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A TEST OF STOCK MARKET EFFICIENCY IN NIGERIA: THE STOCK SUPPLY APPROACH

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ABSTRACT: *The study empirically attempted a test of stock market efficiency in Nigeria. The study employed stock market variables (market capitalization, all share index, volume of share and total value of shares) to cover the period of 31 years which spanned between 1986 and 2016. The data were sourced from CBN statistical bulletin and Stock Exchange annual report. The analysis was made through Descriptive statistics which involved trend analysis. The descriptive result revealed that the NSE followed the theory of random walk. This suggests that the current values do not have memory and thus, past values cannot be used to predict the current value. The trend analysis revealed the performance of stock market indices thereby indicating that any change that occurs in the supply of stock cannot be too small or unimportant to be of concern on stock price. This is because price movement of today may significantly determine price movement of tomorrow Based on this, the study recommended that there is the need for proper awareness on the benefits inherent in the capital market.*

KEYWORDS: Stock Market, Efficiency, Stock Supply, Market Capitalization, Nigeria

INTRODUCTION

Stock index is a means of measuring stock market trends and performance. It is used as barometer for monitoring upswings in the stock market prices. Over the years Efficient Market theory and Random Walk Hypothesis have occupied major issues in the financial Literature. Random walk does not mean that market participants cannot exploit insider information that is not part of the historical prices to gain excess returns. It is apparent that validity of the random walk hypothesis has important implications for financial theories and investment strategies thus very relevant to academia, investors and regulatory bodies. The relevance of the behaviour of stock prices and the standard risk return models like the Capital Asset Pricing model rely on the hypothesis of normality or random walk behaviour of prices. In trading, the Investors' interest is in designing strategies that will take account of the prices characterized by random walks or persistence in short run, and mean reversion in the long run. The presence of inefficiency in any stock market of an economy should be a signal for the regulatory bodies to step in with all necessary techniques and reforms needed to effect corrections.

Market efficient hypothesis states that market prices fully and instantaneously reflect all relevant available information in determining security prices and that it is not possible for market participants to consistently and purposefully outperform a given market using any information that is already known by the market. This implies that market efficiency is consistent with a market in which (a) there are no transactions costs in trading securities, (b) all available information is costless to all market participants, and (c) all participants in the market are rational in decision, suggesting that all agree on the implications of current information for the current price and distributions of future prices of each security (Fama, 1970; Manassah, 2014). In such a market, the current price of a security obviously "fully reflects" all available information. But the speed and manner in which the market adjusts to the relevant information on dividend and bonus issues declaration, has been punctuated by untimely release of information and poor behaviour of the authorities. The excruciating influence of timidity that could emanate from insecurity of investors due to the intending insider trading and fall in investors' confidence, deters trading activities and the performance of the market (Manasseh, Asogwa & Agu, 2012). As the major ingredient needed to step up business activities in the market, consolidating business confidence could promote the ability of the market in mobilising the needed savings for investment. Therefore, to harness funds from local and foreign investors for viable investment opportunities, the need for information efficient market should be given precedence for the enhancement and restoration of depleted trust in the market (Manasseh *et.al*, 2012).

In information efficient market, prices of shares adjust quickly to new information and enable more informed and efficient investment choices (Osinubi, 2000). In such markets, investors do not care about various trading strategies by fundamentalists, technicalists or chartists to beat the market with the bid of earning abnormal returns. But in the Nigeria capital market, the case is the reverse. In most cases, investors pay extra money to acquire additional information and sometimes go as far as sourcing for insider information on the values of companies listed with the exchange. So far, before certain information is announced, some investors have already traded on the information, causing disparities in available information among market participants. For instance, on June 3rd 2005, Intercontinental Bank Plc, acquired by Access Bank Plc in 2011, announced bonus issues of 1 for every 10 shares simultaneously with the declaration of ₦0.22 dividend for its shareholders. On this note, it was expected that the market should have reflected the publicly available information on bonus issues and dividend without bias to avoid the possibility of investors beating the market by making abnormal profit. But it was noticed that people started trading on the shares of this firm five days before the announcement date. Five days before the event date, the share price of the Bank stood at ₦7.81, ₦7.81, ₦7.81, ₦6.90, and ₦6.90 respectively even higher than the share price of the firm on the day of the announcement (N6.24). After the announcement date, it fell to ₦5.93, ₦5.64, ₦5.36, ₦5.10 and ₦5.13 respectively (NSE, various years).

Similarly, on 3rd August, 2007; 25th July, 2008; 31st October, 2008 and 15th August, 2008, it was also observed that shares of Zenith Bank Plc, Floor Mills Plc, Union Bank Plc and Union Homes Savings Plc respectively were seriously traded five days before the date of announcement on simultaneous declaration of bonus issues and dividend leading to a fall in share prices of these firms on and after the announcement date (NSE, various years). Thus, disproportions in the information available to equity issuers or investors could results to overpricing or underpricing of shares (Edmans, 2009; Ayadi & Bouri, 2009; Gao, 2008).

When a share is overpriced or underpriced as a result of insider information, the level of confidence in the market would be deterred and the returns of the firms would be affected. In turn, the contributions of the firms to all share indexes and the market capitalisation would be insignificant. This is because, investors who are always risk averse could withdraw their money or invest it in other less productive ventures, leaving the market performance gauges in a shamble state (George & Oseni, 2012).

Hence, the efficiency of the Nigerian capital market in terms of quick incorporation of all available information correctly and instantaneously is of paramount important. So, when new information is added to the market, its revaluation implications on security returns are impounded in the current market price unbiased (Gagan & Mahendru, 2009). In such markets, firms make productive investment decision while investors choose among the securities that represent ownership of firms' activities without the anxiety of making losses (Afego, 2012).

It should be noted that access to investment capital, through well-functioning capital markets, is crucial for growth and development particularly in capital-scarce developing countries like Nigeria. Capital markets facilitate the pricing and diversification of risk, aid in the price discovery process of financial assets and enhance the operations of the domestic financial system (Afego, 2012). By mobilising savings from surplus spending economic units to the deficit spending units, an efficient capital market provides avenues for effective and optimal utilisation of funds for long-term investment purposes. In addition, it encourages the inflow of foreign capital by creating a platform for foreign companies or investors to invest in domestic securities; provide needed seed money for capital development; and act as a reliable medium for broadening the ownership base of family-owned and dominated firms (Afego, 2012).

Although the Nigerian Stock Market have not fared well in its performance compared to other emerging market due to challenges confronted with the market. Considering the recent improvement such as the elimination of value-added taxes (VAT), stamp duties on all capital market transactions, ₦22.60 billion debt relief package on the margin loan of 84 brokerage firms and investors protection initiative (NSE, 2013), it is therefore pertinent to assess a test of stock market efficiency in Nigeria by incorporating publicly available information on share prices so as to add to the already existing debate on the nature of efficiency of the Nigerian stock market.

LITERATURE REVIEW

Theories of Share Pricing

It is important to know that there are two types of values of an asset (I) the intrinsic or actual worth of the share and (II) the extrinsic or the market value according to Ibenta (2005). The intrinsic value of a company's share is defined as the actual worth or the theoretical price of the share determined by the economic facts about the company that issued the security. It is found by substituting the economic or financial data of the company into any of the various valuation models that have been developed in finance theory which include the asset method (balance sheet), the earning method, the dividend valuation method, realization value method, super-profit method, dual capitalization method, capital asset pricing method

(CAPM) and arbitrage pricing method (APM), the extrinsic value is the price at which the share of the company can be sold in the open market. Okafor (1983) is of the view that market rationality does imply that the price of a security would represent a consensus, or at least, the dominant market evaluation of the worth. It therefore implies that the market price of a security may not always agree with its appraised value, that is, value of a security obtained through independent assessment of its worth by individual investors. Thus, securities would normally have one market value at any point in time, it could have different appraised values reflecting the assessment of individual investors.

It is in the light of these that security evaluation attempts to achieve two objectives:

(a) To determine the appraised value of a security through a rigorous analysis of its value.

(b) To determine whether the security is miss-priced in the market.

A security is said to be miss-priced in the market if it is overvalued or under-valued. Over-valuation occurs when the market price of a security is more than its appraised value while the reverse is the case with under-valuation that is security appraised valued being higher than the market value.

The Basic Theories of Share Pricing are:

The Fundamentalist Theory

This is the statistical evaluation of stock prices using audit reports, profit and loss statements, balance sheets, dividend records, sales data etc. to forecast future business conditions. Fundamental analysis involves an estimate of the intrinsic value of a security by evaluating the basic financial and economic facts about the company that issues the security. The intrinsic value is the present worth of the future dividends or earnings expected from the share. Once the intrinsic value is determined, it is then compared to the current market value. If the current market value is below the intrinsic value, a buy recommendation is issued as it is underpriced because the price of such share is expected to move up in future to match with the intrinsic value. In the other words, when the market price of a share is higher than the intrinsic value, the shares perceived to be overpriced and as such, the investor is advised to sell the shares. Okafor (1983) is of the view that fundamentalists use three basic performance indicators in predicting intrinsic values. These are the earnings record, index of risk and conversion rate for funds.

The Technical Approach

According to Okafor (1983), it eschews the basic notion of intrinsic values for securities. It relies on market forces for an explanation of security price movement. The basic difference between the fundamental and technical approach according to Ibenta (2005) is that fundamental analysis lay emphasis on real variables such as dividends, earnings etc. which influence stock price movements while the technical lay emphasis on price movement resulting from a number of factors which could be real or imaginary, rational or irrational, emotional or psychological, permanent or transient. The approach by technical analyst is summarized by Okafor (1981) as: the price (value) of securities is determined by forces of demand and supply; demand and supply forces are influenced by both rational and irrational factors; movements in stock prices tend to follow identifiable, systematic, self-sustaining

and recurring trends and market trends constitute solid foundations on which profitable trading rules can be erected.

The Random Walk Theory

The random walk theory according to Ibenta (2005) asserts that share price movements occur in a random order without any sequence share price movement of today is independent of the one of yesterday. The theory argued that the likelihood of future earnings cannot be predicted from past earnings using fundamental or technical analysis but the theory believes that the market is efficient such that all information both from the past and present and even that of the future have been reflected in the market price of the security.

The Random Walk Hypothesis states that:

1. The market prices of securities fully reflect all available and relevant information about securities.
2. The changes in security prices are not systematic but rather random.
3. There is no specific and recurring pattern in the behaviors of stock market prices which would form a basis for formulating reliable trading rules

The Efficient Market Theory

Ibenta (2005) is of the view that one of the key concepts underlying investment analysis is the notion of efficient capital markets. From the investor's point of view, it is necessary for such an investor to be involved in a fair game (Finnerty, 1976). The Efficient Market Hypothesis (EMH) was developed from the Random Walk Theory. The EMH says that market is efficient at times since share prices reflect available information in the market. In this case, the market price is the only good and correct guide for the share selection. Capital market efficiency can be viewed from the roles the capital expected to perform in the economy which are classified into:

i) Allocation Efficiency: Here, the capital market is expected to optimally allocate scarce savings to productive investments in a way that benefits all, in other words, channeling funds to those firms with the most promising real investment opportunities.

ii) Operational Efficiency: Copeland and Watson (1983) defined it as a situation whereby intermediaries who provide the service of channeling funds from savers to investors do so at a minimum cost.

iii) Pricing Efficiency: This exists when prices are used as signals for capital allocation and such places are set by forces of demand and supply.

It should be noted that markets are said to be efficient if prices fully reflect all available information.

In such a market, the same rate of return for a given level of risk should be realized by all investors and no scheme devised by an individual to earn higher returns.

Assumptions of Market Efficiency

Samuelson (1965) as cited in Ibenta (2005) enumerated the following assumptions:

1. No transaction cost of trading in securities
2. Information is freely available to all market participants
3. All investors have the same time horizon.
4. All investors have homogeneous expectations especially as to the implication of current information for the current price and distribution of future prices. The efficiency of the market has been tested at three levels (Weak Form Efficiency; Semi-Strong Form Efficiency and Strong Form Efficiency) according to Akinsulire (2006)

Weak Form Efficiency: This implies that information available is restricted to past share process, returns and trading volumes; hence future prices cannot be predicted from historical price data. In this type of market, investors cannot earn any excess or abnormal profit based on historical price. However, Weak Form Efficiency according to Ibenta (2005) when intrinsic value of security prices is altered as new information becomes available and the behavior is such that actual security price will fluctuate at random from day to day around the intrinsic value. Okafor (1983) is of the view that test of the weak form has generally taken the form of empirical studies of the serial correlation between successive changes in the prices of securities and in most of those studies, the resulting co-efficient of correlation have been low.

Semi Strong Form Efficiency: This occurs when current prices reflect not only historical information but also published information about the companies whose securities are under consideration Okafor, (1983). By implication, efforts to analyze and acquire information contained in published annual reports and accounts would confer no advantage and no investor can consistently improve his or her forecast of future price movements simply by analyzing macroeconomic news such as earning statements, annual reports or other available sources. However, test conducted to prove the semi-strong form has been generally indirect since the test focused on investigation of the movement of stock price adjustments to such public information as dividend declaration, stock splits, adverse courts judgments etc. The general finding has been that the market anticipates all relevant public information fairly accurate.

Strong-Form Efficiency: Is a situation where all relevant information (public or private) is reflected in market price Ibenta (2005). This implies that nobody can profit from any information, not even insider information, in other words, those who have access to privileged information about companies, or those having first access to relevant information such as security analysts, portfolio managers and flour specialists cannot use such information to earn abnormal returns since is open to the public. Notwithstanding, according to Okafor (1983), the Strong-Form Efficiency has been tested by examining the performance of portfolios of assets owned by portfolio managers that have monopolistic access to relevant information about securities. These include professional analysts who manage mutual funds, market specialists and investors with inside knowledge about companies. The idea is that these individuals will use their superior knowledge and ability to earn excess returns on their market transactions and portfolios owned by them is expected to out-perform portfolios composed of randomly-selected securities. The evidence has been inconclusive. Research findings from Scholes (1992) and others indicate that insider

knowledge and privileged information can produce superior returns thereby contradicting the strong form. However, the excess returns attributable to inside information have not been sufficiently large to warrant outright rejection. Then, apart from specialist and insiders, no other groups have been shown to benefit from privileged information. Thus, professionally managed mutual funds have not been shown to earn abnormal returns.

Empirical Review

Ananwude and Osakwe (2017) explored the long run relationship between stock market development and economic growth in Nigeria from 1981 to 2015. Market capitalization ratio and turnover ratio were used to measure the depth of development of Nigeria's stock market, whereas growth rate of real gross domestic product facets economic growth. Secondary data were sourced from Nigerian Stock Exchange (NSE) and National Bureau of Statistics (NBS) were analysed using Autoregressive Distributive Lag (ARDL) model. From the analysis performed, the depth of development in Nigeria's stock market has positive but insignificant relationship with economic growth both in short and long run. The granger causality analysis dispelled the adeptness of Nigeria stock market to propel growth. Stock market is growth inducing but in the context of Nigeria, economic growth is independent of stock market operation. The government need to steadfastly tackle inhibiting factors such as infrastructural inadequacy, weak institutional and regulatory framework encumbering the stock market from realization of its objective of capital mobilization for economic growth.

Mbah, Okoli and Amassoma (2017) investigated the impact of macroeconomic variables on stock price movements in Nigeria using VAR model and granger causality tests to analyse the long run and short run dynamics of stock price movement and the macroeconomic variables with time series data spanning from 1981 – 2014. The Impulse response and Variance decomposition used to explain the dynamic properties of the VAR model suggest that the of ASI to one standard deviation in INF, INT, and RGDP were all fluctuating whereas its response to one standard deviation of EXR and IPI were relatively stable overtime. The study recommended that the monetary authorities and policy makers should pay attention to changes in monetary aggregates in view of their sensitivity to stock price movements in Nigeria.

Ifeoluwa and Motilewa (2015) examined the impact of stock market liquidity on economic growth of Nigeria between the years 1980 and 2012. Tests for stationarity using the Augmented Dickey Fuller approach was carried out while the ordinary least square (OLS) technique was employed to estimate the basic model specified for the study. The result of the analysis of data revealed that variables were stationary at their first difference while the Johansen co-integration approach confirmed the existence of co integrating relationship at the 5percent level of significance. The study found, surprisingly, that stock market liquidity was not a statistically significant variable explaining economic growth in Nigeria for the periods under study.

Obayagbona and Igbinosa (2015) investigated the weak-form market hypothesis in the emerging capital market of Nigeria. It used three tests of randomness based on autoregressive technique to check for the presence or otherwise of autocorrelation in daily stock prices and returns from the Nigerian Stock Market. All the tests including the Z-statistics for both stock prices and their returns show significant indications of dependence in return series and hence, of non-randomness. The overall results suggested that the emerging Nigerian Stock Market is

not efficient in the weak form. The study recommended that policy makers and regulatory authorities should enact and implement policy measures and put in place necessary market structures that would promote the efficiency of the Nigerian Stock Market.

Yadirichukwu and Ogochukwu (2014) studied an evaluation of the weak form of efficient market hypothesis in Nigeria. The study adopted unit root test and t-test to investigate efficient market hypothesis based on monthly annual share index panel data. Johansson co integration test was used to establish relationship between the monthly share prices. VAR model and granger causality were used to test for impact of interest rate on market share index. The result revealed that there exist random walk model confirming no market efficiency based on the annual result. However, no random walk model was confirmed in the monthly stock returns hence, there was market efficiency in the monthly transaction in Nigeria stock exchange. Variance ratio was able to monitor the performance of the stock market. The study recommended; maintaining robust share market return policy could enhance the survival of the stock prices return. Adopting regulatory bodies that study the interest rate of the market capitalization so as to regulate the high interest rate that give rise to total performance in the stock market which will in turn generate substance for economy growth and sustainable development in the Nigeria emerging economy.

Akanni (2013) examined the analysis of macroeconomic aggregates on stock prices using evidence from Nigeria economy. The study investigated the nature of relationship between macroeconomic aggregates proxies by inflation rates, interest rates and money supply while All Share Index (ASI) standing as a proxy for Aggregates Stock Prices. In course of this study, secondary data were sourced from the Central Bank of Nigeria statistical bulletin and the Nigerian stock exchange fact book. The Granger Causality Test and Johansen Co-integration Test in a Vector Error Correction Model (VECM) setting was employed. The descriptive analysis was also used to mirror their relationship. The empirical results demonstrate that changes in inflation rates, interest rates and money exert a significant impact on aggregate stock within the period understudy. The results also show that where is a negative long-run relationship between inflation rates, interest rates and All Share Index while a positive significant relationship exist between money supply and aggregates stock prices. However, on the causality test, the study shows a unidirectional causality running from inflation to aggregates stock price and a bi-directional causality between money supply and aggregates stock prices. Therefore, the study recommended that macroeconomic policy should be channeled towards improving aggregates stock prices which in turn enhance overall returns on stock market and the Nigerian economy at large.

Širůček (2013) focused on the effect and implication of a change in the money supply for US capital market. This market was chosen according to his part on the global market capitalization. The money supply will be measured by the wider aggregate M2 and aggregate MZM (money with zero maturity). The goal of this study is detecting, if the money supply influences the stock indices in period 1967-2011, if the impact of both money aggregates is near the same and how the money supply influences the bubble creation.

Malaolu, Ogbuabor and Orji (2013) examined the macroeconomic determinants of stock price movements in Nigeria using detailed econometric framework in order to provide the foundation for evidence-based policies. Both the long-run and short run dynamic relationships between the stock price movement and the macroeconomic variables were analyzed with time series data that spanned from 1985 to 2010 using the Engle-Granger two-

step cointegration test. The study established that there is no cointegration between the variables, indicating the absence of long run relationship. Results of the regression indicated that the monetary policy variables (real exchange rate, real interest rate and money supply) as well as political instability are not the determinants of stock price movements in Nigeria; however, inflation was found to be a major determinant of stock price movements. The study recommended that the monetary authorities (that is the Central Bank of Nigeria, CBN) and policy makers should pay attention to changes in money supply and inflation in view of their sensitivity to stock price movements in Nigeria.

Oluwatosin, Adekanye and Yusuf (2013) examined the impact of Nigerian capital market on economic growth and development between 1999 and 2012. Ordinary least square method of regression analysis was used to analyze the data. The result showed that capital market indices have not significantly impacted on the GDP. It was concluded that capital market in Nigeria has the potential of growth inducing but it has not contributed meaningfully to the economic growth of Nigeria because of low market capitalization, low absorptive capitalization, illiquidity, and misappropriation of funds among others. The study recommended that government should restore confidence to the market through regulatory authorities which will portray transparency, fair trading transactions and dealing in the stock exchange, improve dealing in the market capitalization by encouraging more foreign investors to participate in the market and also to increase investments instruments such as derivatives, convertibles, swap and option in the market.

Osisanwo and Atanda (2012) analyzed the determinants of stock market returns in Nigeria using the OLS method based on the sourced time series variables from the Central Bank of Nigeria between 1984 and 2010. The findings indicated that interest rate, previous stock return levels, money supply and exchange rate are the main determinants of stock returns in Nigeria. Therefore, this study proffers the need to adopt a mixed policy approach between capital and monetary market instruments in order to enhance the returns in the Nigerian Stock Exchange.

METHODOLOGY

Model specification, Sources of Data and Technique of Data Analysis

A test of stock market efficiency in Nigeria employed annual time series data as such as market capitalization of companies (MCAP), all share index of companies (ASI), volume of shares (VOS) and total value of shares (TVS). The data are secondary in nature and was sourced from statistical bulletin central bank of Nigeria [CBN] between 1986 and 2016. In order to lend empiricism to this study, the study employed the use of descriptive and trend analysis to analyse the flow of data between the duration as covered in the study.

ANALYSIS AND INTERPRETATION OF RESULT

Descriptive Statistics

The data presentation for this description analysis consists of time series data spanning between 1986 through 2016.

Table 1: Descriptive Result

	MCAP	ASI	VOS	TVS
Mean	4801.190	15623.95	406401.5	3318.461
Minimum	6.800000	163.8000	225.4000	7.100000
Maximum	19077.40	57990.20	2350876.	13226.00
Std. Dev.	6494.682	14918.14	594392.3	4250.083
Skewness	1.018482	0.840252	1.606365	0.953253
Kurtosis	2.453505	3.147824	5.120832	2.402731
Jarque-Bera	5.745176	3.676010	19.14194	5.155680
Probability	0.056552	0.159135	0.000070	0.075938

Source: Author's Computation (E-view 7)

The descriptive statistics of the stock market efficiency in Nigerian is presented on Table 1. Normality of distribution is one of the basic assumptions underlying the market efficiency (Simons & Laryea, 2006). Thus, if NSE monthly returns follow normal distribution, it means that the study cannot predict the future price or returns from the mean of today's price or return. When this happens, it shall be concluded that NSE is weak-form efficient, otherwise, it can be said that the market is weak-form inefficient. Mean, standard deviation, Skewness, kurtosis, and Jarque-Bera have been used to test the hypothesis of normality of the study. The results show that the returns are not normally distributed. Mean stock returns are positive with large volatility (standard deviation) for Nigeria. This suggests that the stock market is highly risky.

Generally, values for skewness (zero) and kurtosis (3) represents that the observed distribution is perfectly normally distributed. Standard Deviation is a measure of spread or dispersion in the series. Skewness is a measure of assymetry of the distribution of the series around its mean. The skewness of a normal distribution is zero. Positive skewness implies that the distribution has a long right tail and negative skewness implies that the distribution has a long-left tail. From the table 1 it can be observed that MCAP and VOS have skewness of abnormal distribution which is greater than zero while ASI and VTS have skewness of normal distribution also it can be seen that all the variables have positive skewness and as such they have long right tails.

Kurtosis measures the peakedness or flatness of the distribution of the series. If the kurtosis is above three, the distribution is peaked or leptokurtic relative to the normal and if the kurtosis is less than three, the distribution is flat or platykurtic relative to normal. Cluster 1 has flat kurtosis (2.453505) and positive skewness (1.018482), cluster 2 has peaked kurtosis 3.147824 and positive skewness (0.840252), cluster 3 has peaked kurtosis 5.120832 and positive skewness (1.606365), cluster 4 has flat kurtosis 2.402731 and positive skewness (0.953253). From the table 1 cluster 1 (MCAP), and cluster 4 (VTS) are less than three and as

such are flat or platykurtic while cluster 2 (ASI) and cluster 3 (VOS) are more than three therefore is peaked or leptokurtic. As the value of skewness and kurtosis of stock return series of NSE are all not equal to 0 and 3 respectively, this suggests that data are not normally distributed.

Jarque-bera is a test statistic to test for normal distribution of the series. It measures the difference of the skewness and kurtosis of the series with those with normal distribution. From the table 1, only VOS does not follow normal distribution as evident from the probability value which is less than 5% while all other variables (MCAP, ASI and VTS) follow normal distribution as evident from the probability value which are greater than 5% level of significance. Since, MCAP ASI and VTS follow normal distribution it therefore suggests that the returns of the NSE follow the theory of random walk.

Trend Analysis

The trend analysis shows the interaction of Nigerian Stock Exchange (NSE) indices. The time series plots of the incorporated NSE indicators are presented in figure 1 to 4. The secondary data used in the trend analysis of the interaction between set of NSE indices are sourced from the Central Bank Statistical Bulletin and Nigerian Stock Exchange Fact book of several issues.

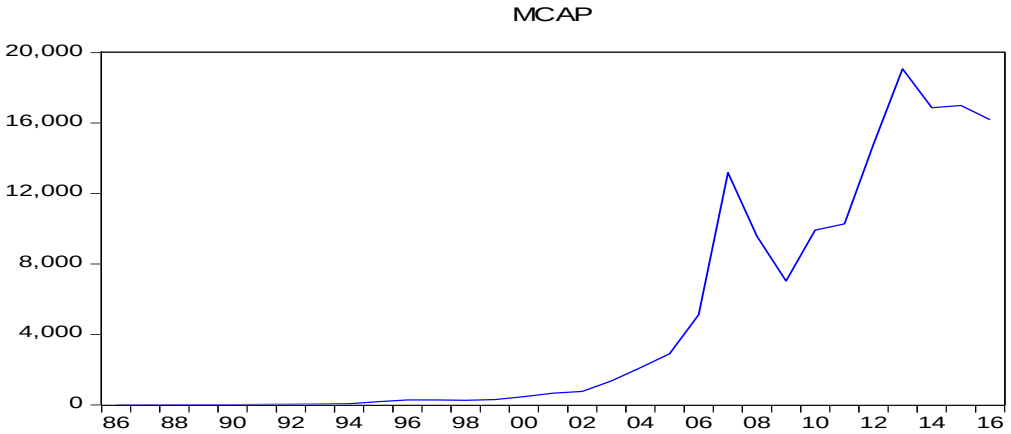

Fig 1 Market Capitalization

The time series plot in figure 1 shows the Nigerian Stock Exchange (NSE) market capitalization trend revealed that the series moves within a fixed bound between 1986 and 2002, after it started being trendy till 2007.

The positive performance was however punctuated by the bearish trend which started from mid-March and persisted till December, 2008. This development was apparently caused by a multiplicity of factors, including the upsurge in private placements by private companies, heavy speculative activities of short term investors, who also quickly exited, exit of some foreign investors owing to the global credit crunch arising from the global financial meltdown and margin calls by banks/stockbrokers on their clients. Consequently, market indices declined significantly. Market Capitalization of listed securities which stood at ₦13.295 trillion as at December 2007 fell to ₦9.563 trillion as at December, 2008. The

NSE All-Shares Index fell from 57,990.22 points as at December, 2007 to 31,450.78 points as at December, 2008. The value of new issues, which stood at ₦1, 935 trillion in 2007, fell to ₦1, 509 trillion in 2008 (SEC, various years).

In 2009, the market value of all listed securities year-end stood at ₦7.0 trillion compared to ₦9.6 trillion in 2008 year-end, reflecting a loss of N2.6 trillion or 26.5%. Over the same period, the All-Share Index (ASI) fell by 33.8% to 20,827.2 points from 31,450.8 points. Equities accounted for ₦5.0 trillion (71.0%) of total market capitalization while 49 debt securities formed the remainder. In the same year, the total value of primary offerings was ₦0.723 trillion, representing a decline of about 54.0% from 2008 levels. New equity issues fell by more than 96.0% to ₦0.03 trillion in 2009 from ₦0.9 trillion in 2008, while new debt issues increased by over 17.35% to ₦0.67 trillion in 2009 from ₦0.6 trillion in 2008.

After the short fall in 2010, the market performed positively significant with an upward trend until 2013 where the market capitalization started fluctuating in 2014 from what was recorded in 2013. Although, the insignificant falls witnessed is as a result of the global financial meltdown that engulfed the Nigerian capital market.

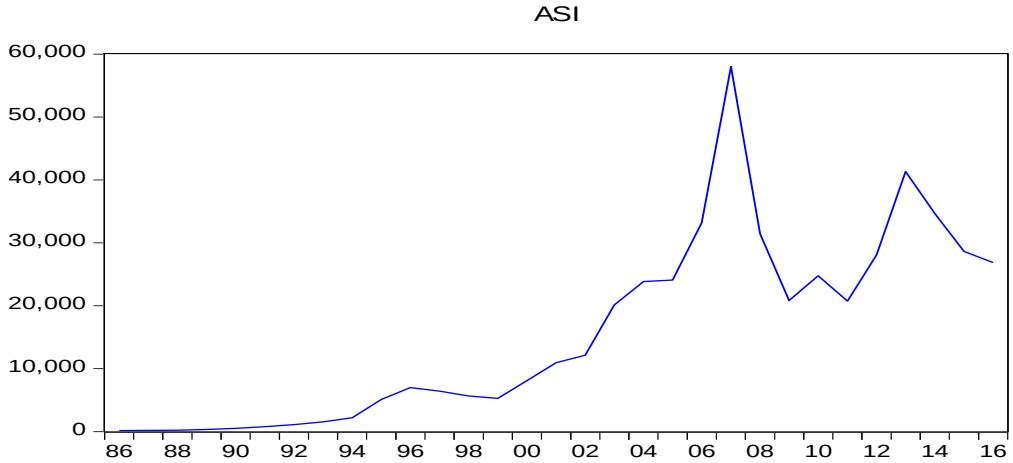

Fig 2 All Share Index

The figure 2 shows all share index maintained a consistent pattern over time between 1986 and 1997. However, by the end of 1999 the overall price performance of the market increased until 2007. The insignificant fall between 2007 and 2010 was as a result of economic meltdown in the country leading to the shortfall of all share index in the stock exchange market.

In 2010 to 2014, the capital market witnessed a considerable level of improvement in all segments of the market unlike the past two years, when market performance was poor with significant decline in activities. The number of equity issues improved from just five in 2009 to twelve in 2010, all of which were rights and special placements. Eleven debt securities, consisting of five sub-national bonds, five corporate bonds and one loan stock as against three sub-nationals and one corporate bond issued in 2009. In general, the value of equities

and debt securities issued, excluding FGN bonds, increased by over 313% from ₦85.91 billion in 2009 to about ₦355.13 in 2010.

Secondary market indicators also ended the year on positive notes with favorable stability and advancement in equity prices. For instance, the All-share index and market capitalization, which recorded declines of 33.78% and 26.46% in 2009, closed the year 2010 with appreciations of 18.93% and 46.86% respectively. Although the volume of traded securities on the Nigerian Stock Exchange during the year declined by 9.11% compared to the 2009, the turnover value appreciated by 16.52%. Among other factors, these records of improvement were driven by the Commission's focus during the year on deepening and broadening the capital market, investor education programmes towards restoring confidence and enhancing regulatory oversight (SEC, 2009).

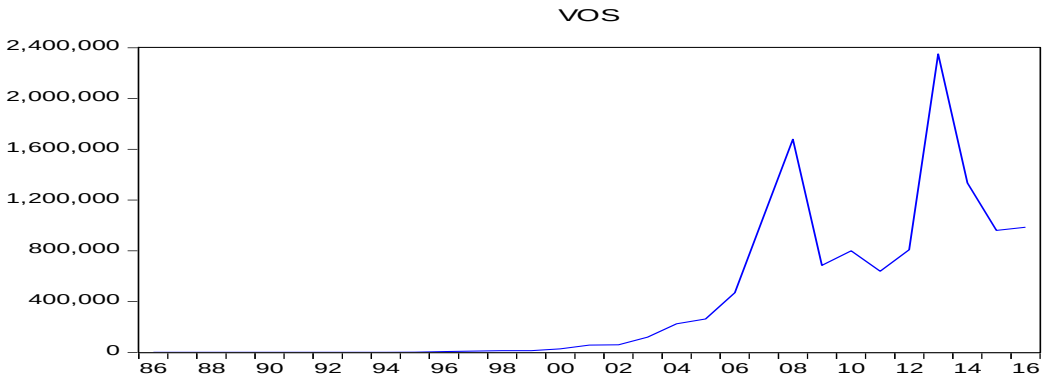

Fig. 3 Volume of Share

In 2014, the cankerworm that foray the camel's back resurfaced, leaving the market with a decline in All Share Index (ASI) and equity market capitalization by 16.31% and 17.70% respectively. In the same vein, market turnover fell by 2.02% and 19.23% in volume and value respectively.

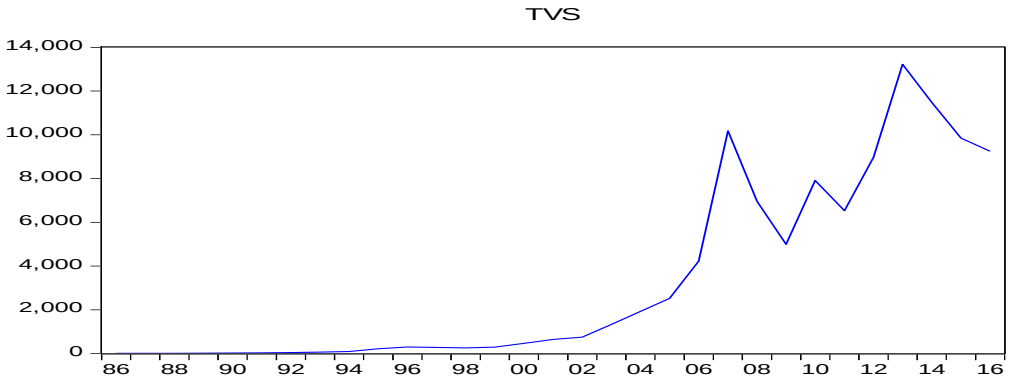

Fig. 4 Total Values of Shares

A review of the net inflow of foreign portfolio investment into the Nigerian capital market showed a decline of ₦20.85 billion (11.16%) over the position in 2010, which was as a result of portfolio managers efforts to cover their positions in the US and Euro zone. A total of ₦312.65 billion was divested in 2011, representing 65.32% of the total inflow of ₦478.62 billion while ₦195.24 billion (51.10%) was divested in 2010 from the total inflow of ₦382.06 billion. Other key factors which accounted for the poor performance of the Nigerian market in 2014 include local investors' apathy for the equity market, absence of loan facilities, margin loan overhang on stockbrokers, hike in money market rates and the security issues in the country. Confidence in the market was further eroded following the total loss of investments in three (3) banks namely, Afribank, Bank, PHB and Spring Bank, taken over by the government. However, primary market activities in 2013 compared favorably with the position in 2007 as the number and value of issues floated appreciated by 6.78% and 45.38% respectively. The offers included equity placements of ₦854 billion to Asset Management Corporation of Nigeria (AMCON) by two banks and bonds worth N17.62 billion issued to institutional investors by AMCON (SEC, 2014).

CONCLUSION

This study examined the test of stock market efficiency in Nigeria. This was done with the purpose of establishing whether changes in supply of stock has a negligible effect on stock price. The study was based on annual data covering the period 1986 to 2016, utilizing the descriptive and trend analysis technique. In this regard, the results revealed that the NSE follow the theory of random walk. This suggests that the current values do not have memory and thus, past values cannot be used to predict the current value.

The trend analysis revealed the performance of stock market indices thereby indicating that any change that occur in the supply of stock cannot be too small or unimportant to be of concern on stock price. This is because price movement of today may significantly determine price movement of tomorrow.

Security and Exchange Commission (SEC) should strengthen their efforts to ensure that all market participants comply with insider trading laws by setting a viable and efficient monitoring team for proper surveillance of market activities and prosecutions of offenders. It should be noted that information imbalance has been a strong threat in the market. Hence, a significant decrease in asymmetric information could boost the investors' confidence and promote competition in the market. All listed firms in the market should be compelled by the authorities (SEC) to release their financial information on time to discourage massive speculative activities that characterised the market. To establish this idea, the authorities should promulgate laws that stipulate the suspension of firms that releases late information and delisting of defaulters from the market. This will not only send a good signal but promote transparency and high level of decency in the market and encourage cross-border listing. In turn, there will be improvement in the liquidity and more investors will be attracted to the market.

To improve the activities of participants, there is the need for proper awareness on the benefits inherent in the capital market. The enlightenment occasionally organized by NSE in Lagos is not enough and should not be the sole responsibilities of Nigerian Stock Exchange

(NSE) and Security and Exchange Commission (SEC) alone. The NSE authorities should appeal to the federal government to integrate the study of capital market as a course in all the universities and establish Chartered institute of Stockbrokers to the four major regions in Nigeria - Eastern, Southern, Northern and Western. This will help to improve the efficiency of the market.

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