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CAPITAL MARKET ACTIVITIES AND ECONOMIC GROWTH IN NIGERIA: FURTHER EVIDENCE FROM VAR METHODOLOGY

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ABSTRACT: *This study further investigates the impact of capital market activities on economic growth in Nigeria using vector autoregressive (VAR) methodology. Capital market as a mechanism for economic development aids to provide alternative long term finance in the face of high cost of fund. While this crucial role has been over-emphasized by different scholars, but no attempt have been made to embark on a rigorous analysis, particularly, to demonstrate the feedback effect among variables included in a model explaining the relationship between capital market activities and economic growth. In order to address this problem, the study adopts VAR analysis. The investigation reveals that increase in capital market activities contributed significantly to economic growth. Also, the findings show that there is a long-run relationship between economic growth and capital market activities. The model proved to possess strong predictive ability using the values of mean absolute error (MAE) and root mean squares error (RMSE). The paper concluded that, economic growth could be enhanced by focusing on the salient capital market variables with appropriate policies and efficient infrastructural development.*

KEYWORDS*: Capital market, Economic growth, Unit roots, Co-integration and VAR*
JEL Codes: E44

INTRODUCTION

Over the years, capital market remains the major hob of development among nations of the world. This is because; capital market has acted as a mechanism for economic development by providing alternative long term finance when other means have been exhausted. As the major engine of growth and development of third world economies, the capital market tends to accommodate certain institutions for the creation, custodianship, distribution and exchange of financial assets and management of long-term liabilities. Thus, the financial markets allow for efficient allocation of funds to highly productive investments in the economy (Edo, 1995 and 1997). The Nigerian capital market has played this crucial role despite the problems that plaque the market when it was first instituted in 1946 (Osazee, 2000 and Osamwonyi, 2006). Even with these shortcomings, the Nigeria capital market still performs its role in economic development through the provision of financial securities.

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Emphatically, the role of financial markets in economic growth has attracted much interest among academics, policy makers, investors and even economist around the world, and has resulted in a large number or body of literature both at the theoretical and empirical levels that address the nexus between financial market development and economic growth. And the evidence from previous studies has shown that financial market development is critical to economic growth but most of the methodologies from these studies were purely based on least squares, co-integration and error corrections. Only very few, if at all any, have used a highly robust methodology like VAR, hence this study.

The focus of this study therefore is to investigate further using an appropriate estimation technique (VAR) to examine the impact of capital market activities on economic growth in Nigeria, acknowledging the role of capital market in the mobilization of long-term funds for economic development as well as to identify the key capital market variable(s) fundamental to economic growth for policy direction. This study is important for two main reasons: first, it would examine to a large extent the contribution of capital market activities to fostering economic growth and development in Nigeria. Second, on the basis of policy stance, the government and policy makers in developing economies would also find this study relevant especially in the aspect of policy formulation in restructuring the capital market and improving performance of the micro and macro areas of the economy as well as create a basis for further research since this study cannot capture all the capital market variables relating to economic growth.

This study is divided into five sections. The next section reviews literature relating capital market development and economic growth. Section three captures methodology and model specification while section four discusses empirical results obtained from the estimation process. Recommendations and conclusions are built in section five.

LITERATURE REVIEW

Conceptual Issues

The capital market in any economy is the swivel on which the fortune of that economy revolves. The importance of a well-functioning capital market in an economy cannot be over emphasized considering the fact that it provides the resources for its growth and developmental agenda and also serves as an indicator of the economy's general performance. According to Ajayi and Odetayo (2001), capital market is a market for sales and purchases of medium and long-term securities. It is a subset of the financial market and represents the intricate intermediation processes of a network of individuals, institutions and financial instrument between the users and providers of long-term funds. They typically consist of those who have long-term funds on one hand and are willing to lend such funds, and those requiring such funds on the other hand for investment purpose. In other words, it is a segment of the financial system via which long term funds are mobilized and channeled into productive investment by the insurance of equities and interest bearing securities.

Capital market helps to channel capital or long-term resources to firms with relatively high and increasing productivity thus enhancing economic expansion and growth (Alile, 1997). Ekundayo (2002) opines that a nation requires a lot of local and foreign investments to attain sustainable economic growth and development. Osaze (2000) sees the capital market as the driver of any

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economy to growth and development because it is essential for the long-term growth of capital formation. It is crucial in the mobilization of savings and channeling of such savings to profitable self-liquidating investment. From the angle of resource mobilization and allocation, the capital market facilitates capital formation and accelerates economic development which ultimately engenders societal well-being. It gives room for populace to participate in the corporate sector of the economy via ownership of securities (Zeply, 2004).

According to Anyanwu (1993), the capital market is a collection of financial institution set up for the granting of medium and long term loans. It is a market for long term instruments which include market for government securities, market for corporate bonds, market for corporate shares (stocks) and market for mortgage loans. In order to effectively perform its major function of mobilizing and utilizing long term funds for development in the economy, certain fundamental conditions must exist (Osaze, 1991). It must be allowed to operate freely from all impediments; it must have depth and breath, price continuity and liquidity. It is within this framework that it becomes necessary to analyze the activities of the Nigerian capital market using the indicators in relation to economic growth.

The Nigeria financial system is made up of two major markets, viz: the money market and the capital market. The history of Nigeria financial system revolves round these two markets, particularly the capital market. The market has undergone several developments from its inception in the colonial era in 1946 until 2008 when the Nigerian capital market experienced a crash which has been unprecedented in its historical evolution since 1960. The market capitalization fell from N13.5 trillion in March 2008 to less than N4.6 trillion approximately by January 2009 (Olisaemeka, 2009). The market All-Share Index experience a fall and also stock prices have experienced a free-for-all downward movement regime with more than 60% of slightly above 300 quoted securities on a constant offer (supply greater than demand) on a continuous basis. This state of affair was as a result of structural deficiencies in the Nigerian stock market, inadequacies of infrastructure and high cost of production etc. These have led to numerous problems (ranging from liquidity to dept of the market) which the market is gradually struggling to overcome. Despite the unforeseen crash experienced by the market in recent time, the importance of capital market is extremely crucial in the mobilization of savings and the channeling of such savings to profitable self-liquidating investment. This would impact the economy thereby fostering its growth and development.

Growth is a fundamental feature of any existing being and same for every economy in the world. According to Simon Kuznets, economic growth means long-term rise in the capacity to supply increasingly diverse economic goods to its populations, this growing capacity based on advancing technology and the institutional and ideological adjustments that it demands. Therefore, economic growth means rise in actual/potential output. Growth does not occur in a vacuum, a necessary condition for rapid economic growth is effective mobilization of resources and structural changes within the economy. For economic growth to be swift, it will be essential to establish effective tools for mobilization and allocation of financial resources. This is done via the capital market (Ajayi and odetayo, 2001). Iyoha, Oyefusi and Oriakhi (2003) identified both economic and non-economic factors as the determinants of economic growth of an economic. The economic factors in the growth process are the level of natural resources, the rate of capital accumulation, technical

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progress and entrepreneurial development. As such, capital market activities are anchored on these economic factors. Thus, the strength of a nation may be measured by the value of its accumulated wealth and the rate at which it grows via savings and investment.

Capital market and Economic growth

The impact of capital market activities on economic growth has generated a lot of controversies among scholars and there is no common view in the literature and theories about the relationship between capital market and the process of economic growth (Oyejide 1994; Levine and Zervos 1996; Levine and Zervos 1998; Demirgue-kunt and Levine 1996; Nyong 1997; Obadan 1998; Beck and Levine (2002); Caporale, Howells, and Soliman (2004); Sule and Momoh 2009; Ewah,Esang, Bassey 2009; and Donwa and Odia 2010). These scholars hold varying views (on the basis of their findings) on the relationship between capital market activities and economic growth.

Atje and Jovanovic (1993) found in a cross-country study of capital market and economic growth of 40 countries from 1980 to 1988 that there was a significant correlation between the average economic growth and capital market capitalization. Studies by Levine and Zervos (1996) found a strong correlation between overall capital market development and long-run economic growth. In a similarly studies by Rousseau and Wachtel (2000) and Beck and Levine (2002) reported that using cross country regression framework show that capital market development is strongly correlated with growth rates of real GDP per capita. More importantly, they find that capital market liquidity and banking development both predict the future growth rate of the economy when the two variables both enter the growth regression. Demiurgic-Kunt and Levine (1996) examine whether a strong relationship exist between different measures of stock exchange size and other financial indicators. They concluded that countries with well-developed capital markets tend to also have well-developed financial intermediaries. This is akin to the findings of Levine and Zervos (1996) using pooled cross-country time-series regression of forty-one countries from 1976 to 1993.

On a negative association, Nyong (1997) found out that the capital market development is negatively and significantly correlated with the long-run growth in Nigeria. Harris (1997) hard no proof to show that stock market activity affects the level of economic growth. On the same vein, Ewan et al. (2009) examine the effect of the capital market efficiency on the economic growth of Nigeria using time series data from 1961 to 2004.They found that the capital market in Nigeria has the potential of growth inducing but it has not contributed significantly to the economic growth of Nigeria due to market rigidity, low market capitalization, low absorptive capitalization, illiquidity, misappropriation of funds among others. Donwa and Odia (2010) using a time-series data from 1981 to 2008 asserts that the capital market indices (market capitalization, total new issues, volume of transaction and total listed equities and Government stock.) have not impacted significantly on the growth of Nigeria economy proxy by GDP.

Main while, Robinson (1952) and Lucas (1988) asserted that economist have overstressed financial factor, because they are primary factors in the growth process. Several early economists, in the various theories, have been able to provide a link between economic growth and financial sector like the capital market. Adam Smith in his book ‘An inquiry into the nature and causes of the

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Wealth of Nations" (1976) amongst other things regarded capital market accumulation as a condition necessary for economic growth. David Ricardo in 1799 pointed out the importance of raising savings and profit rate for capital accumulation.

Greenwood and Bruce (1997) argued that, capital markets provide services that boost economic growth. Specifically, they both show that large stock market can lower the cost of mobilizing savings and thereby facilitate investment in the most productive technology. However, in terms of empirical evidence, a strong correlation has been found between overall capital market activities and long-run economic growth. According to Okereke (2000) if capital resources are not provided to those economic areas especially industries where demand is growing and which are capable of increasing production and productivity, the rate of expansion of the economy inevitably suffers. This assertion complement that of Obsfeid (1994) which shows that international risk sharing via internationally integrated stock market improve resources allocation and may accelerate the rate of economic growth. Hence, the need for global capital market integration.

On the whole, it is expected therefore that findings from this current study will assist to take a stand on the capital market-economic growth debates in emerging economies especially with the highly robust methodology employed.

THE MODEL AND METHODOLOGY

There are several indices for measuring the level of activities in the capital market. This include: Market Capitalization, Trading Value, Volume of Transaction, New Issues and All Share Price Index. Edo (2011) asserts that "market capitalization may rise and fall depending on the prevailing economic conditions. A continuous rise is an indication that the market is growing, while a decline indicates contraction of the market". The focus here is to explain the proxies appropriately, test for the 'feedback effects' of the impact of capital market activities on economic growth as represented by these proxies. Essentially, the model adopted by this study is akin to the model utilized by Demirgue-Kunt and Levine (1996), Levine and Zervos (1996), Demirgue-Kunt et al. (1996), Ewah et al. (2009) and Donwa and Odia (2010) which have investigated linkage between capital market and economic growth. The departure from other studies is that this study adopted vector autoregressive (VAR) model.

The standard form of the VAR specification is presented below:

$$\Phi(K)Y_t = e_{mt} \text{ ---------- } (3.1)$$

$$\Rightarrow \quad Y_t = \varphi\,(K)^{-1} e_{mt} \text{ ---------- } (3.2)$$

Where Y_t is a vector of variables to be used in the VAR model, $\varphi(K)$ is the coefficient matrix and e_{mt} is a vector of innovations that are assumed to be mutually uncorrected. Therefore the VAR model depicting the relationship between capital market activities and economic growth will be estimated if the unit root tests imply that the variables included in the VAR model are stationary. The VAR model is specified in equation 3.3 to 3.5 as

$$LRGDP_{1,t} = \alpha_1 + \sum_{m=1}^{M} \beta_{1,m} LRGDP_{1,t-m} + \sum_{n=1}^{N} \varphi_{1,n} LTRVAL_{1,t-n} + \sum_{p=1}^{P} \psi_{1,p} LASI_{1,t-p} + U_{1t} \text{--------} (3.3)$$

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$$LTRVAL_{2,t} = \alpha_2 + \sum_{m=1}^{M} \beta_{2,m} LRGDP_{2,t-m} + \sum_{n=1}^{N} \varphi_{2,n} LTRVAL_{2,t-n} + \sum_{p=1}^{P} \psi_{2,p} LASI_{2,t-p} + U_{2t} \text{------(3.4)}$$

$$LASI_{3,t} = \alpha_3 + \sum_{m=1}^{M} \beta_{3,m} LRGDP_{3,t-m} + \sum_{n=1}^{N} \varphi_{3,n} LTRVAL_{3,t-n} + \sum_{p=1}^{P} \psi_{3,p} LASI_{3,t-p} + U_{3t} \text{---------(3.5)}$$

Where: L=log, RGDP is real gross domestic product which measures economic growth, TRVAL is the trading value, ASI stands for all shares index in the capital market, and 'm' and 'n' are the lag length, U_{1t}, U_{2t} and U_{3t} are the error term which assumed to be uncorrected with zero mean and finite variance- covariance matrix. The impulse response functions and variance decomposition will be generated after the estimation of the VAR model.

METHODOLOGY

In carrying out this study, it was quite necessary to gather relevant data from the period of 1970 – 2010 so as to have sufficient degree of freedom. The data for the study were drawn mainly from secondary sources – the Nigeria Stock Exchange (NSE) reports and Central Bank of Nigeria (CBN) Bulletin (2010). The study adopted the VAR methodology. In a VAR model, each variable is regressed on its own lags and the lags of other variables in the model. In this way, the procedure allows each variable to be affected by its own history and the history of each other variable, thus minimizing the problem of simultaneity (Krezmer, 1992). The VAR model has robust procedure for evaluating relationships, which makes it suitable for analyzing impact in a multivariate system, as exhibited by Sims (1989) and Todd (1990)

To ensure that all variables in the model possess desirable empirical properties, the unit root and co-integration tests are conducted before estimation is done. This is very significant because variables void of such properties may not be suitable for policy making because the estimates obtained could be misleading. The unit root test determines whether the variables are stationary in levels or first differences. According to Engel and Granger (1987), the regression of two non-stationary variables on each other produces spurious and non-sense parameter estimates. The test commonly used to investigate for stationary status is Augmented Dickey-Fuller (ADF) test, which is also employed in this study. The co-integration test is necessary on the other hand to ensure that the variables converged in the long-run. That is, the variables must have stationary and convergence properties before they can be entered for estimation.

Discussion of Empirical Results

Unit Roots Test Results

The unit root property requires all variables to be stationary in levels or first differences. The results of the test are reported in Table 4.1 below.

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Table 4.1 Unit Root Test in Levels and First Differences

Variables	ADF test statistics		ADF LAG	ADF critical value at 95% levels		Remarks	Order of integration
	With intercept	Intercept and trend					
LRGDP	2.0168	-1.6381	1	-2.9706	-3.5796	Non -Stationary	I(0)
LTRVAL	0.15885	-2.1652	1	-2.9706	-3.5796	Non – Stationary	I(0)
LASI	-1.2236	-1.3457	1	-2.9706	-3.5796	Non – Stationary	I(0)
DLRGDP	-3.9407	-4.0390	1	-2.9750	-3.5867	Stationary	I(1)
DLTRVAL	-3.9789	-4.0482	1	-2.9750	-3.5867	Stationary	I(1)
DLASI	-3.3445	-3.4063	1	-2.9750	-3.5867	Stationary	I(1)

Source: Author's Computation (2014), L= log & D = first different.

As a preliminary step for testing for co-integration and vector autoregressive model, we begin by testing the stationarity of the variables. The DF and ADF tests were carried out. The observed values (DF and ADF values) in levels were found to be lower than the tabulated critical- values in absolute terms at the 5% level of significance. We thus concluded that variables are random walks or non stationary and there is the existence of a unit root. This confirms the hypothesis which says that time series data is usually non-stationary. We then proceed to the first difference stationary test. The results show that the observed values are significantly greater than the critical-values also in absolute terms at the 5% level of significance. This implies that the variables are I(1) series, that is, integrated of order 1. (See table 4.1). Since the variables have been found to be stationary in their first differences, the results from estimation of the model are unlikely to be bias and inconsistent.

Johansen Co-integration Test Results

The relationship between macroeconomic variables in the long-run is very important for the purpose of policy-making. If the variables have a causal relationship that allows them to move in perfect harmony in the long-run, policy making and implementation become less worrisome.

Table 4:2 Johansen co-integration Results

Trace Test				**Max-Eigen value test**			
Hypothesized No: of CE(s)	Trace Statistic	0.05 Critical value	Prob.	Hypothesized No: of CE(s)	Eigen Value Stat.	0.05 Critical value	Prob.
None*	41.2597	29.7970	0.0016	None*	35.7272	21.131	0.0002
At most 1	5.53251	15.4947	0.7500	At most 1	5.48391	14.2646	0.6799
At most 2	0.04860	3.84146	0.8255	At most 2	0.04860	3.8414	0.8255

Author's computation (2014)

A critical look at Table 4.2 shows that the variables (LRGDP, LASI and LTRAVAL) have a long run relationship. Trace and eigen tests show one co-integrating equation at 0.005 level. In the light of this, we can conclude that the variables are co-integrated. It therefore follows that the variables in the model possess high probability of converging in the long-run, which is vital for policy making. The tests conducted above produced results to show that the variables under study possess

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desirable empirical characteristics that qualify them to be included in a vector auto-regressive model.

Vector Autoregression Estimates

In the proceeding analysis in 4.1, we established that the variables included in the VAR model were stationary in their first difference and also co-integrated. Meaning that, all share indexes (ASI) and total value of transactions (TRVAL) are capable of influencing economic growth. The magnitude of this influence can also be ascertain from the variance decomposition of the VAR in the Tables below, which indicate the relative contributions of ASI and TRVAL to economic growth.

Table 4.3: Analysis of estimated VAR results. Sample (adjusted): 1971 2010, Included observations: 40 after adjustments and Standard errors in ( ) & t-statistics in [ ] using lag length of one

	ASI	RGDP	TRAVAL
ASI(-1)	0.850665	2.923858	6.512972
	(0.20971)	(1.67565)	(3.28687)
	[4.05635]	[1.74491]	[1.98151]
RGDP(-1)	0.016650	0.951332	0.040546
	(0.00828)	(0.06612)	(0.12970)
	[2.01203]	[14.3880]	[0.31262]
TRAVAL(-1)	-0.002948	-0.034079	1.195390
	(0.00306)	(0.02444)	(0.04793)
	[-0.96403]	[-1.39454]	[24.9379]
C	-1362.783	21280.93	-12792.78
	(1736.01)	(13871.1)	(27208.9)
	[-0.78501]	[1.53419]	[-0.47017]
R-squared	0.774261	0.942250	0.992295
Adj. R-squared	0.755449	0.937437	0.991653
F-statistic	41.15868	195.7921	1545.359
Schwarz SC	20.54601	24.70245	26.04992

Source: Author's computation (2014)

VAR estimation result for capital market activities and economic growth is presented in Table 4.3 using lag length of one since the co-integration results indicate one co-integrating equation. We examined the impact of capital market activities on economic growth in a VAR framework to determine the causality between the variables in an endogeneous system. The results shows that the overall goodness of fit test for the three equations is quite impressive especially for transaction value (TRAVAL) which has a high R-Bar squared of 0.99. The results show that all shares index (ASI) and TRAVAL explain over 93 per cent of the total variations in RGDP during the period. Growth in the RGDP is eminently driven by its immediate past value and the one period lagged of ASI. These variables are positively related to the current level of RGDP and significantly different from zero at 5 percent level when compared to t-table value of 1.69. TRAVAL however proved to be weak in explaining the changes in RGDP and shows negative relationship. But at 10 percent level, it's proved to be significant when compared to t-table value of 1.31. Looking at the effect of ASI and TRAVAL on economic growth based on the estimated results above, one can deduce that capital market activities are significant determinants of economic growth in Nigeria. The residuals of the variables are presented in the figure below and they appeared to have a normal behavior.

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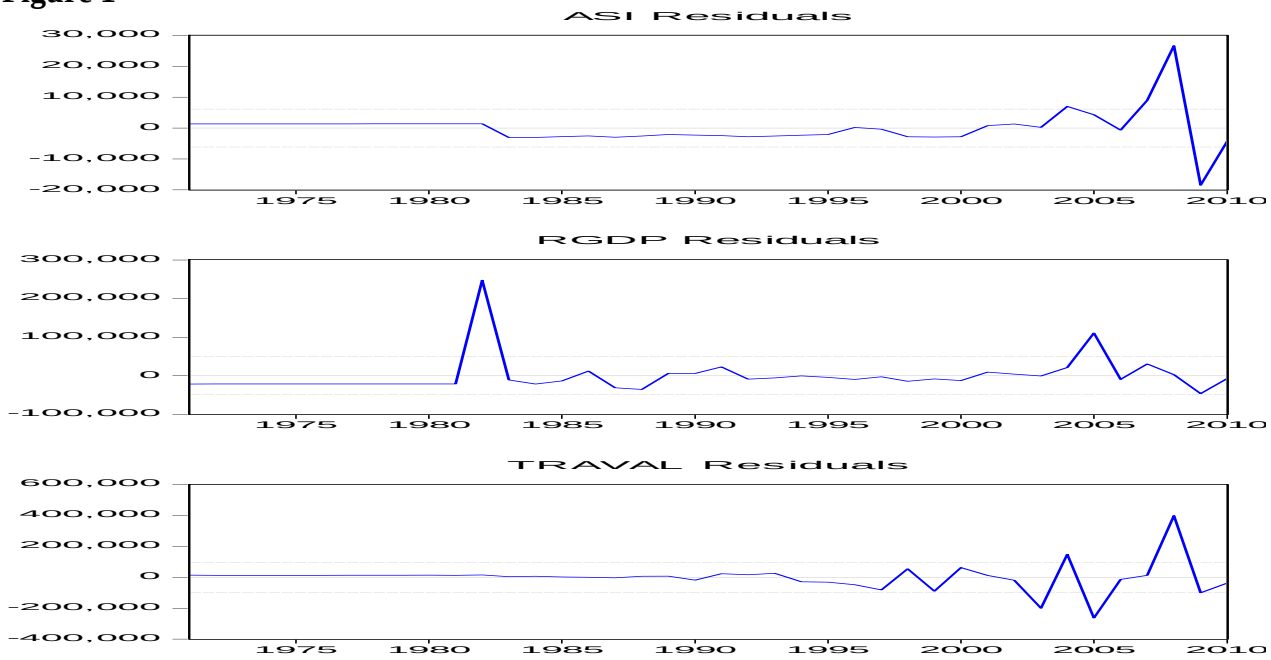
Figure 1



Variance Decomposition

Table 4.4: Variance decomposition for variable LASI

Horizons	S.E	LASI	LTRVAL	LRGDP
0	-	1.00000	0.07432	0.00448
5	0.30445	0.44998	0.59594	0.22207
10	0.48146	0.14462	0.95256	0.13843
15	0.51250	0.14522	0.92420	0.14136
20	0.55663	0.14861	0.97510	0.11780
25	0.62174	0.12403	0.98103	0.10225

Source: Author's Computation (2014)

In Table 4.2 above, the estimates indicate the relative contributions of all share indexes to its own growth, as well as the growth in real gross domestic product and total value of transactions for five years period interval. The table reflects the proportion of forecast error variance in all share indexes that is attributed to its own innovations and the innovations in total value of transactions and real gross domestic product. In particular, the shocks in past all share indexes on itself ranged from 44.9 to 100 percent over the time horizons. Real gross domestic product made maximum contribution of 22.2 percent to all share indexes in horizon 5, and a minimum contribution of 0.45 percent in horizon 1. Thus, the innovations in real gross domestic product account for between

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0.45 and 22.2 percent in the forecast error variance of all share indexes while total value of transactions can generally be considered to have contributed 7.43 – 98.1 percent to all share indexes during the period. The significant features of the variance decomposition results are that the predominant sources of all share indexes growth are due largely to "own shocks". The results also revealed that growth in real gross domestic product and total value of transactions also predict the variance in the degree of all share indexes over the period in Nigeria.

Table 4.5: Variance decomposition for variable TRVAL

Horizons	S.E	LTRVAL	LASI	LRGDP
0	-	1.00000	0.07432	0.15351
5	0.74440	0.68945	0.29585	0.16602
10	0.71746	0.95257	0.12191	0.07882
15	0.29547	0.97205	0.12713	0.11097
20	2.7723	0.86038	0.12313	0.08728
25	3.1746	0.96881	0.15414	0.10608

Source: Author's Computation (2014)

Table 4.3 above presents the variance decomposition of total value of transactions. The table shows the proportion of forecast error variance in total value of transactions that is attributed to its own growth and the growth in real gross domestic product and all share indexes. The shocks in past total value of transactions on itself ranged from 68.9 to 100 percent over the time horizons. The growth in real gross domestic product account for between 0.79 to 16.6 percent in the forecast error variance of total value of transactions while all share indexes contributed 0.74 – 29.6 percent to the growth of total value of transactions. This again revealed that the predominant sources of growth in total value of transactions are due largely to "own shocks" and closely followed by all share indexes.

Table 4.6: Variance decomposition for variable LRGDP

Horizons	S.E	LRGDP	LASI	LTRVAL
0	-	1.0000	0.0044831	0.15351
5	0.30615	0.34999	0.14069	0.66878
10	0.36595	0.14737	0.15919	0.94097
15	0.39666	0.12901	0.12909	0.90536
20	0.29448	0.12258	0.15311	0.97093
25	0.030775	0.11226	0.13810	0.97726

Source: Author's Computation (2014)

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The contribution of real gross domestic product to its own growth as shown in Table 4.4 is in the range of 11.2 – 100 percent. The impact of real gross domestic product on itself is, therefore, highly significant or superior to the impact of all share index and total value of transactions which contributed 0.45 – 15.9 percent and 15.4 – 97.7 percent respectively. This revealed that the contribution of all share indexes is unimpressive and smaller to the contribution of total value of transactions to economic growth. In the whole, the standard errors of the variance in the Tables are all below 4 percent and therefore insignificant. This means that the results can be considered largely indispensable.

Impulse Response Functions

In order to further conduct the dynamic analysis of the VAR model, the Impulse Response Functions (IRFs) are examined. Results are presented in the form of the dynamic impulse response of the current account to an increase in each relevant variable equivalent to the sample standard deviation. The results are presented in appendix 1. The charts are designed to provide a visual presentation of the dynamic effects of shocks to the system. They reveal the proper ordering. The solid lines in the graphs give point estimates, while the broken lines give one standard deviation bands. Table 4.5 to 4.7 summarize the main features of the responses of real gross domestic product to all share index and total value of transaction for a five year period interval. In order to obtain better multiply estimates in the dynamic framework, we focus on the impulse response function in Table 4.5 to 4.7 below.

Table 4.7: Generalized IRFs to one SE shock in the equation for LASI

Horizons	S.E	LASI	LTRVAL	DLRGDP
0	-	0.18396	2128.0	-0.0021573
5	0.30445	-0.091206	17509.9	-0.011166
10	0.48146	-0.74047	-192524.9	0.26155
15	0.51250	-8.9774	5384094	1.3563
20	0.55663	268.8373	1.79E+07	-47.8065
25	0.62174	-5892.1	-6.16E+08	1483.7

Source: Author's Computation (2014)

Table 4.5 displays the impulse-response functions of all variables in the VAR to a shock in the all share index. The results in table 4.5 and the figure in appendix 1 shows the impulse response functions of all share index as against its "own shocks" and shocks in real domestic product and total value of transactions over the time horizons. The result shows that past all share index shocks had a positive relationship with current all share index in the short run. This relationship became negative between 5th and 15th horizons, became positive again at the 20th horizons and negative at the end 25th horizon. In the case of the response of all share index to real domestic product shocks, it was revealed that the relationship was negative at the initial 5th and 10th periods, but became positive at 10th and 15th horizons, and subsequently having alternate relationship within the time horizons and in the long run became positive. The response of all share indexes to total value of

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transactions shocks reveals that the relationship was positive in the initial two periods, but became negative at the 10th horizons and later positive between the 15th to 20th horizons, and then negative at the end of the period. The impulse response function showed a negative relationship between economic growth and all share index in the short-run. However, in the long-run, the relative impact is positive. This conforms to the findings of Bhatti (2009). He found that KSE-100 index had a significant positive impact on RGDP.

Table 4.8: Generalized IRFs to one SE shock in the equation for TRVAL

Horizons	S.E	TRVAL	LASI	DLRGDP
0	-	7805.8	0.050149	-0.012624
5	0.74440	7655.8	-0.18483	0.031489
10	0.71746	-577538.7	-2.2007	0.63764
15	0.29547	1.56E+07	-0.44487	-2.3703
20	2.7723	-4.44E+07	563.8171	-84.8299
25	7105.6	-1.20E+09	-15870.6	3704.5

Source: Author's Computation (2014)

It can be seen from the table above and the graph in appendix 2 that the lag of total value of transactions as a response to its current value rises in the initial period and 5th horizons. But decline in the 10th period. It then rises in the 15th period and subsequently falls in the 20th and 25th periods. On the responses of total value of transaction to all share indexes, the relationship was positive in the short-run. But later became negative in the 5th to 15th horizons of innovation effects. After rise in the 20th period, the relationship declined at the end of the horizon. The effect of the shock on the total value of transactions to real gross domestic product follows a completely reversed path as that of all share index. This can be seen in table 4.6 above. At the initial horizon, the impact of total value of transaction to real gross domestic product was negative. In the 5th and 10th periods, the impact became positive and subsequently reversed in the 15th and 16th horizon but latter settled as positive impact in the 25th horizon.

Table 4.9: Generalized IRFs to one SE shock in the equation for LRGDP

Horizons	S.E	LRGDP	LASI	TRVAL
0	-	0.032220	-0.012317	-3058.4
5	0.30615	-0.014319	0.19372	-111487.7
10	0.36595	-0.16258	0.37076	91865.6
15	0.39666	-1.7925	9.6004	-5085573
20	0.29448	36.1143	-219.1884	-1.43E+07
25	0.30775	-1333.0	5340.5	4.02E+08

Source: Author's Computation (2014)

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The results from table 4.7 and the figure in appendix 1 shows the impulse response functions of real gross domestic product as against its "own shocks" and shocks in all share index and total value of transactions over the time horizons. The result shows that past real gross domestic product shocks had a positive relationship with current real gross domestic product in the short run. In the 5th to 15th horizons, the impact became negative. The 20th and 25th horizons show a reversing relationship. In the case of the response of real gross domestic product to all share index shocks, it was revealed that the relationship was negative at the initial period, became positive at the 5th to 15th horizons, subsequently having alternate relationship within the time horizons and in the long run became positive. Also, the response of real gross domestic product to total value of transaction shocks reveals that the relationship was negative in the initial period and the 5th period. But became positive at the 10th horizon and later became negative between the 15th to 20th horizons, and the impact became positive at the end of the periods.

Prediction of the Model

The multivariate dynamic forecasts of a model are very significant and thus useful for the purpose of policy making. It shows how well the model predicts the behavior of macroeconomic variables in Nigeria. The table below shows the predictive ability of the model utilized in this study.

Table 4.10 Actual and Predicted values of all the variables (in log)

Year	RGDP			ASI			TRVAL		
	Actual	Predicted	Prediction Error	Actual	Predicted	Prediction Error	Actual	Predicted	Prediction Error
2008	13.42	14.66	-1.2433	10.36	7.2312	3.1250	16791	1070645	608498.7
2009	13.48	14.39	-0.90678	9.944	10.1721	-0.22806	68572	2092407	-1406691

Source: Author's Computation (2014)

The above table shows how well our model predicts behavior of economic growth in Nigeria proxy by RGDP, all share indexes and total value of transactions in the capital market in Nigeria. In the table, over-prediction is indicated by negative prediction error, and under-prediction is indicated by positive prediction error. A comparison of predicted values with actual observations of real gross domestic product produced over-prediction for the two years. More so, the prediction error is not large, which implied a good predictive ability. This is clearly evident in the values of the mean absolute error (MAE) and root mean squares error (RMSE), which are less than 0.3. (See appendix). We can therefore conclude that the model possesses strong predictive ability of economic growth behaviour and thus be relied upon in forecasting future trends in RGDP growth.

CONCLUSION AND RECOMMENDATIONS

The study investigates the relationship between capital market and economic growth with a view to determining the contribution of capital market in the growth process in Nigeria. The study adopted vector autoregressive (VAR) methodology. All the variables in the VAR model were tested to ensure they satisfied desirable properties of stationarity and long run relationship. In what followed, the model was estimated to produce results to attest to the relationships expressed in the

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model and the results were quite revealing. All share index and total value of transactions proved to be significant determinants of economic growth in Nigeria, but with greater responses and impression from total value of transactions contributing astronomically to economic growth. This finding revealed that more emphasis should be given to total value of transactions. Also, capital market activities have a long term impact on economic growth which is significantly facilitated by the capital market indicators. The capital market tends to offer the most effective mechanism for mobilizing funds for government, firms, and individuals which would launch the economy on it path of recovery from the spill-over effects of global meltdown. Also, the predictive ability of the model as reported by the multivariate forecast results is reliable.

It is recommended that stock market index should be improved by encouraging transparent and efficient deals in the Nigerian Stock Exchange (NSE) thereby regaining the confidence of the investors/players. Also, effective deregulation and liberalization policy should be pursued with dynamism in order to attract more foreign capital into Nigerian capital market. Improvement in capital market float, the trading value, market liquidity and other economic indicators (inflation rate etc.) is sufficiently important to addressing both domestic and foreign resources mobilization, thus increasing the depth, breath, and competitiveness for greater efficiency of the market and leading to improvement in the financial system and ultimately economic growth. Optimal efficiency in the area of fiscal/monetary policies, provision of quality infrastructure, telecommunication and investment incentive should be emphasized to deepen the activities in the capital market.

In a nutshell, the major finding of the study is that capital market activities contribute significantly to economic growth in Nigeria.

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