A FURTHER ECONOMETRIC APPRAISAL OF THE EFFECT OF MACROECONOMIC FUNDAMENTALS ON STOCK MARKET PRICES IN NIGERIA

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Abstract: This study investigated the effect of macroeconomic fundamentals on stock market prices in Nigeria using quarterly data. The period (1985-2011) covered in this study is a period of very significant and active stock market development in Nigeria as well as a period of economic shocks including global economic and financial meltdown. The Co-integration and Error Correction Model (ECM) statistical techniques, Impulse Response Function (IRF) as well as Variance Decomposition analysis were employed to examine the relationship between the nine selected macroeconomic fundamentals and the stock market prices. This study revealed that there is long-run relationship between stock market prices and the selected macroeconomic fundamentals in Nigeria. It further revealed that macroeconomic fundamentals were strongly and jointly significant in explaining the variations in stock prices in Nigeria. The recommendations of this study amongst others include that government should pay attention to foreign direct investment in Nigeria, and maintain policies that will encourage more FDI attraction which will help to expand the stock market activity and the industrial sector.

Keywords: Co-integration, Error Correction Model (ECM), Impulse Response Function (IRF) Macroeconomic Fundamentals, Stock Market Prices, Unit Root Test, and Variance Decomposition (VD).

I. INTRODUCTION

Many developing nations of the world have faced a lot of challenges to attain and maintain the desired economic growth and development. Nigeria being a developing country is not in isolation of these challenges. These challenges emanate from various facets of the economy such as legal, economic, political, financial and social structures. A number of reforms to address these challenges have been put in place, sometimes on bi-annual policy framework modified but not much has been achieved. Much of these economic reforms were frustrated in their implementation processes as a result of weak base of the financial sector in Nigeria. Truly, any reform aimed at revamping any economy without well- developed financial sector is bound to fail. As a result, the government was moved to reposition the already established Nigerian Stock Exchange (NSE) for effective mobilization of capital for private sector investment and industrial business take off as well as encouraging entrepreneurship development.

Besides, capital markets generally are believed to be the heartbeat of any economy given their ability to respond almost instantaneously to government policies and fundamental changes in the economy (Maku and Atanda, 2009). The implication of this is that a country without a strong and sound capital market especially the stock market cannot have meaningful financial development and economic growth. Therefore a well-organized and managed stock market will

always encourage investment through its financial intermediation role that will support the real sector which invariably leads to economic development. Stock market indices ordinarily are good indicators of future economic activity of any economy. The vibrancy of such markets is also a measure of economic strength of a country. In order to boost economic development of a country the development of stock market is vital (Raza, Iqbal, Ahmed, Ahmed, & Ahmed; 2012).

The above notwithstanding, and according to Berthelemy and varoudakis (1996) as cited in Angko (2013) the stock market is an avenue through which public savings are channeled to business enterprises and industrial sector, precisely the private sector. Mobilization of such resources through the intermediary role of the stock market for investment is certainly a necessary condition for the economic takeoff, the quality of their allocation to various investment projects is an important factor for growth. This is precisely what an efficient stock market does to an economy.

However, most previous researches seeking to identify factors that could determine stock market price movements in the Nigerian capital market had focused on corporate fundamentals without given much consideration to macroeconomic fundamentals. Such corporate fundamentals were extracts from the historical financial earnings' records of corporate organizations, i.e. dividend payments, capital structure and other financial ratios. The performance of corporate firms or improvement on corporate fundamentals cannot be isolated from the business environment which produces macroeconomic fundamentals that actually reflect the extent of penetration of government policies and the condition of the business environment. Therefore, there seems to be limitations to which corporate fundamentals can explain stock prices movement in an economy (Abaenewe, 2014). But Mehr (2005) identified that effects of public policies on economic growth can be measured by the increase as well as decrease in stock exchange prices.

Further to the above, Ibrahim (1999) as cited in Ali et al (2010), macroeconomic forces have systematic influences on stock prices via their influences on expected future cash flows. Also, Chakravarty (2005) in his own view expressed that stock market returns are highly sensitive to macroeconomic fundamentals. Okafor (1983) had posited that some exogenous factors which arise from political, economic and social cultural events can influence the investment decisions. He further opined that these events constitute the environment for investment decisions because they have an immense influence on the nature, the intensity and the ultimate direction of investment activities which take place in the capital market. Moreover, according to Okafor (1983) factors are exogenous when they are not amenable to effective control from within individual economic units.

Therefore, there is the need to investigate stock prices movement based on aggregate macroeconomic fundamentals especially with regard to the nature of relationship that subsist between them. This provides paradigm shift from earlier studies that considered mostly firm or corporate fundamentals in assessing stock prices movement.

II.   THEORETICAL CONSIDERATIONS

Following the diversification argument which is implicit in capital market theory, Chen et al (1986) contend that only general economic variables will influence the pricing of large stock market aggregates. They further contended that any systematic variables that affect the economy's pricing operator or affect dividends would influence stock market returns. In actual sense, not every state variable might have a direct effect on stock market prices /returns. But some may indirectly influence it. For example, a particular state variable may not have a direct link with the stock market activity, and may indirectly influence the business environment where the stock market is operated. Stock market activity has been arguably considered as responding to external forces.

The diversification argument is an off shoot of Arbitrage Pricing Theory (APT) developed by Ross (1976). It has been acknowledged in financial literature that one way of linking macroeconomic variables and stock market returns is through Arbitrage pricing theory (APT), where multiple risk factors can be explained by stock returns (Maku and Atanda, 2009, Adeleke and Gbadebo, 2012).

Therefore, the model of this study is constructed with view of linking more state economic fundamentals (macroeconomic fundamentals) to stock market aggregate in the Nigerian economy. The macroeconomic fundamentals include: foreign Direct Investment, Exchange Rate, Trade Openness, Industrial Production, Inflation Rate, Crude Oil Prices, Interest Rate and Money Supply. These variables are selected from three major sectors of Nigerian economy- External, Real and Financial Sectors following the work of Goswami and Jung (1997).

Empirical Review:

Several studies have analyzed how stock prices react to changes in macroeconomic variables. Some of these studies had been carried out in developed economies and developed stock markets. According to Liu and Shrestha (2008) most of the studies on long term relationship between macroeconomic variables and stock market prices, are on developed countries and less is known about this relationship in the emerging or developing countries. Most of these studies sought to determine the long run relationship that exist between macroeconomic variables and stock market prices, the flow of causality and the short run equilibrium adjustment of the changes of these variables. The results of these studies reflect a mixed one. The differences found in these studies can be attributed to differences in the econometric models, statistical techniques applied in their studies as well as environmental specifics. This leaves a non-consensus opinion in their findings. However, this controversy continues to loom in financial literature.

Looking into advanced countries, Chen et al (1986) tested the multifactor model in the United States of America to understand whether innovations in macroeconomic variables are risks that are rewarded in the stock market. They identified some macroeconomic variables which may affect the stock prices through basic valuation model. Such variables include industrial production, spread between long and short interest rates, expected and unexpected inflation, the spread between low high and low grade bonds. They found out that these macroeconomic variables are sources of risks and are significantly priced. Furthermore, neither the stock market portfolio nor aggregate consumption is priced separately. Their study also revealed that oil price risk is not separately rewarded in the stock market.

Goswami and Jung (1997) investigated the effects of economic factors on Korean stock market. Using Vector Error Correction Model (VECM), they studied the short-run dynamics as well as long-run relationship between stock prices and nine macroeconomic variables from Korean economy. They found that the Korean stock market is co-integrated with nine macroeconomic variables. Precisely, their study revealed that Korean stock prices are positively related to industrial production, inflation and short-term interest rate, and negatively related to long-term interest rates and oil prices. In the case of foreign exchange rate, they opined that foreign exchange rate changes may affect stock prices in either direction i.e. positively (negatively). Their findings are robust to time lag selection and generally support the long-term hypothesized relationship.

Within the framework of a standard discounted value model, Humpe and Macmillan (2009) examined whether a number of macroeconomic variables influence stock prices in the US and Japan. They applied co-integration analysis to model the long-term relationship between industrial production, the consumer price index, money supply, long-term interest rates and stock prices in the US and Japan. For the US, they found that the data are consistent with a single co-integrating vector, where stock prices are positively related to industrial production and negatively related to both the consumer price index and the long-term interest rate. They also found an insignificant (although positive) relationship between the US stock prices and the money supply. However, for the Japanese data, they found two co-integrating vectors. For the first vector, stock prices were seen to be influenced positively by industrial production and negatively by the money supply. For the second co-integrating vector, they found industrial production to be negatively influenced by the consumer price index and a long-term interest rate. These contrasting results were attributed to the slump in the Japanese economy during the 1990s and consequent liquidity trap.

Masuduzzaman (2012) investigated the long-run relationship and the short-run dynamics among macroeconomic fundamentals and the stock returns of Germany and the United Kingdom. Each case was examined individually, by applying Johansen co-integration, error correction model, variance decomposition and impulse response functions, in a system incorporating the variables such as consumer price index (CPI), interest rates, exchange rates, money supply and industrial productions between the periods of February 1999 to January 2011. The Johansen co-integration tests indicated that the UK and German stock returns and the selected five macroeconomic variables are co-integrated. Their findings also indicate that there are both short and long run causal relationships between stock prices and macroeconomic variables. The results imply the existence of short-term adjustments and long-term dynamics for both the UK and the German stock markets returns and the certain macroeconomic fundamentals.

Exploring evidence from developing economies, Brahmasrene et al (2007) examined the relationship between stock market index and selected macroeconomic variables during the pre- financial crises and post financial crises in Thailand. The results revealed at least one co-integrating equation or long run relationship between the stock market index and a set

of macroeconomic variables (money supply, industrial production index, exchange rate and oil prices). Money supply had a positive impact on the stock market index, while industrial production index, exchange rate and oil prices had a negative impact. During the post financial crises, all variables were integrated at different orders. Precisely, co-integration was shown to have existed between the stock market index and macroeconomic. In addition, the granger causality test indicated that money supply was the only variable positively affecting the stock market returns.

Mohammad, et al (2009) investigated the relationship between macroeconomic variables and prices of shares in Karachi Stock exchange (Pakistan) using multiple regression approach. Quarterly data of several economic variables such as foreign exchange rate, foreign exchange reserve, industrial production index, wholesale prices index, index of gross capital formation and broad money supply from 1986 -2008 were used in the study analysis by trying to link these macroeconomic variables to stock prices. Their results showed that after the reforms in 1991, the influence of foreign exchange rate and reserve are significantly linked to stock prices. While other variables such as industrial production index and gross fixed capital formation (GFCF) do not have significant effects on stock prices. Generally, the result shows that internal factors of firms like increased production and capital formation do not have significant effects on stock prices. While external factors like exchange rate and reserve have significant effects on the stock prices.

Bin et al (2009) in their study examined the short-run and long-run causal relationship between Kuala Lumpur Composite Index (KLCI) and selected macroeconomic variables namely inflation, money supply and nominal effective exchange rate during the pre and post crisis period from 1987 until 1995 and from 1999 until 2007 by using monthly data. The applied time series econometric techniques i.e. the unit root test, co-integration test, error correction model (ECM), variance decomposition and impulse response function in the analysis. Their findings showed that there is co-integration between stock prices and macroeconomic variables. Their results further suggest that inflation, money supply and exchange rate significantly affect the KLCI.

Buyuksalvarci Ahmet (2010) analyzed the effects of macroeconomic variables on the Turkish Stock Exchange market in the Arbitrage Pricing framework using monthly data spanning from January 2003 to March 2010 in a multiple regression model. The study involved seven (7) macroeconomic variables (consumer price index, money market interest rate, gold price, industrial production index, oil price, foreign exchange, money supply and the main Turkish Stock Market Index (Istanbul Stock Exchange Index-100) in its analysis. The results of his study indicate that interest rate, industrial production index, oil price, foreign exchange rate have a negative effect on ISE-100 index returns. While money supply positively influences ISE-100 index returns. On the other hand, inflation rate and gold price do not appear to have any significant effect on ISE-100 index returns.

Kuwomu, (2011) in his research work examined the relationship between macroeconomic variables and stock market returns in Ghana using monthly data over period of January 1992 to December 2008. Macroeconomic variables evaluated in his study were consumer price index (as proxy for inflation), crude oil price, exchange rate and 91 day Treasury bill rate (as proxy for interest rate). He followed full information maximum likelihood estimation procedure to investigate the nature of relationship between macroeconomic variables and stock market returns. The empirical results revealed a significant positive relationship between stock market and Consumer price Index (inflation rate) and a negative significant influence from exchange rate and treasury rate. On the other hand, crude oil prices do not appear to have any significant effect on stock market returns in Ghana.

Alshogeathri (2011), in his dissertation investigated the long run and short run relationships between Saudi stock market returns and eight macroeconomic variables with further objective to determine the ability of these variables to predict the level and volatility of Saudi stock market returns. A wide range of Vector auto-regression (VAR) and generalized auto-regressive conditional heteroskedasticity (GARCH) models estimates were involved to interpret the result of the study. Also, a Johansen-Juselius co-integration test applied in the study indicated a positive long run relationship between the Saudi stock price index and the M2 money supply, bank credit, and the price of oil, and a negative long run relationship with the M1 money supply, the short term interest rate, inflation, and the U.S. stock market. An estimated vector error correction model (VECM) suggests significant unidirectional short run causal relationships between Saudi stock market returns and the money supply and inflation. The estimated speed of adjustment indicates that the Saudi stock market

converges to the equilibrium within half a year. Impulse response function analysis however shows no significant relationship between Saudi stock market returns and the macroeconomic variables. Forecast error variance decompositions suggest that 89% of the variation in Saudi stock market returns is attributable to its own shock, which implies that Saudi stock market returns are largely independent of the macroeconomic variables in the system. Finally, a GARCH-X model indicated a significant relationship between volatility of Saudi stock returns and short run movements of macroeconomic variables

Sohail and Hussain (2011), applied Johanson cointegration technique and VECM to explore long run and short run dynamic relationships between KSE100 index and five macroeconomic variables involving monthly data. The results revealed a positive long run impact of inflation, GDP growth, and exchange rate on KSE100 index, while money supply and three months treasury bills rate had negative impact on the stock returns. The VECM revealed that it takes more than four months for the adjustment of disequilibrium of the previous period. The results of variance decomposition disclosed that among the macroeconomic variables inflation explained more.

Hosseini et al (2011) investigated the relationships between stock market indices and four macroeconomics variables, namely crude oil price (COP), money supply (M2), industrial production (IP) and inflation rate (IR) in China and India. The period covered in their study was between January 1999 and January 2009. The Johansen-Juselius (1990) Multivariate Cointegration and Vector Error Correction Model analysis results indicate that there are both long and short run linkages between macroeconomic variable and stock market index in each of these two countries.

Samadi et al (2012) evaluated the impact of macroeconomic variables on stock returns index in Tehran Stock Exchange (Iran) using monthly data over the period 1379 to 1389. The macroeconomic variables examined include exchange rates, world gold prices, inflation, liquidity and oil price. Applying "GACH "economic model, results from their study showed that the gold price, inflation and exchange rate variables have influence on the stock return and oil price and liquidity had no impact on the stock returns in Iran.

With regard to Nigeria, a developing country in sub-Saharan Africa, the empirical research evidence meanwhile on macroeconomic variables and stock market is increasing gradually in number. Among them include Maku and Atanda (2009), who examined the long-run and short-run effect of macroeconomic variables on the Nigerian capital market between 1984 and 2007 using annual data. Co-integration test revealed that macroeconomic variables exert significant long-run effect on stock market performance in Nigeria. Also, Error Correction Model (ECM) employed showed that macroeconomic variables exert significant short-term shock on stock prices as a result of the stochastic error term mechanisms. Details of the empirical analysis further showed that the NSE all-share index is more responsive to changes in exchange rate, inflation rate, money supply and real output. While, all the incorporated variables which serve as proxies for external shock and other macroeconomic indicators have simultaneous significant impact on the Nigerian capital market both in the short and long-run.

Within the framework of a standard discounted model, Ajao and Oseyomon (2010) as cited in Ogbulu, Abaenewe and Nnamocha (2014), examined the predictive content of some leading economic indicators to future stock prices in Nigeria from 1984 – 2006. They applied ordinary least square (OLS) regression analysis to model the long term relationship between macroeconomic variables (GDP, inflation, interest rate, money supply, exchange rate and industrial production index) and stock prices (All shares index) in Nigeria. The estimation results of their study revealed a significant positive relationship between stock market returns and all these macroeconomic variables except the interest rate which had a negative relationship with stock prices.

Asaolu and Ogunmuyiwa (2011) investigated the impact of macroeconomic variables on Average Share Price (ASP) and goes further to determine whether changes in macroeconomic variables explain movements in stock prices in Nigeria. Various econometric analysis such as Augmented Dickey Fuller (ADF) test, Granger Causality test, Co-integration and Error Correction Method (ECM) were employed on time series data from 1986-2007 and the results revealed that a weak relationship exists between ASP and macroeconomic variables in Nigeria. Their findings further point that ASP is not a leading indicator of macroeconomic performance in Nigeria, albeit, a long run relationship was found between ASP and macroeconomic variables.

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Izedonmi and Abdullahi, (2011) empirically tested the performance of the Arbitrage pricing theory (APT) in the Nigerian Stock Exchange (NSE) for the period of 2000 up to 2004 monthly base. The study used 3 macroeconomic variables (Inflation, exchange rate and market capitalization) to investigate against 20 sectors of the NSE in order to observe the effects of inflation, exchange rate. The study employed the ordinary least square in analyzing the data. From the result it was observed that there are no significant effects of macroeconomic variables on stock returns in Nigeria.

Capital Market using quarterly data. The study adopted error correction modeling techniques that is based on estimation of both short run and long run dynamics in the endogenous model. Results from the estimated models revealed that macroeconomic policies relating to aggregate economic activity (measured by GDP),broad money supply (M2), interest rate (INT) and consumer price Index (CPI) are the most important macro factors explaining stock market returns in Nigeria.

III. RESEARCH METHODOLOGY

An econometric research design tailored towards investigating the effect of macroeconomic fundamentals on stock market prices in Nigeria is adopted. Time series data covering the period – 1985:1 to 2011:4 were used to pursue the objectives of this study.

The data were grouped into nine (9) categories – i.e. the All Share Index (ASI), Foreign Direct Investment (FDI), Foreign Exchange Rate(FXR), Trade Openness (TOP), Industrial Production(IDP output in Naira), Inflation Rate(INF), Crude Oil Prices (OPR), Interest Rate (INT) and Money Supply (MSP) in Nigerian economy.

The following statistical techniques and processes were followed in the analysis of the data. They include the standard ordinary least square regressions (OLS), Augmented Dickey Fuller (ADF) unit root test; the co-integration test; the error correction (ECM) tests and Impulse response function as well as Variance decomposition tests.

Model Specification:

The functional relationship between the dependent and independent variables in this study is expressed as follows:

$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_n + U_t$ ………………… (1), where

Y   is the dependent variable (ASI)

$X_1 - X_n$ are the independent or explanatory variables (Macroeconomic Fundamentals)

U   is an error, stochastic or disturbance term

I   is the ith observation

t   is the tth observation

$\beta - \beta_n$ are regression coefficients

β_0 constant term

The model equation is specified in a linear form as shown below based on the assumption that stock market price (proxied by All Share Index) characteristics can be explained by the values of the selected macroeconomic fundamentals in Nigeria. The model is estimated as thus:

$ASI = f$ (FDI, FXR, IDP, INF, INT, MSP, OPR, TOP)

$ASI_t = \beta_0 + \beta_1 FDI_t + \beta_2 FXR_{2t} + \beta_3 IDP_{3t} + \beta_4 INF_{4t} + \beta_5 INT_{5t} + \beta_6 MSP_{6t} + \beta_7 OPR_{7t} + \beta_8 TOP_{8t} + U_t$ ……………………… (2)

Results of Unit Root Tests:

Because of the time dependent feature of the data and the auto- regression revealed by level series multiple regressions, the variables were tested for unit root using ADF at the levels, first difference and second difference series in order to avoid further spurious regressions.

Table I: Unit Root Test Summary Results.

Variable	ADF test statistic	Critical values	Order of Integration
ASI	-4.609266	1% = -3.4952 5% = -2.8897 10%= -2.5816	Stationary at order1
FDI	-4.095400	1% = -3.4952 5% = -2.8897 10%= -2.5816	Stationary at order 1
FXR	-4.488505	1% = -3.4952 5% = -2.8897 10%= -2.5816	Stationary at order 1
IDP	-5.201946	1% = -3.4952 5% = -2.8897 10%= -2.5816	Stationary at order 1
INF	-3.885519	1% = -3.4952 5% = -2.8897 10%= -2.5816	Stationary at order 1
INT	-5.511746	1% = -3.4952 5% = -2.8897 10%= -2.5816	Stationary at order 1
MSP	-7.671077	1% = -3.4959 5% = -2.8900 10%= -2.5818	Stationary at order 2
OPR	-5.219239	1% = -3.4952 5% = -2.8897 10%= -2.5816	Stationary at order 1
TOP	-4.373461	1% = -3.4952 5% = -2.8897 10%= -2.5816	Stationary at order 1
ECM (Residual)	-3.567812	1% = -3.4946 5% = -2.8895 10%= -2.5815	Stationary at order 1

Sources: Research Computation from data

The results of the unit root test indicate that 8 variables ASI, FDI, FXR, IDP, INF, INT, OPR, and TOP are all integrated of order 1; except MSP that was integrated of order 2. Also the ECM (residuals) was integrated of order 1. Therefore, following Dritsakis and Adamopouslos (2004) as cited in Ogbulu et al (2014), these variables could be co‾integrated as well, if there are one or more linear combinations among the variables that are stationary.

Co-integration Test:

This cointegration test results above show that the variables are co-integrated in the long run hence there are five co-integrating equations at 5 percent (%) significance level. Therefore, long run relationship exists between stock price movements and macroeconomic fundamentals in Nigeria.

Table II: Johansen Co-integration Test Summary Results

Sample: 1985:1 – 2011:4

Included Observation: 103

Test Assumption: Linear deterministic trend in the data

Series: ASI, FDI, FXR, IDP, INF, INT, MSP, OPR &TOP

Eigen Value	Likelihood Ratio	5% Critical Value	1% Critical Value	Hypothesized No.0f CE(S)
0.705953	375.9071	192.89	204.95	None[**]
0.528450	249.8336	156.00	168.36	At most 1[**]
0.407510	172.4054	124.24	133.57	At most 2[**]

0.366994	118.4931	94.15	103.18	At most 3[**]
0.232879	71.39371	68.52	76.07	At most 4[*]
0.178256	44.08732	47.21	54.46	At most 5
0.125706	23.86573	29.68	35.65	At most 6
0.074008	10.02890	15.41	20.04	At most 7
0.020270	2.109284	3.76	6.65	At most 8

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

LR test indicates 5 co-integrating equation(s) at 5% significance level

This cointegration test results above show that the variables are co-integrated in the long run hence there are five co-integrating equations at 5 percent (%) significance level. Therefore, long run relationship exists between stock price movements and macroeconomic fundamentals in Nigeria.

Table III: ECM Parsimonious Regression Results

Dependent Variable: D(ASI)
Method Least Squares
  Date: O5/22/13   Time 13:02
Sample(adjusted) 1986:2 2011:4
  Included observations 103 after adjusting end points

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-132.4731	158.0637	-0.838099	0.4050
D(ASI(-1))	0.645349	0.089384	7.219920	0.0000
D(ASI(-2))	0.208420	0.099257	2.099797	0.0396
D(ASI(-4))	0.278858	0.098415	2.833483	0.0061
D(FDI)	-0.082516	0.014787	-5.580401	0.0000
D(FDI(-1))	-0.025953	0.013161	-1.971972	0.0528
D(FDI(-2))	0.067841	0.012230	5.547047	0.0000
D(FDI(-4))	-0.013787	0.013618	-1.012379	0.3151
D(FXR)	-41.40947	18.00201	-2.300269	0.0246
D(FXR(-1))	24.51843	18.74430	1.308047	0.1954
D(FXR(-2))	1 0.75936	17.96014	0.599069	0.5512
D(FXR(-3))	-18.06804	18.45653	-0.978951	0.3312
D(IDP)	-0.013650	0.065015	-0.209946	0.8344
D(IDP(-1))	0.081701	0.058958	1.385755	0.1705
D(IDP(-3))	-0 130028	0.036857	-3.527934	0.0008
D(IDP(-4))	0.045276	0.065853	0.687537	0.4942
D(INF)	6.163892	18.83350	0.327283	0.7445
D(INF(-1))	24.41206	19.01523	1.283817	0.2037
D(INF(-3))	-17.97245	18.88356	-0.951751	0.3447
D(INF(-4))	26.51143	18.47266	1.435171	0.1560
D(INT)	-31.08465	57.11839	-0.544214	0.5881
D(INT(-1))	34.76731	54.82005	0.634208	0.5281
D(INT(-3))	65.57762	55.93347	1.172422	0.2452
D(INT(-4))	49.12816	57.12992	0.859937	0.3929
D(MSP)	0.003471	0.000677	5.130157	0.0000
D(MSP(-1))	-0.001677	0.000880	-1.905433	0.0611
D(MSP(-2))	-0.000532	0.000571	-0.931472	0.3550
D(MSP(-3))	0.004403	0.000748	5.887040	0.0000
D(MSP(-4))	-0.001157	0.000702	-1.648216	0.1041
D(OPR)	1.531055	0.222740	6.873725	0.0000
D(OPR(-1))	-1.297706	0.317942	-4.081578	0.0001
D(OPR(-2))	-1.654476	0.259858	-6.366848	0.0000
D(OPR(-3))	0.582316	0.279583	2.082804	0.0411
D(OPR(-4))	-0.348181	0.255148	-1.364625	0.1770

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D(TOP)	256.4400	78.21523	3.278645	0.0017
D(TOP(-1))	38.55634	87.41078	0.441094	0.6606
ECM(-1)	-0.255983	0.043342	-5.906126	0.0000
R-squared	0.908666	Mean dependent var		200.3454
Adjusted R-squared	0.858848	S.D. dependentvar		2899.113
S.E. of regression	1089.202	Akaike info criterion		17.09765
Sum squared resid	78299891	Schwarz criterion		18.04411
Log likelihood	-843.5290	F -statistic		18.23959
Durbin-Watson stat	1.955976	Prob(F -statistic)		0.000000

*Researchers computations

The parsimonious error correction model analysis above is a step further on long run analysis which was carried out to capture the short run deviations of the parameter from the long run equilibrium by incorporating period lagged residuals. The result shows that Foreign Direct Investment (FDI), Foreign Exchange Rate (FXR), Industrial Production (IDP), Inflation Rate (INF), Interest Rate (INT), Money Supply (MSP), Oil Prices (OPR) and Trade Openness (TOP) accounted for 85.88% variation in stock market prices. In other words, the explanatory variables (macroeconomic fundamentals) in this model explained significant change in stock prices. The parsimonious model of ECM produced the expected negative sign and the estimate was statistically significant. The negative coefficient of the ECM confirms the existence of long run equilibrium relationship of the model. The coefficient of the ECM implies that the short run disequilibrium in stock prices is corrected at a speed of 25.60 percent quarterly once the equation is shocked.

Furthermore, the macro-economic fundamentals produced both positive and negative coefficients. Macroeconomic fundamentals that produced positive coefficients are inflation rate, money supply, oil price, as well as trade openness and this signifies positive relationship. Those produced negative coefficient include foreign direct investment, foreign exchange rate, industrial production and interest rate. This also signifies negative relationship. The FDI, FXR, MSP, OPR, and TOP are statistically significant in the model. While IDP, INF, INT, are statistically insignificant. The Durbin-Watson statistic improved to 1.96 approximately 2.0 showing no further spurious regression. The F-statistic with value of 18.23959 was also statistically significant at one percent indicating the fitness of the overall model and acceptability of the results. In line with the hypotheses stated, we confirm that there is significant relationship between macroeconomic fundamentals and stock price movements in Nigeria.

Impulse Response Function and Variance Decomposition:

Tables 3 and 4 as presented below show concerted effort to critically analyze the effect of macroeconomic fundamentals and stock market prices in Nigeria. This is done by employing the impulse response function (IRF) and the variance decomposition analytical technique to further examine specifically, the dynamic effects of Foreign direct investment (FDI), Foreign exchange rates (FXR), industrial production Index (IDP), inflation rate (INF), interest rate (INT) money supply (MSP) oil price (OPR) and trade openness (TOP) on stock prices (ASI) over the long run period used in this study. To be precise, the IRF captures the general dynamics of the responses to the shocks in the system while the VDC easily captures the relative degree of exogeneity and endogeneity of the variables in the VAR system. In the words Runkle (1987) and Gujarati and Porter (2009) as cited in Ogbulu and Torbira (2012) impulse response function (IRF) traces out the response of the dependent variable in VAR system to shocks in the error terms both in the current and future periods.

<div align="center">

Table IV: Impulse Response to One S.D. Innovations

</div>

Response of ASI:							
Period	A$I	FDI	FXR	lDP	INF	INT	MSP	OPR
1	1817.229	0.000000	0000000	0.000000	0.000000	0.000000	0.000000	0.000000
	(124.808)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(000000)
2	2471.217	456.3063	3566432	3589114	1454003	-149.1655	-5104136	-49.86188
	(232444)	(168.153)	(186.131)	(167.771)	(151.906)	(179568)	(156.807)	(138.949)
3	2501.949	657.9928	7471897	1128747	2397500	-457.6277	-8966757	-457.5817
	(355678)	(313.859)	(306.588)	(299322)	(292.723)	(291018)	(215.236)	(246093)

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4	2067.692	6931278	130.7986	1334471	278.6614	-655.2922	-1213.106	-626.8465
	(447.230)	(425.891)	(388428)	(375.166)	(405731)	(397716)	(297248)	(321906)
5	1486747	9402896	254.1715	1009.566	228.5087	-680.8202	-1300720	-5044919
	(496.851)	(492.599)	(411.831)	(395.942)	(479.013)	(468896)	(336079)	(358.532)
6	976.9701	1251785	379.8097	885.5414	1003551	-650.5341	-1302975	-239.7685
	(528.858)	(538.177)	(419873)	(399.778)	(525847)	(509732)	(360505)	(376344)
7	621.5285	1346.909	453.0267	9852128	-3978048	-6247534	-1174.650	5995766
	(547149)	(568.316)	(437.920)	(408936)	(565.532)	(529380)	(377.136)	(400.083)
8	423.0903	1262.311	4952560	950.1071	-1428486	-5654032	-945.9927	3673047
	(547515)	(584.116)	(448.619)	(419.886)	(594.519)	(532.030)	(387.597)	(431.372)
9	349.5821	1119291	5484042	801.2122	-202.8176	-470.6374	-6707252	5957127
	(535165)	(588754)	(450.027)	(421487)	(607.039)	(525937)	(398.030)	(458.201)
10	325.9114	9074590	6047073	768.0655	-2214434	-3904093	-401.1275	693.5193
	(519439)	(583.869)	(450454)	(4'16754)	(606.056)	(512.887)	(409.109)	(469.853)
11	278.8397	612.8106	647.6514	810.9291	-200.1119	-339.5762	-143.9797	687.5443
	(503450)	(572401)	(449482)	(410927)	(594.874)	(493557)	(417.526)	(466.324)
12	182.1949	312.9273	691.5804	766.9067	-1554845	-290.6637	88.18276	616.8325
	(486835)	(558.575)	(444471)	(401454)	(576.932)	(470407)	(421849)	(455364)
13	46.82792	7142721	754.1980	6474732	-1120750	-231.9875	274.8619	490.9853
	(469.662)	(543.500)	(436779)	(386.377)	(555343)	(443466)	(423.857)	(441.537)
14	-110 1822	-120.7282	828.6333	546.1764	-82.35627	-175.1468	4097896	327.5061
	(453366)	(527790)	(428.591)	(368408)	(530611)	(413454)	(425.585)	(425.931)
15	-268.9560	-2771799	9015257	456.5564	-66.97810	-122.6298	502.1557	162.3217
	(439761)	(514.161)	(421.008)	(352.554)	(503.974)	(384682)	(427.851)	(411.571)
16	-402.6550	-381.0106	9714507	3344629	-6597007	-66.24956	556.2905	1720048
	(429.991)	(505.056)	(414814)	(341525)	(478.699)	(361493)	(430525)	(401072)
17	-489.2778	-425.6959	1039389	2040341	-7941941	-7434681	570.5378	-1091900
	(424.146)	(500.686)	(410.631)	(335171)	(457.391)	(345716)	(432524)	(394128)
18	-523.1249	-430.6209	1099.270	109.9345	-102.9182	4375983	548.3591	-218.6105
	(421499)	(499818)	(408330)	(331848)	(440.970)	(337374)	(431 820)	(389626)
19	-510.1863	-410.5243	1145.399	49.39342	-130.1099	82.92112	4984326	-305.3339
	(421246)	(501089)	(407361)	(330 102)	(429350)	(335185)	(426784)	(386915)
20	-4594675	-3644668	1178614	3.122734	-1576863	111.6071	427.3440	-367.5700
	(422.959)	(503.898)	(407.347)	(328.727)	(421524)	(336745)	(417.279)	(385.051)

Source: Research Computations.

Table 3 above presents the impulse response estimates to one standard deviation innovations in each of the nine variables in the VAR system for 20 quarterly periods into the future. All figures in parenthesis are the standards errors of the estimates.

However, a close look at the estimates, it can be observed that there is a large response of each variable in the system to its own innovations. The Impulse response of ASI to own shock showed a positive value of 1817.229 and 2471 in the 1st and 2nd quarters respectively till 7th quarter and insignificant. In the 8th quarter, own shock became positive and significant with value 423.0903 till the 16th quarter, though the values in the 14th to 20th quarter were negative and became insignificant again from the 17th quarter. Put differently, from the figures there was immediate response of ASI to its own shock and this started to decline in the 5th quarter till the 20th quarter.

The impulse response of ASI to shocks coming from FDI, FXR, IDP, INF, INT, MSP, OPR and TOP in the 2nd quarter were (456.3063 (35.66432), (358.9114), (145.4003), (-149.1655), (-510.4136), (-49.86188) and (-197.3972) respectively. FDI remained positive from the 2nd quarter and insignificant till the 11th quarter, but became negative and significant to the 20th quarter. FDI responses to ASI continue to increase and after the 8th quarter begin to decline up to 20th quarter. FXR remained positive from the 2nd quarter to the 20th quarter. In the 2nd quarter, shock coming from FXR remained positive and significant till the 14th quarter and after became insignificant to the 20th quarter. IDP has a positive response in all the 20th quarters. It was initially statistically insignificant till the 15th quarter and became significant till the 20th quarter.

INF begins with positive shocks from the 2nd quarter to the 6th quarter and thereafter the shocks became negative and significant to the 20th quarter.

INT maintained negative shock on ASI till the 17th quarter and became positive from the 18th quarter. All the values were statistically significant. MSP shock was estimated to be negative and statistically insignificant from the 2nd quarter to the 8th quarter; became positive and significant from the 10th – 14t^{h} quarter, though positive, remained insignificant to the 20th quarter.

OPR shock was both negative and positive and significant from the 2nd to 8th quarters throughout the 20 quarters. It was negative initially and became positive from the 7th quarter and returned to negative from 17th quarter.

Shocks emanating from TOP were negative from the 2nd to 4th quarter and became positive thereafter to the 20th quarter. The values were almost statistically insignificant throughout the quarters.

Table V: Variance Decomposition Results

Variance Decomposition of ASI								
			FDI	FXR	lDP	INF	INT	MSP
Period	S.E.	ASI:						
1	1817.229	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	3176.934	93.22623	2.062987	0.012602	1.276316	0.209466	0.220455	2.581239
3	4415.164	80.37986	3.289118	0.035165	7.196628	0.403317	1.188455	5.460999
4	5343.210	69.85783	3.928547	0.083934	11.15135	0.547370	2.315530	8.883306
5	5932.222	62.95528	5.699543	0.251671	11.94309	0.592447	3.195673	12.01448
6	6408.191	56.27487	8.700143	0.566960	1214445	0.532233	3.769136	14.43030
7	6836.496	50.27105	11.52575	0.937263	12.74721	0.471019	4.146781	15.63105
8	7190.722	45.78639	13.49985	1.321563	13.26807	0.465220	4.366551	15.85970
9	7478.426	42.54975	14.72121	1.759585	13.41466	0.503665	4.433093	15.46729
10	7716.841	40.13955	15.20848	2.266599	13.58920	0.555371	4.419353	14.79651
11	7905.628	38.36977	15.09166	2.830773	14.00011	0.593236	4.395307	14.13144
12	8050310	37.05420	1470517	3.467943	14.40894	0.609407	4.369103	13.64005
13	8167.549	36.00136	14.29369	4.221781	14.62668	0.610867	4.325249	13.36453
14	8275.610	35.08503	13.94412	5.114840	14.68277	0.604921	4.257823	13.26299
15	8385.865	34.27138	13.68911	6.136968	14.59563	0.595499	4.167982	13.27510
16	8502.930	33.55845	13.51556	7.274430	14.35123	0.585234	4.060076	13.34010
17	8627.343	32.91919	13.37204	8.517589	13.99623	0.576951	3.943896	13.39547
18	8756.173	32.31456	13.22330	9.844819	13.60317	0.573913	3.831194	13.39638
19	8884.334	31.71874	13.05806	11.22502	13.21662	0.578922	3.730168	13.32742
20	9007.459	31.11772	12.86724	12.63238	12.85778	0.593850	3.644241	13.19065
Research computations								

OPR	TOP
0.000000	0.000000
0.024633	0.386070
1.086851	0.959603
2.118410	1.113719
2.441845	0.905977
2.232575	1.349336
1.969289	2.300576
2.040968	3.391676
2.521483	4.629273
3.175763	5.849173
3.782259	6.805444
4.234626	7.510557
4.475300	8.080546
4.515805	8.531706
4.435308	8.833014
4.314431	9.000484
4.206912	9071729
4.146362	9066236
4.145711	8.999338
4.199672	8.896471

The results of variance decomposition are as displayed on table 4 above. The results revealed the forecast error in each variable that could be attributed to innovations in other variables over twentieth quarterly periods. In our model, the forecast error variances of all the variables in the system were largely due to their own innovations, although over time the innovations of other variables showed a tendency to increase gradually.

The results of the variance decomposition of ASI indicated that a large percentage of forecast error was due to its own innovations from the 1st quarter to 6th quarter in a declining sequence from 100% to 56%. During the 10th quarter, it is 40% and about 31% on the 20th quarter. To be precise, "own shocks" (ASI) represents the dominant source of variation in the forecast errors of the variables. Another meaning that can be drawn from these innovations is that Nigerian Stock Exchange seems to be largely independent of the macroeconomic system in the short-run. The relative importance of past stock market prices in determining current stock prices declined from 100% in the 1st quarter to 31.12% in the 20th quarter. This means that past stock prices can be used to predict future prices.

Therefore, only variations from FDI, FXR, IDP, MSP and TOP were seen to be significant factors in the changes on stock prices in the long run. Inflation rate, interest rate and oil prices are relatively insignificant in the determination of future prices in the model.

IV. DISCUSSION OF FINDINGS

The co-integration test overall results show that the variables are co-integrated in the long run hence there are five co-integrating equations at 5 percent (%) significance level. Therefore, long run relationship exists between stock market prices and macroeconomic fundamentals. This corroborates the works of Goswami and Jung (1997), Liu and Shrestha (2008), Maku and Atanda (2009), Asaolu and Ogunmuyiwa (2010) and Adeleke and Gbadebo (2012) as well as Masuduzzaman (2012).

This study through the parsimonious error correction model revealed six variables that have significant relationship either positive or negative with the stock market prices. Those that have significant positive relationship include; inflation rate, money supply (M2) oil prices and trade openness. And those that have negative relationship include foreign direct investment and foreign exchange rate.

The positive relationship found between inflation and stock market prices finds support from the fisher hypothesis as in Asogu (1991) and Fama and Schwert (1977), Ogbulu (2010), Maku and Atanda (2009) and Ibrahim and Agbaje (2013). On positive relationship also found between money supply and stock market prices aligns with the findings of Maku and Atanda, Adeleke and Gbadebo (2012) for Nigerian economy. It also aligns with Bulmash and Trivoli (1991), Mukherjee and Naka (1995), and Liu and Shrestha (2008), but deviates from Mohammad et al (2009). This study found significant positive relationship between oil prices and stock market prices. This result finds support from the works of Papapetrou (2001), Basher and Sadorsky (2006) and Arouri et al (2010), but differ from Adebiyi et al (nd) and Jones and Kaul (1996) that found negative relationship. In the case of trade openness on stock prices, this study found positive relationship between the variables. This result agrees with the findings of Law and Demetriades (2006). On the other hand and in respect with the negative relationship found between Foreign direct investment and stock market prices, the result corroborates the findings of Omoniyi and Omobitan (2011), and Saibu (2012) and differ from Claessens et al (2011), Errunza (1983), Soumari and Tchana (2011), Raza et al (2012) and Adam and Tweneboah (2009).

The negative relationship found between the stock market prices and the industrial production (IDP) though insignificant, is worrisome in the context of Nigeria. The a priori expectation is a positive relationship. The result obtained is attributed to high cost of energy generation which affects the performance of the industrial sector. Abaenewe (2014) citing Ayodele (1998) opined that inadequate power supply has affected the industrial sector in their production process in Nigeria.

V. CONCLUSION

The central objective of this study is to investigate the effect of macroeconomic fundamentals on the stock market prices in Nigeria. It is no longer in doubt that stock market investment, its performance and indicators reflect economic performance of a nation. What this means is that there is a linkage between stock market performance and economic indicators in the long- run. The significant negative relationship between FDI and stock prices obtained in this study is a clear indication that the recent financial and trade policies have not fully diffused into the Nigerian stock market.

This study therefore concludes that good macroeconomic policies are very vital to the growth of the stock market and its investment decisions.

VI. RECOMMENDATIONS

i. Nigerian government should pay attention to foreign direct investment policy and maintain policies that will encourage more FDI attraction which will help to expand the the stock market activity and the industrial sector.

ii On trade openness, which was revealed to be having positive relationship with stock prices, the government should maintain its policy on trade liberalization and build more ports and free zones to encourage international trade.

iii. Investors in the NSE should always watch out for these macroeconomic fundamentals that were seen to significantly impact on stock prices in their investment decisions.

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APPENDICES

Table VI: Time series data on the variables (1985:1-2011:4)

YEAR	ASI	FDI	FXR	IDP	INF	INT	MSP(M2)	OPR	TOP
		₦'M	$ = ₦	₦'M	%	%	₦'M	₦	(X + M/GDP)
1985Q1	112.3	110	0.8475	22294.6	21.7	10	23045.9	23.86	0.09
Q2	116.1	106.05	0.8898	20824.8	3.2	10	23916.1	25.05	0.09
Q3	117	101	0.9026	19781.2	-2.8	10	25641	25.41	0.1
Q4	123.7	117.05	0.9351	22196.7	-0.3	10	26277.6	26.32	0.09
1986Q1	138.4	180.25	1.0002	21776.3	-1.9	10	26591	14.16	0.07
Q2	145.9	185.3	1.0575	20272.4	0.3	10	26110	14.97	0.07
Q3	152.3	181.15	2.4131	19242.5	10.7	10	29509.2	34.17	0.07
Q4	162.7	189.1	3.6117	21569.7	12.7	10	27389.8	51.37	0.07
1987Q1	164.9	590.12	3.7566	21271.8	14.4	12.75	26552.3	69.61	0.23
Q2	169.3	633.23	4.0392	19963.1	11	12.75	27463.3	74.85	0.24
Q3	193.8	650.15	4.0321	18943.8	6.3	12.75	29101.6	74.71	0.24
Q4	179.7	680.3	4.2438	21417.7	9.5	12.75	33667.4	78.64	0.23
1988Q1	192.6	400.25	4.2509	21971.1	37.8	17.75	36737.7	64.93	0.23
Q2	201.8	450.8	4.168	20845.2	58.3	12.75	39241	67.56	0.24
Q3	217.7	420.75	4.6361	19754.5	66.7	12.75	40228.1	66.9	0.25
Q4	231.2	438.4	5.0919	22575.7	60.4	12.75	45446.9	68.38	0.24
1989Q1	249.2	3509.35	7.3361	24509	52.2	18.5	49399.3	128.09	0.37
Q2	257.9	3438.5	7.4777	22999.6	57.8	18.5	48124.8	139.3	0.38
Q3	276.7	3480.3	7.246	21815.7	46.9	18.5	44216	128.85	0.39
Q4	311.6	3449.25	7.5064	24647.3	45.9	18.5	47055	145.32	0.37
1990Q1	349.4	1150.15	7.9006	30621.6	21.3	18.5	50225.4	156.83	0.56
Q2	387.2	1190.85	7.9408	28255.1	4.5	18.5	48950.5	126.74	0.58
Q3	459.1	1142.86	7.963	26862.3	3.6	18.5	56912.9	211.02	0.6
Q4	498.9	1200.14	8.3469	29852.4	3	18.5	68662.5	271.61	0.58

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1991Q1	562.2	1729	9.425	28112.7	6	14.5	71028.6	195.57	0.78
Q2	641.9	1708.1	9.4704	26434.5	10.1	14.5	80137.5	177.95	0.8
Q3	712.5	1740	10.8723	25090.7	14.5	14.5	81204.1	216.14	0.82
Q4	769.8	1739	9.8702	28443.1	20.1	14.5	87487.6	202.44	0.79
1992Q1	814.6	3515.15	12.4665	28753	29.2	17.5	102685.8	227.01	1.2501
Q2	858.4	3665	18.4744	26822.3	42.7	17.5	114891	371.7	1.291
Q3	957	3620.65	18.7563	25475.6	53.9	17.5	121630.6	377.75	1.32
Q4	1094	3662.3	19.4965	28631.7	51.2	17.5	129085.5	354.64	1.28
1993Q1	1121.3	7300.2	22.329	28790.7	53.3	26	146571.9	406.16	1.36
Q2	1173.9	7415	22.103	26739.5	57.6	26	159451.4	403.16	1.4
Q3	1197.9	7500.1	21.8861	25405.4	56.5	26	176119.3	360.9	1.44
Q4	1423.1	7445	21.8861	28408.7	60.2	26	198479.2	329.82	1.4

Table 4.1 cont'd

YEAR	ASI	FDI N'M	FXR $ = N	IDP N'M	INF %	INT %	MSP(M2) N'M	OPR N	TOP X + (M/GDP)
1994Q1	1724.8	5555.6	21.8861	28055.5	55.4	13.5	208201.8	305.31	1.3
Q2	1880.1	5587.8	21.8861	26103.4	45	13.5	228264.8	351.27	1.34
Q3	1932.1	5515.2	21.8861	24802.3	54.4	13.5	242799.2	367.03	1.37
Q4	2115.9	5570.6	21.8861	27786.4	71	13.5	266944.9	362	1.34
1995Q1	2405.4	18200.16	21.8861	28645.9	79.2	13.5	254523.1	369.87	5.89
Q2	3157.6	20555.14	21.8861	26445.2	87.9	13.5	290668.7	397.01	6.08
Q3	4612.3	18600.18	21.8861	25143.8	75.2	13.5	301913.4	354.55	6.21
Q4	5085.1	18585.12	21.8861	27927.7	55.7	13.5	318763.5	371.84	6.08
1996Q1	5193.9	24823.35	21.8861	30619.2	44.3	13.5	328714.7	407.74	6.18
Q2	5638.4	30500	21.8861	28108.3	30.5	13.5	354011.5	426.34	6.39
Q3	6187.4	32650.25	21.8861	26739.2	26.6	13.5	351911.3	449.54	6.53
Q4	6800.8	23321.4	21.8861	29525.5	19.8	13.5	370333.5	506.88	6.4
1997Q1	7843	27013.1	21.8861	31071.1	13.8	13.5	394976.4	463.33	6.71
Q2	8593.8	28300.3	21.8861	28495.9	13.8	13.5	410565.5	395.04	6.93
Q3	7653.9	26900.2	21.8861	27111.4	7.5	13.5	425473.7	405.33	7.07
Q4	6463.7	28239	21.8861	29898.4	8.2	13.5	429731.3	409.71	6.95
1998Q1	6386.8	19950.05	21.8861	31565.3	8	13.5	468043.3	308.16	4.95
Q2	6013.3	23200.15	21.8861	28787.7	5.3	13.5	477287.8	290.65	5.12
Q3	5770.1	20350.02	21.88611	27429.7	7.6	13.5	527028.8	272.04	5.23
Q4	5677.3	17250.18	21.8861	30087.7	10.6	13.5	525637.7	242.72	5.15
1999Q1	5442.5	19990.23	86.322	29312.5	14.1	20	609030.1	965.08	6.41
Q2	5536.4	26500.17	93.2533	27009	10.4	20	634937.4	1437.96	6.58
Q3	4933.8	24870	94.88	25716.8	2.3	18	655615.4	1971.61	6.71
Q4	5144	21432.1	96.3181	28520.2	0.5	18	699733.7	2335.71	6.6
2000Q1	5891.6	29100.05	99.8754	32486.8	-1.9	13.5	795529	2700.63	8.65
Q2	6151.6	30600.1	101.1174	29738.6	2.7	13.5	904154	2707.92	8.91
Q3	7197.9	35300.05	103.5251	28330	11.7	13.5	962743.8	3140.95	9.1

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Q4	7563.6	20752	103.903	31201.1	15.7	13.5	1036080	3081.76	8.96
2001Q1	9044.8	30120.25	110.6215	34299.2	18.1	13.5	1274030	2856.25	8.82
Q2	10227.6	35850.15	113.2472	31377.1	20.7	13.5	1263161	3044.08	9.03
Q3	10393.2	32720.4	111.7137	29881.3	18.9	16.73	1327625	2858.75	9.19
Q4	11074.7	33790.2	112.1908	32860.9	17.8	13.5	1315869	2174.26	9.1

Table 4.1 cont'd

YEAR	ASI	FDI	FXR	IDP	INF	INT	MSP(M2)	OPR	TOP
		₦'M	$ = ₦	₦'M	%	%	₦'M	₦	(X + M/GDP)
2002Q1	10815.4	56306.2	114.7595	32504.4	18	20.5	1423346	2427.16	7.58
Q2	11775.5	60348.25	117.0562	30197.3	11.7	20.5	1502055	2934.6	7.47
Q3	12199.2	52800.15	125.9757	28727.3	12.6	18.5	1605419	3406.38	7.49
Q4	11737.3	55770.2	126.756	32124.5	9.8	16.5	1599495	3599.87	7.53
2003Q1	13499.6	59953	127.1828	40022.5	7.9	16.5	2124316	3997.35	10.86
Q2	14046.6	62597.15	127.6231	36615.4	10.3	16.5	1981069	3334.79	10.78
Q3	15296.2	69438.15	128.0807	34871.7	14.5	15	1985192	3642.61	10.79
Q4	19397.2	66400.3	134.5395	38369.1	22.9	15	2106239	3956.81	10.86
2004Q1	23468.9	64900.15	135.2255	35936	23.2	15	2113281	4320.45	14.37
Q2	27470.4	60056.2	133.0903	37870.6	17.1	15	2156836	4723.37	13.32
Q3	24525.4	68700.05	132.8244	38376.3	10.9	15	2263588	5524.17	11.57
Q4	23489.9	54568.2	132.8614	44304	10.3	15	2568065	5867.16	11.22
2005Q1	21904.7	72588.2	132.8556	34762	12.3	13	2691297	6363.78	20.92
Q2	21669.5	79220.05	132.8471	35714.5	17.8	13	2772993	6908.05	19.51
Q3	23160.8	70400	132.3021	41104.4	26.2	13	2814846	8361.49	16.32
Q4	24771.8	80545.15	130.5854	47576.5	15	13	2792434	7661.44	15.78
2006Q1	23619.7	140458.3	129.5291	34982.3	11.2	13	3307668	8074.84	20.37
Q2	24787.7	160200.4	128.4571	33806.2	10.5	13	3911822	9090.91	19.34
Q3	31177.2	144600.1	128.3329	39449.2	4.3	13	4320672	9143.72	16.12
Q4	32821.8	179262.1	128.2869	46927.8	7.5	10	4027902	7911.45	15.47
2007Q1	40323.8	189345	128.2324	34129.4	6.7	10	4798317	7454.15	22.64
Q2	49461.6	186261.1	127.65	32603.7	5.1	8	5116247	9116.76	21.53
Q3	51180.6	190362	126.5813	38745.5	4.4	8	5672622	9845.49	17.76
Q4	54127.3	193412.3	121	46221	5.4	9	5809827	10978.33	16.63
2008Q1	60953	239406.2	118.0362	32177	8.1	9.5	7998233	11651.35	26.67
Q2	58106.3	242886	117.8388	31777.2	10	10.25	7948369	15006.77	25.12
Q3	49038.7	245662.7	117.7449	37343.8	13.1	9.75	8960288	14189.44	20.63
Q4	33600.8	243589	120.6467	45221.6	14.8	9.75	9166835	6996.3	19.37
2009Q1	21680.9	318454	146.8824	29889	14.3	9.75	8997817	6912.28	23.33
Q2	26017.6	314320.3	147.7572	32827.5	12.5	8	9077027	9033.87	21.41
Q3	23453.6	317292.5	150.9162	38170.3	10.8	6	9458490	10601.86	17.61
Q4	21214.1	323549	150	46628.5	12	6	1.08E+07	11574	16.48

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Table 4.1 cont'd

YEAR	ASI	FDI ₦'M	FXR $ = ₦	IDP ₦'M	INF %	INT %	MSP(M2) ₦'M	OPR ₦	TOP (X + M/GDP)
2010Q1	23848.73	229313.8	149.9433	31698.04	14.8	6	1.10E+07	11643.1	29.88
Q2	26006.83	226432.7	150.13	34870.27	14	6	1.08E+07	11941.34	27.42
Q3	24387.67	221860.4	150.47	40937.4	13.43	6.25	1.12E+07	11801.36	22.52
Q4	24859.13	228123.9	150.65	50399.29	12.67	6.25	1.15E+07	13163.8	20.97
2011Q1	25822.9	292627.2	152.04	31916.99	12	7.5	1.17E+07	16272.84	35.66
Q2	25296.17	310565.3	154.3933	35939.79	11.3	8	1.22E+07	18524.11	32.53
Q3	21899.2	350276.4	153.2666	41526.24	9.67	9.25	1.26E+07	17654.78	26.79
Q4	20773.98	406839.1	155.7333	51591.41	10.43	12	1.33E+07	17675.73	24.84

Sources: CBN Statistical Bulletins, other CBN publications and CBN quarterly reports (2009, 2010 & 2011), OPEC publications (2010 & 2011), National Economic Planning Commission publications including quarterly reports (2009, 2010 &2011) NBS bulletins and other NBS publications (2009, 2010 & 2011), as well as Nigerian Stock Exchange (NSE) fact book (2011).