



Empirical Test for Weak-Form Efficient Market Hypothesis in the Nigerian Capital Market

¹Dr Adewoyin, A. O., ²Daisi, T. F. (Mrs) & ³T. Adekanye

^{1,2&3}Department of Banking & Finance,

Osun State Polytechnic, Iree

Osun State

daisitaiwof@gmail.com

Abstract: *The Efficient Markets Theory (EMT) of Financial Economics states that the price of an asset reflects all the relevant information available on the value of the asset. Although the EMT applies to all types of financial securities, the theoretical discussions usually focus on one type of security, e.g. shares of common shares in a company. The objective of the research work is to empirically examine the weak-form efficiency of the Nigerian stock market and the data used to carry out this research work was the All-Share Index (ASI) using time series data, 1999-2019. Data analysis techniques involve descriptive analysis, normality tests with parametric run tests. The study found that there is a large difference between the mean and the standard deviation of the variables and the stock returns are normally distributed in the descriptive statistics to determine whether autocorrelation is present in a time-series regression analysis. Durbin-Watson value was 1.81%. The result shows that the stock market return is efficient in the weak form. Because there was no autocorrelation. The study recommended that there is a need for more investigation on the efficiency of the Nigerian stock market because market efficiency changes over time, so the stock market needs to be tested continuously.*

Keywords: *Capital market, market efficiency, weak form, All-share Index, autocorrelation.*

1. Introduction

The stock market is an organized market that includes stocks, bonds, options and futures for the purchase and sale of financial instruments known as securities. Many stock markets have a special spot, known as stock exchanges, where the transactions are done. In order for a company to be traded on these markets, it must be listed, and certain conditions must be fulfilled in order for it to be listed. In cementing the relationship between investors and the corporate sector, the stock market plays a crucial role. In this process, they help mobilize people's savings and direct them to the growth of the economy's commerce, trade, and industrial sectors. It connotes the capacity of a market to distribute financial resources to the most deserving sector of the economy so that all participants will benefit from the allocation effectiveness of the market. And operating efficiency means that it must be fair for the cost of the financial transaction not to be too high. The goal is to produce a return on the capital invested by putting money in the

stock market. Many investors not only aim to make a profitable return, but also to surpass the market, or beat it.

The Capital Market Efficiency Analysis looks at how much, how easily, and how accurately available data is integrated into security prices. A productive capital market is one in which all available and appropriate knowledge about the financial markets and the particular business involved is often completely reflected in stock prices. In the Effective Market Hypothesis (EMH) formulated by Eugene Fama in 1970, however, market efficiency was championed. According to the EMH, since no one has access to knowledge not already available to anyone else, no investor has an advantage in forecasting a return on a stock price.

The EMH's primary beliefs are that data is commonly shared and that stock prices obey a random walk, implying that today's news rather than yesterday's patterns dictates them. However, the strength of these assumptions depends on the type of EMH being considered. (1) Security prices respond

quickly and accurately to new information; (2) Trading rules fail to generate superior returns in simulation experiments; (3) Skilled investors fail to generate superior returns individually or as a group; and (4) Changes in expected returns are influenced by varying interest rates and risk premiums over time. The combined impact of data arriving in a spontaneous, independent manner and various competing investors quickly changing stock prices to represent new information suggests that market movements are supposed to be independent and random. Since the current rates fully represent all the knowledge available, they are consistent with the risk involved. Efficiency in emerging markets is becoming more relevant because the investment trend in these markets is accelerating as a result of regulatory reforms and the elimination of other barriers to foreign equity investment. The term market effectiveness is used to describe the relationship between capital market share and knowledge. One way to calculate the effectiveness of the market is to ask what sort of information is expressed in securities values, encompassing the entire collection of all available information. Consequently, due to the lack of consensus in findings from previous empirical an attempt is made to investigate whether there is no autocorrelation between the futures returns and past returns by running autocorrelation function test (ACF); using the Durbin-Watson test. The technique helps the investigator to examine the relationship between a large number of variables. So in financial markets, the papers will try to conclude EMH.

2.0. Review of Literature

The literature involves citing difference contribution on what capital market is all about and what means to follow in having a strong, viable and reliable market. French mathematician Louis Bachelier performed the first rigorous analysis of stock market returns in his 1900 dissertation. This remarkable work documents statistical independence in stock returns-meaning that today's return signals nothing about the sign or magnitude of tomorrow's return and this led him to model

stock returns as a *random walk*, in anticipation of the EMT. Unfortunately, Bachelier's work was largely ignored outside mathematics until the 1950s. One of the first to recognize the potential information content of stock prices was John Burr Williams (1938) in his work on intrinsic value, which argues that stock prices are based on economic fundamentals. The alternative view, which dominated before Williams, is probably best exemplified by JOHN MAYNARD KEYNES's beauty contest analogy, in which each stock analyst recommends not the stock he thinks best, but rather the stock he thinks most other analysts think is best. In Keynes's view, therefore, stock prices are based more on speculation than on economic fundamentals. In the long run, prices driven by speculation may converge to those that would exist based on economic fundamentals, but, as Keynes noted in another context, "in the long run we are all dead

2.1 Conceptual Framework

2.1.1 Capital market

Jhingan (2004) the capital market is a market which deals in long term loans. It supplies industries with fixed and working capital and finances medium term and long term borrowings of the central, states and local governments. Thus the capital market comprises the complex of institutions and mechanisms through which medium-term funds and long term funds are pooled and made available to individual business and governments.

The capital market has been identified as an institution that contributes to the socio-economic growth and development of emerging and developed economies. This is made possible through some vital roles played, such as channelling resources, promoting reforms to modernize the financial sectors, financial intermediation capacity to link deficit to the surplus sector of the economy, and a veritable tool in the mobilization and allocation of savings among competing uses which are critical to the growth and efficiency of the economy. (Ikeora et al 2016)

2.1.2 Market Efficiency

Market efficiency refers to the degree to which market prices reflect all available, relevant information. If markets are efficient, then all information is already incorporated into prices, and so there is no way to "beat" the market because there are no undervalued or overvalued securities available. Market efficiency was developed in 1970 by economist Eugene Fama, whose [efficient market hypothesis \(EMH\)](#) states that an investor can't outperform the market, and that market anomaly should not exist because they will immediately be [arbitraged](#) away. Fama later won the Nobel Prize for his efforts. Investors who agree with this theory tend to buy [index funds](#) that track overall market performance and are proponents of passive portfolio management.

In 1970, Eugene Fama published his now-famous paper, "Efficient Capital Markets: A Review of Theory and Empirical Work." Fama synthesized the existing work and contributed to the focus and direction of future research by defining three different forms of market efficiency: weak form, semistrong form, and strong form. In a weak-form efficient market, future returns cannot be predicted from past returns or any other market-based indicator, such as trading volume or the ratio of puts (options to sell stocks) to calls (options to buy stocks). In a semi-strong efficient market, prices reflect all publicly available information about economic fundamentals, including the public market data (in a weak form), as well as the content of financial reports, economic forecasts, company announcements, i.e. everything that can be publicly known about the share. If the information's are assimilated almost immediately, no amount of fundamental analysis of publicly available information can lead analyst to a better Prediction of the future price than that contained in the current market price. In strong form, the highest level of market efficiency, prices reflect all public and private information. This includes all publicly available information, both historical and new, or current, as well as insider information.

Even information not publicly available to investors, certain people and groups of people may have privilege access to information which is not publicly available, e.g Directors or Employees of the company. In a strong form of Market efficiency therefore, no investor can make an excess return using information whether publicly available or not.

2.2. Theoretical Framework:

2.2.1. Fama's investment theory

Fama's investment theory – which carries essentially the same implication for investors as the Random Walk Theory – is based on several assumptions about securities markets and how they function. The assumptions include the one idea critical to the validity of the efficient markets hypothesis: the belief that all information relevant to stock prices is freely and widely available, "universally shared" among all investors. As there are always a large number of both buyers and sellers in the market, price movements always occur efficiently (i.e., in a timely, up-to-date manner). Thus, stocks are always trading at their current fair market value. The major conclusion of the theory is that since stocks ***always trade at their fair market value***, then it is virtually impossible to either buy undervalued stocks at a bargain or sell overvalued stocks for extra profits. Neither expert stock analysis nor carefully implemented market timing strategies can hope to average doing any better than the performance of the overall market. If that's true, then the only way investors can generate superior returns is by taking on much greater risk.

2.3. Models of the Stock Market

2.3.1 The Autocorrelation function model

Autocorrelation, or serial correlation, occurs in data when the error terms of a regression forecasting model are correlated. When autocorrelation occurs in a regression analysis, several possible problems might arise. First, the estimates of the regression coefficients no longer have the minimum

variance property and may be inefficient. Second, the variance of the error terms may be greatly underestimated by the mean square error value. Third, the true standard deviation of the estimated regression coefficient may be seriously underestimated. Fourth, the confidence intervals and tests using t and F distributions are no longer strictly applicable. the first-order autocorrelation coefficient, ρ , measures the correlation between the error terms; w_t is a Normally distributed independent error term. If the value of ρ is 0, $e_t = w_t$, which means there is no autocorrelation and e_t is just a random, independent error term.

2.3.2 Durbin-Watson test

One way to test to determine whether autocorrelation is present in a time-series regression analysis is by using the Durbin-Watson test for autocorrelation.

$$D = \frac{\sum_{t=2}^n (e_t - e_{t-1})^2}{\sum_{t=1}^n e_t^2}$$

where n = the number of observations.

The range of values of D is $0 \leq D \leq 4$ where small values of D ($D < 2$) indicate a positive first-order autocorrelation and large values of D ($D > 2$) imply a negative first-order autocorrelation. Positive first-order autocorrelation is a common occurrence in business and economic time series. The null hypothesis for this test is that there is no autocorrelation. A one-tailed test is used:
 $H_0 : \rho = 0$ vs $H_a : \rho > 0$

In the Durbin-Watson test, D is the observed value of the Durbin-Watson statistic using the residuals from the regression analysis. Our Tables are designed to test for positive first-order autocorrelation by providing values of d_L and d_U for a variety of values of n and k and for $\alpha = 0:01$ and $\alpha = 0:05$.

E. 2.3.3 Sample Autocorrelation Function (ACF) Modal

F. The sample autocorrelation function (ACF) for a series gives correlations between the series and lagged values of the series for

lags of 1, 2, 3, and so on. The lagged values can be written as,

$$X_{t-1}, X_{t-2}, X_{t-3}, \text{ and } X_{t-2}$$

2.3.4 The Random Walk Model

The financial asset's price series is said to follow a random walk if the successive price changes is independent and identically distributed (Fama, 1970). However, in practice, according to Ntim et al. (2007), a stock price is said to follow a random walk if successive residual increments are independent and identically distributed (IID). This implies that future price changes cannot be predicted from historical price changes. Financial assets price series is said to follow a random walk if:

$$P_t = \alpha + P_{t-1} + \epsilon_t, \quad \epsilon_t \text{ IIDN}(0, \sigma^2)$$

Where:

P_t = Securities price under consideration
 α = Drift parameter (i.e. the expected price change)

ϵ_t = Random error term (residual)

$\text{IIDN}(0, \sigma^2)$ = Independent and identically distributed as a normal distribution with zero mean and homoscedastic variance. The main essence of the random walk model is that the price changes during period t are independent of the sequence of price changes during the previous period. Fama (1970) argue that the random walk model is an extension of the fair game model. Specifically, the fair game model just indicates that the conditions of market equilibrium can be stated in terms of expected returns while the random walk gives details of the stochastic process generating returns. Therefore, he concluded that empirical tests of the random walk model are more powerful in support of EMH than the test of the fair game model.

2.4. Empirical Literature Review

Several scholars both of old and contemporary times have investigated and tested the various forms of the efficient market. Autocorrelation tests were used by Samuels and Yacout (1981) on the weekly price series of 21 stocks listed on the NSE from 1978 to 1979. Their study found no

autocorrelation and concluded that the NSE was effective in a weak form.

Also, Magnusson and Wydick (2002) combined studies using a partial autocorrelation test for some African markets, including Nigeria. The study found evidence of autocorrelation in share returns for Nigeria, Ghana and Zimbabwe, thus suggesting that these markets are not weak-form efficient. Within the same vein,

Besides, Jefferis and Smith (2005) tested 11 African markets, including Nigeria, for efficiency over time. Time-varying GARCH models were adopted on equity price data covering the period (1990-2001). The study reported that only at the end of the study period did Egypt, Morocco and Nigeria become weak-form effective (i.e. 2001). In sharp contrast to these findings are the studies that have evidence against the random walk hypothesis.

Okpara (2010) examines whether a random walk follows the Nigerian stock exchange (from 1984 to 2006). The Generalised Autoregressive Conditional Heteroskedasticity (GARCH) was employed to carry out the investigation. The results show that a random walk follows the Nigerian stock market and is therefore weakly efficient in form. Nevertheless, the years 1987, the period of financial deregulation, 1988, the period of privatization of certain public companies, 1995, the period of internationalization of the Nigerian capital market, and the years 2000 to 2006 showed persistent volatility clusters, indicating a weak form of market inefficiency during those periods.

By testing for random walks in the monthly return indices for the period 1984-2009, Afego (2012) investigated the hypothesis of weak forms of efficient markets for the Nigerian stock market. The results of the non-parametric test show that a predictable component is shown by the return of the Nigerian Stock Exchange (NSE) index, which suggests that traders can gain better returns by using trading rules. The suboptimal distribution of investment capital within the economy also suggests assumptions for statistically significant deviations from

chance. In general, the findings contradict the weak form of the efficient markets hypothesis. In some capital markets around the world and others, the movement of stock prices is random.

In the Nigeria Capital market, Mayowa and Richard (2012) also tested the weak type of efficient market hypothesis. The All Share Index was analysed using the serial correlation technique from 2001 to 2010. The analysis found that changes in the price of NSE shares are unrelated and are normally distributed. They, therefore, concluded that the weak form of the Nigerian Capital Market is efficient.

In the same vein, Ajao and Osayuwu (2012) have used the technique of serial correlation and run tests to study the weak form of effective market hypothesis in the Nigerian capital market. The scope of the study consists of all securities traded on the Nigerian Stock Exchange floor and the All Share Index's month-end value between 2001 and 2010. The technique of serial correlation of

Data analysis was used to test the independence of the successive price movement and the distributive pattern while runs were used to test the randomness of the movement of the share price. The serial correlation outcome shows that the correlation coefficients were not in breach of the two standard error tests. Also, the Box-Ljung statistics show that none of the coefficients of serial correlation was significant, and the Box pierce Q-statistics show that the overall significance of the serial correlation test was poor, while the distribution pattern results show that movements in stock prices are approximately normal. Based on this result, they conclude that successive price changes are independent of stocks exchanged on the floor of the Nigerian Capital Market and thus the Nigerian Capital Market is successful in a poor form.

With monthly time series data, Udoka (2012) investigated the Nigerian Stock Exchange (NSE) knowledge efficiency and adopted ordinary least square (OLS) to calculate the NSE efficiency and found that the Share Price Index is statistically significant (i.e. the

market is efficient in the weak form). Further proof has shown that an educated investor can make capital gains from a price gap since the t-value is higher than the p-value.

The poor efficiency of the Nigerian stock market was also assessed by Mojekwu and Ogege (2012). They used monthly data (January 1985 to December 2010) and found that there was a clear correlation between past prices and current prices in the econometric study. This means that share prices have not been random during this time, so the stock market is not efficient in a weak way.

Afego (2012) study of the poor form effective random walk market in the monthly index returns between the years (1984-2009) showed predictable components of NSE share prices and therefore indicated that by applying superior trading rules, traders would make superior returns.

Using various statistical tests like the Runs Test, Autocorrelation Feature Test, Ljung-Box Q-Statistics (Box-Pierce Q [BPQ] Test), BDS (Brock-Dechert-Scheinkman) Test for Return Independence, Ezepue and Omar (2012) explored the weak-form successful market hypothesis for the Nigerian Stock Market. The study uses the total returns from the stock market obtained over the period 2000-2010. It is seen that the NSM is not effective in its poor form, which challenges the advantages of the financial reforms of 2004. It is also shown that the degree of market inefficiency varies across the periods corresponding to the financial reforms and 2007 global financial crisis, for daily and monthly returns.

The random walk hypothesis was further explored in Nigeria by Nwidobie (2014). Analysis of all-price-index (API) data of shares of listed companies on the Nigerian Stock Exchange from January 2000 to December 2012 using the Augmented Dickey-Fuller (ADF) test shows that the random walk trend mentioned by Fama (1965) does not match the share price movements on the Nigerian Stock Exchange, and therefore the random walk hypothesis is not supported by results on the Nigerian capital market. The findings also indicate that the presence of market inefficiencies in the

Nigerian capital market necessitates the introduction into the market of cheap and free knowledge on security fundamentals for the pricing of shares by demand and supply powers.

Checked for the existence or otherwise of volatility clustering in the Nigerian stock market, Osazevbaru (2014). The Autoregressive Conditional Heteroscedasticity (ARCH) model and the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model were calculated using time series data on share prices for the period from 1995 to 2009. The estimates show that volatility clustering is displayed in the market. The rate of decay of the response function is found to be 1.1783 and to be very high. Aggressive trade in a wide variety of securities is suggested to be encouraged as this would increase the depth of the market and thereby decrease volatility.

From January 2006 to December 2011, Obayagbona and Igbinosa (2014) studied the weak-form market hypothesis in Nigeria's emerging capital market. To check for the presence or otherwise of autocorrelation in daily stock prices and returns from the Nigerian stock market, it uses three randomness tests based on an autoregressive technique. For both stock prices and their returns, all tests, including the Z-statistics, show significant indications of dependence on return series and therefore of non-randomness. The overall results indicate that the weak form of the emerging Nigerian stock market is not efficient.

Nwidobie (2014) conducts a practical test of the Nigerian capital market. All price index data available in January; 2000 to December; The year 2012 was approved and the Dickey-Fuller Increase Test (ADF) showed that the stock price movement of N. S. A. Did not follow the pattern of random walks described by Pharma (1965), so the study concluded that the hypothesis of random walks was not supported by the findings on the Nigerian capital market.

Ikeora et al, (2016) investigated in the absence of the results of the poor performance of the Nigerian stock market format using the 1985-2014 series data. The data used for this study

is the All Stock Index (AI), which is converted into a stock market return. Time-series electronic techniques were applied for analysis. Studies show that large differences between the mean and standard deviations of variables in descriptive statistics indicate that the stock market is at high risk. The study shows that in the last period from 2011 to 2014, it was found that the return on equity was usually distributed. The results of the serial or random independent trials obtained from the Runs ADF test show that between 1985 and 1992, 1993 to 1999, 2000 to 2010 and throughout 1985 to 2014, the Nigerian Stock Exchange was dependent and non-dependent. No coincidence, so ineffective, indicating that investors can predict market returns. However, the return of shares for the period 2011 to 2014, the market followed a random walk, so investors can not predict the return on the market during that period. Finally, the results show that the return of the previous stock market is positive 15 percent and the forecast energy 0.23 0.23 percent. Therefore, the study concludes that NSA was not effective in the weak form between 1985 and 2010, but came into force from 2011 to 2014.

Ejem, Ogbonna and Okpara,(2020) Researched Efficient Market Theories Dispute and Nigerian Stock Exchange Ties Using All Share Index (ASI) with regular data obtained from the Nigeria Stock Market fact books from January 02, 2014, to May 20, 2019 (1333 observations) and annual data from 1985 to 2018 (34 observations). The study used three analytical methods to determine the poor type hypothesis on the regular and annual all-share index in the Nigerian Stock market, namely the unit root test, GARCH Model and the Autocorrelation cum partial autocorrelation method. The results of these analyses showed a significant relationship between the price series and their lagged values, suggesting that the stock price series in the Nigerian stock market do not follow a random process of walking. Therefore, it asserts that the Nigerian Stock Exchange is not weak in its efficiency.

3.0. Methodology

The thesis adopts an ex-post-facto method of analysis because the information is focused on historical information that can be collected from official stock exchange records. This research used the Nigerian stock exchange's monthly all share index data (NSE). All listings on the exchange are included in the All-Share Index. Also, to provide market-wide evidence, we use index prices, rather than individual stock prices. The index is in local currency and the data consists of 240 findings covering the period from 1999 to 2018. The data was sourced from the Statistical Bulletin of the Central Bank of Nigeria, 2018. The monthly Stock market indices are converted into stock market returns using the formula below:

$$R_{m t} = \ln \left(\frac{P_t}{P_{t-1}} \right) * 100 \dots \dots \dots (1)$$

Where: $R_{m t}$ represents monthly market returns for period t , P_t and P_{t-1} denote market prices for period t and period $t-1$ respectively and \ln denotes natural logarithm. We use this log transformation to convert our data into continuously compounded rates. This practice is common rather than using discrete compounding.

3.1 Method of data analysis

The techniques of data analysis involved descriptive analysis, normality tests with parametric runs test. Our descriptive analysis will be made using mean, minimum and maximum returns.

Normality Tests: Random Walk hypothesis posits that in an efficient market, successive residual increments follow the normal distribution (Ntim et al., 2007).

Normality tests will be performed using skewness, the kurtosis and the Jarque-Bera (JB) test.

Skewness is a measure of the asymmetry of the distribution of the series around its means.

Skewness is computed as:

$$S = \frac{E(\Delta Y_i - \Delta \bar{Y})^3}{\sigma^3} \dots\dots\dots(3.3)$$

Where S is the skewness, ΔY_i is the first differenced NSE return series, $\Delta \bar{Y}$ is the mean of the observations and σ^3 is the cube of the Standard deviation. The Skewness of asymmetric distribution, such as the normal distribution, is zero (0). Positive skewness means that the distribution has a long right tail and negative skewness implies that the distribution has a long left tail.

Kurtosis measures the peakedness or flatness of the distribution of the return series, it is computed as:

$$K = \frac{E(\Delta Y_i - \Delta \bar{Y})^4}{\sigma^4} \dots\dots\dots(3.4)$$

The JB test of normality is a test joint hypothesis that S and K are 0 and 3 respectively. Under the null hypothesis of normality in distribution, the JB is equal to 0. Positive or negative JB value indicates evidence against normality in series.

3.2. Model Specification

4.1. Presentation of Data and Discussion

Table 1: Descriptive Statistics: NSE All Share Index (ASI)

	Stock Returns (1999-2003)	Stock Returns (2004-2008)	Stock Returns (2009-2013)	Stock Returns (2014-2018)	All Stock Returns (1999-2018)
Mean	11321.43	34112.12	27147.26	31969.54	1377.058
Median	10963.10	31450.78	24770.52	31430.50	2844.600
Maximum	20128.94	57990.20	41329.19	38243.19	24800.90
Minimum	5266.400	23844.50	20730.63	26874.62	-26539.42
Std. Dev.	5597.704	14000.43	8496.477	4579.890	10789.34
Skewness	0.683042	1.171749	1.058640	0.282484	-0.392082
Kurtosis	2.377031	2.817136	2.624975	1.703080	4.234193
Jarque-Bera	0.469640	1.151130	0.963232	0.416915	1.692699
Probability	0.790713	0.562387	0.617784	0.811836	0.428978
Sum	56607.14	170560.6	135736.3	159847.7	26164.10
Sum Sq. Dev.	1.25E+08	7.84E+08	2.89E+08	83901565	2.10E+09
Observations	5	5	5	5	20

Source: Author's Computations using EVIEWS 10.0

The descriptive statistics of the stock market returns of the Nigerian Stock Market is

The study used a simple autoregressive model where the dependent variable is hypothesized to depend on its own past values. This helps to identify the presence or otherwise of autocorrelation in the model. The specified model is as follows:

$$y_t = a_0 + y_{t-1} + b + e_t \dots\dots\dots(2)$$

Where: y = Stock prices or returns which the dependent variable

.e = the residuals. Or error term

t = Time (monthly in this case),

yt-1 = Monthly stock prices or returns in the previous year is the independent variable in the above model

.a = constant;

b = coefficient of the relationship between y and yt-1.

To check the weak form efficiency of Nigerian Stock Market (ASI), the study has relied on a

number of statistical and econometric tools.

The study has relied on descriptive statistics, runs test, and simple regression test for analyzing the data.

presented in Table 1 above. Normality of distribution is one of the basic assumptions

underlying the weak-form efficiency. Thus, if capital market returns follow a normal distribution, it means that we cannot predict the future price or returns from the mean of today's price or return. When this happens, it

means that the capital market is efficient in the weak-form, if otherwise, we say that the market is weak-form inefficient. And is normally distributed means is efficient in weak-form.

Dependent Variable: Stock Returns

Method: Least Squares

Sample (adjusted): 1999 2018

Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Y _{t-1}	0.345107	0.209878	1.644320	0.1185
C	-8022.290	6186.484	-1.296745	0.2120
R-squared	0.137222	Mean dependent var		1377.058
Adjusted R-squared	0.086470	S.D. dependent var		10789.34
S.E. of regression	10312.31	Akaike info criterion		21.41937
Sum squared resid	1.81E+09	Schwarz criterion		21.51878
Log likelihood	-201.4840	Hannan-Quinn criter.		21.43619
F-statistic	2.703788	Durbin-Watson stat		1.817998
Prob(F-statistic)	0.118474			

In table 2 above, we observed from the regression that the R-squared value of 0.137 shows that about 13.7% of the systematic variations in the past stock returns explained or predict the future stock prices by 13.7%. We further observed that the explanatory power is very low, this implies that stock return is efficient in weak-form. Durbin-Watson value in this study is 1.81 as per the regression table. The t-statistic =1.644, p-value (0.1185) appears to have insignificant influence at 5% level. The null hypothesis will not be rejected. Thus, there was no autocorrelation

4.2 Findings

The study's results indicate that from 1999 to 2018, the capital market was effective in its poor form. This implies that on the Nigerian Stock Exchange, which previously followed the random walking pattern defined by Fama (1965), the movement of stock prices has improved and is becoming successful. Second, the subject of a large body of

empirical research is on whether capital markets are successful. For the reasons why stock prices are readily available and observable, most surveys use stock price data.

5.1 Conclusion and Recommendations

In conclusion, well-developed capital markets are providing a competitive low-cost system for the delivery of many financial products and services across the world. This, in turn, allows the business community to collect long-term funds that are used to buy capital goods, thus stimulating their development and boosting the country's economic growth. The theory of efficient capital markets offers a valuable basis for the study of several issues. The capital market authority, therefore, needs to enhance the knowledge quality of the capital market in order to further improve the efficiency of the Nigerian stock market. This advice is more fitting when considering the incompatibility of the results of previous studies. More research is needed on the efficiency of the

Nigerian stock market, as market efficiency changes over time, so the stock market needs to be continuously checked. Second, Nigeria's capital markets need to support an effective capital market infrastructure that will give researchers access to data. The study also suggests that stock markets undergo technical and regulatory modernisation to increase information quality.

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