Foreign Exchange Reserve and Its Impact on Stock Market: Evidence from Ghana

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Abstract This study investigated the impact of foreign exchange reserves on stock market growth in Ghana by employing monthly data for the period of December 2001 to December, 2015 using a multivariate framework that integrated interest rate variable in the modelling. The result shows that foreign exchange reserve has a significant positive impact on stock market capitalization and that all the three variables employed in this study are cointegrated. Unidirectional relationship exists between foreign exchange reserve and stock market capitalization. Hence this paper concludes that enhancing the nation's foreign exchange reserves will bolster stock market growth in Ghana. Finally interest rate needs to be set right to boost the performance of the stock market since interest rate emerged as a very important variable in examining the nexus between stock market and foreign exchange reserve of Ghana.

Cite This Article: Emmanuel Joel Aikins Abakah, and Moses Kenneth Abakah, "Foreign Exchange Reserve and Its Impact on Stock Market: Evidence from Ghana." *Journal of Finance and Economics*, vol. 4, no. 5 (2016): 136-141. doi: 10.12691/jfe-4-5-2.

1. Introduction

Most prior studies surmise that the development of stock market is affected by macroeconomic variables such as interest rate, exchange rate, gross domestic product, current account and money supply ([15,21]). The correlation between stock market returns and macroeconomic fundamentals is important to both academics and policy makers, yet the extent and direction of the relationship is still vague and inconclusive for both emerging and developed economies [14]. In this study, we provide knowledge and insights of the causal, dynamic interactions and direction of the stated macroeconomic variables and stock market. The study investigates the impact of foreign exchange reserves on stock market in Ghana for the period of January 2001 to December, 2015.Foreign exchange reserve is one of the most crucial elements required to stabilise the value of home currency against foreign currencies**.** Considering the important role a stable currency has on a country's investment drive, it is relevant to examine the impact of foreign exchange reserve on a country's investment performance. Aside the money market, the performance of a country's Stock Exchange is a measure of the level of investment in an economy. Thus a growing stock market performance can be equated to a growing level of investment or savings in the economy. This is because over the years, the stock exchange has been identified as a major channel through which funds are transferred from people with excess funds to those in short of funds and the level of investment on

the stock exchange is reflected in the size of its market capitalisation. The market capitalization therefore, shows the overall investment in a stock market. In literature, there are limited studies on the nexus between stock market and foreign exchange reserves but the subject in recent years has started receiving attention as the two variables are seen to play significant roles in the economy. The relationship between foreign exchange reserve and the stock market is important because international reserve accumulation has been the preferred policy recently adopted by developing economies to achieve financial stability. The aim of this policy is to increase liquidity and thus reduce the risk of suffering a speculative attack [6].

In both emerging and developed economies, stock market has been seen as the major vehicle of economic growth [19]. Among many other functions, it performs the function of channelling savings into investment [27]. Thus, capital market plays a pivotal role in the allocation of economic resources into the productive activities of the economy for economic development [23]. Moreover, foreign reserves allow governments to keep their currencies stable; reserves are used as a tool of exchange rate and monetary policy, it facilitates for the payment of external debt and liabilities, it acts as a defence against unexpected emergencies and economic shocks. Hence the dynamics between the two variables has significant implications for the economy since a bidirectional or unidirectional relationship between the two variables will have different implications. This research is carried out to find the impact of foreign exchange reserves held by the Government of Ghana on the investment and performance of the Ghana Stock Exchange (GSE).

1.1. Brief History of the Stock Market in Ghana

In Ghana, the Ghana Stock Exchange is the primary exchange and the concept of establishing a stock market in Ghana can be traced back to 1968. The enactment of the Stock Market Act of 1971 laid the foundation for the setting up of the Accra Stock Market Limited. It is worth mentioning that the Accra Stock Market Limited failed to blossom as a result of adverse macroeconomic environment, unstable political environment and lack of government backing. However, despite the setbacks, the National Trust Holding Company Ltd. (NTHC) and the National Stockbrokers Ltd. (now Merban Stockbrokers) traded in the shares of some foreign-owned companies through over-the-counter (OTC) prior to the formation of Ghana Stock Exchange in 1990. Under the Stock Exchange Act of 1971, the Exchange was formally given the authority to commence trading on November 12, 1990. In April 1994, the Exchange became a public company limited by guarantee. The Exchange currently has two indices; the GSE Composite Index (GSE CI) and the GSE Financial Index (GSE FI). On the performance of the exchange, GSE in 1993 with a capital appreciation of about 116% emerged as the best 6th performing emerging stock market in the world and in 1994, GSE became the best stock market among all the emerging markets after the Exchange's index level appreciated by 124.3%. The performance of the Exchange's index in 1995 dwindled slightly by recording an increase of 6.3% as a result of high interest rate and inflation. Historically, the main index which is the GSE CI reached an all-time record high in February 2014 with 2440.80 points and a record low in December 2011 with an index level of 940.04 points.

Figure 1. FReserve($'mill.)

The graphs below depict that, for the period under study, both foreign reserves and market capitalization recorded a momentous growth as shown in Figure 1 and Figure 2 respectively. The Government of Ghana through the Ghana Stock Exchange in recent years has introduced copious policies and measures geared towards the growth in the country's stock market as well as a boost in foreign exchange reserves. Hence to fully understand the impact

and significance of these policies and measures, it is paramount to understand the nature of the nexus between stock market performance and foreign exchange reserve which constitute the central theme of this study. Is the relationship bidirectional or unidirectional?
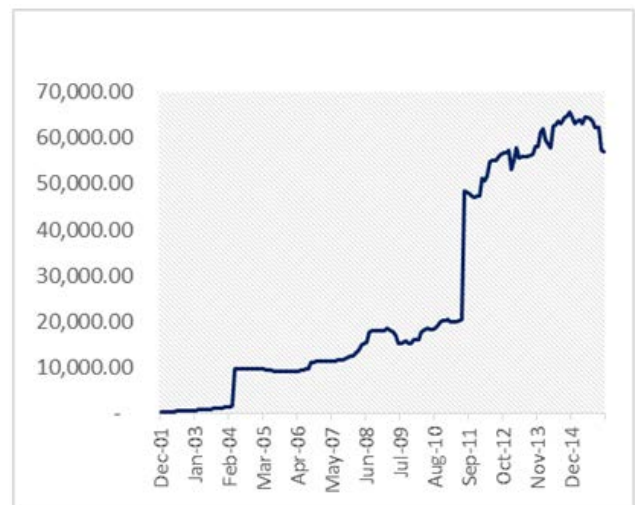

Figure 2. Market Capt GHS mill

Figure 1 and Figure 2 Plot of Foreign Reserves and Makrtk Capitalisatin Source: BoG/GSE

The purpose of this research is to explore the impact of foreign exchange reserve of Ghana on GSE market capitalization on the basis of previous behaviour of both variables against each other. To the best of our knowledge, this study is the first paper to have examined the linkages between stock market and foreign reserves in Ghana. The main focus of this study is to link the foreign exchange reserves of Ghana with its Stock Market to observe a comprehensible picture about them as it affects many other variables. Hence the study aims to answers the following questions. What is the nature of the relationship between foreign exchange reserves and stock market capitalisation? Is the relationship between foreign exchange reserve and stock market capitalisation bidirectional or unidirectional?

The paper is organized as follows: the introduction is followed by a literature review under section 2 with the methodology of the study presented in section 3, empirical evidence is presented in section 4 and finally concluding remarks are presented in section 5.

2. Literature Review

In literature, copious studies exists on the interaction between stock market and macroeconomic variables or the determinant of stock market development or the impact of economic variables on stock market development ([1,5,7,11,13,15,21]). It is niggling to note that, though the variables under study in this paper have key implications in the economy, the subject has received little attention as only few studies had focused on the nexus between stock market development and foreign reserves. On developed stock markets, Dimitrova [8] using multivariate analysis advanced that, there exist a relationship between stock price and exchange rate for the US and UK markets. He further opined that when stock market prices become the lead variables the relationship is positive and negative

when exchange rate prices become the lead variables. Another study conducted by Ratanapakorn and Sharma [24] investigated the long-term and short-term relationship between the S&P500 index and selected macroeconomic variables in the US over a period from 1975 to 1999. The study concluded that the long-term interest rate negatively impacts the stock prices while money supply, inflation, exchange rate, industrial production, exchange rate and short-term interest rate positively impact the stock prices in the long run.

On emerging markets, Ray [25] examined the relationship between foreign reserves of India and BSE stock market capitalisation using annual data from 1990 to 2011 of which the results revealed that foreign reserves has a positive impact on stock market capitalisation and that foreign reserves Granger cause stock market capitalisation. Also Bhattacharya et al. [4] studied the nexus between stock market and exchange rate, foreign reserves and value of trade balance of which the study concluded there exist no causal linkages between stock prices and the three macroeconomic variables. Maysami [18] examined the relationship between the macroeconomic variables and sector stock market indexes in Singapore stock exchange. The study concluded that the stock market in Singapore and the property index form co-integrating relationship with the changes in short and long term interest rates, industrial production, price levels, exchange rate and money supply.

Nishat [20] employed vector error correction model to explore the long term equilibrium relationship between the market index of Karachi Stock Exchange and a group of macroeconomic variables (industrial production index, consumer price index and the value of an investment earning the money market rate) for the period of 1973 to 2004. The findings of the study revealed "causal" relationship between the stock market and the economy and show that industrial production is the largest positive determinant of Pakistani stock prices, while inflation is the largest negative determinant of stock prices in Pakistan. They found that macroeconomic variables Granger-caused stock price movements, the reverse causality was observed in case of industrial production and stock prices. Hussain [13] used quarterly data of several economic variables to investigate its impact on stock prices for the Karache stock exchange of which the result indicates foreign exchange rate and reserves significantly influences stock prices. Sulaiman [29] conducted the study on the Karachi Stock Exchange with influencing variables as foreign exchange reserve, foreign exchange rate, industrial production index, whole sale price index, broad money and gross fixed capital formation for the period of 1986 - 2008. It concluded that the foreign exchange rate and foreign exchange reserve significantly affect the stock prices while the others affect insignificantly. Elite Forex Signal [10] examined the relationship between foreign exchange reserves and the Karachi stock market over the period 2001 and 2009. Using a simple linear regression model, the study showed positive but not significant relationship between foreign exchange reserves and the stock market.

Gay [11] investigated the relationship between stock market index prices and the macroeconomic variables of exchange rate and oil price for Brazil, Russia, India, and China (BRIC) using the Box-Jenkins ARIMA model of which no significant relationship was found between respective exchange rate and oil price on the stock market index prices of either BRIC country and also there was no significant relationship found between present and past stock market returns. Aydemir [3] studied the causal relationship between stock prices and exchange rates, using data from 23 February 2001 to 11 January 2008 for Turkey. Their empirical research found the bidirectional causal relationship between exchange rate and all stock market indices. While the negative causality exists from national 100 services, financial and industrial indices to exchange rate, there exists a positive causal relationship from technology sector indices to exchange rate. On the other hand, negative causal relationship from exchange rate to all stock market indices is determined. Tunali [29] investigated the relationship between the macro-economic variables and stock returns in Turkish stock market using the Arbitrage Pricing theory framework. The study concluded that there exists a long run relationship between the basic macro-economic indicators of Turkish economy and the stock returns at different levels.

Akinlo [2] investigated the relationship between foreign exchange reserves and stock market development in Nigeria over the period 1981-2011, using a multivariate framework incorporating an interest rate variable. The results showed the existence of a long run relationship among foreign reserves, interest rates and stock market development. Foreign reserves have a positive effect on stock market growth. Bidirectional causality exists between interest rates and stock market growth. Finally, a bidirectional relationship exists between interest rates and foreign reserves

3. Empirical Methodology

3.1. Data

This study conducts an empirical analysis on the impact of foreign reserves on the stock market in Ghana. The study uses monthly data covering the period December, 2001 to December 2016 leading to 169 monthly observations. The data for stock market development represented in this context by market capitalization was obtained from the Ghana Stock Exchange with data on foreign exchange reserve and interest rate obtained from the Central Bank of Ghana. The interest rate employed in this study is the prime rate issued by the Central Bank of Ghana which serves as the benchmarked rate for all other interest rate in the country. The estimation methodology employed in this study is the ordinary least square estimate, unit root test, Johansen Co-integration test and Granger Causality test.

For this study, variables used will be represented as such:

Stock market capitalization	=	MKTCAP
Foreign Exchange Reserve	=	FER
Interest Rate	=	INTR

3.2. Model Specification

The entire estimation process consists of three steps: first, ordinary least square, unit root test; second, co-integration test; third, Granger causality test. To achieve the purposes of the study, a function with stock market

development dependent on foreign reserves is established in equation 1 below:

$$MKTCAP = f(FER) \qquad 1$$

In literature, stock market development is affected by several other variables hence to avoid spurious results in estimating the relation between stock market development and foreign exchange reserves, it is imperative such variables are considered since their omission can led to bias causality between MKTCAP and FER. In view of the above treatise, the study incorporates a control variable (INTR) to avoid simultaneous bias in our estimation as well as overcome the problem associated with bivariate analysis. With this addition, eqn. 1 above becomes equation 2 below,

$$MKTCAP = f(FER, INTR) \qquad 2$$

Taking the log of eqn. 2 results in

$$\ln MKTCAP_t = a_1 + a_2 \ln FER + a_3 \ln INTR + \mu_t \qquad 3$$

Co-integration Test

To investigate and ascertain whether MKTCAP, FER and INTR are co-integrated or not, we employed the Engle-Granger [9] two step approach. First we estimated the static ordinary least squares regression as outlined below:

$$\ln MKTCAP_t = a_t + \beta_1 \ln FER_t \qquad 4$$

$$\ln MKTCAP_t = a_t + \beta_1 \ln FER + \beta_2 \ln INTR + \mu_t \qquad 5$$

Granger Causality Test

The following bivariate regression equations outlined below were employed to estimate the Granger-causation:

$$\ln MKTCAP_t = \beta_0 + \sum \ln \beta_i FER_{t-1} + \sum \delta_i \ln INTR_{t-1} + \varepsilon_t \qquad 6$$

$$\ln FER_t = \beta_0 + \sum \ln \beta_i MKTCAP_{t-1} + \sum \delta_i \ln INTR_{t-1} + \varepsilon_t \qquad 7$$

$$\ln INTR_t = \beta_0 + \sum \ln \beta_i MKTCAP_{t-1} + \sum \delta_i \ln FER_{t-1} + \varepsilon_t \qquad 8$$

The Error Correction Model (ECM)

The study estimated the error correction causality using;

$$\Delta \ln MKTCAP_t = a_0 + \sum a_{li} \Delta \ln \beta_i MKTCAP_{t-1}$$
$$+ \sum \beta_{li} \Delta \ln FER_{t-1} + \sum \delta_{li} \Delta \ln INTR_{t-1} + \gamma ccm_{t-1} + \varepsilon_{it} \qquad 9$$

4. Empirical Results

Table 1 summarises the descriptive statistics of the variables under study for the entire period. Both stock market capitalization and exchange rate reserve recorded positive skewness which depicts steep tails. Also both series show low dispersion which signifies that the deviations of the actual data from their mean values are small. In addition, the Jarque-Bera test of normality is rejected for both series as probability <0.05. Further analysis reveals that, the mean and median lies with the minimum and maximum values which depicts the series possesses high level of consistency.

Table 1. Descriptive Statistics

	MKTCAP	INTR	FER
Mean	25604.69	17.71302	2906.968
Median	15914.08	16.50000	2226.890
Maximum	65641.10	27.50000	5896.150
Minimum	390.4028	12.50000	303.2600
Std. Dev.	22885.47	4.325799	1692.693
Skewness	0.650054	0.774617	0.228527
Kurtosis	1.745800	2.512290	1.646443
Jarque-Bera	22.97905*	18.57583*	14.37216*
Probability	0.000010	0.000093	0.000757
Observations	169	169	169

Table 1 shows the results of descriptive statistics and the Jacque Bera test of normality. *Denotes statistical significance at 1% level.

For the sake of comparison, the study incorporated the PP, ADF and KPSS test into the study. Table 1.2 presents the unit root rest of these three conventional unit root test. The result shows that both variables of our interest namely MKTCAP and FER attained stationarity after first differencing for PP and ADF test. Clearly, the results reveal that all variables are integrated at order one.

Table 2. Unit Root Test

	Levels			1st Difference		
	PP	ADF	KPSS	PP	ADF	KPSS
MKTCAP	-0.411	-0.43	1.45*	-13.11***	-13.10**	0.12**
FER	-0.72	-0.92	1.55*	-15.03**	-14.68**	0.04*
INTR	-1.59	-1.51	0.45***	-13.53**	-6.51**	0.69*

Note: *, **and *** indicates significance at the 1, 5 and 10 percent level of testing respectively.

With variables integrated at order one, the study further sought to ascertain whether MKTCAP, FER and INTR are co-integrated or not by employing the Engle-Granger two step approach of which the results are presented in Table 3 below. As a first step, the static OLS regression was estimated using equation 4 and equation 5 after which the unit root of the residuals from the first step was examined using ADF statistic with the results showing that the unit root of the residuals for equation 4 and equation 5 are stationary at 5% level of significance implying that there exist a long run relationship between the variables under study: MKTCAP, FER and INTR. The results further depict a positive relationship between MKTCAP and FER which implies an increase in FER will lead to an increase in MKTCAP in Ghana

Table 3. Engle-Granger First Step

	Equation 4	Equation 5
Constant	-4.95** (-13.23)	-3.97** (-4.67)
FER_t	1.86** (38.72)	1.82** (32.12)
$INTR_t$	-	-0.24** (-1.29)

The figure in each cell is the regression coefficient while those underneath in parenthesis are t values. ** denotes significance at 5%

The study further used the Johnasen cointegration test using the trace and maximum eigenvalue statistics ($\lambda - \max$) to test for the robustness of the results as presented in Table 4. Analysis of results reveals that the null hypothesis of no cointegration cannot be rejected at 5% level of significance for trace and $\lambda - \max$ which implies there exists a long run relationship among the three variables understudy as revealed by the two tests shown in Table 4 below.

Table 4. Johansen Cointegration Test

Null	Alternative (r)	$\lambda - \max$	Critical values	Trace	Critical values
None	1	27.69**	21.132	37.51**	29.798
At most 1(≤ 1)	2	9.800	14.265	9.82	15.495
At most 2(≥ 2)	3	0.01	3.841	0.02	3.841

This table shows the Johansen cointegration test using λ-maximum and trace tests. The third and fourth columns show λ-max statistics and critical values while fifth and sixth column show the trace statistic and critical value. The r implies the number of cointegrating vectors and the critical values are from MacKinnon-Hang-Michelis table (1999). **reject null hypothesis at 5% level of significance.

The results of pairwise Granger causality test is presented in Table 5 below. With the three variables showing cointegrating relationship implied the existence of a Granger causality in at least one of the direction hence the application of the Granger causality using equation 6, 7 and 8. The results shows that MKTCAP Granger cause INTR but INTR does not Granger cause both MKTCAP and FER. The results further reveal the existence of a unidirectional causality relationship which runs from foreign exchange reserve (FER) to stock market capitalization (MKTCAP).

Table 5. Granger Causality Test

	$\Delta \ln MKTCAP$	$\Delta \ln FER$	$\Delta \ln INTR$
$\Delta \ln MKTCAP$	-	0.212(0.808)	5.220**(0.006)
$\Delta \ln FER$	8.259**(0.004)	-	2.274(0.106)
$\Delta \ln INTR$	0.327(0.722)	1.522(0.215)	-

This table shows the Granger causality test results. **denotes significance at 1% level.

Table 6 below depicts the results obtained by performing long-run causality test and short run adjustment aimed to re-establish the long run equilibrium-the joint significance of the sum of lagged terms of each explanatory variable and the error correction term (ECT) by joint F-test. The significance of the joint between MKTCAP and INTR is in consonance with the earlier findings revealed by the Granger causality test in Table 5. In addition, the significance of the ECT on the INTR is also in consonance with results of Table 3 and Table 4 which revealed the three variables understudy are cointegrated.

Table 6. Error Correction Test

	$\Delta \ln MKTCAP$	$\Delta \ln FER$	$\Delta \ln INTR$	ECTt-1	Joint Test
F-Statistic				t-statistics	
$\Delta \ln MKTCAP$	-	0.421(0.624)	5.511*(0.004)	-0.56	1.66(0.824)
$\Delta \ln FER$	7.687*(0.002)	-	1.854(0.210)	0.28	4.014(0.341)
$\Delta \ln INTR$	0.451(0.734)	1.69(0.201)	-	-2.27**	3.89(0.040)**

The values in parenthesis are the p-values. *' **' denote significance at 1% and 5% critical level respectively.

5. Conclusion

This study investigated the relationship between stock market growth and the foreign exchange reserves of Ghana by employing monthly data for the period of December 2001 to December, 2015 using a battery of test with the introduction of interest rate in the modelling approach. The results show that there exist significant positive impact of foreign exchange reserves on stock market growth represented by stock market capitalization. Moreover, the results of the Granger Causality test revealed a unidirectional relationship between foreign exchange reserves and stock market capitalization. Also stock market capitalization was seen to Granger cause interest rate. Further test showed that interest rate is very important in examining the nexus between stock market and the international foreign reserves of Ghana.

The results of this study will serve as a guideline to stock market participants to ensure the best decision with regards to the stocks selection by looking at the trend of the foreign reserves of Ghana. In addition, interest rate was seen to be an important factor in estimating the linkage between stock market and foreign exchange reserves hence the need for government to ensure interest rate is set rightly to boost the stock market in Ghana. Finally, foreign reserves was seen to have a positive impact on stock market which clearly depicts that government needs to ensure that the nation's foreign reserves is enhanced to bolster stock market growth in Ghana.

References

[1] Adjasi, CKD, Harvey, SK and Agyapong, D. "Effect of exchange rate volatility on the Ghana stock exchange". *African Journal of Accounting, Economics, Finance and Banking Research*, 3,312–19, 2008.

[2] Akinlo, O.O." Impact of Foreign Exchange Reserves on Nigerian Stock Market International", *Journal of Business and Finance Research*, 9, 2, 69-76, 2015.

[3] Aydemir, O. and Demirhan, E. "The relationship between stock prices and exchange rates: Evidence from Turkey," *International Research Journal of Finance and Economics*, 23, 207-15, 2009.

[4] Bhattacharya B and Mookherjee J. "Causal relationship between and exchange rate, foreign exchange reserves, value of trade balance and stock market: case study of India". *Department of Economics, Jadavpur University, Kolkata, India*, 2001.

[5] Bornholt, G. "The failure of the Capital Asset Pricing Model (CAPM): An update and discussion", *A Journal of Accounting, Finance and Business Studies*, 49, 2013.

[6] Cruz, M., and Walters, B. "Is the Accumulation of International Reserves good for Development", *Cambridge Journal of Economics*, 32, 665-681, 2008.

[7] Dempsey, M. *The Capital Asset Pricing Model (CAPM): The history of a failed revolutionary idea in finance?* Abacus, Vol. 49, 2013.

[8] Dimitrova, D. "The Relationship between Exchange Rates and Stock Prices – Studied in Multivariate Model", *Issues in Political Economy,* vol.14, 2005.

[9] Engle, R.F. and Granger, C.W. "Co-integration and Error Correction: Representation, Estimation and Testing," *Econometrica*, vol. 55, p. 251-276,1987

[10] Elite Forex Signal "*Impact of Foreign Reserves on Karachi Stock exchange Market of Pakistan*", 2013 http://www.eliteforexsignals.com. Accessed May.

[11] Gay, R. D. " Effect of Macroeconomic Variables on Stock Market Returns for Four Emerging Economies – Brazil, Russia, India and China", *International Business & Economics Research Journal* , 7,2008.

[12] Ghana Stock Exchange, available at: http://www.gse.com.gh/ (accessed on 15 January, 2016).

[13] Hussain, D. I. "Why does Pakistan Have to Accumulate Foreign Reserves?, 2009 http://ishrathusain.iba.edu.pk/papers, p.1-22. Accessed May.

[14] Khalid, A. "Long run relationship between macroeconomic variables and stock returns: Evidence from Karachi Stock Exchange", *European Union Journal*, 4(1), 384-389, 2012.

[15] Kurihara, Yutaka. "The Relationship between Exchange Rate and Stock Prices during the Quantitative Easing Policy in Japan", *International Journal of Business* 11(4), 375-386,2006

[16] Kwaitowski, D., Phillips, P. C. B., Schmidt, P and Shin, Y. "Testing the Null Hypothesis of Stationarity against the Alternative of a Unit Root: How Sure Are We that Economic Time Series Have a Unit Root", *Journal of Econometrics*, 54, 159-178,192.

[17] Maysami, R.C., Howe, L.C. and Hamaz, M.A. "Relationship between macroeconomic variables and stock market indices: cointegration evidence from stock exchange of Singapore's All-S Sector Indices", *Journal Penguruson*, 24, 47-77,2004

[18] Mishra, P. K. "Weak-form market efficiency: Evidence from emerging and developed world", *The Journal of Commerce*, 3(2), 26-34, 2011.

[19] Nishat, D. M., and Shaheen, R. "Macro-Economic Factors and Pakistani Equity Market", *Pakistani Development Review*, 43, 4,2004

[20] Okoli, M, N, (2012). "Return volatility interactions in the Nigerian stock market". *Asian Economic and Financial Review*,2 (2). Pp. 389-399, 2012.

[21] Ologunde, A.O., Elumilade, D.O and Asaolu, T.O. "Stock market capitalization and interest rate in Nigeria: A Time Series Analysis", *International Research Journal of Finance and Economics*, 4, 154-167, 2006.

[22] Oskooe, P. S. A."The Random Walk Hypothesis in Emerging Stock Market",*International Research Journal of Finance and Economics*, 50, 51-61, 2011.

[23] Ratanapakorn, O. and Sharma, S. C. "Dynamics analysis between the US Stock Return and the Macroeconomics Variables", *Applied Financial Economics*, 17(4): 369-377, 2001.

[24] Ray, S. "Foreign Exchange Reserve and its Impact on Stock Market Capitalization: Evidence fromIndia," *Research on Humanities and Social Sciences*, vol. 2(2), p. 46-60, 2012.

[25] Sohail, N., and Hussain, Z. (2009). "Long Run and Short Run Relationship between Macro Economic Variables and Stock Prices in Pakistan – The case of Lahore Stock Exchange". *Pakistan Economic and Social Review*, 47, 183-198, 2009.

[26] Sudhahar, J. C. and Raja, M. "An empirical assessment of Indian Market efficiency", *Karunya Journal of Research*, 2(1), 100-112, 2010.

[27] Sulaiman, D.M., A. Hussain, M.A. Jalil and A. Ali. "Empirical Evidence in Case of KSE (Karachi stock prices in Malaysia", *European Journal of Scientific Economic Journal*, 13(2): 495-574, 2009.

[28] Tunalı, H. "The Analysis of Relationships between Macroeconomic Factors and Stock Returns: Evidence from Turkey Using VAR Model" *International Research Journal of Finance and Economics*, 57,169-182, 2010.