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Response of Stock Market Growth to Fiscal Policy in Nigeria: Environmental Impacts

[1)] Eneje Beatrice Chinyere, [2)] Obidike Paul Chukwujekwu, [3)] Ani Wilson Uchenna, [4)] Jacpuno Chinedu

[1] Department of Accountancy and Business Administration, Alex Ekwueme Federal University Ndufu-Alike Ikwo Nigeria.

[2,3 & 4] Department of Banking and Finance Federal University of Agriculture Umudike Nigeria.

Abstract

The study evaluated how fiscal policy affects the growth of the stock market in Nigeria. Data spanning a period of thirty years from 1986 to 2016 was sourced from Central Bank of Nigeria Statistical Bulletin, Vol. 27, 2016. Following theoretical constructs, Fiscal policy was captured as the ratio of government expenditure to government revenue, while external debt was expressed as a ratio of real GDP to capture debt overhang. To analyze the data, the ordinary least square method of multivariate regression was utilized. The Augmented Dickey-Fuller unit root test was employed to establish the stationary of the variables while the co-integration and Vector Error Correction Model (VECM) was used for testing for the existence of long-run and short-run equilibrium conditions. The results of the study provide environmental evidence of long run equilibrium relationship between fiscal policy and stock market growth in Nigeria during the period studied. Specifically, fiscal policy had significant and positive long relationship with stock market growth in Nigeria. On the other hand, debt overhang (government debt to real GDP ratio) showed a significant but negative long-run relationship with stock market growth. Based on the impulse response function, the response of stock market to fiscal policy positive for the first three periods and then became negative for the rest of the periods. The study recommends among other things incresed government expenditure of spur stock market growth in Nigeria. Again the unstable socio-political environment in Nigeria calls for serious tax reforms that would enhance voluntary compliance as well as increased transparency relating to the environmental consequences of the government borrowings for critical infrastructure would translate to enhanced stock market growth.

Keywords: Stock market, fiscal policy, environmental challenges, Stock market growth, Nigeria.

1. INTRODUCTION

The success of government policy o a large extent depends on deep understanding of monetary and fiscal policies. Fiscal policy which is one of the tools used by Government to control vagaries in the macroeconomic environment refers to the discretionary changes in the level, composition and timing of government expenditure and revenues (Khelifa, 2016; Ogbulu, Torbira & Umezinwa, 2015). Fiscal policy covers public expenditures (both recurrent and capital expenditures) and revenue from taxation and as well as other revenues aimed at influencing economic activities or achieving desired macroeconomic goals in a given economy. It is based on this premise that economist across the political spectrum believes that when it comes to concrete policies to counter a downturn, the most potent weapon a President has is fiscal stimulus, either in the form of a big spending increase or an instant tax cut (Omran, 2017; Taveres & Valkanov, 2003). By this, it is obvious that the two core tools of fiscal policy are revenue and expenditure of the government. For instance, taxes affect the economy by its ability to determine how much the government and individuals have to spend. To spur spending among consumers, government reduces the tax rate to provide consumers with extra money to spend on goods and services which the government hopes they will turn around and spend on other goods and services, thus spurring the economy as a whole.

In both developed and developing countries, stock markets play a multidimensional in connection with government policies. As such, as stock markets grow and develop, a critical question that comes to mind is how government policies and institutions affect equity-market performance across countries. Based on the analysis of the interactions between fiscal policy actions and interest rate, the Keynesian school of thought suggested that stock market activities cannot be totally isolated from the influence of fiscal shocks. According to the Keynesians, changes in fiscal instruments (like public expenditures, tax revenue and other items of revenue) can instantaneously alter the market interest rates automatically and propel investors to do a revaluation of their equity holdings. In this wise, the value of investors' wealth (which includes equity holdings), derived by the summation of the discounted value of future cash flows could be affected by an easing or tightening of fiscal policy (Ndubuisi & Uma, 2016). Similarly, empirical literature supporting the Keynesian school abound that fiscal actions in the form of government expenditure or increase in taxes *ceteris paribus*, for instance, reduces after-tax expected returns on assets and hence prices since they discourage rational investors from further investing in the stock market (Anghelache, Jakova&Onea, 2016; Bhatti, Ziaei, Rehman, 2015; Jeong, 2014).

Indeed, fiscal policy plays a prominent role in the determination of stock and especially bond returns. From the perspective of Taveres & Valkanov (2003), the influence of fiscal policy on financial markets can be direct or indirect. The direct effect emanates from government’s ability to influence the bonds market by issuing (or retiring) public debt. For instance, an increase in taxes (tax receipts as a share of GDP), while government spending is held constant, lowers the supply of government debt. Government bond prices would increase, while their expected returns would decrease. As such, investors, faced with less attractive bond returns, would rebalance

their portfolios. In equilibrium, the positive shock to taxes would lead to lower returns across assets, at short horizons. The magnitude and duration of the effect would depend on, *inter alia*, the nature of the tax policy. A temporary tax increase will result to an insignificant effect, while a permanent increase would surely be associated with larger movements in prices. Moreover, if investors perceive that an increase in taxes signals higher future tax rates, then expected returns would decrease significantly, even at long horizons.

Notwithstanding the well documented vast empirical literature on the linkage between fiscal policy and stock market activities, only few studies has thoroughly investigated the nexus between fiscal policy actions and stock market performance in Nigeria. Again, the available literature on the subject matter has mixed results as some researchers found strong influence of fiscal policy on stock market performance while others concludes that it is weak (Jakova, 2016; Trebicka, 2015; Muyanga, 2014; Taveres & Valkanov, 2003). Also, the studies reviewed used government revenue, expenditure and public debt to proxy fiscal policy while the current study will measure fiscal policy as the ratio of government expenditure to government revenue which is quite different from proxies used by prior empirical works. It is based on the foregoing that the current study raises the question of the empirical validity of the theories that postulate that stock market activities do respond to government fiscal policy actions overtime. The rest of the paper is divided as follows: section two reviewed the empirical literature, section three dwells on the methodology while section four focused on the data, results and discussion of findings. Section five concludes the study with policy recommendations and suggestions.

2. THEORETICAL AND EMPIRICAL REVIEW

2.1 Concept of fiscal policy

Fiscal policy connotes the deliberate actions of government in the area spending money and or levying taxes with the objective of managing macroeconomic variables such as the level of national income or output, the employment level, aggregate demand level, the general level of prices etc. in a desired direction. Briotti (2008) opined that fiscal policy involves steps and measures which the government takes both on the revenue and expenditure sides of its budget and that it is the aggregate effects of government expenditures and taxation on income, production and employment. Again, Ijeh (2008) refer to fiscal policy to connote government policies concerning how to raise funds and disburse funds. He noted that the instruments of fiscal policy are taxation, government expenditure, government budget, public debts and subsidy.

Fiscal policy involves the use of government expenditures, taxation and borrowing (either domestic or external) to control the pattern of economic activities and also the level and growth of aggregate demand, output and employment. Fiscal policy entails government's management of the economy through the manipulation of its income and spending power to achieve certain desired macroeconomic objectives (goals)

amongst which is economic growth (Medee & Nembee, 2011). Fiscal policy has conventionally been associated with the use of taxation and public expenditure to influence the level of economic activities. They further said the implementation of fiscal policy is essentially routed through government's budget. Fiscal policy as mostly to achieve macroeconomic policy; it is to reconcile the changes which government modifies in taxation and expenditure, programmes or to regulate the full employment price and total demand to be used through instruments such as government expenditures, taxation and debt management (Engen & Skinner, 2008).

Government expenditure and the policies guiding the public expenditure of the government do influence macroeconomic environment. According to Trebicka (2015) these policies affect tax rates, interest rates and government spending, in an effort to control the economy. Fiscal policy is the means by which a government adjusts its levels of spending in order to monitor and influence a nation's economy. Fiscal policy serves as an important tool to influence the aggregate demand. Depending upon existing situation of the economy, government can employ either expansionary or contractionary fiscal policy. Expansionary fiscal policy increases the aggregate demand whereas contractionary or deflationary fiscal policy reduces the aggregate demand. Changes in the level, timing and composition of government spending and taxation have an important effect on the economy.

2.2 Theoretical review

Lord Maynard Keynes suggested the seeming ability of government expenditures to influence stock returns. The theory, also known as the traditional Keynesian theory, asserts that expansionary fiscal policy (increase government spending) will create more income to economic units, induce demand, stimulate the general price level, and accelerate investment and output level of the economy (Iyeli & Azubuike, 2013; Meedee & Nembee, 2011). Keynes also opines that eliminating government spending from the economy will lead to a decrease in the level of aggregate demand and economic contraction which will affect asset (stock) prices. However, the effect of the fiscal policy expansion depends on the degree of openness and the exchange rate regime of the economy.

Wagner's law of increasing state activities which is hinged on the recognition of the need by governments to provide and expand the share of public goods in investment, asserts that an increase in government expenditure could lead to an increase in the level of income, providing individuals with the ability to invest more in the capital market and raising the demand for stocks. This increase in stock demand could raise price and expand supply. This suggests that government expenditure has a functional relationship with stock prices.

The Fundamentalist approach to security analysis posits that every security has an intrinsic value and that the intrinsic value is affected by economic conditions including government policies. Fiscal policies are government policies and stock prices are among the most volatile capital market indicators that are highly sensitive

to economic condition/government policies. In the context of the transmission mechanism through the stock market, fiscal policy actions affect stock prices, which themselves are connected to the real sector of the economy through their influence on consumption and investment spending.

2.2 Empirical review

Empirical work on the effect of fiscal policy on the growth of the stock market in Nigeria is significant with mixed research outcomes.

Ndubuisi& Uma (2016) examined the relationship between fiscal actions and stock prices in Nigeria during the period 1985 to 2012 and concluded that adjustment in fiscal actions through the instrumentality of government expenditure; taxes and government borrowing have profound impact on stock prices. The empirical work by Ogbulu *et al.* (2015) analyzed the relationship between fiscal policy measures and stock prices in Nigeria for the period 1985 to 2012 found a significant and negative impact of public expenditure on stock prices, while Government Domestic Debt Outstanding exerts a significant and positive influence on stock prices. On the other hand, Bhatti *et al.* (2015) could not find contemporaneous positive change by expansion in government expenditures and similar short-term interest rate was also ineffective to determine the stock returns.

Anghelache*et al.* (2016) analyzed the relationship between fiscal policy and capital market in six (6) European Union (EU) countries from central and Eastern Europe, for the period 2004 to 2015 and found bilateral relationship between fiscal policy and capital market performance in Czech Republic and Slovakia, while it was found that fiscal policy affects stock returns in Bulgaria. In Poland, capital market return affects fiscal policy, while in Hungary and Romania there was no significant relationship between the two variables. On the other hand, Taveres &Valkanov (2003) found that an increase in government spending has a positive impact on expected returns in US, but the effect is statistically significant only for bond sat short horizons.

Gupta, Lau, Miller &Wohar (2017) analyzed whether a higher degree of partisan conflict (legislative gridlock) reduces the efficacy of the effect and response of fiscal policy on and to asset price movements, respectively and found that partisan conflict does not significantly affect the relationships between the fiscal surplus to GDP and housing and equity returns in US. Sede & Omorokunwa (2016) that the fiscal policy variable (which was measured as fiscal deficit ratio) was not quite significant in determining stock market returns. Similarly, Santos (2017) found fiscal policy to have negative impact on Shanghai and Japanese stock returns.

In Kenya, Muyanga (2014) analyzed the effect of fiscal policy on the performance of the Nairobi securities exchange and found that performance of the stock market is influenced by the Government's fiscal policies such that Government expenditure and revenue had positive effect on stock market performance, while Government debt had low positive effect on stock market performance with a negative cumulative effect assist long-term use poses risk of inflation owing to interest rates on debt. On the

other hand, Jakova (2016) found that consumption volatility and stock returns are lowered by counter-cyclical fiscal policies. Differences in fiscal policy induce variation in state-level returns of nearly 2.5% per annum after controlling for risk and industry variation.

3. METHODOLOGY AND DATA

The paper recognized that in a dynamic financial market environment a number of factors are often responsible in explaining observed variability in stock market growth. However, fiscal-stock growth model have been constructed in this study. The ordinary least square (OLS), and co-integration test adopted in this study presumed that variability in stock market growth could be explained by a set of fiscal policy variables namely- ratio of total Government expenditure to total government revenue and tot Government debt to GDP ratio (debt overhang), in which debt overhang serves as a control variable to account for the effect of Government borrowings in a bid to bridge revenue shortfalls while treasury bill rate was used to capture interest rate to control for the interaction between interest rate and fiscal policy as asserts by the Keynesian theory. The data spanning from 1986 to 2016 was sourced from the Central Bank of Nigeria Statistical Bulletin, Vol. 27, 2016.

3.1 Model specification and description of variables

The link between fiscal policy and stock market performance was analyzed based on the following model used to explain the effect of fiscal policy indices on stock market growth (measured by market capitalization to GDP ratio) and interest rate (captured by treasury bill rate). The model is as specified below:

$$MCAP = \alpha_o + \beta_1 FSP + \beta_2 DBT + \beta_3 TBR + \varepsilon_t \quad . \quad . \quad (1)$$

Where,

MCAP = Market capitalization to GDP ratio (a measure of stock market performance)

FSP = Fiscal policy measured by the ratio of total Government expenditure to total Government revenue.

DBT = Total Government debt expressed as a ratio of Gross Domestic Product

TBR = Treasury bill rate

Market capitalization as used in this study equals the total market value of listed shares divided by GDP. The assumption behind this measure is that changes in fiscal instruments (like public expenditures, tax revenue and other items of revenue) can instantaneously alter the market interest rates automatically and propel investors to do a revaluation of their equity holdings and the overall market size will be altered as well.

Fiscal policy was measured by the ratio of government expenditure to government revenue. High rate (above 50%) in this regard implies that the government is spending

more than the amount received as revenue (fiscal deficit), and lower rate (below 50%) indicates that government revenue is greater than government expenditure (surplus).

Government debt was captured by the sum of domestic and external debt expressed as a ratio of GDP. This measure, which is also known as debt overhang describes a situation where the debt of a country of a country exceeds its future capacity to pay it. A low government debt-to-GDP ratio (debt overhang) indicates an economy that produces and sells goods and services sufficient to repay debts without incurring further debt.

Treasury bill rate is the interest rate at which short-term sovereign debt securities maturing in one year or less are issued. It is expected that high Treasury bill rate will stimulate savings since it brings greater returns to the investors and vice versa.

3.2 Method of data analysis

Stationary tests

The estimation began with a unit root test to confirm the stationary states of the variables that entered the model. To do this, the Augmented Dickey Fuller test was used. ADF is a regress test using each series own lagged terms with big differences. Many econometric programs satisfy ADF test statistics. The ADF critical t-value was compared with the Mckinnon critical values, if ADF test statistic is greater than McKinnon critical values absolutely, the series are stationary at that level. The ADF with trend and constant is estimated as shown in equation 1 below:

$$\Delta Y_t = Y_0 + \alpha_t + \Phi Y_{t-1} + \sum \Phi_i Y_{t-1} + \mu_t \quad . \quad . \quad (2)$$

Where,

Y_t = Dependent variable

Y_0 = Constant term

t = Trend variable

μ_t = Stochastic term

Co integration test

After testing for stationarity of the data, co integration test based on maximum likelihood approach by Johansen and Juselius co-integration technique was carried out. The co integration test was used to ascertain if a long-run relationship exist among the variables included in the regression model (Johansen &Juselius, 1990). In principle, two or more variables are adjudged to be co integrated when they share a common trend. Also, the existence of co integration implies that causality runs in at

least one direction (Akinlo and Egbetunde, 2010). Multivariate co integration model is based on the error correction representation given by the following equation:

$$\Delta X_t = \mu + \sum_{t=1}^{\rho-1} \Upsilon_i \Delta X_{t-i} + \Pi X_{t-1} + \varepsilon_t \quad . \quad . \quad (3)$$

Where Xt is an (nx1) column vector of ρ variables, μ is an (nx1) vector of constant terms, Υ and Π represent coefficient matrices, Δ is a difference operator, and εt is the error term. The coefficient matrix Π is known as the impact matrix, and it contains information about the long-run relationships. Johansen's methodology requires the estimation of the VAR equation (3) and the residuals are then used to compute two likelihood ratio (LR) test statistics that could be used in the determination of the unique co integrating vectors of Xt. The co integrating rank can then be tested with two statistics, the trace test and the maximal eigen value test.

Vector error correction model (VECM)

When co integration exists, the Engle-Granger Theorem establishes the encompassing power of the ECM over other forms of dynamic specification. The error correction model (ECM) is estimated by applying the ECM version of Vector Error Correction Model where the speed of adjustment to equilibrium was determined. The error correction version pertaining to the regression model used for the study was stated below:

$$\Delta MCAP_t = \lambda_0 + \sum_{i=0}^{n} \lambda_{1i} \Delta MCAP_{t-1} + \sum_{i=0}^{n} \lambda_{2i} \Delta FSP_{t-1}$$
$$+ \sum_{i=0}^{n} \lambda_{3i} \Delta DBT_{t-1} + \sum_{i=0}^{n} \lambda_{4i} \Delta TBR_{t-1} + \delta_1 ECM_{t-1} + \varepsilon_t \quad . \quad (4)$$

Where ECM_{t-1} represent the error correction term and ε_t denotes the mutually uncorrelated white noise residual. The size and statistical significance of the coefficient of the error correction term in each ECM model, measures the tendencies of each variable to return to the equilibrium. A significant coefficient implies that past equilibrium errors play a role in determining the current outcomes. The short-run dynamics are captured through the individual coefficients of the differenced terms (Akinlo and Egbetunde, 2010).

Wald test

This is used to test the joint significance of the variables before dropping any of the independent variables. It is an F- test for the significance of all the variables in the model based on the hypothesis below: The null hypothesis is:

H0: $\beta_1 = \beta_2 = \beta_3 = 0$ (i.e., there is no long run relationship between the variables.)

The alternative hypothesis is:

HI: $\beta i \neq 0$ (where $\beta i = \beta_1, \beta_2$ and β_3).

Granger Causality

The Granger causality approach measures the precedence and information provided by a variable (X) in explaining the current value of another variable (Y). The basic rationale of Granger causality is that the change in financial sector deepening Granger caused the change in FDI if past values of the change in financial sector development improved unbiased least squares predictions about the change in economic growth. The null hypothesis H_0 tested is that X does not granger-cause Y and Y does not granger-cause X.

4. ANALYSIS AND DISCUSSION OF RESULTS

4.1 Trend Analysis

Figures 1, 2 and 3 display the trend of market capitalization to GDP ratio, fiscal policy (government expenditure to government revenue ratio) and government debt to GDP ratio.

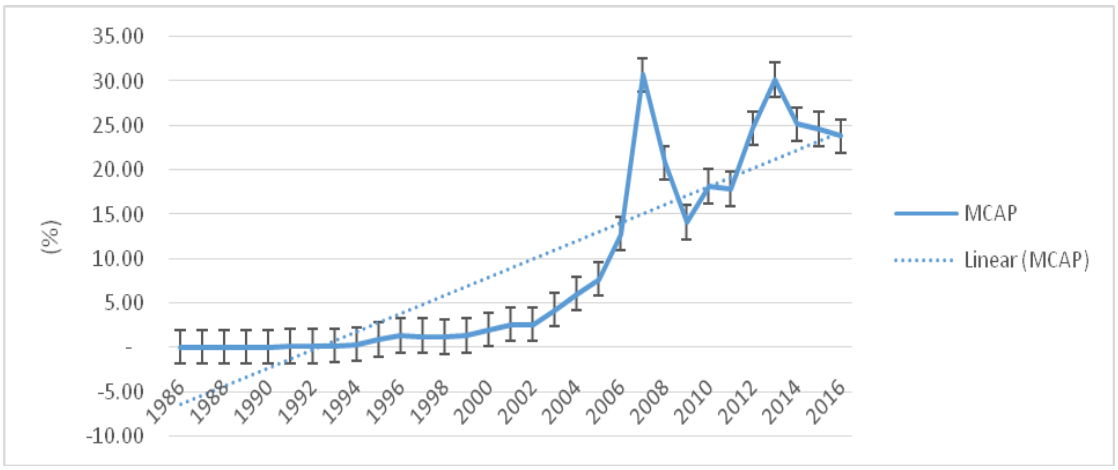

Figure 1: Market capitalization-to-RGDP ratio

The figure shows that market capitalization to RGDP ratio maintained an upward trend as it reached its peak of 20.78% in 2008 and later decreased to 14.10% and 18.16% due to the outbreak of the financial crisis that hit the global financial system in 2009 and 2010 respectively. Since the global financial crisis, the Nigerian stock market have not been able to reach the level it was prior to the crisis instead it recorded further dismal performance when it trended downwards from 30.18% to 23.83% between 2013 and 2016 owing to the recession that became obvious in the second quarter of 2016.

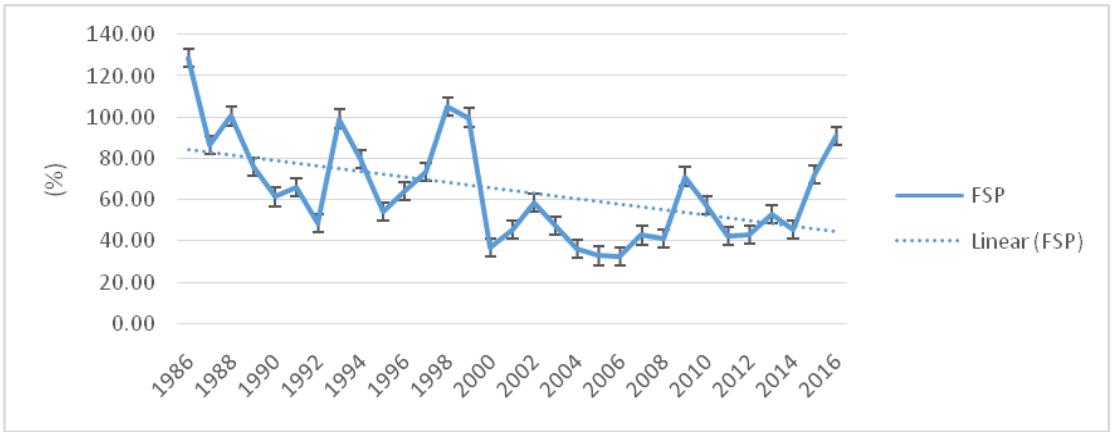

Figure 2: Total Government expenditure to total Government revenue ratio

The figure above clearly reveals that the incidence of fiscal deficit is very high in Nigeria. For instance, the ratio of total government expenditure to total government revenue ratio in Nigeria reached its highest point of 128.80% in 1986 after which it decreased to 86.75% and later increased to 100.55% in 1987 and 1988 respectively. Between 1990 and 1991, the ratio was remained above 60% as it recorded 61.43% in 1990 and 65.93% in 1991. The ratio fell below 50% to 48.72% in 1992 as some surplus was recorded in that fiscal year, but this did not last long as the ratio leapfrogged to 99.20% in 1993, 79.69% in 1994 and 54.08% in 1995. The ratio increased from 64.40% in 1996 to 105.07% in 1998 which later trended downwards to 99.84% in 1999. Going through series of fluctuations over the period of 2000 to 2015, the ratio accelerated again to 90.87% in 2016 following later passage and implementation of the budget by the President Buhari's led administration. It is noteworthy that the average expenditure to revenue ratio for the sampled period is 64.34% which implies that government revenue have been falling short of government expenditures in Nigeria.

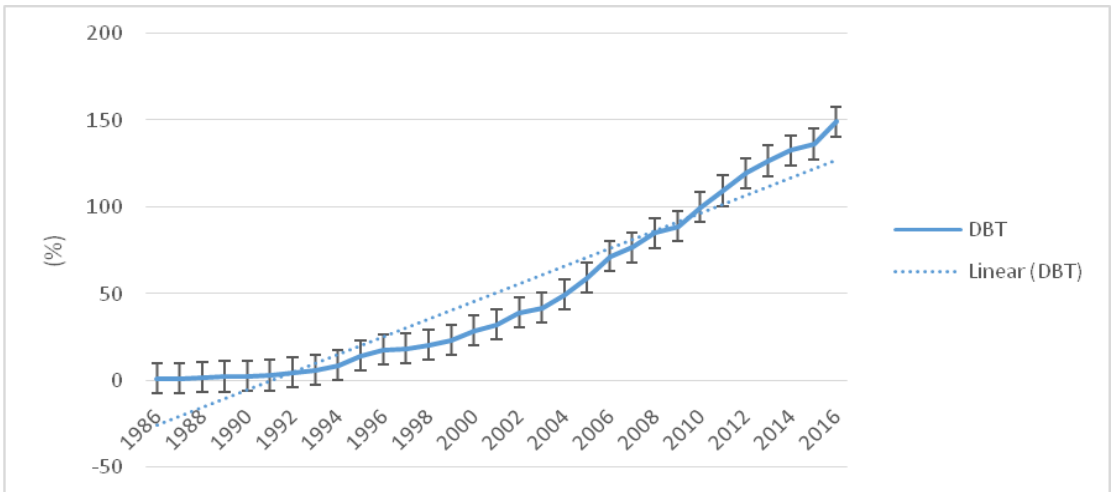

Figure 3: Total Government debt to RGDP ratio

The figure shows the trend of Government debt-to-RGDP ratio. It can been seen that between 1986 and 2016, the debt overhang maintained an upward trend in Nigeria reaching its highest point of 149.40% in 2016. This point to the fact that Nigeria still have huge debt outstanding, hindering further borrowings that would spur investment activities in the economy.

4.2 Unit Root Test and Lag Selection

The unit root test was carried out using the Augmented Dickey-Fuller approach (ADF) as presented in Table 1 below:

Table 1: ADF unit root test results

Variable	Level	First difference	Max. lag length	Decision
MCAP	-2.708521{0.2404}	-5.507025{0.0006}	7	I(1)
FSP	-3.370101 {0.0746}	-5.157083 {0.0014}	7	I(1)
DBT	-1.261405 {0.8782}	-4.780176 {0.0037}	7	I(1)
TBR	-2.768984 {0.2187}	-5.921195 {0.0002)	7	I(1)

Note: Figures in parenthesis are p-values

The outcome of the unit root test presented in Table 1 indicate that all the variables are integrated of order one i.e. I(1). Since the variables are integrated at their first difference, any attempt to specify the dynamic function of the variables in the level of the series will be inappropriate and may lead to spurious regression (Osuala, 2010). Based on this premise, it became necessary to use the Johansen approach to co-integration and the Vector Error Correction (VECM).

The optimal lag selection was chosen based on the following criteria in Table 2 below:

Table 2: Lag selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-445.3615	NA	3.38e+08	30.99045	31.17904	31.04951
1	-346.7433	163.2302*	1149743.*	25.29264	26.23560*	25.58796*
2	-330.2468	22.75371	1192487.	25.25840*	26.95574	25.78999

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

From the Table 2, the lag order selection was based on the Schwarz information criterion (SC). Hence, the optimal lag length of one (1) was used for the analysis as advised by the SC.

4.3 Johansen Co-integration Test

If the Trace Statistic and Max-Eigen Statistic are significant at 1% and 5% levels, then co-integration is said to exist. Alternatively, under the Johansen co-integration test, co-integration exists when the Trace Statistic and Max-Eigen values are greater than the 0.05 Critical Values. The results obtained from the Johansen approach to co-integration were captured in Table 3.

Table 3: Co-integration test

Panel A: Trace statistics				
Hypothesized No. of CE(s)	**Eigen value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.639268	66.42811	47.85613	0.0004
At most 1 *	0.544513	36.85913	29.79707	0.0065
At most 2	0.291788	14.05389	15.49471	0.0815
At most 3 *	0.130298	4.048552	3.841466	0.0442
Panel B: Max-eigen statistics				
Hypothesized No. of CE(s)	**Eigen value**	**Max-Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.639268	29.56898	27.58434	0.0274
At most 1 *	0.544513	22.80524	21.13162	0.0288
At most 2	0.291788	10.00534	14.26460	0.2116
At most 3 *	0.130298	4.048552	3.841466	0.0442

Table 3 captures the Trace and the Maximum Eigen value statistics for the model. The null hypothesis of the absence of a co-integrating relationship among the variables was rejected at the 5 percent level for both statistics. The Trace and Max-eigen statistics both indicates that there are two (2) co-integrating equations. The existence of co-integration is indicative of a long run relationship between fiscal policy and stock market growth.

4.4 Vector Error Correction (VECM)

The result obtained from the VECM analysis is presented in Table 4 below.

Table 4: Vector error correction (VECM)

Long-run coefficients	
FSP(-1)	0.215569
	(0.05346)
	[4.03244]***
DBT(-1)	-0.240523
	(0.01532)
	[-15.6986]***
TBR(-1)	0.380465
	(0.12344)
	[3.08215]***

	Coefficient	**Std. Error**	**t-Statistic**	**Prob.**
ECT	-0.751810	0.257392	-2.920876	0.0079
D(MCAP(-1))	0.257652	0.211159	1.220182	0.2353
D(FSP(-1))	-0.015559	0.031603	-0.492321	0.6274
D(DBT(-1))	0.612738	0.369738	1.657220	0.1117
D(TBR(-1))	0.139251	0.168211	0.827834	0.4167
C	-2.318185	1.792261	-1.293441	0.2093

R-squared	0.488582	Mean dependent var	0.820000
Adjusted R-squared	0.349105	S.D. dependent var	4.628396
S.E. of regression	3.734101	Akaike info criterion	5.679396
Sum squared resid	306.7572	Schwarz criterion	6.009433
Log likelihood	-75.35125	Hannan-Quinn criter.	5.782760
F-statistic	3.502948	Durbin-Watson stat	2.143439
Prob(F-statistic)	0.013852		

The long-run coefficients reveal that the measure of fiscal policy (FSP) has a positive and significant relationship with stock market growth (proxies by MCAP) in the long-run. This implies that the ratio of government expenditure to government revenue (which was used as a proxy of fiscal policy) is a strong determinant of stock market growth in the long-run.

On the other hand, the relationship between public debt (DBT) and stock market growth was found to influence stock market growth positively and significantly in the long-run. This implies that government decision to increase borrowings could result to dismal growth of the Nigerian stock market probably due to huge debt overhang.

Also, the influence of Treasury bill rate on stock market growth was positive and significant in the long-run. This implies that that rate at which the government raises funds through treasury bills influences the Nigerian stock market positively. The significance could be due to the fact that treasury bills are risk-free and when issued in the money market is greeted with high rate of subscription from investors, hence affecting the stock market.

Table 4 above shows that the error correction term (ECT) is negatively signed with a probability value (p-value) of 0.0079 which suggests significance at 1% level. The significance of error correction term (ECT) indicates the velocity of adjustment to the long-run equilibrium after a short-run shock. The coefficient -0.751810 of the error correction term shows that about 75.18% of the discrepancies in stock market growth (proxies by MCAP) are corrected in each period. It is worthy of mention that this speed of adjustment is very high, meaning that the adjustment process to restore equilibrium after disturbance is effectively fast.

The individual coefficient estimates of one period lag of fiscal policy (FSP), Government debt (DBT) and treasury bills rate (TBR) denote the short-run coefficients. This implies that in the short-run, FSP had a negative effect on stock market growth (measured by MCAP), while the effect of DBT and TBR were positive. However, none of the variables were significant as shown by their p-values.

Wald Test:

Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	3.202308	(7, 22)	0.0170
Chi-square	22.41616	7	0.0022

The calculated F-statistic is statistically significant at 5% level, thus indicating the existence of long-runrelationship between the variables. This implies that collectively or jointly, the independent variables are significant, thus confirming the existence of a long-run relationship between the variables.

4.5 Impulse Response and Variance Decomposition

To examine the response of the dependent variable in a Vector Autoregressive (VAR) model to shocks or innovations in the error terms, the Impulse Response Function (IRF) and the Variance Decomposition (VDC) are employed in this paper. The two techniques helped to trace the response of stock market growth to shocks in the error terms for several periods in the future. The empirical results of the application of the IRF and VDC analysis to our model are as shown in Table 5 and 6.

Table 5: Impulse Response

Response of MCAP:				
Period	**MCAP**	**FSP**	**DBT**	**TBR**
1	3.734101	0.000000	0.000000	0.000000
2	1.623433	0.236348	1.794547	-0.081215
3	-0.337043	0.562061	1.391227	-1.642472
4	-1.084580	-0.046149	1.333929	-1.894151
5	-0.102026	-0.298705	1.282168	-1.824945
6	0.368824	-0.399100	1.641994	-1.574588
7	0.152348	-0.341696	1.818403	-1.767936
8	-0.320657	-0.405673	1.901370	-2.012352
9	-0.438718	-0.509322	1.897152	-2.167655
10	-0.335809	-0.606795	1.954464	-2.174298

Stock market had a positive response to fiscal policy in the second and third periods afterwards it began to respond negatively for the rest of the periods. On the other hand, stock market growth responded positively to government debt over the period and the response of stock market to Treasury bill over the period is negative. It is also observed that the impulse response of MCAP to its own shocks was positive in the first-two periods and negative in periods 4 and 5 after which it began to respond positively in periods 6 and 7 while its response in periods 8 to 10 was negative.

Table 6: Variance decomposition estimates

Variance Decomposition of MCAP:					
Period	**S.E.**	**MCAP**	**FSP**	**DBT**	**TBR**
1	3.734101	100.0000	0.000000	0.000000	0.000000
2	4.456669	83.47159	0.281245	16.21396	0.033209
3	4.992458	66.97246	1.491588	20.68601	10.84995
4	5.609836	56.78046	1.188115	22.03757	19.99386
5	6.045185	48.92522	1.267306	23.47628	26.33120
6	6.481902	42.87843	1.481393	26.83652	28.80365
7	6.970452	37.12624	1.521314	30.01195	31.34049
8	7.517936	32.09772	1.598982	32.19636	34.10694
9	8.078933	28.08968	1.782072	33.39458	36.73366
10	8.619608	24.82807	2.061094	34.47794	38.63290

The results presented in Table 6 shows the variance decomposition of the four variables in our fiscal policy-stock market growth model estimated also for a 10-year forecast period into the future. As with the IRF, the Variance Decomposition analysis helps to determine the total proportion of forecast error attributable to own shocks and to shocks in the other variables in a model. The results shows that own shocks represent the dominant source of variation in the forecast errors of the variables .For example, the variance decomposition of stock market growth (proxies by MCAP) shows that own shocks constitute 100% in the first year with the other variables contributing nothing (0%). However, from the 2nd year, own shocks gradually and steadily reduce from 83.47% in that year to 42.87% in the sixth year and 24.82%% in the tenth year while the other variables FSP, DBT and TBR accounted for 2.06%, 34.47% and 38.63% respectively in the tenth year.

5.0 CONCLUSION AND RECOMMENDATIONS

The multivariate regression based on the ordinary least squares was utilized in investigating the relationship between stock market growth and fiscal policy in Nigeria. The co-integration and vector error correction methods was used to show the existence of long-run and short-run relationship between the economic variables included in the model. The findings were that approximately 48% of the total variations in the dependent variable (market capitalization) were due to variations in the explanatory variables captured by the model and that there was evidence of long-

run equilibrium relationship between fiscal policy and stock market growth in Nigeria.

Specifically, fiscal policy has a positive and significant relationship with stock market growth in the long-run, while its relationship with stock market growth in the short-run is insignificant. This implies that proper and efficient fiscal policy to counter downturn aimed at achieving desired growth of the stock market is task of government to provide consumers with extra money to spend, thus spurring the economy.

Also, government debt (which was expressed as the ratio of real GDP) had a negative and significant relationship with stock market growth in the long-run, while it failed the significance test in the short-run. The measure of interest rate (Treasury bill rate was significant in the long-run).

6.0 RECOMMENDATIONS.

Given the analysis so far, the researchers make the following recommendations;

a) That a strong fiscal mechanism and transparency system be established by the national government.

b) To adopt tax reforms that would stimulate investment

c) To wage serious war against corruption

d) To ensure that government borrowings are used to invest in critical infrastructure so as to provide the enabling investment environment that would facilitate growth of the stock market.

The learning opportunity should therefore include strategies to improve business environment leading to more investment for sustainable growth in the economy.

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