Earnings and Dividend Announcements, Semi-Strong Efficiency and the Nigerian Stock Market: An Empirical Investigation

Samson Ogege
Department of Finance. Faculty of Business Administration
University of Lagos, Akoka, Lagos, Nigeria

Onyemachi Maxwell Ogbulu
Department of Banking and Finance
Abia State University Uturu, Nigeria

Hamilton Obianyi Isu
Department of Banking and Finance
Abia State University, Uturu, Nigeria.

Abstract

The major objective of this paper is to find out whether stock prices adjust to dividend and earnings announcements in the Nigerian Stock Exchange. The study is anchored on the Efficient Market Hypothesis (EMH) and we adopted the Event Study methodology for the period of six years ranging from 2006-2011. The modified market model was also adopted to investigate whether the Nigerian Stock Market reacts efficiently to dividend and earnings announcements with respect to price adjustment. The findings of our study reveal that stock prices in the Nigerian stock market did adjust efficiently to dividend and earnings announcements in the three sub-periods covered by our sample. In addition, the cumulative average abnormal returns for the different combinations of dividend and earnings in the three sub-periods are not significant suggesting that the Nigerian stock market is semi-strong efficient. This shows that the Nigerian Stock market did react efficiently to publicly available information such as dividend and earnings announcements during the three sub-periods of pre-global financial crisis (2006-2007); the global financial crisis (2008-2009); and the post global financial crisis of (2010-2011). Based on these findings, the authors recommend that the Nigerian Stock market should vigorously sustain the numerous capital market reforms adopted over the years to further address the issue of adequate communication infrastructure, ease of accessibility of publicly available information, regular review of policies and regulation of the market as well as guide against the issue of insider dealing as this will enhance further efficiency of the Nigerian stock market.

Keywords: Event Study, Semi-Strong Efficiency, Dividend and Earnings announcement, Cumulative abnormal returns.

INTRODUCTION

It is an established fact that capital plays a significant role in the productive process and economic performance of any nation (Ragazzi, 1981; Bhatia and Khatkhate, 1975). Capital according to (Babalola & Adegbite, 2001; Finn 2004) provides a stimulus for the effective and efficient combination of other factors of production to ensure sustainable economic growth and development. The effective utilization of productive resources accumulated over time

would determine the pace of growth of an economy (Lewis, 1954). Growth as in a productive and distributive activity, determines the social wellbeing of the citizenry. Capital formation can only be achieved through making conscious efforts in mobilization of savings as well as accumulation of resources by both the public and private sectors of an economy (Onoh, 2002). To this end, financial markets generally provide avenues for savings of various tenors that are made available to be utilized by various economic agents (Mbat, 2001). The capital market, which is a major segment of the financial market, provides a setting through which medium to long-term resources are obtained for productive utilization (Akpan, 2004).

A study of the semi-strong information efficiency of the Nigerian stock market is of immense significance to investors, policy makers, regulators and researchers. Investors and portfolio managers intend to understand the extent the market adjusts to dividend and earnings announcement, in order to identify opportunities for profit making by trading around dividend and earnings disclosure dates in the market. For policy makers and regulators, the stock market efficiency is a matter of concern because of its allocative function of investment resources within the economy.

Many of the previous studies conducted on the semi-strong information efficiency of the Nigerian stock market relied mainly on the use of monthly and weekly price data and were also conducted during the period when the Nigerian Stock Exchange was arguably at its teething stage and prior to the introduction of major reforms in the Nigerian Stock Exchange. In addition, the methodologies adopted in a number of those studies have become obsolete and in many cases, were wrongly applied such as the use of very wide event windows of six months or one year as well as the use of small samples over a very short period all of which may leads to spurious findings. Given that a plethora of studies on the information efficiency of stock markets of developed countries have been conducted with varying results, it is therefore imperative and compelling for such studies to be replicated in emerging markets like Nigeria to ascertain the level of efficiency of such markets.

This study therefore, serves to fill the gaps mentioned above by making a departure from previous studies conducted in the Nigerian stock market with respect to semi-strong information efficiency of the market. The study intends to also contribute to the scanty literature that exists with respect to semi-strong efficiency of the Nigerian stock market in a number of important ways. First, the study employs daily prices of all the quoted companies in the stock exchange and secondly, more modern and robust statistical testing methods such as the modified market model and small event windows are adopted. Thirdly, the study combines both dividends and earnings announcements and examines the speed of reaction of the market to these pieces of information as they hit the market.

Thus, the following hypotheses will be tested in this study:
   I.   Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) before and after dividend decrease and earnings increase announcement in the Nigerian stock market.
  II.   Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) before and after dividend unchanged and earnings increase announcement in the Nigerian stock market.
 III.   Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) before and after dividend unchanged and earnings decrease announcement in the Nigerian stock market.

REVIEW OF LITERATURE

The theoretical underlying concept of efficient stock markets assume that current stock prices fully reflect all available information about the securities traded in a market such that no investor can consistently outperform the market on the basis of any information at the disposal of the investor. The concept of efficient stock markets has received so much research attention in the five decades or so that it is necessary to elucidate on some of the key notions and terms that are associated with the concept of efficient stock markets.

Operational Efficiency of Stock Markets

A stock market according to Baumol (1965) and Fama (1970) is operationally efficient based on its degree of functionality. The basic areas of emphasis include, the transaction cost, which determines whether one should invests or not; availability of price information, which guarantees that it is easy enough for investors to know the prices of stocks, through record keeping and effective and efficient information dissemination mechanisms; price continuity, which measures the ability of the market to sustain large trades in stock without significantly impacting the prices (that is to say, that the market must be liquid);and timeliness, which stresses that the investor must be able to complete a transaction (in buying or selling of stocks) in the shortest possible time. Testing stock market efficiency from the operational perspective seeks to address these aspects of the market.

Information Efficiency of Stock Markets

On the other hand, stock market information efficiency test which is the main focus of this study, seeks to measure how the stock market responds to information. It suggests that if potential investors hold the belief that a particular stock is undervalued, from available information, then they will all strive to purchase the stock thereby driving up the price to the equilibrium level. Again, where such stocks are believed from available information to be overpriced, investors will sell such stocks thus, pushing down the price to the equilibrium level.

In effect, the profit motive of the investors will always cause them to correct any perceived mispricing of stocks from the investor's valuation of such stocks, judging from the information available to them. The information efficiency of the stock market therefore means that, at all times, the market adjusts quickly to new information consistent with financial valuation theory. This denotes that the market is able to capture appropriately the impact of any new information in the stock price, such that it will be needless for any investor to undertake independent valuation. This is the hallmark of the Efficient Market Hypothesis (EMH) upon which this work is anchored.

The traditional economic paradigm assumes that individuals are "rational", meaning that they make optimal decisions based on the information available to them. In the field of asset pricing, the implications derived from this view is that prices reflect all available information, such that opportunities to earn extraordinary returns arise only from private information (Grossman & Stiglitz, 1980). According to this view, investors without special information, no matter how savvy they may be, cannot improve on the performance index of portfolio (Asness, 1997).

Behavioural finance offers an alternative paradigm to the efficient market theory, one in which individuals make systematic mistakes in the way they process information. The psychology literature describes a myriad of behavioural biases that can potentially explain almost any

observed deviations from the efficient market hypothesis. However, the most prominent anomalies can be explained by what is called "investor overconfidence".

This notion implicitly assumes that individuals have an unlimited ability to both observe and process information. In reality, individuals have limited processing ability and hence use vague ad-hoc rules to translate the information they receive into estimates of cash flows and company valuations (Barberies, 2000). For example, investors may not be able to incorporate the news about the antitrust proceedings for example against Microsoft Corporation into concrete views about the future competitiveness of the industry and how this future will, in turn, affect Microsoft's future cash flows. In reality, investors must do much of their analysis based on "feelings", which can easily be influenced by behavioural biases.

Overconfidence is not likely to bias the pricing of all securities equally. Experimental evidence, suggests that overconfidence is likely to influence the judgment of investors relatively more when they are analysing fairly vague and subjective information (Black, 1990). For the information used to value investments, the subjectivity is likely to vary cross-sectionally. Consider a real estate investment trust with stable existing operations and few growth options. The information used to value such a company is likely to be fairly concrete, thus, the pricing bias resulting from investor overconfidence should be minimal. In contrast, to value a company such as Amazon Com or Microsoft Corporation, whose value probably depends on future growth options and intangible assets, an investor must rely on much more subjective information. For such companies, the overconfidence relating to mispricing effects should be stronger than for stable companies.

Levels of the Efficient Market Hypothesis
It is common to distinguish among three levels of the Efficient Market Hypothesis: the weak, semi-strong and strong forms of the hypothesis. These versions differ by their notions of what is meant by the term "all available information" (Bodie et al, 1999).

Weak-Form Efficiency
The weak form of the EMH asserts that stock prices already reflect all information that can be derived by examining market trading data such as the history of past prices, trading volume or short interest. This version of the hypothesis implies that trend analysis is fruitless. Past stock price data are publicly available and virtually costless to obtain. The weak-form hypothesis holds that if such data ever conveyed reliable signals about future performance, all investors would have learned already to exploit the signals. Ultimately, the signals lose their value as they become widely known because a buy signal, for instance, would result in an immediate price increase (Bodie et al., 1999).

Semi-Strong Efficiency
The semi-strong-form hypothesis states that all publicly available information regarding the prospects of a firm must be reflected already in the stock price. Such information includes, in addition to past prices, fundamental data on the firm's product line, quality of management, balance sheet composition and patents held, earning forecasts and accounting practices. The semi-strong hypothesis further asserts that if any investor has access to such information from publicly available sources, one would expect it to be reflected in stock prices (Lumby, 1994).

Strong-Form Efficiency
The strong-form version of the efficient market hypothesis states that stock prices reflect all information relevant to the firm, including insider information available only to a privileged few. This version of the hypothesis is quite extreme. Only a few would argue with the

proposition that corporate officers have access to pertinent information long enough before public release which enable them to profit from trading on that information. Indeed, much of the activity of the Securities and Exchange Commission is directed towards preventing insiders from profiting by exploiting their privileged situation (Fabozzi & Modiglianni, 1992).

Anomalies of Efficient Market Hypothesis (EMH)

A key feature of the EMH is that it is not possible to make consistently higher returns except by holding a portfolio with a higher level of risk. However, anomalies exist because of the following reasons:

I.   The small firm effect or the smaller companies puzzle. Here, evidence is available on the existence of consistently higher returns from investing in the shares of smaller companies (Friend & Lang, 1988; Dimson & Marsh, 1989).

II. Seasonal Variation in Returns: The so-called January effect came to light in 1984 (Kein, 1983; Stanbaugh, 1984). This showed that in the United States of America, nearly all the differential size effect occurs at the turn of the year, that is, during the early part of January. Similar seasonal effects have been identified by (Lumby, 1994).

This constitutes a further puzzle which seemed to contradict the random walk thesis on the non-existence of persistent and replicable market behaviour. The argument that the observed seasonal patterns apply only to segments of the market or to market indexes rather than individual share prices still leaves a fairly uncomfortable problem for proponents of EMH. If the market is informationally efficient, why do seasonal regularities occur at all? (French, 1992).

One possibility that has been adduced is that the anomalies are there in the stock market but are simply below an exploitable level. Share transactions are subject to dealing costs hence, if the disparities in returns are sufficiently large, then trading will not be able to take advantage of such effects. In this case, one is likely to observe the existence of a variety of the so called irrational seasonal effects and these would be quite compatible with a slightly modified form of the EMH (Keane, 1989).

There is also evidence which points to the fact that share prices overshoot in reaction to new information. This may be a consequence of myopic behaviour in the sense that shareholders give too much emphasis to recent events and hence overreact. This has been tested in the United Kingdom (Nickell & Wadhwani, 1986).

Empirical Literature Review

Olowe (1998) examined the response of stock prices to stock splits. The author used a sample of eighty-six (86) stock splits for 59 companies between 1981 and 1992 and found that abnormal returns could be earned. Olowe however failed to isolate the price impact of other simultaneous events occurring near the dates of announcements of stock splits and this may have influenced the overall results. Similarly, Oludoyi (1999) examined the reaction of stock prices in Nigeria to earnings announcements. Using weekly data, the author concluded that the evidence suggested that the Nigerian stock market is not semi strong form efficient as stock prices drift 10 weeks after the corporate earnings results had been released to the public.

Adelegan (2003) also conducted a study to analyze the reaction of stock prices to dividend announcements and capital market efficiency in the Nigerian stock market. The author used the standard event study methodology to test the semi-strong form of market efficiency and his findings showed that the Nigerian stock market was semi-strong inefficient.

In yet another study, Adelegan (2009) examined the speed of adjustment of stock prices to dividend announcements for a total of 742 announcement dates. Using the event study method, the author reported evidence of significant positive abnormal returns for dividend paying firms, 30 days from the date of the announcement. Similarly, the abnormal returns for dividend omitting firms were significantly negative over the same period. Adelegan (2009) therefore concluded that the Nigerian stock market is not semi-strong form efficient and that dividend announcements do contain relevant information to which stock prices react. (What emerges from a review of the literature for the Nigerian case is that most of the studies relied on monthly and weekly data and were conducted prior to the year (1999) when the NSE adopted the use of Automated Trading System (ATS). Technological development, recent reforms in financial market regulation and increased integration and internationalization of the Nigerian capital market may have increased the availability and speed of financial information and this has important implications for the efficiency of the stock market.

With the exception of Izedonmi and Eriki (1996) and Adelegan (2003), the inconclusive controversy seemed to have come to a temporary halt in the late 1970s. The attention of academic scholars became diverted in the early 1980s to studies of the weak–form efficient market hypothesis (EMH) on the Nigerian stock market. For example, Ayadi (1984) and Omole (1997) found evidence to support the weak form hypothesis. Few other scholars have attempted to find reasons to justify the semi–strong form efficiency of the Nigerian capital market and the studies of Emenuga (1989), Olowe (1998) and Oludoyi (1999) are too scanty to draw any meaningful conclusion on this issue.

Brown and Warner (1985) first introduced the event study methodology in looking at market efficiency. After a study of nine fiscal years (1957-1965), the authors observed that of all the available information of a firm over three quarters is captured in the figure of the income for those years. They therefore concluded that security prices reflect over 80% of the information in the annual earnings report.

Fama, Fisher, Jensen and Roll (1969) having used the event study method to test for semi-strong form of market efficiency for the period 1927-1959 in the US discovered that the prices of securities adjusted to the information displayed in stock spilt announcements.

In a test for market efficiency, Mackinlay (1997) categorized earnings announcements in either good news, no news or bad news and affirmed that earnings announcements convey useful information to enhance the valuation of a firm.

In estimating the speed and accuracy with which market prices react to changes in the announcement of dividend payments, Pettit (1972) discovered that based on the daily and monthly data used in response to dividend announcements, the market is reasonably efficient.

Aharony and Swary (1980) tested the information content of dividend hypothesis and discovered that the capital market reaction to dividend announcements shows that changes in the quarterly cash dividend provided useful information beyond that provided by corresponding quarterly earnings announcements.

Furthermore, Asquith and Mullins (1983) sampled 168 firms and using the naïve expectation model, observed that excess returns were significant for the 2-day announcement dates only and of lesser value for the other 19 days. It goes to show that information effect is more pronounced at the initiation of the dividend since this is unexpected unlike subsequent regular dividend announcements which are preceded by the firm's dividend history.

In a test of the semi-strong efficiency of the Karachi Stock Exchange in Pakistan, Ali and Mustafa (2001) examined the linkage of news published in Daily Dawn and Business Recorder with aggregate stock market activity measured by market returns and trading volume. Using daily news headlines collected from July 1st, 1998 to December 31st, 2000 as well as daily stock market prices and employing the statistical tools of correlation coefficients and regression analysis, the authors observed that at the aggregate level, the news surprises and number of news were both negatively related to stock market activity in Pakistan. In addition, the relationship is statistically significant in case of trading volume but insignificant with respect to stock returns. Furthermore, the authors observed day of the week patterns in these relationships and then concluded that in the Karachi Stock Exchange, public information does not play as important role in the day-to-day variations in stock returns than the role played by private information.

In addition, Akbar and Baig (2010) investigated the semi-strong form of market efficiency by Examining the reaction of stock prices to dividend announcements. The study analyzed a total of 129 cash announcements, 24 stock announcements, and 40 simultaneous cash and stock dividend announcements of 79 companies listed on the Karachi Stock Exchange from July 2004 to June 2007. Using daily stock prices, abnormal returns from the market model were evaluated for statistical significance using the t-test and Wilcoxon Signed Rank Test. The findings of the study report negligible (insignificant) abnormal returns for cash dividend announcements suggesting that the Karachi Stock Exchange is efficient in the semi-strong form with respect to cash dividend announcements. On the contrary, the average abnormal and cumulative average abnormal returns for stock and simultaneous cash and stock dividend announcements were reported to be mostly positive and statistically significant which demonstrate that the market is semi-strong inefficient.

In a very recent study, Asiri (2015) investigated the reaction of investors in the Bahrain Bourse to two types of signals from the Telecommunication sector in Bahrain namely-marketing and financial announcements made by corporate management. Using event study methodology in which six events that were announced over the period of 3rd November, 2011 to 26th April, 2014 by Batelco, the only listed Telecommunication company in the Bahrain Bourse, as well as daily stock market returns which were analysed, the author observed that regardless of the type of signal, investors exhibited significant reactions to all the announcements. In specific terms, the author reported that investors reacted positively to the announcement of additions to investment, Batelco winning the award for best investor relations and slashing of broadband rates and negatively to change in management. In sum, the results of the analysis revealed that investors generated positive cumulative abnormal returns (CARs) on the event days as well as on the 21st days of four of these announced events and generated negative abnormal returns in reaction to two of these events. The author therefore concluded that the Bahrain Bourse is inefficient in the semi-strong form in the Telecommunication sector,

From the empirical literature review undertaken above, it is obvious that all the empirical studies have one deficiency or the other, ranging from the methodology employed, coverage of study, small sample size as well as the omission of investigating the combined effect of the simultaneous announcement of changes in both dividend and earnings. The observed gap is thus the motivating force for the current study.

METHODOLOGY AND DATA

The stratified sampling method was adopted to guide this work as it affords the researchers the opportunity of separating the heterogeneous population of firms listed at the NSE into

homogenous components or strata (Afonja, 2001). The stratified sampling technique enabled the researcher to classify the companies quoted in the Nigerian Stock Exchange based on the following criteria.

1. Firms with Dividend Decreases, Earnings Decreases (DD-ED)—included those firms in which both dividend and earnings decreased.
2. Firms with Dividend Unchanged, Earnings Increases (DNC-EI)—included those firms which show no change in dividends, despite reporting earnings increase.
3. Firms with Dividend Unchanged, Earnings Decreases (DNC-ED)—included firms with dividend unchanged and decrease in earnings.

Model Specification

This study employed the naive dividend and earnings expectation model, mean adjusted returns model, market adjusted returns model and market and risk adjusted returns model (OLS market model) as applied by Aharony and Swary (1980) and Isa and Subramaniam (1992). In order to investigate the impact of announcements, it is assumed that dividend on

Security i are given by:
$$E(D_{it}) = D_{i, t-1} \qquad \ldots (1)$$

Where $E(D_{it})$ is the expected annual dividends from company i in financial year t, and $D_{i, t-1}$ is the amount of dividend paid in year t−1. The dividend model states that the expected annual dividends for the year t will be equal to the annual dividends declared in year t−1. If $D_{it} > D_{i, t-1}$, then there is a Dividend Increase (DI). On the other hand, if $D_{it} < D_{i, t-1}$, then there is a Dividend Decrease (DD). When $D_{it} = D_{i, t-1}$, then there has been no change in the dividends (DNC). The earnings expectations (EPS) are obtained in a similar manner. In a similar framework to that of the dividends, when $EPS_{it} > EPS_{i, t-1}$, then there is an Earnings Increase (EI). When $EPS_{it} < EPS_{i, t-1}$, then there is an Earnings Decrease (ED).

Following the trend of studies in this area (such as Gunasekarage and Power, 2006), our study regarding the impact of dividend and earnings announcements is conducted by further dividing the total sample into seven groups.

1. Dividend Decreases, Earnings Decreases (DD-ED)—included those firms in which both dividend payments and earnings decreased.
2. Dividend Unchanged, Earnings Increases (DUC-EI)—included those firms which show no change in dividends, despite reporting earnings increase.
3. Dividend Unchanged, Earnings Decreases (DUC-ED)—included those firms which reported unchanged dividend payments, despite a fall in their earnings.

Following a number of other studies in the developing markets context (see, for example, Lonie et al.(1996), another important aspect included in this research is to investigate a case in which earnings announcements and news on dividend pay-out appear to conflict with each other, i.e., the DD-EI and DI-ED categories. According to Isa and Subramaniam (1992), none of the abnormal returns provided a significant effect when the dividend and earnings changes were in opposite direction.

To estimate abnormal returns, we employed the use of the Market-adjusted Abnormal Return Model (MAR) in order to avoid the need to estimate parameters outside the long 'event' window, which would occur if the more common risk adjusted models were to be used. MAR assumes that equilibrium expected returns exist where alpha is equal to zero and the average systematic risk is equal to one. Furthermore, this model also avoids the complications of a

small sample and infrequent trading associated with our stock prices (Brown and Warner, 1980). Market-adjusted abnormal returns are computed as follows:

$$A_{i,t} = R_{i,t} - R_{m,t} \quad \text{...(2)}$$

Where A_{it}, represents abnormal returns, R_{it} represents returns for stock i on event day t, and R_{mt} is market returns proxied by the Nigerian Stock Exchange (NSE) prices on event day t.
The daily return for each stock in the sample is computed using the following formula:

$$R_{i,t} = \frac{i,t - P_{i,t-1})}{P_{i,\,t-1}} \quad \text{...(3)}$$

Where RI, t is the return Pit indicates closing price for stock i at day t, and Pi (t – 1) is the closing price for stock i at day t–1. Similarly, we also compute the daily market returns (index returns) using series from Nigerian Stock Market closing prices.

The next step is to compute the daily cross-sectional Average Abnormal Return (AARt) for a specific event day, t, which is calculated, based on:

$$AAR_t = {}_{it} \quad \text{.. (4)}$$

Where AARt is the average abnormal returns on day t, ARit represents the abnormal return of each firm on day t (i = company 1... 120), and N denotes total number of firms in the sample for each day during the period under consideration.

A statistical significance test of ARit is then employed using one sample T-test to determine the standardized Average Abnormal Returns (AARt). Results of various empirical tests of information-content hypothesis (regarding dividend policy) (see, for example, Lonie et al.,1996) indicate that the shares of those companies in which their board of directors have announced dividend increases should, on an average, earn positive abnormal returns.

Besides computing the average abnormal returns, the cumulative daily abnormal returns for the securities were aggregated throughout the particular portfolio within the event window, i.e., day –10 to day +10, day –2 to day +2 and day –1 to day +1 relative to the event day (day 0). This event window is used to test how sensitive the price of a stock is towards the arrival of new relevant information. We compute the cumulative average abnormal returns through the event period as:

$$CAAR_m = {}_t \quad \text{... (5)}$$

Where: CAARm denotes cumulative average abnormal returns for the mth period and where AAR is calculated by using Equation (4).

In our attempt to investigate the capital market reaction to dividend and earnings announcements, we examine the hypothesis outlined above using the one-sample t-test. This test is formulated as follows:

$$t = CAAR_t \,/\, T \text{ and } s_t = \text{............................... (6)}$$

Where: T indicates the trading days interval (1, 2… T). Statistics for average abnormal returns are also calculated in a similar manner. Following the standard statistical procedure, the null hypothesis is rejected when the calculated Tc value is greater than the theoretical tT

DATA ANALYSIS AND DISCUSSION

The data used for this study were extracted from Nigerian Stock Exchange Annual Reports, daily official lists, Nigerian Stock Exchange Fact Book (2006-2011). Other sources of data are Securities and Exchange Commission Annual Reports and publications, Federal Office of Statistics Reports and publications. The study covers all companies drawn from all sectors of the Nigerian Capital Market quoted on the first and second tier securities markets that continued to pay (either increases, reductions or no change) cash dividends and earnings from 2006-2011. However, for easy assimilation the data were arranged in the following criteria

1. Firms with Dividend Decreases, Earnings Decreases (DD-ED) included those firms in which both dividend payments and earnings decreased.
2. Firms with Dividend Unchanged, Earnings Increases (DUC-EI) represent those firms which show no change in dividends, despite reporting earnings increase.
3. Firms with Dividend Unchanged, Earnings Decreases (DUC-ED) included firms with dividend unchanged and decrease in earnings.

Table 1: Descriptive Statistics

		No. of Compani es	Mean/Avera ge		Skewness		Kurtosis		Std. Dev.		Variance	
			Pric e	Retur n	Price	Return	Price	Return	Price	Return	Price	Return
2006/20 07	DD&E D	5	42.5 1	0.01	- 0.3447 7	- 0.2192 2	- 1.0448 4	- 0.3905 1	6.7200 72	0.0156 9	45.159 37	0.0002 46
	DU&E I	6	34.5	0.01	0.3861 1	- 0.5023 6	0.4257 48	0.0005 13	0.6173 64	0.0115 37	0.3811 38	0.0001 33
	DU&E D	3	40.6 5	0.01	- 0.3349 4	0.1440 41	1.1689 3	- 0.7171 1	5.1964 28	0.0203 99	27.002 87	4.16E- 04
2008/20 09	DD&E D	8	33.3 1	0	0.1122 34	6.2326 71	1.9244 5	- 44.571 68	2.6772 12	0.0246 97	7.1674 64	0.0006 1
	DU&E I	8	10.0 9	0.01	1.2672 62	6.4579 8	0.2252 74	47.294 09	0.5323 6	0.0319 07	0.2834 07	0.0010 18
	DU&E D	5	11.6 7	0	- 0.2132 1	- 2.7658 6	- 0.3580 9	5.8405 08	0.2515 01	0.0029 55	0.0632 53	8.73E- 06
2010/20 11	DD&E D	2	3.18	0.01	0.9111 49	3.8295 74	1.2248 05	19.366 55	0.3626 51	0.1565 74	0.1315 15	0.0245 15
	DU&E I	24	8.14	0	- 0.3943 3	4.5198 67	- 0.3437 1	22.174 48	0.4270 49	0.0313 66	0.1823 71	0.0009 84
	DU&E D	6	1.6	0	- 3.1416 4	3.5950 12	19.589 45	25.272 87	0.0628 89	0.0314 12	0.0039 55	9.87E- 04

Source: Authors' Computation.

Table 1 shows the descriptive statistics of the data for the three different sampled periods namely: 2006/2007, 2008/2009 and 2010/2011. In 2006/2007 period which represent the pre-global financial crisis, the table shows that dividend increase/ earnings increase has the highest number of companies (19), while the dividend unchanged/earnings increase and dividend unchanged/earnings unchanged have 6 and 9 companies respectively. Furthermore, the highest mean is obtained in dividend increase/earnings increase with a figure of 54.01, closely followed by dividend decrease/earnings decrease with a figure of 42.51. On the other hand, dividends decrease/earnings increase has the lowest mean of 15.77. The skewness which describes the symmetry of the distribution are all negative, except for dividend unchanged and earnings increase and dividend decrease/earnings increase which have positive skewness.

This generally indicate a low skewed distribution (most of the distribution are negatively skewed). The kurtosis coefficients which measure the relative peakness or flatness of the distribution are all negative except for dividend unchanged/ earnings increase which has a positive figure of 0.425748. The means of the kurtosis coefficients are negative which indicate that the data is not peaked. Hence, it means that the data is relatively flatly distributed...

In the same vein, the 2008/2009 period which represents the global financial crisis, shows that dividend increase/ earnings and dividend decrease/earnings increase have the same high number of companies (11), while the dividend unchanged/earnings increase and dividend unchanged/ earnings unchanged have 8 and 4 companies respectively. Also, the highest mean is obtained in dividend increase/earnings increase with a figure of 53.53067, followed by dividend decrease/earnings decrease with a figure of 33.31 and the dividends increase/earning decrease has the lowest mean of 8.383631. The skewness of the distribution are all positive, except for dividend unchanged and earnings decrease and dividend unchanged/earnings unchanged. This indicates a highly skewed distribution (most of the distribution are positively skewed).

The kurtosis coefficients are all negative except for dividend unchanged/earnings unchanged, dividend unchanged/earnings increase and dividend increase/earnings increase which have positive figures of 36.94019, 0.225274 and 0.009343 respectively. The means of the kurtosis coefficients are negative which indicate that the data is not peaked. Hence, it means that the data has a relatively flat distribution.

Similarly, for the 2010/2011 period which represent the post-global financial crisis, the table shows that dividend unchanged/ earnings increase has the highest number of companies (24). Dividend increase/earnings decrease has only one company in this category. The highest mean is obtained in dividend increase/earnings increase with a figure of 41.01, followed by dividend decrease/earnings increase with a figure of 13.35. Dividend unchanged/earnings unchanged has the lowest figure of 1.56. The skewness of the distribution are all negative, except for dividend unchanged and earnings unchanged, dividend decrease/ earnings decrease and dividend increase/earnings decrease which have positive skewness. This generally indicate a low skewed distribution (that is most of the distribution are negatively skewed).

The kurtosis coefficients are all negative except for dividend unchanged/earnings unchanged, dividend unchanged/earnings decrease and dividend decrease/earnings decrease which have positive figures of 7.713797, 25.27287 and 19.36655 respectively. The means that the data distribution is not peaked but relatively flatly distributed.

Test of hypotheses

The three hypotheses earlier formulated were tested using appropriate statistical techniques. The tests followed the usual decision rule of rejecting Ho if the calculated t value is greater than the critical value or tabulated t-value and vice versa or reject Ho if p-value is less than the level of significance which is 5 percent . The hypotheses were tested based on three different periods namely the pre global financial crisis which is represented by year 2006/2007, the global financial crisis period which is represented by 2008/2009 and the post global financial crisis which represent the years 2010/2011.

Phase 1: Test for semi-strong Information Efficiency in the Nigerian Stock Market during the pre-global financial crisis. (2006- 2007)

Hypothesis One

I.   Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend decrease and earnings increase announcement in the Nigerian stock market. That is, market is semi-strong efficient.

II. H1:   There is significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend decrease and earnings increase announcement in the Nigerian stock market. That is, market is semi-strong inefficient.

The hypothesis was tested using the results presented in table 2. The decision rule for the test of hypothesis (1) under (2006/2007) is If p-value < the level of significance (0.05) reject Ho otherwise accept Ho.

Table 2: Table showing the calculated t-values and p-values

Window	t-Value calculated	p-value	Remarks
CAAR (-30, +30)	0.000315398	0.4999	Not significant
CAAR (-20, +20)	3.36288E-07	0.5000	Not significant
CAAR (-10, +10)	6.71925E-06	0.4999	Not significant
CAAR (-5, +5)	0.007555214	0.4971	Not significant
CAAR (-3, +3)	0.005878768	0.4978	Not significant
CAAR (-2, +2)	0.029024643	0.4891	Not significant
CAAR (-1, +1)	0.047789613	0.4831	Not significant

N.B: Significant at α = 0.05: Source: Authors' computation.

From table 2, the tabulated t-values are greater than the calculated t-values in all the seven event windows, likewise, all the p-values are insignificant (less than 0.05). Therefore, we accept H0, meaning that there is no significant difference between the Cumulative Average Abnormal Returns (CAAR) before and after dividend decrease and earnings increase announcement in the Nigerian stock market which indicates that the Nigerian stock market is semi-strong information efficient.

Hypothesis Two

I.   Ho: There is no significant difference between the Cumulative Average Abnormal Returns   (CAAR) pre and post dividend unchanged and earnings increase announcement in the   Nigerian stock market

II. H1:   There is no significant difference between the Cumulative Average Abnormal Returns   (CAAR) pre and post dividend unchanged and earnings increase announcement in the   Nigerian stock market

This hypothesis was tested using the results presented in table 3 with the same decision rule.

Table 3: Table showing the calculated t-values and p-values

Window	t-Value calculated	p-value	Remarks
CAAR (-30, +30)	8.25446E-05	0.4999	Not significant
CAAR (-20, +20)	0.012045753	0.4952	Not significant
CAAR (-10, +10)	0.002112473	0.4992	Not significant
CAAR (-5, +5)	0.007017713	0.4973	Not significant
CAAR (-3, +3)	0.008762886	0.4966	Not significant
CAAR (-2, +2)	0.013223223	0.4950	Not significant
CAAR (-1, +1)	0.024969683	0.4912	Not significant

N.B: Significant at α = 0.05 Source: Authors' computation.

From table 3 presented above, the tabulated t-values are greater than the calculated t-values in all the seven event windows. Similarly, all the p-values for the seven event windows are insignificant. Therefore, we accept HO, showing that there is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings increase announcement in the Nigerian stock market

Hypothesis Three

I.   Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings increase announcement in the Nigerian stock market

II. H1:   There is significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings increase announcement in the Nigerian stock market

This hypothesis was tested with the results presented in table 4.

Table 4: Table showing the calculated t-values and p-values

Window	t-Value calculated	p-value	Remarks
CAAR (-30, +30)	0.000510326	0.4998	Not significant
CAAR (-20, +20)	0.002742148	0.4989	Not significant
CAAR (-10, +10)	0.010881778	0.4957	Not significant
CAAR (-5, +5)	0.020439449	0.4923	Not significant
CAAR (-3, +3)	0.033287171	0.4973	Not significant
CAAR (-2, +2)	0.008535444	0.4968	Not significant
CAAR (-1, +1)	0.015612513	0.4945	Not significant

N.B: Significant at α = 0.05: Source: Authors' computation.

From table 4, the seven event windows show that the tabulated t-values are greater than the calculated t-values. Similarly, all the p-values for the seven event windows are insignificant. Therefore, we accept HO. This implies that there is no significant difference between the Cumulative Average Abnormal Returns (CAAR) before and after dividend unchanged and earnings increase announcement in the Nigerian stock market. Thus, the Nigerian stock market is semi-strong information efficient.

Phase 2: Test for semi-strong Information Efficiency in the Nigerian Stock Market during the global financial crisis. (2008- 2009)

Hypothesis One

I.   Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend decrease and earnings increase announcement in the Nigerian stock market.

II. H1:   There is significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend decrease and earnings increase announcement in the Nigerian stock market.

This hypothesis was tested with the results presented in table 5.

Table 5: Table showing the calculated t-values and p-values

Window	t-Value calculated	p-value	Remarks
CAAR (-30, +30)	0.000420696	0.499833	Not significant
CAAR (-20, +20)	0.000385869	0.499847	Not significant
CAAR (-10, +10)	0.000591074	0.499767	Not significant
CAAR (-5, +5)	0.002836545	0.498896	Not significant
CAAR (-3, +3)	0.008655727	0.496687	Not significant
CAAR (-2, +2)	0.019711987	0.492609	Not significant
CAAR (-1, +1)	0.078312222	0.472355	Not significant

N.B: Significant at α = 0.05: Source: Authors' computation.

From Table 5, it can be seen that the tabulated t-values in the seven event windows are greater than the calculated t-values. Similarly, all the p-values for the seven event windows are insignificant. Therefore, we accept Ho, which means that there is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend decrease and earnings increase announcement in the Nigerian stock market. Thus, the Nigerian stock market is semi-strong information efficient.

Hypothesis Two

I.   Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings increase announcement in the Nigerian stock market.

II. H1:   There is significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings increase announcement in the Nigerian stock market.

This hypothesis was tested with the results presented in table 6.

Table 6: Table showing the calculated t-values and p-values

Window	t-Value calculated	p-value	Remarks
CAAR (-30, +30)	0.001228459	0.499512	Not significant
CAAR (-20, +20)	0.002124473	0.499158	Not significant
CAAR (-10, +10)	0.000347122	0.499863	Not significant
CAAR (-5, +5)	0.003964587	0.498457	Not significant
CAAR (-3, +3)	0.000274249	0.499895	Not significant
CAAR (-2, +2)	2.17138E-05	0.499992	Not significant

N.B: Significant at α = 0.05: Source: Authors' computation.

From table 6 presented above, the tabulated t-values are greater than the calculated t-values in all the seven event windows, also all the p-values are insignificant. Therefore, we accept Ho, meaning that there is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings increase announcement in the Nigerian stock market. That is, the Nigerian stock market is semi-strong information efficient.

Hypothesis Three

I. Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings decrease announcement in the Nigerian stock market.
II. H1:   There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings decrease announcement in the Nigerian stock market.

This hypothesis was tested with the results presented in table 7.

Table 7: Table showing the calculated t-values and p-values

Window	t-Value calculated	p-value	Remarks
CAAR (-30, +30)	0.001633994	0.499351	Not significant
CAAR (-20, +20)	0.000147463	0.499942	Not significant
CAAR (-10, +10)	0.000418526	0.499835	Not significant
CAAR (-5, +5)	0.007609407	0.497039	Not significant
CAAR (-3, +3)	0.006093389	0.497668	Not significant
CAAR (-2, +2)	0.004093778	0.498465	Not significant
CAAR (-1, +1)	0.005947938	0.497897	Not significant

N.B: Significant at α = 0.05: Source: Authors' computation.

From table 7 presented above, the tabulated t-values in the seven event windows are greater than the calculated t-values in all the seven event windows, likewise all the p-values are insignificant. Therefore, we accept thus, Ho, that there is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings decrease announcement in the Nigerian stock market. Again, the Nigerian stock market is semi-strong information efficient.

Phase 3: Test for semi-strong Information Efficiency in the Nigerian Stock Market during the post global financial crisis. (2010- 2011)

Hypothesis One

I. Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend decrease and earnings increase announcement in the Nigerian stock market.
II. H1:   There is significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend decrease and earnings increase announcement in the Nigerian stock market.

This hypothesis was tested with the results presented in table 8.

Table 8: Table showing the calculated t-values and p-values

Window	t-Value calculated	p-value	Remarks
CAAR (-30, +30)	0.000196011	0.499922	Not significant
CAAR (-20, +20)	0.018978817	0.492476	Not significant
CAAR (-10, +10)	0.001512025	0.499404	Not significant
CAAR (-5, +5)	0.017393088	0.493233	Not significant
CAAR (-3, +3)	0.05273853	0.479826	Not significant
CAAR (-2, +2)	0.060166121	0.477455	Not significant
CAAR (-1, +1)	0.141329544	0.45028	Not significant

N.B: Significant at α = 0.05: Source: Authors' computation.

From table 8, the tabulated t-values in the seven event windows are greater than the calculated t-values. Similarly, all the p-values for the seven event windows tested are insignificant. Therefore, we accept Ho meaning that there is no significant difference between the Cumulative Average Abnormal Returns (CAAR) before and after dividend decrease and earnings increase announcement in the Nigerian stock market. Thus, the Nigerian stock market is semi-strong information efficient.

Hypothesis Two

   I.   Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings increase announcement in the Nigerian stock market.
   II. H1:   There is significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings increase announcement in the Nigerian stock market.

This hypothesis was tested with the results presented in table 9.

Table 9: Table showing the calculated t-values and p-values

Window	t-Value calculated	p-value	Remarks
CAAR (-30, +30)	0.000120063	0.499952	Not significant
CAAR (-20, +20)	0.007272175	0.497117	Not significant
CAAR (-10, +10)	0.000126976	0.49995	Not significant
CAAR (-5, +5)	0.0031806	0.498762	Not significant
CAAR (-3, +3)	0.009576369	0.496335	Not significant
CAAR (-2, +2)	0.013907805	0.494785	Not significant
CAAR (-1, +1)	0.025038815	0.491149	Not significant

N.B: Significant at α = 0.05: Source: Authors' computation.

From table 9, the tabulated t-values are greater than the calculated t-values in all the seven event windows, likewise all the p-values are insignificant. Therefore, we accept Ho, hence there is no significant difference between the Cumulative Average Abnormal Returns (CAAR) before and after dividend unchanged and earnings increase announcement in the Nigerian stock market. The result again shows that the Nigerian stock market is semi-strong information efficient.

Hypothesis three

I. Ho: There is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings decrease announcement in the Nigerian stock market.

II. H1: There is significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings decrease announcement in the Nigerian stock market.

This hypothesis was tested with the results presented in table 10.

Table 10: Table showing the calculated t-values and p-values

Window	t-Value calculated	p-value	Remarks
CAAR (-30, +30)	0.000120198	0.499952	Not significant
CAAR (-20, +20)	0.000123685	0.499951	Not significant
CAAR (-10, +10)	4.69285E-05	0.499982	Not significant
CAAR (-5, +5)	0.000631094	0.499754	Not significant
CAAR (-3, +3)	0.154972144	0.440963	Not significant
CAAR (-2, +2)	0.057402905	0.478489	Not significant
CAAR (-1, +1)	0.002153669	0.499239	Not significant

N.B: Significant at α = 0.05: Source: Authors' computation.

From table 10, it is evident that the tabulated t-value are greater than the calculated t-value in all the seven event windows also all the p-values are insignificant. Therefore, we accept Ho, which means that there is no significant difference between the Cumulative Average Abnormal Returns (CAAR) pre and post dividend unchanged and earnings decrease announcement in the Nigerian stock market which means that the Nigerian stock market is semi-strong information efficient.

FINDINGS AND DISCUSSION

The study examined the semi-strong information efficiency in the Nigerian stock market for a six-year period divided into three different phases-the pre global financial crisis (2006/2007), the global financial crisis (2008/2009) and the post global financial crisis (2010/2011).

The study revealed that the Nigerian stock market is semi-strong information efficient in all of these three phases. This could be a reflection of the increasing high level of investor literacy, adoption of information and computer technology in the capital market, enhanced information dissemination as well as the dismantling of many bureaucratic bottlenecks in consummating transactions all of which are the fallouts of the various capital market reforms embarked upon by successive governments in Nigeria over the past two and a half decades.

The findings of our study find support in the works of Akbar and Baig (2010), Uddin and Chowdhury (2005) and Pettit (1972) who reported no significant abnormal average returns to earnings announcements in their various studies of semi-strong efficient markets. This is however in contrast to the findings of Adelegan (2003; 2009), Below and Johnson (1996) as well as Kong and Taghavi (2006) whose empirical results failed to find support for the semi-strong efficient market hypothesis in the various markets investigated.

On the whole therefore, it is apparent that the controversy is yet to be settled given the conflicting empirical findings emanating from various research efforts with respect to the EMH.

The findings of our study suggest that the Nigerian capital market is semi-strong efficient with respect to the various combinations of earnings and dividend announcements for the three different phases under study.

CONCLUSIONS AND RECOMMENDATIONS

Overall, the results from the study suggest that stock prices change in Nigeria with respect to dividend and earnings announcements. The seven different combinations of dividend and earnings announcements generated no significant abnormal average returns for all the event windows considered in all the three phases under study thus supporting the position that the Nigerian capital market is semi-strong form efficient. Based on these findings, it is recommended that the capital market regulatory authorities should intensify efforts geared towards sustaining the encouragement of capital inflows and proper dissemination of information to safeguard the market from insider abuse, further globalization of the stock market through cross–border listing as well as encouraging the development of more investment trusts, mutual funds and the derivatives market.

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