Test of Weak form Stock Market Efficiency in Selected African Stock Markets (2013 - 2015)

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Abstract: This study examined whether a selected African stock exchanges provide evidence of weak form efficiency in the recent time period January 2013 to December 2015. Two objectives examined were the normality of distribution of stock prices in African stock markets; and to ascertain whether current values of the stock prices are related to various lags of the past stock prices in African stock markets. The study covered 13 out of the 28 stock exchanges in Africa, representing 38 nations' capital markets. The Jarque-bera statistics test of normal distribution and Augmented Dicker Fuller test of stationarity for stock market efficiency were employed. The data obtained from the monthly All Share Index data of the markets are log transformed to arrive at stock market returns used for the data analyses. Findings from the result indicate that (1) African stock market follows normal distribution; (2) succeeding price changes are not independent and move randomly in African stock markets. The study concluded that African stock markets are weak form inefficient within the period under study. The study therefore recommended that addressing trading frictions; promoting timely disclosure and dissemination of information to investors on the performance of listed companies; and strengthening regulatory oversight are key elements of a strategy aimed at improving the efficiency of the capital market.
Keywords: African stock market, weak form efficiency, random walk hypothesis, stock market returns, investors, stock trading, abnormal returns, stationarity, normality

INTRODUCTION
Background to the study
Stock market is an important institution that enables investments to be traded, allowing investors to choose where, when and how to channel their investment. The institution is an organized market that converts companies' assets into financial instruments known as security which can be in the form of stocks, bonds, options and futures. The specific locations where most stock markets trade is known as stock exchanges. One important step for a company to be traded at these exchanges is that it have to be listed. Stock market plays important role in strengthening the relationship between investors and the companies whose assets are traded by helping in mobilizing the savings of people and channelling them to the growth of trade, commerce and industrial sectors of an economy.

One of the major and all-important concept for understanding the workings of capital markets, their performance and role in the development of a country's economy is the stock market efficiency. A stock market is defined as efficient if its prices fully reflect all available information [1]. In such an efficient market, prices represent the intrinsic values of the stocks and scarce savings are automatically allocated to productive investments in a way that benefits both investors and the economy [2].

In the famous Efficient Market Hypothesis (EMH), [1] categorized the market efficiency into three levels based on the definition of the available information set as, the weak form EMH, the Semi strong form EMH, and the Strong form EMH. In the weak form, only the past information on prices of shares are reflected, in the semi strong form, it reflects all publicly available information in security prices, including the past security prices and the announcements of dividend payments, changes in capital structure, change of management and other event; while the strong form captures all information be it external, internal and even unannounced. One way to measure the efficiency of the market is to ask what types of information, encompassed by the total set of all available information, are reflected in security prices.

Stock market efficiency goes beyond the mere understanding of the structural relationship between risk and expected return to include the precision with which the market information reflect in its prices. The key

issues are: when new information unveils about a particular company, how quickly do the prices of that company's share adjust to reflect the new information? When the prices respond to and reflect all relevant new information in a rapid fashion, we can say that the market is relatively efficient. On the other hand, when, the information disseminates rather slowly throughout the market, and when investors allow time lags in analyzing the information and reacting to it, or possibly overreacting to it, stock values at the market may depart from intrinsic values of the stock. The time it lasted for the analyses of such information and the attitude of investors are key elements of an inefficient market. The characteristics of an ideal efficient security market include: (1) Security prices respond rapidly and accurately to new information; (2) Trading rules fail to produce superior returns in simulation experiments; (3) Professional investors fail to produce superior returns individually or as a group; and (4) Changes in expected returns are driven by time varying interest rates and risk premia. The joint effect of randomness of information, independent stock prices and presence of many competing investors adjusting stock prices rapidly to reflect new information, it is expected that price changes should be independent and random. Then the stock value becomes consistent with stock risk as current prices fully reflect all available information.

The advent of globalisation and recent internationalisation of stock markets has made it that foreign investors can easily trade across the stock markets in the world. As well, activities of various stock markets can now be analysed and compared. With the high level of technological advancement that enable fast flow of information, investors can monitor that activities across stock market, allowing investors the opportunity to attempt using available information in one stock market to arbitrage across markets.

The African market is not an exception to the current reforms and development in stock market exchange. Over the last three decades, there has been a substantial increase in the number of stock markets in Africa. With only 8 active stock markets in 1980s, the number of stock markets in Africa increased to 18 by the end of 2002. Currently, there are 29 stock markets in Africa (see Appendix 1), and there has been proposals to open new stock markets in Congo D.R., Equatorial Guinea, Ethiopia, the Gambia, Lesotho, Madagascar, Mauritania and Sierra Leone [3]. [4] posited that phenomenal growth in stock markets in Africa can be attributed to the financial sector reforms undertaken by African countries. Eight stock exchanges has remained very active in African stock market including the Johannesburg Stock Exchange (South Africa, 1887), the Cairo and Alexander Stock Exchange (Egypt, 1888), the Zimbabwean Stock Exchange (Zimbabwe, 1896), the Casablanca Stock Exchange (Morocco, 1929), the Nairobi Stock Exchange (Kenya, 1954), the Nigerian Stock Exchange (Nigeria, 1960), and the Tunisian Stock Exchange (Tunisia, 1969). The ratio of active to total stock exchanges in Africa is about 28% indicating that African stock market is current inactive.

With the potential thin trading identified in African stock market equities [5,6], it becomes pertinent to question the liquidity of African stock markets. Liquidity enables market participants to buy or sell quickly at a price close to the last traded price. Though, [7], noted that market can become efficient if investors see the market as inefficient and try to outperform it. This is possible in a liquid market where security can be easily bought or sold, at low or no cost. This study aims to determine the status of weak form efficiency in African stock market by using only current data from 2013 and 2014.

Conceptual Framework
Stock market is a mechanism for trading on existing securities that represent the value of shares and bond of firms and government institutions. The prices of these securities, the trading process and allocation of ownership is said to be efficient if the security reflects the necessary information that could make the trading to take place at its fair value, less transaction cost and given to the right person.

The three types of market efficiency (operational, allocation and pricing efficiency) defines the criteria for stock market efficiency (see Fig 1). Operational efficiency implies that all transactions in securities are carried out instantly, correctly, and at a low cost [8]. Operational efficiency may be promoted through enhancing competition between exchanges for secondary market transaction. The allocation efficiency refers to mechanism which allocates scarce resources to where they can be most productive. The highest bidders is allowed to have the investment opportunity which implies that most efficient use of scarce resource is ensured in the economy. Finally, pricing efficiency connotes that an investor can only expect to earn risk-adjusted returns from an investment as prices move instantaneous and in an unbiased manner to any news.
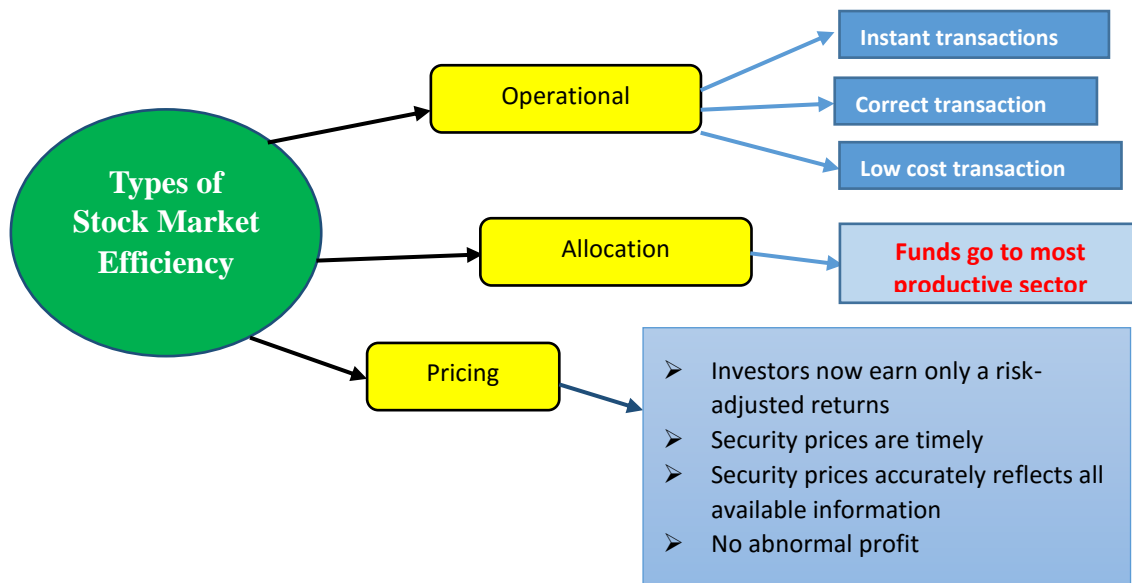
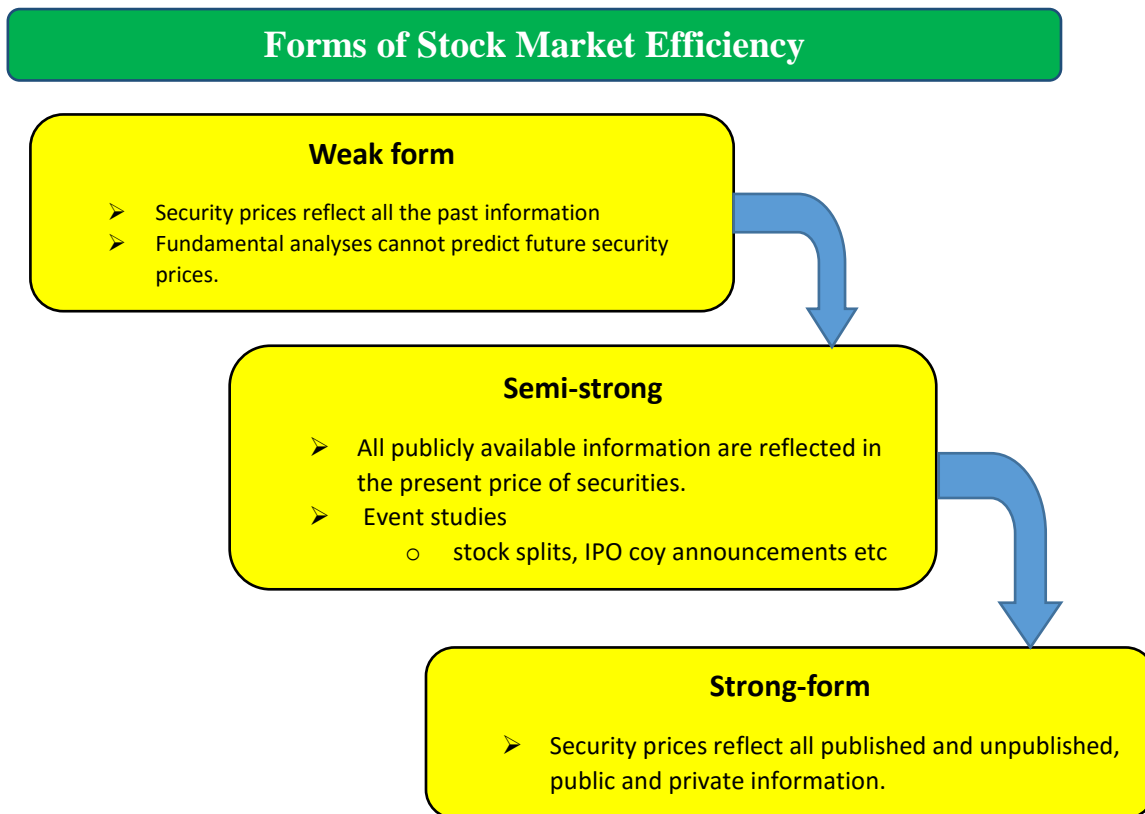**Fig-1: Concept mapping of the types of market efficiency**

Hence, a capital market is described as efficient if security prices are timely and accurately reflects all available information about the current and future likely worth of the assets [9]. The core issue about capital market efficiency lies with the pricing efficiency of the securities. Thus, an efficient market is one in which prices fully reflect available information such that no abnormal returns can be made from this information because current prices already reflect the information and any abnormal returns (where it exists) should not be statistically significant from zero [1,10].

Thus the concept of capital market efficiency is such that the ability of securities to reflect and incorporate relevant information, almost instantaneously, in their prices [11]. This implies efficient in processing information that related to the stock that is being priced [12]. In this scenario, as the stock and bond markets are perfectly efficient and current prices fully reflect all available information, both the buyers and sellers cannot take undue advantage of information to make abnormal profits from the market [13].

Three forms of stock market efficiency were hypothesised in the Efficiency Market Hypothesis as the weak form, semi-strong form, and the strong form efficiencies, define level of the information set available to investors in the markets [14]. These three forms

represent stages of information availability and reflection in the prices of stock. Figure 2 depicts the level of development in information availability as weak, semi-strong and strong forms of market efficiency.

The weak form which is defines the efficiency of a market with respect to the past of asset prices, has become the most empirically investigated form of the stock market efficiency [15]. It posit that if a market is efficient, abnormal profits (earnings beyond that which is enough to compensate investors for time and risk taking) are postulated to have "a mean of zero conditional on past information" [14]. The test for weak form market efficiency usually involved testing for linear serial dependence between successive prices to establish if the price process follows a random walk. The presence of any noticeable trends in the past price process is interpreted as evidence that abnormal returns may be earned consistently based on technical trading rules, thus a violation of the random walk model. Empirical studies on the weak form of the market efficiency are thus principally tests that established the predictability of stock market return, as consistent with the view that the theory of the Efficient Market Hypothesis (EMH) that prices fully reflect available information implies only that prices are sub-martingales [1,16].

Forms of Stock Market Efficiency

Weak form

➢ Security prices reflect all the past information
➢ Fundamental analyses cannot predict future security prices.

Semi-strong

➢ All publicly available information are reflected in the present price of securities.
➢ Event studies
  ○ stock splits, IPO coy announcements etc

Strong-form

➢ Security prices reflect all published and unpublished, public and private information.

Fig-2: Concept mapping of the forms of stock market efficiency

The semi-strong efficiency is the level of efficiency which assumes that all publicly available information about a given security has been accurately factored into the present price of that security [17]. [18] looked at semi-strong efficiency as a situation where the security prices reflect not only past information but all other published information. This form is concerned with both the speed and accuracy of the market's reaction to information as it becomes available. Event studies that examine how stock prices adjust to specific significant economic events have been used to directly test semi-strong form efficiency. Events normally tested are stock splits, initial public offerings (IPO), company announcements (especially earnings and dividend announcements) and other unexpected economic and other world events. The semi strong form of market efficiency deduces that the share prices reflect all available information both publicly and privately existing. Various other methods have been employed to test the semi-strong efficiency.

Furthermore, the strong-form efficiency is a situation where the security prices reflect not only public information but all information that can be acquired by painstaking analysis of the company and the security [18]. According to [11], in strong-form efficiency, the security prices reflect all published and unpublished, public and private information. It seems to be more concerned with the disclosure efficiency of the information market than the pricing efficiency of the securities market. Tests for the strong form efficiency

are mainly centred on finding whether any group of investors, especially those who can have access to information otherwise not publicly available, can consistently enjoy abnormal returns. This implies that no one ' having private or public information can out beat the market, because the market automatically anticipates in an unbiased manner the stock prices and incorporates the effect of all these information on the share prices [19].

Empirical Studies

An ample of extant literature exist that explains weak form efficiency nexus in Africa. The results of these studies are presented on Table 1. The extant literatures cut across stock markets in Nigeria, Nairobi, Zimbabwe, South Africa, Egypt, Morocco, Mauritius, Kenya, Ghana, Tunisia, Namibia, Botswana and the West African Regional Stock Exchange in Cote d'Ivoire. Review was a fair representation of the selected countries, only that it did not cover Uganda and the Dares Salaam Stock Exchange in Tanzania. The reviewed studies showed conflicting findings.

For instance, in ten (10) empirical works involving Nigeria, four (4) supported that Nigerian capital market is weak form efficient [20-23] while six (6) of them including [24-28] posited weak form inefficiency. However, all the empirical evidences showed that South African stock market had remained largely weak form efficient all the time [20,29,30]. More so, most of the studies show that African stock

market are largely weak form inefficient in Zimbabwe, Mauritius, Kenya, Ghana, Egypt, Morocco, Tunisia, Botswana and the West African Regional Stock Exchange in Cote d'Ivoire [20,29,6]. However, Namibia and Nairobi were found to have weak form efficient stock markets [6,31].

Evidences from empirical studies further showed that economic conditions, reforms and nature of data can influence the efficiency of the markets. For instance, [32] posited that this weak form efficiency of the market was under the linear framework, whereas when nonlinearity is accounted for, a majority of the indices becomes weak form inefficient. Further to the influence of trend of data, the efficiency of the market has been influenced by various factors including financial reforms, economic/financial crisis, the nature

of data used (daily, weekly, monthly or yearly returns) [27] and time variants issues wherein some periods could experience market efficiency while other years would not [21].

Also, a cursory look through the summary on Table 1 below also show that the studies that provided these conflicting results equally used similar methodology, time frame, and data type (daily, weekly or monthly). It becomes worrisome to find out the source of conflict in weak form efficiency tests. As some of the studies have proven that time factor could influence market efficiency, the present study aims to determine the status of weak form efficiency in African stock market by using only current data from 2013 and 2014.

Table 1: Review of weak form efficiency in African stock markets

S N	Author and year	Markets Under study	Time frame and data	Method of Analyses	Findings
1	[20]	South Africa, Egypt, Morocco, Nigeria, Zimbabwe, Mauritius and Kenya	Monthly stock prices: Early 1990s and ending in June 2001.	GARCH approach	Kenya, Zimbabwe and Mauritius were not weak form efficient while Nigeria, Morocco, Egypt and South Africa were. Market efficiency improves over time.
2	[29]	Ghana, Mauritius, Egypt and South Africa	Monthly: June 30, 1995 to June 27, 2003	1. Kolmogrov-Smirnov, 2. Goodness of Fit Test, 3. Runs Test, 4. Auto-Correlation Test, 5. Variance Ratio Test, 6. Box-Jenkins ARIMA	South Africa was weak form efficient, while Ghana, Mauritius, Egypt were not weak form efficient
3	[6]	Egypt, Kenya, Zimbabwe, Morocco, Mauritius, Tunisia, Ghana, Namibia, Botswana and the West African Regional Stock Exchange in Cote d'Ivoire.	Daily closing stock prices: Jan 2, 1997 to May 31, 2002	1. serial correlation 2. Runs tests.	All the markets (except Namibia), were not weak form efficient
4	[33]	Zimbabwe	Monthly stock prices: Jan. 1998 to Nov. 2006	Augmented-Dickey Fuller (ADF) tests	Not weak-form Efficient
5	[30]	Egypt, Moroccan, South African and Tunisian stock markets	Daily index values: Jan. 4, 2000 to Mar. 26 2009	1. ADF test, 2. Autocorrelation test, 3. Runs test, 4. variance-ratio test, 5. GPH fractional integration test	All the markets (except South African market) were not weak-form Efficient
6	[21]	Nigeria	Monthly: 1984 to 2006	GARCH	Weak form efficient
7	[34]	24 African continent-wide	Daily closing stock price indices: 1998 to	variance-ratio tests	Returns of African continent-wide stock

		stock price indices and 8 individual African national stock price indices.	2008		price indices are less non-normally distributed compared to the 8 individual national stock price indices
8	[25]	Nigeria	Monthly: 1984-2009	1. Kolmogrov-Smirnov 2. goodness of fit, 3. Runs test,	Not Weak form efficient
9	[22]	Nigeria	End of the month data: 1986-2004	ordinary least square (OLS) regression	Weak form efficient
10	[27]	Nigeria	Daily and monthly Returns: 2000–2010.	1. Runs Test, 2. Autocorrelation Function Test, 3. Test for Independence of Returns. 4. Ljung-Box Q-Statistics	Not weak-form Efficient
11	[23]	Nigeria	End of the month data: 2001 – 2010	1. Serial correlation techniques(Box-Ljung statistic and Box pierce Q statistics) 2. Runs Test	Weak form efficient
12	[35]	Botswana	Monthly stock prices: 2004 – 2008	1. Unit root tests 2. Autocorrelation test, 3. Kolmogorov-Smirnov, 4. Runs Test	Not Weak form efficient
13	[24]	Nigeria	daily and weekly: Jan. 2007 - Dec. 2009 and June 2005 - Dec. 2009	1. autocorrelation tests, 2. Runs test, 3. Variance ratio test,	Not Weak form efficient
14	[36]	Ghana	Monthly data: Jan., 2007 to Jun, 2012	1. Kolmogorov-Smirnov 2. runs test 3. Descriptive statistics	Not Weak form efficient
15	[37]	Zimbabwe	Daily and weekly closing stock prices: Feb. 19, 2009 to Dec. 31, 2012	1. Runs test, 2. Autocorrelation test, 3.	Not weak form efficient
16	[13]	Zimbabwe	Daily closing prices: Feb. 19, 2009 to Jun. 28, 2012	1. autocorrelation, 2. runs test 3. Q-statistic test	Not weak form efficient
17	[28]	Nigeria	Monthly stock prices: Jan. 2006 to Dec. 2011	1. Auto-correlation test 2. Ljung- Box Q test, 3. LM serial correlation, 4. The unit roots test, 5. Runs test.	Not weak form efficient
18	[26]	Nigeria	Monthly data: Jan. 2000 - Dec. 2012	Augmented Dickey-Fuller (ADF)	Not Weak form efficient
19	[31]	Nairobi	Weekly Data: 2000 to 2009	1. serial correlation 2. run tests	Weak form efficient
20	[32]	5 generalized stock indices in the JSE, South Africa	weekly data: Jan. 31 2000 to Dec. 16 2014	1. Classical augmented Dickey-Fuller tests, 2. Two-regime threshold autoregressive unit root tests 3. Three-regime unit root tests.	Linear framework indicated weak form efficient for South African stock, whereas nonlinearity accounted for weak form inefficient.

MATERIAL AND METHODS

The population for this study was all the 28 exchanges in Africa, representing 38 nations' capital markets. A convenient sampling technique was adopted to select thirteen (13) African Stock Exchange Markets for the study. The inclusion into the sample was informed by availability of data on the 28 African stock exchanges.

This study used the monthly all share index data. The All share index includes all listings on the exchange. Given that using daily or weekly prices in a return series comprising of infrequently traded stocks may lead to significant biases in the results [38], the study adopted the monthly price series because of the potential for thin trading in Africa stock market equities [5,6]. Additionally, the study used index prices, rather than individual stock prices, to provide market-wide evidence. The index was in local currency of the respective African countries and the data consists of 36 time serial observations for each Exchange spanning from January 2013 to December 2015. The data were obtained from the online site of the *African Markets*, retrieved from https://www.african-markets.com/en/stock-markets/ (January 20, 2016). The monthly index returns derived from the index levels were transformed into continuously computed returns as:

$$R_{mt} = Ln(P_t - P_{t-1}) \qquad (1)$$

Where: R_{mt} represents monthly market return 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. The log transformation was employed in order to convert the data into continuously compounded rates. This practice is common rather than using discrete compounding [29].

Two statistical methods were applied to check the weak form efficiency of African Stock Markets. These are descriptive statistics (including Jarque-Bera statistics) for hypothesis one and test of randomness or serial independence using Augmented Dickey Fuller test of stationarity.

RESULTS AND DISCUSSION

The study used monthly data from January 2013 to December 2015 making up 36 observations for each country. The log transformed series of the returns were used. At first the descriptive statistics of the variables were determined and stationarity tests were performed to find out whether the selected stock markets are weak form efficient.

Normality of distribution of stock prices in Africa stock markets

The test of normality involved the use of descriptive statistic. The basic requirement for any market to be random or to follow the weak form of efficient market hypothesis is that the returns should follow a normal distribution. Descriptive statistics is an essential tool to test whether the given data is normally distributed or not. The returns of African Stock Market All Share Index were analyzed on basis of mean, standard deviation, and Jarque-Bera (J.B). Mean is the average value while standard deviation measures dispersion in the series. The Jarque bera statistics in the descriptive statistic results tested the null hypothesis one that "African stock market returns follow normal distribution". The result of the descriptive statistics analyses are shown on Table 2.

Decision Rule: At 0.05 level of significance, normality is rejected if the p.value is less than 0.05, otherwise accept normal distribution.

Table 2: Descriptive Statistics of African stock market returns (2013 to 2015)

Stock Exchange	Mean	Standard Deviation	Jarque-Bera		Finding
			Statistics	Prob.	
NGSE	0.9955	0.0559	0.2566	0.8795	Normal distribution
GSE	1.0124	0.0570	3.8750	0.1441	Normal distribution
ZSE	0.9882	0.0624	9.5079	0.0086	Non normal distribution
USE	1.0100	0.0527	0.8022	0.6696	Normal distribution
TUNINDEX	1.0023	0.0260	0.5570	0.7569	Normal distribution
SEMDEX	0.9998	0.0224	4.2095	0.1219	Normal distribution
NSX	0.9929	0.0553	1.0070	0.6044	Normal distribution
NSE	1.0109	0.0448	1.4677	0.4800	Normal distribution
MASI	0.9993	0.0300	5.0777	0.0790	Normal distribution
EGX30	1.0086	0.0648	1.1829	0.5535	Normal distribution
DSE	1.0121	0.0420	2.1139	0.3475	Normal distribution
BRVM	1.0140	0.0453	7.4318	2.1866	Normal distribution
BDCI	1.0088	0.0203	0.0243	0.3351	Normal distribution

Source: Descriptive Statistics result from Eviews 8.1

It is clear that the calculated p-value is greater than 0.05 significance level to suggest that there is no

evidence to reject the null hypothesis of a normal distribution for the monthly returns of the African Stock Market (except for ZSE).

The mean distribution of the stock market returns for each of the African stock markets are larger than the respective standard deviation, and this suggest that there was no excessive dispersion from the series within the period under study. However the statistical significance of the mean series and their dispersion is tested with Jarque-bera statistics. The Jarque-Bera tests reject the normality assumption regarding the distribution of log returns, for all, except the ZSE at both 1% and 5% levels of significance. Thus, the study conclude that African stock market follows normal distribution. Therefore, this implies that the monthly returns of the African stock markets do not follow the theory of random walk. This posits that African stock markets are still inefficient even in the weak form.

Test of serial independence or randomness of the African Stock Markets returns
In this sub-section, the weak form efficiency of stock markets in Africa is tested using stationarity test.

The Augmented Dickey-Fuller (ADF) autoregressive model is used in this study to determine the stationarity (absence of randomness) of share values. The aim is to ascertain whether current values of the stock prices are related to various lags of the past stock prices in African stock markets. The result is shown on Table 3 below.

Decision rule: At 0.05 level of significance, reject the null hypothesis when p.value < 0.05, otherwise accept the alternative hypothesis. Rejection of null hypothesis means that time series is stationary.

From the Table 3, the ADF statistics show that the successive returns for all the stock markets are not independent at 1% and 5% level of significance and thus the null hypothesis "*The current values time series of the Nigerian stock markets prices are not related to the past stock prices*" cannot be accepted in periods. This show that the succeeding price changes are not independent and move randomly in African stock markets. This indicated that these markets are inefficient, and investors can predict the markets returns.

Table 3: Augmented Dicker fuller test of stationarity

Stock Exchange	t-Statistic	Probability	Finding
NGSE	-5.246733	0.0001	Stationary
GSE	-5.338182	0.0001	Stationary
ZSE	-6.694021	0.0000	Stationary
USE	-8.605364	0.0000	Stationary
TUNINDEX	-5.761792	0.0000	Stationary
SEMDEX	-6.010170	0.0000	Stationary
NSX	-4.662953	0.0006	Stationary
NSE	-6.709455	0.0000	Stationary
MASI	-5.533360	0.0001	Stationary
EGX30	-6.206252	0.0000	Stationary
DSE	-5.628377	0.0000	Stationary
BRVM	-6.634584	0.0000	Stationary
BDCI	-4.050252	0.0034	Stationary

Source: Extract from Augmented Dicker Fuller tests result from Eviews 8.1

CONCLUSIONS
The study has examined the weak form efficiency of African stock market using the log transformed stock market returns for thirteen stock market exchanges in Africa. The Jarque-Bera statistics indicated that African stock market follows normal distribution. Augmented Dicker Fuller test showed current prices are related to the past stock prices. This shows that African stock prices can be predicted from previous stock price movements. This implies that the monthly returns of the African stock markets do not follow the theory of random walk. Thus the study concluded that African stock markets are weak form inefficient within the period under study. Moreover, as inefficient stock market implies that stock prices are consistent mispriced, one would expect that stock prices in African Stock Exchanges are prone to arbitraging and

unguarded market manipulations. This supposes that African stock market could suffer inflated stock prices, speculation, and insider trading, all potentially intensified by herding behaviour. This notion can have negative effect on investor confidence.

The results have negative policy implications for investment in Africa because the efficiency of a market in processing information affects its allocation capacity, and therefore its contribution to economic growth. Efficiency of the capital market is one important factor that spurs the development of the stock market. For African stock markets, this can explain low stock market activities.

Furthermore, the findings from the study suggest discrepancy in the behaviour of equity market

returns and associated market volatility. This would have adverse implication for portfolio diversification and risk management strategies in Africa. In particular, these results may be useful to investors given that price volatility is an important driver of active investment returns; and, volatility is also a key determinant of risk premium in equity markets.

It is pertinent to note that addressing trading frictions; promoting timely disclosure and dissemination of information to investors on the performance of listed companies; and strengthening regulatory oversight are key elements of a strategy aimed at improving the efficiency of the capital market. Specifically, capital market regulators in African countries should take a leading role in regulating abnormal financial activities. Market operators culpable for insider trading offences should be punished to ensure availability of information on securities to the market allowing the free interplay of demand and supply to determine security values as current market values of securities on the stock exchange reflect available security information. Capital market regulators should ensure that information provided in the market are correct; laws to protect investors and guard against manipulation of information in the capital market should be promulgated and enforced by government of African countries.

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