Bangladesh positioned as the 48th biggest economy within the globe in 2009, with a GDP of US$ 256 billion. The economy has developed at the speed of 6-7% p.a. over the past years, over half of the GDP belonging to the service sector, with nearly half of Bangladesh being engaged in the agriculture segment. Remittances from Bangladesh's overseas work, particularly within the Middle East, are the principal source of foreign exchange earnings; exports of clothing and textiles are the principal sources of interchange earnings. However, foreign direct investment is yet to increase substantially. Bangladesh has made fundamental progress in its human development index. (Asian Development Bank (ADB), 2006).

There are numerous elements that affect the trade balance of an economy. The impacts of exchange adjust can be checked in different ways. In this paper, we will analyze the effect of certain variables, particularly balance of payment, on the balance of trade by econometric method.

There exists a wide run of hypothetical and experimental writing on the relationship between foreign exchanges and financial development in both created and creating nations. The early writing centered for the most part on the part of trade in financial development. The spectacular success of the Eastern Asian countries' outward-oriented policies offered a precedent for developing countries to adopt these policies. Accordingly, in developing countries, the literature attempted to underwrite or contradict the basis of all inclusive trade application driven development approach. The association between export and import or import and income did not get much consideration in the literature. Regardless, past research shows that exports are highly
dependent on imports of capital goods and intermediate inputs in many economies, also on raw materials that offer a case of minor causality between exports, imports and economic growth. Different schools of thought have long discussion about the relationship between worldwide exchange and financial advancement. The theoretical outlook can be summarized in terms of technological innovation, market expansion, and resource allocation, ease of balance of payments, employment generation and pay creation (Hossain and Salim 2009). Karl Marx concentrated on the role of exchange in economic growth. In his opinion, the expansion of production needs a growing market which will promote production constantly (Chen 2009). The classical school views foreign trade as a means of optimum resource distribution and productivity boosting economic growth. Agreeing to the neoclassical school, exchange raises development since of the merits of comparative advantage, full capacity utilization, greater economies of scale and increasing rate of investment and technological change (Krueger 1978, Kavoussi 1984). This school distinguishes five various ways in which foreign trade impacts macroeconomic performance of an economy: the revenue effect, capital accumulation effect, substitution effect, income distribution effect and the effect of the weighted elements. All these results collectively mean that alternate strengthens financial increase over time as an economic system develops (Chen 2009). According to these hypotheses, international trade contributes to technological diffusion, which impacts developing countries ’ medium and long-term production growth by enhancing productivity. The new trade school (led by Paul Krugman) concentrates on the position of alternate in financial increase through economies of scale and boosting the best allocation of resources.
AN OVERVIEW OF THE FOREIGN TRADE SECTOR IN BANGLADESH

Bangladesh followed an inward-looking policy of import substitution marked by high security and multi-currency foreign exchange allocation since its liberation in 1971. The result of this arrangement was agonizing as Bangladesh confronted an imbalance in the adjust of installments, outside trade deficiencies, moderately low development and miniaturized scale inefficiencies such as uncompetitive firms. Thus, as portion of the broader market-oriented financial changes within the economy, Bangladesh started to move to a more outward-looking exchange procedure after 1982. The method of liberalization has gone through three stages depending on scope and degree of usage. Stage I (1982-1986) is characterized by denationalization of open endeavors, rearrangements of the framework for private venture, diminishment of quantitative limitations and end of import licenses. The private segment was agreed more prominent part beneath auxiliary alteration arrangement in Stage II (1987-1991). Typically characterized by dispensing with quantitative imports confinements, decreasing and rationalizing taxes, and rearranging the exchange process Stage III (1992 onwards) started to liberalize exchange framework more vigorously, counting the execution of adaptable exchange rates. In spite of the fact that the essential center of exchange liberalization in Bangladesh has been import liberalization, measures have too been taken to boost up exports. Motivating forces in the form of duty drawback facilities, income tax rebate and slow expulsion of import license fees for export-oriented industries and import tariffs for imports of capital equipment, back-to-back L / Cs and lower interest rate credit facilities were given to raise exports. The positive outcome of these policies has been evident. Foreign trade as a share of GDP rose from 14.5% in 1973-75 to 40.2% in 2007-08, resulting in increased global transparency. Under different policy regimes, however,
exports and imports rose at different rates. A key feature of Bangladesh's external sector is its small export base. Export to a limited number of countries is also concentrated. Jute and jute products dominated the export basket of Bangladesh in the 1970s and early 1980s, while ready-made garments subsequently became dominant exports. Imports come from a few countries as well. Consequently, any shock emerging from the major exchanging accomplices may have an unfavorable impact on the residential economy.
Chapter 3

Methodology

3.1 Introduction

As the objectives of the present study are to find the determinant that affects the balance of payments in Bangladesh, the following research model has been applied:

3.2 Research Model of the Analysis

Balance of Payments = α + β1X1 + β2X2 + β3X3 + β4X4 + β5X5 + €

3.3 Hypotheses Development

H1: Grants has a positive relationship with Balance of Payments
H2: Inflation has a positive relationship with Balance of Payments
H3: Exchange rate has a positive relationship with Balance of Payments
H4: Foreign direct investment has a positive relationship with Balance of Payments
H5: Interest Rate has a positive relationship with Balance of Payments
3.4 Research Design

Conceptualization

- Formulation of Research Questions and Objectives
- Formulation of Hypothesis
- Literature Review
- Identifying Variables and Measurement Tools
- Data Collection

Operationalization

Secondary Data

- Data Analyses
  - Descriptive Statistics (Uni-variate)
    - Frequency
    - Mean
    - Median
  - Analytical Statistics (Bi and Multi-variate)
    - Correlations
    - Regression
    - F-test/T-test

Data interpretation and Analyses

Findings and Discussions
3.5 Data Collection

Secondary data is research data that has already been accumulated and readily available from other sources and can be accessed by researchers. Such data are cheaper and more rapidly reachable than the primary data and also may be accessible when primary data cannot be obtained at all.

Quantitative data was used in this paper for the data collection. Quantitative data is data which can be described in numbers. Most behaviors can be transferred to numerical data.

The data used is a secondary annual time series data that has been collected from the WORLD BANK DATA from the year 1976-2018 for the variables in our paper.

3.6 Techniques of Data Analyses

Descriptive statistics is the term given to the examination of data that helps describe, show or summarize data in an important way such that, for instance, trends might develop from the information.

In statistics, the Pearson product-moment correlation coefficient is a degree of the linear correlation between two variables $X$ and $Y$, giving a value between $+1$ and $−1$ inclusive, where $1$ is total positive correlation, $0$ is no correlation, and $−1$ is add upto negative correlation.

Multiple Regression analysis is a statistical process for estimating the relationships among variables. It incorporates numerous strategies for modeling and analyzing various variables, when the focus is on the relationship between a dependent variable and one or more independent variables.
Chapter 4

Findings of the Study

4.1 Introduction

Reporting data involves more than just presenting it. After gathering information and applying it in our model, we got the findings of the study. Now this chapter shows and interprets the results.

4.2 Research and Discussion

4.2.1 Descriptive Statistics

<table>
<thead>
<tr>
<th>Table 4.1 Summary Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Inflation</td>
</tr>
<tr>
<td>exchangerate</td>
</tr>
<tr>
<td>Bop</td>
</tr>
<tr>
<td>Interesrate</td>
</tr>
<tr>
<td>Fdi</td>
</tr>
<tr>
<td>grants</td>
</tr>
</tbody>
</table>

This table presents the means, minimum, maximum and standard deviations of the variables in the study. Specifically, exchange rate scored the highest level of mean value ($\mu \geq 47.84$) and inflation scored the second highest ($\mu \geq 6.50$). Overall, the study uncovers the fact that the independent variables affect the dependent variable, balance of payments.
4.2.2 Diagnostic Tests

Table 4.2 Correlation Matrix (Spearman’s Rank correlation matrix)

<table>
<thead>
<tr>
<th></th>
<th>bop</th>
<th>inflation</th>
<th>Exchange rate</th>
<th>Interest rate</th>
<th>fdi</th>
<th>grants</th>
</tr>
</thead>
<tbody>
<tr>
<td>bop</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>inflation</td>
<td>-0.0935</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exchange rate</td>
<td>-0.8026*</td>
<td>-0.0189</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest rate</td>
<td>0.1248</td>
<td>-0.2596</td>
<td>-0.0003</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fdi</td>
<td>0.9108*</td>
<td>-0.0656</td>
<td>-0.7954*</td>
<td>0.0799</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>grants</td>
<td>-0.0930</td>
<td>0.3308*</td>
<td>0.3626*</td>
<td>-0.0999</td>
<td>-0.2431</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

*. Correlation is significant at the 0.05 level (2-tailed).

Here the spearman’s rank correlation matrix was used. We assessed the existing relationship between balance of payments and independent variables and amongst independent variables. From Table 4.2, we found that balance of payments was positively related to interest rate and foreign direct investment and negatively related to inflation, exchange rate and grants. Inflation was positively related to grants and negatively related to all other variables. Exchange rate was positively related grants and negatively related to interest rate and fdi. We further investigated the significance of the relationship established below where we found out that the relationships between BOP and exchange rate, FDI; inflation and grants; exchange rate and FDI, grants were significant. It is important to note that the study did not find a problem of multicollinearity between variables of interest in the model.
Table 4.3 Multiple Regression Analysis

| bop    | Coef.      | Std Err.   | t     | P>|t| |
|--------|------------|------------|-------|------|
| Grants | 3.59326    | .8901872   | 4.04  | 0.000|
| Inflation | -2.74e+08  | 1.33e+08   | -2.06 | 0.046|
| Exchangerate | -7.60e+07  | 1.97e+07   | -3.85 | 0.000|
| Interestrate | 4.41e+07   | 3.76e+07   | 1.17  | 0.249|
| fdi    | 3.713222   | .4938184   | 7.52  | 0.000|
| _cons  | -5.03e+07  | 1.19e+09   | -0.04 | 0.966|

In the analysis, simple linear regression was used where Balance of Payments was the dependent variable and grants, inflation, foreign direct investment, interest rate and exchange rate were the independent variables. Results are shown in Table 4.2. In the table all the variables are shown with their respective regression coefficients (βs) and computed t statistics along with their respective significance level.

As we can see, the variable grants are statistically significant at the 0.05 level. The coefficient is positive which indicate that the larger the grant is, the larger the balance of payment is. One unit increase in grant cause 3.59326 increase in balance of payments. Next is the inflation which is also statistically significant (p=0.046) and its coefficient is negative, indicating the greater the inflation id the less the BOP as we would expect. Exchange rate is statistically significant (p=0) with a negative coefficient. The variable interest rate is not statistically significant as the p-value
is greater than 0.05 (p=0.249) but has a positive coefficient. The FDI is statistically significant (p=0) and also has positive coefficient.

\( R^2 \) is 89.71\% which means 89.71\% variation in BOP can be explained by the independent variables grants, inflation, foreign direct investment, interest rate and exchange rate. The rest 10.29\% of the fluctuation in BOP can be explained by other variables which are not mentioned in the model. Those 10.29\% is called error term or disturbance term. \( R^2 \) is quite high so we can say that the model is fitted nicely or data is fitted nicely.

We can check if independent variable jointly influence Balance of payments or not by F statistics. Here is the probability is 0.000 which is less than 0.05 meaning that the grants, inflation, foreign direct investment, interest rate and exchange rate influence Balance of payments.

**4.2.3 Durbin-Watson d-statistic**

Durbin-Watson d-statistic \((6, 43) = 1.118148\)

Here the Durbin-Watson statistics is 1.118148 as we can see. As we know the rule of thumb is if the \( R^2 \) value is greater than Durbin-Watson, its evidence that the series is non-stationary leading to spurious results. In our study, the \( R^2 \) value is less than Durbin-Watson which means the series we are working on is stationary and can be used for hypothesis testing, forecasting or prediction.
Now we can check the residual of the model by a graph.

*Fig: 4.1 Residual in a graph*

The plotting in the graph looks like stationary or white noise. In the graph there is no trend, some are going up and some are going down. This residual is stationary or white noise.

We can do some test to know whether the residuals are white noise or not.
4.2.4 Normality Test

**Table 4.4 Correlogram Table**

<table>
<thead>
<tr>
<th>LAG</th>
<th>AC</th>
<th>PAC</th>
<th>Q</th>
<th>Prob&gt;Q</th>
<th>[Autocorrelation]</th>
<th>[Partial Autocor]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.3956</td>
<td>0.4361</td>
<td>7.2093</td>
<td>0.0073</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>-0.0676</td>
<td>-0.2822</td>
<td>7.4248</td>
<td>0.0244</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>-0.1521</td>
<td>-0.0947</td>
<td>8.5436</td>
<td>0.0360</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>-0.1956</td>
<td>-0.2542</td>
<td>10.441</td>
<td>0.0336</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>-0.1161</td>
<td>0.0778</td>
<td>11.128</td>
<td>0.0489</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>-0.0260</td>
<td>0.0059</td>
<td>11.163</td>
<td>0.0835</td>
<td></td>
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<tr>
<td>7</td>
<td>-0.0560</td>
<td>-0.1445</td>
<td>11.331</td>
<td>0.1248</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>-0.0898</td>
<td>-0.1554</td>
<td>11.778</td>
<td>0.1614</td>
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<td>9</td>
<td>0.0822</td>
<td>0.3174</td>
<td>12.162</td>
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<td>10</td>
<td>0.1470</td>
<td>0.0533</td>
<td>13.429</td>
<td>0.206</td>
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</tr>
<tr>
<td>11</td>
<td>-0.0022</td>
<td>-0.4032</td>
<td>13.43</td>
<td>0.2662</td>
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<tr>
<td>12</td>
<td>-0.1161</td>
<td>-0.3070</td>
<td>14.271</td>
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<td>13</td>
<td>-0.1904</td>
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<td>16.608</td>
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<td>14</td>
<td>-0.2183</td>
<td>-0.5148</td>
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<td>15</td>
<td>-0.0894</td>
<td>0.5785</td>
<td>20.341</td>
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<td>16</td>
<td>0.0232</td>
<td>0.1737</td>
<td>20.38</td>
<td>0.2036</td>
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<td></td>
</tr>
<tr>
<td>17</td>
<td>0.1078</td>
<td>0.0280</td>
<td>21.245</td>
<td>0.2155</td>
<td></td>
<td></td>
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<tr>
<td>18</td>
<td>0.0555</td>
<td>-0.3487</td>
<td>21.483</td>
<td>0.2558</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>0.0055</td>
<td>0.3625</td>
<td>21.485</td>
<td>0.3106</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ho: Residual is random

H1: Residual is not random

In the above table, there is lag, Q statistics and corresponding probability. As we can see from lag 6, the probability is more than 5% meaning that we can’t reject the null hypothesis. This means the particular residuals are white noise, has no serial correlation or heteroscedasticity. We can call it random.
In the figure, we can see the probability is 1.37% which is less than 5%, meaning the rejection of null hypothesis. If we consider this figure then we can say the residual is not random as the plotting are not between the two lines.

**Portmanteau test for white noise**

<table>
<thead>
<tr>
<th>Portmanteau (Q) statistic = 21.4853</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prob &gt; chi2(19) = 0.3106</td>
</tr>
</tbody>
</table>

Another test is done to see if the residuals are white noise or not. As the probability is 0.3106 or 31.06% which is greater than 5%, we accept the null hypothesis meaning the residuals are white noise. Residual, R1 is stationary which is desirable for regression model.
We can do another test named Shapiro-Wilk normality test.

**Ho:** Residuals are normally distributed

**H1:** Residuals are not normally distributed

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>W</th>
<th>V</th>
<th>z</th>
<th>Prob&gt;z</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>43</td>
<td>0.97954</td>
<td>0.855</td>
<td>-0.330</td>
<td>0.62941</td>
</tr>
</tbody>
</table>

Here also the probability is 0.62941 which is greater than 0.05 meaning we do not reject the null hypothesis. The residual is normally distributed.

Now we check if the residuals have heteroscedasticity or not.

**Ho:** Residuals are homoscedastic (constant variance)

**H1:** Residuals are heteroscedastic

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

**Ho:** Constant variance

Variables: fitted values of currcomp

\[
\chi^2(1) = 0.17 \\
\text{Prob} > \chi^2 = 0.6843
\]
The probability value is 0.6843 which is more than 0.05 meaning that we can’t reject null hypothesis rather we accept null hypothesis. The residuals are homoscedastic.

**4.2.5 Autocorrelation Test**

We can check whether there is serial correlation or not in the residuals.

\[ H_0: \text{Residuals are not serially correlated (autocorrelated)} \]
\[ H_1: \text{Residuals are serially correlated or autocorrelated} \]

<table>
<thead>
<tr>
<th>lags (p)</th>
<th>chi2</th>
<th>df</th>
<th>Prob &gt; chi2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.390</td>
<td>1</td>
<td>0.2385</td>
</tr>
</tbody>
</table>

H0: no serial correlation

Here the p-value is 23.85% which is greater than 5% leading to the acceptance of null hypothesis. This means there is no auto correlation in the residuals which is desirable for a good model.

There is a second test to check the autocorrelation.

**Breusch-Godfrey LM test for autocorrelation**

<table>
<thead>
<tr>
<th>lags (p)</th>
<th>chi2</th>
<th>df</th>
<th>Prob &gt; chi2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.208</td>
<td>1</td>
<td>0.6480</td>
</tr>
</tbody>
</table>

H0: no serial correlation

Here we also get the same results as the previous test leading to the acceptance of the null hypothesis. It tells us the same thing that there is no serial correlation in the residual which is desirable for a good model.
Chapter 5

Conclusion and Recommendations

The specific objective of the study was to identify the factors that affect the Balance of Payment’s performance in Bangladesh. The study has concentrated on effect of few determinants of Bangladesh’s Balance of payments. In order to achieve this objective, the study adopted regression analysis, correlation table; multicollinearity tests etc to selected determinants such as grants, inflation, foreign direct investment, interest rate and exchange rate. There are so many other factors that could be directly or indirectly affecting Balance of payments which are not investigated here.

Overall, we can say the model is a good model. The R² is very high 89.71% and F statistics is significant. If we see the independent variable, out of 5 independent variables, four variables are significant. The residual is normally distributed which is desirable and there is constant variance which means residuals are homoscedastic. Also there is no autocorrelation in the model.

It should be noted that Balance of payments performance plays a very critical role in an economy. For this reason, factors that influence Balance of payments needs to be closely studied and evaluated. According to the results obtained in the study, current Balance of payments is negatively influenced by inflation and exchange rate. In order to resolve their negative effects, policies that enhance improvement in Balance of payments should be encouraged and consistently implemented.

In pursuit of a stable Balance of payments through these variables, desirable policy measures that may be applied include strengthening export sector in Bangladesh, promoting local production of importable goods, exchange rate stabilization and encouraging competitive real interest rates that
attract investors to invest in policies and political stability are paramount in enhancing equilibrium in Bangladesh’s Balance of payments.
References


