EFFECT OF POST EARNINGS ANNOUNCEMENT DRIFT ON STOCK RETURNS AT THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

I do hereby declare that this is my original work and has not been submitted to any institution of higher learning for examination.

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This research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

This research project is dedicated to my dear father, John Otieno, my loving mother Peninah Odhiambo and my lovely sisters Juliet Akeyo and Jean Wendoh who have provided me with unwavering support throughout the study.

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LIST OF ABBREVIATIONS

AAR	Average Abnormal Returns
APT	Arbitrage Pricing Theory
AR	Abnormal Returns
ATS	Automated Trading System
CAPM	Capital Asset Pricing Model
CAR	Cumulative Abnormal Returns
CBK	Central Bank of Kenya
CMA	Capital Markets Authority
DNN	Deep Neural Network
EMH	Efficient Market Hypothesis
FTSE	Financial Times Stock Exchange
GDP	Gross Domestic Product
NSE	Nairobi Securities Exchange
PEAD	Post Earnings Announcement Drift
SVM	Support Vector Machines
XGB	ExtremeGradient Boosting Model

ABSTRACT

In a market that is efficient, prices must represent entirely the information that is accessible in the market and entry of new information in the market is reflected in totality in the price adjustments. However, research indicates that following earnings announcement, abnormal returns of firms having positive news continually drift upwards whereas abnormal returns for firms having bad news drift downwards, a scenario referred to as Post Earnings Announcement Drift. The study sought to determine the effect of post earnings announcement drift on stock returns at the Nairobi Securities Exchange. The theories anchoring the study included; the Efficient Market Hypothesis, the Capital Asset Pricing Model, and the behavioral finance theory. Secondary data used for analysis in the current study, which entailed daily stock prices, was gathered from the Nairobi Securities Exchange. The study was an event analysis of post earnings announcement drift. The study analyzed the reaction of stock returns of listed firms 10 days before dividend announcement and 10 days after for a period of five years; from January 2017 to December 2021. T-test was carried out to establish the significance of the post earnings announcement drift on stock prices. Only 55 Companies listed at the NSE met the set criteria which entailed that firms' stocks have not at any time stopped trading on the NSE for the period between January 2017 and December 2021 and that the firms' must have posted its earnings consistently during the period between January 2017 and December 2021 to avoid data gaps. The study findings established that the cumulative average abnormal returns for all the five years analyzed were increasing before the earnings announcement albeit at a minimal rate but increased steeply after the earnings announcement date. This implies that the post earnings announcement drifts led to significant positive abnormal returns in the short run. The findings further illustrates that the stock returns for the selected companies reacted minimally positively in anticipation of the earnings announcement but reacts strongly positive after the earnings announcement in all the five years. From the t-test of significance, the study established that post earnings announcement drift has a significant effect on the stock returns of firms listed at the NSE. Policy recommendations are made to government officials and policy makers in the Treasury and the security markets regulator, the Capital Markets Authority, to adopt policies that would enhance market efficiency for predictability of the market behavior by market players and for enhanced investor confidence in the operations of the market. Recommendations are also made to consultants and management of listed, as well as other firms, to consider earnings as a factor that influence share prices/firm value as they formulate strategies and policies, and they should aim for positive earnings. Recommendations are also made to investment banks, equity analysts, and individual investors to invest in firms that post positive earnings in order to increase their wealth or their clients' wealth. Finally, recommendations are made individual investors to consider positive earnings announcement by companies in which they hold shares since post earnings announcement drifts would impact on their returns.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Fama (1970) asserted that in a market that is efficient, prices must represent entirely the information that is accessible in the market and entry of new information in the market is reflected in totality in the price adjustments. But research indicates that following earnings announcement, abnormal returns of firms having positive news continually drift upwards whereas abnormal returns for firms having bad news drift downwards. This scenario was referred to as Post Earnings Announcement Drift (PEAD) (Ball & Brown 1968). PEAD has gained a lot of traction from various researchers who have sought to understand and gives an explanation to market inefficiency. Ball and Brown (2014) assert that this scenario poses a major limitation to the market efficiency hypothesis since it has withstood much research for the past three decades and has not fully explained by other known anomalies.

This study was founded on three theories consisting of; the Efficient Market Hypothesis (EMH), the Capital Asset Pricing Model (CAPM) and behavioral finance theory. EMH contends that the prices of properties in the market are the reflections of the prevailing market conditions and future prices can be predicted with certainty. It further reveals that in a market where all conditions are working well there will be no windfall profits made from investing in the securities market (Baker, Greenwood & Wurgler, 2009). The CAPM by Sharpe (1964) explains the expected return on stock as being equal to the price sum of a risk-free asset and a market risk premium. Behavioral finance by Kahnemann and Tversky (1974) purport that at individual's decisions are not purely informed by logic and rationale but rather driven by personal preferences and experiences and so stock returns usually show the behaviors of different investors in the market.

In Kenya, the Nairobi Securities Exchange (NSE) is the only body which undertakes the functions of the stock market. Among many other objectives and roles, are promotion and improvement of a culture of thrift, and/or saving by according alternative premise for investment and helps to transfer the savings to investment in high-yielding enterprises and listed stocks. The NSE plays critical role in Kenya's economic growth as it currently trades more than a 100 million shares in a month (Okoth, 2020). NSE being the only securities exchange in Kenya offers a good platform to investigate the PEAD and its influence on stock returns.

1.1.1 Post Earnings Announcement Drift

PEAD denotes the stock's propensity to move its cumulative abnormal returns in a direction of the earning news for a couple of weeks or maybe months after the earning have been announced (Ball & Brown, 2014). According to Bernard and Thomas (1989), PEAD refers to a situation of stock prices moving in the course of earning news for a period of up to a year following release of the earnings. PEAD is the term used to describe the phenomenon wherein companies who report surprisingly high earnings outdo those that report surprisingly low earnings (Fama, 1998). In the current study, PEAD refers to the continued movement on prices as a result of earnings announcement and this makes the future earning to be predictable in a manner.

PEAD is frequently described as the result of the market's underreaction. In rare situations, the opposite, an overreaction, can happen. De Bondt and Thaler (1995) present evidence of long-term reversals of previous stock price fluctuations, which they describe as corrections of earlier overreactions to news events. They demonstrate that a trading technique that

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involves purchasing prior worst losers and selling prior best winners based on stock price performance produces positive market-adjusted returns of about 12% annually over the following three years. Musalia (2015) implied that these market-adjusted returns may be characterized as a risk premium when none-stationary betas are considered.

In regards of operationalization, the majority of PEAD research have created portfolios using the standardized unexpected earnings indicator. Brandt, Kishore, Santa-Clara and Venkatachalam (2006) examined a different measure of the news on earning announcement of a business: the abnormal returns of stock during the announcement date. They contend that these earnings return announcement accurately represents the market's response to any unexpected information in the company's earnings release, such as sales, margins, investments, and other concrete facts shared in connection with the earnings announcement. The current study utilized abnormal returns and cumulative abnormal returns within the announcement dates to measure PEAD.

1.1.2 Stock Returns

The gain or loss for a certain period, often as a percentage, is called the return on the stock. It comprises cash advances and any revenue from the shares recognized by the shareholder (Mugambi & Okech, 2016). Stock returns have alternatively been described as the advantages to an investor due to changes in dividends, incomes and share value (Aga, Mogadam & Samadiyan, 2013). Stock returns may alternatively be described as the capital or wealth shift caused by investing (Saleh, 2015). Stock returns are guidance to investors when selecting stocks. Financiers of various financial means can invest in stocks so long as they can make a profit bigger than their investment rate (Wang, 2012).

Stock returns, as per Taofik and Omosola (2013), regulate the suitable market information accessibility as well as the stock efficiency as well as effectiveness in shares and stocks allocation. Share price alterations develop some levels of investors' uncertainty, influencing stock supply as well as demand. Securities exchange markets respond to any signal that can be useful in future market expansion and shaping (Širucek, 2013). Companies with high stock returns are successful and therefore contribute generally to economic growth (Aliyu, 2012). Consequently, investment returns are a key part of the entire industry as unpredictable financial innovations make both consumption and investment difficult (Erdugan, 2012).

Stock market indexing is generally applied in calculating stock returns. The price variation of a particular stock discloses its performance. Strengthening stock index shows an outstanding market or industry such as stock price growth reflecting good stock performance and poor stock performance (Daferighe & Sunday, 2012). The CAPM is also extensively utilized in measuring stock returns (Sobia, Arshad & Szabo, 2015). Predescu and Stancu (2011) calculated the change in the stock price plus any dividend paid in computing stock returns and this metric was adopted in the current research.

1.1.3 Post Earnings Announcement Drift and Stock Returns

Market efficient theories assert that it is impossible to exhibit superior returns in a market since current prices shows all the available information. On the contrary, PEAD refers to the continued movement on prices as a result of earnings announcement and this makes the future earning to be predictable in a manner. The CAPM proposes that the risk of a specific stock is the sole determinant of the expected rate of return of that stock (Lintner, 1965; Sharpe, 1964). The implication of the CAPM is that investors would not add anything to

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predicting the expected rate of return to a stock by analyzing PEAD (Bachrach & Galai, 1979).

The EMH states that outperforming the stock market is impossible since the market efficiency will ensure that stock prices show all the relevant information (Fama, Fisher, Jensen & Roll, 1969). "This hypothesis implies that an investor would not outdo the market by concentrating on PEAD since the price already incorporates the relevant information. One of the key principles in an efficient market is that the stock prices ought to show all the newly received information immediately and the price movement ought to be fair as per the information received. In a perfectly efficient market, predictable patterns for instance market overreactions and under reactions, and the ensuing corrections, should just not exist (Fama, 1970).

Ross (1976) in his Arbitrage Pricing Theory (APT) begins with the assumption that there ought to be an absence of arbitrage opportunities in an efficient financial market. Ross's model assumes the presence of a number of sources of systematic risk (firm-specific) which cause variations in expected return values. Accordingly, the APT implies that since the level of a stock price is independent of the firm's specific factors, PEAD would not help in exhibiting superior returns. In conclusion, the various theories that relate to the relationship of PEAD and stock returns do not support PEAD.

1.1.4 Nairobi Securities Exchange

NSE was founded in 1954 as an association of voluntary brokers and was registered within the societies Act before its privatization in 1988.The Automated Trading Systems (ATS)

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were launched by NSE to facilitate live trading, and it provided services to traders based on first-come, first-served principles. The Central Depository System and the CBK were connected to the ATS in order to simplify the trading of government securities. In February 2018, NSE all share Index was announced as way of providing investors with a good measure of performance of the NSE. The NSE has continually had several advancement and innovations not forgetting the removal of the collective foreign ownership limit of the NSE quoted firms in 2015. Capital Market Authority (CMA) regulates NSE and is also mandated to license it. Listing and prospecting of issued and traded at the NSE is subjected to approval by CMA (NSE, 2021).

Since the founding of the NSE in 1954 it has undergone various phases of low and high returns on the investments of shareholders. Some of the causes that have been attributed to the fluctuation of the NSE stock returns included but not limited to political temperatures, prevalent macroeconomic variables for instance interest and inflation amongst others. Despite the fact that NSE is regarded as a highly liquid market as well as highly active with regards to trades in comparison to the other Exchanges in the East and sub Saharan Africa, high volatility levels continue to be a major challenge encountered by the Securities Market in Kenya where the is increased volatility be faced in the equity and bonds secondary markets (CMA, 2020).The current study aimed on adding onto the outcomes of Ball and Brown (2014) to NSE and examine whether the earning announcement are followed by a movement in the in same direction as the earnings surprises in succeeding weeks.

1.2 Research Problem

In an efficient market, all information whether actual or forecasted ought to be incorporated in the prices in the fastest and unprejudiced manner. Stock prices ought to reflect all relevant information immediately if the market is weak form efficient. However, if the price warning announcement leads to abnormal returns because of under reaction to information by investors leading to a downward drift or return continuation behavior, a price drift therefore shows that the market has failed to reflect the information into prices (Fama, 1998).It would be contrary to the unpredictability of stock prices anticipated in efficient markets if profit warnings resulted in negative abnormal returns, necessitating the carrying out of this study because it has not previously been addressed by research.

Ball and Brown (1968) stated that PEAD anomaly was found to have occurred in various markets for many years following the reporting of the first case. The anomaly in most cases has been researched in developed markets with most of the literature being from the western European Countries and United States. In comparison to the emerging markets which is comprised of a sizeable number of investors who are inadequately informed and unaware, with low liquidity levels, have weak legal, regulatory as well as institutional systems and operational limitations (CMA, 2018). Since the NSE is amongst the emerging market, the bulk of investors lack the financial understanding needed to understand news announcement as soon as it is reported. Contrary to developed markets, the NSE does not place a lot of emphasis on the work of financial analysts and investment advisors; as a result, ignorant investors make up the majority of its customer base. Due to this, there is a chance that PEAD happens at NSE.

Globally, studies have focused on PEAD and stock returns relationships. Kausar (2018) explores on whether earnings levels forecast future returns different from earnings changes. Evidence suggests that the anomaly of post-earnings-announcement drift exist. Singh and Yadav (2018) sought to study whether the Indian Stock Market has PEAD anomaly in the period between 2002 to 2017.The outcomes shows statistically substantial PEAD and the outcomes are unaffected to the sub- period of study. Ye and Schuller (2021) test PEAD using deep machine learning. The study confirms the existence of PEAD. These studies present a contextual gap as emerging markets have different social and economic setting from other economies.

Locally, the available studies have mostly focused on other anomalies and events. The few available studies also provide mixed findings. Khaemba (2016) sought to study how the earnings announcements affected the stock market returns of firms quoted in the NSE. It was established that earnings announcement has a notable impact on stock returns. Gathoga (2016) aimed on establishing the effect of profit warning announcement on stock returns of firms quoted in East Africa and found out that profit warning announcement has no significant effect on stock returns. Orenge (2020) reviewed how covid-19 pandemic affected the stock performance of firms quoted at the NSE. This study however focused on a different event from PEAD."

From the reviewed studies, PEAD has been seen to be quite significant in several foreign market and has been shown to produce notable profits and give helpful information regarding a number of stocks in the market. This make it important to undertake this study in the Kenyan market context and find out whether PEAD can be utilized as stock performance

measure in the NSE that is important for investors in the country. This leads to the research question: What is the effect of post earnings announcement drift on stock returns at the NSE?

1.3 Research Objective

The objective of this study was to determine the effect of post earnings announcement drift on stock returns at the Nairobi Securities Exchange.

1.4 Value of the Study

The research conclusions will contribute to both theory as well as practice on stock returns. The findings will be of significance to different entities such as the government through the CBK, the CMA, the NSE and other regulatory institutions, the investors and potential investors, to the management and also to other researchers and academicians. To the managers of firms listed at the NSE, the outcomes will put them in a better position to formulate and implement strategies that would enable them to deal with PEAD.

To government and regulators, in the formulating and implementing policies and regulations that govern PEAD and trading to ensure stability in the stock markets that will stimulate the growth of the economy whilst minimizing its spillover effects on the economy. This will help to enhance financial growth and strengthen the economy as a whole.

The research conclusions will also serve as a basis for future studies on PEAD effect on the stock price of the firms quoted at the NSE and also enlighten other researchers and academicians who seek to get detailed intuition into the relationship between PEAD drift and stock returns at the NSE and other contexts in general.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapters contains the theories that are pertinent to the post earnings announcement drift and stock returns and that form the study basis. The chapters additionally explore on the prior empirical studies, identifies the Knowledge gaps, provides a summary of the reviewed literature, and gives a conceptual framework and propositions of the anticipated association of the study variables.

2.2 Theoretical Framework

This section covers the theories that anchor the study of PEAD and stock market returns. The study studied the EMH, CAPM and the behavioral finance theory.

2.2.1 Efficient Market Hypothesis

This is the anchor of the study, and it was developed by Fama (1970). The theory advances the idea that the stock prices are normally their fair value hence it is difficult to buy a stock that is undervalued or hike the of a stock price when selling. Therefore, an expert timing or stock selection cannot lead to outdoing the market at large and therefore the only possible way of an investor get higher returns would only be through investing or buying high risk investments.

Despite the existence of a lot of support for the EMH, several disagreements have been raised. Critics of the EMH show incidences which confirm that stock prices have deviated from their common qualities. Opponents have criticized the belief in rational markets. Following these contrary positions, those in defense of the hypothesis have argued that

proficiency in the market has no implication that instability will not occur in the future rather, it describes a world that may be changing and, for speculative purposes, a market that is generally efficient for most people (Asava, 2018).The EMH assumption that investors' dealings are rational forms the main contention point, all available information is accessible to them and that they have homogenous market expectations. These presumptions ultimately have an impact on the trading point since trade signals the existence of varied expectations.

The efficient market hypothesis is simply used where there are competing portfolios in the economy. It further assumes there exist no additional costs on purchasing and selling. The major factor considered when making investment decisions is the present stock returns a factor expected to continue for unforeseeable future. There are factors which make it difficult for this model to hold such as the market fluctuation and economic instability (Lawrence, McCabe & Prakash, 2007). The study is applicable to this study as it posits that in an efficient market, PEAD and other market anomalies should not exist.

2.2.2 Capital Asset Pricing Model

The asset pricing concept is attributed to Sharpe (1964). This idea is referred to as the balanced model of asset pricing for hazardous assets. CAPM is a method used to price dangerous or risky catalogues in relation to the projected or expected revenues from the inventories. This idea says that all expected returns from stocks will add up to the summation of risk-free price of assets and a risk premium. Therefore, CAPM is considered as a mechanism to measure risk and it is also an expected relationship connecting expected revenue to stock risk.

This framework helps to approximate the rates of return that should be maintained as a caution especially when an asset that is elemental to a portfolio is subjected to risk. Beta factor is used to assess the systematic risk. It is a crucial measure of the safe returns in any particular market. After being developed by Sharpe (1964) and Lintner (1965), CAPM has become the most used planner in both finance and academics. Nevertheless, some chances of bond market are observed since the returns of some inventories appear to violate the CAPM idea that the orientation of expected returns is explained by risk beta.

Overtime, the theory has become the most used in both academic practices and financial modelling. This idea may also be oriented to model stock prices and evaluate how the prices affect the performance of a firm. Therefore, this theory assisted in understanding the way in which PEAD influences the return of stocks in all the firms that are listed by NSE.

2.2.3 Behavioral Finance Theory

The behavioral finance theory was pioneered by Kahnemann and Tversky (1974). As indicated by the theory, investors, or at least some of them, are prone to bias. As a result, their financial choices may not be completely sensible. Overconfidence and over optimism, representativeness, conservatism, cognitive biases, frame reliance and anchoring, regret aversion, and mental accounting are some of the biases that might be identified. According to conventional finance, if irrational investors or investors wrongly price assets, rational investors (arbitrageurs) will notice the mispricing and fix it by purchasing cheap assets and disposing costly ones. Behavioral finance theory, on the other hand, argues mispricing may persist because arbitrage is costly and dangerous, reducing arbitrageurs' demand for fair-value restoration trades (Thaler, 1993).

The behavioral finance theory has become exceedingly popular in research. This is mostly because it combines the fascinating field of psychology with the dry, mathematical topic of finance. The Behavioral finance theory normally assumes that economic agents are rational for instance they are not prejudiced and are efficient information processors as well as their decisions are in line with optimization of utility. The biases proposed by the theory appear quite relatable, and most investors have been victims of these biases at one point in time or another. This is the reason the behavioral finance theory is preferred in explaining how the market works. In a world that has become exceedingly turbulent over a long length of time, behavioral finance theory also provides a sense of control (Lekovic, 2020).

The behavioral finance theory is criticized for ignoring the presence of investor behavioral biases (noise traders) who affects the prices as well as return of assets in the market. The theory also ignores arbitrage, which prohibits rational investors from profiting from short-term mispricing and, as a result, bringing prices back to equilibrium. The theory is appropriate to the current research as it considers that behavioral biases influence the correlation between PEAD and stock returns.

2.3 Determinants of Stock Returns

There are various factors that affect stock returns. However, this study focused on four factors which are; expected and unexpected company news, trading volumes, market sentiments and PEAD.

2.3.1 Post Earnings Announcement Drift

Market efficient theories assert that it is impossible to exhibit superior returns in a market since current prices replicate all the available information. On the contrary, PEAD refers to the continued movement on prices as a result of earnings announcement and this makes the future earning to be predictable in a manner. The CAPM proposes that the risk of a specific stock is the sole determinant of the expected rate of return of that stock (Lintner, 1965; Sharpe, 1964). The implication of the CAPM is that investors would not add anything to predicting the expected rate of return to a stock by analyzing PEAD (Bachrach & Galai, 1979).

The EMH states that outperforming the stock market is impossible since the market efficiency will ensure that stock prices replicate all the applicable information (Fama, Fisher, Jensen & Roll, 1969). This hypothesis implies that an investor would not outdo the market by concentrating on PEAD since the price already incorporates the relevant information. One of the key principles in an efficient market is that the stock prices ought to replicate all the newly received information immediately and the price movement ought to be fair as per the information received. In a perfectly efficient market, predictable patterns for instance market overreactions and under reactions, and the ensuing corrections, should just not exist (Fama, 1970).

2.3.2 Expected and Unexpected Company News

The information released in the market will determine the reaction of a company's stock prices as to whether negatively or positively. A negative reaction is a probable indication that the price of stock is falling whereas a positive reaction implies a rise in the stock price due to

specific firm information. Company news can be on performance (profits and earnings, announcement of dividends and future projected profits, launching or recall of a product, employee layoffs, management change, projected takeovers or merger, errors of or scandals), industry profitability, investor sentiments as well as economic factors (Mariko & Theuri, 2016).

Market sentiments comprise the general investor attitude as to the general price development in a market. The association between stock prices and investor sentiment is considered complex. The behavioral finance theory argues that decisions made by an investor is influenced by emotions and cognition. This explains why the existence of a significant portion of investors who are expressively driven can result to stock price deviations (Wang, Yu & Shen, 2020). This therefore implies that stock prices are influenced by investor sentimentality, which is backed by most research.

2.3.3 Trading Volumes

The quantity of shares exchanged in the stock market over a given period is referred to as trading volume. The prevailing belief has been that there is a direct correlation amongst a stock market's trade volume and its performance. This means that as the volume traded increased, there was an anticipation that prices would increase, causing the security market to become more active. Investors have utilized the volume of trade to choose which stocks to hold as well as when to sell them (Gungor & Kaygın, 2015). A successful company will attract more investors, necessitating the introduction of new securities into the market, most likely at a higher price. As per Gul and Javed (2019), all metrics of trading volume were revealed to have a positive association with the performance level in the security exchange.

The research found that transaction volume has been regarded as the fuel for security markets, as per Stickel (1994), as reported by Aronson (2011). Investors typically rely their financial decisions on market trade volume, as per Stickel's findings. According to the research, a rise in volume traded was automatically associated with a rise in the security exchange's performance; otherwise, it would indicate the start of share reverse, making investors more wary about the stock (Aronson, 2011).

2.4 Empirical Review

The link between PEAD and stock returns has been studied by not only global researchers but also local researchers. This section discusses the objectives, methodology and outcomes of these studies.

2.4.1 Global Studies

Kausar (2018) explores on whether earning levels were able to forecast future returns different from the earning changes. The study outcomes discovered that the earnings levels capacity of predicting future returns was absorbed by the predictive ability of the earning fluctuations. In particular, they revealed that, after accounting for changes in earnings, trading strategies focused on net income, operational profitability, and gross profitability do not provide any abnormal returns. The findings simply enumerate that these anomalies were as a result of PEAD and inability to control earning changes properly. The study presents a methodological gap as it was a review of literature and therefore lacks empiricism.

Singh and Yadav (2018) sought to examine whether PEAD market anomaly existed in the context of the Indian Stock Market. The research period spanned between 2002 and 2017.

The tool of analysis applied was cross sectional regression together with a paired t-test. The results are resistant to sub-period examination, and the findings demonstrate statistically significant PEAD. Despite controlling additional factors including beta, market size, price-to-book, illiquidity, and idiosyncratic volatility, the anomaly still exists. The study represented a gap in terms of methodology as it used regression analysis which has its shortcomings. The current study has utilized an event study methodology.

Syed and Bajwa (2018) aimed on examining how stock market responded to the quarterly earnings announcements. The market model was used in gauging the expected returns and illustrating the abnormal returns during the announcement period. The outcomes found out that the Saudi Stock market failed to show existence of a semi-strong form EMH. The notable abnormal returns and PEAD seen in the Saudi Arabian Stock Market during the announcement period was evidence of its market's efficiency. The study gives a contextual gap as it was undertaken in Saudi Arabia that has an unlike economic setting from Kenya.

Zhang and Gregoriou (2020) carried out an investigation of the association amongst the liquidity cost and PEAD. The study period was between 2000-2015 where a total number of 93 firms which had zero leverage and were quoted on the FTSE 350 index were sampled. The study found that illiquidity levels were notably enhanced within both the post announcement and earning periods in the long and short term. When they break out the components of the bid-ask spread during announcements of earnings, they observed that the adverse selection costs considerably rose while the costs of order processing and holding inventory remain constant. They concluded that PEAD is connected to information

asymmetry for firms with zero leverage. This study presents a conceptual gap as it focused on liquidity costs which are a different concept from stock returns.

Ye and Schuller (2021) explored the PEAD through use of machine learning models and aimed on finding the optimum supervised model in predicting the direction of the drift after the announcement of earnings. The study period was between 1997 and 2018. They examined Support Vector Machines (SVM) with various kernels, a Deep Neural Network (DNN), an Extreme Gradient Boosting model (XGB), and other models and utilized a long list that was thoroughly prepared and planned inputs structures inclusive of quarterly earnings reports were used for 106 firms listed in the Russell 1000 index. They discovered that XGB outperforms the considered DNN by a little margin, and that both are considerably superior to the SVM variations. To demonstrate that the results are statistically significant, they employed both the Cochran's Q Test and the McNemar's Test. This study indicates a contextual gap as it was conducted in Asian economies whose economic and social setting is different from Kenya.

2.4.2 Local Studies

Musalia (2015) did an event study relating to market anomaly; drift PEAD in the NSE. The study period spanned through 2008-2014.The PEAD postulates that for several weeks after an earnings release, the abnormal returns of stock cumulatively were inclined to move in the like course of an earnings surprise. The investigation's objectives were to ascertain whether the PEAD took place on the NSE and if it may be utilized to track the performance of stocks. Performance of stock was calculated by regressing stock returns against market returns that use the market model. The findings revealed that PEAD anomaly existed in the NSE, and it

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may be utilized as a stock performance measure. The study however shows existence of a gap in terms of the methodology as it applied the regression model which has its own shortcomings. The current study has utilized an event study methodology.

Swaleh (2016) sought to determine whether an effect exists on share prices due to the announcement of earnings by individual companies quoted on the NSE. An event study research design was selected. The data used incorporated daily share price of 65 firms quoted at the NSE. Two years that is 2014 and 2015 form the study scope. For data analysis, the market model was utilized. Through observation of abnormal returns, it was seen that the market was not strong form efficient and that due to relative delays in market adjustments, investors might exploit such inefficiencies in order to generate excess risk adjusted returns. This study revealed that share prices are significantly influenced by earnings releases. The study reveals a conceptual gap as PEAD was not addressed.

Khaemba (2016) carried out an investigation on the earnings release effect on the stock market returns for firms listed at the NSE. Event study approach was applied. The study population was 61 firms listed at the NSE while a sample that was selected was 10 firms which had actively trading stocks. A 14-day event period was applied which comprised of 7 days preceding announcement and 7 days following the release and the event days was day 0. The period of study was 2014. The stock exchange listing services were used to get the data. The empirical findings varied, but the aggregate findings suggested that earnings announcements had an effect on the return on stock. The study presents a conceptual gap as it did not consider PEAD, and it is effect on stock returns.

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Gathoga (2016) aimed on examining how issuance of profit warnings impacted the share returns of firms quoted in East Africa Exchanges. The study population was 35 firms which issued profits warnings within the period 2011-2015. Secondary data was used, and it was obtained from various sources such as CMA reports and well as from different stock exchanges in East African countries. The researcher applied an event study to analyze the data. The irregular returns, standardized cumulative abnormal returns and cumulative abnormal returns behavior in relation to the issuance of profit warnings displayed inconsistent trends all through the event window, supporting the notion the responses of the returns to profit warning issued might be based on a number of factors unique to the firm giving the profit warning. According to the T-test analysis it was revealed that profit warning had not statistically substantial impact on stock market returns. This study presents a gap in terms of concept as it did not focus directly on PEAD and stock returns.

Orenge (2020) reviewed how covid-19 pandemic affected the performance of stock for firms quoted at the NSE. The study used quantitative approach and regression analysis to analyze data. The researcher the traded number of companies shares in a day to measure share trade volume. The researcher employed the natural logarithm of share prices to represent stock performance. Data was collected 30 days before and after the first case of covid-19 was recorded. With the exception of exchange rates, the analysis indicated that all other variables had adverse impact on share performance. The study in addition revealed that stock performance decreased by 0.203 for every unit rise in the COVID-19 impact, while it decreased by 0.136 units for every increment in trading volume. It was concluded that the covid-19 pandemic had a negative effect on the performance of stock. The study presents a conceptual gap as the focus was on Covid-19 as an event and not PEAD.

2.5 Summary of the Literature Review and Research Gaps

The theories reviewed indicated the forecasted association of PEAD and stock returns. There has been discussion about key stock return influencing factors. A knowledge gap exists that was filled based on the studies that have been examined. Various conclusions on the association amongst PEAD and stock returns were drawn from the research that has been analyzed.

From the reviewed studies, PEAD has been seen to be quite significant in several foreign markets and has been shown to produce notable profits and give helpful information regarding a number of stocks in the market. This makes it important to undertake this study in the Kenyan market context and find out whether PEAD can be utilized as stock performance measure in the NSE that is important for investors in the country.

2.6 Conceptual Framework

The anticipated link between components is shown in Figure 2.1. PEAD was the predictor variable. Stock returns were the response variable provided by a stock price movement.

Independent variable   **Dependent variable**

PEAD
  - 10 days before
  - 10 days after

Control Variable
Trading volumes
  - Log daily trading volume

Stock returns
  - Change in stock price
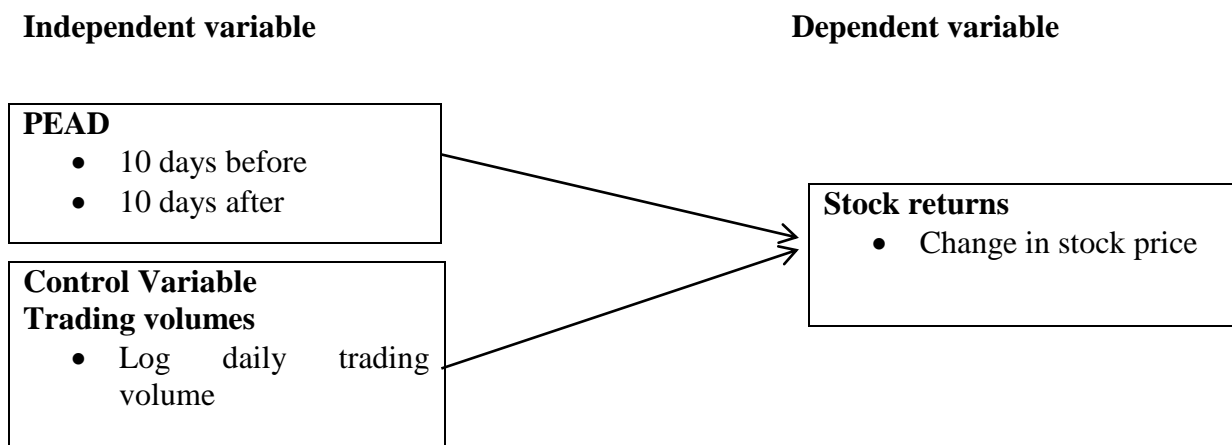
Figure 2.1: The Conceptual Model
Source: Researcher (2022)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This part of the research gives the methodology that directed it, research, gather data, and analyze it. The part contains the targeted population, sample design, data analysis, scientific/analytical model, and significance test concerning the study phenomena effects of PEAD on stock returns.

3.2 Research Design

A research design is a clearly outlined strategy structure that aids the researcher to collect, measure and analyze the data (Cooper & Schindler, 2014). In short, it is the whole strategy that one decides to go with while integrating various elements of study logically and coherently. The study used an event study research methodology. The methodology is important because it is a study conducted over a certain period or a snapshot of one point in time. The study focused on the 10 days preceding the earnings announcement and 10 days following the announcement.

3.3 Population

This study population was all 63 firms listed at the NSE as at 31st December 2021 (Appendix I). The researcher focused on firms whose information is available from January 2017 to December 2021 because certain stocks may have stopped trading on the NSE during that time. The researcher also focused on firms that have posted their earnings consistently during the period between January 2017 and December 2021 to avoid data gaps. The study was also based on data on the NSE-listed firms' earnings announcement dates.

3.4 Data Collection

The researcher employed the use of secondary data. The data was accessed from the NSE. The collected data was for 10 days preceding the earnings announcement and 10 days following the announcement for a 5-year period. The data collected was specifically for all firms listed at the NSE. The study extracted data on stock prices.

3.5 Data Analysis

The study employed descriptive statistics for analysis. Descriptive statistics involved developing line graphs for the cumulative abnormal returns for all the five years in order to visually see the trends of stock returns before and after the stock announcement. The study used a specific formula to analyze stock price changes before and after the earnings announcement. The changes in prices were 10 days preceding the announcement and 10 days following the announcement.

Before event	Event window	after event
-10 days before (-t)	Earnings announcement (0)	10 days after (t)
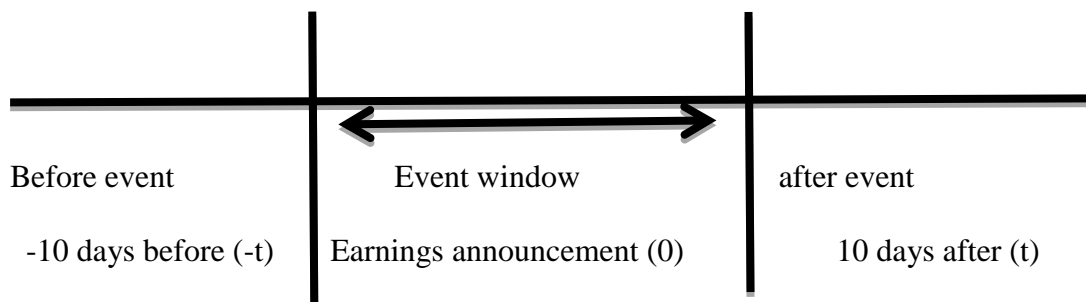
Where,

-t= before the announcement

0= the announcement date

t = after the announcement

Estimating the event window will be as follows;

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The event window involved 10 days before the earnings announcement and 10 days after announcement. The estimate event window was 10 days preceding the event and 10 days following the event

The study utilized all firms listed at the NSE, and stock prices before announcement and after announcement were considered.

Calculating the actual return

The actual return for the stocks (Pjt) will be calculated using;

$$Rjt = \frac{Pjt - Pjt-1}{Pjt-1}$$

(i)

Where

Rj, t = return of stock (j) on date t

Pj, t = the price of the stock represented by (j) on date t

Pj,t-1 = the price of the stock (j) on date prior to t

To calculate the stock returns the equation will be as follows;

Dependent variable ($Erjt$)   and independent variable (Rmt)

$$Erjt = \alpha_F + \beta_F Rmt$$ (ii)

Where,

α_F = risk free return

β_F = relative risk of beta

Rmt = Market return

Calculating average abnormal returns and cumulative abnormal returns

The calculation of average abnormal returns was done by getting the average of the abnormal returns as indicated in step five using stock prices for each day.

$$AAR_i = \frac{\sum_{t=1}^{t=n} AR_i}{n}$$

(iii)

Where

AAR_i = represents the average abnormal return for stock prices on day $_i$

AR_i = represents abnormal returns for stock prices 1 to nth day $_i$

n = represents number of stock

The average abnormal returns (AAR) were computed for each of the event window. AAR value for each day was then added to the previous day's AAR to derive the day's cumulative abnormal returns (CARs).

$$CARt = \sum_{t-k}^{t} AR_i \text{(iv)}$$

Where

K= number of events days before day t

Testing if the abnormal return is statistically different from zero

This CAR, statistical techniques was used to test for significance. According to Mackinlay (2009) t –test is the best approach associated with the p-value to test if the abnormal returns are significant from 0. The study used the Canavos and Miller (1999) formulae to calculate for the t-test.

$$\frac{\times t - \mu}{\frac{s}{\sqrt{n}}}$$

(v)

Where

$^{-}\times$ = the sample mean on day $_i$'s CAR

μ = the population mean (0)

S= standard deviation

n= number of stock returns

CAR is on day (i) was used as the sample mean on day (i). To find the corresponding p-value ,it was calculated using Ms excel or looked up in a statistical table.

3.5.1 Tests of Significance

This is a test for comparing the collected and analyzed data with the truth being examined the effect of announcement on the stock prices of all listed companies. The study tested for significance using the p-value at a 95% confidence level.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents the results and discussion of analysis findings. The study sought to establish the effect of post earnings announcement drift on stock returns of firms listed in Nairobi Stock Exchange. Secondary data applied in undertaking the research was collected from the NSE for all the listed firms. However, only 55 Companies listed at the NSE met the criteria which entailed that firms' stocks have not at anytime stopped trading on the NSE for the period between January 2017 and December 2021 and that the firms' must have posted its earnings consistently during the period between January 2017 and December 2021 to avoid data gaps.

This was an event study analysis of post earnings announcement drift. The study did analysis of the stock prices reactions of the 55 listed firms that met the criteria set; 10 days before the earnings announcement and 10 days after the post earnings announcement for the period between January 2017 and December 2021. The descriptive analysis was done through use of Microsoft's Excel (2013) and line graphs were derived. To determine the significance of post earnings announcement drift on stock returns, T-test was done. This was achieved through the utilization of the Statistical Package for Social Sciences (SPSS) version 25.

4.2 Descriptive Statistics

The study made use of daily stock prices for the fifty-five firms listed at the NairobiSecurities Exchange, which met the criteria set, for the event window of 11 days consisting of 10 days before the earnings announcement date and10 days after the earnings

announcement date. The analysis was done for a five-year period between January 2017 and December 2021 on the 55 listed firms at the NSE that met the criteria set. The Abnormal returns were calculated by subtracting expected returns from the actual returns. Cumulative average abnormal returns were calculated by summing the average abnormal returns over the event window. A graph of the cumulative average abnormal returns for the period was then plotted for each of the years to show the trend of abnormal returns over the event window. The cumulative average abnormal returns for the fifty-five companies analyzed in the current study for each of the five years are represented in the sub-sections below.

4.1.1 Analysis of CAAR for the year 2017

Table 4.1 reveals the CAAR before and after the earnings announcement date in the year 2017. Additionally, statistics entailing measures of central tendency entailing the mean and median, and measures of variability that include; standard deviation, minimum statistic, maximum statistic, and range, were employed.

Table 4.1 illustrates that the mean cumulative average return in the year 2017 was 15.43% with a standard deviation indicating a variability in mean of 12.04%. The median was 7%. The minimum cumulative average return in the year 2017 was 4% while the maximum cumulative average return was 40%. This resulted in a range of 36%.

Table 4.1: Cumulative Average Abnormal returns for 2017

Days	Cumulative Abnormal Returns	Statistics	
-10	0.04	Mean	0.154286
-9	0.04	Standard Deviation	0.120398
-8	0.05	Median	0.07
-7	0.04	Minimum Statistic	0.04
-6	0.05	Maximum Statistic	0.4
-5	0.06	Range	0.36
-4	0.06		
-3	0.07		
-2	0.07		
-1	0.07		
0	0.07		
1	0.13		
2	0.17		
3	0.2		
4	0.22		
5	0.24		
6	0.27		
7	0.3		
8	0.33		
9	0.36		
10	0.4		

Source: Research Findings (2022)

Figure4.1 illustrates the trend of CAAR before and after the earnings announcement date. CAAR is calculated over a period starting from the -10th day to the $+10^{th}$ day relative to the earnings announcement date(day0).

Figure 4.1 illustrates that the CAAR curve for 2017 gently slopes upwards for the 10 days before the earnings announcement date and it indicates that the returns are marginally negative, but slopes steeply upward for the 10 days after the earnings announcement. The curve has a sharp kink on the day of the earnings announcement. It is revealed in Figure 4.1 that generally, the abnormal returns in the NSE, in the year 2017, continue to drift upwards after the earnings announcement. This outlines that the earnings announcements in the NSE,

in the year 2017, were generally positive. This also clearly shows that the post earnings announcement drift has a significant effect on stock returns.

Figure4.1: CAAR for the year 2017
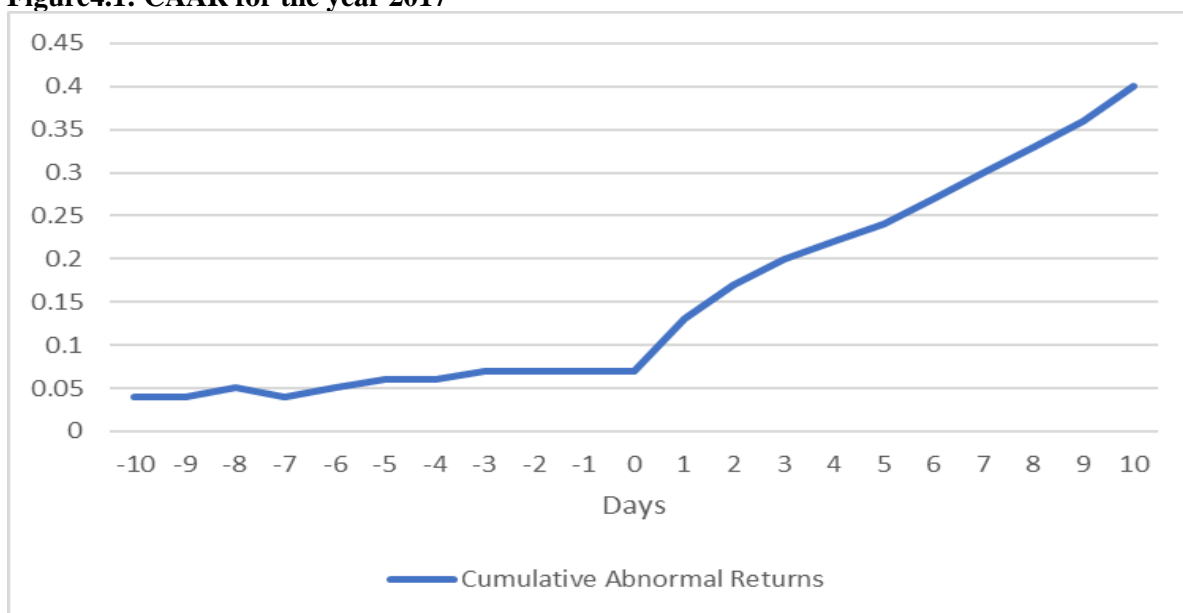
Source: Research Findings (2022)

4.1.2 Analysis of CAAR for the year 2018

Table 4.2 reveals the CAAR before and after the earnings announcement date in the year 2018. Additionally, statistics entailing measures of central tendency entailing the mean and median, and measures of variability that include; standard deviation, minimum statistic, maximum statistic, and range, were employed.

Table 4.2 displays that the mean cumulative average return in the year 2018 was 16.67% with a standard deviation indicating a variability in mean of 11.33%. The median was 11%. The minimum cumulative average return in the year 2018 was 7% while the maximum cumulative average return was 39%. This resulted in a range of 32%.

Table 4.2: Cumulative Average Abnormal returns for 2018

| Days	Cumulative Abnormal Returns	Statistics	
-10	0.07	Mean	0.166667
-9	0.07	Standard Deviation	0.113328
-8	0.07	Median	0.11
-7	0.07	Minimum Statistic	0.07
-6	0.07	Maximum Statistic	0.39
-5	0.08	Range	0.32
-4	0.07		
-3	0.07		
-2	0.08		
-1	0.08		
0	0.11		
1	0.14		
2	0.17		
3	0.19		
4	0.22		
5	0.25		
6	0.28		
7	0.31		
8	0.34		
9	0.37		
10	0.39		

Source: Research Findings (2022)

Figure4.2 illustrates the trend of CAAR before and after the Post earnings announcement driftday. CAAR is calculated over a period starting from the -10th day to the $+10^{th}$ day relative to the Post earnings announcement drift date (day 0).

Figure 4.2 illustrates that the CAAR curve for 2018 is almost flat and indicates a return of zero for the 10 days before the post earnings announcement drift date, but slopes steeply upward for the 10 days after the post earnings announcement drift. The curve has a sharp kink on the day of the post earnings announcement drift. It is revealed in Figure 4.2 that generally, the abnormal returns in the NSE, in the year 2018, continue to drift upwards after

the earnings announcement. This outlines that the earnings announcements in the NSE, in the year 2018, were generally positive. This also clearly shows that the post earnings announcement drift has a significant effect on stock returns.

Figure4.2: CAAR for the year 2018
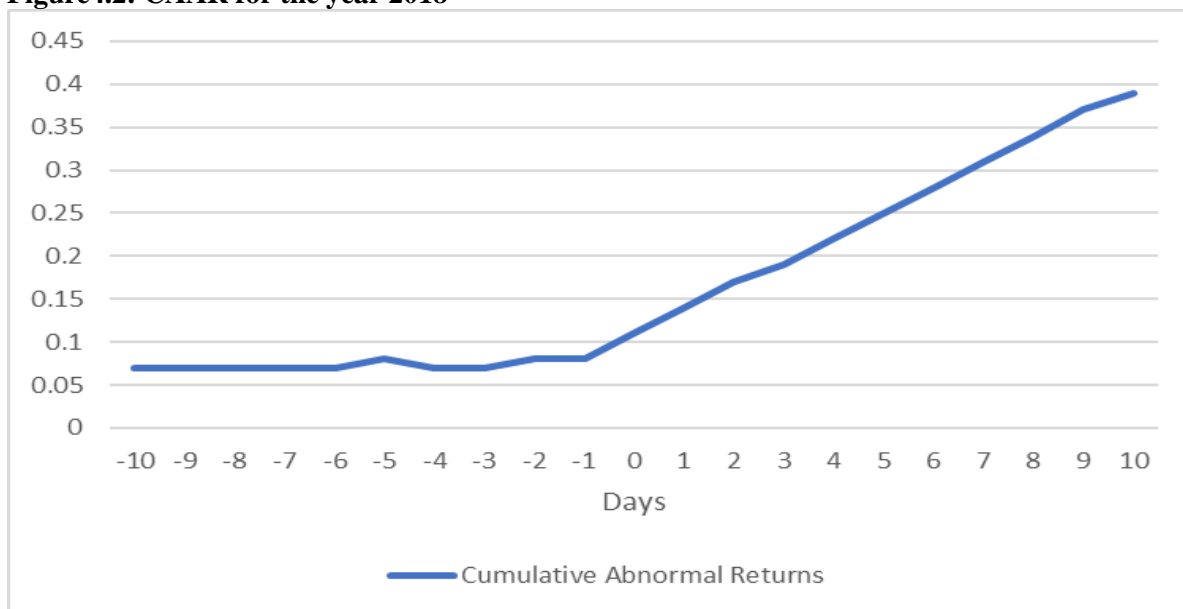
Source: Research Findings (2022)

4.1.3 Analysis of CAAR for year 2019

Table 4.3 reveals the CAAR before and after the earnings announcement date in the year 2019. Additionally, statistics entailing measures of central tendency entailing the mean and median, and measures of variability that include; standard deviation, minimum statistic, maximum statistic, and range, were employed.

Table 4.3 illustrates that the mean cumulative average return in the year 2019 was 17.52% with a standard deviation indicating a variability in mean of 18.81%. The median was 5%.

The minimum cumulative average return in the year 2019 was 1% while the maximum cumulative average return was 55%. This resulted in a range of 54%.

Table 4.3: Cumulative Average Abnormal returns for 2019

| Days	Cumulative Abnormal Returns	Statistics	
-10	0.02	Mean	0.175238
-9	0.02	Standard Deviation	0.188086
-8	0.02	Median	0.05
-7	0.02	Minimum Statistic	0.01
-6	0.02	Maximum Statistic	0.55
-5	0.01	Range	0.54
-4	0.02		
-3	0.02		
-2	0.04		
-1	0.04		
0	0.05		
1	0.11		
2	0.17		
3	0.23		
4	0.28		
5	0.32		
6	0.37		
7	0.41		
8	0.46		
9	0.5		
10	0.55		

Source: Research Findings (2022)

Figure4.3 illustrates the trend of CAAR before and after the Post earnings announcement driftday. CAAR is calculated over a period starting from the -10th day to the $+10^{th}$ day relative to the Post earnings announcement drift date (day 0).

Figure 4.3 displays that the CAAR curve for 2019 is initially flat but then subsequently gently slopes upwards for the 10 days before the post earnings announcement drift date, but slopes steeply upward for the 10 days after the post earnings announcement drift. The curve

has a sharp kink on the day of the post earnings announcement drift. It is revealed in Figure 4.3 that generally, the abnormal returns in the NSE, in the year 2019, continue to drift upwards after the earnings announcement. This outlines that the earnings announcements in the NSE, in the year 2019, were generally positive. This also clearly shows that the post earnings announcement drift has a significant effect on stock returns.

Figure4.3: CAAR for the year 2019
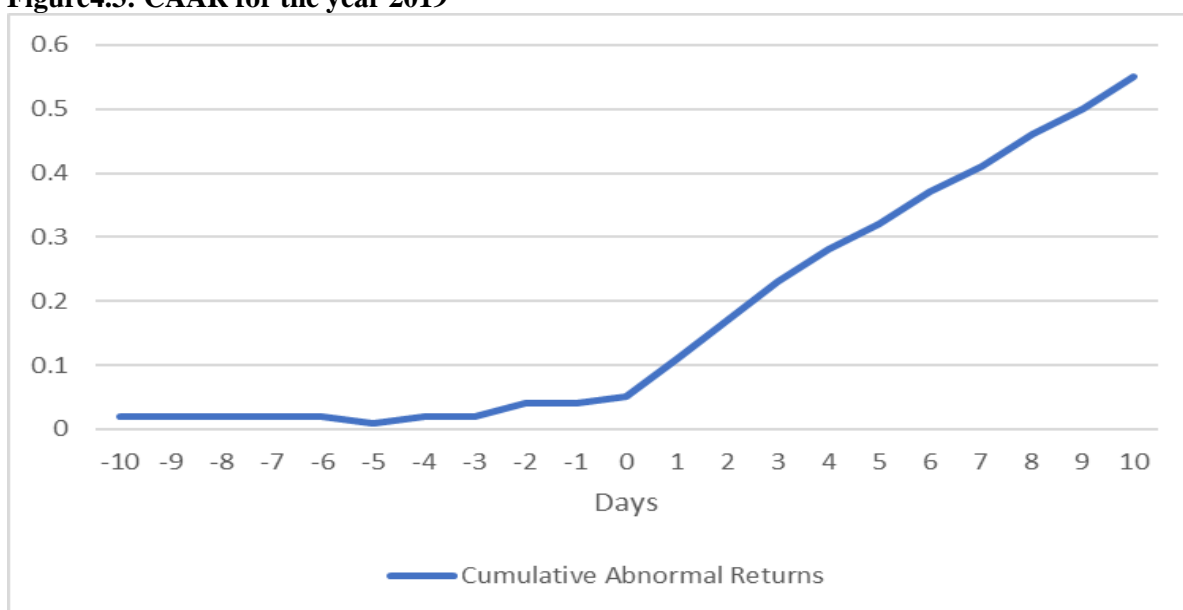
Source: Research Findings (2022)

4.1.4 Analysis of the CAAR for year 2020

Table 4.4 reveals the CAAR before and after the earnings announcement date in the year 2020. Additionally, statistics entailing measures of central tendency entailing the mean and median, and measures of variability that include; standard deviation, minimum statistic, maximum statistic, and range, were employed.

Table 4.4 displays that the mean cumulative average return in the year 2020 was 21.62% with a standard deviation indicating a variability in mean of 15.5%. The median was 11%. The minimum cumulative average return in the year 2020 was 8% while the maximum cumulative average return was 53%. This resulted in a range of 45%.

Table 4.4: Cumulative Average Abnormal returns for 2020

| Days	Cumulative Abnormal Returns	Statistics	
-10	0.08	Mean	0.21619
-9	0.09	Standard Deviation	0.154999
-8	0.09	Median	0.11
-7	0.09	Minimum Statistic	0.08
-6	0.09	Maximum Statistic	0.53
-5	0.1	Range	0.45
-4	0.1		
-3	0.1		
-2	0.11		
-1	0.11		
0	0.11		
1	0.15		
2	0.19		
3	0.24		
4	0.28		
5	0.33		
6	0.38		
7	0.42		
8	0.46		
9	0.49		
10	0.53		

Source: Research Findings (2022)

Figure4.4 illustrates the trend of CAAR before and after the Post earnings announcement driftday. CAAR is calculated over a period starting from the -10th day to the $+10^{th}$ day relative to the Post earnings announcement drift date (day 0).

Figure 4.4 displays that the CAAR curve for 2020 is sloping gently upwards for the 10 days before the post earnings announcement drift date, but slopes steeply upward for the 10 days

after the post earnings announcement drift. The curve has a sharp kink on the day of the post

earnings announcement drift. It is revealed in Figure 4.4 that generally, the abnormal returns

in the NSE, in the year 2020, continue to drift upwards after the earnings announcement.

This outlines that the earnings announcements in the NSE, in the year 2020, were generally

positive. This also clearly shows that the post earnings announcement drift has a significant

effect on stock returns.

Figure4.4: CAAR for the year 2020
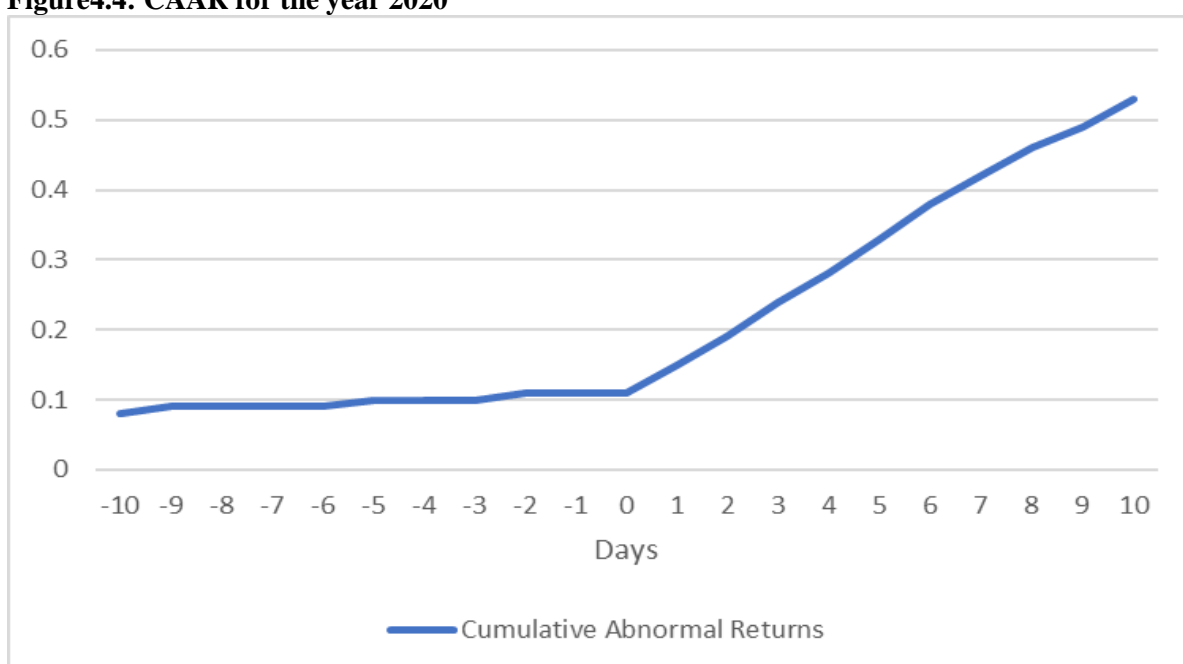
Source: Research Findings (2022)

4.1.5 Analysis of CAAR for year 2021

Table 4.4 reveals the CAAR before and after the earnings announcement date in the year

2021. Additionally, statistics entailing measures of central tendency entailing the mean and

median, and measures of variability that include; standard deviation, minimum statistic,

maximum statistic, and range, were employed.

Table 4.5 displays that the mean cumulative average return in the year 2021 was 12.33% with a standard deviation indicating a variability in mean of 11.43%. The median was 5%. The minimum cumulative average return in the year 2021 was 3% while the maximum cumulative average return was 36%. This resulted in a range of 33%.

Table 4.5: Cumulative Average Abnormal returns for 2021

| Days	Cumulative Abnormal Returns	Statistics	
-10	0.04	Mean	0.123333
-9	0.03	Standard Deviation	0.114295
-8	0.03	Median	0.05
-7	0.03	Minimum Statistic	0.03
-6	0.03	Maximum Statistic	0.36
-5	0.04	Range	0.33
-4	0.04		
-3	0.05		
-2	0.05		
-1	0.05		
0	0.04		
1	0.06		
2	0.1		
3	0.13		
4	0.16		
5	0.2		
6	0.23		
7	0.27		
8	0.31		
9	0.34		
10	0.36		

Source: Research Findings (2022)

Figure4.5 illustrates the trend of CAAR before and after the Post earnings announcement driftday. CAAR is calculated over a period starting from the -10th day to the $+10^{th}$ day relative to the Post earnings announcement drift date (day 0).

Figure 4.5 displays that the CAAR curve for 2021 is initially flat but then subsequently gently slopes upwards for the 10 days before the post earnings announcement drift date, but slopes steeply upward for the 10 days after the post earnings announcement drift. The curve has a sharp kink on the day of the post earnings announcement drift. It is revealed in Figure 4.5 that generally, the abnormal returns in the NSE, in the year 2021, continue to drift upwards after the earnings announcement. This outlines that the earnings announcements in the NSE, in the year 2021, were generally positive. This also clearly shows that the post earnings announcement drift has a significant effect on stock returns.

Figure4.5: CAAR for the year 2021
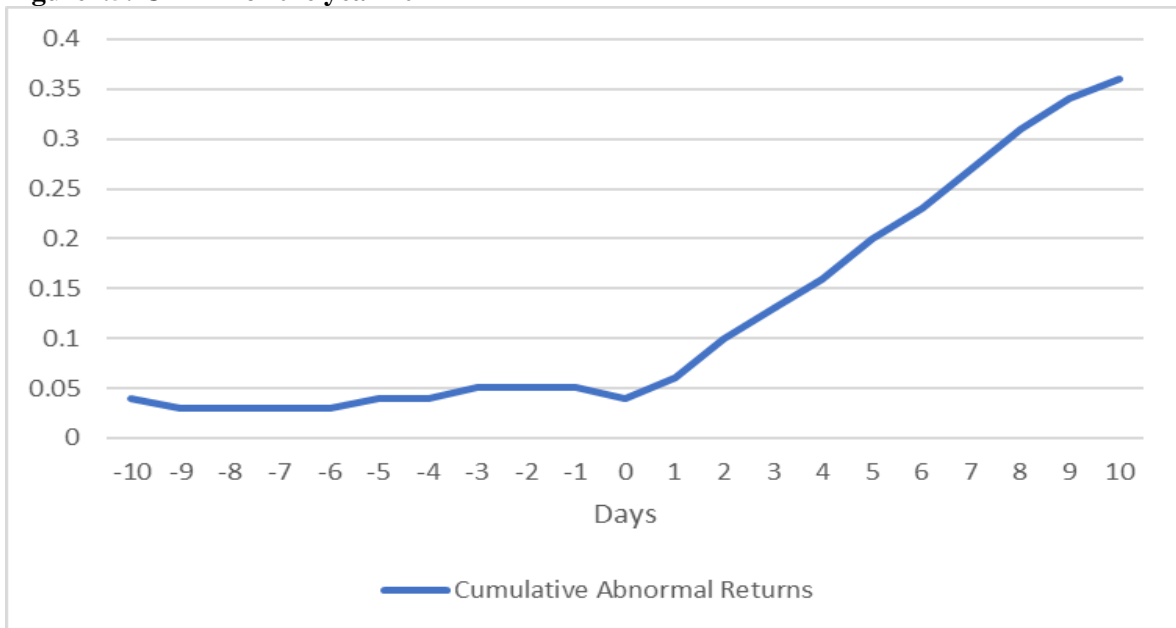
Source: Research Findings

4.3 Inferential Statistics

The t-statistic for the cumulative average abnormal returns was calculated using the standard deviation of the cumulative average abnormal returns. The t-test was utilized to establish the

significance of the post earnings announcement drift in each of the five years and the findings are presented below.

Table4.6: Test of Significance for CAAR for the Year 2017

	T	df	Sig. (2-tailed)	Mean difference	Lower	Upper
CAAR	-7.627	61	.000	-.10322	-.1303	-.0762

Source: Research Findings (2022)

The null hypothesis states that post earnings announcement drift does not have a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2017 while the alternate hypothesis states that post earnings announcement drift has a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2017. The t-test statistic was calculated at the 5% level of significance (95% Confidence Interval). The significance level obtained is less than the study's critical significance value (α) of 0.05. Hence the null hypothesis is rejected. Thus, post earnings announcement drift has a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2017.

Table4.7: Test of Significance for CAAR for the year2018

	T	df	Sig.(2-tailed)	Mean difference	Lower	Upper
CAAR	-7.929	61	.000	-.21217	-.2657	-.1587

Source: Research Findings (2022)

The null hypothesis states that post earnings announcement drift does not have a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2018 while the alternate hypothesis states that post earnings announcement drift has a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2018. The t-test statistic was calculated at the 5% level of significance (95% Confidence Interval). The significance level obtained is less than the study's critical significance value (α) of 0.05. Hence the null hypothesis is rejected. Thus, post earnings announcement drift has a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2018.

Table4.8: Test of Significance for CAAR for the year 2019

	t	df	Sig.(2-tailed)	Mean difference	Lower	Upper
CAAR	-7.806	60	.000	-.13463	-.1691	-.1001

Source: Research Findings (2022)

The null hypothesis states that post earnings announcement drift does not have a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2019 while the alternate hypothesis states that post earnings announcement drift has a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2019. The t-test statistic was calculated at the 5% level of significance (95% Confidence Interval). The significance level obtained is less than the study's critical significance value (α) of 0.05. Hence the null hypothesis is rejected. Thus, post earnings announcement drift has a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2019.

Table4.9: Test of Significance for CAAR for the year 2020

	t	df	Sig.(2-tailed)	Mean difference	Lower	Upper
CAAR	-7.810	60	.000	-.20720	-.2603	-.1541

Source: Research Findings (2022)

The null hypothesis states that post earnings announcement drift does not have a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2020 while the alternate hypothesis states that post earnings announcement drift has a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2020. The t-test statistic was calculated at the 5% level of significance (95% Confidence Interval). The significance level obtained is less than the study's critical significance value (α) of 0.05. Hence the null hypothesis is rejected. Thus, post earnings announcement drift has a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2020.

Table4.10: Test of Significance for CAAR for the year 2021

	t	df	Sig.(2-tailed)	Mean difference	Lower	Upper
CAAR	-7.627	61	.000	-.10322	-.1303	-.0762

Source: Research Findings (2022)

The null hypothesis states that post earnings announcement drift does not have a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2021

while the alternate hypothesis states that post earnings announcement drift has a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2021. The t-test statistic was calculated at the 5% level of significance (95% Confidence Interval). The significance level obtained is less than the study's critical significance value (α) of 0.05. Hence the null hypothesis is rejected. Thus, post earnings announcement drift has a significant effect on stock returns of firms listed at the Nairobi Securities Exchange for the year 2021.

4.4 Interpretation and Discussion of Research Findings

The study sought to find out the effect of the effect of post earnings announcement drift on stock returns at the Nairobi Securities Exchange. The study analyzed the reaction of stock returns of listed firms at the NSE for 10 days before post earnings announcement drift and 10 days after the post earnings announcement drift. The study analyzed the stock returns cumulative abnormality.

The study's findings established that the cumulative average abnormal returns for all the five years analyzed were increasing before the earnings announcement albeit at a minimal rate but increased steeply after the earnings announcement date. This implies that the post earnings announcement drifts led to significant positive abnormal returns in the short run. The CAAR curve for all the five years slopes gently upwards before the earnings announcement but slopes steeply upwards after the earnings announcement date. This illustrates that the stock returns for the selected companies reacted minimally positively in anticipation of the earnings announcement but reacted strongly positively after the earnings announcement in all the five years. From the t-test of significance, the study established that post earnings

announcement drift has a significant effect on the stock returns of firms listed at the NSE. Thus, the current study findings illustrated that post earnings announcement drift is positively statistically significant in its relationship with stock returns.

The Efficient Market Hypothesis states that outperforming the stock market is impossible since the market efficiency will ensure that stock prices replicate all the applicable information (Fama, Fisher, Jensen & Roll, 1969). This hypothesis implies that an investor would not out do the market by concentrating on PEAD since the price already incorporates the relevant information. The hypothesis further posits that one of the key principles in an efficient market is that the stock prices ought to replicate all the newly received information immediately and the price movement ought to be fair as per the information received and that in a perfectly efficient market, predictable patterns for instance market overreactions and under reactions, and the ensuing corrections, should just not exist (Fama, 1970). Thus, the Efficient Market Hypothesis insinuates that in an efficient market, PEAD and other market anomalies should not exist. However, the current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns diverges from the Efficient Market Hypothesis.

CAPM stipulates that the expected returns from stocks add up to the summation of risk-free price of assets and a risk premium entailing the security asset's correlation or sensitivity to the market. Thus, CAPM proposes that the risk of a specific stock is the sole determinant of the expected rate of return of that stock. The implication of the CAPM is that investors would not add anything to predicting the expected rate of return to a stock by analyzing PEAD. However, the current study findings that post earnings announcement drift is

positively and statistically significantly related to stock returns is not congruent with the Capital Asset Pricing Model.

The behavioral finance theory states that investors are prone to bias, and as a result, their financial choices may not be completely rational and sensible. The behavioral finance theory therefore implies that behavioral biases will influence the correlation between PEAD and stock returns. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns confirms the behavioral finance theory. Ross (1976) in his Arbitrage Pricing Theory (APT) begins with the assumption that there ought to be an absence of arbitrage opportunities in an efficient financial market. Ross's model assumes the presence of a number of sources of systematic risk, firm-specific, which cause variations in expected return values. Accordingly, the APT implies that since the level of a stock price is independent of the firm's specific factors, PEAD would not help in exhibiting superior returns. However, the current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns is not in sync with the Arbitrage Pricing Theory.

Even though Fama (1970) asserted that in a market that is efficient, prices must represent entirely the information that is accessible in the market and entry of new information in the market is reflected in totality in the price adjustments, Ball and Brown (1968) observed that following earnings announcement, abnormal returns of firms having positive news continually drift upwards whereas abnormal returns for firms having bad news drift downwards. Ball and Brown (1968) referred to this scenario as Post Earnings Announcement Drift. Ball and Brown (2014) asserted that this scenario poses a major limitation to the

market efficiency hypothesis since it has not fully explained like other known stock market anomalies. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns agrees with Ball and Brown's (1968) observations and assertions. Also, the fact that the current study findings conflict with the Efficient Market Hypothesis confirms Ball and Brown's (2014) statement.

Kausar (2018) explored on whether earnings levels forecast future returns different from earnings changes. Evidence suggests that the anomaly of post-earnings-announcement drift exist. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns is in tandem with Kausar's (2018) study findings."

Singh and Yadav (2018) sought to study whether the Indian Stock Market has PEAD anomaly. The outcomes showed statistically significant relationship between PEAD and stock returns. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns is in tandem with Singh and Yadav's (2018) study findings.

Syed and Bajwa (2018) aimed on examining how stock market responded to the quarterly earnings announcements. The study outcomes found out that the Saudi-Arabian Stock market did not exhibit a semi-strong form EMH since there was evidence of notable abnormal returns and PEAD during the announcement period. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns is in tandem with Syed and Bajwa's (2018) study findings.

Zhang and Gregoriou (2020) carried out an investigation of the association amongst the liquidity cost and PEAD. The study found that illiquidity levels were notably enhanced within both the post announcement and earning period in the short term and long term. When they break out the components of the bid-ask spread during earnings releases, they observed that the adverse selection costs considerably rose while the costs of inventory holding and order processing stay the same. The study concluded that PEAD is connected to information asymmetry for firms with zero leverage. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns is similar to Zhang and Gregoriou's (2020) study findings.

Ye and Schuller (2021) explored the PEAD through use of machine learning models and aimed on finding the optimum supervised model in predicting the direction of the drift after the announcement of earnings. The study established that there was a statistically significant relationship between PEAD and stock returns. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns is in tandem with Ye and Schuller's (2021) study findings.

Musalia (2015) conducted an event study relating to market anomaly, PEAD, in the NSE. The study findings revealed that there was PEAD anomaly in the NSE and it that may be utilized as a stock performance measure. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns is in tandem with Musalia's (2015) study findings.

Swaleh (2016) sought to determine whether an effect exists on share prices due to the announcement of earnings by individual companies quoted on the NSE. Through observation of abnormal returns, the study established that the NSEwas not strong form efficient and that due to relative delays in market adjustments and investors might exploit such inefficiencies in order to generate excess risk adjusted returns. The study also revealed that share prices are significantly influenced by earnings releases. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns and thus the NSE can be said to be semi-strong form in-efficient is similar to Swaleh's (2016) study findings.

Khaemba (2016) carried out an investigation on the earnings release effect on the stock market returns of firms quoted at the NSE. The empirical findings of the study established that earnings announcements had an impact on stock returns. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns is similar to Khaemba's (2016) study findings.

Gathoga (2016) aimed on examining how issuance of profit warnings impacted the share returns of firms quoted in East Africa Exchanges. The study established that that profit warning did not have a statistically significant impact on stock market returns. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns is not similar to Gathoga's (2016) study findings.

Orenge (2020) reviewed how covid-19 pandemic affected the stock performance of firms quoted at the NSE. "The study findings established that COVID-19 had a significant

negative impact on stock returns. The current study findings that post earnings announcement drift is positively and statistically significantly related to stock returns and thus the NSE can be said to be semi-strong form in-efficient is similar to Orenge's (2020) study findings.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

In this section, a summary of findings from the previous chapter is provided and conclusions are derived. Further, limitation that were encountered on the conduct of the current study are enumerated. Additionally, this chapter gives recommendations to key stakeholders as well as the policy makers. Finally, the research offers suggestions on areas that can be covered by other scholars in further research studies.

5.2 Summary

The study sought to establish the effect of the effect of post earnings announcement drift on stock returns at the Nairobi Securities Exchange. Secondary data applied in undertaking the research was collected from the NSE for 55 listed firms that met the criteria set that that firms' stocks have not at any time stopped trading on the NSE for the period between January 2017 and December 2021 and that the firms' must have posted its earnings consistently during the period between January 2017 and December 2021 to avoid data gaps.

The current study was an event study analysis of post earnings announcement drift. The study did analysis of the stock prices reactions of the 55 listed firms that met the criteria set; 10 days before the earnings announcement and 10 days after the earnings announcement date for the period between January 2017 and December 2021. The descriptive analysis was done through use of Microsoft's Excel (2013) and line graphs were derived. To determine the significance of post earnings announcement drift on stock returns, T-test was done. This was

achieved through the utilization of the Statistical Package for Social Sciences (SPSS) version 25.

The study's findings established that the cumulative average abnormal returns for all the five years analyzed were increasing before the earnings announcement albeit at a minimal rate but increased steeply after the earnings announcement date. This implies that the post earnings announcement drifts led to significant positive abnormal returns in the short run. The CAAR curve for all the five years slopes gently upwards before the earnings announcement but slopes steeply upwards after the earnings announcement date. This illustrates that the stock returns for the selected companies reacted minimally positively in anticipation of the earnings announcement but reacted strongly positively after the earnings announcement in all the five years. From the t-test of significance, the study established that post earnings announcement drift has a significant effect on the stock returns of firms listed at the NSE. Thus, the current study findings illustrated that post earnings announcement drift is positively statistically significant in its relationship with stock returns.

5.3 Conclusion

The current study conclusions were made in line with the study's objective. The current study concluded that post earnings announcement drifts positively impact on stock returns at the Nairobi Securities Exchange and post earnings announcement drifts lead to positive abnormal returns. The study also concluded that the Nairobi Securities Exchange is not semi-strong form efficient since investors in the Nairobi Securities Exchange can beat the market and earn an above normal return on publicly available information; earnings announcement.

5.4 Recommendations for Policy and Practice

The study findings will aid in further research to be conducted on the field of market efficiency. The study findings will provide a useful basis that future research on capital markets efficiency. The current study findings will also advance not only researcher's knowledge of market efficiency, but also the scholarly community's and also aid the relevant security market regulators to gain experience in the subject matter. The study findings will be used as referral by later scholars keen in research on market efficiency.

Policy recommendations to government officials and policy makers in the Treasury and the security markets regulator, the Capital Markets Authority, are to adopt policies that would enhance market efficiency for predictability of the market behavior by market players and for enhanced investor confidence in the operations of the market since it has been established in the current study that the Nairobi Securities Exchange is not semi-strong form efficient as investors can beat the market as a result of publicly available information. Recommendations are made in order to guide government regulators in making policies and practices to capital markets to boost their financial deepening since they are a form resource allocation from surplus to deficit units.

The current study established that the Nairobi Securities Exchange is not semi-strong form efficient, and investors can beat the market as a result of publicly available information. Recommendations are made to consultants and management of listed as well as other firms to consider earnings as a factor that influence share prices/firm value in the market as they formulate strategies and policies, and they should aim for positive earnings as it was established that the Nairobi Securities Exchange was semi-strong form inefficient.

Recommendations are also made to investment banks, equity analysts, and individual investors to invest in firms that post positive earnings in order to increase their wealth or their clients' wealth. Finally, recommendations are made individual investors to positive earnings announcement by companies in which they hold shares since post earnings announcement drifts impact on their returns.

5.5 Limitations of the Study

The study was only conducted on the regulated capital markets due to time and cost constraints. It is not certain whether the current study findings would hold if the same study was replicated on Over-the-Counter markets. Moreover, more uncertainties would occur if similar studies were replicated in different jurisdictions and countries. Additionally, due to time limitations, this research focused on an 11-day event window, ten days before post earnings announcement drift and 10 days after the post earnings announcement drift. It is not ascertained if the study findings would hold if a study covering a longer event window were done. Also, due to time limitations, the study was conducted for a five-year period. It is not ascertained if the study findings would hold if a study covering a longer study period were done.

The researcher of the current study encountered the challenge of purchasing the data from NSE licensed vendors. This was quite expensive. The researcher further found it rather difficult to get data from the Nairobi Securities Exchange since the event was not recent and the data was not readily available. Additionally, had be collected analyzed in Microsoft Excel to obtain descriptive graphs and also the data had to be subsequently uploaded into

SPSS in order to conduct inferential analysis and draw conclusions. A large amount of time was needed to analyze the data and infer conclusions.

5.6 Recommendations for Further Study

Based on the concrete information congregated and the expounding understanding elucidated in this study, it has been recommended that some areas for advance future studies be conducted on. First, there might be other determinants of stock returns apart from public information. Further research can be done to identify and analyze them. Additionally, there are other modes of public information apart from earnings announcements. Further research can be done to identify and analyze them. Additionally, there might be factors that moderate, intervene, or mediate the relationship between public information and stock returns. Further research can be done to identify and analyze them."

The current study was carried out in the regulated capital markets context and the same study could be carried out in Over-the-Counter markets to establish if the current study findings will hold. The study was only carried out in the Kenyan context, further studies can be conducted out of Kenyan context, and they can be conducted in the African region or global jurisdictions to establish if the research findings would hold. The current research focused on an 11-day event window, ten days before post earnings announcement drift and 10 days after the post earnings announcement drift. Thus, the current study was done in the short run. A study entailing a longer event period might be conducted to ascertain if the current study findings can hold in the long run. The current study was was conducted for a five-year period. A study entailing a longer period, for instance; 10 years, 20 years, 30 years, or from

1952 when the NSE was formed, might be conducted to ascertain if the current study findings would hold.

Secondary data were employed in this study; future research relying on primary data such as detailed questionnaires and organized interviews provided to CMA staff, firm management, consultants, equity analysts, staff of investment banks, or individual investors can done, which might disapprove the current study findings.The event study methodology and paired t-test statistical approach was used in the research, however future studies may utilize additional methods such; multiple linear regression by using dummy variables, correlation analysis, component analysis, discriminant analysis, cluster analysis, and granger causality.

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APPENDICES

Appendix I: Firms Listed at the NSE

	COMPANY	SECTOR	YEAR OF LISTING
1	Deacons (East Africa)	Consumer Services	2016
2	Nairobi Business Ventures	Consumer Services	2016
3	Stanlib Fahari I-REIT	Financials	2015
4	Atlas African Industries	Industrials	2014
5	Flame Tree Group Holdings	Basic Materials	2014
6	Kurwitu Ventures	Financials	2014
7	Nairobi Securities Exchange	Financials	2014
8	Home Afrika	Financials	2013
9	I&M Holdings	Financials	2013
10	CIC Insurance Group	Financials	2012
11	Umeme	Utilities	2012
12	Britam (Kenya)	Financials	2011
13	TransCentury	Industrials	2011
14	Co-operative Bank of Kenya	Financials	2008
15	Safaricom	Telecommunications	2008
16	Kenya Re-Insurance Corporation	Financials	2007
17	Liberty Kenya Holdings	Financials	2007
18	Equity Group Holdings	Financials	2006
19	Eveready East Africa	Consumer Goods	2006
20	KenGen Company	Utilities	2006
21	WPP Scangroup	Consumer Services	2006
21	WPP Scangroup	Consumer Services	2006
22	Mumias Sugar Co	Consumer Goods	2001
23	ARM Cement	Industrials	1997
24	TPS Eastern Africa	Consumer Services	1997
25	Kenya Airways	Consumer Services	1996
26	National Bank of Kenya	Financials	1994
27	Sameer Africa	Consumer Goods	1994
28	Longhorn Publishers	Consumer Services	1993
29	Crown Paints Kenya	Basic Materials	1992
30	HF Group	Financials	1992

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21	WPP Scangroup	Consumer Services	2006
22	Mumias Sugar Co	Consumer Goods	2001
23	ARM Cement	Industrials	1997
24	TPS Eastern Africa	Consumer Services	1997
25	Kenya Airways	Consumer Services	1996
26	National Bank of Kenya	Financials	1994
27	Sameer Africa	Consumer Goods	1994
28	Longhorn Publishers	Consumer Services	1993
29	Crown Paints Kenya	Basic Materials	1992
30	HF Group	Financials	1992
31	Uchumi Supermarkets	Consumer Services	1992
32	KCB Group	Financials	1989
33	Standard Chartered Bank Kenya	Financials0	1988
34	Total Kenya	Oil & Gas	1988
35	Barclays Bank of Kenya	Financials	1986
36	Jubilee Holdings	Financials	1984
37	Express Kenya	Consumer Services	1978
38	Olympia Capital Holdings	Industrials	1974
39	East African Cables	Industrials	1973
40	Nation Media Group	Consumer Services	1973
41	Carbacid Investments	Basic Materials	1972
42	Diamond Trust Bank Kenya	Financials	1972
43	Eaagads	Consumer Goods	1972
44	East African Breweries	Consumer Goods	1972
45	East African Portland Cement	Industrials	1972
46	Kapchorua Tea Kenya	Consumer Goods	1972
47	Kenya Power & Lighting	Utilities	1972
48	Williamson Tea Kenya	Consumer Goods	1972
49	NIC Group	Financials	1971
50	Unga Group	Consumer Goods	1971
51	Bamburi Cement	Industrials	1970
52	Stanbic Holdings	Financials	1970
53	B O C Kenya	Basic Materials	1969
54	BAT Kenya	Consumer Goods	1969
55	Centum Investment	Financials	1967
56	Limuru Tea	Consumer Goods	1967
57	Sasini	Consumer Goods	1965

58	Sanlam Kenya	Financials	1963
59	KenolKobil	Oil & Gas	1959
60	Kenya Orchards	Consumer Goods	1959
61	Standard Group	Consumer Services	1954
62	Kakuzi	Consumer Goods	1951
63	Car & General (K)	Consumer Services	1940

Source: NSE (2021)

Appendix II: The Secondary Data Capture Form

Company										
	YEAR									
	2017		**2018**		**2019**		**2020**		**2021**	
Day	SP	R	SP	R	SP	R	SP	R	SP	R
+10										
+9										
+8										
+7										
+6										
+5										
+4										
+3										
+2										
+1										
0										
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