International Journal of Management Science and Business Administration

Volume 5, Issue 6, September 2019, Pages 38 - 47
DOI: 10.18775/ijmsba.1849-5664-5419.2014.56.1005
URL: http://dx.doi.org/10.18775/ijmsba.1849-5664-5419.2014.56.1005

Effects of Exchange Rate, Interest Rate, and Inflation on Stock Market Returns Volatility in Nigeria

[1] Izunobi Anthony Okechukwu, [2] Nzotta Samuel Mbadike, [3] Ugwuanyim Geoffrey,
[4] Benedict Anayochukwu Ozurumba.
[1,2] Department of Financial Management Technology, Federal University of Technology Owerri, Nigeria
[3] Department of Statistics. Federal University of Technology Owerri.
[4] Department of Financial Management Technology, The Federal University of Technology Owerri

Abstract: This study employed GARCH (1.1) techniques to evaluate the existence of high stock market returns volatility, and the impact of the exchange rate, interest rate and inflation on stock market returns in Nigeria, using monthly series data from 1995 – 2014. Excessive volatility hinders the stock market from playing its role of Mobilizing, financial resources from surplus units to deficit units and may cause a financial crisis. The research finding shows that interest rate has a negative relationship with stock market returns, while the inflation rate and exchange rate have a positive relationship with stock market returns. The conclusion therefore is, there is high and persistent volatility in the Nigerian stock market returns. Exchange rate, interest rate, and inflation significantly impact stock market return volatility in Nigeria. The study recommends that regulatory authorities should take proactive steps to minimize stock market return in order to restore confidence in the market.

Keywords: Inflation rates, Exchange rates, Interest rates, Stock market return volatility, Monthly series

1. Introduction

The relationship between stock market returns volatility and macroeconomic variables have been a subject of debate for researchers. An empirical understanding of this relationship, will serve as a tool for decision making for regulatory authorities and other end users in the stock market. Investors generally believe that macroeconomic activities have a large impact on the volatility of stock prices (Gant et al 2006). Macroeconomic determinants can be a standard for the investors to forecast the performances of the stock market (Talla, 2013), the entire economy forces do provide some significant positive as well as negative effects, on stock market performance reflecting from the behavior of the variables itself (Kumar 2013).

High stock market volatility has major impact on the economic condition of a country, financial managers, firms, investors as well as other end users. (Mushtang et al, 2011). Emerging markets are highly volatile due to the unstable microeconomic environment (Molla and Mobarek 2009). This study focused on the effect of interest rates, exchange rate and inflation rates on stock market return volatility in Nigeria. The choice of the macroeconomic variables is related on the swift changes that occur in the stock market returns, as the macroeconomic variables change in value.

1.1 Problem Statement

The turmoil in the international financial markets of the advance economies, which stated around mid- 2007 exacerbated through 2008 and led to the global financial crisis, this consequently caused the collapse of major financial institutions and stock markets around the world.

The global financial crisis affected the Nigeria stock market so much that investor's lost confidence in the Nigeria stock market. Amongst the three-macroeconomics variable being discussed, exchange rate seems to draw more attention due to its international nature to affect import and export in Nigeria. The impact of exchange rate on stock market has both long term and short-term implications. From the short-term perspective, fixed exchange rate regime

can support economic growth by allocation of the foreign currency by regulatory authories; However, in the long run the fluctuation in exchange rate constitute growth risk in emerging markets. Due to its adverse effects on banks and enterprise balance sheets which are usually denominated in foreign currency, any sharp depreciation in foreign exchange rate increase liabilities in terms of the domestic currency, increasing chances of defaults and creating room for financial crisis, and eventually influence the value of the firm, since the future cash flows of the firm change with exchange rate volatility.

Prior to the foreign exchange rate influence on the Nigeria stock market, there is urgent need for the regulatory authories to make policies that will minimize volatility, by keeping interest rates low which will help in stabilizing exchange rate and managing inflation within the single digit range.

1.2 Aim of the Study

The debts and financial crisis in which Nigeria finds itself, it would be useful to conduct a research work that will serve as a guide to the regulatory authorities to enable them to take proactive steps that will minimize stock market return volatility in order to restore confidence in the market for local and foreign investment. The Nigeria economy has gone through financial crisis and crashes, which are very connected to the volatility in the stock market the heartbeat of the Nigeria economy. Thus the aim of the study is to investigate into the relationship between stock market return volatility and macroeconomic variable (Exchange rates, Inflation and Interest rates)

2. Literature Review

In the study of Olowe (2009) contends that few studies have been done on stock market volatility and went on to investigate the relationship between stock returns and volatility in Nigeria using E- GARCH -in- mean model in the light of banking reforms, insurance reform, stock market crash and the global financial crisis.
Volatility persistence, asymmetric properties and risk- return relationship were investigated for the Nigeria stock market. It is found that the Nigeria stock market returns show persistence in the volatility and clustering and asymmetric properties. The result also shows that volatility is persistent and there is leverage effect supporting the work of Nelson (19991). The study found little evidence on the relationship, between stock returns and risk a s measured by its own volatility. The study found a positive but insignificant relationship between stock return and risk. This positive relationship is consistent with most assets pricing models which postulate a positive relationship between a stock portfolio's expected returns and volatility. The relationships between stock market return on an asset and its variance (or volatility) as a proxy for risk has been an important topic in financial research. The theoretical assets to its own return variance, or to the co- variance between its return and the return on the market portfolio. However , whether such a relationship is positive or negative has been controversial.

Investment decisions As characterized by asset pricing model strongly depend on the assessment of the future returns and risk of various assets. Moreover, the expected volatility of a security return plays an important role in option pricing theory. According to Leom, (2008) the relationship between expected returns and expected volatility has been extensively examined over the past years. Theory generally predicts a positive relation between expected stock returns and volatility if investors are risk averse. In other words, investors require larger expected returns from a security that is riskier. Yet empirical studies that attempt to test this important relation yield mixed results. Researchers such as Chou (1988), Guo and Whitelaw (2003), Campbell and Hentschel (1993) got positive results. Barta (2004) examined the time variation in volatility in the Indian stock market during 1979-2003. He found that the period around the BOP crisis and the subsequent initiation of economic reforms in India is the most volatile period in the stock market. Sudden shifts is stock' return volatility in India are more likely to be a consequence of major policy changes and any further incremental policy changes may have only a benight influence on stock returns volatility. Volatility of prices and returns in financial markets can be an impediment for attracting investment in a developing economy. The presence of high degree of volatility indicates that investors will demand for much premium thereby creating high cost of capital which is inimical to the growth of the economy.

A rise in stock market volatility is an indication of a rise in risk of equity investment and thus a shift to less risky assets. Stock market volatility has a number of negative implications such as impairing the smooth functioning of the financial system, adversely affecting economic performance. Many empirical studies have related the behaviour of stock market volatility with upward and downward trend, bull and bear stock markets.

In an emerging economy with financial shallowness the volatility of the stock market may cause significant changes in portfolio adjustments which change other asset prices and their returns. In addition to the price of other financial assets being bid up. The prices of real good will also rise and this may cause a high rate if inflation emanating from supply shortages. However, the workings of this mechanism will depend on how investors are rewarded for risk bearing in the economy. Campbell (1996), Ludvigson and Steindel (1999) and Porterba (2000) noted that the impact of stock market volatility on consumer spending is related through the wealth effect. An increased stock market prices will strengthen confidence on the investors through the wealth effect and hence beef up consumers spending while a fall in the stock market will weaken consumer confidence and drive down consumer spending.

Emenike and kalu.O (2010) I n their study of modeling stock market returns volatility in Nigeria using GARCH model from 1999 MI to 2008 M12. GARCH (1,1) model as tools of analysis were able to find out that, the result of GARCH (1,1) indicates evidence of volatility clustering in the NSE returns serves, the overall result from the study provided evidence to show volatility persistence, fat tail distribution and leverage effects for the Nigeria stock returns data. Following a variant study of Abiola et al. (2017) Appraising the exchange rate volatility, stock market performance, stock market performance and aggregate output Nexus in Nigeria. The researchers used quarterly time series data and applied the ARCH and GRACH models, they found out that exchange rate and stock prices are volatile and negatively affect the aggregate output, there is also a high degree at positive relationship between exchange rate, stock price movement and aggregate output. They concluded there is join causal impact of volatility of exchange rate stock prices, on aggregate output. In other research findings, Emenike and Odili (2014), stock market Volatility and macro-economic variables in Nigeria, from 1996 M1 to 2013M3. Using GARCH-X model. The results of the GRARCH – X model suggest that NSE returns volatility is positively influence by changes in US Dollar/Naria exchange rate and credit to private sector but negatively influence by changes in broad money and inflation. With aim of examine the impact of some selected macroeconomic variables on stock market returns in Nigeria from 1990 to 2012, Izuchukwu et al. (2015) used the error Correction model and ordinary least square (OLS). The result of the study shows that inflation and Monetary Police Rate (MPR) had a negative relationship with stock market returns, the GDP on the other hand had a positive relationship with stock market return.

Mahmoud et al. (2015) in their study impact of macroeconomic variables on stock market evidence from emerging markets (Tunisia and Egypt) from 1998 M1 to 2014 M1, used Augmented dickey fuller (ADF) model and vector Auto Regression (VAR) model. The result of the study shows that the macroeconomics variables namely interest rate, exchange rate, CPI and money supply have been found to have a casual relationship with the market index of Egypt and no casual relationship with the market index of Tunisia. Using the Egarch model, Charles et al. (2008), examined the effect of exchange rate volatility on the Ghana stock exchange. The results shows that there is a negative relationship between exchange rate volatility and stock market returns. A depreciation in the local currency leads to increase in stock market returns in the long run reduces stock market return. The inflation rate was found to have a positive relation with stock market volatility.

The findings in this study effects of exchange rate, interest rate, and inflation on stock market returns volatility in Nigeria, show that volatility clustering variable occur in interest Rates, inflation rates, exchange rate and stock market returns was persistent thus the result of the co- integration between the macroeconomics variables being studies will therefore strengthen the decision of the Nigeria regulatory authories as an important tool for making informed investment rather than borrowing to maintain or pay its existing debts.

3. Research Methodology

This chapter revels the methodology of the study use in data analysis with particular emphasis on the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) and the Exponential GARCH Model (EGARCH) to capture the effect of exchange rate, interest rate, and inflation on stock market return volatility as explained in earlier chapter.

3.1 Considerations Based on Industry

The research analysis was conducted with date from the Nigeria stock market and economy within the period of 1995-2014. The dtat was extracted from the secondary sources, The Central bank of Nigeria (CBN) statistical buttetin: Nigeria stock exchange (NSE) fact book, international financial statistics (IFS). The data on stock market returns proxied by All Share index (ASI) and inflation provided by (CPI) were extracted from CBN stastical bulletin. While

interest rate proxied by monetary policy rate (MPR) was extracted from IFS. Exchange rate (ECHAR) proxied by CBN (Naria/Dollar) rates was extracted from CBN statistical buttetin.

3.2 Model Specification

This section presents the specification of volatility models used in the study.

a. The GARCH (1,1) Model

$$\Delta Y_{it} = \beta_{io} + e_{it}; \quad e_{it} \sim N(0, \sigma_{it}^2), \quad t = 1,2,3,...,239, \; i = 1,2,3,4.$$

$$\sigma_{it}^2 = \alpha_{io} + \alpha_{i1} e_{it-1}^2 + \beta_i \sigma_{it-1}^2 \qquad (1)$$

Where:

Δ = symbol for first differencing

Y_{1t} = Stock Market Price Returns

Y_{2t} = Interest Rate

Y_{3t} = Inflation Rate

Y_{4t} = Exchange Rate

β_{io} = The Long-run average (trend) in the mean equation for each of the ith series

σ_{it}^2 = The conditional variance for each of the ith series

α_{io} = The Long-run trend in the variance equation for each of the ith series

α_{i1} = The ARCH Effect for each of the ith series

β_i = The GARCH Effect for each of the ith series

e_{it} = The random error associated with each Y_i and which is thought to be normally distributed with zero mean and heteroscedastic variance.

Assumptions

$i.\ \alpha_{io},\ \alpha_{i1},\ \beta_i \geq 0$

$ii.\ \alpha_{i1} + \beta_i \geq 0$

b. The EGARCH (1,1) Model

$$\Delta Y_{it} = \beta_{io} + e_{it}; \qquad e_{it} \sim N(0, \sigma_{it}^2), \qquad t = 1,2,...,239, \qquad i = 1,2,3,4.$$

$$\ln(\sigma_{it}^2) = \alpha_{io} + \beta_i (\ln \sigma_{t-1}^2) + \gamma_i \frac{e_{it-1}}{\sqrt{\sigma_{it-1}^2}} + \alpha_i \left[\frac{|e_{it-1}|}{\sqrt{\sigma_{it-1}^2}} - \sqrt{\frac{2}{\pi}} \right] \qquad (2)$$

Where:

ΔY_{it} = The first differenced series for each i.

γ_i = The measure of asymmetry for each i.

The null hypotheses was tested with the models in (1) to test for volatility in Stock Market Returns and Inflation respectively because the data satisfied the GARCH assumptions; while the models in (2) were used to test for volatility in Interest Rate and Exchange Rate respectively because the data violated the assumptions of GARCH model.

Hypothesis 1, 2 and 3 was tested with the following GARCH (1,1) model:

$$\Delta \ln Y_t = \beta_1 \Delta \ln X_{1t} + \beta_2 \Delta \ln X_{2t} + \beta_3 \Delta \ln X_{3t} + e_t; \qquad e_t \sim N(0, \sigma_t^2), \qquad t = 1,2,...,239.$$

$$\sigma_t^2 = \alpha_o + \alpha_1 e_{t-1}^2 + \beta \sigma_{t-1}^2$$

Where:

Y_t = Stock Market Price Returns

X_{1t} = Interest Rate

X_{2t} = Inflation Rate

X_{3t} = Exchange Rate

β_o = The Long-run average (trend) in the mean equation

σ_t^2 = The conditional variance

α_o = The Long-run trend in the variance equation

α_1 = The ARCH Effect

β = The GARCH Effect

e_t = The random error associated with each Y_i and which is thought to be normally distributed with zero mean and heteroscedastic variance.

Assumptions

$i.\ \alpha_o,\ \alpha_1,\ \beta\ \geq 0$

$ii.\ \alpha_1 + \beta\ \geq 0$

In general, if $\alpha_1 + \beta < 1$ then, the conditional variance is stationary which means that the conditional variance forecasts converge upon the long-term average value of the variance as the prediction horizon increases; while if $\alpha_1 + \beta = 1,$ this convergence will never happen. However, if $\alpha_1 + \beta > 1,$ the conditional variance forecast will tend to infinity as the forecast horizon increases. The presence of high volatility in a stock market returns is a sign of market inefficiency.

4. Data Analysis and Interpretation

The model specification indicated above, the GARCH (1,1) Model was adopted.

We note that R^2 is not of importance in GARCH Models. This is because 'the model is no longer of the usual linear form so OLS cannot be used for GARCH model estimation. There are a variety of reasons for this, but the simplest and most fundamental is that OLS minimizes the residual sum of squares (RSS). The RSS depends only on the parameters in the conditional mean equation, and not the conditional variance, and hence RSS minimization is no longer an appropriate objective. In order to estimate models from the GARCH family, another technique known as *maximum likelihood* is employed' (Brooks, 2008, p. 394). This is why some softwares such as STATA do not report it. Moreover, the statistic which is used to test for model adequacy in the GARCH model is the Chi-square statistic.

Summary Statistics of Data

The presentation and analysis of data. Hence, it essentially tries to interpret the result of the study in order to serve some policy recommendation. In research methodology of this study, the model for the study as well as the variable specifications, have all been clearly stated and defined in order to accomplish the central objective of this study in determining the effect of exchange rate, interest rate, and inflation on stock market returns volatility in Nigeria. Secondary data are employed, comprising of monthly data on macroeconomics variables and stock market returns volatility, covering the period, 1995-2014.

The hypothesis of the study were tested using the GRACH (1,1) and the E- GRACH (p,q) techniques after conducting the unit root test on the variables. Other analytical tool include charts and graphs used for data presentation and hypothesis testing.

Monthly Data on Macroeconomic Variables and Stock Market Returns
Volatility in Nigeria, 1995 – 2014.

Table 1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	CV
Y	240	20912.05	14461.89	2285.3	65652.38	69.1558
X_1	240	13.07917	3.662184	6	20.5	28.00013
X_2	240	70.69227	43.15201	14.36	164.4354	61.04205
X_3	240	110.4857	47.86872	21.8861	169.68	43.32569

Where CV = Coefficient of Variation (%).

From Table 4.1, the data was collected for 20 years (240 months). The minimum value of Y is 2,285.3 while the maximum value is 65,652.38. The coefficient of variability is 69.16%. The others can be explained in the same way.
In terms of variability, X_1 has the least variability of 28% measured in terms of CV (Coefficient of Variation). This is followed by X_3 then X_2 and then Y.
Interest rate has the least variability of 28%, this is expected due to the intervention of the regulatory authorities , the other 3 variables(stock market returns, inflation and exchange rate) has variability of 69.16%,61.04 and 43.1 respectively , showing signs of high volatility.

Table 2: Arch regression

Dependent Variable: D(Y)
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 12/05/17 Time: 20:45
Sample (adjusted): 3/23/1900 03:02 3/23/1900 22:12
Included observations: 239 after adjustments
Convergence achieved after 30 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
D(X1)	-85.62627	30.44532	-2.812461	0.0049
D(X2)	150.4018	48.66538	3.090529	0.0020
D(X3)	-1.448547	10.05505	-0.144062	0.8855
	Variance Equation			
C	6396.636	4116.601	1.553863	0.1202
RESID(-1)^2	0.330870	0.071332	4.638441	0.0000
GARCH(-1)	0.751059	0.045493	16.50922	0.0000

R-squared	-0.002792	Mean dependent var	135.4471
Adjusted R-squared	-0.011290	S.D. dependent var	1804.867
S.E. of regression	1815.027	Akaike info criterion	16.68106
Sum squared resid	7.77E+08	Schwarz criterion	16.76834
Log likelihood	-1987.387	Hannan-Quinn criter.	16.71623
Durbin-Watson stat	1.504836		

Interpretation:

The model above can be interpreted as follows:

Model 1:

$$\Delta Y_t = -85.6263\Delta X_{1t} + 150.4018\Delta X_{2t}; \quad t = 1, 2, ..., 239.$$
$$\sigma_t^2 = 0.3309 e_{t-1}^2 + 0.7515\sigma_{t-1}^2$$

In the mean equation, only X1 and X2 regressors significantly explain stock market returns . Also, the arch and garch parameters are significant in the variance equation. In order words, Interest Rate, Inflation Rate and Exchange Rate Volatilities significantly impact on stock market returns volatility in Nigeria. But $(\alpha_1 + \beta) = 1.0824$ which implies that the volatility will persist for a very long time. Can we therefore find a better model? We fit a differenced constant elasticity model in the Table 4.3 below.

Model 2:

$$\Delta \ln Y_t = \beta_1 \Delta \ln X_{1t} + \beta_2 \Delta \ln X_{2t} + \beta_3 \Delta \ln X_{3t} + e_t; \quad e_t \square N(0, \sigma_t^2), \quad t = 1, 2, ..., 239.$$
$$\sigma_t^2 = \alpha_o + \alpha_1 e_{t-1}^2 + \beta\sigma_{t-1}^2$$

Table 3: Arch regression

Dependent Variable: DLOG(Y)
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 12/05/17 Time: 20:48
Sample (adjusted): 3/23/1900 03:02 3/23/1900 22:12
Included observations: 239 after adjustments
Convergence achieved after 21 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
DLOG(X1)	-0.123013	0.104562	-1.176461	0.2394
DLOG(X2)	0.619665	0.213667	2.900148	0.0037
DLOG(X3)	-0.025600	0.200739	-0.127529	0.8985
	Variance Equation			
C	0.000517	0.000206	2.508106	0.0121
RESID(-1)^2	0.241216	0.075894	3.178321	0.0015
GARCH(-1)	0.646361	0.095337	6.779770	0.0000
R-squared	0.024264	Mean dependent var		0.011377
Adjusted R-squared	0.015995	S.D. dependent var		0.066415
S.E. of regression	0.065882	Akaike info criterion		-2.762674
Sum squared resid	1.024339	Schwarz criterion		-2.675399
Log likelihood	336.1395	Hannan-Quinn criter.		-2.727504
Durbin-Watson stat	1.602250			

Interpretation:

Table 4.4 can be interpreted as follows:

$$\Delta \ln Y_t = 0.6197\Delta \ln X_{2t}; \quad t = 1, 2, ..., 239.$$
$$\sigma_t^2 = 0.0005 + 0.2412 e_{t-1}^2 + 0.6464\sigma_{t-1}^2$$

In Table 4.4, only X2 (inflation) significantly explained Stock Market Returns in the mean equation. In the variance equation, all the parameters were significant. In order words there are both arch and garch effects in stock market returns volatility.

Moreover, $(\alpha_1 + \beta) = 0.8876$. This implies that the model is stationary. This therefore, makes it the best of all the considered models in Tables 1, 2, 3 and 4.

As was noted in chapter 3, section 3.8, R^2 is not of importance in GARCH Models. This is because 'the model is no longer of the usual linear form so OLS cannot be used for GARCH model estimation. There are a variety of reasons for this, but the simplest and most fundamental is that OLS minimizes the residual sum of squares (RSS). The RSS depends only on the parameters in the conditional mean equation, and not the conditional variance, and hence RSS minimization is no longer an appropriate objective. In order to estimate models from the GARCH family, another technique known as *maximum likelihood* is employed' (Brooks, 2008, p. 394). This is why some software such as STATA do not report it. Moreover, the statistic which is used to test for model adequacy in the GARCH model is the Chi-square statistic and in this analysis, the Chi-square statistic is very significant.

The one-step variance forecast is:

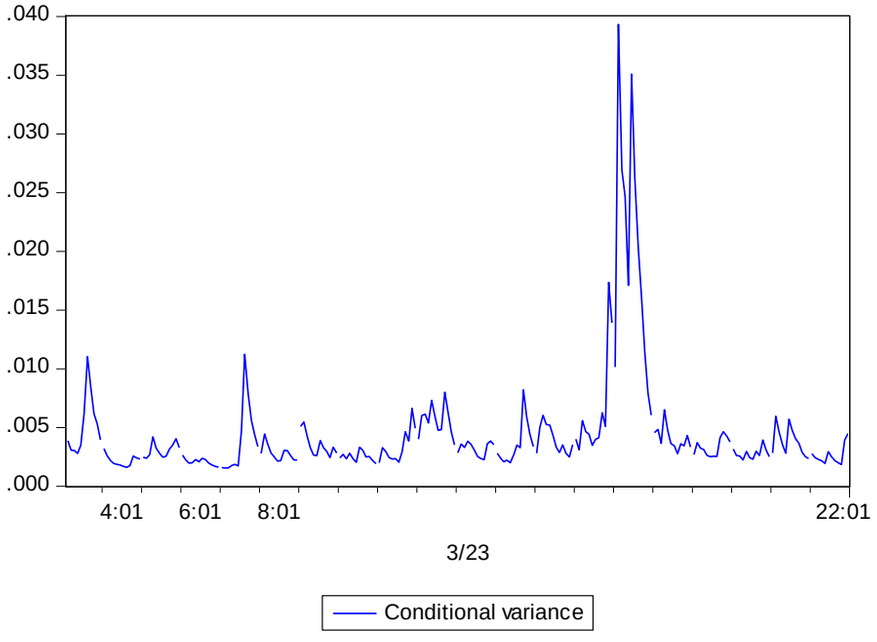

Figure 1

For ease of interpretation, this same graph is re-presented using STATA 13 in fig. 2 below.

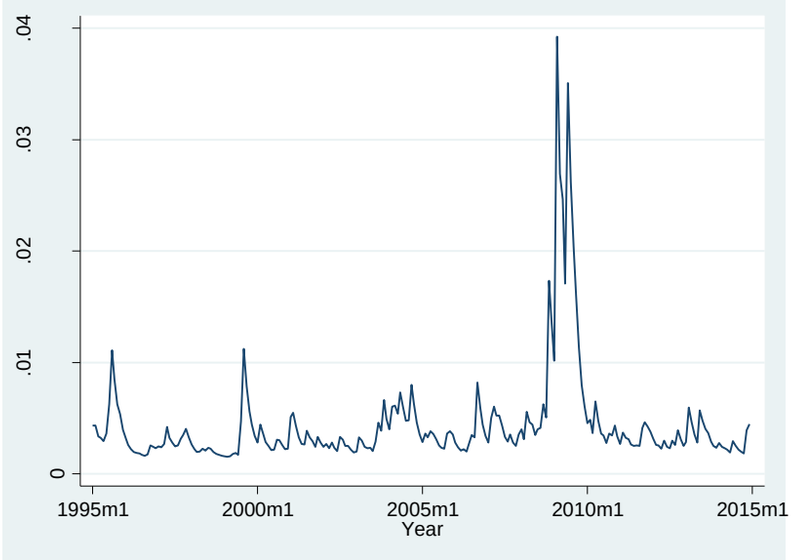

Figure 2

The stock market returns volatility has been relatively stable except between the 3rd qtr 2008 and 2010 before it reverted back to its mean which is implied by its stationarity.

From the monthly data set of macroeconomic variables (inflation rates, interest rates and exchange rates) and the dependent variable stock market returns,

Where

Y= Stock market returns

X_1= Interest rates

X_2 = Consumer price index (inflation)

X_3 = Exchange rates (#/ USD)

Correlation Analysis of Data

Table 4: Correlation Coefficients

	Y	X1	X2	X3
Y	1.0000			
X1	−0.5531*	1.0000		
X2	0.6872*	−0.5667*	1.0000	
X3	0.6161*	−0.2913*	0.7821*	1.0000

The table shows 5% significance of the correlation coefficients.

Table 3 shows that stock market index is expectedly negatively statistically significantly correlated with interest rate but positively significantly correlated with both inflation and exchange rates. This implies, in the first case, that as interest rate increases, stock market returns decreases; and in the second case, that inflation and exchange rate increase respectively with stock market returns. Again, interest rate is negatively correlated with both inflation and exchange rate, while inflation is positively correlated with exchange rate.

5. Conclusion and Recommendations

The relationship between the stock market and macroeconomic variables has been a source of serious concern for economic and financial researchers, due to the role, the stock market plays in achieving economic growth and development of a country through mobilization and efficient direction of funds from surplus units to deficit units however. The persistence of high volatility in the market tends to trigger financial crashes and crisis, which could push the economy into a recession. The findings of the following researchers, oseni and Nwosa (2011), Emenike 2010, Ezepue and Omar (2013) suggested the presence of excessive volatility in the Nigerian stock market. Specifically, this study focuses on the impact of exchange rates, inflation rates and interest rates, on stock market return volatility. Using monthly series data from 1995 to 2014. The analysis in this study was conducted using the GARCH (1,1) and E GARCH (p,q) models. These models, have the ability to assign varying weights to the monthly series data and has proved to outperform the multipregression model. The follow researchers have used these models, Emenike (2010) Ezepue and Omar (2013). And oseni and Nwosa (2011).

The findings, established that there is volatility clustering in the macroeconomic variable and persistent volatility in the dependent variable stock market returns. Inflation and exchange rates was observed to have a positive relationship with stock market returns, while interest rate was found to have a negative relationship with stock market returns. . The study also revealed that interest rate is negatively correlated with both inflation and exchange rates, while inflation rate is positively correlated with exchange rates. Foreign direct investment FDI which is one of the major sources of financing stock market activities, is also a major source of stock market volatility, should be directed towards the real sector, by providing the enabling environment and improve on the ease of doing business in the Nigerian business environment. The Nigeria regulatory authorities should take proactive steps that will minimize stock market return volatility in order to restore confidence in the market. Further research to identify other macroeconomic variables that contributes significant to the stock market return volatility in Nigeria, which include but not limited to the following variables, oil prices, political uncertainties, unemployment rate, treasure bill rate, GDP, cash reserve ratio, export earnings and broadband internet penetrations.

References

- Abimbola AB, Olusegun AJ (2017) Appraising the Exchange Rate Volatility, Stock Market Performance and Aggregate Output Nexus in Nigeria. Bus Eco J 8: 290. doi: 10.4172/2151-6219.1000290
- Barta. A. 2004. "Stock returns volatility in India" working paper. No. 124 Indian council for research on international relationsmarch.
- Brooks, C. (2008). Introductory Econometrics for Finance (2nd ed.). Cambridge University Press. http://dx.doi.org/l0.1017/CBO9780511841644
- Campbell, J.Y. (1996). Understanding Risk and Return. Journal Of Political Economy 104. No.2, 298-345 https://doi.org/10.1086/262026
- Campbell & Hertschel (1993). No news is Good news: An Asymmetric Model of Changing Volatility in stock returns Journal of Financial 31, no. 3281-318
- Campbell, J Y, M Lettau, B G Malkiel and Y Xu (2001): "Have individual stocks become more volatile? An empirical exploration of idiosyncratic risk", Journal of Finance, 56 (1), pp 1-43.
- Charles Adjiasi etal (2008). Effect of exchange rate volatility on the Ghana stock exchange. African Journal of Accounting Economics Finance and Banking Research vol.3 No. 3 PP 28-46
- Diebald F.X. and Yilmazk(2008), Macroeconomic volatility and stock market volatility worldwide, working paper no. 1426. National bureau of Economic research Cambridge. https://doi.org/10.3386/w14269
- Emenike Kalu.O. & Odili Okwuchukwu (2014). Stock Market Return Volatility and Macroeconomic Variables in Nigeria. International Journal of Empirical Finance. (2). 75-82.
- Emenike, K. 0. (2010). Modelling Stock Returns Volatility in Nigeria Using GARCH Models. Munich Personal RePEC Archive. Retrieved from http://mpra.ub.uni-muenchen.de/23432/
- Ezepue, p. 0. & Omar, M. T. (2013). ARCH/GARCH structural time series modelling and characterization of the Nigerian stock market in light of financial reforms and global financial crisis. Report Number: AERR 2013/02, Sheffield Hallani University, UK.
- Guo and White (1993). Uncovering the risk returns relation in the stock market. National Bureau of Economic Research 1050 Massachusetts AvenueCambridgeUSA 02138 August 2003. https://doi.org/10.3386/w9927
- Izuchukwu C.D., Ifurueze M.S. and Chude N.P. (2015), Impact of some selected Macro-economic variables on stock market returns in Nigeria. International Journal of Economic and Business review vol.3 issue 12 December 2015.
- Kumar.R. and Makhija (1986) volatility of stock prices market efficiency managerial decision Economics 7(2) 119-122.
- Ludvigson.S. and Steindel (1999). How Important is the stock market effect on consumption? Economic Policy Review, Federal Reserve Bank Of New York. 5, 29-51.
- Mahmood and Dinniah(2008) Stock returns and Macro-economic variables: Evidence from six Asian specific countries. International Research Journal of Finance and Economics. Issn 1450-2887, issue 30.2009. iss 163
- Mushtaq, R., Shah, A. S. Z., Rehman, M. Z. U., and Murtaza, G. (2011). The V relationship between stock market volatility and macroeconomic volatility Evidence from Pakistan. Available at SSRN: MohamedJallah (2015) Does stock market capitalization influence Economic growth in Africa? Evidence from The Panel data Applied Economics and Finance vol. 2 no. 1 February 2015.
- Nelson D.B. (1991) Conditional Heteroskedasticity In Asset returns: A New Approach To Econometrics vol. 59 pp 347-370. https://doi.org/10.2307/2938260
- Olowe, R. A. (2009). Modelling Naira/Dollar Exchange Rate Volatility: Evidence from GARCH and Asymmetric Models. International Review of Business Research Papers, 5, 3 77-398
- Oseni, I. O. & Nwosa, P. I. (2011). Stock market volatility and macroeconomic variables volatility in Nigeria: An Exponential GARCH Approach. European Journal of Business and Management, 3(12), 43-53.
- Talla.J.(2013). Impactof Macroeconomic Variables on Stock Market: Evidence from Emerging Markets. International Journal of Economics and Finance 9728.