DOES GOVERNMENT POLICY INFLUENCE STOCK MARKET PERFORMANCE IN NIGERIA?

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ABSTRACT

The study investigated the linkage between government policies and stock market performance in Nigeria from 1985-2018. It examined the linear and non-linear effects of policy interactions with stock market performance using the Bounds cointegration test and the Fully Modified OLS (FMOLS) model. The Bounds cointegration test result revealed a long-run linear relationship between government policies and stock market performance in Nigeria. However, the non-linear test result showed only fiscal policy has a long-run relationship with stock market performance while the monetary policy relationship is indeterminate. From the FMOLS result, both fiscal and monetary policies have significant effect but contractionary fiscal policy appears to have more influence on stock market performance than its monetary counterpart. Further, the non-linear relationship also showed that the contractionary policies have larger effects on the stock market performance than expansionary policies. Overall, fiscal policy influences stock market performance more than monetary policy. Thus, the study recommends that the Nigerian government should be selective in deploying contractionary fiscal policy when necessary and appropriately deploy both expansionary policies for sustained improvement in the stock market performance.

Keyword: *Stock market, Monetary policy, Fiscal policy, Government policies, FMOLS.*
JEL Classification: G18, G28, G38

1.0. INTRODUCTION

The level of development of a nation's capital market has a significant and tremendous impact on the growth of such an economy. This development level strengthens the market to effectively perform its core mandate of mobilizing and allocating capital resources among various economic agents for different uses. In this regard, the stock market serves as a veritable avenue for transforming savings into investments for the purpose of financing activities in the real sector of the economy (El-Wassal, 2013). For the stock market to perform this important role, government's fiscal and monetary policies are crucial as studies have established their influence via both the direct and indirect channels on the stock market performance (Van Aarle et al. (2003), Afonso and Sousa (2011) and Chatziantoniou et al. (2013)). While most studies (Afonso and Sousa, 2011; Eyo, 2016 and Eneje et al. 2019 on fiscal policy and Ioannidis and Kontonikas, 2006; Osuagwu, 2009 and Nwakoby and Bernard, 2016 on monetary policy) concentrated on examining the isolated impact of either policy on the stock market, there are also some empirical attempts to unravel the combined effects of both policies on stock market performance in Nigeria. Although, Nwaogwugwu (2018) and Lawal, *et al* (2018) both deployed the auto-regressive distributive lag (ARDL) estimation techniques, this study

contributes to the debate by deploying the fully modified ordinary least squares (FMOLS) estimation technique to further investigate the nexus between government policies and stock market performance in Nigeria.

Fiscal and monetary policies consist of various instruments which are used for harnessing the potentials for economic development. While fiscal policy deals with the use of government revenue and spending to influence economic outcomes, monetary policy relates to instruments used by the monetary authority to influence economic outcomes. Both policies are usually well coordinated to influence economic outcomes because the activities and development in one sector are symbiotic to the other.

The relationship between government policies and stock market performance cannot be overemphasized. The stock market exists to provide capital for long term investment, improve the efficiency of resource allocation through competitive pricing, and perform financial intermedation among others. These makes it significant in the creation, management, reallocation and sustainance of wealth in an economy. However, to effectively and efficiently perform these roles, the stock market relies on good government policies among other factors. Fiscal policy is crucial for economic development as government spending and taxation influences disposable income while changes in monetary policy could influence investors to review their equity holdings.

Nigeria's developing economy currently grapples with multiple economic growth problems which consequently impacts on the well-being of the populace. Attempts at leapfrogging these problems have suffered setbacks due to the nation's overly dependent on oil revenue whose flow is volatile and unstable. To escape this dependency trap and tow the path of sustainable growth and development, there is need for good government policies to be formulated and implemented. Successful implementation of these policies provides a veritable atmosphere for business to thrive and ultimately precipitate economic growth and development. Thus, policies that influence stock market actvities, an integral part of a nation's financial sector, will have ripple effects on major economic variables like investment, inflation, consumption, output, economic growth amongst others (Orekoya, 2020).

This study differs from others by uniquely deploying the FMOLS estimation technique to uniquely establish the nexus between government policies and stock market performance to inform policymakers, investors, households and other stakeholders in the Nigerian stock market. Knowledge gained from the findings of this study will hopefully stimulate policies that will boost activities in the stock-market and help reduce the overdependence on oil sector since an effective stock market could help start-up and existing firms raise capital for take-off and expansion. Specifically, the study examined the linear and non-linear relationship between government policies and stock market performance in Nigeria and equally tested the long and short run effect of these policies on stock market performance.

Following this introdutory section, Sections two and three provides the literature review and methodology respectively. Empirical results are presented in section four while section five offers the conclusion and recommendation.

2.0. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Monetary Policy and Stock Market Performance

According to Mishkin (1996), there exists various monetary instrument, as well as channels of monetary policy transmission. These channels include:

a). The traditional Interest Rate Channel as established in the Keynesian IS-LM model which posits that expansionary monetary policy leads to a fall in interest rate and consequently increase in investment and output. Relating this to stock market, an expansionary monetary policy that reduces interest rate will improve stock market performance as investment and output will increase thereby causing economic growth. Viewed from the firm's cost of capital, a decrease in interest rate that lowers firm's cost of capital will cause an increase in present value of future net cash flow and a consequent rise in stock prices (Bernanke and Kuttner, 2005; Chatziantoniou *et al,* 2013).

b). The Equity Price Channel consisting of Tobin's Q theory of Investment and Wealth effect channel. Where the Q in Tobin's theory represents the ratio of the market value of a firm's existing share to the replacement cost of capital. Q is the equilibrium which takes the value of unity. When Q is greater than unity, it is profitable for firms to increase investment spending and acquire additional capital. To the monetarists, an expansionary monetary policy will increase public spending through buying of stock which in turn raises the stock price. To the Keynesian, assuming wealth is held in either bond or equity (stock), an expansionary monetary policy will cause a fall in interest rate which will make bonds less desirable and raise preference for stock holding. Combining the monetarists and Keynesian views with the Tobin's Q investment theory implies then that an increase in money supply will lead to an increase in equity price hence an increase in Q, consequently investment and output. Wealth effect channel, according to Modgliani's life-cycle theory of consumption, is a major determinants of consumption hence stock is taken as wealth. Thus, an expansionary monetary policy that reduces interest rate and increase stock prices will cause wealth to rise hence consumption and ouput (Bernanke and Kuttner, 2005; Chatziantoniou *et al,* 2013).

c). The Credit channel which also consists of the Bank Lending (BL) and Balance Sheet (BS) channels. The BL channel explains how expansionary monetary policy empowers banks to give out more loans consequently increasing investment and boosting stock market activities. As an indirect transmission mechanism, altering interest rate can influence the level of investment and consequently stock prices. The BS channel relates to business net-worth and the role of assymetry information in stock trading. An expansionary monetary policy increases equity prices, thereby raising a business net-worth, reducing the problem of moral hazard and adverse selection thus leading to increased investment and output (Bernanke and Kuttner, 2005; Chatziantoniou *et al,* 2013).

d). Exchange rate channel for open economies implies that monetary policy could flow through interest rate to affect exchange rate and therefore stock prices. Here, expansionary monetary policy will lower interest rate thus leading to depreciation of domestic currency which increases exports and reduce imports hence a rise in the asset prices of firms (Bernanke and Kuttner, 2005; Chatziantoniou *et al,* 2013).

2.1.2 Fiscal Policy and Stock Market Performance

Fiscal policy instruments used to control macroeconomic variables include; government revenue/taxation, government expenditure and public debt. The hypotheses serving as the theoretical framework for the effect of fiscal policy on stock market performance are:

a). The Keynesian (1936) hypothesis advocates government intervention for an economy to function well, attain equilibrium and consequently influence economic outcomes. It suggests that, through automatic stabiliser and discretionary measure, governmet can boost aggregate demand and consequently boost the economy; thus, leading to increase in stock prices. Also, government can alter interest rate to improve stock market performance by expanding fiscal policy.

b). The Classical hypothesis advocates for free market and strongly disagrees with government intervention in market activities stating that market can self-adjust. According to Hollander (1987), the classicists believe that the effect of fiscal policy on stock market performance will be negative because it will reduce loanable funds in the market and also hinders private sector activities, thereby reducing stock market performance.

c). The Ricardian hypothesis, also known as the "neutrality effect", believes that fiscal policy has no effect on either of the real or financial sector activities (Peach, 1993). They also believe that fiscal policy is independently ineffective unless it is combined with monetary policy.

2.1.3 The Interaction of Fiscal and Monetary Policy on Stock Market Performance (IS-LM Model)

Fiscal policy can be deployed to influence changes in aggregate output, monetary policy can influence inflation and interest rate while the IS-LM model provides interaction for both policies. While fiscal policy is used to control the goods market (IS) and monetary policy to influence the financial market (LM), interaction between the IS and LM curves bring about equilibrium output and interest rate. Whether these policies are complementary or substitutes to each other is determined by the agents formulating these policies. If the authorities are pursuing same goal, then these policies could be complementary. Empirical evidence has shown, however, that these policies complement and not substitute each other in achieving the desired goal (Van Aarle *et al,* 2003; Chatziantoniou *et al,* 2013 and Nwaogwugwu, 2018).

2.2 Empirical Review

Empirical studies have examined the relationship between fiscal policy and stock market performance. Using ordinary least square (OLS) estimation techniques, Ogbulu (2015) and Ndubuisi and Uma (2016) both studied the effect of fiscal policy on stock prices in Nigeria and both found a significant negative effect of government expenditure, taxes and government borrowing on stock performance. Further, Ndubuisi and Uma (2016) found a significant and positive relationship between non-oil revenue and stock prices with money supply having a significant relationship with stock prices while Ogbulu (2015) found government debt had a positive influence on stock prices in Nigeria. Similar study by Eneje, *et al* (2019) in Nigeria, using Vector Error Correlation Model, found a negative

relationship between government debt and stock market growth as well as a significant and long-run relationship between fiscal policy and stock market growth. Eyo's (2016) investigation of fiscal policy effect on stock market in Nigeria using OLS revealed that government revenue and spending had a significant impact on market capitalization while government debt had no significant relationship on stock market performance.

Similar study of eleven Eurozone countries with panel dynamic OLS by Foresti and Napolitano (2016) showed that fiscal policy had a significant influence on stock market index and that an increase in government expenditure led to a decrease in stock market index. Other studies have also investigated the relationship between monetary policy and stock market performance. Ioannidis and Kontonikas (2006) examined the influence of monetary policy on stock market returns in thirteen OECD countries with panel VAR and found that shifts in monetary policy had a significant effect on stock returns and as such can be used as a channel for monetary policy transmission. Thorbecke (1997) examined how monetary policy relates with the U.S. stock prices using VAR and found that monetary policy shocks had a greater impact on smaller capitalization stocks thus confirming the credit channel hypothesis that monetary policy affects smaller firms access to bank credit. It was also found that monetary policy had a large and positively significant effect on stock market returns. Patelis (1997) used the long horizon VAR methodology to study how monetary policy affects the predictabilty of the U.S. stock returns and found that monetary policy variables were significant in predicting future stock returns. However, similar study by Conover *et al,* (1999) with macroeconmic model showed that monetary policy in the U.S. did not affect stock returns alone but also the returns on stock of foreign market that are related to the U.S. monetary environment.

Osuagwu's (2009) investigation of monetary policy impact on stock market performance in Nigeria with OLS showed that broad money supply, exchange rate and consumer price index had a significant effect on stock market performance in the short and long-run. It however found that minimum rediscount rate and treasury bills rate did not have a significant effect on stock market index except if used discriminately. Hence, minimum rediscount and treasury bills rates should not be used simultaneously for the interest rate channel of monetary policy transmisssion. Similar study by Nwakoby and Bernard (2016) in Nigeria found the existence of a long-run relationship between monetary policy and stock market performance. Using OLS, it was found out that monetary policy significantly explains 53% of changes in stock market performances. However, Granger causality test showed that All Share Index had no causal relationship with Monetary Policy Rate, TB rate and Liquidity Ratio in Nigeria.

On the impact of both fiscal and monetary policy on stock market performance, Chatziantoniou *et al,* (2013) used structural VAR and found that both policies influenced the stock market through direct and indirect channels in Germany, UK and the U.S. The study also showed that development of the stock market could only be explained by the interaction between the monetary and fiscal policy. With the aid of panel VAR estimation techniques, Van Aarle *et al*, (2003) study on the Euro-area also found a similar result indicating that only the interaction between monetary and fiscal policy was responsible for the development of the stock market. Using ARDL, similar investigation by Lawal, et

al (2018) and Nwaogwugwu (2018) showed that both policies had significant effect on stock market performance and suggested that both policies be used simultaneously, and not in isolation, when formulating stock market policies in Nigeria.

3.1 METHODOLOGY

This study adopts the fully modified ordinary least square (FMOLS) method to empirically investigate the effect of government policies on stock market performance, unlike extant studies. In order to achieve asymptotic efficiency, the technique modifies least squares to account for serial correlation effects and test for endogeneity in the regressors that results from the existence of cointegration relationship (Rukhsana and Shahbaz, 2008). The FMOLS is therefore applied to account for possible endogeneity that may arise as a result of relationships among the variables in the models. Rau (1992) has proved that FMOLS produces estimate of a unit root in time series regression that are hyper-consistent in the sense that their rate of convergence exceeds that of OLS estimator. Thus, FMOLS estimator performs well in relation to other methods of estimating cointegrating equation (Phillips and Hansen, 1990; Cappucio and Lubian, 1992)

To achieve the non-linear effect of government policies on stock market performance, the policy variable is decomposed into positive (X^+) and negative (X^-) changes following Shin *et al,* (2014) approach as presented below:

$$X^+_t = \sum_{k=1}^{t} \Delta X_k^+ = \sum_{k=1}^{t} \max(\Delta X_{k,} 0) \quad \text{..... (1)}$$

$$X^-_t = \sum_{k=1}^{t} \Delta X_k^- = \sum_{k=1}^{t} \max(\Delta X_{k,} 0) \quad \text{..... (2)}$$

Equations (1) and (2) isolate the positive and negative changes in the policy variables in the model, where X is a vector of policy variables in the model.

3.2 Model Specification.

To achieve the objectives of this study, the following models are estimated.

The models to examine the effect of fiscal and monetary policy on stock market performance are as specified in equations (3a) and (4a) with their estimable form in (3b) and (4b) respectively:

ASI = f (external debt, domestic debt, government expenditure) .. .. …… (3a)

ASI = f (money supply, monetary policy rate) ..... (4a)

$Log(ASI_t) = \alpha_o + \alpha_1 log(EXTDBT_t) + \alpha_2 log(DOMDBT_t) + \alpha_3 log(GOVEXP_t) + \varepsilon_t$ ..... (3b)

$Log(ASI_t) = \beta_o + \beta_1 log(M2_t) + \beta_2 MPR_t + \varepsilon_t$ ..... (4b)

Where ASI denotes All Shares Index, EXTDBT = external debt, DOMDBT = domestic debt, GOVEXP = government expenditure, M2 = broad money supply, EXR = exchange rate and MPR = monetary policy rate. MPR is adopted as one of the instruments of monetary policy because of its role as anchor rate that influences other interest rate in the market.

The models that examine the non-linear effect of fiscal and monetary policy on stock market are also specified in equations (5a) and (6a) with their estimable form in (5b) and (6b) respectively. The non-linear model is considered because it closely depicts reality better than a linear model that assumes linear relationship among variables in the model. The non-linear models are therefore specified to isolate the effect of negative and positive shocks in government policy on stock market performance contrary to the linear model that provides an average estimate. The non-linear model allows the isolation of contractionary and expansionary effect of government policy on stock market performance.

ASI = f (government expenditure^{+}, government expenditure^{-}, RGDP, External debt) …… (5a)

ASI = f (MPR^{+}, MPR^{-}, exchange rate, money supply) …….... (6a)

$Log(ASI_t) = \alpha_o + \alpha_1 GOVEXP_t^{+} + \alpha_2 GOVEXP_t^{--} + \alpha_3 \log(RGDP_t) + \alpha_4 \log(EXTDBT_t) + \varepsilon_t$ …….. (5b)

$Log(ASI_t) = \beta_o + \beta_1 MPR_t^{+} + \beta_2 MPR_t^{--} + \beta_3 \log(EXR_t) + \beta_4 \log(M2_t) + \varepsilon_t$ ……. (6b)

Equation (5b) presents the non-linear effect of fiscal policy on stock market performance, while equation (6b) represents the non-linear effect monetary policy on stock market performance. Because of possible endogeneity in the specified models above, the study adopts the FMOLS estimation method. The technique modifies least squares to account for serial correlation effects and test for endogeneity in the regressors that result from the existence of cointegrating relationship (Rukhsana and Shahbaz, 2008).

3.3 Data description and source

For this study; Government expenditure (GOVEXP), Domestic debt (DOMDBT) and External debt (EXTDBT) are the fiscal policy variables while official exchange rate (EXR), Monetary Policy Rate (MPR) and Broad Money Supply (M2) are the monetary policy variables. The All-Share Index (ASI) is used as proxy for Stock market performance while the log of Real Gross Domestic Product (RGDP) serves as extraneous variable. All variables are measured in Naira, except for MPR in percentage and ASI as an index. The study employed annual time series data spanning between 1985 and 2018 which were sourced from the Central Bank of Nigeria statistical bulletin of various years.

GOVEXP is the totality of government spending on general administration, community service, economic and transfer over a given period usually a year. It is one of the government's fiscal policy tools in influencing the dynamics of the economy. GOVNEG ($GOVEXP_t^{--}$) and GOVPOS ($GOVEXP_t^{+}$) respectively denotes decrease and increase in government expenditure. DOMDBT measures the total borrowings of government from within the country and constitutes a fiscal policy variable. High domestic debt crowds-out available fund for private investment and vice versa. EXR here measures the value of naira to other country's currency. It is one of the monetary policy instruments adopted by the CBN to influence the credit available in the economy. MPR is the CBN anchor rate that influences other monetary variables. MPRPOS (MPR_t^{+}) and MPR NEG (MPR_t^{--})

respectively denotes increase and decrease in MPR in the non-linear model. M2 denotes total money in circulation and is a monetary policy instrument. EXTDBT is the totality of government's borrowing outside the country and is a fiscal policy tool. ASI is the dependent variable in the model which tracks the movement of all listed equities on the Nigerian stock exchange market. It measures the stock market performance. RGDP is a control variable in the model which measures the country's aggregate output in a year.

In our empirical analysis, we took the natural logarithm of money supply (M2), external debt, domestic debt, real GDP and government expenditure. Apart from aiding interpretation and compactness of results presentation, this form of transformation tends to reduce heteroskedasticity significantly (Enders, 2004).

4.0 EMPIRICAL RESULTS

4.1 Stationarity test

The unit root test results from both the Phillips-Perron (PP) and Augmented Dickey-Fuller (ADF) in Table 2 shows that all the series are stationary at first difference except MPR which is stationary at levels. This shows that the series are susceptible to short term variation hence a cointegration test will be conducted to ascertain long-run convergence in the model.

Table 2: Unit root test

	Levels		First Difference		
	Phillips-Perron	ADF	Phillips-Perron	ADF	
Variables	constant and trend	constant and trend	constant and trend	constant and trend	I(d)
ASI	-2.8491	-2.7922	-6.088***	-4.0827***	I(1)
DOM DBT	1.4938	-2.3468	-2.738*	-3.2117**	I(1)
EXT DBT	-1.1031	-1.9588	-2.563*	-2.6285*	I(1)
GOV EXP	0.2291	0.4127	-5.554***	-4.9812***	I(1)
M2	0.95	-0.5642	-6.993***	-4.4894***	I(1)
MPR	-3.4197**	-3.5058**		-	I(0)
RGDP	-1.8255	-1.1865	-2.925*	-2.9017*	I(1)
EXR	-0.756	-2.229	-4.0634***	-4.227***	I(1)

****, **, *, represent significant level at 1%, 5% and 10% respectively*
Critical values: -3.6463 (1%), -2.9549 (5%) & -2.6158 (10%)
NB: When the test statistics exceeds the critical value in absolute term, there is no unit root in the series which interprets stationarity.
I(1) denotes stationarity after first differencing, I(0), denotes stationarity at levels

4.2 Bound Cointegration Test

Table 3 presents the result where I(0) and I(1) are lower and upper bounds of test respectively. If the F-statistics exceeds the upper bound, then there exists a long-run relationship in the model, otherwise, no long-run relationship. Table 3 shows that the F-statistics for the two models exceed the upper bound, pointing to a long-run relationship in the models. Thus, there is a long-run relationship between fiscal and monetary policy

and stock market performance in Nigeria. This confirms the findings of Nwakoby and Bernard (2016) and Eneje, et al. (2019)

Table 3: Cointegration Test (Linear model)

Series: ASI DOMDBT EXTDBT GOVEXP			Series: LOG(ASI) LOG(M2) MPR		
Null Hypothesis: No long-run relationships exist					
Test Statistic	Value	k	Test Statistic	Value	k
F-statistic	11.08304	3	F-statistic	6.300287	2
Critical Value Bounds			Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound	Significance	I(0) Bound	I(1) Bound
10%	2.72	3.77	10%	3.17	4.14
5%	3.23	4.35	5%	3.79	4.85
2.5%	3.69	4.89	2.5%	4.41	5.52
1%	4.29	5.61	1%	5.15	6.36

NB: 1. The test equation is estimated under the constant and trend assumption because the series exhibit both constant and trend characteristics.
2. Cointegration exist when F-statistics exceeds the upper bound I(1) at any of the significant level
3. Cointegration denote presence of long run relationship

From the bounds test results for non-linear models in Table 4, the F-statistics exceeds the upper bound I(1) for the fiscal model thus establishing a long-run relationship in the model as found by Eneje, et al (2019). The long-run relationship in the monetary model is undetermined because the F-statistic falls between the lower and upper bounds at 5% and 10% significant levels. However, Pesaran *et al.* (2001) argued that a long-run relationship could still be established among the variables.

Table 4: Cointegration Test (Non-linear model)

Series: ASI LNGOVEXPPOS LNGOVEXPNEG LNRGDP LNEXTDEBT			ASI MPRPOS MPRNEG LNM2		
Null Hypothesis: No long-run relationships exist					
Test Statistic	Value	k	Test Statistic	Value	k
F-statistic	5.989494	4	F-statistic	2.97303	4
Critical Value Bounds			Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound	Significance	I(0) Bound	I(1) Bound
10%	2.45	3.52	10%	2.45	3.52
5%	2.86	4.01	5%	2.86	4.01
2.5%	3.25	4.49	2.5%	3.25	4.49
1%	3.74	5.06	1%	3.74	5.06

NB: 1. The test equation is estimated under the constant and trend assumption because the series exhibit both constant and trend characteristics.
2. Cointegration exist when F-statistics exceeds the upper bound I(1) at any of the significant level
3. Cointegration denote presence of long run relationship

4.3 Fully Modified OLS Estimation

Table 5 presents the results for the effect of fiscal and monetary policies on stock market performance in Nigeria. It shows that domestic debt, as a tool of fiscal policy, impedes the performance of the stock market as a percentage point increase in domestic debt significantly reduces stock market performance by 0.57 percentage point. This connotes that borrowing from within the economy crowds-out investment in the stock market. On the other hand, external debt's influence on stock market performance is insignificant. Fiscal policy in the form of government expenditure positively and significantly affect stock market performance as a percentage point increase in government expenditure raises stock market performance by 1.47 percentage point. The fiscal model reports both R-squared and Adjusted R-squared figure of 0.95, implying that 95 percent change in stock market performance is accounted for by domestic debt, external debt and government expenditure.

Using money supply and monetary policy rate as proxy, monetary policy in Table 4 shows a positive influence on stock market performance. The result indicates that a percentage point increase in money supply significantly improves the performance of the stock market by 0.79 percentage point. Monetary policy rate on the other hand has no statistically significant effect on stock market performance in the country. Respectively, both the R-squared and Adjusted R-squared suggests that about 89 percent and 88 percent of changes in stock market performance are explained by changes in money supply and monetary policy rate.

Comparatively, fiscal policy in form of government expenditure is found to exert more influence on stock market performance than monetary policy from the results obtained above.

Table 5: Model Estimation (Linear)

Dependent Variable: LOG(ASI)

Method: Fully Modified Least Squares (FMOLS)

	Fiscal model		Monetary model		
Variable	Coefficient	Prob.	Variable	Coefficient	Prob.
LOG(DOM DBT)	-0.565**	0.010	LOG(M2)	0.786***	0.000
LOG(EXT DBT)	0.067	0.380	MPR	0.033	0.4388
LOG(GOV EXP)	1.456***	0.000			
C	2.632***	0.000	C	2.585***	0.0098
R-squared	0.954		R-squared	0.890	
Adjusted R-squared	0.950		Adjusted R-squared	0.883	

NB: ***, ** denote significant levels at 1% and 5% respectively

Dom debt = domestic debt; Ext dbt = external debt, gov exp = government expenditure, M2 = broad money supply, MPR = monetary policy rate.

MPR is employed as a proxy for monetary policy because it serves as an anchor rate for other interest rate in the country

-Denotes a negative relationship, + denotes positive relationship

Prob. = probability value

Table 6 presents the non-linear effect of both policies in Nigeria by separating the effect of positive and negative changes in these policies on stock market performance. It shows that a percentage point reduction in government expenditure will likely reduces stock

market performance by about 1.06 percentage point. On the other hand, a percentage point increase in government expenditure increases stock market performance by about 0.14 percentage point. This point to the fact that a contractionary fiscal policy has more negative effect on stock market performance than expansionary fiscal policy has. It also shows that income level is a significant determinant of stock market performance as a percentage point increase in national income raises its performance by about 2.10 percentage point.

Table 6: Model estimation (Non-linear)

	Fiscal policy		Monetary Policy		
Variables	Coefficient	Prob.	Variables	Coefficient	Prob.
LN(GOV EXP NEG)	-1.0617	0.7698	LN(MPR NEG)	0.7108*	0.0676
LN(GOV EXP POS)	0.1425	0.9202	LN(MPR POS)	-1.0673***	0.0032
LN(RGDP)	2.1050***	0.0005	LN(EXR)	0.2154	0.2542
LN(EX DBT)	0.5360**	0.0116	LN(M2)	0.5635	0.1495
C	-16.741***	0.0025	C	2.6741**	0.0276
			@TREND	0.1963	0.2481
			@TREND^2	-0.0053**	0.0144
R-squared	0.811		R-squared	0.981	
Adjusted R-squared	0.781		Adjusted R-squared	0.980	

NB: ***, ** and ,* denote significant levels at 1%, 5% and 10% respectively

Gove exp neg = decrease in government expenditure (contractionary policy), gov exp pos = increase in government expenditure (expansionary policy), RGDP = GDP at constant price, MPR NEG, decrease in interest rate (Expansionary policy), MPR POS = increase in interest rate (contractionary policy), EXR = exchange rate, M2 = broad money supply, @TREND is used to capture variables that may affect the dependent variable not directly observed in the model.

-Denotes a negative relationship, + denotes positive relationship

Prob. = probability value

The non-linear effect of changes in MPR in Table 6 shows that an increase in MPR has more effect on stock market performance than a decrease. A percentage point reduction in MPR significantly increases stock market performance by 0.71 percentage point whereas a percentage point increase in MPR significantly reduces the stock market performance by about 1.07 percentage point. The implication is that, such increase in MPR will reduce investment in stock market instruments due to high cost of borrowing for investment. Also, the possibility of higher returns/earnings from savings and fixed deposits with banks could crowd-out investment in stock market instruments.

Diagnostic and robustness check

Table 7: Robustness check
Dependent variable: ASI

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(EXR)	0.1230	0.3108	0.3957	0.6999
LOG(M2)	1.2412	0.7376	1.6828	0.1205
TBR_NEG	-0.0349	0.0457	-0.7629	0.4616
TBR_POS	0.1934	0.0509	3.8020	0.0029
C	1.8487	2.1159	0.8737	0.4009
@TREND	-0.5024	0.3343	-1.5032	0.1610
@TREND^2	0.0006	0.0043	0.1307	0.8984
R-squared	0.9961			
Adjusted R-squared	0.9896			

EXR = exchange rate, M2 = broad money supply, @TREND is used to capture variables that may affect the dependent variable not directly observed in the model.

- Denotes a negative relationship while + denotes positive relationship
Prob. = probability value

Considering alternative instrument of monetary policy by adopting the Treasury Bill Rate (TBR) in lieu of the Monetary Policy Rate (MPR) and replicating the model estimation in Table 6 (Monetary policy). The outcome produced a somewhat similar result in terms of direction and significance of influence.

Table 8a: Wald test (fiscal policy model)

Test Statistic	Value	df	Probability
F-statistic	7.257	(2, 11)	0.010
Chi-square	14.513	2	0.001
Null Hypothesis: C(3)=0, C(4)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C(1)		-0.035	0.046
C(2)		0.193	0.051

NB: hull hypothesis: C(1) and C(2) are not statistically different from 0. C(1) = Govt exp neg, C(2) gov exp pos, Gove exp neg = decrease in government expenditure (contractionary policy), gov exp pos = increase in government expenditure (expansionary policy). The null hypothesis is rejected and the asymmetry relationship is significant.

Table 8b: Wald test (monetary policy model)

Test Statistic	Value	df	Probability
F-statistic	7.257	(2, 11)	0.0098
Chi-square	14.513	2	0.0007
Null Hypothesis: C(3)=0, C(4)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C(1)		-0.0349	0.0457
C(2)		0.1934	0.0509

NB: hull hypothesis: C(1) and C(2) are not statistically different from 0. C(1) = MPR NEG, C(2) = MPR POS, MPR NEG, decrease in interest rate (Expansionary policy), MPR POS = increase in interest rate (contractionary policy). The null hypothesis is rejected and the asymmetry relationship is significant.

Table 9a: Autocorrelation test (Fiscal policy model)

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
. |**. |	. |**. |	1	0.281	0.281	2.6132	0.106
. | . |	. *| . |	2	-0.037	-0.126	2.6603	0.264
. *| . |	. | . |	3	-0.085	-0.042	2.9176	0.405
. |* . |	. |* . |	4	0.104	0.153	3.3171	0.506

NB: null hypothesis is that there is no autocorrelation in the model. At the four (4) lags, the hull hypothesis is accepted with probability value exceeding 0.05

Table 9b: Autocorrelation test (Monetary policy model)

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
. | . |	. | . |	1	0.070	0.070	0.1616	0.688
. *| . |	. *| . |	2	-0.166	-0.172	1.1074	0.575
. | . |	. | . |	3	-0.053	-0.029	1.2090	0.751
. |*** |	. |**. |	4	0.361	0.351	6.0231	0.197

NB: null hypothesis is that there is no autocorrelation in the model. At the four (4) lags, the hull hypothesis is accepted with probability value exceeding 0.05

5.0 CONCLUSION AND POLICY IMPLICATIONS

This study contributes to the existing literature by adopting the fully modified OLS method of estimation to examine the linear and non-linear effect of fiscal and monetary policy on stock market performance in Nigeria. The Bounds cointegration test result shows there is a long-run linear relationship between government policies and stock market performance, while the non-linear test result shows that only fiscal policy has a long-run relationship with stock market performance, whereas for monetary policy, the relationship is indeterminate. From the FMOLS result, both fiscal and monetary policies have significant effect but fiscal policy appears more effective than monetary policy in influencing stock market performance. Further, the non-linear relationship also shows that the contractionary policies have larger effects on the stock market performance than expansionary policies. That is, contractionary fiscal or monetary policy negates the performance of the stock market than expansionary fiscal or monetary policy which improves the stock market performance. Overall, fiscal policy influences stock market performance more than monetary policy.

Flowing from the findings of this study, the following recommendations are made:
Firstly, since domestic debt, a fiscal policy tool, was found to impede stock market performance which connotes that borrowing from within the economy competes with and crowds-out investment in the stock market; it is recommended that government should carefully select its domestic resources mobilization strategy so as not to impede other sectors' growth.

Secondly, fiscal policy in the form of government expenditure was found to positively and significantly affect stock market performance. This not only further highlights the importance of government in economic development but also that the government have to take into account the consequences of its fiscal policies in terms of stock market's reaction. Since increase in government expenditure significantly impacts stock market performance, it is recommended that government should increase its expenditure in areas that enhance productivity and stock market performance.

Finally, given that monetary policy, especially increase in money supply, was found to significantly improve the performance of the stock market, it is recommended that adjustments in the amount of money in circulation by monetary authority should be with due consideration to its impact on the real sectors of the economy and the stock market.

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