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Role of Macroeconomic Variables on Stock Market in Bangladesh

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ABSTRACT

Capital market plays a significant role in a country's economical growth. Unfavorable movement of the macroeconomic factors will lead to a financial crisis of a country. The global financial crisis of (2007-2009) crashed the whole capital market and made the world economy vulnerable. Vulnerable security market will ruin the country's economic growth. The systematic risk factors i.e. macroeconomics variables impact on the return on stock market as capital market is a macro factor &cannot operate ignoring this macro variable. Inflation, exchange rate, T-bill rate and saving rate were used as macroeconomic factor. In order to initiate the research multivariate regression model was used for data analysis. Time series data were used here. Empirical evidence from reviewing some papers revealed that there seems a strong relation between changing macroeconomic factors and influence on security market. Secondary monthly data was used here for regression analysis by initiating Johansen co-integration test, Vector error correction model for capturing long term relation. The study concluded that just four macroeconomic variables were not enough to illustrate the stock market behavior. Innovation accounting plays an import role to capture the short run shocks where co-integration equation examines the long run relations. Investors can be used this study to make rational judgment in investing the stock market of Bangladesh though different market reacts differently in their investing pattern. Consequently, in this study has revealed the role of changing selected macroeconomic factors on the security market of Bangladesh in long run and short run perspective.

Keywords: Co-integration, CSE, DSE, Macroeconomic variables, Stock market

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1. INTRODUCTION

Stock market was one of the dynamic indicators of economic growth. Stock market played a vital role in channelizing savings from surplus sector to deficit sector of a country. In addition, stock market is the pulse of any economy. In Bangladesh, the capital market started in 1954 named East Pakistan Stock Exchange. After liberation 1976, the trading was restarted and in 1986, DSE was started. The automated trading was initiated in 1998 and started in 2001. The number of listing company was 750, market capitalization US$ 46.2 billion, DSE 30 Index, Dhaka Stock Exchange Broad (DSEX), DSES Index were the DSE indices. CSE started their trading in 12 February, 1995. Number of listing company is 250, market capitalization US$ 38.1 billion, CSE30, CSCX, CASPI, CSI, CSE50 are the indices. Firms operated in the stock market for their long-term capital needs by issuing shares & stocks. A number of factors influenced

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the stock prices some were company specific, some were country specific and others were in the environment where the stock market existed (Macro factors). The economic movement guided volatility& fluctuation of stock return. In efficient market, the security price was reflected by the available information. Moreover, economic theories suggested that security price should reflect the expectation of the future, consumption preference, corporate profit, and corporate governance. If security prices reflected the underlying fundamental then security price was considered as a leading indicator. Security market was developed based on efficient market hypothesis (EMH). Here we used semi strong hypothesis developed by Fama (1997). Macroeconomic variables (inflation, exchange rate, T-bill rate & saving rate) influenced firm performance i.e. affected security market as a whole. Taking inflation as an example, if inflation raised purchasing power of the people decline & people bought luxury product in a lower quantity. Consequently, its affected firm performance & stock price of that firm declined also. Exchange rate also impacted significantly on stock return. When the domestic currency devalued the cost of import increased & domestic people found foreign product costlier. Subsequently, they bought less on foreign product & relied more on domestic product resulting increased export of the country as it was less costly because of devaluation. Thus, increased the stock price in long run though according to many scholars' devaluation of domestic currency had a negative short-term effect on stock price. T-bill rate which worked as a proxy of interest rate had a negative impact on stock return because as we know interest rate was the cost of borrowing & when the cost of borrowing increased businesses relied less on borrowing which in turn lower down the business expansion & economic growth. Accordingly, T-bill impacted negatively to the stock return. Therefore, the objective of this paper was to identify & explain the role of macroeconomic variables on the return of stock market in Bangladesh perspectives by initiating regression analysis.

2. MATERIALS AND METHODS

For data analysis, the following models has been used.

2.1. Regression Model

$Log\ DSE = \alpha_0 + \alpha_1 log\ Inf_t + \alpha_2 log\ Ex_t + \alpha_3 log\ Sav_t + \alpha_4 log\ T\text{-}bill_t + \epsilon_t$

$Log\ CSE = \beta_0 + \beta_1 log\ Inf_t + \beta_2\ log\ Ex_t + \beta_3 log\ Sav_t + \beta_4 log\ T\text{-}bill_t + \epsilon_t$

Here α and β are the coefficient of variables & € is the error term.

In those above equation DSE and CSE are the dependent variables and Exchange rate, saving rate, T-bill rate, Inflation are independent variables.

2.2. Unit Root Test

This test measures the stationary. The most used unit root test is the Augmented Dicky Fuller test (ADF).

In general, unit root test can be written as following equation.

Time series to be tasted $(y_t) = D_t + z_t + \epsilon_t$

Here,

D_t = Deterministic part

Z_t = Stochastic part

ϵ_t = Stationary error term

2.3. ADF Test

ADF test equation can be written as follow.

$\Delta y_t = \alpha_0 + \beta_t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \ldots\ldots + \delta_{p-1} \Delta y_{t-p-1} + \epsilon_t$

In the above equation null hypothesis is the data series being tasted has a unit root i.e. stationary exists & alternative hypothesis is no unit root exists.

2.4. Co-integration Test

To examine the long run equilibrium relation Johansen co-integration test is employed. Null Hypothesis; H0=No co-integration exists among the variables

Alternative Hypothesis; H1=H0 is not correct

2.5. Vector Error Correction Model

Δ Log DSE $= \alpha_c + \alpha_1 \Delta log\ Inf_t + \alpha_2 \Delta log\ Ex_t + \alpha_3 \Delta log\ Sav_t + \alpha_4 \Delta log\ T\text{-}bill_t + \alpha_5 ECT_{t-1} + \epsilon_t$

Δ Log CSE $= \beta c + \beta_1 \Delta log\ Inf_t + \beta_2 \Delta log\ Ex_t + \beta_3 \Delta log\ Sav_t + \beta_4 \Delta log\ T\text{-}bill_t + \beta_5 ECT_{t-1} + \epsilon_t$

2.6. Innovation Accounting

For capturing the short run shocks impulse response function will be employed in this paper. Method used for time series data (Chart 1).

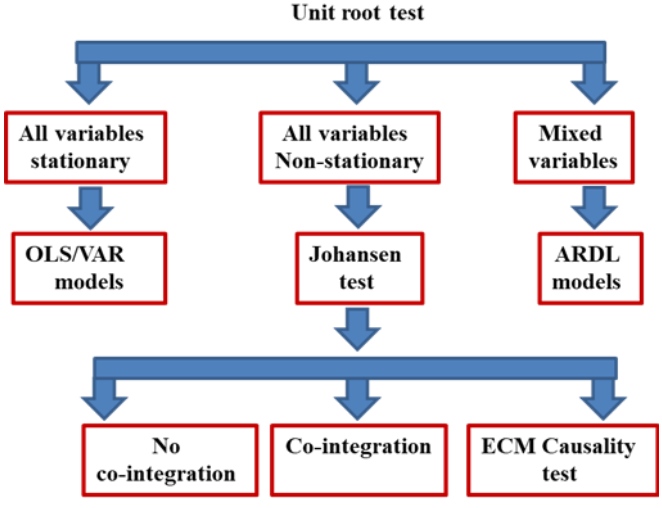

Chart 1. Flow chart of unit root test.

In this work, time series monthly data from July 2012 to December 2019 comprising 90 data sets had been used for data analysis. All the data were collected from Bangladesh Bureau of statistics & Bangladesh Bank. Unit root test, Johansen co-integration test, Vector error correction model & Impulse response functions had employed. Eviews software have used for data analysis.

To identify the linkage between macroeconomic variables & stock market following hypothesis had been tested in this study.

H01: Inflation rates had no significant impact on DSE & CSE
HA1: Inflation rates had significant impact on DSE & CSE

H02: Exchange rates had no significant impact on DSE & CSE
HA2: Exchange rates had significant impact on DSE & CSE

H03: Saving rates had no significant impact on DSE & CSE
HA3: Saving rates had significant impact on DSE & CSE

H04: T-bill rates had no significant impact on DSE & CSE
HA4: T-bill rates had significant impact on DSE & CSE

3. RESULTS AND DISCUSSION

The descriptive statistics for the six variables had been obtained for empirical investigations that were presented in the following Table. The variables were inflation, exchange rate, saving rate, 90 days t-bill, DSE & CSE. The value of Skewness & kurtosis indicated lack of symmetry in the distribution. DSE, CSE, saving rate, t-bill rate had negative skewness & long left tail but inflation rate & exchange rate had positive skewness & long right tail. High (>3) or low (<3) kurtosis value indicate leptokurtic or platykurtic. Here all variables except t-bill rate (leptokurtic) were platykurtic. If the skewness & kurtosis had a value of zero & 3, the data series were normally distributed. The value of standard deviation indicated that DSE, CSE, inflation &t-bill rate was more volatile compared to exchange rate & saving rate.

The first & simplest method for checking whether the variables were stationary or not was the graphical representation which observes mean, variance, and seasonality. The pattern of the data set indicated that all of the variables were non-stationary as their mean was different in different point in time.

Non-constant mean of the variables proved the non-stationary nature of the variables.

The evidence was further investigating by employing ADF test which was the formal procedure for checking stationary.

Table 1 Descriptive statistic

	LNDSE	LNCSE	LNINF	LNEX	LNSAV	LNT
Mean	14.99367	14.76701	1.804881	4.383475	3.377249	1.557122
Median	14.99544	14.77223	1.773001	4.366786	3.386080	1.673351
Maximum	15.25505	15.08275	2.124773	4.441474	3.433858	2.430098
Minimum	14.57924	14.26450	1.601406	4.348987	3.293612	-0.371064
Std. Dev.	0.181240	0.213810	0.128066	0.032190	0.039715	0.589166
Skewness	-0.472119	-0.486659	0.734339	0.570577	-0.349964	-0.938490
Kurtosis	2.189061	2.268012	2.512356	1.708023	2.108864	4.037455
Jarque-Bera	5.809531	5.561832	8.980543	11.14288	4.815082	17.24762
Probability	0.054762	0.061982	0.011218	0.003805	0.090036	0.000180
Sum	1349.430	1329.031	162.4393	394.5127	303.9524	140.1410
Sum Sq. Dev.	2.923462	4.068616	1.459682	0.092221	0.140380	30.89334
Observations	90	90	90	90	90	90

Table 2 Unit root test

Variables	ADF test result	Comments	Order of integration
LNINF	-2.348428	Failed to reject h0	
D(LNINF)	-9.320840	Rejected h0	I(1)
LNEX	0.023335	Failed to reject h0	
D(LNEX)	-5.280364	Rejected h0	I(1)
LNSAV	-1.532171	Failed to reject h0	
D(LNSAV)	-6.685074	Rejected h0	I(1)
LNT	-2.094333	Failed to reject h0	
D(LNT)	-4.805263	Rejected h0	I(1)
LNDSE	-1.780928	Failed to reject h0	
D(LNDSE)	-9.671042	Rejected ho	I(1)
LNCSE	-1.846926	Failed to reject h0	
D(LNCSE)	-9.036279	Rejected h0	I(1)

3.1. Unit Root Test

The following table revealed that all the variables were non-stationary in levels with intercept. The variables were non-stationary because they accepted the null hypothesis i.e. presence of unit root in level. In the first difference all the variables were stationary at 1, 5, 10 percent level of significance. This type of data series was called I (1) as they were integrated of the order I (1). Next Johansen co-

integration test was employed for investigating the long-term relation between dependent & independent variables.

3.2 Lag Length Selection

As the regression model was sensitive to lag length chosen, so the appropriate lag length had to ascertain before run the co-integration test. The study determined the optimal lag based on minimum Akaike information criterion (AIC) & Schwarz information criterion (SC). Both the statistics suggested one lag length. Table 3 & 4 proved that. All of the statistics confirmed that except LR (in table 3).

Table 3 Lag length criterion

Endogenous variables: LNDSE LNINF LNEX LNSAV LNT						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	469.8160	NA	8.20e-12	-11.33698	-11.19022	-11.27806
1	965.0877	918.0647	8.58e-17*	-22.80702*	-21.92651*	-22.45351*
2	989.6155	42.74487	8.73e-17	-22.79550	-21.18124	-22.14740
3	1013.917	39.11977*	9.04e-17	-22.77847	-20.43045	-21.83577
4	1029.569	23.28675	1.17e-16	-22.55046	-19.46869	-21.31318
5	1051.494	29.94580	1.34e-16	-22.47545	-18.65992	-20.94357
6	1074.074	28.08812	1.54e-16	-22.41644	-17.86716	-20.58997
7	1103.487	33.00021	1.56e-16	-22.52408	-17.24104	-20.40302
8	1130.380	26.89632	1.78e-16	-22.57033	-16.55354	-20.15468

*indicates lag order selected by the criterion; LR: sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion; SC: Schwarz information criterion; HQ: Hannan-Quinn information criterion

Table 4 Lag length criterion

Endogenous variables: LNCSE LNINF LNEX LNSAV LNT						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	451.8262	NA	1.27e-11	-10.89820	-10.75145	-10.83928
1	955.8214	934.2350*	1.07e-16*	-22.58101*	-21.74450*	-22.22750*
2	976.8119	36.34933	1.19e-16	-22.48322	-20.86895	-21.83512
3	999.2252	36.07995	1.29e-16	-22.42013	-20.07211	-21.47743
4	1014.478	22.69385	1.70e-16	-22.18240	-19.10063	-20.94512
5	1035.574	28.81341	1.97e-16	-22.08717	-18.27164	-20.55529
6	1056.893	26.51877	2.34e-16	-21.99739	-17.44810	-20.17092
7	1080.796	26.81769	2.72e-16	-21.97063	-16.68758	-19.84957
8	1109.571	28.77489	2.95e-16	-22.06270	-16.04590	-19.64705

*indicates lag order selected by the criterion; LR: sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion; SC: Schwarz information criterion; HQ: Hannan-Quinn information criterion.

Table 5 Johansen Co-integration test

Series: LNDSE LNINF LNEX LNSAV LNT						
Null Hypothesis	Trace statistic	Critical value (5%)	Comment (According to trace statistic)	Max-Eigen Statistic	Critical value (5%)	Comment (According to Max-Eigen Statistic)
$r \leq 0$	74.34360*	69.81889	Rejected h0	32.74828	33.87687	Failed to reject h0
$r \leq 1$	41.59531	47.85613	Failed to reject h0	20.02720	27.58434	Failed to reject h0
$r \leq 2$	21.56811	29.79707	Failed to reject h0	13.00993	21.13162	Failed to reject h0
$r \leq 3$	8.558184	15.49471	Failed to reject h0	5.229879	14.26460	Failed to reject h0
$r \leq 4$	3.328305	3.841465	Failed to reject h0	3.328305	3.841465	Failed to reject h0

Note:* denotes the rejection of null hypothesis; Trace test indicates 1 co-integrating equations at the .05 level; Max-Eigen test indicates no co-integrating equation at the .05 level

Table 6 Johansen Co-integration test

Series: LNCSE LNINF LNEX LNSAV LNT						
Null Hypothesis	Trace statistic	Critical value (5%)	Comment (According to trace statistic)	Max-Eigen Statistic	Critical value (5%)	Comment (According to Max-Eigen Statistic)
$r \leq 0$	75.43116*	69.81889	Rejected h0	31.80349	33.87687	Failed to reject h0
$r \leq 1$	43.62767	47.85613	Failed to reject h0	21.20195	27.58434	Failed to reject h0
$r \leq 2$	22.42572	29.79707	Failed to reject h0	13.33198	21.13162	Failed to reject h0
$r \leq 3$	9.093746	15.49471	Failed to reject h0	5.168900	14.26460	Failed to reject h0
$r \leq 4$	3.924847*	3.841465	Rejected h0	3.924847*	3.841465	Rejected h0

Note: *denotes the rejection of null hypothesis; Trace test indicates 1 co-integrating equations at the .05 level; Max-Eigen test indicates no co-integrating equation at the 0.05 level

Table 7 Co-integrating equations and relationship

Co-integrating equation	$LNDSE_{t-1}$	$LNINF_{t-1}$	$LNEX_{t-1}$	$LNSAV_{t-1}$	LNT_{t-1}	C
	1.0000	0.658038	-1.533456	0.863601	-0.031039	-12.33405
Co-integrating equation	$LNCSE_{t-1}$	$LNINF_{t-1}$	$LNEX_{t-1}$	$LNSAV_{t-1}$	LNT_{t-1}	C
	1.000	0.863622	-1.698100	1.107641	-0.058736	-12.54008
Dependent variable (ln DSE)	Independent variables					
	LNINF		LNEX	LNSAV	LNT	C
Long term coefficient elasticity	0.658038		-1.533456	0.863601	-0.031039	-12.33405
Coefficient	0.658038		-1.533456	0.863601	-0.031039	-12.33405
T statistics	3.36893		-1.76929	1.40080	-0.77951	
Comment (In terms of long-term equilibrium)	Positive relation with dependent variable		Negative relation with dependent variable	Positive relation with dependent variable	Negative relation with dependent variable	
Dependent variable (ln CSE)	Independent variables					
	LNINF		LNEX	LNSAV	LNT	C
Long term coefficient elasticity	.863622		-1.698100	1.107641	-0.058736	-12.54008
Coefficient	0.863622		-1.698100	1.107641	-0.058736	-12.54008
T statistics	3.50203		-1.54962	1.42306	-1.16691	
Comment (In terms of long-term equilibrium)	Positive relation with dependent variable		Negative relation with dependent variable	Positive relation with dependent variable	Negative relation with dependent variable	

According to AIC statistics lower the value of AIC in any particular lag the better it was. Therefore, the lag length of this study was one for further analysis.

3.3. Johansen Co-integration test

The result of Johansen Trace statistics & Max-Eigen statistics were shown in table 5 & 6 using 5% significance level. Both of the table showed that in trace test there was one co-integrating equation but no co-integration in Max-Eigen test. Trace test rejected null hypothesis at $r \leq 0$ in both cases (DSE, CSE). In table 6 both trace test & max-eigen test reject the null hypothesis at $r \leq 4$ but max-eigen test did not reject the null hypothesis at $r \leq 0$. The guideline for rejection was the p value i.e. if the p value was lower than .05 than rejected the null hypothesis. Now the study concerned about which of the two tests (trace test, Max-Eigen) was superior. According to many scholars' trace test was superior to Max-Eigen. Therefore, there existed long term relation between dependent variables (DSE, CSE) & independent variables (Inf, Ex, Sav, T-bill).

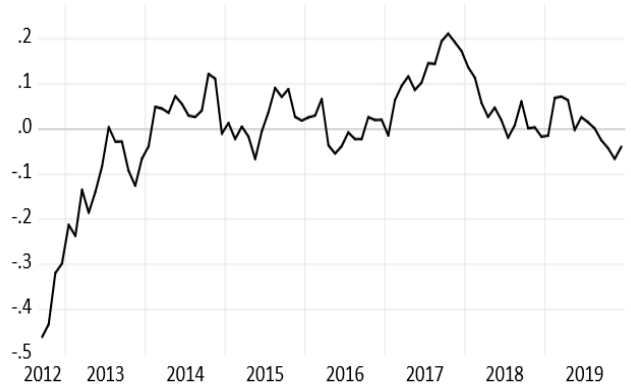

Fig. 1 Co-integrating relationship (DSE and macro-variables).

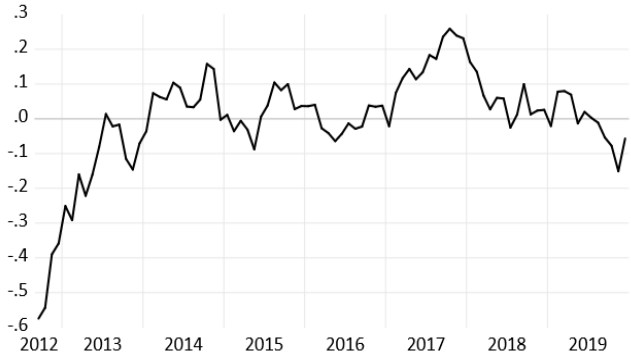

Fig. 2 Co-integrating relationship (CSE and macro-variables).

Based on the Johansen co-integration test, the first normalized co-integration equation showed that there had a long-term relationship among dependent variable & independent variables which showed in table 7. DSE & CSE were positioned as dependent variable in series 1 & 2 respectively. In the long run exchange rate &t-bill rate had a negative impact on DSE & CSE while inflation & saving rate exhibited positive impact on DSE & CSE, on average, ceteris paribus. All of the coefficients were statistically significant except coefficient of t-bill. Therefore, the null hypothesis of no co-integration was rejected against the alternative hypothesis of no co-integration. So, the result of the test implied that the series were related & combined in a linear fashion. Even if there were shocks in the short run, which may affected the movement of individual series, they would converge with time (until long run). Basically, table 7 showed the error correction term (ECT) for the long run. In figure 1 co-integrating relationship was shown which also proved the rejection of null hypothesis.

The co-integration equation showed that inflation had a positive correlation with DSE & CSE in the long run and this was significant. However, this finding was inconsistent with the findings gathered by Fama (1997), Kirui, et al. (2014). The logic behind that if inflation rate increased, firm's production cost also increased which in turn decreased the future cash flow & decreased the share price & affected the stock return negatively. On the other hand, Vejzagic & Zarafat (2013), Agrawalla & Tuteja (2008) found positive relation with stock return by a means of value protection/hedging option & invested in equity market to handle the threat of inflation. Exchange rate had a negative impact on stock market (DSE, CSE) in the long run which was proved by the co-integration equation in Table 7. This finding was inconsistent with Badullahewage (2018) but consistent with some of the authors. The logic behind consistency was stable exchange rate was the indicator of economic growth of any country as world became a global village & people invested in different stock market of developed country in the world. Saving rate had a positive influence on the stock market (DSE, CSE) which was inconsistent with the finding of Narwal & Mital (2011), Rjoub et al. (2009). The scholars proved that if saving rate increased the circulation of money reduced & scarcity of money forced firm to produce less or produce the product at higher cost & as per unit product cost raised people bought it less & the security return/ stock return was lower also. Hussin et al. (2012) and Ali (2011) found a negative relation between the saving rate & stock market by proving that people continuously invested (a portion of their income as savings) in securities for future return in the quest of enjoying higher standard of living in future time. T-bill rate (proxy of interest rate) had a negative impact on stock return which was statistically insignificant in the long run & consistent with the findings of Jamaluddin, et al. (2017). They proved that rising t-bill rate would cause the production cost & borrowing cost to rise & which resulting lower corporate profit and stock return.

3.4. Vector Error Correction Model

Table 8 showed the short-term relationship. For DSE Adjustment speed is 1.45% which implied that the previous period's (month) deviation from long run equilibrium was corrected at a speed of 1.45%. Again, for CSE adjustment speed was 0.5535% which implied that the previous period's (month) deviation from long run equilibrium was corrected at a speed of 0.5535%. The percentage change in inflation was associated with a 0.0693% decrease in DSE on average ceteris paribus on short run, the percentage change in exchange rate was associated with a 0.0929% increase in DSE on average ceteris paribus on short run, the percentage change in saving rate was associated with a 0.3052% increase in DSE on average ceteris paribus on short run, the percentage change in T-bill rate was associated with a 0.008270% increase in DSE on average ceteris paribus on short run, the percentage change in inflation was associated with a 0.1290% decrease in CSE on average ceteris paribus on short run, the percentage change in exchange rate was associated with a 0.1103% increase in CSE on average ceteris paribus on short run, the percentage change in saving rate was associated with a 0.4542% increase in CSE on average ceteris paribus on short run, the percentage change in t-bill

Table 8 Short term relationship

Independent variables	Dependent variable (Δ ln DSEt)	Comment (In term of short-term relation; ceteris paribus)	Independent variables	Dependent variable (Δ ln CSEt)	Comment (In term of short-term relation; ceteris paribus)
	-0.014498	Speed of adjustment (1.45%)		-0.005535	Speed of adjustment (0.5535%)
$\Delta \ln INF_{t-1}$	-0.069262	Inverse relations with DSE in short run (.0692%)	$\Delta \ln INF_{t-1}$	-0.129043	Inverse relation with CSE in short run (.1290%)
$\Delta \ln EX_{t-1}$	0.092948	Positive relation with DSE in short run (.0929%)	$\Delta \ln EX_{t-1}$	0.110363	Positive relation with CSE in short run (.1103%)
$\Delta \ln SAV_{t-1}$	0.305262	Positive relation with DSE in short run (.3052%)	$\Delta \ln SAV_{t-1}$	0.454236	Positive relation with CSE in short run (.4542%)
$\Delta \ln T_{t-1}$	0.008270	Positive relation with DSE in short runs (.008270%)	$\Delta \ln T_{t-1}$	0.007621	Positive relation with CSE in short run (0.007621%)

rate was associated with a .007621% increase in CSE on average ceteris paribus on short run.

Error correction term (ECT) had included in the short run equation for capturing the long run behavior which was our main focus. By employing the co-integration test & vector error correction estimate the value of the coefficients had found. By putting the value in equation 3 & 4 the paper got the target variable (DSE, CSE). The equations proved the correlation between stock market & macroeconomic variables. Co-integration equations showed the long-term relationship.

3.5. Impulse Response Functions

3.5.1. Interpretation of SD shocks to LNDSE & LNCSE

Shocks to lndse & lncse had appositive impact on its own both in the short run & long run.

3.5.2. Response to lninf

A one SD shock (innovation) to lndse&lncse had no noticeable impact on lninf in first two periods. After 2nd period it was gradually declining untill 12th period. From 12th period it raised but remained in negative region until 24th period. Shocks to lndse & lncse had a negative impact on lninf in both SR &LR.

3.5.3. Response to lnex

A one SD shock (innovation) to lndse&lncse had gradual rising trend from the 1st period until 16th period & then remained steady & in the positive region. Shocks to lndse&lncse had a positive impact on lnex in both SR & LR.

3.5.4. Response to lnsaving

lnsaving had a diminishing trend until 8th period & then rising up to 24th period but remained in the negative area. So, innovation to lndse&lncse had a negative impact on lnsaving in the short run & long run.

3.5.5. Response to lnt

Shocks to lndse & lncse had declining & went to negative quadrant in the 3rd period & rising after 12th period. In 24th period it was in the neutral line. So, innovation to lndse & lncse had a very low symmetric impact on lnt in the short run & long run. Innovation to lndse & lncse had positive, negative & very low symmetric impact on lnex, lninf, lnsaving & lnt in the short run & long run. The analysis & results showed in the equations 5-8 that macroeconomic variables were in the driving seat of stock return where inflation & saving rate reacted positively in stock return but exchange rate &t-bill rate was in negative anchoring role in terms of stock return in Bangladesh perspective. These are following.

Ln DSE as target variable

$\Delta \ln Dse = -.014498ECT_{t-1} - .030920\Delta \ln Dse_{t-1} - .069262\Delta \ln Inf_{t-1} + .092948\Delta \ln Ex_{t-1} + .305262\Delta \ln Sav_{t-1} + .008270\Delta \ln T_{t-1} + .004607$

Co-integration equation & long-run model

$ECT_{t-1} = 1.000 \ln Dse_{t-1} + .658038 \ln Inf_{t-1} - 1.533456 \ln Ex_{t-1} + .863601 \ln Sav_{t-1} - .031039 \ln T_{t-1} - 12.33405$

Ln CSE as target variable

$\Delta \ln Cse = -.005535ECT_{t-1} + .026898\Delta \ln Cse_{t-1} - .129043\Delta \ln Inf_{t-1} + .110363\Delta \ln Ex_{t-1} + .454236\Delta \ln Sav_{t-1} + .007621\Delta \ln T_{t-1} + .004547$

Co-integration equation & long-run model

$ECT_{t-1} = 1.000 \ln Cse_{t-1} + .863622 \ln Inf_{t-1} - 1.698100 \ln Ex_{t-1} + 1.107641 \ln Sav_{t-1} - .058736 \ln T_{t-1} - 12.54008$

Results showed that to examine the relationship between selected macroeconomic variables & stock market of Bangladesh. Moreover, in today's environment the markets are more competitive & it is very important to understand the interaction of stock return & influential factors responsible for fluctuation of stock prices & indexes in the domestic & global perspective. Hence, this paper revealed that inflation was the most significant influential variable whereas t-bill rates played a very negligible role in explaining the stock market scenario. Rather than these four variables, other macro-variables also impacted the security market. Additionally, Johansen Co-integration test

concluded that there existed a long-term relationship between explanatory variables & dependent variable whereas innovation accounting (impulse response function) showed the short-term relationship between DSE, CSE &independent variables. Innovations to dependent variables were shown in IRF. Consequently, inflation was a significant variable whereas the study conducted by Laichena & Obwogi (2015) on East African stock market inflation was insignificant one.

5. CONCLUSION

Therefore, the study simply concluded that different market was influenced by different macro variables & domestic factors (inflation, saving rate, t-bill) were main concern rather than global factor (exchange rate) in Bangladesh perspective. These findings helped the potential investor by guiding the stock performance scenarios in response to different macroeconomic variables & help to understand the stock market of Bangladesh. The investors can look the relationship & roles of these variables closely before investing. To make the stock market stronger & fluent government intervention is necessary so that none of macro variable make the stock performance volatile. Though these four independent variables were not enough to catch the full scenario, variables like money supply, inter-bank rate, and employment rate, GDP, IIP and RMS had to include getting more accurate co-integration.

As stock market are the main indicators of our country. So, Government should make intervention to stabilize the macro variables by modifying monetary policy, fiscal policy, money supply & be ensured that the circuit breaker has been following by emphasize in floor & ceiling of each macro variables so that stock return is not fluctuate & will not repeat the stock bubble / crush occurred in 2011.

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