Does Macroeconomic Indicators exert shock on the Nigerian Capital Market?

Maku, Olukayode E. and Atanda, Akinwande A.

Olabisi Onabanjo University, Ago-Iwoye, Nigeria, Datatric Research Consulting, Nigeria

25 September 2009

DOES MACROECONOMIC INDICATORS EXERT SHOCK ON THE NIGERIAN CAPITAL MARKET?

BY

MAKU OLUKAYODE, E.

Department of Economics,

Olabisi Onabanjo University, Nigeria.

Email: kaymarks73@yahoo.co.uk

Phone number: +2348058871310

AND

ATANDA AKINWANDE, A.

Datatric Research Consult, Nigeria.

Email address: tripplehay777@yahoo.com

Phone number: +2348051977385

ABSTRACT

This study examines the long-run and short-run effect of macroeconomic variables on the Nigerian capital market between 1984 and 2007. The properties of the time series variables are examined using the Augmented Dickey-Fuller (ADF) test and most of the variables have a unit root at level. The Augmented Engle-Granger Cointegration test revealed that macroeconomic variables exert significant long-run effect on stock market performance in Nigeria. Also, the employed Error Correction Model (ECM) showed that macroeconomic variables exert significant short-term shock on stock prices as a result of the stochastic error term mechanisms. However, the empirical analysis 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.

INTRODUCTION

The Nigerian economy has over the years and under various administrations been subjected to series of social, political and economic policies and reforms. In the pre-1970 era, the economy was basically agrarian & the various regional governments then largely achieved food security. The need to encourage private capital for development was realized early enough with the establishment of the Nigerian Stock Exchange (NSE) (formally called the Lagos Stock Exchange) in 1961 to develop the capital market.

It is a know fact that the investment that promotes economic growth and development requires long term funding, far longer than the duration for which most savers are willing to commit their funds. The capital markets generally, are believed to be the heart beat of the economy given their ability to respond almost instantaneously to fundamental changes in the economy. It encourages savings and real investment in any healthy economic environment. Aggregate savings are channeled into real investment that increases the capital stock and therefore economic growth of the country. Given this attribute they make it possible for the discerning minds to feed the impulse of such an economy. The Nigerian Stock Exchange may not be an exemption as it is expected to be influenced by macroeconomic shocks, which are outside the realm of capital market. The external shocks are the macroeconomic fundamentals or indicators that are expected to cause variation in the stock prices movement. The changes are

often reflected by the magnitude and direct of movement in stock prices, market index and liquidity of the market.

Over the past few decades, the interaction of the capital market and the macroeconomics variables has been a subject of interest among financial economists and practitioners. It is often argued that stock prices are determined by some fundamental macroeconomic variables such as the interest rate, Gross Domestic Product (GDP), exchange rate, inflation and money supply. Anecdotal evidence from the financial press indicates that investors generally believe that monetary policy and macroeconomic events have a large influence on the volatility of the stock price. This implies that macroeconomic variables could exert shocks on share returns and influence inventors' investment decision. This motivates many researchers to investigate the relationships between share returns and macroeconomic variable (Christopher et al., 2006).

The prevailing financial crisis and the sensitiveness of the capital market to external shock resulting from the global financial meltdown have affected the performance of the macroeconomic fundamentals in the economy. The Nigerian economy has experienced mixed macroeconomic performance over the years. Likewise, the Nigerian Stock Exchange also have undergone series of reforms to measure up with other emerging markets in the world and increase the influx of foreign investors. This is done to promote the key sectors of the economy, make the market accessible for raising capital and attractive to both foreign and local investors. Given that, the macroeconomic variables have taken different

values over the years, alongside the stock market price index, can it be said that there exists any relationship between the key macroeconomic variables and stock market index in Nigeria? This is the thrust of this study i.e. to investigate the long and short term relationship between the Nigerian Stock Exchange (NSE) all share index and the key macroeconomic variables, as well as analyse the implication of economic shocks on the share prices.

The remaining part of this paper is divided into four sections. Section 2 discusses literature review and theoretical framework. Section 3 highlights the methodology employed in carrying out the research. Section 4 analyses the result while the last section concludes and proffers policy recommendations.

Section 2

2.0   LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1   THEORETICAL FRAMEWORK

2.1.1 FINANCIAL ECONOMIC THEORY

One way of linking macroeconomics variables and stock market returns is through arbitrage pricing (APT) (Ross, 1976), where multiple risk factors can explain asset returns. While early empirical papers on APT focused on individual security returns, it may also be used in an aggregate stock market framework, where a change in a given macroeconomic variable could be seen as reflecting a change in an underlying systemic risk

factor influencing future returns. Most of the empirical studies on APT theory, linking the state of the macro-economy to stock market returns, are characterized by modeling a short run relationship between macroeconomic variables and the stock price in terms of first difference, assuming trend stationarity.

An alternative, but not inconsistent approach is the discounted cash flow or present value model (PVM). This model relates the stock price to future expected cash flows and the discount rate of these cash flows. Again, all macroeconomic factors that influence future expected cash flow or the discount rate by which these cash flows are discounted should have an influence on the stock price. The advantage of the PVM model is that it can be used to focus on the long run relationship between the stock market and macroeconomic variables. Campbell and Shiller (1988) the relationship between stock prices, earnings and expected dividends. They find that a long term moving average of earnings estimate predict dividends and the ratio of this earning variables to current stock price is powerful in predicting stock returns over several years. They conclude that these facts make stock prices and returns much too volatile to accord with a simple present value model.

2.2   STOCK PRICES BEHAVIOUR: SCHOOLS OF THOUGHT VIEWS

There are five schools of thought on stock price behaviour. These are the fundamentalist schools, the technical school, the random walk hypothesis school, the Bahavioural School of finance and macro-economic hypothesis school.

FUNDAMENTALIST VIEW

To the fundamentalist, the value of a corporation's stock is determined by expectations regarding future earnings and by the rate at which those earnings are discounted. The fundamentalists apply present value principles to the valuation of corporate stock, using dividends, earnings, assets and interest rate to establish the price of stock.

TECHNICALIST VIEW

The technical school on the other hand, opposes the fundamentalists' arguments, and claims that stock price behaviour can be predicted by the use of financial or economic data. They submit that stock prices tend to follow definite pattern and each price is influenced by preceding prices, and that successive prices depend on each other. According to Smith (1990), technical analysts engage themselves in studying changes in market prices, the volume of trading and investors' attitude.

RANDOM-WALK HYPOTHESIS

Both the "technical" and "fundamental" analyses have been challenged by scholars who subscribe to the random-walk hypothesis, which sees stock price movements in terms of a probability distribution of different possible outcome. The random-walk hypothesis is based on efficient market assumption that investors adjust security rapidly to reflect the effect of new information. Believers in the efficient capital market hypothesis argue that stock prices are essentially random and therefore, there is no chance for profitable speculation in the stock market. An interesting feature of random walk is the persistence of random shocks.

Empirical test of the random-walk hypothesis have been carried out by scholars like Moore (1962) ad Fama (1965). These scholars independently tested the statistical randomness of successive changes in stock prices. Their findings showed insignificant departures from randomness and were both inconclusive and insufficient.

BEHAVIOURAL VIEW

The behavioural school of finance holds that market might fail to reflect economic fundamentals under three conditions. When all three apply, the theory predicts that pricing biases in financial markets can be both significant and persistent. The first behavioural condition is irrational behaviour. It holds that investors behave irrationally when they don't correctly process all the available information while forming their expectations of a company's future performance. The second is systematic patterns of behaviour, which hold that even if individual investors decided to buy or sell without consulting economic fundamentals, the impact on share prices would be limited.

Lastly, limits to arbitrage in financial markets ascertain that when investors assume that a company's recent strong performance alone is an indication of future performance; they may start bidding for shares and drive up the price. Some investors might expect a company that surprises the market in one quarter to go on exceeding expectations (Business Day, February 19, pg. 9, 2009).

MACROECONOMIST VIEW

The usual method of using factor analysis approach to determine the factors affecting asset returns, some scholars have measured

macroeconomic factors to explain stock return and found that changes in interest rate are associated with risk premia. They interpreted the observation to be a reflection of changes in the rate of inflation, given the finding of Fama (1977) that changes in the rate of inflation are fully reflected in interest rates (Emenuga, 1994).

The macroeconomic approach attempts to examine the sensitivity of stock prices to changes in macroeconomic variables. The approach posits that stock prices are influenced by changes in money supply, interest rate, inflation and other macroeconomic indicators. It employs a general equilibrium approach, stressing the interrelations between sectors as central to the understanding of the persistence and co-movement of macroeconomic time series, based on the economic logic, which suggests that everything does depend on everything else.

2.2 MACROECONOMIC SHOCKS AND STOCK MARKET RETURNS: EMPIRICAL REVIEW

The issue of causality between macroeconomic variables and share returns over the years have stem up controversies among researchers based on varying findings. Theoretically, macroeconomic variable are expected to affect returns on equities. But over the years the observed pattern of the influence of macroeconomic variables (in signs and magnitude) on share returns varies from one study to another in different capital markets.

A brief overview of studies using macroeconomic factor models is presented in this section. The findings of the literatures suggest that there is a significant linkage between macroeconomic indicators and stock return in the countries reviewed. The review is classified into three: developed, developing and Nigeria studies.

EXPERIENCE FROM DEVELOPED COUNTRIES

The first group of the studies review covers developed countries.

In an elaborate search for the macroeconomic variables that have effect on stock returns, Chen, Roll and Ross (1986) identified interest rate, expected and expected rates of inflation and the spread between high and low-grade bond as the relevant variables. Chen, Roll and Ross (1986) test the multifactor model in the USA by employing seven macroeconomic variables. They find that consumption, oil prices and the market index are not priced by the financial market. However, industrial production, changes in risk premium and twists in the yield curve are found to be significant in explaining stock returns.

Chen (1991) performed the second study covering the USA. Findings suggest that future market stock return could be forecasted by interpreting some macroeconomic variables such as default spread, term spread, one-month t-bill rate, industrial production growth rate, and the dividend - price ratio.

Mukherjee and Naka (1995) use vector error correction approach to model the relationship between Japanese stock return and macroeconomic

variables. Cointegration relation is detected among stock prices and the six macroeconomic variables, namely exchange rate, inflation rate, money supply, money supply, real economic activity, long-term government bond rate and call money rate.

A recent study by Flannery and Protopapadakis (2002) reevaluate the effect of some macroeconomic series on US stock. Among these series six macro variables, namely, balance of trade, housing starts, employment, consumer price index, M1 and producer price index seem to affect stock returns. On the other hand two popular measure of aggregate economic activity (real GNP and industrial production) do not appear to be related with stock returns.

EXPERIENCE FROM DEVELOPING COUNTRIES

Second group of studies investigate the relationship between stock returns and macroeconomic variables for some developing countries.

Mookerjee and Yu (1997) investigate the effect of macroeconomic variable on Singapore stock market. Results suggest that stock prices are cointegrated with both measures of the money supply (M1 and M2) and aggregate foreign exchange reserves. However stock prices and exchange rates do not have a long-term relationship.

Know and Shin (1999) examines the role of macroeconomic variables in estimating Korean stock prices. Stock indices seem to be cointegrated with the combination with the combination of the four macroeconomic

variables namely trade balance, foreign exchange rate, industrial production and money supply.

Ibrahim and Aziz (2003) investigate the relationship between stock prices and industrial production, money supply, consumer price index, and exchange rate in Malayasia. Stock prices are found to share positive long-term relationships with industrial production and CPI. One the contrary, he found that stock prices have a negative association with money supply and (Ringgist) exchange rate.

Serkan (2008) investigates the role of macroeconomic factors in explaining Turkish stock returns. He employed macroeconomic factor model from the period of July 1997 to June 2005. The macroeconomic variables consider are growth rate of industrial production index, change in consumer price index, growth rate of narrowly defined money supply, change in exchange rate, interest rate, growth rate of international crude oil prices and return on the MSCI World Equity Index. He found that exchange rate, interest rate and world market return seem to affect all of the portfolio returns, while inflation rate is significant for only three of the twelve portfolios. Also, industrial production, money supply and oil prices do not appear to have significant effect on stock returns in Turkey.

Adam and Tweneboah (2008) examined the impact of macroeconomic variables on stock prices in Ghana using quarterly data from 1991 to 2007. They examined both the long-run and short-run dynamic relationships between the stock market index and the economic variables-inward foreign direct investment, treasury bill rate, consumer price index, average oil

prices and exchange rates using cointegration test, Vector Error Correction Model (VECM). They found that there is cointegration between macroeconomic variable and stock prices in Ghana indicating long-run relationship. The VECM analysis shows that the lagged values of interest rate and inflation have a significant influence on the stock market. Also, the inward foreign direct investments, oil prices, and the exchange rate demonstrate weak influence on price changes.

NIGERIAN EXPERIENCE

Attempt has been made by Nigerian researchers to investigate the relationship between macroeconomic variables and stock prices. Akinnifesi (1987) used a disaggregated analysis to investigate the relationship between exchange rate and stock prices fluctuation. He found that a depreciating Naira exchange rate increases stock prices.

Soyode (1993) made an attempt to test the association between stock prices and macroeconomic variables as exchange rate, inflation and interest rate. He found that the macro economic variables are cointegrated with stock prices are consequently related to stock returns.

Amadi, Oneyema and Odubo (2000) employed multiple regression to estimate the functional relationship between money supply, inflation, interest rate, exchange rate and stock prices. There study revealed that the relationship between stock prices and the macroeconomic variables are consistent with theoretical postulation and empirical findings in some countries. Though, they found that the relationship between stock prices and inflation does not agree with some other works done outside Nigeria.

Nwokoma (2002), attempts to establish a long-run relationship between the stock market and some of macroeconomic indicators. His result shows that only industrial production and level of interest rates, as represented by the 3-month commercial bank deposit rate have a long-run relationship with the stock market. He also found that the Nigeria market responds more to its past prices than changes in the macroeconomic variables in the short run.

Ologunde, Elumilade and Asaolu (2006), examines the relationships between stock market capitalization rate and interest rate. They found that prevailing interest rate exerts positive influence on stock market capitalization rate. They also found that government development stock rate exerts negative influence on stock market capitalization rate and prevailing interest rate exerts negative influence on government development stock rate.

Section 3

3.0   DATA AND METHODOLOGY

3.1   DATA DESCRIPTION AND SOURCES

In this paper, we draw upon theory and existing empirical work as a motivation in selecting a number of macroeconomic variables that we expect to be strongly related to the real stock price. Five macroeconomic indicators that are hypothesized to exert shock on share returns are consumer price index (CPI) as a measure of inflation, broad money supply (M2), treasury bill rate (TBR) as a proxy for money market interest rate, real

output growth (RGDP) and exchange rate (EXC). The Nigerian stock exchange (NSE) All-share index is used to measure the stock market trends and performance. This index is used in this paper as a barometer for monitoring upswings & downswings in the capital market. The time series data sets are (annual frequencies from 1984 when computation of the NSE index started to 2007) sourced from various issues of the Central Bank of Nigeria Statistical Bulletin, Annul Abstract of Statistic of National Bureau of Statistic (NBS) and the NSE Annual Report. All the variables are transformed into natural logs to reduce multicollinerity and assume linearity.

3.2   EMPIRICAL METHODOLOGY.

To capture the precise effect of macroeconomic variables on NSE index as a system of equation, the model is specified as:

$$LNSEDX_t = \eta_0 + \eta_1 LEXC_t + \eta_2 LCPI_t + \eta_3 LTBR_t + \eta_4 LM2_t + \eta_5 LRGDP_t + u_t \quad (1)$$

Where: η_0 is the constant; η_{1-5} is the co-efficient the effects and U_t is the stochastic error terms.

The stationarity properties of the time series variables are examined using the Augmented Dickey-fuller (ADF) approach and the Augmented Engle-Granger (AEG) co-integration is employed to determine whether the selected macroeconomic variables are co-integrated with stocks prices in the Nigerian Stock Exchange.

3.2.1 AUGMENTED DICKEY-FULLER TEST

The time series variables characteristics and order of integration are determined using ADF unit root test developed by Dickey and fuller (1979). This is based on the following model:

For Intercept:

$$\Delta X_t = \delta_0 + \delta_1 \Delta X_{t-1} + \sum_{i=1}^{n} \gamma_i \Delta X_{t-i} + \varepsilon_{t1} \qquad (2)$$

For Trend:

$$\Delta X_t = \delta_0 + \delta_1 \Delta X_{t-1} + \delta_2 t + \sum_{i=1}^{n} \gamma_i \Delta X_{t-i} + \varepsilon_{t2} \qquad (3)$$

The tau-statistic test the null hypothesis of $\delta_1 = 0$ (i.e. no stationary) against the alternative that $\delta_1 < 0$ (i.e. stationary). If the series is not stationary at level i.e. $I(0)$ it will be differenced d times to be stationary to determine its order of integration.

3.2.2 ENGLE-GRANGER COINITEGRATION TEST

The Engle-Granger (1987) cointegration test is employed to determine if the variables in equation (1) are cointegrated or linearly stationary. This is to investigate the long-run relationship between macroeconomic indicators and stock prices in Nigeria. The test requires the estimation of the residual term (U_t) in equation (1) based on the model below:

$$\Delta \ell_t = \phi \ell_{t-1} + \sum_{i=1}^{k} \lambda_i \Delta \ell_{t-i} + \omega_t \qquad (4)$$

in which the presence of unit root is examined. If the estimated residual term is stationary i.e. $I(0)$, then the macroeconomic variables and stock prices are said to be cointegrated.

3.2.3 ERROR CORRECTION MECHANISM (ECM)

To investigate the short-run behaviour of the relationship between the pre-selected macroeconomic variables and the NSE index, the error correction model is employed.

This is specified as:

$$\Delta LNSEDX_t = \varphi_0 + \varphi_1 \Delta LEXC_t + \varphi_2 \Delta LCPI_t + \varphi_3 \Delta LTBR_t + \varphi_4 \Delta LM2_t + \varphi_5 \Delta LRGDP_t + \varphi_6 U_{t-1} + \varepsilon_t$$

The equation (4) is to explain the short-run behaviour of the specified model in equation (1) as a result of changes from the long-run equilibrium and the mechanism is capture by the error term (U_t).

Section 4

4.0   EMPIRICAL RESULT ANALYSIS

4.1   UNIT ROOT TEST RESULTS

The result of the ADF unit root test is shown in table 1. The result indicates that only the CPI and RGDP in level reject the null hypothesis of non stationary at the 1% Mackinnon (1988) critical value. This implies that they are integrated of order zero i.e. $I(0)$. The NSE index and other macroeconomic indicators-M2, TBR, and EXC-are found to be stationary at first difference. There results are consistent with previous literature that found most macroeconomic indicators and stock indexes non-stationary

and non-mean reverting. Therefore, all the macroeconomic variables and NSE index are regarded to be integrated of order one i.e. $I(1)$ in the subsequent tests.

Table 1: ADF UNIT ROOT TEST RESULT[1]

| Variables | Level | First Difference | | Order of Integration |
		Intercept	Trend	
LNSEDX	-1.091 (4)	-3.390** (1)	-3.833* (9)	I(1)
LNCPI	-4.328* (7)	-2.793 (1)	-5.533* (9)	I(0)
LM2	-2.810* (6)	-3.971* (5)	-5.477* (5)	I(1)
LTBR	-1.798 (1)	-3.691** (1)	-4.534* (1)	I(1)
LRGDP	-6.439* (1)	-4.852* (2)	-4.573* (3)	I(0)
LEXC	-2.613 (1)	-3.135** (1)	-3.546 (1)	I(1)

Note: 1. Result extract from the E-view 3.1 Output. 2. Model 2 (with intercept only)
The value in brackets show the no of lags which selection is based on minimum AIC and SIC.
*significant at 1%   ** significant at 5%.

4.2   COINTEGRATION TEST RESULTS.

The Augmented Engle-Granger (AEG) cointegration test is carried out based on the estimated model 1, which result is shown in table 2. The residual term (U_t) series generated from it was found to be stationary at level. The result presented in table 3 shows that the null hypothesis of no cointegration is rejected at the 1%, 5% and 10% Asymptotic critical level for

all the consider models. Therefore, there exist long-run relationship between macroeconomic variables and stock market performance in Nigeria. Also, all the macroeconomic indicators except CPI are found to have long-term significant effect on share returns in Nigeria, and the positive effect of CPI and TBR are not in tandem with a-priori expectation.

Table 2:   COINTEGRATING REGRESSION RESULT[1]

Dependent Variable: LNSEDX

Method: Least Square

Sample: 1984-2007

	C	LEXC	LCPI	LTBR	LM2	LRGDP
	-11.837	-0.3646	0.5848	0.0912	0.7419	0.5607
Std.Er:	2.7779	0.1463	0.1430	0.1702	0.1703	0.1534
Prob:	0.0005	0.0227	0.0007	0.5984	0.0004	0.0018

R^2= 0.9929   Adjusted R^2= 0.9910   F-Statistic= 505.672

Prob(F-Statistic)= 0.0000   Durbin-Watson Stat= 1.8034

1. Extracted from the E-View 3.1 output

Table 3:   ENGLE-GRANGER COINTEGRATION TEST RESULT

Model	No of Lag	Tau Statistic
Series: $U_t = LNSEDX_t - \eta_0 - \eta_1 LEXC_t - \eta_2 LCPI_t - \eta_3 LTBR_t - \eta_4 LM2_t - \eta_5 LRGDP_t$		
None: $\Delta U_t = \phi U_{t-1} + \sum_{i=1}^{n} \lambda_i \Delta U_{t-i} + \omega_{t1}$	2	-3.875
Intercept: $\Delta U_t = \phi_0 + \phi_1 U_{t-1} + \sum_{i=1}^{n} \lambda_i \Delta U_{t-i} + \omega_{t2}$	1	-4.416
Trend: $\Delta U_t = \phi_0 + \phi_1 U_{t-1} + \phi_2 t + \sum_{i=1}^{n} \lambda_i \Delta U_{t-i} + \omega_{t2}$	2	-3.700

Note: the selection of lag is based on minimum AIC and SIC.

4.3   SHORT-RUN ANALYSIS

The specified error correction model (ECM) (4) is to examine the short-run correction mechanism behaviour of the relationship between the macroeconomic indicators and stock market performance in Nigeria from its long-run equilibrium as a result of the error term (white noise) shock. The estimated ECM model result presented in table 4 reveals that NSE index is below its long-run equilibrium in the short-run and the error term restore the relationship between macroeconomic indicators and share returns back to its equilibrium by an increase of 0.852 unit in the error term (U_t) as a result of the shock mechanism. Also, all the changes in macroeconomic indicators except CPI are found to have significant shock on NSE index in the short-run at 10% critical value.

Table 4: ERROR CORRECTION MECHANISM RESULT[1]

Dependent Variable: LNSEDX

Method: Least Square (ECM)

Adjusted Sample: 1985-2007

	C	ΔLEXC	ΔLCPI	ΔLTBR	ΔLM2	ΔLRGDP	U_{t-1}(ECT)
	0.0670	-0.3615	0.5119	0.0420	0.6345	0.3143	-0.8520
S.E:	0.0923	0.1363	0.2586	0.1427	0.3097	0.1544	0.2590
Prob:	0.4784	0.0174	0.0652	0.7721	0.0572	0.0587	0.0046

R^2= 0.5473   Adjusted R^2= 0.3775   F-Statistic= 3.223

Prob(F-Statistic)= 0.0285   Durbin-Watson Stat= 1.6484

1. Extracted from the E-View 3.1 output

Section 5

5.   CONCLUSION

A number of studies have found that a relationship exists between macroeconomic variables and equity market returns using different macroeconomic factors model. The relationship between macroeconomic indicators and stock indexes are well documented for developed countries-[Chen, Roll and Ross (1986), Chen (1991), Mukherjee and Naka (1995), Flannery and Protopapdakis (2002)]-, developing countries – [Mookerjee and Yu (1997), Ibrahim and Aziz   (2003), Serkan Yilmaz (2008), Adam and Tweneboah (2008])-, and for the case of Nigeria-[Akinnifesi (1987),

Soyode (1993), Amadi, Oneyema and Odubo (2000), Nwokoma(2002), and Ologunde, Elumilade and Asaolu (2006)]. These studies have provided different findings as result of the considered macroeconomic factors used in the research methodology and countries examined. This paper extends the literature by considering the long-run effect and short-run shock of macroeconomic variables interaction on share returns in Nigeria.

This study considered five macroeconomic indicators and examines their effect on the NSE all share index (NSEDX) from 1984 to 2007. The time series data set employed in this study comprises the annual observation of the NSE index, inflation rate (CPI), treasury bill rate (TBR), exchange rate (EXR), broad money supply (M2) and real economic output (RGDP).

The Augmented Dickey-Fuller (ADF) test is used to examine the presence of unitroot in the time series variables and the findings showed that only CPI and RGDP are stationary at level. While, other time series variables are found to be stationary at first difference. Likewise, the Augmented Engle-Granger (AEG) co-integration test results indicates that the variables are cointegrated i.e. there exist long-run relationship between macroeconomic indicators and stock prices in Nigeria. The short-run behaviour of the interaction is captured by the estimated Error Correction Model (ECM) and the result reveals that the NSE index is below it's the long-run equilibrium in the short-run as a result of the shock exerted by the error-term. Also, the macroeconomic variables have long-run simultaneous significant effect on the stock market performance in Nigeria and this is consistent with other empirical results.

In general, the NSE all share index is consistently determined by exchange rate, consumer price index (inflation), broad money supply and real output during 1984-2007. Our results suggest that investment perception of Nigeria is a mixture of other mature stock markets, as was found in New-Zealand, Korea, the US and Japan. Considering the gradual recovery of economies from the global financial meltdown, prospective or existing investors either Nigeria or foreigners should pay more attention to the significant above mentioned macroeconomic variables in their investment decision rather than treasury bill rate (TBR) both in the short and long-run.

REFERENCES

Adam A.M. and G. Tweneboah (2008): *Do Macroeconomic Variables Play any Role in the Stock Market Movement in Ghana?.* MPRA Working Paper No. 9368.

Akinnifesi O.E. (1987): *The Role and Performance of the Capital Market.* Journal of Nigeria Institute of Social and Economic Research, Ibadan.

Amadi S.N., Onyema J.I. and T.D. Odubo (2002): *Macroeconomic Variables and Stock Prices. A Multivariate Analysis.* Africa Journal of Development Studies, 2-1: 159-164.

Campbell J. and R.J. Shiller (1988): *Stock Prices, Earnings and Expected Dividend.* Journal of Finance, 43: 661-676.

Central Bank of Nigeria Statistical Bulletin for Several Issues: http:// www.cenbank.org/

Chen N.F., Roll R. and S.A. Ross (1986): *Economic Forces and the Stock Market.* Journal of Business, 59-3: 383-403.

Christopher G.,Minsoo L.,HuaHwa A. and Z. Jun (2006): *Macroeconomic variables and Stock Market Interactions: New Zealand evidence.* Journal of Investment Management and financial Innovation, 3-4.

Dickey D. and W. Fuller (1979): *Distribution of the estimators for Autoregressive time series with unit root.* Journal of American Statistical Association, 74: 427-431.

Emenuga C.A. (1994); *Systematic Factors and Returns on Equities in the Nigerian Securities Market.* Unpublished Ph.D Thesis, University of Ibadan, Ibadan.

Engle R.F. and C.W.J> Granger (1987): *Cointegration and Error Correction. Representation, estimation and testing.* Econometrica, 55: 251-276.

Fama E. (1965): *The Behaviour of Stock Prices.* Journal of Business,38-1.

Fama E. (1977): *Asset Returns and Inflation.* Journal of Monetary Economics, 38: 327-348.

Flannery M.I. and A.A. Protopapadakis (2002): *Macroeconomic Factors do Increase Aggregate Stock Returns.* Review of Financial Studies, 15: 751-789.

Ibrahim M.H. and H. Aziz (2003): *Macroeconomic Variables and the Malaysian Equity market: A view Through Rolling Sub-Samples.* Journal of Economic Studies, 30: 6-27

Kwon C.S. and T.S. Shin(1999): *Cointegration Vectors of Economic Variables and Stock Market Returns.* Global Financial Journal, 10: 71-81

Mookerjee R. and Q. Yu (1997): *Macroeconomic Variables and stock prices in a Small Open Economy: The case of Singapore.* Pacific-Basin Financial Journal, 5: 377-388.

Moore H. (1962): *Stock Prices and the Business Cycle.* Journal of Portfolio Management, 1: 59-64.

Mukherjee T.K. and A. Naka (1995): *Dynamic Relations between Macroeconomic Variables and the Japanese Stock Market. An application of Vector Error Correction Model.* Journal of Finance Research, 18: 223-237.

National Bureau of Statistic: www.nigerianstat.gov.ng

Nigerian Capital Market Data Bank: http://dbank.secnigeria.org/index.php

Nwokoma N.I. (2002): *Stock Market Performance and Macroeconomic Indicators Nexus in Nigeria. An empirical investigation.* Nigerian Journal of Economic and Social Studies, 44-2.

Ologunde A.O., Elumilade D.O. and T.O. Asaolu (2006): *Stock Market Capitalization and Interest Rate in Nigeria. A Time Series Analysis.* International Research Journal of Finance and Economics. Issue 4-2006.

Ross S.A.(1976): *The Arbitrage Theory of Capital Asset Pricing.* Jounal of Economic Theory, 13-3: 341-360.

Serkan Yilmaz (2008): *Macroeconomic variables, Firm Characteristics and Stock Returns. Evidence from Turkey.* International Research Journal of Finance and Economics, 16.

Smith L.H. (1990): *Stock Prices Behavior in the American Economy.* American Economic Review, 71: 429-450.

Soyode (1993): *Nigerian Capital Markey and Macroeconomic Variables. An empirical analysis.* Nigerian Journal of Monetary Economics, 3.