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THE IMPACT OF FISCAL AND MONETARY POLICY ON STOCK MARKET RETURNS IN NIGERIA

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Abstract

This study seeks to examine the dynamic effects of fiscal and monetary policy on stock returns in Nigeria. The cointegration and error correction mechanism were employed in this exercise. The series were all integrated of order one The study shows that monetary policy instruments exert more effects on stock returns in Nigeria and that the main fiscal policy variable (fiscal deficit ratio) is not quite significant in determining stock market returns.

Key words: Monetary policy, Fiscal policy, Stock returns, Nigeria.

The objective of this study is to investigate the impact of fiscal and monetary policies on stock market returns in Nigeria. Fiscal policy and monetary policy are two major policy drivers of a nation's economic performance. Fiscal policy is basically concerned with expenditure and revenue collection of government. Laopodis (2009) opines that fiscal policy is a tradeoff action between government revenue collections and government spending. See also (Kopcke, Tootell and Triest, 2006) According to Cheng and Sun (2013), governments implement fiscal policy to influence the level of aggregate domestic demand, inflation targeting, with a view to maintaining the price stability, unemployment rate, and economic growth.. The two main instruments of fiscal policy are taxation and government expenditure. Tavares and Valkanov (2003), conclude that fiscal policy can have direct and indirect effects on financial markets.

The direct effect stems from the government's ability to influence the bonds market by issuing (or retiring) public debt.

On the other hand, Monetary policy is concerned with the control of money supply in order to influence macroeconomic variables such as inflation, interest rate , employment and real output. Ioannidis and Kontonikas (2006) suggest that monetary policy actions such as changes in the central bank discount rate have, at best, an indirect effect on market returns variables and that considerable lags are involved in the policy transmission mechanism. Stock market returns are the aggregate weighted returns of all securities in the market. Pandey (2005) suggests that the return on a share and market index may be calculated as total return; that is, dividend yield plus capital gain. But in practice one may use capital gains/loss to calculate the return.

Fiscal policy is expected to influence the goods market while the monetary policy is expected to utilize its effect on asset markets. The interaction of these two attributes has been significant in the achievement of macro-economic goals, given that the asset market and the goods market are dictated by output and interest rate (Ramos and Roca-Sagales, 2008). Ioannidis and Kontonikas (2006) suggest that identifying the link between monetary policy and financial asset prices is highly important to gain a better insight in the transmission mechanism of monetary policy, since changes in asset prices play a key role in several channels.

Past studies focused on the relationship between monetary policy and stock market performance, (Fama 1981, Patelis 1997, Thorbecke 1997, Bredin, Hyde, Nitzsche and Reilly 2007 and Okpara 2010) while few studies such as Darrat (1988), Da, Warachka and Yun (2013) concentrated on the effects of fiscal policy on stock markets. Relatively few studies have attempted to combine both policies to examine how such policy actions interact intertemporaneously with stock market activities (Tavares and Valkanov 2003, Muscatelli and Tirreli 2005, and Laopodis, 2011)). So far no, study seems to address the Nigerian case. Thus this study intends to examine the joint effects of fiscal and monetary policy actions on stock market returns in Nigerian.
With the objectives of the study in mind, the remainder of this paper is organised as follows: the second section gives a brief review of the literature concerning fiscal policy and stock market returns, monetary policy and stock market returns. Section three is the methodology then followed by the empirical analysis in section four, while policy issues and concluding remarks are made in section five.

Literature Review

Monetary Policy and Stock Market Returns

According to stock market performance not only responds to monetary policy decisions and affects the economy, but also provides feedback to central banks

regarding the private sector's expectations about the future course of key macroeconomic variables. examined the impact of monetary policy on stock returns in thirteen OECD countries over the period 1972-2002 and found that monetary policy shifted significantly and affected stock returns, thereby supporting the notion of monetary policy transmission via the stock market.

Chatziantoniou, et.al (2013) suggested that monetary policy authorities in their effort to maintain low inflation will mainly influence the economy's interest rates. Thus they submitted that monetary policy can influence stock market returns via the interest rate channel, the credit channel, the wealth effect, the exchange rate channel and the monetary channel. examined the influence of changes in UK monetary policy on UK stock returns. The study found that the monetary policy shock led to a persistent negative response in terms of future excess returns for a number of sectors analyzed the effect of monetary policy on the Nigerian stock market returns. He mentioned that monetary policy is a significant determinant of long-run stock market returns in Nigeria. examined the relationship between monetary policy and United States' stock market. Results from estimating a multi-factor model also indicated that exposure to monetary policy increases an asset's ex-ante return. Concentrated on influence of Chinese monetary policy during global financial crisis and found a significant regime shift in the volatility of the stock market when the People's Bank of China adopted an accommodative monetary policy. They suggested that the central bank of China should incorporate stock market volatility into its policy-making process.

Fiscal Policy, Monetary Policy and Stock Returns

Handoyo , Jusoh and Zaidi (2013) and Mish; Mishkin, (2001) and Zhang (2011), observed that both monetary policy and fiscal policy have an important effect on stock return. According to Tobin's theory of general equilibrium, stock market plays an important role as an intermediation between the real and financial sectors of the economy. (Chatziantoniou, Duffy and Filis, 2013) and (Tobin, 1969) Hence, actions by the fiscal authorities that increase spending (and increase debt) have larger opportunities to increase the interest rate. A higher interest rate will depress the economic growth, and then the Central Bank will be forced to conduct a loose monetary policy by increasing money supply (Andersen 2008). Therefore, the combinations of the conduct of fiscal and monetary policy are able to control the stock market performance (Handoyo, 2013; Thorbecke, 1997 and Da, 2013)

Dungey and Fry (2009) stated that good economic management depends on understanding how shocks from monetary policy, fiscal policy and other sources affecting the economy and their subsequent interactions are adequately balanced out such that they will yield the desired sustainable growth at relatively stable price and low rate of unemployment. (Osaze, 2007; Darrat 1988; Jansen, Li, Wang and Yang,

2008; Agnello and Sousa 2010; Bredin, 2007 and Afonso and Sousa, 2012). The two policies interact on two main platforms: government inter-temporal budget constraint on monetary policy and its impact, and the eventual effect of the fiscal policy on monetary variables (Muscatelli and Tirelli, 2005 and Okpara, 2010).

Bouakez, Badye and Normandin (2010), concluded that the interaction between monetary policy and stock returns is much weaker than suggested by earlier empirical studies using a flexible structural vectorauto regression (SVAR) methodology. In particular, using data prior to the latest financial crisis, they found that stock returns are not very sensitive to US monetary policy and have little effect on its propagation at a monthly frequency. According to Jansen et.al.(2008) only little information is available on the effects of fiscal and monetary policy on stock market performance when the two policies interact. Laopodis (2011) examines the linkages among fiscal policy, monetary policy and the stock market from 1960 to 2004. The study found that deficits matter for the stock market and imply a violation of the Ricardian Equivalence Proposition and that the explicit modeling of inflation along with the deficit, fed funds rate and stock prices indicate a negative response of the stock market to innovations in inflation a result taken to suggest that the stock market pays attention to inflation information before pricing assets. (Ioannidis and Kontonikas 2006)

Finally, Chatziantoniou, et.al (2013) used structural VAR model to examine the effects of monetary and fiscal policy shocks on stock market performance in Germany, UK and the U.S.A and found that both fiscal and monetary policies influenced the stock market, via either direct or indirect channels and that the interaction between the two policies is very important in explaining stock market developments. Thus, investors and analysts in their effort to understand the relationship between macroeconomic policies and stock market performance should consider fiscal and monetary in tandem rather than in isolation.

Methodology

Empirical Analysis

The analysis involves the use of econometric methods in order to provide a rich background for the investigation. (Akinlo and Folorunso, (1999) and; Nwaobi, (2000) suggested that time series data on market capitalization and others may not be stationary in their level form but that their first-order differences are likely to be. thus there is to investigate the stationarity status of the variables in the specified model. Thereafter the variables shall be tested for their cointegration status, after the parsimonious error correction model shall be determined and interpreted.

The Model

The specified model below hypothesizes that stock prices are affected by both fiscal and monetary policies. Hence the model is specified as:

$SR = f(TBR, MPR, MSYR, DDEBTYR, FDYR, SR_{t-1})$

SR is stock returns which is measured as $log(^{sp_t}/_{sp_{t-1}})$, TBR is Treasury bill rate (monetary policy), MPR is monetary policy rate, MSYR is ratio of money supply to GDP

DDEBTYR is government domestic debt accumulation as a percentage of GDP (fiscal policy), FDYR is fiscal deficit to income ratio, t is time

The econometric form of the model is therefore presented as follows:

$SR_t = \alpha_0 + \alpha_1 TBR + \alpha_2 MPR + \alpha_3 DDEBTYR + \alpha_4 MSYR + \alpha_5 FDYR + \alpha_6 SR_{t-1} + u_t$

u_{ti} is theerror term

Unit Root Analysis

In order to avoid the occurrence of spurious regression parameters the Augmented Dickey Fuller (ADF) test was employed to test for the presence or otherwise of unit roots in the series. (Gordon, 1995) The results are presented in levels and first difference formate to facilitate clarity of results. Table 2 presents results of ADF test and it indicates that fiscal deficit ratio and SRL are stationary at levels while the other variables are integrated of the first order. Apparently, fiscal deficit in Nigeria is time invariant and highly stochastic in application since its determination is rather institutionally fixed in most cases.

Table 2a Unit Root Test for Variables in Levels and first Differences Forms

	Values at Levels			Values at First Difference		
Variable	ADF Test Statistic	Critical values	Remark	ADF Test Statistic	Critical values	Remark
SR	-2.824	-3.588	Non – stationary	-4.852	-3.595	Stationary
TBR	-2.429	-3.563	Non – stationary	-4.923	-3.568	Stationary
DDEBT	2.109	-3.563	Non – stationary	-3.834	-3.568	Stationary
MPR	-2.349	-3.563	Non – stationary	-6.18	-3.568	Stationary
MS	1.268	-3.563	Non – stationary	5.217	-3.603	Stationary
FDYR	-3.743	-3.563	Stationary	-5.547	-3.568	Stationary
SRL	-4.106	-3.595	Stationary	-5.925	-3.603	Stationary

Result extracted from the Microfit 5.0 output.

Cointegration Test

Having established that the series in the analysis are stationary in their fist difference, the next step is to ascertain the cointegration status of the equations. The Johansen Cointegration method is used for this analysis because the study involves the use of multivariate estimations. The results from the multivariate cointegration test are presented in Table 3 below. As can be seen from the table, both the trace and maximum Eigenvalue statistics indicate that there is at least two cointegrating vectors in the relationship between stock return and the independent variables. This implies that a long run relationship exists among these variables.

Table 3: Johansen Multivariate Cointegration Tests Results.

Trace Test			***Maximum Eigenvalue Test***		
Null Hypothesis	**Test Statistic**	**Critical Value**	**Null Hypothesis**	**Test Statistic**	**Critical Value**
r = 0*	202.7	125.6	r = 0*	82.46	46.23
r ≤ 1 *	120.2	95.75	r ≤ 1	52.6	40.08
r ≤ 2	67.63	69.82	r ≤ 2	27.15	33.87
r ≤ 3	40.49	47.85	r ≤ 3	19.74	27.58
r ≤ 4	20.75	29.97	r ≤ 4	10.96	21.13

****(**) denotes rejection of the hypothesis at 5% (1%) significance level.***

The macroeconomic outlook of the variables used in the analysis may imply interrelationships among them. Hence, the Granger causality test, which is a preliminary aspect of a dynamic-based analysis, is used to provide the background for estimating dynamic relationships. The results of the Granger causality tests are reported in Table 4 below. As is generally the case, the F-test is conducted on the null hypotheses in order to determine the direction of causality between each pair of variables. The rejection of each of the null hypothesis is based on the significance of the F-value for the particular relationship.

The test result shows clearly that a unidirectional causal relationship exists between stock return and all the other variables in the model except for money supply where the null hypothesis of non-causality is accepted for both tests. The unidirectional causality runs from treasury bills to stock returns, from monetary policy rate to stock returns, as well as from fiscal deficit ratio to stock return. Thus, changes in these variables tend to stimulate shocks in stock returns in the Nigerian Stock Exchange, thereby implying that fiscal policy that operates through bonds market, interbank rates or deficit spending could directly determine the pattern of stock returns in Nigeria.

Moreover, causality is seen to run from stock returns to domestic debt in Nigeria; movements in stock returns tend to have significant vibrations in the behaviour of domestic debt in Nigeria. Indeed, equity could constitute a relative aspect of the domestic debt market, hence changes in the returns on such securities could cause the entire debt market to be affected.

Table 4: Granger Causality Test Results

Null Hypothesis:	*F-Statistic*	*Prob.*	*Decision*	*Causality*
SR does not Granger Cause TBR	0.39	0.68	Accept	Unidirectional
TBR does not Granger Cause SR	5.83	0.01	Reject	
SR does not Granger Cause MPR	0.43	0.65	Accept	Unidirectional
MPR does not Granger Cause SR	6.4	0.01	Reject	
SR does not Granger Cause DDEBT	4.78	0.02	Reject	Unidirectional
DDEBT does not Granger Cause SR	1.58	0.23	Accept	
SR does not Granger Cause MS	0.74	0.49	Accept	None
MS does not Granger Cause SR	2.19	0.14	Accept	
SR does not Granger Cause FDYR	0.88	0.43	Accept	Unidirectional
FDYR does not Granger Cause SR	4.65	0.02	Reject	

The result of the Granger causality test shows that both monetary and fiscal policy cause movements in stock returns in Nigeria. However, more monetary policy instruments tend to Granger Cause stock returns than the fiscal policy instruments.

Dynamic Analysis

The short-run dynamics of the behaviour of stock return in the Nigerian Stock Exchange within the context of short term movements in fiscal and monetary policy in Nigeria is captured within an error correction model (ECM). The autoregressive distributed lags (ARDL) approach was used for the ECM. The error correction mechanism result for the model, as reported in table 4 below, indicates that the model has highly impressive diagnostic statistics.

The particular contribution of each of the variables to short term movements in capital market returns is determined by observing the individual coefficients of the explanatory variables in terms of sign and significance. A close investigation of the individual coefficients of the variables reveals that apart from monetary policy rate and money supply, the rest variables were correctly signed. Ordinarily, increase in money supply will reduce interest rate. This will make bond holding and all other money market instruments unattractive. For this reason investors will divest from money market and invest in capital market. Increased investment in capital market will create a situation of a higher demand for stock than its supply. This will cause increase in stock

prices and hence increase in stock returns. In the Nigerian case this theoretical expectation did not hold for the period under investigation. This could be attributed to inadequate monetary policy and lack of financial deepening.

For the individual test significance, Treasury bill rate failed the test at the 5 percent level while money supply passed the test at the same level though negative. For the domestic debt variable, both the current and lagged coefficients were significant at the 5 percent level and positive.

The coefficient of determination showed that the covariates are responsible for up to 98% of the systematic variation in stock returns. The F-statistic also shows linear relationship between market returns and the specified explanatory variables in model . This was significant at 1% level. The DW statistic shows that the problem of autocorrelation is minimized at 1.60. All these reveal that the model is of good fit and has reliable predictive power since its parameters are efficient. The ECM was negative and significant. This shows that the model has the potential of correcting the deviations of the shortrun dynamics from its longrun with good speed.

The error correction term has the correct negative sign and also passed the significance test at the 5 percent level. This goes to show that any short-term deviation of industrial production from equilibrium in the short-run will be restored in the long run. The very high value of the error correction term that is greater than one (-1.08) means that adjustment to equilibrium in the long run is oscillatory in nature. The adjustment seems to swing from negative to positive over time, perhaps due to the nature of the market.

Table 4: Model for Fiscal and Monetary Policy and Stock Return

Variables	Coefficient	T-Ratios
ΔSR(-1)	-1.428	-3.805
ΔTBR	792.9	1.668
ΔMPR	-1073	-2.138
ΔMS	-0.006	-1.609
ΔMS(-1)	-0.009	-2.519
ΔDDEBT	0.029	7.886
ΔDDEBT(-1)	0.013	2.832
ΔFDYR	223.2	1.395
ΔFDYR(-1)	-224.7	-1.283
ΔSRL	62.18	3.035
INPT	-814.6	-1.206
ECM(-1)	-1.081	-2.458
R^2 = 0.981	**F = 56.8**	**D.W = 1.60**

The diagnostic statistics of the model is relatively high. The R-squared value of 0.981 indicates that over 98 percent of the systematic variation in stock return at any given time is explained by the explanatory variables and the ECM term. The model actually possesses a strong predictive ability since less than two percent of the systematic variations is left to chance occurrences. The F-statistic value of 526.8, passes the significance test at the 1 percent level, thus, we cannot reject the hypothesis of a significant linear relationship between stock return and all the independent variables combined in the short run. The DW statistic value of 1.6 suggests that autocorrelation is not a strong problem in the model. The implication of this is that the short-run estimates in the model above are reliable for structural analysis and policy directions.

Policy Implications and Recommendations

The correct sign and statistical significance of domestic debt implies that increase in domestic debt instrument will increase market returns in the shortrun. However, in the longrun, due to dilution effect stock market returns will fall. Dilution effect occurs when more of the market returns is used to offset interest payment for debt which in itself crowds out stock holding. This culminates into a cycle of reduction in market returns and consequently stock price. This result does not conform to the general demand conditions that suggest that rising demand would stimulate prices. Another perspective to this result is the consideration of the overall nature of government domestic debt that includes, in an essential manner, debt owed to domestic investors. This situation can easily breed dearth of funds in the economy and lead to downward spiral of stock prices.

Second, neither monetary nor fiscal policy has a clear-cut short run impact on stock market returns. While the only fiscal variable has varied impact on returns for the current and lagged periods, the monetary policy variables do not show a clear direction with regard to the response of stock returns to their variations. This implies that policy directions may not be reflective of stock market activities and that public policy factors do not provide enough indication for stock market participants.

Third, there seems to be a relative linkage between monetary policy and fiscal policy with regard to the stock market. Domestic (public) debt, which provides the most comprehensive outcome in the regression result, is rather a dual-functional factor that shows monetary policy indications as well as fiscal policy intensions. Hence, when government embarks on expansionary fiscal policy and accumulates deficits, as long as the financing of such deficits is from the domestic financial markets, the stock markets tend to be the better for it.

Conclusion

Institutional factors are now being considered as relevant to the dynamics of stock market behaviour, especially in emerging markets like Nigeria. In one direction, the stability that institutional regulation provides for stock market activities guarantees long term investment in the market. Also, institutional provisions sometimes tend to constitute an integral part of the development of the stock market. In this study, the dynamic effects of fiscal and monetary policy on stock returns in Nigeria was examined. The cointegration and error correction mechanism was applied in the analysis using data covering 1986 to 2012. The general empirical findings reveal the importance of government domestic debt as well as direct monetary policy control of money supply and inter-bank rates as main factors that affect short term stock returns. Apparently, our study finds that monetary policy instruments exert more effects on stock returns in Nigeria. This is not a surprising result when theoretical postulations are considered. The findings also reveal that the main fiscal policy variable of fiscal deficit ratio is not quite significant in determining stock market returns. This suggests that deficits do not matter for the stock market and implies consonance with the Ricardian Equivalence Proposition, which states “that current government deficits become irrelevant for current portfolio substitution decisions by rational investors if they correctly anticipate increased future taxation” (Chatziantoniou, I., . D. Duffy and G. Fills, 2013). Moreover, monetary policy instruments can provide effective inference points for participation in stock market activities in Nigeria.

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