

## Impact of Macroeconomic Variables on Stocks Market- An Econometrics Analysis on Bangladesh Perspective



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**ABSTRACT:** Prudent macroeconomic policy bear great importance on the economic development of any country, Bangladesh is not an exception. The objective of this dissertation is to identify the influential macroeconomic variables, which have long run and short run influence on economic development of the country. The study employed the most recent data of Bangladesh economy from 2006-2017 fiscal year and six macroeconomic variables such as inflation, money supply, exchange rate, DSE index, reserve money, interest rate. A number of econometrics analyses have been done in order to explore the short run and long run association between macroeconomic variables and stock market index, such as Augmented Dickeyfullar test, Johansson integration test, vector auto-regressive model, vector auto correction model etc. The findings reveal that there is no long association between stock market index and macroeconomic variables but in short run there is association between market index and macroeconomic variables. The findings of this research paper bear great conjugation for academic researcher, policy maker, economist those who are concerned about these issues. Moreover, students can also get substantive insight from this paper. The paper is original one. All data and information have been complied by the researchers themselves.

**KEYWORDS:** Macroeconomic Variables, Stock Market, Econometric Analysis, Bangladesh.

### INTRODUCTION

A stock exchange is an organized and regulated market place where scheduled securities are bought and sold by corporations, governments, and other incorporated bodies. Both individuals and institutions invest here in expecting return from their investment. The stock exchange obviously has an important position in a country's financial system by providing a system for channeling savings into investment. The purpose of monetary policy is to find out a proper mix of macroeconomic variables, which will attain desirable economic growth through various macroeconomic variables. (Mahzabeen, 2016)

The relationship between macro-economic factors and stock market development has dominated in the academic and practitioners' literature over the past decades. Some primary macroeconomic variables such as exchange rate, interest rate, inflation have been argued to be the determinant of stock prices (Chowdhury E. K., 2017).

Ensuring price stability and adequate employment are the basic objectives of Monetary Policy formulation in any economy. Which in turn will create a steady macroeconomic environment for economic progress? (Simpson, 2009)

The purpose of monetary policy is to find out a proper mix of macroeconomic variables which will attain desirable economic growth through various macroeconomic variables (Mahzabeen, 2016)the change in macroeconomic variables influence the equity stock earnings and stock price.

Bangladesh Bank declares monetary policy statement half year by addressing the crucial issues of economy and adjusts the monetary and macroeconomic variables to attain the goals statement. The monetary policy influence the investors by adjusting their portfolio which than determine the stock market index.

A few studies have already conducted to explore the relationship between macroeconomic variables and stock price in Bangladesh. Therefore, there is a need for detailed research to know the empirical connection in this area form economy like Bangladesh, which is growing and included in the list of emerging economies (Ahmed, 2008).

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Ahmed (2009) examine only a few aspects of macroeconomic management, mainly the effects of monetary policy on stock prices of the DSE by using a structural VAR. In addition to that Chowdhury et al. investigate how macroeconomic volatility, such as risk associated with industrial production, inflation, and exchange rate, can influence stock market volatility (Ismail, 2004). Ali (2011) try to find out the association between a set of macroeconomic variables such as the industrial production index, broad money supply, GDP growth, interest rate changes, and T-bill growth rate to the stock (Ali, 2011).

Kalyan (2017), attempted to find out the impact of macroeconomic factors like inflation rate, interest rate, money supply, unemployment rate risk premium, and exchange rate on the return of stocks listed on Chittagong Stock Exchange.

Mohammad (2009) in his study, examined the the long-run relationship and the short-run dynamics between Bangladesh stock market index (DGEN-Key market-tracking index of Dhaka Stock Exchange) and key macroeconomic variables such as Consumer Price Index (CPI), Exchange rate of BDT against USD (Exchange rate), Broad money supply (M2), Industrial Production (IP) and Interest rate (Intrate) by analyzing monthly data between the periods spanning from July 2006 to October 2012 (Mohammad, 2009).

This paper aims to investigate the effect of macroeconomic variables on stock price.

In this article, some key variables are used to define the form of the macro economy that an investor needs to monitor and estimate. The key variables included are interest rate, inflation, exchange rate, money supply, reserve money. In this research paper, monthly data from 1 January 2006 to December 31 of 2017 has been taken and various econometrics methods have been used to measure the relationship between macroeconomic variables and stock market index.

### LITERATURE REVIEW

Nabila Nisha (2015) examined the relationship between stock return and macroeconomic variable by employing time series analysis and Vector Auto regression (VAR). Their finding indicate that, the positive impact of interest rate on India stock market and also by using VEC model they claim that there is no long term run causal relationship is found between lags of domestic macroeconomic variable and stock price index. However, they found the absence of short run adjustment for the long run equilibrium of stock price index. Interest rate, Exchange rate, gold price and world price index have significant positive impact on stock price of India. Finding from time series and cross sectional analysis suggest that risk exposure arise from changes in macroeconomic variable cannot be ignored.

Isa (2012) analyzed the association between macroeconomic variable and stock market index of Nigeria by using interest rates, inflation rates, fiscal deficit, GDP and money supply. From their analysis, it was found that inflation rate, GDP, exchange rate lagged SMI and money supply to influence stock market index both in short and long run. Whereas interest rate is negatively related to stock market index. CPI positively influence stock market index both in short and long run. In the end, there is significant and positive relation with Stock market index. Fiscal deficit positively related with SMI in short run but not significant. Exchange rate is positively related in short run but negative in long run. Money supply has negative relation both in short run and long run. (Isa, 2012)

Harasheh (2011) using Unit root test and vector error correction model established the relationship between macroeconomic variable and stock performance. Above study found that there is short relationship between stock performance and inflation rate, money supply and interest rate. In addition, long-term relationship exists among stock return and inflation, money supply and FDI. Causal relation running from stock return to money supply, interest rate and FDI and relationship running from inflation and exchange rate to stock return are founded (Harasheh L. a., 2011).

Nasrin Afzal and Syed Shahadat Hossain (2011) investigate the relationship between four economic variables and Dhaka Stock Exchange (DSE) stock price employing cointegration and granger causality test. The study concludes that there is existence of cointegration between stock market and M1, M2 and inflation rate, which indicate the existence of long run relationship. The study also found unidirectional causality in short run from stock market to exchange rate and M1. Moreover bivariate error correction model showed that the existence of long run causality from M1, M2 to stock market and stock market to inflation rate. (Jalil, 2009)

Afrin Rifat (2015) employs unit root test, cointegration and Vector Error Correction Model to examine the relationship between stock price and monetary policy instrument in the context of Bangladesh. The result shows that discount rate, money supply, Exchange rate, CPI as a representation of inflation has poor relation with each other or ineffective in stock market. (Rifat, 2015)

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Mohammad et al. (2016) examined the relationship between macroeconomic variable and stock market of two emerging economy named as Egypt and Tunisia. They applied ADF, VAR, Johansen test, Granger Causality, Co integration equation and found that there is relationship between interest rate, inflation, exchange rate and money supply with the stock market. (Mohammad, 2009)

Mohanamani and Dr. T. Sivagnanasithi (2014) employ descriptive Statistics, granger Causality Test, Pearson correlation metrics, unit root test to analyze the impact of macroeconomic variable on Indian stock market. The macroeconomic variables tested in the study are BSE Sensex, Call money rate, exchange rate, foreign institutional investment, industrial productivity, money supply, and wholesale price index. The study concludes that stock market is positively related to interest rate in long run and there is negative relation between wholesale price index with BSE Sensex. The exchange rate between Indian rupee and dollar do not have any significant in Indian stock market and also by applying Granger causality test establishes insignificant relationship between macroeconomic variable and stock market.

V. P. Velmurugan & K.A. Jaardhanan (2016) investigate the relationship of security market index performance with the macroeconomic variables. This study done in the context of two Indian security market BSE Sensex and NSU-nifty. This study employs correlation and multiple regression analysis. The outcome of the study is the share market affected by Foreign Institution investment by investor, exchange rate, oil price, interest rate, inflation rate and gold price. Interest rate and exchange rate influence stock performance but no statistical significant variables were found. Stock performance was positively influence by inflation and gold rate and oil price has influence on stock performance.

Gabriel Nkechukwu et al. (2013) observed the relationship between stock price with GDP and M3 by applying Unit root Test, co-integration analysis, Vector Error correction model, Granger causality test. The findings of the study which are based on Unit Root Test that there is long term relationship between GDP and stock price in one side and in other relationship also exist between money supply and stock price. The co-integration test revealed that in the end GDP negatively effects on stock market price & money supply positively effects on stock market price .The result of Error Correction Model states that GDP and money supply have positive effects on stock market price in the context of Nigeria. They also applied Granger Causality test, which showed there was unidirectional causal relationship running from stock market price to GDP and no causal relationship was found between stock price and money supply.

Adrangi et al. (2011) by using johansen multivariate cointegration test and innovation accounting(response function and variance decomposition based on VECM) to examine the relationship between macro-economic variables (i.e. inflation, exchange rate, interest rate & Net foreign direct investment)and stock market price movement in Ghana. They found that there are long run relationship between macroeconomic variable and stock market price. Stock market provides partly or full hedge against inflation. The FEVD test results indicate inflation explain small proportion of the variation of the share prices compared to interest rate , net FDI inflow and exchange rate. (Adrangi B, 2011)

Norshamshina & Zunairah Hassan et al.(2012) by using unit root test, cointegration analysis, vector error correction model, granger causality test to analyze the relationship between macro-economic variables(exchange rate, money supply (m3),consumer price index, industrial production index, treasury bill rate & US Federal fund rate )with Malaysian shariah index. In their study found relationship between macroeconomic variable and Malaysian shariah index. During the period of 1990 to 2006 the effect of macroeconomic variables are positive. The negative relation showed after the period until 2011, which are caused, for increasing of CPI, Exchange rate, Treasury bill and US federal fund rate. However, the study also found positive relation between industrial production and money supply for the period of 2007 to 2011.But in the short run there are both positive and negative relationship was found.

### OBJECTIVES AND SCOPE OF THE STUDY

The study has great importance in policy level. The recent variation of Market Index has shown that how the macroeconomic variables can Influence the share market index.

The last monetary policy of Bangladesh bank shows that the private sector investment has been growth at 19.56%, which cross the target of money supply of 18% (kobir, 2018). Following the increased of money supply in the previous fist fiscal policy of 2017-18, the second fiscal policy of 2017-18 January to June Bangladesh bank has lowered credit growth at 16% by lowering the credit growth of private commercial banks and adjusting the advance to deposit ratio form 85% to 83% (Monetary policy statement-BB). Which ultimately force the private commercial bank to sell their shares that they are holding at hand in order to adjust the

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Advance to deposit ratio (Report, 2018). It has bear great stern on the share market by creating panic among the common investors. (Talukder, 2018)

### DATA METHODOLOGY

The objective of the study is to find out the impact of macroeconomic variables on stock market index. Money supply, interest rate, exchange rate, inflation rate used as the proxy variables of macroeconomic environment. The general price index of Dhaka stock exchange (DSEX) has been taken as dependent variable in order to measure the economic development in line with the macroeconomic development. Share market index has been considered one of the most sensitive indicators of an economy, which has been influenced by any macro-economic variables such as social, political, global, regional economic factors.

### VARIABLES EXPLANATION

**DSE broad index:** Share market index represent the overall situation of macroeconomic environment of a country. The fluctuation of the share market index is related with the changes in macroeconomic variables such as inflation, interest rate, money supply, and political situation. It also indicates the performance of the major corporation of a certain market (Rafique, 2014) (Elgazzar, 2016). The theoretical explanation of taking stock market index in this dissertation is that there exist a positive linear relationship between economic development of a country and the gradual increase of market index. (Hossain, 2011) (Afrin Rifat 2015)

**Interest rate:** According to Reilly and Brown (2003), the pure rate of interest is the rate of exchange between future consumption and current consumption. The huge supply of money than its current demand leads to the lower rate of interest. However, when investors expect that there exist uncertainty in the future return they demand premium over the pure time value of money, which ultimately contribute to the increment of the interest rate. Nevertheless in an inflationary situation when the current price level increases, investors demand higher rate of return that is pure time value of money plus rate of inflation. (Kurihara, 2006) (Buyuksalvargy, 2010)

Theoretically, Interest rate have a negative relationship with stock market index when interest rate increases people tends to deposit their saving's in banks as they providing higher rate of return bearing low risk than stock market. As a result, the demand for shares decreases at the market, which decline the indexes of share of market. The opposite situation can happen when the bank lowers lending rate because of lower demand of money in the market, lower rate of inflation, or excess supply of money in the economy (Cok, 1989). At that time, the demand for shares increases in the market, which drives the market index to upward trend. Moreover, when banks increases the lending rate for increasing the deposit rate, it could be for higher demand of money in the economy, rise of inflation in the economy, or greater uncertainty, it will have a negative impact in private investment in the economy and the stock market and vice versa. (Uddin, 2007)

**Inflation:** Inflation can be defined as the increment of the general price index in the economy condition. (McConnell et al. 2012). Inflation lowers the purchasing power of buyer to buy goods and services by lowering the unit value of money. They proved that consumer price index is the prime measure of inflation. Rafique et al. (2013) uses consumer price index as the proxy variables of inflation. He discussed that inflation can affect stock index both positively and negatively. He argued that when there is demand push inflation, firms increases the prices of the product, which leads to the increment of the earning of the firm and provides a positive message to the investors in the market. This would increase the demand of shares in the market and ultimately rise of stock value (Aliyu, 2009). On the contrary, when there is cost-push inflation it could be for the increment of production cost or the increases of standard of living of the general people. It will force them to spend more in daily necessities and saving less. Therefore, it negatively affects the stock indexes because people possess less amount of money to invest in the stock market. (Harasheh H. A.-L., 2011) In the institutional level, inflation lowers the present value of income of the firms as firm's cash flow is discounted by nominal rate of interest. This also negatively affects the valuation process of the stock's price of the firm. (Issahaku, 2013), (P., 2016) (Issahaku, 2013)

**Exchange rate:** Exchange rate can be defined as the price of one country's currency against another country's currency. Exchange rate has greater importance on country's foreign exchange reserve and export earnings. If a country is largely depends on export earnings, sudden rise in exchange rate against US dollar badly affect its export earnings. It also affects the competitiveness of the firms in the international market, which consequently negatively affect the stock market by lowering the profitability of the export-oriented firms. On the other hand, the devaluation of three country's currencies against US dollar has positively affected the firms. (Rifat, 2015) (Buyuksalvargy, 2010)

**Money supply:** Money supply greatly affects the macroeconomic variables especially stock market indexes. Monetary aggregates include three components  $M_1$   $M_2$   $M_3$ .  $M_1$  contains the money in circulation, money at hand and demand deposit at bank. It is

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considered as narrow money. M2 contains the all components of m1 plus overnight repurchase agreement, money market deposits, savings and small deposits. M3 is the broadest term at aggregate money supply. It includes all the terms of M2 and term deposits. In theory aggregate money supply positively correlated with share market index. When money supply increases the index of share market, also increase vice versa. The study use M2 as proxy variables of money supply, which has been used by (Kontonikas, 2006), (Rifat, 2015)

**Reserve money:** Reserve money is also known as high-powered money, which is the base of monetary policy of a country. Reserve money consists of three components, these are money in circulation, and banker's deposits with central bank and others deposits with the central bank (Omotor, 2009). Since reserve money consist of money in circulation, it decides the level of liquidity and price level in the economy hence any sudden change in the reserve money can contribute to the fluctuation of share market index.

**Table 1. The research variables and proxy of each variable**

Research variables	Proxy variables
Stock market	Market index(DSEX index)
Base money	Reserve money
Money supply	M2
Consumer price index (CPI)	Inflation
Deposit rate	Interest rate
Exchange rate	Exchange rate.

### DATA

In this study, monthly data from 1 January 2006 to December 31 of 2017 has been used to measure the relationship between macroeconomic variables and stock market index. A quantitative research approach has been used to investigate above relationship. The data has been collected from the Bangladesh bank, Dhaka stock exchange monthly review, and annual report of Bangladesh bank. As the time series data are skewed and variance are not normally constant, we convert the monthly time series data into natural logarithm form to resolve the heteroskedasticity problem. (Bhunia 2012).

### Econometric tools for data analysis:

A number of econometrics method has been used such as unit root test, augmented Dickey Fuller test proposed by Dickey Fuller (1980), johansen and jelius (1988) cointegration test, vector error correction model (VECM) vector auto regressive model will be considered to the reach the objectives of the study. In addition to this, statistical technique of descriptive statistics and correlation matrix has been used in this dissertation.

### Empirical results and analysis:

This section of the study will illustrate the interpretation and illustration of correlation matrix, econometrics tools and checking robustness of the model.

**Unit root test analysis:** It is must to check either the data got unit root (non-stationary) or no unit root (stationary) before running regression analysis. Because data having unit root cannot bring fruitful result for analysis and comment. We test stationary of the data by augmented dickey Fuller test and Philips perron unit root test before proceeding to integration test. This test is significant to know the how many time variables must be differentiated to get stationary data (Tweneboah A. a., 2008). Variables those are stationary at level will represent I (0) while those are stationary at first difference are termed as I (1). We test the null hypothesis that all selected macroeconomics variables got unit root against the alternative hypothesis of no unit root test. Table no 2 illustrate the result of unit root test.

**Table 2. Augmented Dickey Fuller and Philips perron test**

	At level		First difference	
	ADF test	PP test	ADF test	PP test
RM	.118	.375	-12.177	-144
M2	.042	.198	-12.009	-141
IF	.508	-.366	-12.718	-137

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DSEX	-1.916	-6.999	-11.954	-141.619
EI	-4.431	-31.728	-19.348	-173.250
INTEREST	-.925	-1.583	-11.983	-142.534

Note: RM stands for reserve money, M2 stands for money supply, ER stands for Exchange rate, and I stand for Inflation rate. The above table illustrate that none of the selected variables are stationary at level. However, they become stationary at first difference. These characteristics of data bear great importance for running cointegration equation.

**Johansen co-integration test:** Johansen co-integration test can be done on non-stationary data. Johansen co-integration test is used for determining the long run association between the macroeconomic variables and the market index. (Assuming that the variables will be stationary at first difference I (1) (Yama, 2017). Having established that, our selected macroeconomic variables are stationary at first difference johansen co-integration test can be run of those variables. However, before running the integration test we have to identify the optimal lag length for the sample. The selected lag length will be applied on johansen co-integration test, vector error correction model, and vector auto regression model (Tweneboah A. M., 2008). The basis of which maximum lag length be identified is Akaike information criterion (AIC), the Schwaz Bayesian criterion (SBC) and the Hanan Quinn criterion (HQC). Based on Akaike information criterion, we have selected maximum 2-log length. Ivanov and kilian (2001) claim that SBC and HQC provide better result for quarterly data whereas AIC is useful for shorter span of data. The study employs the johansen co-integration test, a standard test determine the long run association between variables, selecting the log length 2, using critical value of .05 significant level (Osamwonyi, 2012)

**Table 3. Trace test Bangladesh**

Maximum rank	Eigenvalue	Statistics trace	5%critical value
r=0	-	96.1271	124.24
r≤1	.27067	51.6237	94.15
r≤2	.11053	35.1092	68.15
r≤3	.09269	21.3945	47.21
r≤4	.07178	10.8915	29.68
r≤5	.03984	5.15	15.41
r≤6	.03591	.0030	3.76
r≤7	.0002		

\*denotes rejection of null hypothesis at 5% level

Trace statistics indicates no integration at 5%level

**Table 4. Maximum Eigenvalue Bangladesh**

Null Hypothesis	LL	Maximum eigenvalue	5% critical value
r=0	-	44.50	45.28
r≤1	.27067	16.51	39.37
r≤2	.1053	31.171	33.46
r≤3	.09269	10.50	27.07
r≤4	.07178	5.73	20.97
r≤5	.03938	5.16	14.07
r≤6	.03591	.003	3.76
r≤7	.0002		

\*denotes rejection of null hypothesis at 5% level

Maximum eigenvalue indicates no integration at 5%level

Table no 3 represents the johansen co-integration test in two-likelihood ratio. One is traci statistics another one is maximum eigenvalue statistics. Null hypothesis states that there is no cointegration among the variables against the alternative hypothesis is the existence of co-integration among the variables. Table 3 shows that all the trace statistics is less than the test statistics at

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5% level of significance meaning that there is no co-integrating or long run association between the macroeconomic variables and the market index. The study also reports the maximum eigenvalue test at table no 4 which also shows the similar result of trace statistics. (Lakshmi, 2014)

### Vector error correction model

Following the absence of long run association between the macroeconomic variables and market index, unrestricted VAR model in the form of VECM has been estimated with the maximum lag 2, which has determined by AIC. The result of VECM represent (table no 5) that the error correction term  $\mu_{t-1}$  is not only negative but also significant at 5% level of implying that the stock index of Bangladesh will be adjusted at 5% level of significant disequilibrium may exist on the short run. The co-efficient of the subsequent logged terms of changes in the reserve money reveal that a short run net negativity but very small feedback effect from interest rate to stock market. The rest of the two variables are having positive co-efficient, interest rate and M2 but not significant at 5% level.

**Table 5. Vector error correction model**

Variables	Coefficient	Standard error	Z statistics	p-value
Vector-error correction term	-.30733	.1090	-2.82	.005*
DSE index L1	.40	.11	-3.656	.000*
DSE index L2	.21	.92	-2.67	.018*
RM L1	-1.68	2.38	-.71	.479
RM L2	-1.37	2.42	-.56	.572
M2 L1	1.75	2.52	.70	.427
M2 L2	1.44	2.57	.56	.573
INTEREST L1	-.1474	1.41	.10	.917
INTEREST L2	-.568	1.35	-.42	.675
ER L1	.0227	.30	-.08	.940
ER L2	.0770	.29	.26	.793
I L1	-1.259	3.877	-.32	.745
I L2	-1.462	3.904	-.37	.708

\*denotes rejection of null hypothesis at 5% level.

Note: RM stands for reserve money, M2 stands for money supply, ER stands for Exchange rate, and I stand for Inflation rate.

### Vector Auto Regression Test:

In this section, the interpretation of vector auto regression test has been presented. The study employ the VAR model in order to investigate whether there are led leg relationship for short run return of the considering variables. The optimal log length chose 2 from the AIC criterion. VAR table no. 6 shows that DSE L1 and DSE L2 are significant to explain the short run relationship of macroeconomic variables at 5% level of significant. This imply that dependent variable DSE, market index, is significantly affect by reserve money, interest rate, exchange rate, inflation rate, M2 which is consistent with the VECM test.

**Table 6. Vector Auto Regression Model**

	coefficient	Std error	z	p
DSE index L1	.32	.08	3.95	.000*
DSE index L2	.24	.08	2.92	.003*
RM L1	1.14	2.23	.51	.610
RM L2	1.76	2.25	.78	.434
M2 L1	-1.23	2.35	-.52	.603
M2 L2	-1.80	2.37	.76	.447
INTEREST L1	-.23	2.40	.96	.337
INTEREST L2	.084	2.41	.35	.727
ER L1	1.27	3.77	.34	.737

\*denotes rejection of null hypothesis at 5% level

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ER L2	1.05	3.69	.28	.777
I L1	1.31	4.62	.29	.775
I L2	.345	.321	.45	.675

Note: RM stands for reserve money, M2 stands for money supply, ER stands for Exchange rate, and I stand for Inflation rate.

**Robustness of the Model:** It is prerequisite to check the robustness of the model in order to emphasize the accuracy of the model's result. The data should be normally distributed, free from heteroskedasticity, and variables are free from autocorrelation. These are the fundamental conditions of any data set. The descriptive statistics shows (Table no 7) that difference between mean and median value is closely one. The coefficient of skewness of each variables is positively skewed except exchange rate and interest rate. The value of kurtosis is less than three, which is considered as benchmark for normally distribution of data. The maximum range is four among the variables, which indicates that data is not widely dispersed. The minimum value and maximum value is also very close which also imply that the impact of extreme value is less than is expected. So considering all the characteristics stated above we conclude that the data normally distributed. The autocorrelation among the variables of the study has been justified by Lagrange-multiplier test (Table no 8). Null hypothesis states that variables are not auto correlated against the alternative hypothesis variables are auto correlated. The acceptance of null hypothesis at 5% level of significance ensures that the variables are not auto correlated.

**Table 7. Descriptive Statistics**

Components	Reserve Money	M2	Interest	DSE Index	Exchange rate	CPI
Mean	9.298580679	11.08274	8.018333	8.202826	4.299318	7.731181
Median	8.963348334	10.74847	7.855	8.349957	4.309572	7.31
Standard Deviation	1.326359573	1.279445	0.500411	0.571561	0.066765	1.33915
Kurtosis	0.563827638	0.513618	-1.3915	5.231475	-1.83856	-0.03584
Skewness	1.369169455	1.350121	0.320643	1.061706	-0.05354	1.095677
Range	4.374308766	4.092903	1.61	3.827667	0.182247	4.57
Minimum	7.948031991	9.777094	7.31	7.199678	4.205886	6.15
Maximum	12.32234076	13.87	8.92	11.02735	4.388133	10.72
Sum	1338.995618	1595.915	1154.64	1181.207	619.1018	1113.29
Count	144	144	144	144	144	144
Confidence Level (95.0%)	0.218483718	0.210756	0.08243	0.09415	0.010998	0.220591

**Table 8. Lagrange-multiplier test**

lag	Chi2	df	Prob>chi2
1	19.2847	25	.78322
2	28.1904	25	.29916

\*denotes rejection of null hypothesis at 5% level

H0: no autocorrelation at lag order

**Findings:** The main purpose of this dissertation is to investigate to find out is there any long run or short run association exists between macroeconomic variables with the stock market index. They key macroeconomic variables have been represented by reserve money, money supply, inflation rate, interest rate, exchange rate. In order to reach the conclusion we use several multivariate models. Theses model shows that there is no long run association between share market index and the macroeconomic variables from the Bangladeshi perspectives. This finding is consisting with Nabila Nisha (2015) who investigates the relationship between monetary policy and stock market index. However, the second multivariate model, vector error



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correction model that has been estimated to measure the short run adjustment for the long run relationship between the stock market and the macroeconomic variables, provides significant relationship among these variables. Like VECM test VAR test also provides the similar result that Dhaka stock exchange is affected by reserve money, interest rate, exchange rate, inflation rate, M2 in short run circumstance at 5 % level of significant.

### LIMITATION AND SCOPE FOR FURTHER STUDY

The study is not beyond the limitations though the researcher has tried to do their own best effort. There might be the mistake in the case of collecting data as we have collected the data from secondary sources. In addition to this there is little mistake in the data analysis and interpretation. The study open new door to do further research by incorporating other macroeconomic variables like industrial production index, human development index treasury bill, per-capita of people, m3. The cross-country analysis of the relationship between macroeconomic variables and stock market index can be done.

### CONCLUSION

The findings of the study suggest that the share market index of Bangladesh is influenced by macroeconomic variables such as reserve money, interest rate, exchange rate, inflation rate in short run but there is no long run association of share market index with the macroeconomic variables. This result bear great importance for the policy maker by indicating that the market is not efficient which can bring better result to the investor of the stock market. The economic indicators, standard of living, GDP per capita, money supply, private investment and GDP growth rate, are rising with the passage of time but the economic development indicators (share market index) didn't increased in line with that which implies that there is lack of prudent policy implementation, lack of good governance among the market participants, lack to trust among the general investors to invest in stock market, lack of stringent rules and regulations and dearth of proper monitoring by the Bangladesh securities and commission authority. Historically Bangladesh stock market experiencing a weak form efficiency and high volatility in market index like other stock market index of developing countries.

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