Empirical Examination of Stock Price Reaction to Annual Earnings Announcement: A Study of Nigeria Stock Exchange

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Abstract

This paper examined stock price reaction to annual earnings announcements of firms listed on Nigeria Stock Exchange. The period of study is 1st January 2008, to 31 December, 2013. Using the event study methodology, the magnitude of market reaction to the earnings announcements for a sample of 106 listed firms on *NSE* is tested. Abnormal returns (*ARs*) were computed for each firm and tested for how earnings announcements impacted on a firms' share price. The results show negative and significant reaction of stock price on the second month after announcement. Firms listed on NSE observed mean CAR of -1.8606, suggesting that earnings contain important information about the market. We find that there are no post earnings announcement drift observed over the next six months after the announcement. The paper conclude that stock prices changes in the Securities Exchange market with respect to earnings announcements, are not random but follow a pattern which makes it possible for positive abnormal returns to be gained by trading only on the month of earnings announcement as observed by significant and negative abnormal returns only on the second month after announcement it was recommend that NSE should implement a system that will disseminate the annual earnings announcements on stock prices and events such as share splits, bonus issues, dividend announcements, etc.

Keywords: Stock Price Reaction, Annual Earnings Announcement and Efficient Market Hypotheses

Introduction

Researchers have shown that earnings announcements are one form of news that the market reacts to. Earnings are defined as the amount of profit that a company generates during a given period of time usually quarterly or annually as reported in its financial statements. Earnings are important because they provide an indication of a company's potential growth, stock price appreciation and future dividend payments. Various research studies have been conducted in relation to earnings with varied findings (Afego, 2011; Osei, 2002; and Cheol, 2012). Summary of their conclusion implied that stock markets are not efficient in relation to adjusting to new information on earnings announcements and that earnings provide a modest but not overwhelming amount of information to the market.

According to Cheol (2012) given the importance of earnings, it is no surprise that company management has a vital interest in how they are reported and may decide to manage the earnings. Earnings management is defined as the manipulation of a company's financial earnings either directly or indirectly through accounting techniques. This occurs when a company is unable to meet investors' expectations or in periods of volatile earnings. Earnings management is primarily achieved by management's actions to achieve desired earnings levels thus stock returns prompt earnings management.

Cheol, Resnick and Sabherwal, (2012) are of the opinion that one of the common ways in which companies manage earnings is by controlling the timing of receipts and expenditures, and by choosing among alternative methods of accounting. Earnings studies by Rhee (2003) examined the effect of firm size on corporate earnings management and found that large and medium sized firms display more aggressive ways so as to avoid reporting earnings drops than small sized firms.

A research conducted by Mlonzi, Kruger and Nthoesane (2011) examined the relationship between quality of corporate governance and earnings management. Results show that due to the introduction of code of corporate governance in 2002 (Sox Act 2,002), it has created an increase in discretionary accruals as a measure to manage risk. Earnings may also be viewed as an indicator of management's competence in running a profitable company and the ability to deliver value to shareholders. Therefore, market reaction to earnings releases is deemed to be an interesting topic for research. The market reacts more strongly to positive earnings than to negative earnings.

The aim of this paper is to investigate and make a comparative analysis of how the Nigeria Stock Exchange react to both positive and negative earnings announcements. The rest of the paper will be structured as follows: section 2 provides the literature review of the study with a thorough analysis on content of earnings information and the impact on stock price. The methodology and data together with the models are discussed in section 3, while the presentation and discussion of the results are reported in section 4. Section 5 presents conclusions together with recommendations for further research.

As part of an active portfolio management strategy, capital market traders take long positions in a falling market and unwind those positions when the market is reacting to annual earnings announcement in order to make stock gains. To this end, they are constantly searching for the 'best' time to buy or sell from past share price reaction in order to gain returns. For most traders, the exercise is more of a product of guess work and intuition than any empirical evidence.

Previous researches by Chai and Tung (2002) and Anilowski, Feng and Skinner, (2007) demonstrate that investors accrue positive returns during earnings management. Other research Aga and Kocaman, (2008) show that the market reacts positively to good earnings announcements and negatively to bad earnings announcements. It further found that lower earnings results display positive cumulative abnormal return (CAR) thus moving the market values higher. The problem is that there is no research that studies market reaction to annual

earnings announcement on the *NSE* using the most recent data. By using the most recent data, it will be able to capture some of the trends that may influence on the efficiency of capital markets in African countries. Furthermore, the paper seeks to find out whether markets react positively or negatively to annual earnings announcement by company management. In addition, no research compares the magnitude of the reaction (in any direction). The crux of this research is not only to assess the reaction of *NSE* to the new earnings announcements but to also compare how it reacts and the magnitude of its reaction. It is imperative that the results will also enable us to make conclusions about the extent to which *NSE* markets are efficient.

The primary objective of this paper is to empirically examine stock price reaction to annual earnings announcement by the Nigeria Stock Exchange. Specific objectives are:

1. To determine whether the market reacts positively to good annual earnings announcements and negatively to bad annual earnings announcements
2. To ascertain whether lower annual earnings results display positive cumulative abnormal return (*CAR*) thus moving the market values higher.

The core idea behind the efficient market hypothesis (*EMH*) is that stock prices should fully reflect all new and available information in an unbiased manner to the market participants. Such markets delivers accurate signals for resource apportionment as market prices represent each security's basic worth, although deviations can occur. Price adjustments are only expected to arise from the release of new information. Surprisingly, many empirical studies have been conducted to test the validity of the concept of efficient market hypothesis and varied results have been reported. One of the methods for testing this theory has been the observation of stock market reaction to company annual earnings announcements.

Market efficiency purports that stock prices display a random walk pattern which implies that current or past share prices are of no help in predicting future prices, so the fact that a share's price has risen (or fallen) does not mean that its next movement is likely to be up (or down).The efficient market hypothesis (*EMH*) states that investors cannot profit by trading on news reports and other public information, because the share prices adjust to information as soon as it is known.

A weak form efficient market is one in which the information is reflected in past prices and volume figures; hence it cannot be used to beat the market and make profit. Researchers generally use only limited publicly available information on prices, such as financial statements, government reports, industry reports, analysis and trading volumes (Mabhunu, 2004).A semi-strong form efficient market is a market where the share prices reflect all publicly available information. Event studies that examine how stock prices adjust to specific economic events have been used to directly semi-strong form efficiency. Events usually tested are stock splits, initial public offerings (*IPO*), corporate announcements (especially earnings and dividends announcements) and other unexpected economic and world events.

Researchers have tested the significance of price to earnings (*P/E*) and other ratios, the effect of firm size and many other characteristics that can be derived from publicly

available information. A strong form of the efficient market hypothesis holds that share prices already in corporate all relevant information, whether public or non-public. It is well argued that tests for the strong form are mainly centred on finding whether any group of investors, especially those who can have access to the information otherwise not publicly available, can consistently enjoy abnormal returns. Groups normally tested are company insiders, stock exchange experts, security analysts and professional asset managers. In an efficient market information gathering and information based trading is not profitable as all the available information is already known by the market. This may leave investors with no incentive as to the gathering and analysing of information, for they begin to realise that market prices are an unbiased estimate of the shares' basic worth.

Many of the results reported appear to conclude that financial markets generally follow the weak form of efficient market hypothesis. Such studies include a South African study by Mlonzi (2011), a Ghanaian study by Osei (2002), a Nigerian study by Afego (2011), aKenyan study by Dickinson and Muragu (1994), a Turkish study by Aga and Kocaman (2008); and a Malaysian study by Ahmed (2010). Finally, other studies suggest a strong form of efficient capital markets in the sense that no significant abnormal returns were observed. These studies include Malkiel (2005), Das, Pattanayak and Pathak (2008), Wang and Corbett (2012), Varamini and Kalash (2008), Laopodis (2009), Simpson, Emery and Moreno (2009); and Louhichi (2008). Weak form tests are the most numerous in terms of both frequency and research target, and the results mainly support weak form efficiency.

There are several implications associated with market efficiency. The efficient market hypothesis theory states that the market is efficient with respect to certain particular information if the information is not useful in earning a positive excess return. Firstly, even if all markets are efficient, then asset allocation remains a key element as it strongly influences an investor's overall risk return. Secondly, if markets are efficient, then security selection becomes less important as to whether overvalued or undervalued. In fact, if markets are efficient it would be a good idea to buy a large number of stocks with reduced costs whilst maintaining a passive diversified investment portfolio. Thirdly, if markets are efficient then little role exists for professional money managers, full service brokers and purchasing mutual funds, shares would be cost less that is no load fees.

According to White (2012), the *EMH* also had implications for the setting of accounting standards; no longer did such standards have to specifically protect the naïve investors. Sophisticated analysts and investors, who ensure that prices correctly and instantaneously reflect available information, protect the naïve investors. Any trading by such investors is made at fair prices. Another implication is that if markets are efficient, then there is no need to time the market. Market timing involves moving money in and out of the market based on your expectations of future market trend. By trying to time the market on average may lead to underperforming the market. Lastly, historically most of the gains earned in the stock market have tended to occur over relatively short periods of time (Jordan, 2012). One implication of an efficient market is that no abnormal returns can be made from this information because

current prices already reflect the information.

A study by Jegadeesh and Titman (2012) found that a similar pattern of returns is exhibited around the earnings announcements of past winners and losers. Significant positive returns over a 3 to 12 month holding period are generated by buying stocks that are doing well and sell the ones performing poorly. Using the event study methodology, Sponholtz (2005) examined the kind of information contained in annual earnings announcements in the Danish stock market. Sponholtz found out that there were significant abnormal price reactions surrounding the announcements period. Contrary to the EMH, the abnormal price reactions persist several days after the announcement commonly known as post-earnings announcement drift (*PEAD*). This is contrary to the view that profitable trading opportunities created by *PEAD* are inconsistent with the *EMH*.

The paper contributes to existing literature review on market reaction to various corporate announcements particularly on earnings, dividends, stock splits, and cross-listing. All these have an impact on the stock price. One area that has received great attention is the impact that earnings announcements have on stock prices and the subsequent abnormal returns arising. The stock prices surrounding the announcement period tend to continually drift several days, weeks, even for months after the announcement and this phenomenon is commonly known as the post-earnings announcement drift. Mostly, the more the uncertainty as to the content and timing of the corporate information release, the higher the potential for the announcement to cause an adjustment in stock prices.

The capital markets react to information released especially the surprising news announcements that can cause a huge impact on the price of a stock. One such event is earnings announcements; it provides very useful information to the shareholders, present investors as well as potential investors. Earnings announcements also contain information about past earnings and future earnings prospects. Researchers have shown that significant price changes do arise in expectation of the actual earnings. According to the EMH, stock prices should then respond instantly to surprising news, or the earnings 'surprise'. However, this may take days (or even longer) for the market price to adjust fully. In addition, some researchers have found that buying stock after positive earnings surprises is a profitable investment strategy.

Adelagan (2009) in his study on abnormal market performance due to earnings announcement documented that the abnormal market performance occurred prior to the release of the earnings report. This suggests that although earnings are meaningful measures of a firm's financial performance, by the time they are published they are no longer news and have little or no impact on the market.

Many studies have been conducted on the impact earnings announcements have on the stock market with varied results. For instance, Cready and Gurun (2010) examined aggregate market reaction to earnings announcements and found some evidence that there is a negative relation between earnings news and market return. Ahmed (2010) found that low earnings are associated with negative returns. Results of a study by Rhee (2003) suggest that

earnings announcements provide useful information thereby resulting to increased trading volumes surrounding the event period.

Another element of market reaction to information announcements is the reaction to stock splits. Stock split refers to where all current shareholders receive new shares in exchange for each old share that they own. In recent times it is becoming a common phenomenon for companies to engage in stock splits. A study by Chemarum (2010) found that the Kenyan market reacts positively to stock splits, as shown by a general rise in volumes of shares traded around the stock split. This is consistent with the signalling hypothesis, which states that managers of companies split their stock to act as a means of passing information to stock holders and potential investors. It is observed that market under reacts to split announcements and this suggests splits realign prices to a lower trading range. This implies that stock prices react positively to stock dividends and stock split announcements.

In another by Liu (2007) where he examined whether stock splits convey important information about earnings. The results show that firms split their stocks after a significant increase in earnings therefore leading investors to increase their expectations that the past earnings increases are permanent. The evidence also suggests that the market's reaction to split announcements cannot be attributed to expectations of either future earnings improvement or near term cash dividend increases.

Cross-listing is a common phenomenon among the multinational corporations (*MNCs*) and it refers to a firm having its equity shares listed in addition to its home exchange on one or more foreign stock exchanges. International cross-listing is pursued by firms as a measure to save on costs and mitigate barriers to international capital flows. Studying the stock price movements around announcement dates enhances the assessment of the market's reaction to cross-listing. There have been various studies in this field. A study by Roosenboom and Van Dijk (2009) examined how markets reacted to cross listings across different markets. They found evidence consistent with value creation associated with higher announcements returns especially on the London Stock Exchange.

Most of the studies mention in the literature assessed the stock price effect of international dual listings and the findings suggest that stock price reaction is related to choice of exchange, geographical location(emerging or developed markets). One of the various reasons why companies list their shares abroad and the evidence shows that share prices reacts favourable to cross-border listings in the first month after listing and post-listing trading volume increases on average, and, for many issues, home-market trading volume increases also. A study by Adelegan (2009) assessed the impact of regional cross-listing specifically the Sub-Saharan Africa on stock prices. The study found that there are positive abnormal returns are gained around the date of regional cross-listings of the stocks. The positive announcement period effect, together with the normal post cross-listing performance shows that regional cross-listing increases firm value.

Dividend announcement is an alternative signalling mechanism that also informs investors about the future profitability of their investments in a firm. Several researches have

been done to examine the reaction of stock prices to dividend announcements and also to examine the adjustment of stock prices in response to both earnings and dividend releases.

Osei, (2002) examined the effects of news releases of earnings and dividend announcements on mean, variance and serial correlation in consecutive price changes. The results show dividends announcements bring much less activity than earnings do. Contrary to Osei findings, a study by Ahmed (2010) provides evidence that the effect of dividends announcements is much stronger than for earnings announcements. He examined whether the Nigerian stock market reacts efficiently to dividend announcements in terms of price changes and the findings suggested that dividend policy matters therefore, share prices do react to dividend announcements.

The Post Earnings Announcement Drift (*PEAD*) was first documented by Ball and Brown (1968) and defined it as the tendency for stock prices to continue to move in the direction of the earnings surprise up to a year even after the earnings announcement. That is, if a firm's announced earnings exceed (or fall below) the market expectation, the subsequent abnormal returns to its stocks are usually above (below) normal returns for months. The EMH holds that stock prices adjust instantaneously to new information. Empirical evidence, however, suggests that price changes persist for some time after the initial announcement.

This predictability of stock returns after earnings announcements have attracted extensive researches from Livnat and Mendenhall (2006); Cready and Gurun (2010) and Ball, Sadkaand Sadka (2009). They also conclude that the drift is significantly larger when using theanalysts' forecasts, and that those investors who view the drift as a violation of market efficiency and hope to exploit it should also use the earnings surprise signal, or combination of signals that maximise the drift. From their finding it is observe that the market returns continue to persist for some time beyond the announcement period leaving room for profitable trading activities. This finding is consistent with the post earnings announcement drift (PEAD) phenomenon, which relates to the tendency for stock prices to continually drift after the earnings announcements.

Another news event that the stock market reacts to is the bonus issues by firms. Bonus share issues are made to existing shareholders in proportion to their holdings and at zero subscription prices. Thus they have no direct cash flow implications for the value of the firm and hence the price of its shares. Bonus issue announcements are associated with good news and, as with the earnings and dividends announcements, the larger portion of the announcement effect has been anticipated before the actual announcement month.

Various researches have been undertaken to understand the market reaction around the bonus issues: Mishra (2005) suggested that there are significant positive abnormal returns for a five-day period prior to bonus announcement in line with evidence from developed stock markets even though the bonus issue is known in advance and therefore releases are already known. The results provide stronger evidence of semi-strong market efficiency of the Indian stock market.

In another study by Travlos, Trigeorgis and Vafeas(2001) evidence suggests that significant positive abnormal returns exist around the announcement in line with evidence from developed stock markets. Results of a study by Barnes and Ma (2010) show that higher bonus issue ratio (number of bonus shares in the issue/number of existing shares) usually attract positive returns and lower bonus issue ratio attract negative returns.

Methodology

The data used in this research is mainly annual earnings data and share price data. The earnings and share price data are both sourced from *NSE* fact books, statistical bulletin and their official handbooks. The earnings announcement dates were obtained from *NSE* fact books. Firm within sufficient data were deleted from analysis. The market capitalisation which serves as a proxy for firm size is obtained from the *NSE* database where necessary, some data is also obtained from companies' annual reports, company websites and official business press releases and includes monthly stock price data relating to 107shares listed on the NSE. The sample period is considered sufficient for any annual earnings announcement effects to be detected and analysed.

To be included in the sample, 1) the shares of the announcing firms should have been listed on the NSE and actively traded over the sample period; 2) there should have been a public earnings announcement for the firms selected; 3) a firm should have earnings and price data over the sample period and; 4) in order to minimise the impact of dividend announcements, only firms which had earnings and dividends in the same direction will be selected due to the fact that most firms announce both at the same time.

The standard event-study methodology is employed in this paper to determine how firm listed on *NSE* reacts to full year earnings announcement. Event methodology is viewed as a powerful tool in efficient market hypothesis research and many researchers have successfully utilised the event study methodology to determine how share prices react to new information releases in the market. It is emphasises that event methodology is often used to determine whether there is a statistical difference between actual stock returns and expected returns surrounding an event.

The market reaction to earnings announcements is often determined over a short term and over a medium term or long term periods. The short-term period uses daily data where the event window is -10 days before and +10 days after the announcement date and day 0 is the event date. The 10 days before the announcement date helps to determine if the news leaked into the market before the announcement date. The medium term analysis investigates market reaction about six months after the earnings announcement date. The medium term analysis enables researchers to determine if there is post earnings announcement drift on the stock markets. The long term analysis is often used to test the market reaction over a period longer than a year. This paper adopts the medium term period using monthly share data for analysis purposes.

The monthly stock prices of each of the 107 firms were used to obtain monthly stock returns over the period under study. The firms' monthly return is calculated as follows:

$$R_{it} = [(P_{t+1} - P_t)/P_t \times 100 \quad (1)$$

where

R_{it} = is the actual return on share *i* on month *t*,
P_{t+1} = is the price of share *i* on month t+1
P_t = is the price of share *i* on month *t*.

The expected return is calculated as follows:

$$E(R_{xp}) = R_{it} - AR_{it} \quad (2)$$

where

R_{it} = is the actual return on share *i* on month *t* and
AR_{it} = is the abnormal return for eachsecurity on month *t*.

Results and Discussions

Table 1 provides the cumulative abnormal returns (*CARs*) for earnings announcements between 1 January, 2008 and 31 December, 2013. The result indicates the *CAR* for *NSE* firms is varied, with the cumulative abnormal returns moving in both directions. On the month of earnings announcement, mean *CAR* is positive (mean=1.55, median=0.06) but not significant at any statistical level. Two months after the earnings announcement, the mean *CAR* is negative (mean = -1.86, median = -2.53) and significant at 5% level. In the subsequent four months the results are either positive or negative but not significant. Overall, there is no post earnings drift observed.

Table 1: Stock price reaction to annual earnings announcement

Event Months	% Mean CAR	% Median CAR	t-stats	p-value
0	1.5500	0.0600	1.3700	0.1700
1	0.8209	0.5035	0.7907	0.4304
2	-1.8606	-2.5289	-2.1609	0.0324
3	0.7252	0.1752	1.0234	0.3079
4	0.0060	-0.5869	0.0055	0.9956
5	-0.7534	-0.9714	-0.9385	0.3496
6	-0.7122	-0.5924	-0.8473	0.3982

Source: Author's computation, 2015

Initially, the market reacts positively in the month of announcement perhaps due to speculation but thereafter starts to adjust in the following month after announcement. This

implies that firms on NSE experienced negative and significant returns 2 months after announcement. The results evidently show that the greatest magnitude of share price reaction takes place around the announcement month thus an indication earnings announcements does not contain new information. Our results show that the market reaction to annual earnings announcement was significant only in the month of announcement. It is reasonable to conclude here that although earnings are meaningful measures of a firms' financial performance, by the time they are published they are no longer news and have little or no impact on the market.

Estimating from the research findings, it can be deduce that annual earnings announcement can significantly influence stock price and returns in the market. For example the announcement of dividend of N6.00 by Dangote Group of Companies for the period ending 31st December, 2014 has significantly triggered stock price reaction in the market either positively or negatively. This can also be applied to stock splits, bonus issue and cross-listing of shares.

The results show that firms listed on NSE recorded negative and significant abnormal returns in the second month of announcement, and insignificant returns for the rest of the months. The significant CARs suggest that earnings announcement provide valuable information which the market uses to adjust share prices. Therefore, the earnings announcement month is the only month that investors would make a profit. In theory, a stock market is informationally efficient with respect to earnings releases if no one can earn abnormal returns by trading on the basis of the information contained in firms' earnings news. No abnormal price reactions should continue beyond the announcement period. The releasing of financial results may be viewed as a norm and no new information to the market thus the market tend to adjust and correctly reflect the information immediately into the share price. This is substantiated by the findings that although annual earnings announcement are meaningful measures of a firms' financial performance, by the time they are published they are no longer news and have little or no impact on the market.

Concluding Remarks

To achieve the above mentioned it was assumed that the cumulative abnormal returns arising from earnings announcement are significantly different from zero. This is because new information contained in earnings announcements is quickly reflected in the share price thus allowing for statistically significant abnormal returns to be generated on the basis of trading on the month of announcement only. We find evidence of efficient adjustment of stock prices to information contained in annual earnings announcement for the sample of firms in our study.

Overall, the results from our study indicate that stock prices changes in the securities exchange with respect to earnings announcements, are not random but follow a pattern which makes it possible for positive abnormal returns to be gained by trading only on the month of earnings announcement as it is observed by significant and negative abnormal returns only on the second month after announcement.

The paper recommend among others that:

1. The NSE should implement a system to disseminate the annual earnings announcements on stock prices and events such as share splits, bonus issues, dividend announcements, etc.

2. The paper equally recommends that regulators of the stock exchanges should ensure timeliness in releasing public information such as those on earnings. Firms delay and take up to one year to release their financial results or even announce results for two financial years together. This will improve market efficiency and foster public and investor confidence.

3. Lastly, share price reaction to interim, half yearly and quarterly earnings announcements offers potentially interesting areas for future research in the emerging and developing market of Nigeria.

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