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EFFECTS OF FLUCTUATIONS OF SOME BROAD FUNDAMENTAL VARIABLES OF NIGERIA STOCKS MARKET VOLATILITY

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ABSTRACT

This study examined effects of Fluctuation Of some broad fundamental variables of Nigeria stocks market volatility. The study investigate if change in the level of Financial openness significantly lead to volatility in stock market price. It's also examined if exchange rate Fluctuation significantly leads to stock market volatility. The study employed longitudinal research design, involved in the collection of day for any given variables..in conclusion, Stock market volatility tends to be sticky. This means that the volatility level over a certain period of time remains until some material change in fundamental variables (like inflation, financial openness and exchange rate) occur. This could lead to a heightened level of uncertainty in a country's bourse. However, it must be noted that although volatility is a reflection of risk, it needs not necessarily be feared at normal levels; rather, it should be accepted as a necessary part of the risk and return relationship in organized capital markets world-wide. From our analysis, it was observed that inflation and financial openness have a positive but insignificant impact on stock price volatility while exchange rate has a negative and insignificant impact on stock price volatility. Therefore, Nigerian investors are advised not to significantly alter their asset allocation plan in response to short-term changes in volatility. They should also endeavour to review their long-term volatility expectations when engaged in any form of strategic asset allocation activity.

Keywords--- fundamental variables, market volatility, stock price,, exchange rate Fluctuation.

BACKGROUND TO THE STUDY

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A common problem plaguing the growth of developing countries like Nigeria is the shallow nature of its financial markets both in terms of breadth and depth. Indeed, financial markets play an important role in the process of economic growth and development by facilitating savings and channelling funds from savers to investors. While there have been numerous attempts to develop the financial sector, emerging markets like that of Nigeria are also facing the problem of volatility in numerous fronts – arising from fluctuations in fundamental variables like inflation, exchange rate and changing levels of financial openness – including volatility of its financial sector.

Volatility may impair the smooth functioning of the financial system and adversely affect economic performance. Similarly, stock market volatility also has a number of negative implications. One of the ways in which it affects the economy is through its effect on consumer spending (Campbell, 1996; Starr-McCluer, 1998; Ludvigson & Steindel, 1999; Poterba, 2000). The impact of stock market volatility on consumer spending is related via the wealth effect. Increased wealth will drive up consumer spending. However, a fall in stock market prices and indices will weaken consumer confidence and thus drive down consumer spending. Stock market volatility may also affect business investment (Zulia, 1995) and economic growth directly (Levine & Zervos 1996; Rajni & Mehendra, 2007). A rise in stock market volatility in many financial markets could possibly be interpreted as a rise in the risk of equity investment arising from volatilities in some fundamental economic variables. This could lead to a shift of invertible funds to less risky assets and a rise in the cost of funds to firms desirous of raising funds for future expansion, from the bourse (stock exchange).

While there is a general consensus on what constitutes stock market volatility and, to a lesser extent, on how to measure it; there is far less agreement on the causes of changes in stock market volatility. Some economists see the causes of volatility as emanating from the arrival of new unanticipated information that alters expected returns on a stock. Thus, changes in market volatility would merely reflect changes in the local or global economic environment. Others claim that volatility is mainly caused by changes in changes in trading volume, practices or patterns, which in turn are driven by factors such as changes in fundament policies, shifts in investor tolerance of risk and increased uncertainty arising from changing levels of inflation, financial openness and exchange rates (Idolor, 2014; Rajni The & Mehendra, 2007).

The degree of stock market returns and volatility if known can help forecasters predict the path of an economy's growth and the structure of volatility can imply that investors now need to hold more stocks in their portfolio to achieve diversification. This case is more serious for a relatively small (compared to developed economies) and emerging economy like Nigeria which is currently attempting to further deepen her financial sector by developing her

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securities market. Unlike mature stock markets of advanced economies, the stock markets of less developed economies like Nigeria began to develop rapidly only in the last two decades, and are sensitive to factors such as changes in levels of economic activities, changes in the political and economic environment as well as changes in general fundamental variables (Eriki & Idolor, 2010).

Many attempts have been made in the past to determine and measure stock market volatility arising from changes in the level of inflation, financial openness, and exchange rate in emerging fundamental. Analysts have used Markovian and Monte Carlo approaches and more tools are being evolved in the literature to deal with this aspect of the stock market. All the attempts are to see if an investor can determine the risk inherent in the market and hence reap a windfall through efficient portfolio creation and diversification. The success of such analytical tool would naturally lead to an upward trend in the stock market and further lead to market vibrancy and economic development by facilitating informed investment and divestment decisions.

Some of these analytical tools have had some successes in terms of long-term prediction of the level of volatility. For example, the ARCH model introduced by Engle (1982) and its extension the GARCH model, developed by Bollerslev (1986), has attracted latter day analysts and has been adjudged a viable tool of the future in both developed and developing economies. The use of the ARCH and GARCH model has received a new impetus and is at the front burners of volatility analysis in the literature most especially with its EGARCH extensions. It is against this background that the study seeks to test the level of volatility of stock market returns in the emerging Nigerian stock market arising from changes in the level of inflation, financial openness and exchange rate. The study will benefit from developments in the measurement of volatility through econometric techniques like the ARCH model introduced by Engle (1982) and its extension, the GARCH model introduced by Bollerslev (1986) up to the recent EGARCH extensions. The results of estimates of stock market volatility will then be related to changes in levels of inflation, financial openness and exchange rates.

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STATEMENT OF THE RESEARCH PROBLEM

For some inexplicable reasons, very little has been written on stock market volatility among African capital markets arising from changes in macroeconomic variables like the level of inflation, financial openness and exchange rate; in-spite of the rapid growth of stock exchanges in the continent over the last fifty years; when the number rose from only two to seventeen. Yet, capital markets are key drivers of economic growth and development (Eriki & Idolor, 2010; Bob-Osaze, 2011; Ikponwosa, 2013; Idolor, 2014). Notwithstanding the

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impressive contributions of numerous foreign studies to empirical financial economics, there remains a significant gap in the volatility literature; namely the relative neglect of the connection between macroeconomic fundamentals and asset return volatility in frontier and emerging African capital markets like Nigeria. This has led to a difficulty in ascertaining the level of volatility in the local bourse (stock exchange) resulting from changes in the level of inflation, financial openness and exchange rate in Nigeria. Previous research studies focused more on exploring the nature and extent of this relationship in mature and relatively more developed emerging markets with little or no emphasis on African frontier and emerging stock markets like that of Nigeria. A few notable studies in this regards include those of Christiansen (2007), Cifarelli and Paladino (2005), Koutmos and Booth (1995), Koch and Koch (1991), and Eun and Shim (1989). The scenario has led to a paucity of reliable academic research aimed at assessing and quantifying the extent to which Nigerian stock market volatility is affected by idiosyncratic shocks or risk originating locally, regionally and globally as a result of changes in some broad macroeconomic variables; thereby, making it relatively difficult to make inferences about the magnitude of the interdependence of Nigeria's stock market volatility, to local or global changes in macroeconomic variables like inflation, financial openness and exchange rate. The situation is made even more cumbersome by the mere fact that most African economies like that of Nigeria, except a few regional African economies, do not keep or make publicly available, up to date reliable records/data of their past historical aggregate stock market returns and broad macroeconomic variables. In the last two decade the Nigerian stock market grew and prospered, especially between the year 2000 and 2008 where it reached unprecedented height. At the wake of the global financial crisis, foreign individual and portfolio investors divested from the market and performance indicators in the stock market such as the All Share Index and total market capitalization nosedived as the market lost over seventy percent (70%) of its value between 2007 and 2009 (Bob-Osaze, 2011). Investors were traumatized by the occurrence which resulted to a loss of investor confidence in the stock market despite frantic attempts by the Central Bank of Nigeria and the Nigerian Stock Exchange to guarantee investors that their investments in Nigeria were safe and that the Nigerian economy was insulated from the global financial crisis. As the crisis persisted, broad macroeconomic variables in the country gradually became unstable as numerous firms quoted on the statutory exchange began to experience decline in balance sheet values due to inability to cope with the shock of the global financial crisis. Investor apathy increased in the market which soon became bearish as market participation was focused more on selling previously purchased shares than on buying new ones. The scenario could have possibly been avoided if policy makers (in the financial market) and investors had adequate knowledge about the relationship between stock return and volatility

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risk as well as the major sources (or macroeconomic variables) that exert significant influence on stock market volatility in Nigeria

OBJECTIVES OF THE STUDY

The aim of the study is to ascertain the effects of fluctuations of some broad fundamental variables of Nigeria's stock market volatility. In specific terms, the research objectives are to:

i. Determine if changes in the level of inflation significantly lead to volatility in stock market prices/returns,

ii. Ascertain if changes in the level of financial openness significantly lead to volatility in stock market princes/returns,

iii. Determine whether exchange rate fluctuations significantly lead to stock market volatility.

REVIEW OF RELATED LITERATURE'S

EMPIRICAL REVIEW

Many recent studies have been conducted to show the linkage between financial openness and stock market volatility. For instance, Flavin and Panopoulo (2009) examines the level of volatility across stable and unstable periods applying switching ARCH and GARCH models for a variety of asset classes. They opine that the switching models are advantageous in relation to other related univariate volatility measurement techniques. These two models have been used to test the stability of common shock transfers between country pairs. Their findings show that returns during stable periods are significantly positive whereas in unstable periods returns are negative. Also, the models flexibly allowed for detecting that common stocks are characterized on the average by high volatility. Their findings throw more weight behind their suggestion that international portfolio diversification remain a good option in times of financial crises. However, Gallali and Kilani (2010) opine that univariate models fail to take into account market fundamental structure influences as well as investors decision-making process with respect to equity investment strategies. Their study however opines that multivariate models while being superior are usually very difficult to understand and apply,Bhe time series analysis, they also employed the cross-sectional framework to investigate whether capital market liberalization policies affect volatility after controlling four other factors that might affect volatility. Their results demonstrated that capital market liberalization often increase the correlation between local market returns and the world market but do not drive up local volality Market **Volatility and Macroeconomic Variables**

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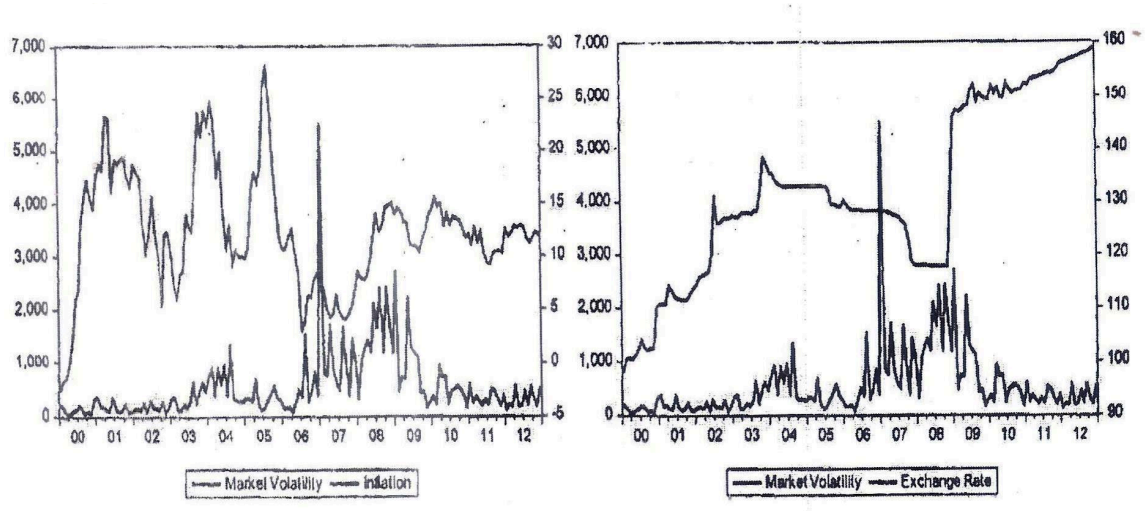
Given the slower demand pressure on the exchange and advent of technology revolution that strikes all sectors and the economy at large in the early period of the study, year 2000 to be specific, the volatility of the market was slightly lower than the one witnessed in the early period of 2007 basically known as the boom period. The behaviour of market volatility (MVol) over the period of study is bell shaped and this suggests the normality of the series of MVol. Behind the global financial crisis, the market volatility declined greatly and from 2010 till the end of 2012 the volatility of the market was stable and less relatively to the one recorded in the advent of the crisis. Hence, the nature of the trend remains unclear.

Despite the latest single digit inflation figure realized in the early period of 2013, which present the actualization of the long waiting monetary policy goal, Figure 2A shows the trend behavior of market volatility and inflation rate. It is observed that after the global financial crisis inflation tend to follow market volatility except for some short run deviations in the mid-2011 when there was reverse in the behaviour of the two series. The behaviour of market volatility and exchange rate is also depicted in Figure 2A. As shown in Figure 2A, exchange rate changes are more intense in the period of naira depreciation namely 2000-2003, 2008-2009 and 2011-2012 than the period of naira appreciation 2004-2007. This suggests increased exchange rate risk during depreciations and decrease otherwise

Market Volatility and Selected Economic Fundamentals



Were less tensed but possess more varied patterns and not tied to the market going by their negative correlation with the market, this therefore, justify the use of both variables as a measure of risk flee rate for short and long run periodic estimations by researchers (Fama and French, 1992; Ang et al, 2006, 2009).

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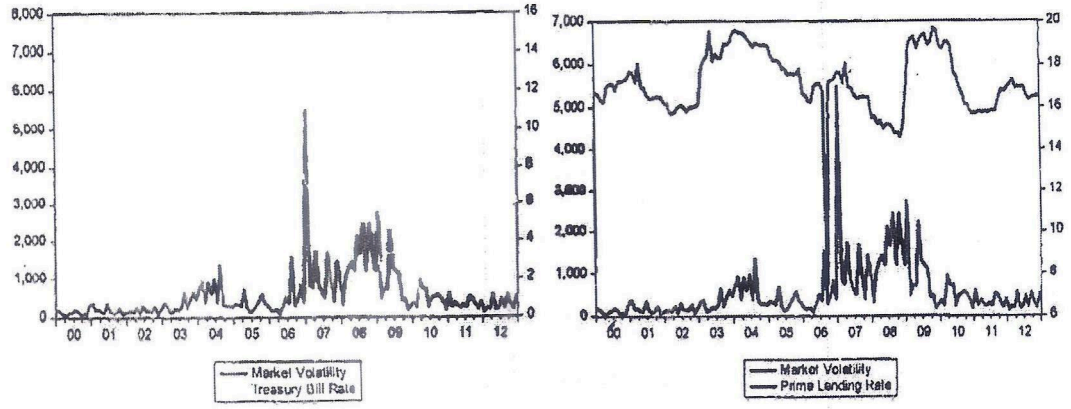

METHODOLOGY

THE RESEARCH DESIGN

The research design for this study considering the research problem, research questions, research objectives and the various hypotheses is the longitudinal research design. Longitudinal research design involves the collection of data for any given variable over an extended or long period of time for the purpose of tracking changes in such data over time. To this end data was collected on the relevant variables at different points in time without any attempt on the part of the researcher to influence the data. The data obtained revealed changes in the variables of interest over time

MODEL SPECIFICATION AND ESTIMATION TECHNIQUE

The proposed functional form of the model utilised is shown in equation (3.7), while the proposed econometric form of the model is as shown in equation (3.).

$SPV = f(FOPN, INFL, EXRT)$ ……(3.7)

$SPV = \alpha_0 + \alpha_1 FOPN + \alpha_2 INFL + \alpha_3 EXRT + Ut$ ……(3.8)

Where,

SPV= Volatility of stock prices (used as proxy for stock market volatility)

FOPN= Financial openness

INFL= Inflation rate

EXRT= Exchange rate

U_t = Error term

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The α priori Expectations are:

$\alpha_1>0$ (FOPN have a positive relationship)

$\alpha_2>0$ (INFL have a positive relationship)

$\alpha_3<0$ (EXRT have a negative relationship)

The dependent variable in the specified model is stock price volatility (SPV) while inflation, financial openness (FOPN) is measured as the ratio of the sum of foreign assets and liabilities to GDP in Nigeria. The impact of the variables on stock price volatility is also estimated using the EGARCH technique. For the study a model with a first-order EGARCH term and a first-order ARCH term (i.e., EGARCH [1,1]) is thus proposed and specified in the model because of its simplicity. This is shown in equation (3.9 & 3.10).

$LSP_t = \lambda_0 + \lambda_1 LSP_{t-1} + \varepsilon_t$ .....(3.9)

Where,

LSP= Log of stock price index

λ_0= Autonomous variable

$\lambda_1 LSP_{t-1}$ = The lag of the log of stock price index

ε_t= Error term

$\log (\sigma^2_t)\ \omega + \beta \log(\sigma 2t\text{-}1) + \alpha$ .....(3.10)

Equation (3.9) is the mean equation and (3.10) is the variance equation. The mean equation is written as a function of exogenous variables (in this case, the major factors in stock prices) with an error term. Equation (3.10) is the conditional variance because it is the one-period ahead forest variance based on past information. The conditional variance equation which is specified in equation (3.10) is a function of four terms:

- The mean term which is represented as ω
- News about volatility from the previous period (the ARCH term which has α as its coefficient)
- Last period's forecast variance (the GARCH term) which is represented as σ^2_{t-1}

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- The leverage term (with coefficient of γ), which measures the level of asymmetry in the model.

The focus is on the conditional variance equation in the EGARCH. It is hypothesized that changes in the level of financial openness and other fundamental variables lead to volatility in stock market price. Thus, the conditional variances or volatility over time in stock prices depend on the levels of financial openness (FOPN), inflation rate (INTL), and exchange rate (EXRT). Therefore, the conditional variance equation is re-specified as shown in equation (3.11):

$$\text{Log}(\sigma_t^2) = \omega + \beta \log(\sigma_{t-1}^2) + \alpha\left(\left|\frac{\epsilon_{t-1}}{\sigma_{t-1}}\right| - \sqrt{\frac{2}{\pi}}\right) + \gamma\frac{\epsilon_{t-1}}{\sigma_{t-1}} + \varphi_1 FOPN$$

$$+ \varphi_2 LINFL + \varphi_3 LEXRT \ldots\ldots\ldots\ldots \quad (3.11)$$

Where;

ω = Mean or the constant

α = ARCM term. This shows the news of volatility from the previous period.

β = GARCH term. This shows the forecast of variance for the last period. It could result from individual expectations e.g. If for instance prices are expected to rise, investors behave in that direction. It usually has a positive expectation.

γ = Assymetric co-efficient or leverage effect. It shows whether people respond positively or negatively to news. If it is for instance negative, it means that the information is destabilizing and vice versa.

In the equation, inflation and exchange rate are taken in logarithmic forms in order to measure their elasticity directly. Based on the results from the estimation of this EGARCH model, the volatility of stock prices would be explained based on changes in the selected fundamental variables.

DATA AND CONTROL VARIABLES

Secondary data source will be adopted for the study. The data was obtained from the CBN Statistical Bulletin, and the Nigerian stock exchange fact book. In line with the convention in the vast empirical finance literature, the returns used in this study are continuously compounded log returns computed as shown in equation (3.12).

$Y_t = 100 * In$ PAGE 82 …….. (3.12)

Where, Y_t = stock market returns

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P_r = stock market price index for period t

P_{t-1} = price index for period $_{t-1}$

In = the logarithm operator

The use of logarithmic price changes prevents non-stationarity of the level of stock prices from affecting volatility of stock returns (Rashid & Ahmad, 2008; Chukwuogor-Ndu, 2005). The suggested model variables, and data set for the study, will therefore be converted to their log form. This is because log models help to condense data into a unified scale which helps to avoid some of the problems of Stationarity and Autocorrelation in time series analysis (Gujarati, 2005). We will also use the logarithm of relative prices multiplied by 100 (as shown in equation 2.12) to calculate the continuously compounded stock returns. For the study, we capture financial openness as the ratio of the sum of foreign liabilities and foreign assets to a country's gross domestic product (GDP). This is shown in equation (3.13):

Financial Openness = $\frac{\text{Foreign Liabilities} + \text{Foreign Assets}}{\text{GDP}}$ …….(3.13)

Like in most typical ration analysis, the higher the value of the numerator with regards to the denominator, the higher will be the level of financial openness of the country in question. Our data analysis will be run using E-Views 7.0 data analysis econometrics software.

DATA ANALYSIS AND PRESENTATION

TESTS FOR TIME SERIES PROPERTIES

As part of the preliminary analysis, we consider the time series properties of the series in terms of stationarity and heteroskedasticity. Unit root test involves the test of stationarity for variables used in regression analysis. The importance of stationarity of time series used in regression borders on the fact that for a non-stationary time series, it is not possible to generalize to other time periods apart from the present. This makes forecasting based on such time series to be of little practical value. Moreover, regression of a non-stationary time series on another non-stationary time series may produce spurious result (Box & Jenkins, 1978).

The Augmented Dickey Fuller (ADF) test is employed in order to analyze unit roots. The results are presented in levels and first difference. This enables us determine in, comparative terms, the unit root among the time series and also to obtain more robust results. Table 4.1 presents results of ADF test in levels without taking into consideration the trend in the variables. The reason for this is that an explicit test of the trend pattern of the time series has not been carried out. The result indicated in the Table 4.1 shows that two variables, namely, LSPV and LINFL all have ADF values that are greater than the 95 percent critical ADF value

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and are thus stationary in levels. All the other variables have ADF values that are less than the 95 percent critical ADF value. The implication of this is that the time series are non-stationary in their levels. Stock price volatility and inflation on the other hand, are stationary and as such, are not time dependent. The stationarity of the stock price volatility variable is particularly interesting to note. This implies that short term disequilibria in the system are not self-perpetuating; rather there are internal mechanisms within the system to adjust the disequilibria in the long run. Thus, unlike the time series properties of other commodity prices, it seems that stock prices do not exhibit long run disequilibrium in Nigeria.

Table 4.1: Unit Root Test for Variables in Levels

Variable	ADF Test Statistic	95% Critical ADF Value	Remark
LSP1	3.642	-2.991	Stationary
LSP	-1.759	-2.991	Non-stationary
INFL	-3.545		Stationary
FOPN	-1.129	-2.991	Non-stationary
LEXRT	-1.747	-2.991	Non- stationary

Source: Author's computation extracted from Eviews 7.0 output

Box and Jenkins (1978) have argued that non stationary time series in levels may be made stationary by taking their first differences. A given series is said to be integrated of order d (denoted I (d)) if it attains stationarity after differencing d times. If the series is I (1) it is deemed to have a unit root. This situation arises if the first difference of the series is 1 (0). We take the first differences of the respective variables and perform the unit root test on each of the resultant time series. The result of the unit root test on these variables at first difference is reported in Table 4.2. From the result, it is seen that the, 6.DF test statistic for each of the variables is greater than the 95 percent critical ADF values (in absolute values). With these result, these variables are adjudged to be stationary. This implies that the three variables that were initially non-stationary are actually difference-stationary, attaining stationarity after the first difference of the variables. Thus, we accept the hypothesis that the variables possess unit roots. Indeed, the variables are integrated of order one (i.e. I [1]).

Table 4.2: Unit Root Test for Variables at First Difference

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Variable	ADF Test Statistic	95% Critical ADF Value	Remark
ΔLSPV	-4.333	-2.991	Stationary
ΔLSP	-3.687	-2.991	"
ΔLINFL	-5.899	-2.991	"
ΔFOPN	-4.148	-2.991	"
ΔLEXRT	-3.456	-2.991	"

Source: Author's computation extracted from Eviews 7.0 output

GRANGER CAUSALITY TEST

In order to determine the direction of effects that exists between the stock prices and its volatility with other variables, the Granger causality test is conducted. The result of the Granger causality test with respect to LSPV and LSP are presented in Table 4.3. We consider the F values and their corresponding probabilities in examining the direction of causality. Insignificance of the F-statistics implies acceptance of the null hypothesis and vice versa. The results for the null hypothesis that SP does not "Granger cause" SPV is not significant at the 5 percent level. This is because the empirical F-value is less than the critical value of 3.91. Hence, we cannot reject the null hypothesis that SP does not Granger cause SPV. The other null hypothesis that causality does not run from SPV to SP also however passes the significance test at the 10 percent level. Thus, it is shown that volatility of stock prices actually affects the pattern of movement of the prices over time. But generally price movements do not generate volatility within itself.

Table 4.3: Granger Causality Test results

Null Hypothesis	F-statistic	Probability	Decision	Causality
No Lags				

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LSP does not Granger Cause LSPV LSPV does not Granger Cause LSP	1.053 2.974	0.369 0.077	Accept Reject	Unidirectional
LINFL does not Granger Cause LSPV LSPV does not Granger Cause LINFL	0.899 0.794	0.424 0.467	Accept Accept	None
FOPN does not Granger Cause LSPV LSPV does not Granger Cause FOPN	0,160 0.389	0.853 0.684	Accept Accept	None
LEXRT does not Granger Cause LSPV LSPV does not Granger Cause LEXRT	0.459 1.735	0.639 0.205	Accept Accept	None
LINFL does not Granger Cause LSP LSP does not Granger Cause LINFL	1.232 2.758	0.314 0.089	Accept Reject	Unidirectional
FOPN does not Granger Cause LSP LSP does not Granger Cause FOPN	0.084 0.883	0.920 0.389	Accept Accept	None
LEXRT does not Granger Cause LSP LSP does not Granger Cause LEXRT	5.182 1.734	0.016 0.203	Reject Accept	Unidirectional

Source: Author's computation extracted from Eviews 7.0 output

In terms of the stock prices, the result shows that causality runs from SP to INFL, suggesting that movement in stock prices results in inflationary pressures as well as changes in the level of foreign liabilities inflow. Stock market development therefore seems to be able to stimulate foreign participation on the one hand, and affect inflation on the other hand. The result also shows that exchange rate Granger causes stock prices. Movement in the exchange rate produces certain movements in the stock prices; and stock prices therefore seem to respond well to external factors.

REGRESSION ANALYSIS RESULT

As suggested in the previous chapter, the estimation of the model is done with respect to the effect of the independent variables on stock market volatility in Nigeria. The results of the estimated model are presented in Table 4.4. The R squared value of 0.224 is rather low and shows that only about 22 percent of the systematic variations in LSPV for the period were captured by the explanatory variables, which implies that the model may possess a weak explanatory ability. The overall significance of the model is determined by the F-statistic value. The F-value of 1.44 is quite low and does not pass the significance test even at the 5 percent level since this value is less than the 5 percent critical F-value of 3.91. The model

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does not therefore exhibit a high overall significance. Thus, we cannot reject the hypothesis of an insignificant log-linear relationship between stock price volatility and all the independent variables combined.

Table 4.4: Model for Fundamental Determinants Capital Market

Variables	Coefficient	T-Ratios
Constant	0.096	0.619
LINFL	0.088	2.177
FOPN	0.007	1.324
LEXRT	-0.029	-0.953
R = 0.224 F = 1.44		= 0.069 D.W. = 1.57

Source: Author's computation extracted from E views 7.0 output

In order to determine the level of relevance of each of the explanatory variables in determining capital market changes, we consider each of their coefficients in terms of their signs and significance level. More importantly, the test of significance for each coefficient reveals that only the coefficient of INFL is significant at the 5 percent level since the t-value is greater than that of the 5 percent critical value. The coefficients of all the other variables fail the significance test at the 5 percent level.

The outcome of the result suggests that only inflation has any significant effect in predicting stock price volatility in Nigeria. Stock price volatility seems to move *interdem* (*together*) with inflation; as a rise in inflation tends to generate volatility in stock prices. Apparently, fundamental factors may explain stock price volatility in Nigeria. By considering the pattern of inflationary movement in Nigeria, the volatility of stock prices may be observed.

VOLATILITY ANALYSIS RESULT

The results of estimating the EGARCH model which was specified in chapter three is presented in Table 4.5. In the mean equation, the goodness of fit statistics is quite impressive. The R squared value of 0.971 is very high and shows that over 97 percent of the systematic variations in SP are explained by changes in its lagged value. The F-value is also highly significant at the 1 percent level, indicating a strong

Relationship between SP and its past values. The mean equation shows that the impact of lagged stock prices is significant at the 1 percent level. This confirms the correctness of adding the variable to correct for autocorrelation in the stock return series. The result also shows that, with a coefficient close to one, there seems to be a very long delay for share prices

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to return to their long run position after any shock. Thus, stock price shocks are seen to be persistent over time.

Table 4.5: The EGARCH Result

Variables	Coefficient	T-Ratios
Mean Equation		
Constant	0.341	2.874
LASI(-1)	0.990	57.96
Variance Equation		
Ω	-0.969	-0.333
α	-1.342	-2.876
γ	0.096	0.160
β	0.668	2.793
LINFL	0.312	0.444
FOPN	0.021	0.360
LEXRT	0.085	0.141
R = 0.224 F = 1.44		= 0.069 D.W. = 1.57

Source: Author's computation extracted from E views 7.0 output

The equation of interest is that of the conditional variance which measures the effects of inflation, financial openness and exchange rate on stock price volatility. The results of the conditional variance equation are presented in the second section of Table 4.5. Unlike the OLS estimation, the result shows that, considering the role of each variable in the variance equation, all the coefficients fail the 5 percent significance test, indicating that these variables do not effectively predict volatility of stock prices in Nigeria. However, the signs of the coefficients report another dimension to the estimated relationship. Both inflation and financial openness have positive signs, implying that these factors tend to stimulate or intensify stock price instability in the market at a very weak level. Rising foreign financial participation seems to expose the stock market to vagaries. They also tend to convey easy amplification of short term disequilibrium that may come up in the capital market.

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The mean term in the result (ω) is negative and also fails the significance test at the 5 percent level. This shows that generally, the position of stock prices at any given period has no effect on its pattern of volatility. The leverage effect (γ) in the output fails the significance test at the 5 percent level even though it has the correct negative sign, so there appears to be no asymmetric effect in stock prices. This indicates the non-existence of any leverage effect in future prices during the sample period; as no form of information in the market could be said to be more destabilizing since is not significantly different from zero. The market tends to maintain its pattern irrespective of information flows or arbitrary news generated from outside the system. The α parameter represents the "GARCH" effect. The coefficient of this term is negative and highly significant at the 1 percent level. This shows the tendency of stock prices gaining a downward slide at any given shock.

The parameter β measures the persistence in conditional volatility irrespective of anything happening in the market (Alexander & Later, 2004). The β term is positive and relatively large, e.g. above 0.67. This shows that volatility takes long time to die out following a crisis in the Nigerian stock market. This outcome was also implied in the mean equation. Thus, long term measures must be put in place when addressing short term arbitrary shocks in stock prices in Nigeria.

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATION

The empirical findings of this study are summarized as follows:

1. The results showed that Changes in the level of inflation do not significantly lead to volatility in stock prices in Nigeria.
2. The study also revealed that changes in the level of financial openness do not significantly lead to stock market volatility in Nigeria.
3. It was also discovered that fluctuations in the level of exchange rates do not significantly lead to stock market volatility in Nigeria

CONCLUSIONS

Stock market volatility tends to be sticky. This means that the volatility level over a certain period of time remains until some material change in fundamental variables (like inflation, financial openness and exchange rate) occur. This could lead to a heightened level of uncertainty in a country's bourse. However, it must be noted that although volatility is a reflection of risk, it needs not necessarily be feared at normal levels; rather, it should be accepted as a necessary part of the risk and return relationship in organized capital markets

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world-wide. From our analysis, it was observed that inflation and financial openness have a positive but insignificant impact on stock price volatility while exchange rate has a negative and insignificant impact on stock price volatility. Therefore, Nigerian investors are advised not to significantly alter their asset allocation plan in response to short-term changes in volatility. They should also endeavour to review their long-term volatility expectations when engaged in any form of strategic asset allocation activity.

RECOMMENDATIONS

On the basis of the research findings, we recommend the following measures as veritable means of coping with the issue of volatility in the Nigerian bourse.

1. Regulatory financial authorities should adopt guided financial openness where aspects of foreign participation that are critical should be factored in and leveraged in other to improve the stock market.
2. More focus should be directed at attracting foreign financial inflows that are permanent in nature. This is because easily reversible inflows are bound to generate instability in the stock market.
3. African countries should strive to develop and implement detailed capital market master plans and country specific reforms, in order to reduce their vulnerability to external financial crises in the future.
4. There is a need for African markets to focus more seriously on their capital markets as possible channels for volatility transmission, spill-over and contagion.
5. Furthermore, the repositioning of the capital market as a pivot for domestic investment growth is critical in order to balance the investment climate in African countries. F
6. We therefore advocate that policymakers in their bid to formulate and execute policies aimed at stabilising the domestic financial markets in Nigeria, should also take into consideration global factors from external markets such as those in tree US, UK or those other world markets.
7. The Nigerian bourse should be expanded in terms of depth and breadth; whereby foreign stockholdings in domestic companies is enhanced through a transparent and easily understood process.
8. Efficient exchange rate management should be adopted by government which take into account the relevance of the stock market as possible significant strong economical indices, when addressing the issue of exchange rate Management

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