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Impact Of Foreign Exchange Reserve, Inflation And Call Money Rate On Market Capitalization Of Dhaka Stock Exchange

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Abstract:
In the ever expanding emergence of globalization, the accumulation of foreign reserve has got utmost priority to shield the economy from any exogenous events. How the economy reacts to the changes in the major economic indicators is of great interest to make policy level decisions. In this study, we tried to find the impact of different economic indicator namely foreign exchange reserve, call money rate, and inflation on the economy. As a proxy to represent the economy we used the market capitalization of largest exchange of Bangladesh i.e. DSE Index.
We have taken the variables data during the period of July, 2010 to November, 2022. The monthly economic trends published by central bank of Bangladesh are the main source of data for this study. We have taken total 149 observations for each variable of this study. As the variables have different metric or unit of values therefore we have converted the data into natural logarithmic format to ensure the data are homogenous in nature. The conversion of the data into natural logarithmic value also eliminates extremities in the dataset that might undermine the finding of the study. In this paper the independent variables i.e. foreign exchange reserve, call money rate, and inflation has been regressed against the dependent variable DSE Index to assess their impact on market capitalization of Dhaka Stock Exchange.
The regressed result delineates that there is a strong relationship between the studied variables. Significant change in the dependent variable i.e. DSE Market capitalization can be explained by the independent variables that signifies the correctness of the model specified in the paper. The critical F-value is statistically significant and reinforce that the variables have statistically significant relationship. The foreign exchange reserve and inflation rate have a positive impact on the market capitalization with a statistically significant p-value. The call money rate has a negative impact on the market capitalization with a statistically significant p-value.
This study suggests that having a stable foreign exchange reserve and inflation within the fiscal target level bolster the growth of market capitalization. On the contrary increase in call money rate that is the indication of liquidity crunch in the financial system negatively impacts the market capitalization. Policy decision should be made to ensure the accumulation of foreign exchange reserve to avoid external threat to the economy and maintaining inflation within the targeted fiscal level. Lastly, decision that might negatively impact the liquidity situation in the financial market must be avoided to ensure the development of stock market capitalization.

Keywords: *Foreign Exchange Reserve, Inflation, Call Money Rate, Market Capitalization*

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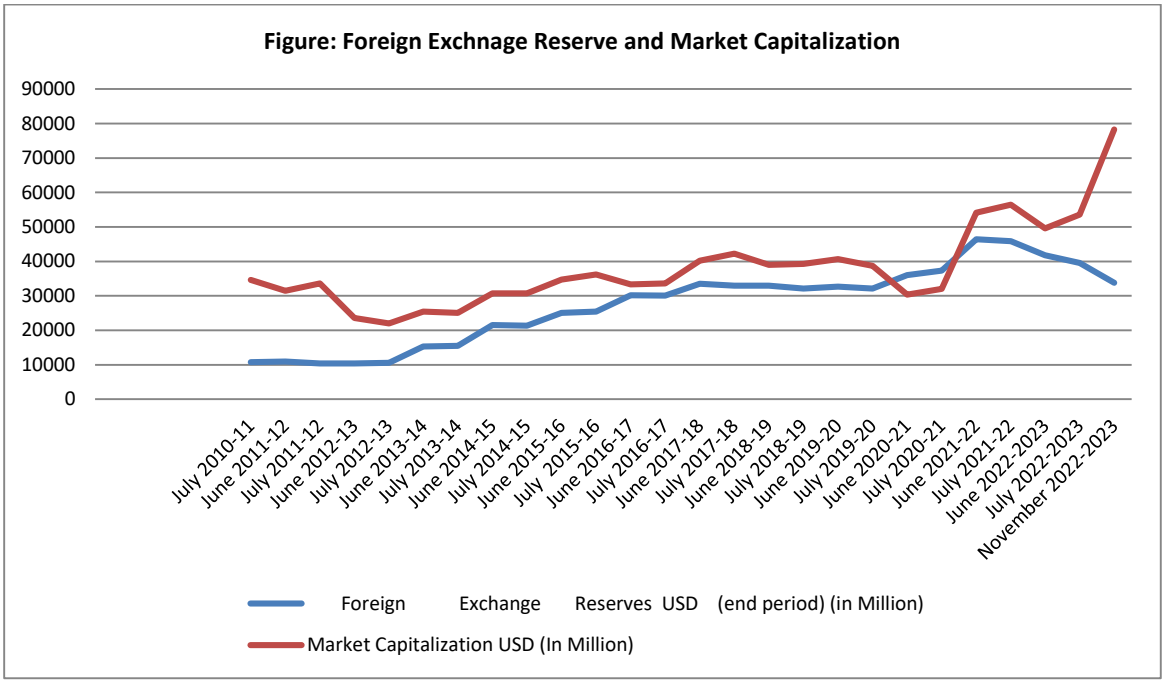
I. Introduction:

Market capitalization is the total market value of outstanding shares of publicly traded company. On the other hand, foreign exchange reserve is the amount of assets held by central bank which denominated in foreign currency. There is existing relationship between foreign exchange reserve and stock market capitalization. The economics variable like inflation has impact over the stock market capitalization and market value of shares is fluctuated by the inflation rates. In this paper assesses the impact of foreign exchange reserve, inflation and call money rate on stock market capitalization (as represented by Dhaka Stock Exchange index). Here, call money rate means the rate by which one bank borrows money from another bank overnight. In this paper takes data from July, 2010 to November, 2022 for analyzing relationship among of foreign exchange reserve, inflation and call money rate and stock market capitalization of Bangladesh. The scenario of foreign exchange reserve and market capitalization is showed in the figure below:



According to the above figure, the market capitalization of Dhaka Stock Exchange declined compare to foreign exchange rate during the period July 2019-20 to June 2020-21 from USD 38763.27 million to USD 30331.59 million. On the other hand, foreign exchange reserve declined from USD 46391.4 million to USD 33789.6 million during June 2021-22 to November 2022-23.

II. Literature Review:

There are a lot of studies on the impact of economic variables (like inflation, foreign exchange reserve and etc.) on stock market capitalization.

Emmanuel Joel Aikins Abakah and Moses Kenneth Abakah (2016) analyzed the impact of foreign exchange reserve on stock market of Ghana. They used ordinary least square estimate, unit root test, Johansen Co-integration test and Granger Causality test to analysis the impact of foreign reserve on market capitalization during the period from December 2001 to December 2015. They found that there is significant positive impact of foreign reserve on stock market growth measured by market capitalization. By conducting Granger Causality test, they found one way relationship between foreign exchange reserve and stock market capitalization. They also found that interest rates play key role in estimating relationship between foreign exchange reserve and stock market growth.

Waqar Khalid (2017) investigated the short term and long term relationship between market capitalization of Pakistan stock market, interest rates and exchange rate by using data from 1990 to 2017. He found inverse relationship between interest rate and stock market volatility of Pakistan in long run and positive relationship between exchange rate and market capitalization. By using ECM model, he detected similar result in short run as well. On the other hand, he found unidirectional relationship between exchange rate and interest rate through and Granger Causality test. The three series of data are co-integrated among themselves according to Johansen Jeselius approach. Reducing interest rate is required for vibrant stock market of Pakistan.

Md. Tanvir Hasan (2018) investigated the relationship between foreign reserve and stock market development of Bangladesh by using data from 1995 to 2014 and taken interest rate and inflation as supporting variables. He found foreign exchange rate and interest rate positively and significantly market capitalization of Dhaka Stock Exchange.

Uttam Golder, Md. Nazrul Islam and Md. Shahidullah Kayser (2020) analyzed the impact of foreign exchange reserve, exchange rate, crude oil price on the stock index of the Dhaka stock exchange (DSE) of Bangladesh by using monthly time series data from July 2008 to October 2019. In the long run, the foreign exchange reserve and crude oil have a significant negative impact on the Dhaka Stock Exchange index. On the other hand, exchange rate has a positive impact on Dhaka Stock Exchange index.

Sarbapriya Ray (2012) investigated the impact of foreign exchange reserve on stock market capitalization of India from the year 1990-91 to 2010-11. In this paper found positive relationship between foreign exchange reserve and stock market capitalization of Bombay Stock Exchange. There is unidirectional causality between these two variables which is determined by Granger Causality Test.

Olayinka Olufisayo Akinlo (2015) analyzed the impact of foreign exchange reserves on nigerian stock market from the year 1981 to 2011. In this paper found positive relationship between foreign reserve and stock market growth and they used Engle-Granger (1987) two-step procedure for estimating relationship between interest rate and foreign reserve and Johansen Juselius (1990) cointegration approach for robustness of the test. On the other hand, bidirectional relationship presents between interest rate and stock market growth.

Husni Ali Khrawish, Walid Zakaria Siam and Mohammad Jaradat (2010) analyzed the relationship between stock market capitalization and interest rate of Jordan during the period of 1990 to 2008. They found significant positive relationship between interest rate and stock market capitalization by using ordinary least-square (OLS) regression method.

III. Material and Methods:

Data and Variables:

For the purpose of the study that is to examine the impact of foreign exchange reserve, call money rate and inflation on the market capital of Bangladesh. We have collected monthly data from July, 2010 to November, 2022. The number of total observations is 149 for each variable. For the purpose of measuring the market capital of Bangladesh we used the data of broad index of Dhaka Stock Exchange i.e. DSEX. All the data of this study is collected from the monthly trends published by central bank of Bangladesh namely Bangladesh Bank.

Variables Measurement:

Market Capitalization:

For the purpose of measuring the market cap we have used the board index of Dhaka Stock Exchange i.e. DSEX. The data has been collected from the monthly trends of Bangladesh Bank. The market cap is converted to USD using the exchange rate of their respective period to align the data set with the foreign exchange reserve. The market cap is measured in million units.

Foreign Exchange Reserve:

The foreign exchange reserve used in our study is measured in million USD. The foreign exchange reserve used in the study is calculated at the end of each month. The foreign exchange reserve is the asset of central bank held in USD mostly.

Monthly Average Call Money Rate:

The monthly average call money rate is the weighted average call money rate of the month at which the financial institution borrows for the purpose of meeting their short term liquidity usually for fortnightly. This call money rate used in the study is measured in percentage point for the end of each month.

Inflation rate:

Inflation rate measures the rate at which general price level is climbing over a period of time. The inflation rate used in this study is measured in point to point basis percentage points other than the average inflation rate.

Table: Descriptive Statistics of the variables studied

Particulars	Market Capitalization USD (In Million)	Foreign Exchange Reserves USD (end period) (in Million)	Monthly Weighted Average Call Money Rate (Borrowing Rate)	Inflation-Point to Point
Mean	37123.44088	26959.81812	6.16557047	6.731208054
Standard Error	873.2000227	928.5813389	0.335209045	0.137764205
Median	35046.80868	31165.1	4.88	6.05
Mode	30300.14832	-	3.68	5.57
Standard Deviation	10658.76464	11334.77976	4.091747856	1.68162643
Sample Variance	113609263.7	128477232.1	16.74240052	2.82786745
Kurtosis	2.040170218	-1.08328692	13.59582815	1.319838528
Skewness	1.102393179	-0.08725356	2.807033545	1.471886114
Range	59324.46159	38774.8	31.87	7.01
Minimum	20050.20379	9285.2	1.67	4.96
Maximum	79374.66538	48060	33.54	11.97
Sum	5531392.691	4017012.9	918.67	1002.95
Count	149	149	149	149

The above table depicts that the variables studied has a low dispersion rate with slight standard deviation compared to the mean values of the respected variables. The mean and median values of the studied variables are within the range of their minimum and maximum value which indicates consistency in their dataset. The Kurtosis value of monthly weighted average call money rate is extremely high indicating that the distribution shape is thin and the distribution of this dataset has a high peak. The kurtosis value of the market capitalization and point to point inflation shows signifies that they have a standard normal distribution. The kurtosis value of foreign exchange reserve is negative which demonstrates the distribution shape of this variable is flatter and corresponds to a broadening peak.

Specifying the hypothesis:

For the purpose of the study to determine the impact of foreign exchange reserve, call money rate and the general level of point to point inflation on market capitalization of Bangladesh Stock Market namely DSEX, we have considered the following hypothesis:

H_0: There is no relationship between market capitalization and foreign exchange reserve, call money rate and the general level of point to point inflation

H_1: There is significant relationship between market capitalization and foreign exchange reserve, call money rate and the general level of point to point inflation.

Constructing the equation:

To test the hypothesis where the dependent variable is market capitalization and independent variables are foreign exchange reserve, call money rate and general level of point to point inflation. We can formulate the following regression equation using the variables:

$MCAP_t = \alpha + \beta_1.FXR_t + \beta_2.CMR_t + \beta_3.INFR_t + \varepsilon_t$ ..... *(i)*

In this equation α represents the constant value and ε stands for error term which is the impact of other variables on the market capitalization not considered in our study.

As the data used in the study have different unit metrics therefore to align the data and reduce any form of skewness in the data we have converted all the variables into their natural logarithmic format. Therefore, the equation can be written in the following manner:

$lnMCAP_t = \alpha + \beta_1.lnFXR_t + \beta_2.lnCMR_t + \beta_3.lnINFR_t + \varepsilon_t$ ..... *(ii)*

IV. Result:

Table: Regression Statistics

Multiple R	0.794646593
R Square	0.631463207
Adjusted R Square	0.623838308
Standard Error	0.167994287
Observations	149

	df	***SS***	***MS***	***F***	***Significance F***
Regression	3	7.011714533	2.337238178	82.81594208	0.00
Residual	145	4.092201661	0.02822208		
Total	148	11.10391619			

	Coefficients (ß)	***t Stat***	***P-value***
Intercept	4.9561	7.1169	0.0000
ln FXR	0.4681	8.2004	0.0000
ln CMR	-0.1054	-2.0487	0.0423
ln INFR	0.5204	5.6472	0.0000

V. Discussion:

The value of multiple R of 79% indicates a strong relationship between the dependent and independent variables. From the regression result above we can also infer that almost 62% change, indicated by the value of adjusted R square, in the dependent variable which is the market capitalization of DSEX can be explained by the independent variables namely foreign exchange reserve, call money rate and inflation rate.

The coefficient value of lnFXR is 0.4681 which means that for 1 unit of increase in foreign exchange reserve the market cap of DSEX increases for 0.4681 units. This shows a direct relationship between the foreign

exchange reserve and market capitalization. The result is significant at 95% and 99% confidence level as indicated by the p-value and t-stat of the relationship.

The coefficient value of lnCMR is -0.1054 which signifies that the call money rate and market capitalization has inverse relationship. For per unit of increase in the call money rate the market capitalization reduces by -0.1054 unit. The result is accepted at 95% and but rejected at 99% confidence level as indicated by the p-value and t-stat of the relationship.

Lastly, the coefficient value of lnINFR is 0.5204 which indicates the variable has a positive relationship with the market capitalization. And for 1 unit of increase in the inflation rate the rate of increase in the market capitalization is 0.5204 units. The result can be accepted at both 95% and 99% confidence level as indicated by the t-stat and p-value of the relationship.

VI. Conclusion:

This study thoroughly investigates the relationship of market capitalization with other independent variables i.e. foreign exchange reserve; call money rate and inflation rate. The examination depicts a significant positive relationship between foreign exchange reserve and market capitalization. This indicates that foreign exchange reserve is an important aspects to be observed by the market stake holders and concerned authorities. The call money rate shows an inverse relationship confirming the hypothesis that it will divert the surplus liquidity to the money market. The inflation rate has positive relationship with the market capitalization. Based on this relationship it might be inferred that stock return will help to offset the negative impact of the inflation that is reduced purchasing power capacity. Finally, it might be concluded that boosting the foreign exchange reserve, managing a balanced call money rate and taming the inflation to tolerable level will ultimately invigorate the growth of market capitalization.

Reference:

[1]. Emmanuel Joel Aikins Abakah And Moses Kenneth Abakah (2016)-Foreign Exchange Reserve And Its Impact On Stock Market: Evidence From Ghana- Journal Of Finance And Economics, 2016, Vol. 4, No. 5, 136-141
[2]. Waqar Khalid (2017)- Effects Of Interest Rate And Exchange Rate On The Stock Market Performance Of Pakistan: A Cointegration Approach- Journal Of Finance And Economics, 2017, Vol. 5, No. 5, 219-232
[3]. Md. Tanvir Hasan (2018)- Impact Of Foreign Exchange Reserve On Stock Market Development: Evidence From Dhaka Stock Exchange- Journal Of Business Studies, Vol. Xxxix, No. 2, August 2018
[4]. Uttam Golder, Md. Nazrul Islam And Md. Shahidullah Kayser (2020)- Impact Of Foreign Exchange Reserve, Exchange Rate And Crude Oil Price On Dhaka Stock Exchange Index: An Empirical Evidence From Vector Error Correction Model- Indian Journal Of Finance And Banking; Vol. 4, No. 1; 2020 Issn 2574-6081 E-Issn 2574-609x
[5]. Sarbapriya Ray (2012)- Foreign Exchange Reserve And Its Impact On Stock Market Capitalization: Evidence From India- Research On Humanities And Social Sciences, Issn 2224-5766(Paper) Issn 2225-0484(Online), Vol.2, No.2, 2012
[6]. Olayinka Olufisayo Akinlo (2015)- Impact Of Foreign Exchange Reserves On Nigerian Stock Market- International Journal Of Business And Finance Research-Vol. 9, No. 2, 2015, Pp. 69-76, Issn: 1931-0269 (Print), Issn: 2157-0698 (Online)
[7]. Husni Ali Khrawish, Walid Zakaria Siam And Mohammad Jaradat (2010)- The Relationships Between Stock Market Capitalization Rate And Interest Rate: Evidence From Jordan- Beh - Business And Economic Horizons-Volume 2 ,Issue 2 , July 2010, Pp. 60-66
[8]. Monthly Economic Trends (July, 2010 To November, 2022) - Published By Bangladesh Bank
[9]. Website Of Dhaka Stock Exchange