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STOCK MARKET PERFORMANCE AND ECONOMIC GROWTH: EVIDENCE FROM NIGERIA EMPLOYING VECTOR ERROR CORRECTION MODEL FRAMEWORK

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ABSTRACT

This study examines the long-run and causal relationship between stock market performance and economic growth in Nigeria for the period from 1987Q_1 to 2012Q_4 inclusive. The study employs the Augmented-Dickey Fuller test for unit root, the Johansen (1995) *Maximum Likelihood cointegration technique and Vector Error Correction Model framework to capture long-run and short-run relationships in the cointegrating vectors of Nigerian stock market and economic growth. The study further employs* Granger (1969) *Causality, Impulse Response Function (IRF) and Forecast Error Variance Decomposition (FEVD) to capture shocks transmission and AR root graph for stability. The optimum lag length was selected based on the Schwartz and Hannan-Quin information criteria. The results of the cointegration test confirm that there exists a long-run relationship between stock market performance and economic growth, while the causality test results suggest that stock market performance causes economic growth with feedback. The Impulse Response Function (IRF) and Forecast Error Variance Decomposition (FEVD) suggest that shocks from the stock market do not impede economic growth. Furthermore, the result of the AR root graph indicates that the Nigerian stock exchange market is not stable. Hence, the current reforms and policies going on in the Nigerian stock exchange should be sustained to boost investors' confidence and participation.*

Keywords: Stability, Stock, Market, Economic, Growth, Relationship, Causality, Impulse.

JEL Classification Code: C32. G14, N27.

Contribution/ Originality

The paper's primary contribution is finding that the Nigerian stock market is not stable.

1. INTRODUCTION

Stock market provides the bridge through which the savings of surplus units may be transformed into medium and long-term investments in the deficits units. It is reported to perform critical functions, which promote economic growth and prospects of the economy. Recent studies suggest that, over the past decades, stock market liquidity has been a catalyst for long-run

growth in developing countries. Without a liquid stock market, many profitable long – term investments would not be undertaken because savers would be reluctant to tie up their investments for long periods of time. In contrast, a liquid market allows savers to sell their shares easily, thereby permitting firms to raise equity capital on favourable terms (Adenuga, 2010).

Stock markets are one of the important parts of financial system, which enable firms to raise capital by issuing their shares and also create an environment in which the shares are traded (Bayar *et al.*, 2014). However, theoretical literature offers conflicting predictions about the role of stock markets in promoting economic growth (Carporale *et al.*, 2004). Earlier research emphasized the role of the banking sector in economic growth. In the past decade, the world stock markets surged, and emerging markets accounted for a large amount of the boom. Relevant research has therefore begun to focus on the linkages between the stock markets and economic growth. New theoretical work shows how stock market development might boost long-run economic growth, and new empirical evidence supports this view (Garcia and Liu, 1999).

Hence, it is by now widely recognized that a well functioning financial system is crucial to economic growth. As part of the financial system, the stock markets play important roles in economic growth (Garcia and Liu, 1999). In a developing economy like Nigeria, the development and growth of stock markets have been widespread in recent times. Despite the size and illiquid nature of stock market, its continued existence and development could have important implications for economic activity (Alajekwu and Achugbu, 2012). The stock market provides equity and a direct form of finance to potential investors for economic purposes. This role enables it to function as a critical long-term lubricant in the economic growth process. The performance of the stock market is in addition often considered an essential or good barometer for measuring a country's economic strength (Henry and Olabanji, 2013).

Thus, an economy with an active stock market may have its vital stock market index regularly used as a guide in the measurement of changes in the general level of economic activities within the concerned economy. One other major role of the stock market as an economic institution is that it enhances the efficiency of capital formation and allocation of resources. It is therefore expected that every active stock market will facilitate the availability of long-term capital for economically productive activities and this remains a key requirement for economic growth. The stock market also provides a means by which the capital needed for efficient or effective growth in the economy is made available. Stock markets are in addition regarded as a necessary tool for economic growth as they provide listed companies the platform to mobilize much needed capital for the long-term investment needs of business. This also encourages surplus spending economic agents to save thereby increasing the saving rate as well as directly stimulating more investments and consequently bringing additional investment income to the owners of funds (Henry and Olabanji, 2013).

Studies have focused mainly on the role of financial intermediation in the process of economic growth and capital accumulation. Indeed, many have analyzed the channels through which banks and other financial intermediaries may help to increase, for example, the saving rate or the

average productivity of capital and, in turn, growth. However, a new wave of interest on the role played by stock market development in the process of economic growth has occupied economists' investigative activity (Adenuga, 2010).

The recent global financial crisis which was precipitated by the United States mortgage crisis, liberalization of global financial regulations, boom and burst in the housing market and its effect on other weaker countries like Nigeria necessitates the need for an empirical study of this nature. Evidence in Nigeria shows that between 2008 and 2009, the stock market collapsed by 70 per cent point (Sanusi, 2010). This coincided with the period of global financial crisis which began in the middle of 2007 in the United States and spread into Nigeria in 2008 (David-Wayas, 2014).

Thus, the aim of the study is to investigate the causal relationship between stock market performance and economic growth. This is in line with the argument that for the stock market to flourish there has to be favourable economic conditions. On the other hand, to achieve economic growth, the stock market has to be efficient and robust. Thus, the study departs from previous studies conducted on Nigerian economy in two respects. First, it adopted all the relevant variables. This is based on economic and finance theories. Second, stability of the stock market performance was examined. These research questions were examined by employing pairwise Granger causality and AR root graph.

2. LITERATURE REVIEW

Demirgüç-Kunt and Levine (1996) examined a broad array of indicators of stock market and financial intermediary development. The results suggest a wide cross country differences for each indicator as well as intuitively appealing correlations between various indicators, while Garcia and Liu (1999) reported that GDP growth, domestic investment, and financial intermediary sector development are important factors. Similarly, El-Wassal (2005) argued that economic growth, financial liberalization policies, and foreign portfolio investments are the leading factors of the emerging stock markets growth. However, Yartey (2007) reported that one percent increase in financial intermediary sector development tends to increase stock market development in Africa by 0.6 point controlling for macro-economic stability, economic development, and the quality of legal and political institutions. Carporale et al. (2004) investigated the linkage between stock market, investment and economic growth for seven countries. The study reported that the causality between stock market components, investment and economic growth is significant and in line with endogenous growth model. Whereas, N´zue´ (2006); Olweny and Kimani (2011); Bayar et al. (2014) reported that there is a unidirectional causality running from stock market development to economic growth in Ivory Coast, Kenya and Turkey respectively.

For studies conducted on Nigerian economy, Oluwatonyin and Ocheja (2009) argued that activities in the secondary capital market tend to grow the stock market earnings through its wealth effect, while that of the primary market does not. Similarly, Adenuga (2010); Ojo and Adeusi (2012); Oluitan (2013) and Atoyebi et al. (2013) reported that the stock market promotes economic growth. However, Donwa and Odia (2010) are of the viewpoint that capital market

indices have no significant impact on economic growth, while Abiodun and Elisha (2012) argued that stock prices and stock market operations have the tendency to increase economic growth. In a similar study, Samuel and Oka (2010) reported that information contributes to the efficiency of the capital market. Alajekwu and Achugbu (2012) reported that market capitalization and value traded ratios have a very weak negative correlation with economic growth, while turnover ratio has a very strong positive correlation with economic growth. Meanwhile, Osisanwo and Atanda (2012) reported that interest rate, previous stock return levels, money supply and exchange rate are the main determinants of stock returns. Studies that investigated causal relationship between stock market performance and economic growth like Ogboi and Oladipo (2012); Ozurumba and Chigbu (2013); Adefeso et al. (2013), reported that there exists a unidirectional causality between stock market and economic growth running from economic growth to stock market performance. However, both Kalapo and Adaramola (2012) and David-Wayas (2014) argued that there exists a bidirectional causal relationship between stock market performance and economic growth.

3. THE MODEL

The study adopted the model employed by Carporale et al. (2004) and Adenuga (2010) with some modifications to capture the peculiarities of the Nigerian economy. Thus, the Vector Autoregressive (VAR) framework to multivariate time series is specified as follows:

$$y_t = A_1 y_{t-1} + A_2 y_{t-2} + ... + A_p y_{t-p} BX_t + E_t ....(1)$$

Equation (1) is specified in compact form, which follows the process of order P{VAR(P)).

where y_t is a k vector of endogenous variables (in this study, vector y_t contains rY, inf, Invr, Savr, Tor, Tvsr, Mkter, KF and bd), X_t is a d vector of deterministic variable, A_1, ..., A_p and B are matrices of coefficients to be estimated, and E_t is a vector of disturbances that may be contemporaneously correlated, but are uncorrelated with their own lagged value as well as all deterministic variables.

In this study, the matrix form of the VAR$_{(p)}$ is specified below

$$\begin{bmatrix} ry \\ \text{inf} \\ invr \\ savr \\ Tor \\ Tvsr \\ Mktcr \\ Kf \\ bd \end{bmatrix} = A(L) \begin{bmatrix} ry_{t-i} \\ \text{inf}_{t-i} \\ invr_{t-i} \\ savr_{t-i} \\ Tor_{t-i} \\ Tvsr_{t-i} \\ Mktcr_{t-i} \\ Kf_{t-i} \\ bd_{t-i} \end{bmatrix} + \begin{bmatrix} \sum ry \\ \sum \text{inf} \\ \sum invr \\ \sum savr \\ \sum tor \\ \sum tvsr \\ \sum mktcr \\ \sum kf \\ \sum bd \end{bmatrix} ....(2)$$

Transforming the VAR equation into VECM specifications can be written in compact form as follows:

$$\Delta ry_t = \alpha_i + \beta_i \sum_{j=1}^{k} \Delta(ry\gamma)_{t-1} + \vartheta_i \sum_{j=1}^{k} \Delta X_{t-1} + \Theta ECM_{t-1} + \varepsilon_t \quad \text{.......................................}(3)$$

3.1. Definition of Model Variables

where ry = real GDP; inf = inflation; Invr = investment ratio; Savr = savings ratio; Tor = Turnover ratio; Tvsr = total value of shares traded ratio; mktcr = market capitalization ratio; kf = capital flows; bd = banking sector dev.

Economic growth: This is measured by real gross domestic product in this study. According to demand – driven hypothesis, the expansion of an economy will create new demand for financial service. Such increase in demand will exert pressure to establish larger and more sophisticated financial institutions to satisfy the new demand for their services. **Inflation**: This is proxied by the consumer price Index (CPI). **Investment ratio:** This is calculated as gross fixed capital formation divided by nominal GDP. **Savings ratio**: This is calculated as gross domestic savings as a percentage of GDP. **Turnover ratio**: This ratio measures the market liquidity which is usually given as total value of shares traded divided by all-share index or market capitalization. **Total value of shares traded ratio**: This is measured as the ratio of total value of shares traded to GDP. Thus, it shows stock market liquidity in the aggregate economy. **Market capitalization ratio**: This is calculated as market capitalization as a ratio of GDP. **Capital flows:** capital flows is measured using foreign direct investment as a percentage of GDP. **Banking sector development**: This is measured as the value of domestic credit provided by the banking system to the private sector relative to GDP (Adenuga, 2010).

4. EMPIRICAL RESULTS AND DISCUSSION

Table-1. VAR Lag Order Selection Criteria

Lag	LogL	LR	AIC	SC	HQ
0	-3999.43	NA	83.44645	83.60673	83.51124
1	-3023.77	1809.030	63.87028	64.99218	64.32377
2	-2939.75	145.2890	62.86981	64.95334	63.71201
3	-2913.52	42.67624	63.07336	66.11853	64.30427
4	-2830.13	123.3470	62.08608	66.09288	63.70569
5	-2398.46	584.5554	53.84292	58.81135	55.85124
6	-2300.75	120.0954	52.55741	58.48746*	54.95443*
7	-2275.51	27.86509	52.78165	59.67334	55.56738
8	-2196.03	77.83804*	51.87552*	59.72884	55.04996

Note: (*) indicates lag order selected by the criterion. LR: sequential modified LR test statistic (each at test at 5% level).

4.1. Unit Root Test Results

To examine the time series characteristics of the model variables, the Augumented Dickey-Fuller (ADF) unit root test was conducted. The null hypothesis of non-stationarity of each

variable was tested against the alternative hypothesis of stationarity. The choice of lag length was based on Akaike information criterion (AIC), Schwarz information criterion (SIC) and Hannan-Quin information criterion (HQIC). Hence, the optimum lag length for the ADF test was 6.The results of the ADF test are presented in table 2.

Table-2. ADF Unit Root Test Results, 1987Q1-2012Q4

Variable	ADF	Order of integration
Ry	-3.764(-3.457)	I(0)
Δinf	-3.543(-3.457)	I(1)
Δinvr	-4.528(-3.457)	I(1)
Δsavr	-3.986(-3.457)	I(1)
ΔΔtor	-10.702(-3.455)	I(2)
Δtvsr	-9.951(-3.454)	I(1)
Δmktcr	-3.969(-3.457)	I(1)
Δkf	-5.784(-3.457)	I(1)
Δbd	-3.606(-3.457)	I(1)

Note: For the ADF, the 5% critical values are given below the test statistics in parentheses.

The decision rule is to reject the null hypothesis if the ADF statistic value (in absolute term) exceeds the critical value at 5% level of significance. The ADF results suggest that only real income is stationary at level, while inf, invr, savr, tvsr, mktcr, kf and bd are stationary after first difference, which suggests that they are I(1) series. However, tor is stationary after second difference. Hence, to determine whether there is a long-run relationship amongst the variables of interest, the Johansen's full information maximum likelihood method for cointegration is adopted.

4.2. Cointegration Test Results

To examine the long-run relationship amongst the variables of interest, the Johansen cointegration approach was adopted. This technique utilizes two statistics test namely: the trace test and the maximum Eigen value test. The appropriate lag length of 6 from (SIC) was preferred over (AIC) due to the fact that it takes into consideration the parsimoniousness of the model and has more stringent theoretical backing (Mordi, 2008; Adenuga, 2010). The variables of interest are ry (which captures economic growth), tor, tvsr and mktcr (represent stock market performance indicators). Hence, results of the unrestricted cointegration rank test when the three respective stock market indicators were estimated with economic growth are presented in tables 3, 4 and 5 below.

Table-3. Unrestricted Cointegration Rank Test Results between ry and tor

Null Hypothesis	Trace Statistics	Critical Value at 5 Percent	Null Hypothesis	Maximum-Eigen Statistic	Critical Value At 5 Percent
r = 0*	75.983	15.495	r = 0*	60.115	14.265
r ≤ 1*	15.868	3.841	r ≤ 1*	15.868	3.841

Notes: (*) denotes rejection of the hypothesis of no cointegrating vectors at 5% significance level, while r indicates number of cointegrating vectors. Both the trace statistics and Max-Eigen value suggest 2 cointegrating equations at the 5% level.

Table-4. Unrestricted Cointegration Rank Test Results between ry and tvsr

Null Hypothesis	Trace Statistics	Critical Value at 5 Percent	Null Hypothesis	Maximum-Eigen Statistic	Critical Value At 5 Percent
r = 0*	59.235	15.495	r = 0*	56.626	14.265
r ≤ 1	2.609	3.841	r ≤ 1	2.609	3.841

Notes: (*) denotes rejection of the hypothesis of no cointegrating vectors at 5% significance level. Both the trace statistics and Max-Eigen value indicate 1 cointegrating equations at the 0.05 level.

Table-5. Unrestricted Cointegration Rank Test Results between ry and mktcr

Null Hypothesis	Trace Statistics	Critical Value at 5 Percent	Null Hypothesis	Maximum-Eigen Statistic	Critical Value At 5 Percent
r = 0*	25.138	15.495	r = 0*	24.234	14.265
r ≤ 1	20.904	3.841	r ≤ 1	0.904	3.841

Notes: (*) denotes rejection of the hypothesis of no cointegrating vectors at 5% significance level. Both the trace statistics and Max-eigen value suggest 1 cointegrating equations at the 0.05 level.

The results of the cointegration tests suggest that there exists at least one cointegrating vector at 0.05 significance level. Table 3 indicates two cointegrating vectors as suggested by both the trace and maximum Eigen statistics which reject the null hypothesis of no cointegration against the alternative hypothesis of cointegration. However, tables 4 and 5 suggest only one cointegrating vector. In sum, there exists a stable long-run relationship between economic growth and stock market performance in Nigeria.

4.3. Vector Error Correction Model (VECM) Results

Since the existence of a long-run relationship between the variables of interest has been established, then the vector error correction model is estimated. This is due to the fact that there could be deviations in the short-run as a result of some shocks in the Nigerian economy. The results of the VECM are presented in table 6, 7 and 8 below:

Table-6. Error Correction Model for TOR and RY

Variable	β's	ECM(-1)
TOR	1.000000	-0.344 (-5.421)*
RY	-2.28E-06 (-14.471)*	
C	0.008	

Note: Figures in parenthesis are the t-statistic, while (*) indicates significance at 5% level.

Table-7. Error Correction Model for TVSR and RY

Variable	β's	ECM(-1)
TVSR	1.0000000	-0.062
		(-1.409)
RY	-8.10E-08	
	(-9.967)*	
C	0.000672	

Note: Figures in parenthesis are the t-statistic, while (*) indicates significance at 5% level.

Table-8. Error Correction Model for MKTCR and RY

Variable	β's	ECM(-1)
MKTCR	1.0000000	-0.0207
		(-1.111)
RY	-1.64E-10	
	(-5.274)*	
C	-1.42E-05	

Note: Figures in parenthesis are the t-statistic, while (*) indicates significance at 5% level.

The ECM results obtained from the VECM and presented in tables 6, 7 and 8 have negative sign. These results are theory consistent. From the tables, the vector error correction terms are -0.344, -0.062 and -0.0207 for turnover ratio (tor), total value of shares traded ratio (tvsr) and market capitalization ratio (mktcr) respectively. These speeds of adjustment suggest that about 34.4%, 6.2% and 2.07% of the previous period's disequilibrium from long-run in the Nigerian stock exchange market are corrected within a quarter for tor, tvsr and mktcr respectively. It is noteworthy that, turnover ratio which is a major stock market performance indicator in this study indicates the fastest adjustment speed of 34.4%. The optimum lag length of 6 was selected based on Schwarz and Hannan-Quin information criteria. This implies that the convergence between the variables is not instantaneous.

4.4. Granger Causality Test Results

The direction of causality between stock market performance and economic growth was estimated using pairwise Granger (1969) causality approach. Granger (1969) is of the viewpoint that if causal relationship is established amongst variables, then these variables can be used to predict each other. Granger (1969) argued that a variable say Z causes another variable say R, if and only if R can be predicted from the past values of Z and R better than from past values of Z alone. This causal relationship is in two ways: uni-and bi-directional. The results of the Granger causality are presented in table 9 below:

Table-9. Pairwise Granger Causality Test Results

Null Hypothesis	F-Statistic	Causal Inference
ry does not Granger Cause tor	321.705(3.E-56)*	Causality
tor does not Granger Cause ry	21.689(3.E-15)*	Causality
ry does not Granger Cause tvsr	0.245(0.960)	No Causality
Tvsr does not Granger Cause ry	13.809(7.E-11)*	Causality
ry does not Granger Cause mktcr	0.399(0.878)	No Causality
Mktcr does not Granger Cause ry	1.996(0.075)	No Causality

Note: (*) and figures in parenthesis depict significance at 5% level and P-values respectively.

The results in table 9 suggest that economic growth Granger causes turnover ratio (a proxy for stock market performance in this study) with feedback. This shows that economic growth leads to increased stocks sales in Nigeria and vice versa. While, there is no causal relationship between market capitalization ratio and economic growth. However, there is a uni-directional causal relationship between total value of shares traded ratio and economic growth. It shows that total value of shares traded ratio causes economic growth without feedback. These results are consistent with findings of Kalapo and Adaramola (2012) and David-Wayas (2014).

4.5. Impulse Response Function

The Impulse Response Function (IRF) and Forecast Error Variance Decomposition were estimated to ascertain the effect of periodic shocks transmission between stock market performance and economic growth for ten quarters.
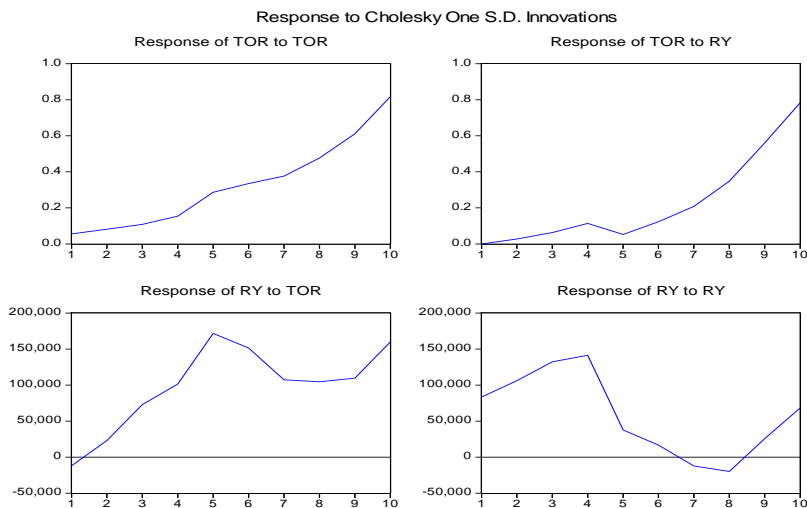

Figure-1. Shock transmission between stock market performance and economic growth

Figure 1 depicts various response of stock market performance proxied by Turnover ratio (Tor) to a one standard deviation of 0.25% point shocks in the economic growth proxied by real GDP. It can be seen from figure 1 above that economic growth responds positively to stock market performance and vice versa. This suggests that an increase in stock market performance improves economic growth. Similarly, an increase in economic growth increases stock market performance in Nigeria.

On the other hand, the forecast error variance was estimated using Cholesky Forecast Error Variance Decomposition for ten quarters period. This is computed by orthogonalizing the innovations with Cholesky decomposition. The results are presented in table 10 below:

Table-10. Cholesky Forecast Error Variance Decomposition

Variance decomposition of TOR / period	S.E	TOR	RY
1	0.056	100	0.000
2	0.102	92.661	7.339
3	0.162	81.981	18.010
4	0.251	71.911	28.089
5	0.384	86.185	13.815
6	0.524	87.088	12.912
7	0.678	82.866	17.134
8	0.899	75.279	24.721
9	1.223	65.639	34.361
10	1.666	59.392	40.608
Variance decomposition of RY / period	*S.E*	*TOR*	*RY*
1	84232.2	2.011	97.981
2	137377.5	3.578	96.422
3	204112.4	14.351	85.649
4	268180.9	22.598	77.402
5	320705.1	44.481	55.510
6	355029.5	54.482	45.518
7	371104.3	58.231	41.769
8	386052.5	61.139	38.861
9	402135.0	63.777	36.223
10	438100.0	67.057	32.943

From table 10 above, it is shown that for TOR, after ten periods, RY accounted for 40.607% of the forecast error in stock exchange market, while TOR accounted for 59.392%. This implies that information in the Nigerian stock exchange market is likely the driving force behind the stock exchange market variance. For RY, TOR accounted for about 67.1% of the forecast error variance in economic growth after ten quarters, while RY accounted for about 32.9%. This implies that information in the Nigerian stock exchange market and economic growth are the driving force behind economic growth variance. However, shocks in the Nigerian stock exchange market dictate what happens in the market more than economic growth. This result is noteworthy due to the fact that any information from the market affects stock agents' investment decisions. David-Wayas (2014) reported similar findings.

4.6. Stability Test

The stability issue of the stock market performance is very, very important due to the fact that it is one of the guiding policy issues that helps decide whether to quote stocks or not. Thus, the AR root graph was employed to ensure the reliability of the coefficients of the normalized cointegrating models for long-run and vector error correction model for short-run. The estimated VAR is said to be stable only if all the roots have modulus less than one and lie inside the unit circle (Atoyebi *et al.*, 2013).
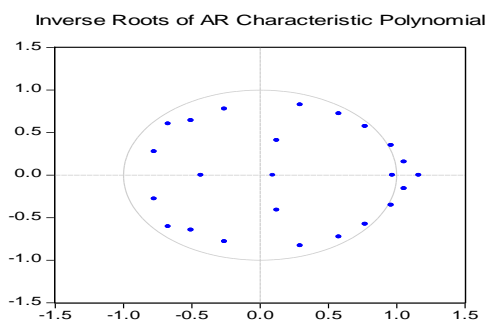

Figure-2. AR Root graph

From figure 2 above, it can be seen that the Nigerian stock market is not stable. Some moduli are greater than one, while some roots lie outside the graph. These results suggest that the global financial crisis of 2008 has continued to impact negatively on the Nigerian stock exchange market. Insider information abuse could be another threat to the stability of the market. As a result, foreign investors have already started withdrawing their capital from the market this year (2014). This poses a very big problem to the economy as it can lead to recession in the future if not corrected.

Table-11. Summary of Descriptive Statistics

	RY	TOR	INVR	TVSR	KF	BD
Mean	176060.4	0.505353	0.011225	0.013360	1.57E+14	0.065168
Median	77467.10	0.081638	0.002567	0.006129	1.15E+13	0.040251
Maximum	2051798.	13.44059	0.068708	0.069111	8.66E+14	0.271086
Minimum	-97983.38	-0.668031	-0.000509	0.000776	-1.44E+12	0.023267
Std. Dev.	368740.4	1.793352	0.017493	0.016242	2.52E+14	0.051854
Skewness	4.342823	5.584351	1.752156	2.002510	1.549904	2.115050
Kurtosis	21.10288	35.65916	5.042579	6.868739	4.098214	7.456357
Jarque-Bera	1747.004	5162.563	71.29345	134.3651	46.86449	163.5957
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	18310286	52.55669	1.167436	1.389472	1.63E+16	6.777456
Sum Sq. Dev.	1.40E+13	331.2594	0.031519	0.027171	6.53E+30	0.276951
Observations	104	104	104	104	104	104

Jarque-Bera is a test that determines whether the series is normally distributed. It also measures the difference of the skewness and the kurtosis of the series with those from the normal distribution (David-Wayas, 2014). The null hypothesis is that the series is normally distributed against the alternative that it is not. Evidently, the Jarque-Bera statistic rejects the null hypothesis of normal distribution for all the variables due to the fact that their probability value is less than 0.05. This suggests that all the variables do not follow normal distribution.

Kurtosis measures the peakedness or flatness of the distribution of the series (David-Wayas, 2014). From table 12, the statistic for Kurtosis suggests that all the variables are Leptokurtic due to the fact that their distributions are greater than 3 relative to normal. On the other hand, skewness measures asymmetry of the distribution of the series around its mean. The results indicate that all the variables skewed to the right.

5. CONCLUSION AND POLICY IMPLICATIONS

The study was carried out to empirically examine the relationship between stock market performance and economic growth in Nigeria from $1987Q_1$ to $2012Q_4$ inclusive. The motivation and justification behind the study were driven by recent changes in the financial sector of the economy due to global financial crisis and economic meltdown and the consequent collapse of the Nigerian stock exchange market in 2009 and recent reforms.

The results show that the variables became stationary after first difference, while ry was stationary at level; tor became stationary after second difference. The cointegration results suggest that the stock market variables have a long-run relationship with economic growth. The estimated cointegrating vector within the error correction model indicates that stock market variables exert a positive impact on economic growth. Results from the VECM revealed that stock market performance and economic growth adjust to their stable long-run equilibrium. In order to consider the parsimony principle and residual white noise property, lag interval of 6 was selected based on Swartz and Hannan-Quin information criteria. The lag length suggests that the adjustment of stock market performance and economic growth to their respective long-run equilibrium relationship is not instantaneous. This implies that it will take about one and half year for any disequilibrium in the stock market to impact on the Nigerian economy.

The Granger Causality test shows that stock market performance proxied by turnover ratio causes economic growth with feedback. The results of IRF and FEVD show that there is shock transmission from economic growth to stock market performance and vice versa. However, shocks from the stock market do not hamper economic growth. Finally, the result of the AR root graph indicates that the Nigerian stock exchange market is not stable. These findings give insight into what is currently happening in the Nigerian stock market - where many foreign and indigenous investors have already started pulling out their fund due to the instability nature of the market. This practice stands as a big threat to the Nigerian economy.

With the findings that there exists a positive relationship between stock market performance and economic growth in Nigeria, it is pertinent to discuss the policy implications. This result is

consistent with Adenuga (2010); Abiodun and Elisha (2012); Ojo and Adeusi (2012); Oluitan (2013) and Atoyebi *et al.* (2013). Hence, measures should be put in place to secure investors confidence and participation in the Nigerian stock exchange market. Insider information abuse which has been the major problem of the market should be totally eradicated. Appropriate institutional factors like rule of law, equity and fair trading policies should be put in place. It is necessary to improve the level of infrastructure like electricity to ensure efficiency in the market. The Central Bank of Nigeria and the Federal Ministry of Finance should match monetary policy with fiscal policy to ensure macroeconomic stability. The Securities and Exchange Commission (SEC) should ensure that information coming from the market should be accurate and timely to guide policy makers and stock market agents. The current reforms and policies going on in the Nigerian stock exchange should be sustained to avoid policy somersault that results from regime change as it is usually the case in Nigeria.

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