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Impact Of Calendar Anomaly Effects And Stock Price Volatility On Performance Of Stock Market Return In Nigeria (1986 – 2018)

[1]Salamatu M.K Bashir; [2]Assoc. Prof. A.A Alexander;
[3]Dr. Mrs, B.U.K Farouk &[4]Dr. Adeneye Olawale Adeleke

[1]Department of Economics, Faculty of Arts and Social Sciences
Nigerian Defence Academy Kaduna.
salamatubashir@hotmail.com; +234-8039560354

[2]Department of Economics, Faculty of Arts and Social Sciences
Nigerian Defence Academy Kaduna. Telephone number: +234-8066255941

[3]Department of Economics, Faculty of Arts and Social Sciences
Nigerian Defence Academy Kaduna. Telephone number: +234-8066255941

[4]Department of Economics,
Faculty of Arts and Social Sciences
Nigerian Defence Academy Kaduna, Telephone number: +234-7032845999
Olawalesuccess17@gmail.com

ABSTRACT
Calendar anomaly and stock price volatility is an issue that bothered on the operators of the capital market. This is because every rational human being desire good investment returns however, the uncertainty in the market can result to low performance of stock market returns. More so, empirical debates on the exact impact of calendar anomaly and stock price volatility on performance of stock market returns are inconclusiveness with mixed outcome. Thus, this called for empirical research. The main objective of this study is to examine the impact of calendar anomaly effects and stock price volatility has on performance of stock market returns in Nigeria between 1986 and 2018. Econometric technique of Autoregressive Distributed Lag Model and Generalized Autoregressive Conditional Heteroscedacity Model was employed to analyze the time series data sourced from World Bank Development Indicators, 2018 The finding of this study show that calendar anomaly effects has negative and significant impact on performance of stock market returns in Nigeria, more so, stock price volatility has negative and insignificant impact on performance of stock market returns in Nigeria. Estimation of GARCH model suggest that one percent variation in calendar anomaly and stock price volatility led to -22% variation in performance of stock market returns. Based on the findings of this study, the following recommendations are suggested: Policy formulation and implementation on price mechanism such as fixed rate, semi flexible rate for the quoted stock that will checkmate stock price volatility should be put in place by government and authority responsible for regulating stock market operation to avoid price skimming. In addition, policy formulation and implementation that will monitor and enforcing total compliance of rule and regulation that govern calendar effects targeting to protect the investors in the market via efficient market hypothesis should be formulated and implemented.
Keywords: Stock market, stock price volatility, Calendar anomaly

INTRODUCTION

Theoretically, evidence from literatures has shown that stock market plays a vital role in the development of an economy by providing and rising long-term funds to companies for business expansion, and also provides investors with a part ownership of a company. Stock market is a financial market where issuing and trading of securities are carried out. The aim of a stock market is to simplify the exchange of securities between buyers and sellers which can in turn reduce the risks associated with investing. So a stock market can be considered as a super-sophisticated market providing a linkage between buyers and sellers (Securities and Exchange Commission of Pakistan, 2018).

This market is been regulated by a commission or an agency set up by federal government of various nations. Ojah and Kodongo (2015) pointed out that Stock Exchanges provide a platform for corporations to access external capital through debt and equity issuances (primary markets) and for holders of the issued ownership certificates to trade them in a secondary market (liquidity provision). Hence, Stock Exchanges also give investors the opportunity to directly invest in large corporations whilst also playing a regulatory role in ensuring that they (investors) are not exploited.

In the Nigeria context, Nigerian Stock Exchange was established in 1960 and has been in existences up till-date. According to Onthatile (2017) in 2015, it recorded a total market capitalization of US$49,456,969,735 and it had 184 listed companies. In the same year, it recorded a turnover of US$3,931,503,298 and had 917,946 trades. NGSE 2 has multiple stock price indices such as the NGSE 30 and Sector Indices. It also has an All Shares Index which includes all listings. The All Share Index which is value-weighted will be used to examine volatility as it has been maintained by NGSE 2 since 1984.

In not in doubt, a well-developed stock market is expected to attract investors, a channel of funds in the economy, mobilise savings, and enhance efficient allocation of financial resources hence, enhancing economic growth and development. This underscores the essence of numerous studies like (Antony & Monday, 2013; Ezepue & Omar 2012; Ilaboya & Aggreh, 2013; Rapuluchukwu, 2010; Yadirichukwu & Ogochukwu 2014) which seek to test stock market efficiency in relation to stock price volatility.

Nevertheless, it is commonly known that stock price is very unpredictable, even on a daily, weekly and monthly basis (Yanan, 2014). The reason for that is due to forces of supply and demand which influences price. In stock markets, a large volume of stocks are traded every day. If there are more people who buy a stock than the people who sell it, out of the expectation that the price will go up in the future, then the price will rise. Conversely if more people want to sell it than to buy it, the stock price will fall dramatically. However, investors' expectation for the market is in a permanent state of fluctuation due to all kinds of information obtained over time that strongly affect their decision-making. That's also why the stock trading has been processed so often over a short period of time due to this share price volatility.

Stock price volatility which is also refers to as shares price volatility is a measure of risk in the stock market and involves a change in the prices of stock that is shares (Mgbame & Ikhatua, 2013). As such, share price volatility is an unavoidable phenomenon in the market that rests on fundamentals, information and past market experiences (Aurangzeb, 2012). Share price volatility is used to show price trends in the market. Share price volatility affects smooth operations of the financial system creating uncertainties hence affecting stock market performance (Ilaboya & Aggreh, 2013). Beyond certain levels, high volatility may increase the possibility of losses for investors which in turn may raise concerns over the conditions of the market and the entire economy (Pryymachenko, 2003). Also, volatility is a determining factor in bid-ask spread since growing volatility is associated with the wider spread between bidding and asking prices which effectually affect the security return/stock return.

Meanwhile, there many situations where anomalies occurred due to calendar anomalies or effects; literally, the word "Anomaly" refers to a phenomenon that is different from what is normal or expected. In financial markets, anomalies have been defined in relation to security return/stock return. According to Bodie, Kane and Marcus (2007) anomalies is a pattern of returns that seem to contradict the Efficient Market Hypothesis. The EMH assumes that share prices move freely at random and reflect all available information at any given time. Therefore, it is impossible to make abnormal profit based on the anomalies of the calendar given the fact that stocks will always trade at a fair value.

Some market anomalies appear, disappear and re-appear so quickly, while others happen frequently without any warning. Calendar anomalies include, amongst others, Day-of-the-week effect (DOW), Month of the year effect and holiday effect etc. The day of the week effect refers to the tendency of stock returns for each trading day exhibiting relatively higher returns or profit on a particular day for instance on a Friday compared to the reaming days. The month of the year effect refers to a situation where stock returns in some months are significantly higher than other months. However, the day of the week effect has gained the attention of so many financial researchers all over the world. The average daily return of the market is not the same for each day of the week. This phenomenon can affect investors in their investment strategy, portfolio selection as well as profit management given the fact that efficient market hypothesis states that no investor can earn an extra profit, as the stock prices reflect all information. Thus, understanding calendar effect as it affects the performance of the Nigerian stock market return is of significant important for investment strategy and a better understanding of market efficiency.

Nevertheless, despite several debates on the impact calendar anomaly effect and stock price volatility has on performance of stock market return in Nigeria there is still the need for further empirical research this is because previous empirical studies on this subject matter have not unanimously agreed on the impact calendar anomaly effect and stock price volatility has on performance of stock market return in Nigeria. For instances studies like; Aroni (2011); Wafula (2016) and Onthatile (2017) concluded that stock volatility has a negative and an insignificant effect on stock market return such that an increase in share price volatility to little extent reduces stock market returns on the contrary studies like Zakaria, Muhammad, and Zulkifli (2012), Bikker, Broeders and Dreu (2010) and Chege, Othieno, & Kodongo (2014) opine that stock volatility has a significant effect on stock market return.

This inconclusive and mixed outcome has created a vacuum in the contextual literature which this study intends to fill.

There are studies done in the past that have looked into these concepts, stock price volatility or share price volatility and the financial market performance, in Nigeria and across the globe. For instance, studies of Wafula (2016), Osazee and Nosakhare (2014), Closer home, Omuchesi and Bosire (2014), Barasa (2014) and Gworo (2012) focuses on shares price volatility and stock market performance, past market information has it affects the volatility of stock prices in Nigeria, introduction of the automated trading system and its effect on volatility at the NSE, market capitalization and volatility of prices at the NSE. However, a significant number of these studies have not simultaneously examined the impact calendar anomaly and stock price volatility has on the performance of the stock market returned in Nigeria between the period of 1986 and 2018. More so, various empirical studies across regions of the world which studies are similar to this subject matter produced different findings without unanimously agreed on the impact calendar anomaly and stock price volatility has on the performance of the stock market return. For instances studies like; Aroni (2011); Wafula (2016) and Onthatile (2017) concluded that stock volatility has insignificant effect on stock market return such that an increase or decrease in share price volatility to a very little extent reduces stock market returns. On the contrary studies like Zakaria, Muhammad, and Zulkifli (2012), Bikker, Broeders and Dreu (2010) and Chege, Othieno, & Kodongo (2014) opine that stock volatility has a significant effect on stock market return. Thus, inconclusiveness and mixed results in the literatures on the impacts calendar anomaly and stock price volatility has on performance of stock market return in Nigeria between 1986 and 2018 called for deliberate further research in order to ascertain the exact impact of calendar anomaly and stock price volatility on performance of stock market return in Nigeria between 1986 and 2018. Therefore, this study proposes the following null hypotheses; (i) that calendar anomaly and stock price volatility does not have any significant impact on performance of stock market return in Nigeria. The rest of the paper is organized as follows; Section two is the review of selected literature relevant to the subject matter. Section three focuses on methodology while section four focuses on the result of data analysis and discussion while, section five, deals with conclusion and recommendation.

LITERATURE REVIEW

Conceptually, according to Wafula (2016) stock or share price volatility is the unavoidable market phenomenon that reflects on fundamentals of finance, information in the market and investor expectations. According to Onthatile (2017) stock market price volatility is a common phrase that speaks to the fluctuations in stock prices and, by extension, stock returns. Gatuhi (2015) discusses volatility as a measurement of the uncertainty that comes with investing in the stock exchange. It is the frequency of fluctuation in the share prices for a given term (Siopis and Lyroudi, 2007). Thus, a volatile share varies significantly, and it is not possible to predict what the future price will be (Khaled, Chijoke, & Aruoriwo, 2010). An asset price is said to be volatile when its theoretical value is covering a range of numbers indicating that the price can significantly shifts either way in the short-run.(Ramadan, 2013). Uyaebo, Atoi & Usman (2015) defined the concept of stock market volatility as the measure to the degree of variation of the current stock price from its average past values, which is synonymous with the risk level of the market. Despite the various opinions on concept of stock market volatility, it has remained an important issue in the stock market as it generates market returns and brings investors experience. In the traditional sense, volatility is the variability or the level of dispersion of stock returns from its mean.

According to Economy Watch (2016), stock market returns are defined as the returns investors generate from the market. This could be inform of positive or negative returns and are not homogenous in nature as they vary from investor to investor depending on the amount of risk one is ready to take. Opondo (2016) defined investment return also known as stock returns or gain that an investor receives from a stock market. The return could be in form of capital gain resulting from trading or in kind of dividends paid by the company to the investors from time to time. Reddy (2016) described stock return as the investment carried out by an investor in a firm or company with a view of expecting some income which is known as stock returns and these returns can be in the form of profits earned from trading or dividend received. Anwaar (2016) states that stock returns highly depend on the market risks, therefore the returns can either be negative returns or positive returns depending on the level of market risks an investor is willing to take.

Wasseja, Njoroge & Mwenda (2015) defined the term stock market performance as an indicator that explains how stock perform good or poor there by determining the future expected returns of an investor in relation to their respective risks. (Aurangzeb, 2012) states that stock market performance is simply measured by its fluctuation in price. That is to say an increase in stock prices signals a goods stock performance while a decrease in stock prices shows a poor performance in the stock market in that period. The market index is usually used as a benchmark to measure a section or the entire stock market performance within a specific period for decision making purposes (Shaharudin, Samad & Bhat, 2009). Thus, the All share Index (ASI) of the Nigerian stock market represents 80% of market capitalization and hence a valid reason to use to measure the stock market performance in Nigeria. Total market capitalization can also be used to gauge the performance of the market by summing up the entire volume of shares traded in the totality to determine how active the market is (Clements, Izan, & Lan, 2011).

According to Jílek (2012) anomalies in stock returns are abnormal behavior in stocks markets that are connected with price but also with stock volume traded in the markets. According to efficient market hypothesis average daily expected returns should be identical for the whole year. This implies that here is no reason why average returns on Monday should be higher than average returns on Friday. Hasan (2017) defined stock market anomaly as a financial market situation that varies from the norm. Also, George & Elton (2011) defined stock anomaly as irregularity or a deviation of stock prices/return from common or natural order or an exceptional condition. Arora and Bajaj (2017) defined stock anomalies as situations when a stock prices deviates from the notion of efficient markets. Similarly, Yavrumyan (2015) states that stock anomalies relate to the distortions that contradict the efficient market theory thereby, creating an opportunity to earn abnormal returns.

The tendency of any financial market returns displaying any systematic patterns at certain times of the day, week, month or year is refer to as calendar effect (Brooks, 2018). Calendar anomaly as defined by (Karz 2011) is any abnormal market behavior associated with particular time period i.e. movement in stock prices from day to day, month to month, year to year etc .these include day of the effect, month of

the year effect, end of the effect etc. These phenomena have been referred to as anomalies because they cannot be explained within the existing paradigm of EMH. Abrahamsson and Creutz (2018) defined Calendar anomalies as the stock market returns fluctuation depending upon the time of the day, week or year. Stock market calendar anomalies can further be explained as abnormal returns that cannot be justified by the EMH and that may have been developed due to reasons such as holidays or weekdays. Therefore, presence of calendar effects can entail emergence of a predictable pattern in returns that can be utilized by investors to earn abnormal returns. Yavrumyan (2015) relates calendar anomalies to the observation that the distribution of returns on stock is unequal for a certain calendar period. Bonie (2007) defines Calendar anomalies as a particular day, month or period of the year stock returns that behaves contrary to the market efficiency hypothesis. The anomaly is reflected in the varying distribution of returns on stocks within the investigated period, and this variation may present a systematic pattern. Therefore, presence of calendar effects can entail emergence of a predictable pattern in returns that can be utilized by investors to earn abnormal returns. There are different types of calendar anomalies that can be can be attributed to the day, month or year effects.

Zilca (2017) defined day of the effect as the tendency of stock returns on an index to be systematically higher on Friday and lower on Monday. Similarly, Yavrumyan (2015) states that day-of the-week effect relates to the significant inequality in mean of returns for different days of the week. In particular, it was found that returns on Monday are on average the smallest and sometimes even negative, while returns on Friday are positive and highest compared to returns on other days of the week. This anomaly is also known as the weekend effect. Liu and Li (2010) states that, the day of the week effect refers to the tendency of stock returns for each trading day exhibiting relatively higher returns or profit on a particular day for instance on a Friday compared to the reaming days.

Chinzara and Slyper (2013) defined day of the week effect as a financial phenomenon where stock returns prices is averagely higher on particular days of the week more the rest of the days. Such trends or consistent patterns occur at a regular interval or at a specific time in a calendar year. Doyle and Chen (2009) describe the day of the week as its unusually large positive returns on Fridays relative to Mondays and further explained that the most obvious cause of this effect is the impact of weekend news on Monday's return. Negative returns on Mondays could be due to the release of bad news and information over the weekend.

Borges (2010) defined month of the year effect as a market situation where the returns tend to be higher or lower in a specific month, when compared with the other months of the year. The most commonly reported month effect is the tendency for returns to be higher in January. Liu and Li (2010) defined month of the year effect as the tendency for particular month of the year to generate significantly higher returns relative to the other months. Most anomalies related to monthly returns involve January (positive yields). This is also called the January effect (Fama, 1980). However, some markets exhibit the opposite, with negative January and positive returns on other months.

Theoretical Review

Two finance Theories namely; Efficient Market Hypothesis proposed by Fama (1970), and the Asset Pricing Theory developed by Ross (1976) were considered appropriate for this study to explain the impact of calendar anomaly and stock price volatility on performance of the stock market return.

Fama (1965, 1970) developed the Efficient Market Hypothesis which rests on the premise that prices of stocks include all information available such as company announcements in no investment strategy utilized can result in abnormal profits. The Efficient Markets Hypothesis (EMH), presupposes that current information is immediately included in prices of shares such that no extra profits can be made using the information (Fama, 1970). EMH postulates that a market that is efficient is both internally and externally efficient; thus, the price assets at any point include all information on the asset, expected future cash flows and the uncertainty involved in investing in that security (Mgbame & Ikhatua, 2013).

The market efficiency is in three forms which are the weak form of efficiency, the semi-strong form of efficiency and the strong form of efficient market. Weak form of market efficiency has prevailing prices of securities includes every past information available including a historical sequence of prices, market return, market capitalizations and information from the market (Ilaboya & Aggreh, 2013). The semi-

strong form of efficiency argues that current prices of stock include all the existing informational content of historical prices and the publicly available information about corporations (Malkiel, 2005). The semi-strong form of EMH covers the weak form and the available of day to day data enabled tests, which presents evidence of public information affecting prices of stocks in limited time. The strong form postulates that security prices include the available information and even private information.

Due to limitations of earlier asset pricing theories, the Arbitrage Pricing Theory Ross (1976) was introduced. This asset pricing theory establishes the theoretical framework to relate stock returns with several variables, which can affect the source of income volatility (Shrestha & Subedi, 2014). Arbitrage Pricing Theory's ability to include multiple factors in the model has made it influential in the pricing of assets. APTs multi-factor model has investor believe that the probabilistic nature of returns is well captured in the structure of the factors in the model (Mutuku & Kirwa, 2015). The Arbitrage Pricing Theory employs macroeconomic or fundamental factors in the pricing of financial assets. These factors are weighed by factor loading which is the beta coefficient sensitivities (Otweyo, 2014).

The APT rests on the premise that in an efficient financial market, arbitrage process should be possible. APT further assumes some factors, which make returns of security to deviate from expectation. These factors are market and sector related, and they contribute to Performance of stocks. This multi-factor model was created with the assumption that some factors guide the performance of the stock market. These include sector related and relevant macroeconomic forces (Gatuhi, 2015). APT model assumes that several industry-specific and broader macroeconomic factors that impact asset returns besides the beta. Market Beta is the sensitivity of particular assets to the shifts in returns, on which CAPM is anchored, such as the GDP, the rate of inflation and composition of rates of interest and so on, which could impact organizations in several ways (Tripathi & Seth, 2014).

The Arbitrage Pricing Theory proposes that expected returns are a function of several market indices which are theoretical in nature and broader macroeconomic factors (Aroni, 2011). APT measures the acceptable risk-return based on individual risk factors and tries assess their significance and whether they are priced in tandem with market returns (Tripathi & Seth, 2014). APT correlates with market portfolio concept, according to the theory individuals have different portfolios of investments with their particular systematic risk. APT proposes better results comparatively to CAPM because it used multiple factors for explaining shared and systematic risk (Hassan & Awais, 2015). Following the Efficient Market Hypothesis (EMH), theoretical framework of this study can be theorizing as follow.

Onthatile (2017) investigates the behavior of Africa's stock price volatility over time in ten African equity markets. It also attempts to establish the existence of a relationship between volatility and expected returns in the chosen equity markets. The effect of volatility on the stock prices is also investigated, together with establishing variations in the stock return volatility risk premia. Furthermore, an investigation of whether volatility is transmitted from international markets to African markets is also undertaken. The sample period starts from November 1998 until December 2016. The study employed general Autoregressive Conditional Heteroscedasticity model (GARCH-type models), Findings of the study revealed that as volatility increases, the returns correspondingly decrease by a factor of the coefficient for most of the equity markets. The result also showed that stock return volatility risk premia have variations over time. The study also established that there was volatility transmission from the international markets into Africa equity markets.

Wafula (2016) examines the effect of share price volatility on stock market performance at the Nairobi Securities Exchange. This study explored the Efficient Markets Hypothesis and the two pricing theories; APT and CAPM. The study adopted a descriptive research design. The study used secondary data, which covered a ten-year period: 2006 – 2015. The data collected was analysed using the Karl Pearson correlation and multiple linear regression. The study findings indicate that share price volatility and interest rates negatively affect stock market performance while rates of interest and supply of money positively impact the performance of the stock exchange. The study also revealed an insignificant effect on share price volatility and stock market performance but a significant effect on rates of interests, the supply of money and economic growth. The study concluded that share price volatility negatively affects stock market performance such that an increase in share price volatility reduces stock market returns.

Nkoro and Aham (2016) investigate the relationship between exchange rate and inflation volatility and stock prices volatility in Nigeria, using time series quarterly data from 1986Q1-2012Q4. The volatilities of exchange rate and inflation in this study were calculated using standard GARCH(1,1) models. The relationship between exchange rate, inflation volatility and stock prices volatility was examined using GARCH(1,1)-S models of an extended GARCH-X models. The findings of the study show that there is a negative relationship between stock market prices volatility and exchange rate and inflation volatility in Nigeria.

Onoh (2016) investigated day of the week effect in the Nigerian stock market from 2009-2015 using OLS. Evidence from the study concluded that Friday returns were significantly higher than other days of the week thus, concluded the presence of DOW in NSE daily return. Oduwole (2015) examined the DOW effect of the Nigerian stock return using simple GARCH. He concluded that there is no significant DOW effect or even month effect in the Nigerian stock return.

Ajobola and Nwakanma (2014), investigated market anomalies using 140 listed companies in the Nigeria equity market using both GARCH and TGARCH model, they concluded that there is a significant market anomaly in the Nigeria stock exchange. Similarly, Osazevbaru and Oboreh (2014) also investigated the Nigerian stock market anomalies by employing the OLS methods and the GARCH model under the normal error distribution assumption with data spanning from January 1995 to December 2009. They found evidence of Monday effect in the Nigerian stock market. In another perspective, Olowe (2014) investigated day-of-the-week effects in the Nigerian foreign exchange market using the GARCH and GJR-GARCH models under the normal error distribution assumption for period 2002 to 2009. Although the results failed to support the presence of the day-of-the-week in the FOREX rate returns, but there was evidence of the effects in the volatility. The GARCH model was found to fit better than the GJR-GARCH model for the data used.

METHODOLOGY

This study employed Autoregressive Distributed Lag (ARDL) approach to investigate the impact of calendar anomaly effects and stock price volatility on performance of stock market return in Nigeria between 1986 and 2018. More so, to determine volatility, Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models widely used was adopted.

Autoregressive distributed lag (ARDL) model, also known as bounds testing approach to co-integration, was originally developed by Pesaran and Pesaran (1997) and expanded by Pesaran, Shinb and Smith (2001). ARDL model is adopted for this study for four main reasons. First, bounds test method for co-integration is being applied irrespective of whether the variable are integrated first order I(1) or I(0). It thus has conditional unrestricted equilibrium ECM, (Pesaran, et al., 2001). Second, it is more robust and performs better for small sample sizes (such as in this study) than other co-integration techniques like Engle and Granger (1987), Johasen and Juselius, (1990). Third, all variables of the model are assumed to be endogenous thus its estimates are unbiased and efficient, since they avoid the problems that may arise in the presence of serial correlation and endogeneity and Four, the short-run and long-run coefficients of the model are estimated simultaneously.

ARDL models are linear time series models in which both the dependent and independent variables are related not only contemporaneously, but across historical (lagged) values as well. In particular, if y_t is the dependent variable and $x1,\ldots,x_k$ are k explanatory variables, a general ARDL(p,q1,…,qk) model is given by:

ARDL models are linear time series models in which both the dependent and independent variables are related not only contemporaneously, but across historical (lagged) values as well. In particular, if y_t is the dependent variable and $x1,\ldots,x_k$ are k explanatory variables, a general ARDL(p,q1,…,qk) model is given by:

$$y_t = a_0 + a_1 t + \sum_{i=1}^{p} \psi_i y_t + \sum_{j=1}^{k} \sum_{1,=0}^{qj} \beta_{j,lj} x_{j,t-lj} + \varepsilon_t \quad \ldots\ldots\ldots\ldots \quad (1)$$

where ε_t are the usual innovations, a_0 is a constant term, and a_1,ψ_i, and $\beta_{j,lj}$ are respectively the coefficients associated with a linear trend, lags of y_t, and lags of the k regressors $x_{j,t}$ for j=1,…k. Alternatively, let L denote the usual lag operator and define $\psi(L)$ and $\beta j(L)$ as the lag polynomials:

$\psi(L) = 1 - \sum_{i=1} \psi_i L^i$ and $\beta_j(L) = \sum_{i=0} \beta_{j,l_j} L^{lj}$

Then, equation (1) above can also be written as:

$$\psi(L)y_t = a_0 + a_1 t + \sum_{j=1}^{k} \beta_j(L)x_{j,t} + \epsilon t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \qquad (2)$$

Although ARDL models have been used in econometrics for decades, they have gained popularity in recent years as a method of examining cointegrating relationships. ARDL models are especially advantageous in their ability to handle cointegration with inherent robustness to misspecification of integration orders of relevant variables. Borrowed from Greene (2003) this study employed the log form modification of ARDL model bounds testing approach by substitute the variables understudy into the specified equation (1) as presented as follows:

$$\log SMR_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta \log DOW_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta \log MOY_{t-1} + \sum_{i=0}^{p} \beta_3 \Delta \log SPV_{t-1} + \delta_1 dow + \delta_2 moy + \delta_3 spv + \mu_t \quad \ldots. (3)$$

Where Δ is a difference operator, t is time, β_0 is an intercept term, β_1, β_2, β_3 *and* β_4 and $\delta 1$to $\delta 4$ are the coefficients of their respective variables and ps are the lag lengths. Other variables are as defined earlier. To examine the existence of long-run relationship following Pesaran et al (2001), the study first test, based on Wald test (F-statistics), for the joint significance of the coefficients of the lagged levels of the variables, i.e.

Ho: $\delta 1 = \delta 2 = \delta 3 = 0$ and H1: $\delta 1 \neq \delta 2 \neq \delta 3 \neq 0$

The asymptotic critical values bounds, which were tabulated in Pesaran et al (2001), provide a test for cointegration with the lower values assuming the regressors are I(0), and upper values assuming purely I(1) regressors. If the calculated F-statistics exceeds the upper critical value, the null hypothesis is rejected, implying that there is cointegration. However, if it is below the lower critical value, the null hypothesis cannot be rejected, indicating lack of cointegration. If the calculated F-statistics falls between the lower and upper critical values, the result is inconclusive. Once cointegration is established, the conditional ARDL long-run model can be estimated as:

$$\log SMR_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta \log DOW_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta \log MOY_{t-1} + \sum_{i=0}^{p} \beta_3 \Delta \log SPV_{t-1} \ldots\ldots + \mu_t \quad \ldots. (4)$$

In the next step, we obtain the short-run dynamic parameters by estimating an error correction model associated with the long-run estimates. This is specified as follows:

$$\log SMR_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta \log DOW_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta \log MOY_{t-1} + \sum_{i=0}^{p} \beta_3 \Delta \log SPV_{t-1} \vartheta ecm \ldots\ldots + \mu_t \quad \ldots. (5)$$

Where ecm is the error correction representation of equation (3) and ϑ is the speed of adjustment.

Where ϑ is the speed of adjustment parameter and ECM is the residuals that are obtained from the estimated co-integration model of equation. Peseran et al., (2001) suggested applying the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) tests whose equation is detail in Brown et al., (1975) to assess the parameter constancy of the model. The justification for co-integration and error correction model is to add richness, flexibility and versatility to the econometric modeling and to integrate short-run dynamics with long-run equilibrium. Hence, accurate predictions can be more confidently made on the economic relationship between the variables.

In the same vein,

$\Delta logSMR_t = \beta_0 + \beta_1 \Delta logDOW_{t-1} + \beta_2 \Delta logMOY_{t-1} + \beta_3 \Delta logSPV_{t-1} + ECM + \varepsilon_t$ ……. (6)

Where: $log(SMR)_t$ = log of stock market return at time *t*, a proxy of all share index

log(DOW) = log of day-of-week effect at time *t*

$log(MOY)_t$= log of month-of-year effect at time *t*

$log(SPV)_t$ = log of stock price volatility at time *t*

β_0 is intercept; β_1, β_2, and β_3 = model coefficients of elasticity

ε = epsilon which represents a random variable called the error term

Where: Δ is the first difference operator, α_0 is the intercept and e_t is white noise error. The components ($\alpha_1 – \alpha_8$) correspond to the short-run relationship while $\beta_1 – \beta_8$ is the long run equation. According to Nkoro and Aham (2016) to determine volatility, Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models are widely used. Thus, GARCH model Process

Conditional Mean Equation

$$R_t = \psi_0 + \sum_{i=1}^{K} \theta_t R_t\text{-}1 + \varepsilon_t \qquad \varepsilon_t / \Omega_t\text{-}1 \sim N(0, h^2_t) \qquad (7)$$

Conditional Variance Equation

$$h^2_t = \psi_0 + \sum_{i=1} \theta_t \varepsilon^t{}_i\text{-}1 + \sum_{i=1} \beta j\, h^2{}_{t-1} \beta_n VX_t \qquad (8)$$

$(t) > 0, \theta_t\ \beta j \overset{p}{\geq} 0 \rightarrow h^2_t \geq 0,\ i = \ldots p$, and $j = 1, \ldots q$

Equation (7), the conditional mean equation, is an autoregressive process of order k (AR(k)). R_t represents the stock prices/returns, Parameter ψ_0 is the constant, Rt-1 is the autoregressive component, k is the lag length, ε_t is the heteroskedastic error term with its conditional variance. The equation is a pure autoregressive process, AR(p). Equation (8) is the conditional variance equation where p is the number of ARCH terms, and q is the number of GARCH terms. $\theta_j \varepsilon^2{}_{i-1}$ (the ARCH term) captures the news about volatility from the previous period measured as the lag of the squared residual $\varepsilon^2{}_{t-1}$ from the mean equation. $\beta_j h^2{}_{t-i}$ (the GARCH term) measures the last period's forecast variance as a function of the past residuals ε_{t-2}, ε_{t-3},. VX_t is a vector of explanatory stock market behaviour at time t. VX_t = *[VCAE, VSPV]*. That is, calendar anomaly effect and stock price volatility. As earlier stated, this study employed the AR(K)-GARCH-S model to investigate the relationship between stock market return and calendar anomaly and stock prices volatility in Nigeria. This model by nature accounts for time varying effects of calendar anomaly- day of the week effect, month of the year effect and stock prices volatility on the performances of stock market returns. These techniques allow the conditional variance to change over time. Above all, the time varying degree of interactions between the stock market return and calendar anomaly and stock prices volatility can be best captured by GARCH-S model.

However, before the application of AR(K)-GARCH-S technique, preliminary tests were conducted, such as the stationarity test of the variables using the Augmented Dickey Fuller test (1979) (ADF) and Kwiatkowski-Phillips-Schmidt-Shin test statistic(1992) (KPSS), the long-run relationship test of the Nigeria's stock market return and calendar anomaly and stock prices volatility was conducted using Johansen and Juselius cointegration test(1990) and, the descriptive analysis of the underlying variables was carried out to check the characteristics of the series. After the preliminary tests, the calendar anomaly and stock prices volatility are calculated using AR(1)-GARCH(1,1) model while that of stock market returns is embedded in the conditional variance equation that is used for the relationship we investigated. Given, the calculated predicted calendar anomaly and stock prices volatility, the relationship between the conditional volatility in stock market return and calendar anomaly and stock prices volatility is examined by estimating the conditional variance equation of GARCH model as shown in equation 8.

To ascertain the robustness of the GARCH model, the study adopted some in sample diagnostic techniques. These diagnostic techniques includes; the Ljung- Box (1978) test statistics, Q(p)and *Q* (p).

These tests examine the null hypothesis of no autocorrelation and homoskedasticity in the estimated residuals, and squared standardized residuals, up to a specific lag, respectively. Engle's (1982) LM statistic is used to test the null hypothesis of no ARCH effects up to a specific order. In fact, if the GARCH model is specified correctly, then the estimated standardized residuals should behave like white noise, that is, they should not display serial correlation, conditional heteroskedasticity, or any other type of nonlinear dependence.

Secondary time series data was sourced from the from the World Bank/World Development Indicator, (2018) and fact book of Nigeria stock exchange commission on variables which include; day of the week effect (DOW), month of the year effect (MOY), stock price volatility (SPV) and stock market return (SMR) proxy by all share index in Nigeria between 1986 and 2018. Stock market return (SMR) in this study it serve as dependent variable while, day of the week effect (DOW), month of the year effect (MOY), stock price volatility (SPV) serves as independent variables. Econometric technique of Autoregressive Distributed Lag Model and Generalized Linear Model were used in analysis of secondary data sourced using Eview 10 to generate and analyzes descriptive as well as inferential statistics for the study. However, the analysis includes both residual and coefficient diagnostics tests in order to satisfy certain econometric assumptions.

4. RESULTS AND DISCUSSIONS

Descriptive statistics was used in this study because they help to describe the basic features of the data in a study as presented in table 1.

Table 1

Descriptive Statistics

	SMR	DOW	MOY	SPV
Mean	11.61515	10.12028	10.03254	13.50486
Median	11.90000	10.18328	10.08021	12.32820
Maximum	37.60000	10.83238	10.97799	27.52800
Minimum	-37.00000	8.541123	8.657459	7.561000
Std. Dev.	16.44174	0.510431	0.514349	5.920325
Skewness	-0.818382	-1.419459	-1.041570	0.906876
Kurtosis	3.902127	5.308732	4.706908	2.749256
Jarque-Bera	4.802640	18.41084	9.972884	4.609780
Probability	0.090598	0.000100	0.006830	0.099770
Sum	383.3000	333.9693	331.0740	445.6605
Sum Sq. Dev.	8650.582	8.337287	8.465753	1121.608
Observations	33	33	33	33

Source: Researcher Computation using Eview 10

Table 1 presents the descriptive statistics which describes the characteristic of the data used in the study. The study observation is 33. The skewness which measures the degree of asymmetric of the series shows that all the variables understudy namely; stock market returns (SMR), day of the week effect (DOW), month of the year effect (MOY) exception of stock price volatility (SPV) have negative sign that is long-left tail as well as normal skewness and platykurtosis because all the values are within the range of 1 to 3 kurtosis of 3 meanwhile, kurtosis greater than 3 is said to be leptokurtic. If the kurtosis exceeds 3, the distribution is peaked (leptokurtic) relative to the normal; if the kurtosis is less than 3, the distribution is flat (platykurtic) relative to the normal. The Jarque-Bera test statistic which measure the difference of the skewness and kurtosis of the series with those from the normal distribution show that all the variables understudy were all significant with the probability that a Jarque-Bera statistic exceeds (in absolute value) the observed value under the null hypothesis - a small probability value leads to the rejection of the null hypothesis of no normal distribution.

Figure 1 present the bar chart of the relationship that exists among stock market returns (SMR), day of the week effect (DOW), month of the year effect (MOY) and stock price volatility (SPV).

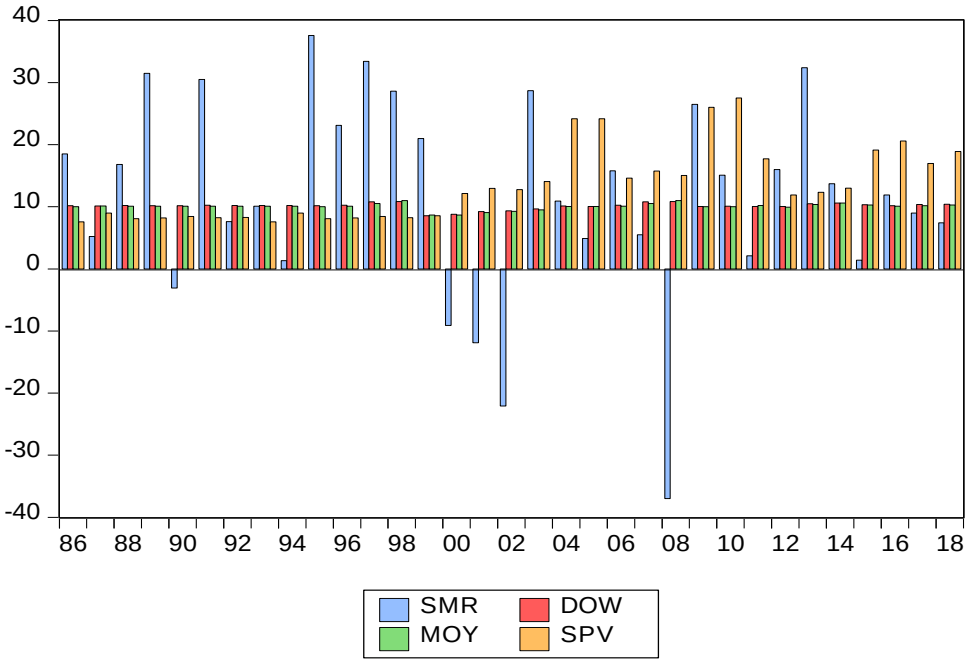

Figure 3: Bar Chart of the descriptive statistic
Source: *Researcher Computation using Eview 10*

Furthermore, a close look at the figure 3 show that stock market returns is highly volatility fluctuated up and down. However, stock market returns in 1994 performed well reaching greater height of 40 but fall below zero in 2008 exhibits greater loss reacting to day of the week effect (DOW), month of the year effect (MOY) and stock price volatility (SPV) while, stock price volatility (SPV) varies between zero and 30. More so, the week effect (DOW), and month of the year effect (MOY) both varies between zero and 10. This situation is not good for economy since unpredicted increase or decrease in the week effect (DOW), month of the year effect (MOY) and stock price volatility (SPV) can affects performance of stock market returns in undesirable manner causing panic in the economy.

Both multiple line graph and stark in single line graph respectively were employed as presented in figure 4 a and b.

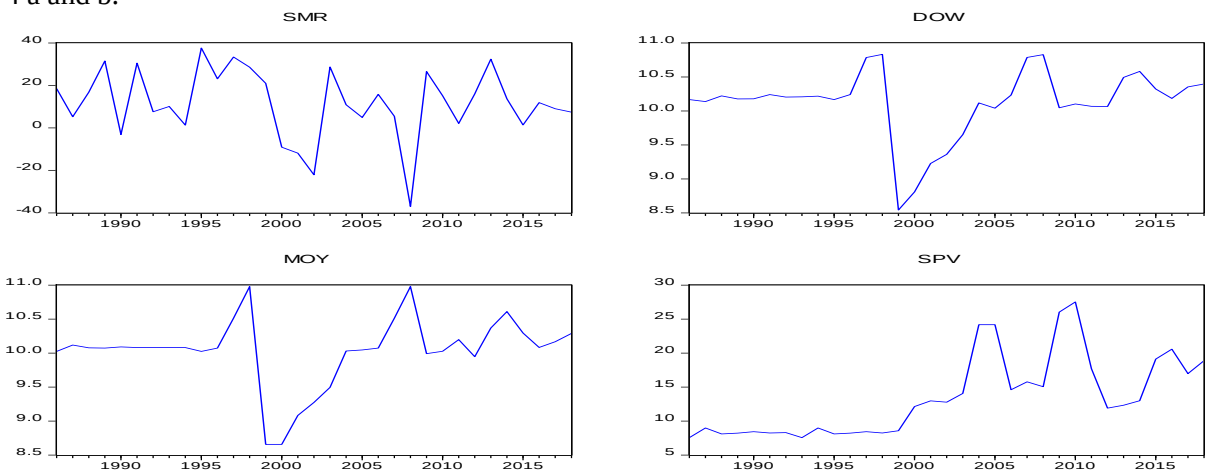

Figure 2a: *Multiple line graph*
Source: Researcher Computation using Eview 10

Figure 2a presents series of graph which depict the trend of stock market returns (SMR), day of the week effect (DOW), month of the year effect (MOY) and stock price volatility (SPV). The graphs revealed that all through the years 1986 and 2018 all the variables understudy exhibited volatility. However,

performance of the stock market returns (SMR) witness serious decline between the years 2005 to 2010 this may be attributed to shock in the stock global market coupled with stock market recapitalization in Nigeria during this period.

However, sharply rises in 2010 as a result of government intervention policy, again, the performance of the stock market returns (SMR) slightly down in year 2015 this may be attributed to the uncertainty in the capital market alluded policy shift which is inherently associated with the transition of power such as from President Goodluck Jonathan to President Muhammed Buhari. Meanwhile, from 2016 the stock market returns is gradually picking. Furthermore, between the years 1986 to 1995 the day of week effect is relatively steady and gradually rise between 1996 up to 2000, then dramatically fall late 2000 this situation can be attributed to global economic down tool who create multiplier effect across the stock market worldwide. Afterward, early 2001 up to 2010 the day of week calendar effect exhibit gradually upward trend and randomly walk from 2010 up till 2018. Similarly, month of the year calendar effect is synonymous to the day of week calendar effect this expected because day make week and weeks make month. However, stock price volatility remain relatively stable not sharply rise or fall moving at slow rate prior to 2005 when the stock price fall up to 2010 then later pick at early 2011 and moving in that same direction. Figure 2b below present the stack line movement of the variables understudy.

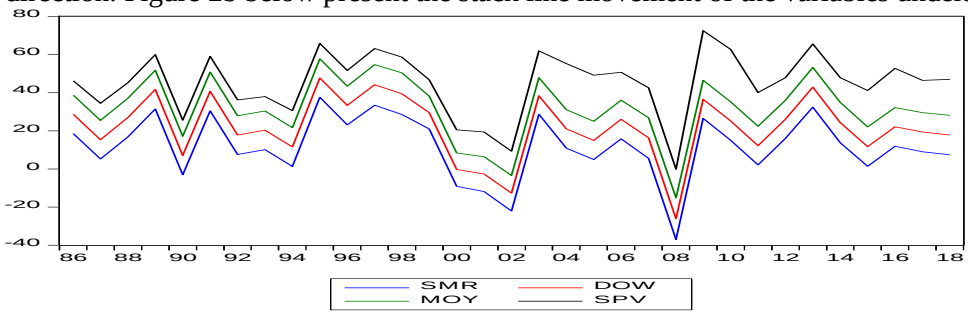

Figure 2b: stack line single graph

Source: Researcher Computation using Eview 10

The figure 2b show that the trend of stock market returns (SMR), day of the week effect (DOW), month of the year effect (MOY) and stock price volatility (SPV) fluctuated exhibits noise walk or randomly walk due to both exogenous and endogenous factors the trend exhibit non-linearity. However, both aforementioned variable movements up and down at unpredicted rate. This finding is line with previous studies who concluded that the stock returns, calendar anomalies and its price exhibited randomly walk. Refers to appendix A1 for the table presentation.

Series of Unit Root Test

Table 2a and b respectively presents the summary of the ADF and PP tests results for each series and also included in the test-model are the intercept and trend. The reason for including intercept and trend in the model, is because the model with these parameters is the least restricted.

Table 2a

Series of Augmented Dickey-Fuller Test (ADF) Output Results

Coefficients	Critical Values at 5%	ADF Values	Probability	Comments
D(SMR)	-2.976263	-4.755848	0.0008	I(0)
D(DOW)	-2.960411	-5.601952	0.0001	I(0)
D(MOY)	-2.960411	-6.040840	0.0000	I(0)
D(SPV)	-2.963972	-5.688767	0.0001	I(0)

Source: Researchers Computation Using (Eviews 9.0 Output)

Table 2a present the series of unit root tests of (ADF). The results show that all the variables are stationary of order I(0) in first differencing as shown in table 1 above. Therefore, the tests met the criteria for the conduct of the cointegration test in order to examine the existence of long-run relationship among stock market returns (SMR), day of the week effect (DOW), month of the year effect (MOY) and stock

price volatility (SPV) spanning period of 1986 to 2018. In support of ADF test, Philips-Perron (PP) test was conducted as present in table 1b

Table 2b

Series of Phillips-Perron Test (PP) Output Results

Coefficients	Critical Values at 5%	PP Values	Probability	Comments
D(SMR)	-2.960411	-16.43920	0.0000	I(0)
D(DOW)	-2.960411	-7.449881	0.0000	I(0)
D(MOY)	-2.960411	-8.461002	0.0000	I(0)
D(SPV)	-2.960411	-6.916070	0.0000	I(0)

Source: Researchers Computation Using (Eviews 9.0 Output)

Table 2b present the series of unit root tests of (PP). The results show that at least two of the three variables are stationary of order I(0) in first differencing as shown in table 2b. Therefore, the tests met the criteria for the conduct of the cointegration test.

However, autoregressive distributed lag (ARDL) long-run model estimation procedure starts by conducting the bounds test for the null hypothesis of no co-integration. The asymptotic critical values bounds, which were tabulated in Pesaran, Shin, and Smith, (2001), provide a test for cointegration with the lower values assuming the regressors are I(0), and upper values assuming I(1) regressors. If the calculated F-statistics exceeds the upper critical value, the null hypothesis is rejected, implying that there is cointegration. However, if it is below the lower critical value, the null hypothesis cannot be rejected, indicating lack of cointegration. If the calculated F-statistics falls between the lower and upper critical values, the result is inconclusive. Once cointegration is established, the conditional ARDL long-run model can be estimated. Table 4a and b below presented bound test on which decision to conduct ARDL long-run test is based.

Table 3a

ARDL Long Run Form F- Bounds Test

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.210789	10%	2.37	3.2
K	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66
Actual Sample Size	28		Finite Sample: n=35	
		10%	2.618	3.532
		5%	3.164	4.194
		1%	4.428	5.816
			Finite Sample: n=30	
		10%	2.676	3.586
		5%	3.272	4.306
		1%	4.614	5.966

Source: *Researcher Computation usingEview10*

Table 3a present the F-bound test of null hypothesis of no cointegration regression estimation in order to confirm the no long-run cointegration status. The calculated F-statistics is 5.21 exceeds the lower and upper critical values of 2.79 and 3.67 respectively at 5% significant level. Therefore, the null hypothesis of no cointegration is rejected, implying that there is cointegration thus the long run relationship estimate is justified. See figure 3 below for Cointegration Graph

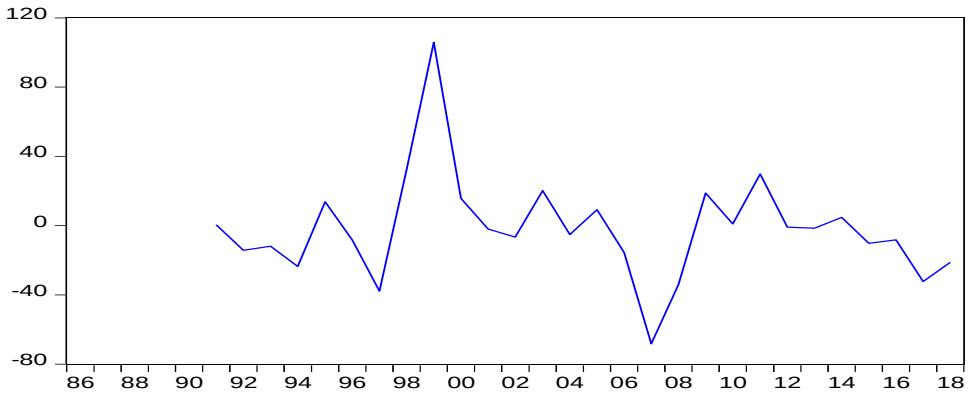

Figure 3: Cointegration graph
Source: *Researcher Computation using Eview 10*

Figure 3 show Cointegration among stock market returns (SMR), day of the week effect (DOW), month of the year effect (MOY) and stock price volatility (SPV) in Nigeria between 1986 and 2018. The trend shows that there is cointegration of the variables understudy since 1990 until 2018 there is evidence of cointegration. Next is Conditional Error Correction Regression in table 4b.

Table 4b

ARDL Long Run Form

Dependent Variable: D(SMR)

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-289.1460	98.46564	-2.936517	0.0108
SMR(-1)*	-0.744630	0.197434	-3.771536	0.0021
DOW(-1)	165.1585	84.85954	1.946257	0.0720
MOY(-1)	-137.0249	82.00400	-1.670954	0.1169
SPV**	0.183540	0.598255	0.306792	0.7635
D(DOW)	61.39824	27.69347	2.217065	0.0437
D(DOW(-1))	-224.1004	86.18976	-2.600081	0.0210
D(DOW(-2))	-194.1929	69.99020	-2.774573	0.0149
D(DOW(-3))	-114.3368	53.60071	-2.133121	0.0511
D(MOY)	-39.93189	30.73970	-1.299033	0.2149
D(MOY(-1))	228.5988	83.96299	2.722614	0.0165
D(MOY(-2))	175.4070	66.78002	2.626639	0.0199
D(MOY(-3))	91.13634	45.47951	2.003899	0.0648
D(MOY(-4))	-27.22852	7.374616	-3.692195	0.0024

* p-value incompatible with t-Bounds distribution.
** Variable interpreted as Z = Z(-1) + D(Z).

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DOW	221.7994	132.7575	1.670711	0.1170
MOY	-184.0174	124.3264	-1.480115	0.1610
SPV	0.246485	0.833075	0.295874	0.7717
C	-388.3082	174.5261	-2.224929	0.0430

EC = SMR - (221.7994*DOW -184.0174*MOY + 0.2465*SPV -388.3082)

Source: *Researcher Computation usingEview10*

Table 4b, reveals the result of ARDL long run form estimate Conditional Error Correction Regression. The Coefficient of fixed variable of -289.15 is significant based on the probability value of 0.01 which is less than 0.05% level of significance. This result suggests that is autonomous decline in performance of stock market return which is not caused by the explanatory variables stated in the model.

More so, the long run form estimate shows that SMR at lag (-1) has a coefficient of -0.74 with probability value of 0.00 which is less than 0.05% level of significance suggest that SMR at lag 1 has negative relationship with current period. The implication of this result is that changes in the stock market returns performance can be attributed to 74% decline in previous stock market returns performance of lag 1. Furthermore, day of the week calendar effects at period lag 1 DOW(-1) and at the differences D(DOW), first differences in lag 1 D(DOW(-1)), first differences in lag 2 D(DOW(-2)), and first differences in lag 3 D(DOW(-3)) has a coefficient of 165.16, 61.40, -224.10, -194.19 and -114.33 respectively this coefficient look pretty good however, day of the week calendar effects at period lag 1 DOW(-1) and at the differences D(DOW), first differences in lag 1 D(DOW(-1)), first differences in lag 2 D(DOW(-2)), and first differences in lag 3 D(DOW(-3)) with probability values of 0.07, 0.04, 0.02, 0.01 and 0.05 suggests that only at D(DOW) which is greater than 0.05% level of significance that is not statistically significant result. This result suggests that day of the week calendar effects has significant impact on performance of stock market returns, this is because of investors is sensible to the day of the week effect which is unpredictable.

In the same vein, month of the year calendar effects at period lag 1 MOY(-1) and at the differences D(MOY), first differences in lag 1 D(MOY(-1)), first differences in lag 2 D(MOY(-2)), first differences in lag 3 D(MOY(-3)) and first differences in lag 4 D(MOY(-4)) has a coefficient of -137.02, -39.93, 228.60, 175.41, 91.13 and -27.23 respectively this coefficient look quite high, however, month of the year calendar effect at period lag 1 MOY(-1) and at the differences D(MOY), first differences in lag 1 D(MOY(-1)), first differences in lag 2 D(MOY(-2)), first differences in lag 3 D(MOY(-3)) and first differences in lag 4 D(MOY(-4)) with probability values of 0.12, 0.21, 0.02, 0.01, 0.06 and 0.00 this results indicate that at period lag 1 MOY(-1), level differences D(MOY), and first differences in lag 3 D(MOY(-3)) the probability values is greater than 0.05% level of significance which implies that month of the year calendar effects in this period has statistically insignificant impact on performance of stock market returns. Accordingly, the results show that month of the year calendar effects in first differences in lag 1 D(MOY(-1)), first differences in lag 2 D(MOY(-2)) and first differences in lag 4 D(MOY(-4)) has probability values less than 0.05% level of significance which implies that month of the year calendar effects in this period has statistically significant impact on performance of stock market returns. Likewise, the coefficient of stock price volatility is 0.18 with insignificant probability of 0.76 this result indicate that stock price volatility has positive and insignificant impact on the performance of stock market returns. However, Conditional Error Correction Regression consequently produced levels equation alongside the conditional error correction regression outcome.

The result at level equation shows that the coefficients of day of the week effect (DOW) is approximately 221.80 and the coefficients of stock price volatility (SPV) is approximately 0.25 both have positive relation with stock market returns (SMR) while the coefficient of month of the year effect (MOY) is -184.02 has a negative relationship with stock market returns (SMR) this results implies that both the day of the week effect (DOW) and stock price volatility (SPV) move in the same direction with stock market returns (SMR) and month of the year effect (MOY) move in opposite direction with stock market returns (SMR). In terms of the calendar anomaly that is (day of the week effect (DOW) and month of the year effect (MOY)) as well as stock price volatility effect on performance of stock market returns (SMR) this result suggest that if day of the week effect (DOW) and month of the year effect (MOY) varies by one percent it causes 22.180% and -18.402% positive and negative effects respectively on the performance of stock market returns also, one percent change in stock price volatility (SPV) affect 25% variation in performance of stock market returns

More so, with the probability values of 0.12, 0.16 and 0.77 implies that day of the week effect (DOW), month of the year effect (MOY) and stock price volatility (SPV) have statistically insignificant on performance of stock market returns with all the p-value greater than 0.05% significant level. This result

implies that both calendar anomaly and stock price volatility exhibit temporary and seasonal effect on performance of stock market returns thus, it effect at the time of occurrence may likely not have very significant impact on stock market returns because investors will quickly response to this changes until both parties return to equilibrium.

Furthermore, error correction model mechanism regression in table 5 shows the speed of error adjustment. ECM is a category of multiple time series model that directly estimates the speed at which a dependent variable returns to equilibrium after a change in an independent variable. ECM incorporates the long-run equilibrium in the dynamic adjustment (that is the short-run model). The ECM is also closely bound up with the concept of co-integration.

Table 5

ARDL Error Correction Regression

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DOW)	61.39824	21.21591	2.893971	0.0118
D(DOW(-1))	-224.1004	51.62325	-4.341075	0.0007
D(DOW(-2))	-194.1929	53.65093	-3.619563	0.0028
D(DOW(-3))	-114.3368	43.75816	-2.612925	0.0205
D(MOY)	-39.93189	24.53137	-1.627789	0.1259
D(MOY(-1))	228.5988	52.51662	4.352885	0.0007
D(MOY(-2))	175.4070	52.82111	3.320775	0.0050
D(MOY(-3))	91.13634	38.08476	2.392987	0.0313
D(MOY(-4))	-27.22852	4.839889	-5.625857	0.0001
CointEq(-1)*	-0.744630	0.128656	-5.787739	0.0000

R-squared	0.860218	Mean dependent var	0.375000
Adjusted R-squared	0.790326	S.D. dependent var	23.44896
S.E. of regression	10.73731	Akaike info criterion	7.857780
Sum squared resid	2075.218	Schwarz criterion	8.333567
Log likelihood	-100.0089	Hannan-Quinn criter.	8.003233
Durbin-Watson stat	2.040821		

* p-value incompatible with t-Bounds distribution.

Table 5 present, ARDL ECM regression estimation, in this context the estimated parameters were subjected to test based on economic theory so as to ascertain whether they agree with expected sign. In other words, the model sought to relate the performance of stock market returns to its explanatory variables which include day of the week calendar effect (DOW), month of the year calendar effect (MOY) and stock price volatility (SPV) to ascertain the conformation with 'a priori' expectation underlying each variable. The result shows that, the CointEq(-1) coefficient of the error correction term which measures the speed of adjustment towards long-run equilibrium is negative and statistically significant at 5% level. The ECM has the expected negative sign which stands at -0.74. This implies that the rate at which variation of stock market returns (SMR) at time t, adjusts to the single long-run co-integrating relationship is different from zero. In other words, the equation of stock market returns (SMR) contains information about the long run relationship, the reason why co-integrating equation enter the model automatically. The coefficient of the ECM revealed that the speed with which changes in stock market returns (SMR) adjusts respond to regressors is about 74% in the short-run.

At the level differences, the coefficient of the day of the week calendar effect D(DOW) is -61.40 with the p-value of 0.01 less than 0.05% significant level indicate that at the differences day of the week calendar

effect D(DOW) has statistically significant on performance of stock market returns in Nigeria within the study sampled period. This implies that holding other independent variables constant, a percentage increase in the day of the week calendar effect D(DOW) translates to 61.40% increase in stock market returns. It can therefore be concluded that day of the week calendar effect D(DOW) at the level differences does significantly impacted on performance of stock market returns in Nigeria. This is in conformity with this study aprior expectation.

More so, day of the week calendar effect at first differences lag 1, D(DOW(-1)), first differences, lag 2 D(DOW(-2)) and first differences, lag 3 D(DOW(-3)) the coefficient are -224.10, -194.19 and -114.33 with probability values of 0.00 and 0.02 which are less than 0.05 levels of significance indicate that day of the week calendar effect at first differences lag 1, 2 and 3 have negative and statistically significant impact on performance of stock market returns which implies both variables move in opposite direction.

Moreover, the coefficient of month of the year calendar effect at level differences D(MOY) is -39.93 with p-value of 0.13 greater than 0.05% significant level. Suggest that month of the year calendar effect has negative and insignificant impact on stock market returns. Holding other independent variables constant, this result implies month of the year calendar effect has negative relationship with performance of stock market returns, meaning that one percent variation in month of the year calendar effect will lead to -40% declines in performance of stock market returns. This finding is in conformity to the study aprior expectation. The policy implication of this finding is that calendar anomaly result to low performance of stock market returns.

In addition, month of the year calendar effect at first differences lag 1, D(MOY(-1)), first differences, lag 2 D(MOY(-2)), first differences, lag 3 D(MOY(-3)) and first differences, lag 4 D(MOY(-4)) the coefficient are 228.60, 175.41, 91.14 and -27.23, with probability values of 0.00 all through are less than 0.05 levels of significance indicate that month of the year calendar effect at first differences lag 1, 2, and 3 have positive and statistically significant impact on performance of stock market returns which implies both variables move in same direction exception of lag 4 which move in opposite direction.

Furthermore, the R-Square often refers as the coefficient of determination also known as a measures of the goodness-of-fit, is 0.86, approximately 86%. This means that 86% of the changes in performance of stock market returns are explained by the changes in the explanatory variables while, the remaining 14% could be explained by factors outside this model represented by error term. Adjusted R-squared, on the other hand, is 0.79 that is 79% which gives the percentage of variation explained by only those independent variables that, in reality, affect the dependent variable. The result suggests that 79% variation in performance of stock market returns is basically explained by changes in the aforementioned explanatory variables.

More so, Durbin-Watson statistic (DW) is 2 shows there is no serial autocorrelation. Below the table 7 present the bound test of ECM regression estimation. The bound test of ECM regression estimation which include, F-bound test and t-bound test in order to confirm the long-run cointegration status. The calculated F-statistics is 5.21 which exceeds both the upper and lower critical values of 2.79 and 3.67 at 5% significant level. Therefore, the null hypothesis is rejected, implying that there is cointegration thus the long run relationship estimate is justified. To examine the overall joint significance of the ARDL model Wald test for cointegration was conducted

This result suggests that the model is significant in explaining long-run relationship between the dependent variable and independent variables.

The test of hypothesis one is based on the ECM regression estimates as presented in table 5 and 6. The decision criteria to reject or accept the stated hypothesis is based on the p-value, where p-value is less than 0.05% level of significance null hypothesis will be rejected otherwise, where p-value is greater than 0.05% level of significance the alternative hypothesis is accepted.

The p-values of calendar anomaly which has been proxy by day of the week calendar effect and month of the year calendar effect both in table 6 and 7 show that at the level and first differences all through the period of lag 1 to 4 is approximately 0.00 which is less than 0.05% level of significance, thus null hypothesis which stated that calendar anomaly has no impact on the performance of stock market return in Nigeria between 1986 and 2018 is been rejected in contrary alternative hypothesis is accepted.

Therefore, this study concludes that Calendar anomaly has significant impact on the performance of stock market returns in Nigeria between 1986 and 2018. This finding is line with the studies of the like of; Zakaria, Muhammad, and Zulkifli (2012), Bikker, Broeders and Dreu (2010) and Chege, Othieno, & Kodongo (2014) opine that stock volatility has a significant effect on stock market return. Similarly, the p-value of stock price volatility (SPV) presented in table 6 is 0.76 indicate that stock price volatility has no significant impact on the performance of stock market returns in Nigeria within the assessment periods.

Therefore, null hypothesis which stated that stock price volatility has no impact on the performance of stock market return in Nigeria between 1986 and 2018 cannot be rejected in contrary alternative hypothesis is rejected. Therefore, this study concludes that stock price volatility has no significant impact on the performance of stock market returns in Nigeria between 1986 and 2018. This finding is line with the studies of the like; Aroni (2011); Wafula (2016) and Onthatile (2017) who concluded that stock volatility has an insignificant effect on stock market return such that an increase or decrease in share price volatility to very little extent insignificantly reduces stock market returns.

Generalized Autoregressive Conditional Heteroskedasticity (GARCH) is employed as reported in table 6.

Table 6

Dependent Variable: SMR
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Sample: 1986 2018
Included observations: 33
Failure to improve likelihood (non-zero gradients) after 117 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
DOW	38.42040	14.21169	2.703437	0.0069
MOY	-36.62096	13.99643	-2.616450	0.0089
SPV	-0.456633	0.400685	-1.139633	0.2544
Variance Equation				
C	139.9368	112.6944	1.241737	0.2143
RESID(-1)^2	0.963921	0.691864	1.393223	0.1636
GARCH(-1)	-0.224330	0.161815	-1.386337	0.1656

R-squared	0.054671	Mean dependent var	11.61515
Adjusted R-squared	-0.008351	S.D. dependent var	16.44174
S.E. of regression	16.51025	Akaike info criterion	8.322766
Sum squared resid	8177.646	Schwarz criterion	8.594858
Log likelihood	-131.3256	Hannan-Quinn criter.	8.414317
Durbin-Watson stat	1.778815		

Source: *Researcher Computation usingEview10*

Table 6 presents autoregressive conditional heteroskedasticity model result on the relationship among calendar anomaly effect [day of the week calendar effect (DOW) and month of the year calendar effect (MOY)], stock price volatility and performance of stock market returns. The result shows that Convergence achieved after 117 iterations. The coefficient of day of the week calendar effect (DOW) is 38.42 with probability value of 0.00 which is less than 0.05 significant levels indicates that day of the week calendar effect (DOW) has positive and significant relationship with performance of stock market returns. More so, the coefficient of month of the year calendar effect (MOY) is -36.62 with probability value of 0.00 which is less than 0.05 significant levels implies that month of the year calendar effect

(MOY) has negative and significant relationship with performance of stock market returns. Furthermore, the coefficient of stock price volatility (SPV) is -0.46 with probability value of 0.25 which is greater than 0.05 significant levels implies that stock price volatility (SPV) has negative and insignificant relationship with performance of stock market returns. More so, the result show that one percent variation in stock price volatility (SPV) effects -46 % decline in stock market returns.

However, the variance equation show that the coefficient of GARCH(-1) is -0.22 with probability value of 0.17 indicate that variation in period of lag1 of the explanatory variables causes -22% changes in performance of stock market returns. However, with the p-value greater than 0.05 significant level this suggest that the variation in the variables understudy does not has significant relationship with explained variable. The p-values of both day of the week calendar effect (DOW) and month of the year calendar effect (MOY) 0.00 which is less than 0.05% level of significance, thus null hypothesis two which earlier stated that calendar anomaly effect does not have any relationship with the performance of stock market return in Nigeria between 1986 and 2018 is rejected and alternative hypothesis is accepted. Therefore, this study concludes that calendar anomaly effect has significant short-run and long-run relationships with performance of stock market return in Nigeria between 1986 and 2018. This findings is in agreement with the studies of like, Zakaria, Muhammad, and Zulkifli (2012), Bikker, Broeders and Dreu (2010) and Chege, Othieno & Kodongo (2014) who concluded that stock volatility has a significant effect on stock market return.

In the same vein, the p-value of stock price volatility is 0.25 which is greater than 0.05 level of significance, thus null hypothesis two which earlier stated that stock price volatility does not have any relationship with the performance of stock market return in Nigeria between 1986 and 2018 cannot be rejected on the contrary alternative hypothesis is rejected. This finding is line with the studies of the like Aroni (2011); Wafula (2016) and Onthatile (2017) who concluded that stock volatility has insignificant effect on stock market return such that an increase or decrease in share price volatility to a very little extent reduces stock market returns.

5 CONCLUSION AND RECOMMENDATIONS

The main objective of this study is to examine the impact calendar anomaly effects and stock price volatility has on performance of stock market return in Nigeria between 1986 and 2018. While, the specific objectives were to determine the trend of calendar anomaly effects and stock price volatility and performance of stock market return. Furthermore, ascertain if there is any significant short-run and long-run relationship among calendar anomaly effects and stock price volatility and performance of stock market returns in Nigeria.

i. The analysis and findings of this study have shown that the trend of calendar anomaly effects and stock price volatility and performance of stock market returns in Nigeria between 1986 and 2018 random walk in the same direction. Therefore, this study concludes that the aforementioned variables exhibit upward and downward trend.

ii. The analysis and findings of this study show that calendar anomaly which include day of the week calendar effect and month of the year calendar effect has negative and significant impact on the performance of stock market returns in Nigeria between 1986 and 2018 which has led to rejection of null hypothesis one which stated that calendar anomaly has no significant impact on the performance of stock market return within the sampled period. Thus, this study concludes that calendar anomaly effect has strong significant impact on performance of stock market returns in Nigeria within the sampled period. The analysis and findings of this study show stock price volatility has negative and insignificant impact on the performance of stock market returns in Nigeria between 1986 and 2018 which has led to acceptance of null hypothesis one which stated that stock price volatility has no significant impact on the performance of stock market return within the sampled period. Thus, this study concludes that stock price volatility has no significant impact on the performance of stock market return within the sampled period.

iii. Lastly, based on the analysis and findings of this study it was concluded that there is a significant short-run and long-run relationships between calendar anomaly effect, stock price volatility and the performance of stock market return.

As manifested from the findings of this study, the following recommendations are suggested: That governments at all level, and stakeholders such as individual broker, banks, firms and multinational organization who are the investors in the stock market should closely monitoring the trend of calendar anomaly effects, stock price volatility and performance of stock market returns so as to make appropriate investment decision when to invest or not. On the part of government and exchange security commission policy formulation and implementation that will checkmate downward trend in performance of stock market returns should be formulated and implemented in order to in encouraged investors, policy such as fund intervention when the need arises, timely issuance of debt profile of the company that is not performing, timely floating of capital market instruments in order to stabilize the market and speedily bring the market into the equilibrium level.

In addition, policy formulation and implementation that will monitor and enforcing total compliance of rule and regulation that governed and protect the investors in the market should be formulated and implemented. More so, since calendar anomaly effect has significant relationship and impact on performance of stock market return in Nigeria all concern stakeholders in the stock market should ensure that at every given market point asymmetric information should be prevented. Efforts should be made by regulatory agency to ensure market efficiency hypothesis. Lastly, price mechanism such as fixed rate, semi flexible rate for the quoted stock that will checkmate stock price volatility should be put in place by government and authority responsible for regulating stock market operation to avoid price skimming.

REFERENCES

Abrahamsson, A. and Creutz, S. (2018). Stock market anomalies: The day-of-the-week effect. An empirical study on the Swedish stock market: A GARCH model analysis. *A thesis within: Business Administration.*

Ajibola, A. and Nwakanma P. C. (2014). Detecting Market Anomalies: Do Evidences hold in Nigeria? *International Review of Management and Business Research 2, 1128-113*

Anwaaar, M. (2016). Impact of Firm's performance on Stock Returns (Evidence from Listed Companies of FTSE-100 Index London UK. *Global Journal of Management and Business Research: Accounting and Auditing. 16(1) 1*

Aroni, J.M. (2011). Factors Influencing Stock Prices for Firms Listed in the Nairobi Stock Exchange. *International Journal of Business and Social Science, 2(20), 303 -311*

Arora, H. and Bajaj, P. (2017) Calendar Anomalies: an empirical study on the Day of the Week Effect in Indian Banking Sector.

Aurangzeb, D. (2012). Factors Affecting Performance of Stock Market: Evidence from South

Asian Countries. *International Journal of Academic Research in Business and Social Sciences, 2(9), 1-15*

Barasa, J. W. (2014). Macro -Economic Determinants of Stock Market Performance in Kenya: Case of Nairobi Securities Exchange. *Unpublished MSc Project.University of Nairobi, Kenya*

Bikker, J. A., Broeders, D. and Dreuc, J. (2010). Stock Market Performance and Pension Fund Investment Policy: Rebalancing, Free Float, or Market Timing? *International Journal of Central Banking, 10(2), 53 –79,*

Bodie, Z., Kane, A. and Marcus, A. (2007). Essentials of Investments(6^{th}edn), McGraw Hill, New York.

Borges, R.M. (2009) Calendar Effects in Stock Markets: Critique of Previous Methodologies and Recent Evidence in European Countries. *University of Lisbon*

Brooks, S and Mosley, L. (2008). Risk, uncertainty and autonomy: financial market constraints in developing nations. Mimeo.

Brown, P., Keim, D.B., Kleidon, A.W. and Marsh, T.A. (1975). Stock return seasonalities and the tax-loss hypothesis: Analysis of the arguments and Australian Evidence. *Journal of Financial Economics, 12, 105-127*

Chege, T., Othieno, F. and Kodongo, O. (2014). Return Volatility and Equity Pricing: A Frontier Market Perspective. Available online at http://ssrn.com/abstract=2520737

Chinzara, Z. and Slyper, S. (2013). Volatility and anomalies in the Johannesburg Securities Exchange daily returns. *Financial Markets Journal, 17(1), 25–41*

Clements, K.W, Izan, HY, & Lan, Y. (2011). Volatility and Stock Price Indexes. *Discussion paper 11.16. The University of Western Australia*

Doyle, J.R. and Chen, C.H. (2009). The wandering weekday effect in major stock markets. *Journal of Banking and Finance, 33(1), 1388–1399.*

Economy watch (2016). Stock Market Returns.EW News Desk Team, Financial Services Industry. Available [online] Accessed July 2019

Engle R., Lilien D.and Robins R.(1987). Estimating Time Varying Risk Premia in the Term Structure: The Arch M Model. *Econometrica, Econometric Society, 55(2), 391-407*

Ezepue, O.P and Omar, T.M (2012). Weak form Market Efficiency of the Nigerian Stock Market in the Context of Financial Reforms and Global Financial Crisis. *Journal of African Business, 13(3), 209-220*

Fama, E. (1965). The Behaviour of Stock Prices.*Journal of Business, 38, 34-105*

Fama, E.F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *Journal of Finance*, vol. 25, no. 2, 283-417.

Fama, E.F. (1970). Agency Problems and the Theory of the Firm *Journal of Political Economy 88(2), 288-307*

Gatuhi, S.K. (2015). Macroeconomic Factors and Stock Market Performance in Kenya. *Unpublished Thesis. Jomo Kenyatta University of Agriculture and Technology*

George, M.F., Elton, G.M. (2001). Anomalies in Finance What Are They and What are They Good For? *International Review of Financial Analysis, 10, 22.*

Greene, W.H.(2003) Econometric Analysis 5th Edition Pearsons Education Inc, India

Gworo, C.O. (2012). The Relationship Between Trading Volume and Price Volatility of Shares in the Nairobi Securities Exchange. *Unpublished MBA Project. University of Nairobi*

Hasan, D. (2017). Analysis of Calendar Anomalies in National Stock Exchange of India (NSE). *A thesis submitted to Faculty of Economics and Administration, Masaryk University*.

Brooks,C.(2008).Introductory Econometric for Finance.(2ed.).England: Cambridge University Press.

Hassan, W. and Awais, M. (2015). Behavior of Macroeconomic Forces to Predict Stock Returns: Empirical Evidence from Global Financial Markets. *European Academic Research, 3(3), 3674 – 3698*

Ílek, L. (2015).Analysis of stock market anomalies: US cross sectoral comparison. *International Journal of Business and Management Invention 6(7)*

Ilaboya, O. J. and Aggreh, M. (2013). Dividend Policy and Share Price Volatility . J. Asian Dev. Stud., 2(2), 109-122

Jílek, L. (2012). Analysis of stock market anomalies: US cross-sectoral comparison, *A Thesis submitted to Faculty of Social Sciences institute of economic studies, Charles University in Prague,*

Johansen, S. and Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration with Applications to Demand for Money. *Oxford Bulletin of Economics and Statistics 52, 169-210.*

Karz, G. (2011). Historical stock market anomalies. [Online] 2010 available at: http//www.investorhome.com/anomaly.htm. [Access 8 May 2019].

Khan M.I., Hussain, F., Akash, S.R., and Hamid, K. (2011). Day of the week effect and stock returns.Evidence from Karachi stock exchange Pakistan. *Far East Journal of Psychology and Business 3 (1).*

Khaled, H., Chijioke, O.M., and Aruoriwo, M. (2010). Dividend Announcements and Stock Dividend Policy and Share Price Volatility: UK Returns. *Journal of Risk Finance, 12(1), 57-68*

Liew, V.M, and Chia, R.C. (2011). Evidence of day of the week effect and Asymmetric behaviour in the Bombay Stock. *The NP Journal of Applied finance 16, 6.*

Liu, B and Li, B.(2010). Day-of-the-Week Effects: Another Evidence from Top 50 Australian Stocks. *European Journal of Economics, Finance, and Administrative Sciences,(24),78-87. e-ISSN: 1450-2275*

Malkiel, B. (2005). Reflections on the Efficient Market Hypothesis: 30 Years Later. *The Financial Review, (40), 1-4*

Mgbame, C.O. and Ikhatua, O.J. (2013). Accounting Information and Stock Volatility in the Nigerian Capital Market: A Garch Analysis Approach. *International Review of Management and Business Research, 2(1), 265 –281*

Muiruri, P.M. (2014). Effects of Estimating Systematic Risk in Equity Stocks in the Nairobi Securities Exchange (NSE) (An Empirical Review of Systematic Risks Estimation). *International Journal of Academic Research in Accounting, Finance and Management Sciences, 4(4), 228–248*

Mutalib, A. (2013). Information Asymmetric Effect on the Stock Return Volatility in Nigerian Capital Market. *Accounting Frontier, 14(2) 47-64.*

Mutuku, C. and Kirwa, N.L. (2015). Macroeconomic Variables and the Kenyan Equity Market: A Time Series Analysis. *Business and Economic Research, Macrothink Institute, 5(1), 1-10.*

Ndako, U.B. (2013). The day of the week effect on stock market returns and volatility: Evidence from Nigeria and South Africa. *Munich Personal Repel Archive.*

NdiOkereke, O. (2010). The Nigerian Stock Exchange 5th *Annual Report.*

Oduwole, O. (2015). The January and Monday effect or lack thereof *Mathematical theory and modelling 5,4*

Ojah, K. and Kodongo, O. (2015), Financial markets development in Africa: Reflections and Way forward. *The Oxford Handbook of Africa and Economics, 2, 401-423*

Olowe, R.A. (2014). Exchange Rate Volatility, Global Financial Crisis and the Day-of-theWeek Effect *KJBM* 3. *Operations Research, 10, 345-379*

Omuchesi, J.A. and Bosire, M. (2014). The Effect of Automation on Stock Market Price Volatility: A Case of Nairobi Securities Exchange. *IOSR Journal of Economics and Finance, 5(3), 71-79*

Onoh, J.O., and Ndu-Okereke, O.E., (2016). Day of the Week Effect: Evidence from the Nigerian Stock exchange *IIARD International journal of Banking and Finance Research ISSN 2406-8634 (2) 3*

Onthatile, T.O.(2017). Stock Returns Behavior and the Pricing of Volatility in Africa's Equity Markets. *A Thesis submitted to Wits Business School, University of the Witswatersrand Johannesburg, South Africa.*

Opondo, O.J. (2016). Calender Anomalies In Stock Returns: Evidence From Nairobi Securities Exchange. *A Research Project submitted In Finance, School Of Business university Of Nairobi.*

Osazee, G.O. and Nosakhare, I. (2014). Macroeconomic Variables and Stock Price Volatility in Nigeria. *Annals of the University of Petroşani, Economics , 14(1), 259-268*

Osazevbaru, H.O.,Oboreh, J.,(2014). The "Monday Effect" in Nigerian Stock Market: Evidence and Implication. *Journal of Social Sciences and Public Policy*1, 1-8.

Otweyo, E.S. (2014). Market Factors that affect Returns for Companies Quoted at the Nairobi Securities Exchange. *Unpublished Project.KCA University*

Ouma, W.N. and Muriu, P. (2014). The Impact of Macroeconomic Variables on Stock Market Returns in Kenya. *International Journal of Business and Commerce, 3 (11), 1-31*

Pesaran, M.H. and Pesaran, B. (1997). Working with Microfit 4.0: Interactive Econometric analysis, Oxford University Press, Oxford.

Pesaran, M.H., Shin, Y., and Smith, R.J. (2001). Bounds testing approaches to the analysis of Level relationships. *Journal of Applied Econometrics, 16, 289–326. doi:10.1002/(ISSN)1099-1255*

Plimsoll, J., Saban, B., Spheris, A., and Rajaratnam, K. (2013). The day of the week effect: An Analysis of the Johannesburg Stock Exchange Top 40 firms. *International Business and Economics Research Journal, 12(3),* 319–330

Praptiningsih, M. (2011). The Indonesian Stock Market Performance during Asian Economic

Crisis and Global Financial Crisis. *Challenges of the Knowledge Society, 74, 1503-1514*

Pryymachenko, I. (2003). Stock Price Volatility and its Determinants on the Emerging Financial Market of Ukraine. *Unpublished Thesis. National University of Kyiv-Mohyla*

Securities and Exchange Commission of Pakistan, (2018). Press Release SECP to support foreign companies in expanding their investment.

Sharpe , F.W. (1965). Risk**-**aversion in the stock market: some empirical evidence. Available at**:** https://doi.org/10.1111/j.1540-6261.1965.tb02906.x

Tachiwou, A.M. (2010). Day-of-the-Week-Effects in West African Regional Stock Market. *International Journal of Economics and Finance*4, 167-173

Tripathi, V. and Seth, R. (2014). Stock Market Performance and Macroeconomic Factors: The Study of Indian Equity Market. *Global Business Review, 15(2), 291–316*

Umar, B.N. (2013). The Day-of-the-week Effect on Stock Market Returns and Volatility: Evidence from Nigeria and South Africa. *MPRA Paper No.48076.*

Uyeabo, O.S., Atoi, V.N and Usman, F. (2015). Nigeria Stock Market Volatility in Compare with some Countries: Application of Asymmetric GARCH Models. *CBN Journal of Applied Statistics 6(2).*

Khositkulporn, P. (2013).The Factors Affecting Stock Market Volatility and Contagion: Thailand and South –East Asia Evidence. *Thesis submitted to School of Business Victoria University Melbourne.*

Ramadan, I. Z. (2013). Dividend Policy and Price Volatility. Empirical Evidence from Jordan. *International Journal of Academic Research in Accounting, Finance and Management Sciences , 3(2), 15 –22*

Reddy, V.Y. and Narayan, P. (2016). Literature on Stock Returns: A Content Analysis. Amity Journal of Finance.

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

Shaharudin, R.S, Samad, F. and Bhat, S. (2009). Performance and Volatility of Oil and Gas Stocks: A Comparative Study on Selected O&G Companies. *International Business Research,2(4), 87-99.*

Shrestha, P.K. and Subedi, B.R. (2014). Determinants of Stock Market Performance in Nepal. NRB Working Paper series, NRB-WP-24, 2014.

Sharpe, W.F. (1963). Capital asset prices: a theory of market equilibrium under conditions of risk. *The journal of Finance,19(3), 425-442.*

Wabwire, J.M., Owuor, G., Onyuma, S. and Njuguna, A. (2013). The Effect of Initial Public Offer Announcements on Market Returns of Listed Stocks at the Nairobi Stock Exchange. *International Journal of Research in Management, 3(2), 84 - 119*

Wasseja, M.M., Njoroge, E. & Mwenda, S.N. (2015). Investigation of the Granger Causal Relationship between Macroeconomic Variables and Stock Prices in Kenya. *International Journal of Business and Economics Research, 4(3), 98-108*

Wafula, M.M. (2016). The Effect of Share Price Volatility on Stock Market Performance at the Nairobi Securities Exchange. *A research project submitted to School of Business, University of Nairobi*

Yanan, L. (2014). Forecasting Stock Market Returns Volatility. *A Thesis Submitted to Statistics. University of Rhode Island*

Yavrumyan, E. (2015). Efficient Market Hypothesis and Calendar Effects: Evidence from the Oslo Stock Exchange. *A thesis submitted to Department of Economics, University of Oslo.*

Zakaria, Z., Muhammad, J. and Zulkifli, A. H. (2012). The Impact of Dividend Policy on the share Price Volatility: Malaysian Construction and Material Companies. *International Journal of Economics and Management Sciences, 2(5), 01-08.*

Zhong X, Zhang, C, Shi, R and Jiang H, (2019) Electricity consumption and economic growth nexus in China: an autoregressive distributed lag approach. *Environment Science Pollution Research International; 26(14):14627-14637 doi: 10.1007/s11356-019-04699-w. Epub 2019 Mar 15*

Zilca, S. (2017). The evolution and cross-section of the day-of-the-week effect. *Financial Innovation*