

**THE EFFECT OF STOCK SPLIT ANNOUNCEMENTS ON SHARE PRICES OF  
COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE**

**By**

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## DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for the award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and the author duly acknowledged.

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# THE EFFECT OF STOCK SPLIT ANNOUNCEMENTS ON SHARE PRICES OF COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE

## ABSTRACT

Corporate announcements have many effects on the stock markets and this has made the study of stock price movements an area that has attracted a lot of attention from various researchers. All over the world, it is now a requirement from the capital market regulators that any publicly quoted company intending to make any corporate announcement must write to the respective stock exchanges where their shares are traded. This study contributes towards understanding the behaviour of share prices in relation to stock split announcements for companies listed at the Nairobi securities market in Kenya. An event study methodology was used in this study to determine the impact and price reactions of all the companies that split their shares between January 2004 and December 2015 in the period surrounding sixty days of the announcement dates. Abnormal returns were calculated and t-tests were conducted to examine the significance. Empirical results show that the average abnormal returns are statistically significant at 5% on the event (announcement) date. The shareholders are able to earn a positive AAR of 6.9% on the split announcement day. The study also found significant reaction on the announcement date as the information on the split was absorbed by the market which is an indicator of information efficiency. However, the post-split announcement event window is characterized by negative abnormal returns which ended up wiping out the cumulative average abnormal returns of 14.4% witnessed in the pre-announcement period to the event day to a mere 0.04% at the end of the event window. Overall, it can be argued that the investor eventually suffers negative abnormal returns in post-split announcement period. The study recommends that the Capital Markets Authority should review the policy on stock splits with a view to encouraging more companies to split their shares. The CMA should also enforce rules against insider trading through effective monitoring to safeguard the integrity of the operations at Nairobi Securities Exchange. To eliminate the abnormal returns associated with speculative retail trading, the CMA should educate the investing public on the operations of the Nairobi Securities Exchange. This will ultimately boost investor confidence through equal access to market information.

**Key words:** Abnormal Returns, Corporate Announcements, Event Study Methodology, Stock Splits.

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## **DEDICATION**

This study is dedicated to my parents, Cecilia and Patrick Nyaga, for their hard work and commitment towards my education, and to my loving wife Catherine and daughter Edna for their understanding, patience and encouragement during the time I have been undertaking my studies and developing this research dissertation.

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## **ABBREVIATIONS**

- AAR – Average Abnormal Returns
- AR – Abnormal Returns
- CAAR – Cumulative Abnormal Returns
- CMA – Capital Markets Authority
- NSE – Nairobi Securities Exchange
- EMH – Efficient Market Hypothesis
- ER – Expected Returns

## **OPERATIONAL DEFINITION OF TERMS**

**Corporate announcement or event** – a piece of unexpected news conveyed to the stock exchange that may affect the price of a share.

**Event window** – the time period during which the share split announcement become available to the market.

**Efficiency** - the ability of the stock market to price shares quickly and fairly.

**Excess returns** – the difference between the actual returns and the expected returns on the security

**Information** – share split announcement which may cause a change in the share price and is not known in advance.

**Normal returns** – the returns that would have occurred in the absence of the share split news

**Share split** - breaking of large units of shares into smaller units resulting in the increase in number of outstanding shares and a corresponding reduction in the par value of the share.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background

Corporate announcements which include declaration of dividends (interim and/or final), bonus issue, rights issue, earnings, mergers and acquisitions, share repurchases and share splits have been receiving considerable interest from financial/investment analysts and researchers given that an event can significantly influence future performance of companies. All publicly quoted companies are mandated to write to the stock exchange markets when making announcements relating to these corporate events. This study focused on share splits.

Although share split announcements have been a common trend among companies, they have continued to be one of the least understood and puzzling topics in finance. In the recent past, many cases have been witnessed where the announcement of a stock split was followed by a surge in the price of that company's share. Nairobi Securities Exchange (NSE) has reported cases of prices overreacting to new information and remaining unstable for many days. This has resulted to doubts on a market's ability to efficiently reflect relevant information. For example, Crown Berger's share price fell from KSh 38 to KSh. 8 in August 2008 and later settled at KSh. 26 after its interim results (Nyamosi, 2011).

Several recent finance theories have concluded that stock splits remain nothing but a redenomination of the units of a company's shares and hence not likely to bring about any change in the shareholders' value in an efficient market environment. Brooks and Su (2003) emphasized that stock splits must accrue some benefits, either real or perceived, that results from a firm splitting its stock. If stock splits of common shares are nothing more than a cosmetic

change and have no impact on the value of the firm, then why would a large number of such splits occur every year?

According to the Efficient Market Hypothesis (EMH), any announcement that does not contain any information should not affect price. Because share splits seem to be merely cosmetic events, there should be no reported case of any abnormal return on or surrounding the announcement date. However, there is a possibility that share prices may be positively or negatively affected by share split event. EMH refers to the speed and accuracy of the price adjustment to new information released. According to EMH the market should quickly adjust share prices to any new information released (Fama et al. 1969). Therefore, investors may not be in a position to generate abnormal returns in a steady way.

For a stock market to be said to be efficient, the investors are supposed to act in a rational manner and there should be no arbitrage opportunities. This means that even if some irrational activities were to happen at a price that does not mirror the company fundamentals, the share would still revert to the fundamental value. The most probable thing to happen would be that those irrational investors who may have incurred a loss in the course of the share price movement would be eliminated from the market. The eventual result would be that market players would learn to be rational and any announcement of stock split would therefore not cause any increase in price because share splits have no direct effect on the company fundamentals or cash flows.

### ***1.1.1 Stock split***

A stock split is a procedure that increases or decreases total number of shares outstanding in a company without varying the company's market value or the proportionate ownership

interest of existing shareholders. A stock split can either be a forward split or a reverse split. In the case of a forward share split, a company issues additional stock of a share while in the case of a reverse split, the outstanding number of shares is reduced while their par value increases. In that regard, a share split is considered to be a strange phenomenon because the event is perceived to be nothing more than cosmetic because splits have no impact on the finances or structures of a company.

Fama, Fisher, Jensen and Roll (2000) defined a stock split as an exchange of shares in which at least five shares were distributed for every four formerly outstanding. This meant that shareholders received additional shares for every share they previously held. The forward share split is commonly called the share split and refers to the division of each outstanding shares of a company resulting into lower prices per share but market capitalization or the company's equity is not affected. Share splits are either in percentages or ratios with the latter being the most commonly used.

The origin of stock splits began as a Wall Street publicity stunt to help individual investors avoid a penalty that stockbrokers used to charge investors for purchasing fewer than 100 (odd lot) shares of a given stock. Most companies prefer when retail investors buy their shares, because individuals are generally considered more loyal than institutions. However, as the price of a company's share keeps on rising, the number of individuals who can afford to buy a 100-share block keeps on declining.

Stock splits occur when the Board of directors decides to split each old share into a number of new shares with a reduced par value, leaving the total share capital unchanged. Leung et al. (2005) emphasized that a share split was a decision by the company's board of directors, to increase the number of shares outstanding by issuing more shares to current shareholders, thus increasing the number of shares in a public company.

### ***1.1.2 NSE and Practice of share splits in Kenya***

Nairobi Securities Exchange (NSE) was started in 1954 and operates under the jurisdiction of the Capital Markets Authority of Kenya. It is an affiliate of the World Federation of Exchange, a founder member of the African Securities Exchanges Association (ASEA) and the East African Securities Exchanges Association (EASEA). NSE plays a vital role in the growth of Kenya's economy by encouraging savings and investment, as well as helping local and international companies to access cost-effective capital.

In the Kenyan context, stock splits have not yet taken a prominent position in the financial markets debate and there has not been much research in this area. One of the reasons is because share splits are relatively new in the Kenyan market with the first split having been witnessed in July 2004, when Kenya Oil Limited (KENOL) performed a ten-for-one split followed by East African Breweries Limited which performed a five-for-one split in November of the same year. In these two cases mentioned above, the splits were driven by high prices of the stocks, with the stocks trading at Ksh.478 and Ksh.372 per share for KENOL and EABL respectively (NSE, 2004). Fifteen (15) listed firms have so far split their shares.

### ***1.1.3 Share price***

This is the cost of purchasing a security on an exchange. In layman's language, share price is the lowest amount that a share can be bought or the highest amount an investor is willing to pay for the share.

Share prices keep on changing every day and at times, several changes may occur in a trading day as a result of market forces of demand and supply. Supply of share is based on the number of shares a company has issued while the demand is created by people who want to buy those shares from those who already own them (Byun & Rozeff, 2003). These changes in the

price of a share are considered to be a reflection of how investors think or feel about the value of that company. The factors that influence share prices include but are not limited to indexes, a company's financial health, economic trends, industry information and other news like mergers and acquisitions.

The higher the cash flows in terms of returns the higher the share price and vice versa. This is because investors are more concerned about the present cash flows and what they mean to them. Cash flows are considered important factor in determining the value of a share because they signifies the ability to pay dividends, the same as the bottom line of the company, (Byun & Rozeff, 2003).

#### ***1.1.4 Stock splits and share price***

Stock splits have no direct effect on the company's future cash flows, the market capitalization and shareholders proportional ownership. When a share split occurs, the balance sheet items remain the same; except that the total number of outstanding shares of the company increases proportionately to the ratio of split. Stock splits are usually done by companies that have seen their share price increase to levels that are either too high, or beyond the price levels of similar companies in their sector. The major primary motive is to make shares seem more affordable to small investors, even though the underlying value of the company does not change. (Wooldridge & Chamber, 1983)

From a mathematical perspective, the capital that is invested by the shareholders is simply spread over a large number of shares and the shareholders are not required to give additional cash inflow to the company. From this view-point, it is apparent that stock splits are mere paper transactions that generally attract high administrative expenses without any effect on the future earnings of a company.

Stock splits include the technique of psychological pricing where new prices become more attractive to the incoming retail investors as well as fulfilling to the existing shareholder; creating in them a sense of greater wealth by the increment in number of shares held, (Groover, 2001).

In many economies around the world, many people believe that a decrease in share prices signals a slowdown in the economy and an increase in share prices is one of the indicators for economic growth. This partly explains why newsmakers are very interested in the changes in the stock market indices around the world.

## **1.2 Statement of the problem**

There are several studies touching on stock splits that have been conducted in various stock markets in the world and they have produced mixed results. Some of the studies found out that share splits announcements bring out positive returns; others reported negative returns while there were some studies that found out that there was no market reaction associated with share splits.

Wulff (2002) study on market reaction to stock split in the German market found excess returns during the first four days following the split announcement while Gupta and Kumar (2007) found that there was no effect on the Indian market associated with announcement of share splits. Lamoureux and Poon (1987) and Conroy et al. (1990) found declining trading volumes after share splits and the abnormal return following a split is negatively related to the level of institutional ownership prior to the split.



Share splits are comparatively new at the Nairobi Securities Market (NSE) and very few studies have been undertaken to assess their effects in the Kenyan share market. Researchers in Kenya have tended to give attention to the general market reactions to share split and effect of share split on dividend while others have concentrated on the various theories like the signaling effect. Most of the studies focus on the reasons behind manager's decision to split their company shares.

Omenda (2011) carried out a study on the effects of share splits on the liquidity of companies listed at the NSE and found out that share prices start on a low note and then gradually appreciate for a short period. Munyao (2010) studied companies listed at the NSE that had split their shares and found that one firm had its share price unchanged, three firms' share prices decreased whereas four firms share prices increased.

Ndirangu (2012) and Agara (2014) are some of the few researchers who came close to this study of the relationship between stock splits announcement and share price. This study therefore seeks to extend the study on the effect of stock splits announcements on share prices of companies listed at the NSE. Given that shares split are relatively new in Kenya, there is inadequate extant literature. This study therefore attempts to provide an answer to the pertinent question; what is the effect of share splits announcements on the prices of shares of companies listed at the NSE?

Aduda and Chemarum (2010) found that after the split announcement date and effective date, there was a positive abnormal return and an average increase in trading volume. However, the researchers were not able to identify all the announcement dates leading to incomplete data and opted to use the effective date as the event date. In stock splits there are two event dates; the

announcement date refers to the date that when the corporate announcement is made while the effective date refers to the actual date the split is affected. Therefore, since the researchers used the effective date in their study, it can be concluded that the Aduda and Chemarum (2010) studied the effect of stock splits on the stock market.

This uncertainty about the real effect of share splits announcements on share prices is the main motivation to undertake this study. The studies done in Kenya have been too few to give a conclusive result and hence the need to carry out this research. Additionally, the observed market reaction caused by share splits announcements in the studies already done elsewhere cannot be used to generalize the Kenyan market due to differences in stock market activity, political environments and economic growth levels among other factors. Hence, there exists a gap.

### **1.3 Objectives of the study**

#### ***1.3.1 General Objective***

The general objective of the study was to determine the effect of stock split announcements on share prices of companies listed at the Nairobi Securities Exchange.

#### ***1.3.2 Specific objectives***

The specific objectives of the study will be will be:

- i.) To examine the stock price reaction on the day stock split announcement is made.
- ii.) To determine whether there exists any abnormal returns around the announcement date of the share splits.

### **1.4 Research questions/Hypotheses**

#### ***1.4.1 Research Questions***

- i.) Do share prices increase or decrease on the day the announcement of a share split is made?
- ii.) Are there abnormal returns around the announcement date that are attributable to the share split information?

#### ***1.4.2 Hypotheses***

**Hypothesis 1:** *There is no significant impact on share prices after the announcement of a share split.*

**Hypothesis 2:** *There is no significant difference in abnormal returns of share when a comparison is done before and after announcement of the share split.*

## **1.5 Justification of the Study**

This study will benefit both scholars and practitioners in the field of finance. On the part of students, faculty and the academic fraternity, the study will add to the body of knowledge in the financial markets sector which can either be used for training and conducting further research on the relationship between stock split announcements and stock prices. This is very critical given that this is a relatively new area that has not been widely studied in Kenya.

The real or potential investors in the securities markets will benefit from this study because the results will make them understand how the value of investments is likely to be affected by a stock split announcement. These investors would use the results of this study to evaluate whether the Nairobi Securities Exchange can be relied on to provide the true measure of shareholder wealth. The stock brokers and investment bankers will also be in a better position to advice their clients on the expected behaviour of share prices in the advent of a stock split.

The management and board of directors of the listed companies will understand the impact of their decision to announce a stock split. The Nairobi Securities Exchange and the regulator the Capital Markets Authority will benefit in knowing the efficiency of the market by getting the feedback on the lack or existence of abnormal returns following the announcement of stock splits and hence come up with appropriate measures to guard against manipulation of share prices and insider trading.

Lastly, given that stock splits have not yet taken centre stage in the financial markets debate in Kenya arising out of the few studies conducted, the findings of this study will go a long way in stimulating the debate on the real effects of stock split announcements.

## **1.6 Scope of the Study**

This study focused on the Kenyan companies listed at the Nairobi Securities Exchange that have split their shares.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

Several studies have documented abnormal returns around share split announcements. However, given that a share split is simply a superficial change to a security's price and shares outstanding, the reason why abnormal returns are observed still remains a puzzle that has not been resolved. There are several studies that have emerged in the financial markets literature trying to explain the presence of abnormal returns around split announcements. The original theories tried to argue that markets learn information about a company's fundamentals like earnings and dividends from share splits. The other theories that followed argued that the abnormal returns witnessed were not caused by information, but by the increased liquidity that shares achieve via splits. A more recent catering theory posits that managers split their share to cater for investors who assign a premium to low-priced shares during certain periods.

The reason why the stock market reacts to split announcements differs from the related question why managers choose to split their share, although the underlying reasons for both questions could be related. There may be a possibility that there are a variety of reasons why managers opt to split their shares but the abnormal returns may only be caused by market participants reacting to a subset of those reasons or to some other inferred information. In practice, Chief Executive Officers quote multiple reasons for splitting. A classic example is when Compaq split their shares on a 5-for-2 ratio in 1997, the company's Chairman Benjamin M. Rosen stated that the split reflected the confidence in Compaq's long-term growth and that the lower post-split share price made it easier for individual investors to purchase the share, thus helping broaden the company's ownership base. While commenting about Compaq's split,

William Conroy, a news analyst in Houston said, “the split is a good sign as companies do not split unless they are feeling good about themselves.”

## **2.2 Theoretical review**

In theory, a share split remains merely an accounting change that does not leave the investors in a better or worse position than they were before the split announcement. Given that share splits are fairly common occurrences, there is always a common belief that there must be some benefit, either real or perceived, that comes about from a firm splitting its share.

Recent studies have associated share splits with a positive price increase especially on the announcement date. This implies that the announcements of stock splits normally contain some financially relevant information about the performance of a company. The correlation between share splits and share returns has remained an interesting topic for many researchers and this is evidenced from the theoretical perspectives.

Several researchers have struggled to find an explanation to this reaction of share splits and as a result several hypotheses have emerged.

### **2.2.1 Signaling Theory**

The signalling hypothesis was first suggested in the seminal paper prepared by Fama, Fischer, Jensen and Roll (1969) where they argued that in the event of a stock split announcement, the market interprets this as an improvement to the likelihood that dividends will be increased. Brennan & Copeland (1988) built up the hypothesis from Fama et al. (1969) and proposed a signalling model that suggested that by announcing splits, firms could reduce the information asymmetry that existed between shareholders and management and the ensuing stock price reduction conveyed a conviction by management that future earnings would rise. That conviction stems from the fact that stock splits are expensive exercises and management could

not afford to send a wrong signal which would see a firm punished with unusually low stock price. Therefore a stock split is viewed as a more credible form of information than issuing press releases.

The academic fraternity has suggested that a share split may be a signal of future company performance because a split decreases the asymmetric information that exists between the management of a company and the market. Since management of a company are considered to have more information regarding a company than the outsiders, there is always a belief that the announcement of a share split is a way of management trying to communicate some information to the outside world. This is commonly referred to as the signaling hypotheses.

A signaling explanation of splits based on information asymmetries between managers and investors has received considerable attention in the academic literature, Leland and Pyle (1977). Its basic view is that manager's use splits to signal good information to investors. According to this view, the key role of splits is to convey information, not to seek out some optimal price level. Value increases after a split announcements are often attributed to this signaling effect.

Theories combining informational issues and transactions costs yield further insights into splits. To be a credible signal that will not be copied by firms without good news, splits must carry with them some increase in cost. Such costs may take the form of increased transaction costs in trading lower-priced shares, Brennan and Copeland (1988). Empirical findings by Ikenberry (2003) were interpreted as being supportive of the relationship between information and transaction costs portrayed by Brennan and Copeland (1988).

According to this view lower prices and smaller firms lead to higher trading costs for investors. Specifically, the studies find market reactions to split announcements are negatively



related to firm size and post-split price and positively related to the size of the split factor. The signaling explanation is that managers split to achieve lower prices only if they have especially good information about the prospects for the firm.

### ***2.2.2 Trading Range hypothesis***

The optimal trading range theory was suggested by Copeland (1979) and it states that there exists an optimal price for the stocks of a company in which trading is most liquid. Managers adjust the stock price by splitting the stocks towards that optimal trading range in order to enhance the liquidity of these stocks. The argument is that if the price is too high, it is only large investors who benefit because of the low brokerage cost for their round lots while small investors are discouraged to trade because of their limited funds. On the other hand, if the price is too low, large investors are not interested in investing in the stock. Therefore an optimal price range is to find equilibrium that is preferable to both the large and small investors that make the stocks most liquid.

According to the trading range hypothesis, firms split their shares to create an optimal ticket size for the stock. The trading range has been observed to be associated with illiquidity. The hypothesis argues that keeping the stock within a lower price range would attract a larger ownership base, providing better liquidity and thereby reducing the cost of trading in the stock.

Baker and Gallagher (1980) interviewed 100 Chief Financial Officers (CFOs) of companies listed at the New York Stock Exchange (NYSE). Ninety eight per cent (98%) of CFOs reported that the motivation behind splitting the shares was to achieve a better trading range in order to make them more attractive to more investors. and ninety four per cent (94%) of them believed that splits increase the number of investors and retain the stock prices in an

optimal range. It was the understanding of CFOs that lower trading prices attracted more investors which in turn reduce the trading costs and increasing the volume of the share.

Yan He and Junbo Wang (2011) researched and found that the main motivation for stock splits was to return the relative tick or the share price to an optimal range. The share price tends to increase upon a split announcement and the investor base tends to become larger after a split, which may help increase firm value.

### **2.2.3 *Liquidity Hypothesis***

The liquidity hypothesis suggests that stock splits are initiated by management to make the stock more liquid in the market, seemingly to lower the cost of equity capital. On a more specific note, a split places the stock price at a favourable range resulting to a larger investor base, as more investors can trade the stock. Crawford et al., (2005) argued that through share split, firms broaden their shareholder base by making more shares available to retail investors and the broadened eventually improves firm liquidity due to the inflow of cash occasioned by intensified trading.

Baker and Powell (1993) analyzed the motives by management to split stocks and found out that one of the primary objectives of management is to improve liquidity. That theory was further supported by Bechmann and Raaballe (2007) who reported that the management incentive to splits was to improve liquidity.

Lin et al., (2009) provided further evidence in support of improved liquidity and found out that there was a significant decrease in no-trade days for stocks after a split. This means that stocks experience fewer days without any trade after the split compared to the period before the split. The same effect was traced even two years after the split and evidence pointed towards a lasting liquidity effect of splits (Lin et al., 2009).

Simbovo (2009) found that splits that had taken place in the Kenyan market had a positive but insignificant effect on liquidity. Karuitha et al., (2013) found that stock splits encourage retail investors to off load their shares in an attempt to earn profits occasioned by the increase in the value of shares after the split and suggested that market regulators should only encourage use of stock split to improve liquidity and not as a tool for diffusing firm ownership.

#### ***2.2.4 The Optimal Tick Size Hypothesis***

The Optimal Tick Size is the minimum price movement of a trading instrument. Angel (1997) came up with the optimal tick size hypothesis which suggests that firms strive for an optimal tick which was the minimum change in share prices. The researcher noted that if there was a constant absolute tick size, the top management of a firm could influence the relative tick size through a stock split. This would be the tick size relative to the stock price. Most equity markets had rules on tick size, the minimum price variation.

Angel (1997) also noted that the minimum price variation rules determined the minimum bid-ask spread that could be quoted and that no quoted spread could be less than the minimum price variation. Larger tick sizes were attributed to expensive trading particularly for small investors. Schultz (2000) agreed with the optimal tick size hypothesis, and suggested that a stock split could be used by management of a firm to influence the relative tick size relative to the stock in a scenario where there was an absolute constant tick size on the stock exchange.

### ***2.2.5 Market Efficiency Theory***

The efficient markets hypothesis (EMH) states that profiting from predicting price movements is very difficult and unlikely. The main engine behind price changes is the arrival of new information. A market is said to be “efficient” if prices adjust quickly and, on average, without bias, to new information. As a result, the current prices of stocks reflect all available information at any given point in time. Consequently, there is no reason to believe that prices are too high or too low. Stock prices adjust before an investor has time to trade on and profit from a new a piece of information.

According to De Moor, Van den Bossche and Verheyden (2013), the pioneer of the efficient market theory was G. Gibson who published a book on London, Paris and New York stock exchanges in 1889 arguing that stock prices reflect the views of the smartest market participants. Gibson viewed stock valuation as a voting process where the participants voted on the direction in which the stock price would change and the smartest participants would ultimately gain more votes for their correct guesses allowing them to accumulate more funds (De Moor, Van den Bossche, Verheyden, 2013). Later in 1900, a French mathematician L. Bachelier expounded on the efficient market hypothesis by publishing “Speculation theory” and argued that the expected return of an investment is always equal to zero (Sewell, 2011).

Generally, an efficient stock market is that market where the price of stocks reflects the fundamental information about the firms and the market value of that firm reflects the intrinsic value of the firm. The fundamental changes in value are not immediately reflected in the market prices because of differences in investor awareness and uneven transaction costs (Goedhart, Koller, Wessels, 2010).

Allen, Brealey and Myers (2011) defined an efficient market to be one where it was not possible to earn any return higher than the market return. This means that the value of shares reflects the fair value of the company and equivalent to the future cash flows discounted by an alternative cost of capital. Eakins and Mishkin (2012) argument was that an efficient market was a market where asset prices fully reflected all the available information.

The essence of an efficient market is generally built on the premise that available information is already incorporated in the stocks and that investors cannot earn any excess return. Fama (1970) noted that depending on what is meant by the term “all available information”, market efficiency can be summarized into three forms namely; the weak, semi strong and strong form.

### ***Weak Form Efficiency***

The weak form of the efficient markets hypothesis states that the current price fully incorporates information contained in the past history of prices only which means that nobody can detect mispriced stocks and beat the market by analyzing past prices. Stock prices are arguably the most public as well as the most easily available pieces of information and therefore one should not be able to profit from using something that everybody else knows.

Researchers are able to test the weak form efficient market hypothesis by determining the autocorrelation among returns and by examining the impact of different trading rules on stock prices. Fama and Blume (1966) tested and compared the effectiveness of several to buy-and-hold policy for Dow Jones Industrial Average stocks and they empirically proved that filters cannot beat the simple buy-and-hold policy. Osborne (1962) and Fama (1965) used run tests to support the random walk theory and proved the independence of stock price changes over time noting

that security prices rapidly adjusted to any new information. They noted that sometimes stock prices will be over or under-adjusted but their randomness makes unbiased adjustments.

### ***Semi-strong Form Efficiency***

The semi-strong-form of market efficiency hypothesis suggests that the current price fully incorporates all publicly available information. Public information includes not only past prices, but also data reported in a company's financial statements (annual reports, income statements, filings for the Securities Exchange etc.), earnings and dividend announcements, announced merger plans, the financial situation of company's competitors, expectations regarding macroeconomic factors (such as inflation, unemployment), etc.

Studies revealed that information regarding stock splits was fully reflected in stock prices when the actual stock split happens. Investors cannot profit from split information once it has been announced publicly (Fama et al., 1969). Waud (1970) conducted a study to measure the impact of announcements of discount rates by the Federal Reserve Bank and found that the first trading day after such announcement depicted a statistically significant announcement effect of around 5%.

### ***Strong Form Efficiency***

The strong form of market efficiency hypothesis states that the current price fully incorporates all existing information, both public and private (sometimes called inside information). The main difference between the semi-strong and strong efficiency hypotheses is that in the latter case, nobody should be able to systematically generate profits even if trading on information not publicly known at the time. In other words, the strong form of EMH states that a company's management (insiders) are not be able to systematically gain from inside information

by buying company's shares ten minutes after they decided (but did not publicly announce) to pursue what they perceive to be a very profitable acquisition.

Jensen (1968) used the Sharpe and Litner model of equilibrium return to analyse the returns of 115 mutual funds for the period 1955-1964. He used the Standards & Poor market index as a proxy for the market portfolio and empirically proved that despite fund managers, market insiders and other financial specialists having a wide range of financial and business contacts, such group of people do not have access to private information and cannot be in a position to anticipate future returns of any firm.

Similarly, the members of the company's research department are not able to profit from the information about the new revolutionary discovery they completed half an hour ago. The rationale for strong-form market efficiency is that the market anticipates, in an unbiased manner, future developments and therefore the stock price may have incorporated the information and evaluated in a much more objective and informative way than the insiders.

Much later, Fama (1991) changed the categories and coverage of informational efficiency. In the first category (weak form), he argued that it covers the general area of test for return predictability, including predicting returns using variables such as dividend yields and interest rates. He further argued that semi-strong tests would be referred to as event studies and strong form tests will be called tests for private information. Event studies would measure how quickly security prices respond to different items of news, such as an earnings or dividend announcement, news of a takeover, or macroeconomic news. The study on share price reaction to share splits announcements is therefore based on test of semi-strong form of market efficiency.

### **2.3 Empirical Literature Review**

Numerous studies have estimated the effects of announcements related to share split and other corporate events on the share and market prices. The relevant literatures related to the context are as follows:

Dennis and Strickland (2003) argue that the effects of stock splits are puzzling. Theoretically, it means that a stock split is merely an accounting change, which leaves investors at the same position they were before the split. The implication here then is that there must be some benefit, whether real or perceived, that comes about from a company splitting its share.

Stock splits are widely believed to be purely cosmetic since the company's cash flows are not affected directly. Hypothetically, share splits were thought to be cosmetic corporate events as they merely involved the breakup of one share into a certain number of shares and a reduction of a higher to a lower share trading price without changing shareholders' wealth and comparative shareholdings (Grinblatt et al., 1984). However, although early empirical studies found no abnormal performance after share splits, Fama et al. (1969) found a positively significant market reaction to share split announcements. Share splits then did not appear to be as cosmetic as they should be.

The origin of share splits began as a Wall Street gimmick to assist individual investors avoid a penalty that brokers used to charge for "odd lot" purchases (fewer than 100 shares of a given stock). Companies prefer when retail investors purchase their share, because individuals are normally considered more loyal than institutions. However they noted that the higher a company's share price rises, the fewer individuals who can afford to buy a 100-share block. They quote veteran market pundit Bob Stovall, of Stovall/Twenty First Advisers who said that



American management discovered long ago that the individual investor likes to buy shares that trade at \$40 per share, hence the urge to split.

Guo et al. (2005) discuss about the trading range hypothesis which suggests that share splits bring share price to a preferred price range. Managers often justify stock splits on the basis that they improve liquidity and marketability. Ikenberry et al. (1996) conducted empirical research and got inconclusive results based on splits leading to improved liquidity and marketability. The optimal trading range may arise for other reasons such as a desire by companies to control the relative tick size at which their shares trade, a desire by managers to increase ownership by individual investors, and a desire by the brokerage firms to preserve commission income.

Lyrودي, Dasilas and Varnas (2006) argued that the relationship between share splits and share prices has been a subject of continuing interest to both economists and practitioners alike. They noted that share splits have long been a baffling phenomenon to financial economists. This puzzle is usually associated with share splits that elicit a positive share price reaction upon the announcement. The reaction occurring after the announcement, however, has not been fully understood and explained.

A study performed by Boehme & Danielsen(2007) looked into the relationship between stock split and post-split long-run abnormal returns. Their study was conducted taking into consideration a long period sample of fifty years (from 1950 to 2000). Their observations were that abnormal returns arising out of stock split only existed in a short period. They also noted that the abnormal returns did not continue after the actual split happened, a trend they attributed to market friction instead of behavioral bias.

Pooja (2013) analyzed how the market in India reacted around share split announcement using event study methodology. Using a sample of 27 companies that split their share during the two year period from 1<sup>st</sup> January 2008 to 31<sup>st</sup> December 2009, the findings revealed that there was no announcement effect associated with share splits in India. The study however found that there was some improvement in the volume of shares that were traded but daily turnover remained constant.

Koustubh Kanti Ray (2011) stated that share split and bonus issue have impact over market movements. The two announcements were tested for liquidity and abnormal returns considering an investigation window of -30 to +30 days for all the events in order to test the abnormal returns and any change in liquidity. The outcomes indicated that the Indian market reacts to the share split announcements and not to bonus issues, with the change in liquidity being found to be significant for share splits at 1% significance level.

A. Gupta and O.P. Gupta (2007) argued that share splits are connected with positive abnormal returns around the announcement. Normally, splits tend to improve the trading volume of shares and there was an increase in the daily number of traders. But they do not improve the daily turnover and consequently the liquidity of shares in India. At the end, it was concluded that a majority of shares which announced split was traded at low market prices.

Leemakdej (2007) conducted out a research of 100 splits in the Stock Exchange of Thailand. The findings were that there were significant negative returns in the twenty (20) days before and eighteen (18) days after the effective date of the split, with the most of those significant returns clustered around the event date. This contrasted other studies that had noted positive returns around stock split dates.

Grinblatt et al. (1984), measured the share price reaction immediately before and after the announcement of a share split and the ex-rights date, and showed that there was a positive excess return in both instances. They argued that the reason for these observations was majorly because of a combination of various factors founded in signaling rather than by the profit increase. There are other studies apart from this which demonstrated the hypothesis that company executives normally use share splits for signaling such as those by Ikenberry et al. (1996) and Lankonshok and Lev (1987).

Subaih (2013) undertook a study on the effects of share splits on share prices of forty (40) firms quoted in the Toronto Stock Exchange (TSX) between 2005 and 2012 and at five percent level of significance, his findings were that cumulative abnormal returns were significant in the short term period. However, he did not find any strong evidence regarding the returns that were witnessed in the long run.

Anirban Ghatak (2011) examined the share price reaction to information release of bonus issues or share splits with a view of examining whether the Indian stock market is semi strong efficient or not. Event study methodology was used to study the efficiency characteristics and the conclusion was that there is positive average abnormal return (AAR) before the announcement date but the quantum is less and they are insignificant.

Musau(2007) noted that there was a 'bull run' that kicked off at the Nairobi Stock Exchange in the year 2006, which made the market gain more than 50%. Because of the increase in earnings for those companies, the public continued to demand their shares which resulted in price appreciation. The increased price meant that many investors would not afford the shares and this forced many companies to split shares. Companies like Kenol/Kobil (Kenya Oil Company Limited), East African Breweries, East African Cables Limited, ICDCI (Centum

Investments Company Limited) and Barclays Bank Limited whose prices had highly appreciated opted to split shares to ensure that they were affordable to the investing public. Musau (2007) also noted that prior to these companies splitting their shares, there was a high demand for company shares which propelled the prices upwards and more retail investors took up positions so as to qualify from the split multiples.

Simbovo (2006) conducted a research on the Nairobi Stock Exchange (as it was known then) to determine the effect of large stock dividends and share splits and found that most of the managers were actually driven by the need to maintain an optimal trading range when they recommended a share split.

Oloo (2012) studied the effects of stock split announcements on share returns at the Nairobi Securities Exchange. The researcher found conflicting signals that the market did not react effectively to stock split announcements with regard to returns of many companies listed at the NSE in the long run.

Agara (2014) studied the effects of a stock split on prices using a 181- day event window and the study established that the events of stock splits announcements affect stock prices almost immediately and that on average; it took 3 days for prices to react to stock splits. The study also established that stock split have positive impacts on the share prices.

## **2.4 Summary of Literature Review**

Evidence from the above studies can be classified as mixed because academic papers provide varying results depending on the methodology used, stock exchange and the country where the research is conducted. Most of the research studies done on stock splits have focused

on markets that are out of Africa which are more developed and efficient. There is need to carry out a study on stock splits with a focus on the African context.

In developed and efficient markets, investors do not expect to earn abnormal returns from stock splits since stock prices are expected to adjust proportionately to the split ratio. There was a need to carry out a research to determine in what proportions stock prices adjust after the stock splits with a focus on less developed markets, mostly in the African continent.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter provides a discussion of the outline of the research methodology that was used in this study. It focuses on the research design, target population, sample size and sampling techniques, data collection methods and data analysis methods that were used in this study.

#### **3.2 Research Design**

The research design used was the event study. The earliest application of event studies were by Ball and Brown (1968) and Fama, Fischer, Jensen and Roll (1969). The study by Ball and Brown was an information usefulness study while that of Fama, Fischer, Jensen and Roll is characterized as an efficient market study which investigated how quickly and correctly the market reacted to announcement of stock splits.

Conceptually, an event study analyses differentiates between the returns that would have been expected if the analyzed event would not have taken place (normal returns) and the returns that were caused by the respective event (abnormal returns).

The main idea in this methodology was to test how the release of company specific information affects the price of the respective share at the Nairobi Securities Exchange (NSE). The company specific event in this case was the share split.

Literature posits that the length of event window in event studies remains an important aspect. A review of event studies by McWilliams and Sigel (1997) showed that authors have used event windows of varying lengths with some as long as 181 days (-90 to +90) to as short as

3 days (-1 to +1) with the longer event window being used in cases where there is a likelihood of leakage of information prior to the event.

Ryngaert and Netter (1990) argued that short event windows normally capture the effect related to the event but concluded that the appropriate length of the event window should be determined on the basis of the nature of event study being conducted. In line with this argument, this study used a longer event window of 61 days (i.e. 30 days prior to the event and 30 days after the event) because insider trading in Kenya is rampant.

The researcher used the daily adjusted prices for the sampled shares for 61 days; 30 days before the event, the event date and 30 days after the event date. The event window was  $t=-30$  to  $t=+30$  days relative to the event date  $t=0$  (date of announcement of share split)

### **3.3 Target population**

The study's target population was all the fifteen (15) companies listed at the Nairobi Securities Exchange that had undertaken stock splits between the years 2004 and 2015. A full listing of these companies is contained in Appendix 1.

### **3.4 Sample size and sampling technique**

Given that only fifteen (15) companies listed at the NSE split their stocks between year 2004 and 2015, the researcher conducted a census instead of sampling. These 15 companies conducted seventeen (17) stock splits because Kenol Kobil and Barclays split their shares twice.

### **3.5 Data collection**

Only secondary data was used in this study and it was obtained from the Nairobi Securities Exchange (NSE). The study computed daily returns for individual shares on the basis of closing

share prices and its share split announcement date. If a share was not traded on a specific date, the last traded price was considered as the price for the day it did not trade.

Three sets of data were used in this study:

- The first set of data consisted of share splits announcements made by the listed companies. This included the dates on which the split announcements were made by those companies. Event date was defined as the announcement date of the board meeting that considered splitting the share. The approach assumed that the information was first known to the market on the event date. The event/announcement dates were verified with the NSE and Capital Markets Authority.
- The second set of data was the daily average prices of the selected shares at the NSE. These weighted average prices were assumed to be reflective of the consensus by market participants regarding the price of the share at the end of trading.
- The third set of data was the NSE 20 share index of ordinary share prices that is normally computed and published by the NSE on a daily basis. This data was also obtained from the NSE. The NSE All Share Index (NASI) could not be used because it was introduced in January 2008 and could therefore not be applied on all the stock splits.

### **3.6 Data analysis**

The first step was the calculation of the observed daily returns both for the stock and for the market. This was done by comparing the adjusted closing stock prices/NSE market index for a certain day with those of the previous one and computing the daily returns.

The second step was the estimation of parameters like alpha and beta based on the observed daily returns on stocks and the market index followed by computation the expected



returns on each of the stocks based on the market model. The parameters were determined using statistical software STATA. Computations are in Appendix 2.

The third stage was to use the estimated parameters to calculate abnormal returns around the announcement date, which for the purpose of this study was defined as day 0. Pre-announcement period included the 30 trading days prior to the split announcement date (-30 to -1). Post announcement period included the 30 trading days after the stock split announcement (+1 to +30). This therefore meant that the event window was 61 days.

### ***3.6.1 Observed daily returns for the stock***

The observed daily returns for the stocks were calculated using the formula below:

$$R_{it} = \frac{P_t - P_{t-1}}{P_{t-1}} \quad (1)$$

Where:

$R_{it}$  = observed daily return at time 't'

$P_t$  = Adjusted closing price at time 't'

$P_{t-1}$  = Adjusted closing price one day before time 't'

### ***3.6.2 Observed daily returns for the NSE 20 Share index***

The observed daily returns for the market were calculated using the formula below:

$$R_{mt} = \frac{I_t - I_{t-1}}{I_{t-1}} \quad (2)$$

Where:

$R_{mt}$  = observed daily market return at time 't'

$I_t$  = Adjusted closing NSE 20 share index at time 't'

$I_{t-1}$  = Adjusted closing NSE 20 share index one day before time 't'

### 3.6.3 Computation of Expected returns on a stock, $K_{it}$

The following simplified regression model was used for estimating the expected returns on each stock by taking the actual returns on market.

$$K_{it} = \alpha_i + \beta_i R_{mt} \quad (3)$$

Where,

$K_{it}$  = Expected return on stock 'i' during time period 't'

$\alpha_i$  = intercept of a straight line or alpha coefficient of  $i^{\text{th}}$  stock

$\beta_i$  = slope of a straight line or beta of  $i^{\text{th}}$  stock

$R_{mt}$  = Average return on NSE 20 share index

#### 3.6.3.1 Beta, $\beta_i$

Beta is a statistical measure which captures the relationship between the returns of a stock and the returns of the overall market. Beta was calculated as the covariance between the stock's excess returns and the excess returns of the market portfolio divided by the market portfolio variance.

$$\beta_i = \frac{\text{Cov}(R_i, R_m)}{\text{var}(R_m)} \quad (4)$$

Where:

$\text{Cov}(R_i, R_m)$  = the covariance between the stock excess returns and the excess returns of the market portfolio

$\text{var}(R_m)$  = the market portfolio variance.

### 3.6.3.2 Alpha, $\alpha_i$

According to the Capital Asset Pricing Model, Alpha is defined by the equation:

$$\alpha_i = R_i - [R_f + \beta(R_m - R_f)] \quad (5)$$

Where:

$R_i$  = the average return on stock,

$R_f$  = the risk-free rate,

$\beta$  = the beta of the stock,

$R_m$  = the average return on the market

### 3.6.4 Computation of the abnormal return, $e_{it}$

An abnormal return is the difference between the observed return and the predicted return.

For each sample stock  $i$ , the return on the stock for time period  $t$  relative to the event,  $R_{it}$ , was calculated as:

$$R_{it} = K_{it} + e_{it} \quad (6)$$

Where:

$K_{it}$  = the “normal” (i.e., expected or predicted return) using CAPM,

$e_{it}$  = the component of returns which is abnormal or unexpected

Given this return breakdown, the abnormal return,  $e_{it}$ , is the difference between the observed return and the expected return:

$$e_{it} = R_{it} - K_{it} \quad (7)$$

Equivalently,  $e_{it}$  is the difference between the return conditional on the event (announcement of the split) and the expected return unconditional on the event. Thus, the abnormal return is a

direct measure of the (unexpected) change in shareholder wealth associated with the announcement of the stock split.

### **3.6.5 Average Abnormal Returns (AARs)**

AAR was computed in Microsoft Excel using the formula below:

$$AAR_{it} = \frac{\sum_{t=1}^n (AR_{it})}{n} \quad (8)$$

Where,

i = Number of securities in the study

n = Total number of securities in the study

t = Number of days surrounding the event-day

### **t Value for AAR**

T-value for AAR was computed in Microsoft Excel using the formula below:

$$t(AAR) = \frac{AAR}{\sigma/\sqrt{n}} \quad (9)$$

Where:

$\sigma$  = Standard deviation

n = Total number of securities in the study

### **3.6.6 Cumulative Average Abnormal Returns (CAAR)**

CAAR was computed in Microsoft Excel using the formula below:

$$CAAR_t = \sum_{t=-30}^k AAR_{it} \quad (10)$$

Where,

t = -30, ..., 0, ..., +30

### **t value for CAAR**

The t-value for CAAR was computed in Microsoft Excel using the formula below:

$$t (CAAR) = \frac{CAAR}{\sigma*/\sqrt{Days}} \quad (11)$$

## CHAPTER FOUR

### FINDINGS AND DISCUSSION

#### 4.1 Share price performance on stock splits

Share price is cost of purchasing a security on an exchange and is always the lowest amount that a share can be bought or the highest amount an investor is willing to pay for it. We analyzed the behaviour of the share prices on the stock split announcement date and during the event window. Prices of thirteen (13) out of seventeen (17) shares rose on the event date, prices of three (3) shares remained unchanged and one (1) share exhibited a share price reduction. On the mean price during the event window, we found that fourteen (14) shares had a positive price mean change while three (3) shares had a negative price mean change. Table 1 below has the observed results:

<b>Share</b>	<b>price change on event date</b>	<b>Price mean change during event window</b>
ICDC (Centum Investments)	41.43%	1.42%
Sasini Ltd	17.22%	0.24%
CMC Holdings	8.71%	0.09%
Kenya Commercial Bank	0.84%	-0.01%
City Trust	1.75%	0.39%
The Limuru Tea	0.00%	0.21%
Barclays Bank 2011	9.60%	-0.03%
Equity Bank	1.60%	-0.35%
East African Breweries	0.00%	0.07%
Barclays Bank 2006	9.75%	0.22%
East African Cables	19.55%	1.56%
Kenya Power	2.11%	0.16%
Athi River Mining	2.55%	0.40%
Kenol Kobil 2010	2.88%	0.50%
Carbacid Investment	12.20%	1.55%
Kenol Kobil 2004	-1.70%	0.42%
Nation Media Group	0.00%	0.30%

Therefore it can be interpreted to mean that stock splits have a positive impact on the company's stock prices at the Nairobi Securities Exchange.

#### **4.2 Abnormal Returns**

Abnormal returns refers to the returns generated by a given security or portfolio over a specified period of time which is different from the expected rate of return. This is given by the equation:

$$\textit{Abnormal returns} = \textit{Actual returns} - \textit{Expected returns}$$

This study involved conducting a census of all the fifteen (15) companies listed at the Nairobi Securities Exchange (NSE) that split their shares between year 2004 and 2015. Among these companies were Kenol Kobil and Barclays that have split their shares twice which means that the study considered seventeen (17) splits done by fifteen (15) company shares. The abnormal returns of each of the companies is computed and listed in the table in Appendix 3.

#### **4.3 Frequency of abnormal returns**

The frequency of positive and negative abnormal returns was analyzed both in the pre-announcement and post-announcement periods. It can be seen that in the pre-announcement period, there were 233 cases of positive abnormal returns out of 510 observations accounting for 46%. There were 277 cases of negative abnormal returns during the same period representing 54% of the 510 observations.

In the post-announcement period, there were 213 cases of positive abnormal return out of 510 observations accounting for 42%. There were 297 cases of negative abnormal returns during the same period representing 58% of the 510 observations. Table 2 below has the results:

<b>TABLE 2</b>					
<b>Frequency of abnormal returns</b>					
		<b>Pre-Announcement ARs</b>		<b>Post-Announcement ARs</b>	
	<b>SECURITY</b>	<b>POSITIVE</b>	<b>NEGATIVE</b>	<b>POSITIVE</b>	<b>NEGATIVE</b>
1	ICDC	19	11	7	23
2	SASINI	17	13	14	16
3	CMC	22	8	12	18
4	KCB	11	19	14	16
5	C-TRUST	10	20	8	22
6	LIMURU T	6	24	15	15
7	BBK-2011	15	15	17	13
8	EQUITY	16	14	15	15
9	EABL	20	10	14	16
10	BBK-2006	17	13	12	18
11	EACABLES	8	22	13	17
12	KPLC	16	14	11	19
13	ARM	14	16	10	20
14	KENOL-2010	19	11	12	18
15	CARBACID	4	26	12	18
16	KENOL-2004	5	25	14	16
17	NMG	14	16	13	17
		<b>233(46%)</b>	<b>277(54%)</b>	<b>213(42%)</b>	<b>297(58%)</b>

There was an increase in negative abnormal returns from 54% to 58% when a comparison is made between the pre-announcement and post-announcement event windows. Similarly, there was a decrease in positive abnormal returns from 46% to 42% when a comparison is made between the pre-announcement and post-announcement event windows. This means that investors are most like to suffer negative abnormal returns after the announcement of a stock split.



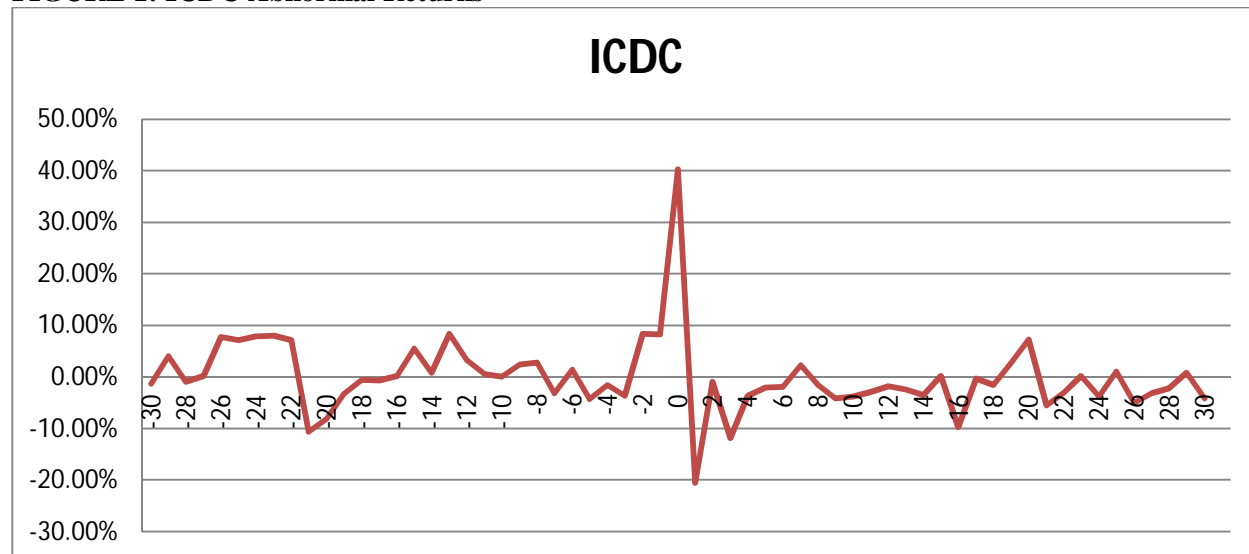
#### 4.4 Analysis of Abnormal Returns for individual companies

The observations on abnormal returns can be summarized as follows:

##### 4.4.1 ICDC (*Centum Investments*)

The company announced plan to split its shares on 19/11/2006. During the 30 day pre stock split announcement period, the ICDC share registered nineteen (19) positive abnormal returns and eleven (11) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed seven (7) positive abnormal returns and twenty three (23) abnormal negative returns.

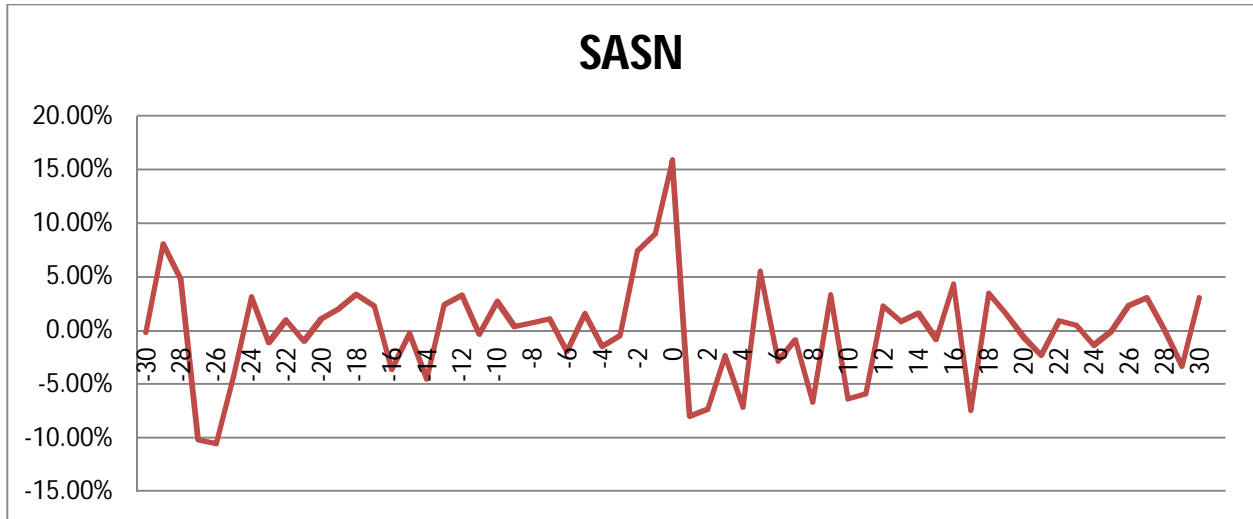
**FIGURE 1: ICDC Abnormal Returns**



##### 4.4.2 Sasini Ltd

The company announced plan to split its shares on 18/12/2006. During the 30 day pre stock split announcement period, the Sasini Ltd share registered seventeen (17) positive abnormal returns and thirteen (13) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed fourteen (14) positive abnormal returns and sixteen (16) negative abnormal returns.

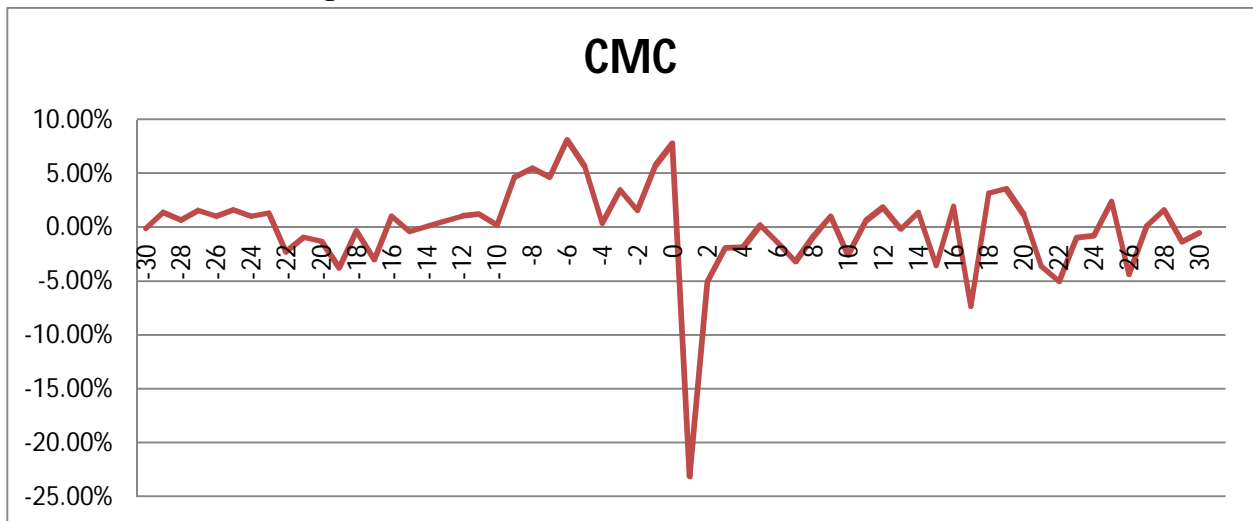
**FIGURE 2: Sasini Abnormal Returns**



**4.4.3 CMC Holdings Ltd**

The company announced plan to split its shares on 11/1/2007. During the 30 day pre-stock split announcement period, the CMC Holdings share registered twenty two (22) positive abnormal returns and eight (8) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed twelve (12) positive abnormal returns and eighteen (18) negative abnormal returns. This company has since been delisted from the NSE.

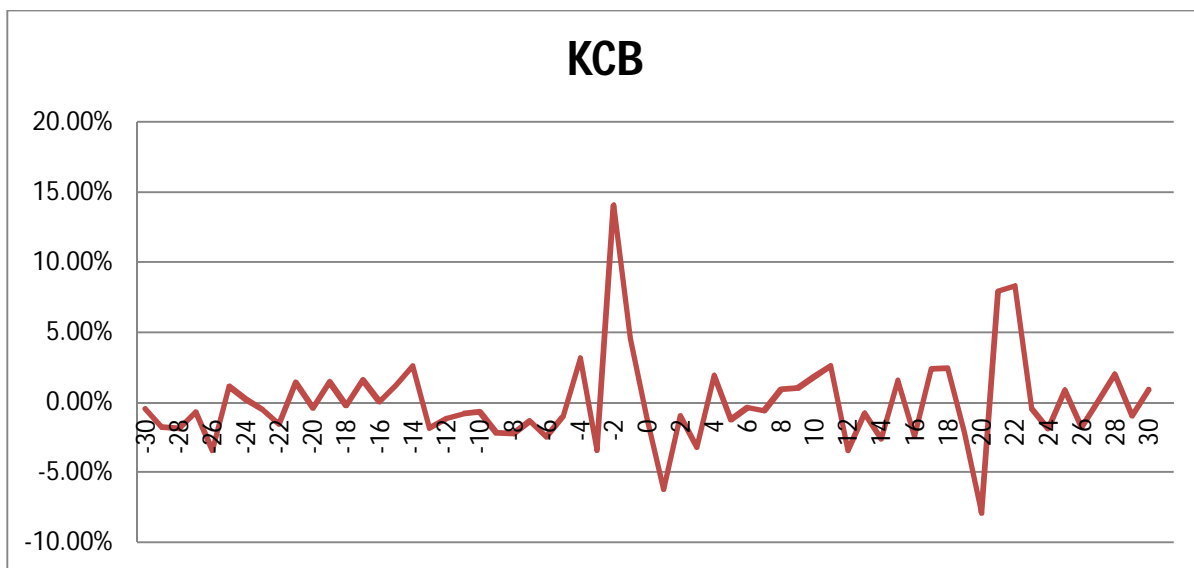
**FIGURE 3: CMC Holdings Abnormal Returns**



#### 4.4.4 Kenya Commercial Bank

The company announced plan to split its shares on 5/3/2007. During the 30 day pre-stock split announcement period, the Kenya Commercial Bank share registered eleven (11) positive abnormal returns and nineteen (19) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed fourteen (14) positive abnormal returns and sixteen (16) negative abnormal returns.

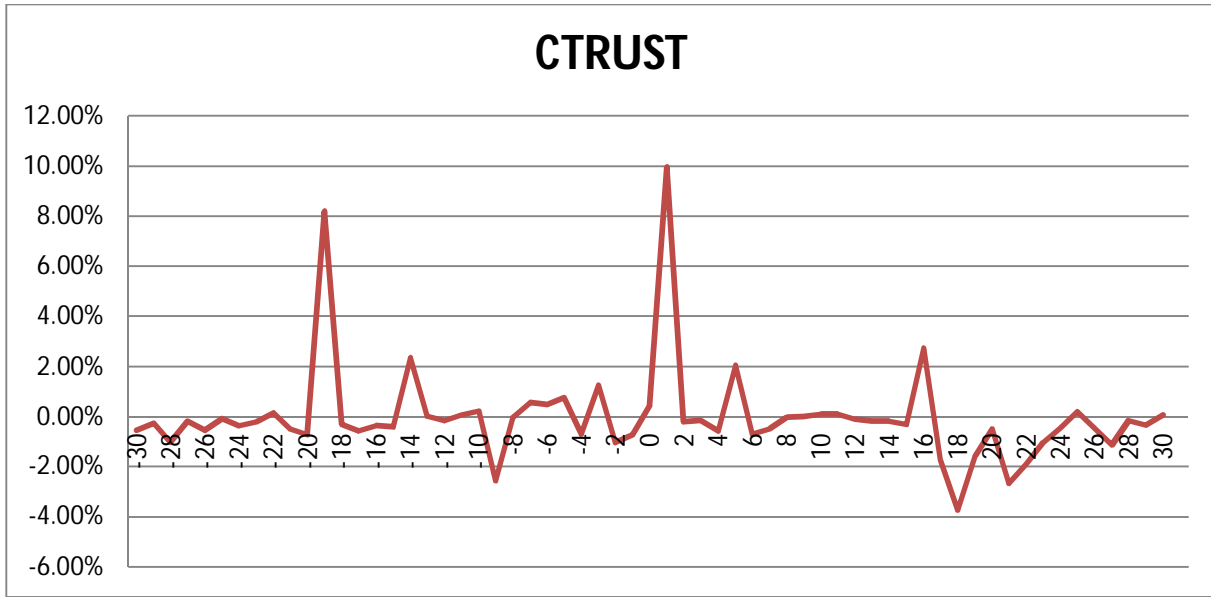
**FIGURE 4: KCB Abnormal Returns**



#### 4.4.5 City Trust Limited

The company announced plan to split its shares on 21/3/2013. During the 30 day pre-stock split announcement period, the City Trust share registered ten (10) positive abnormal returns and twenty (20) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed eight (8) positive abnormal returns and twenty two (22) negative abnormal returns.

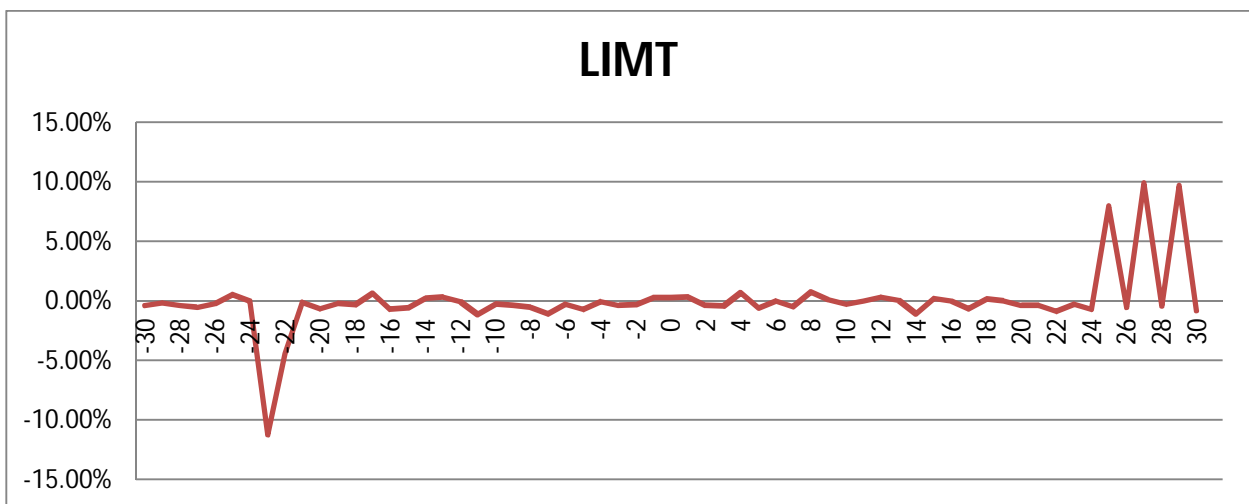
**FIGURE 5: City Trust Abnormal Returns**



**4.4.6 Limuru Tea**

The company announced plan to split its shares on 12/3/2015. During the 30 day pre-stock split announcement period, the Limuru Tea share registered six (6) positive abnormal returns and twenty four (24) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed fifteen (15) positive abnormal returns and fifteen (15) negative abnormal returns.

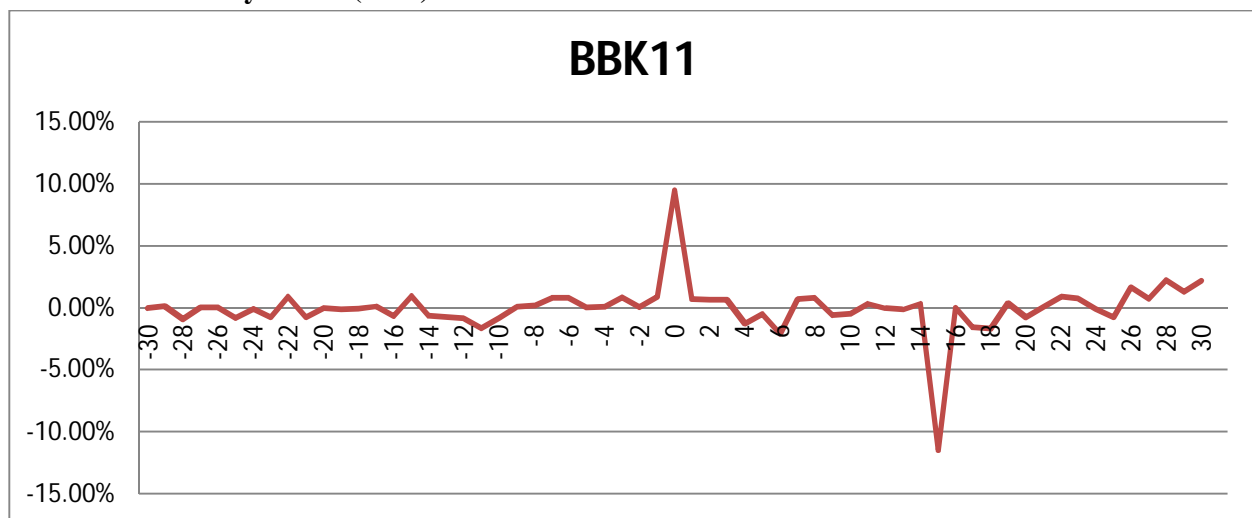
**FIGURE 6: Limuru Tea Abnormal Returns**



#### 4.4.7 Barclays Bank of Kenya (2011)

The company announced plan to split its shares on 22/2/2011. During the 30 day pre-stock split announcement period, the Barclays Bank of Kenya share registered fifteen (15) positive abnormal returns and fifteen (15) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed seventeen (17) positive abnormal returns and thirteen (13) negative abnormal returns.

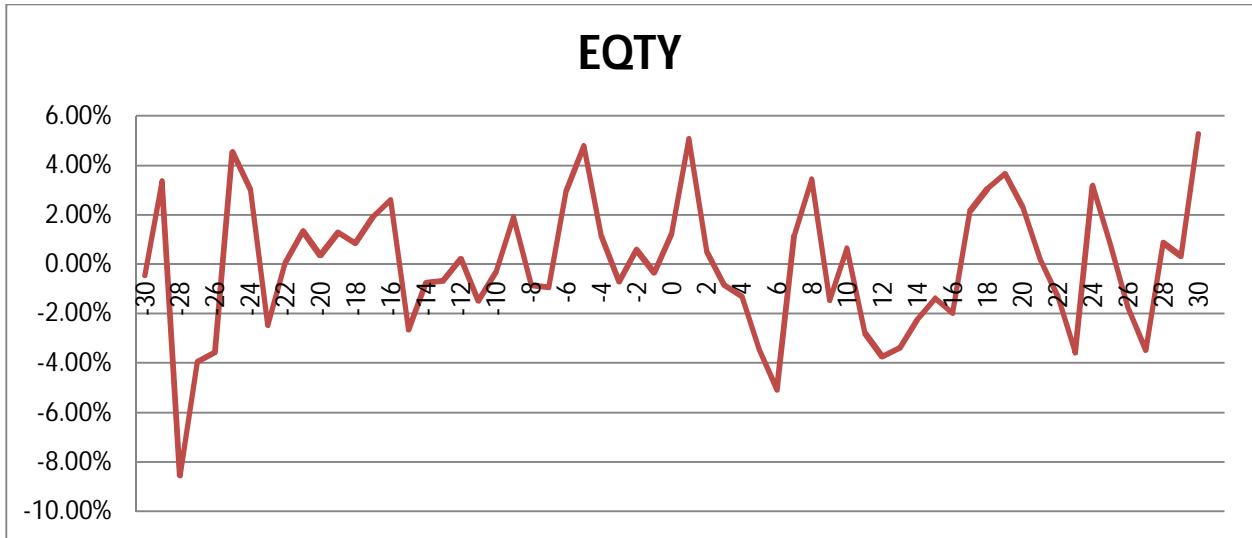
**FIGURE 7: Barclays Bank (2011) Abnormal Returns**



#### 4.4.8 Equity Bank Limited

The company announced plan to split its shares on 12/2/2009. During the 30 day pre-stock split announcement period, the Equity Bank Limited share registered sixteen (16) positive abnormal returns and fourteen (14) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed fifteen (15) positive abnormal returns and fifteen (15) negative abnormal returns.

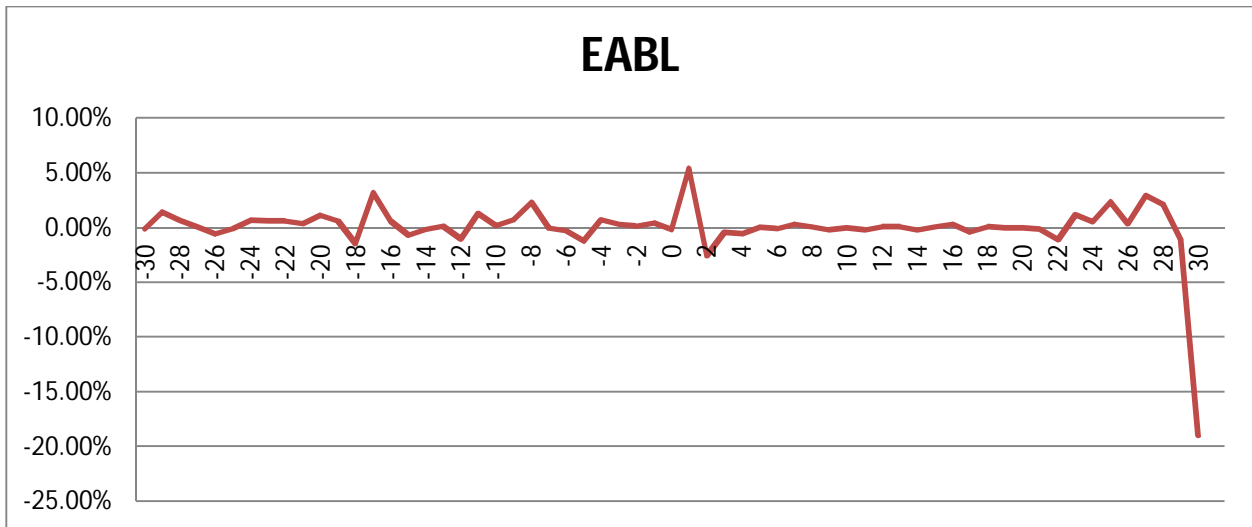
**FIGURE 8: Equity Bank Abnormal Returns**



**4.4.9 East African Breweries Limited**

The company announced plan to split its shares on 26/8/2004. During the 30 day pre-stock split announcement period, the East African Breweries share registered twenty (20) positive abnormal returns and ten (10) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed fourteen (14) positive abnormal returns and sixteen (16) negative abnormal returns.

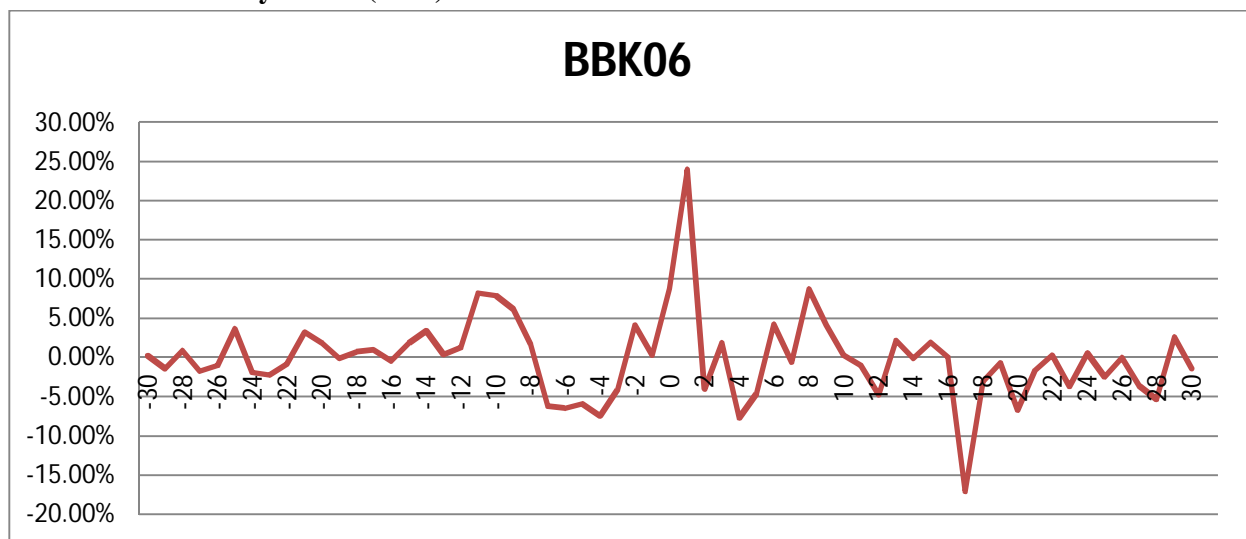
**FIGURE 9: EABL Abnormal Returns**



#### 4.4.10 Barclays Bank of Kenya Limited- 2006

The company announced plan to split its shares on 8/11/2006. During the 30 day pre-stock split announcement period, the Barclays Bank of Kenya share registered seventeen (17) positive abnormal returns and thirteen (13) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed twelve (12) positive abnormal returns and eighteen (18) negative abnormal returns.

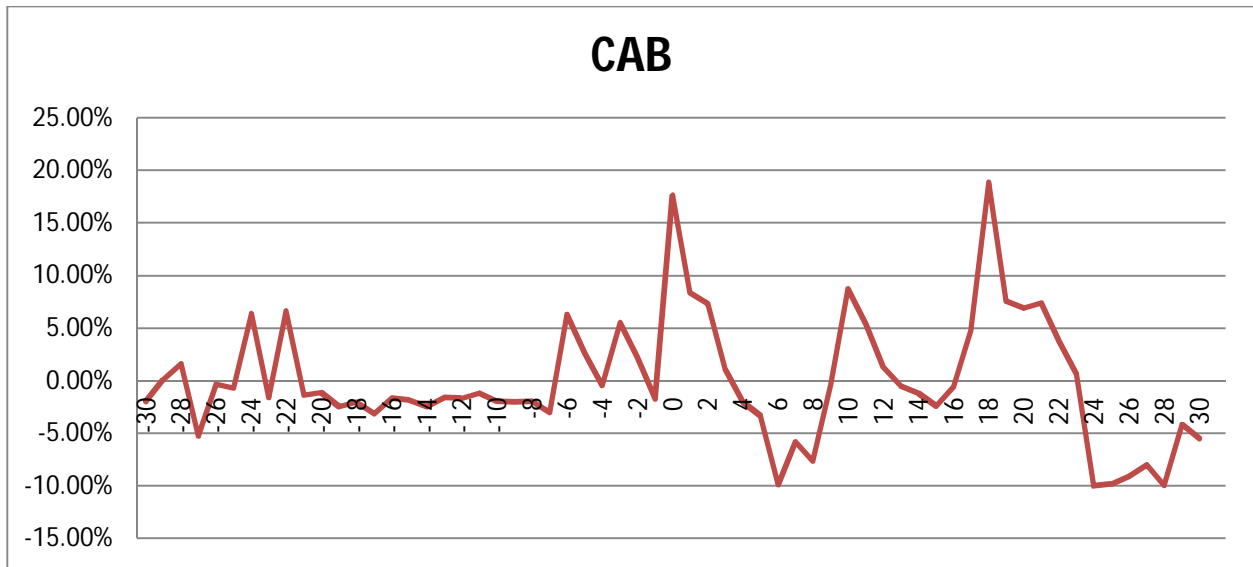
**FIGURE 10: Barclays Bank (2006) Abnormal Returns**



#### 4.4.11 East African Cables Ltd

The company announced plan to split its shares on 10/8/2006. During the 30 day pre-stock split announcement period, the EAST AFRICAN CABLES share registered eight (8) positive abnormal returns and twenty two (22) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed thirteen (13) positive abnormal returns and seventeen (17) negative abnormal returns.

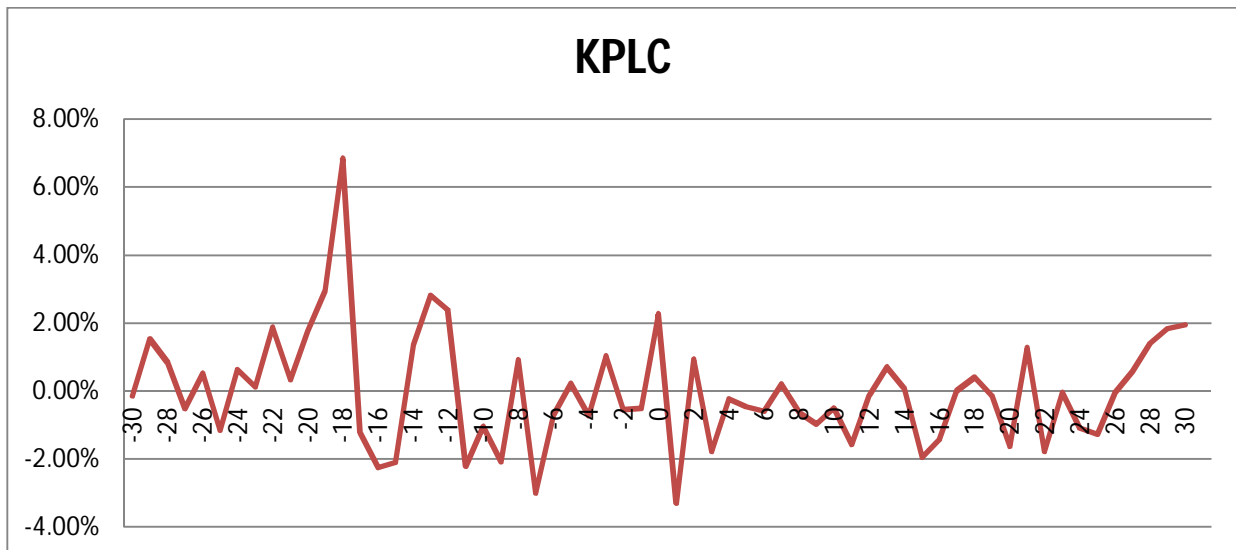
**FIGURE 11: East African Cables Abnormal Returns**



**4.4.12 Kenya Power and Lighting Ltd**

The company announced plan to split its shares on 7/10/2010. During the 30 day pre-stock split announcement period, the Kenya Power & Lighting Company share registered sixteen (16) positive abnormal returns and fourteen (14) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed eleven (11) positive abnormal returns and nineteen (19) negative abnormal returns.

**FIGURE 12: KPLC Abnormal Returns**

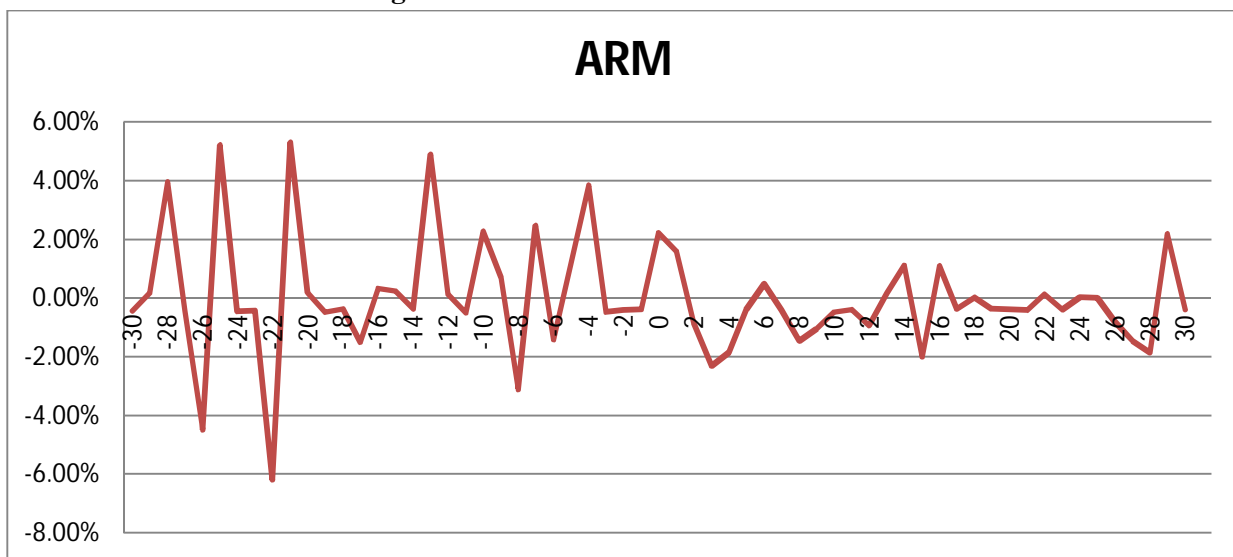




#### 4.4.13 Athi River Mining

The company announced plan to split its shares on 14/5/2012. During the 30 day pre-stock split announcement period, the Athi River Mining share registered fourteen (14) positive abnormal returns and sixteen (16) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed ten (10) positive abnormal returns and twenty (20) negative abnormal returns.

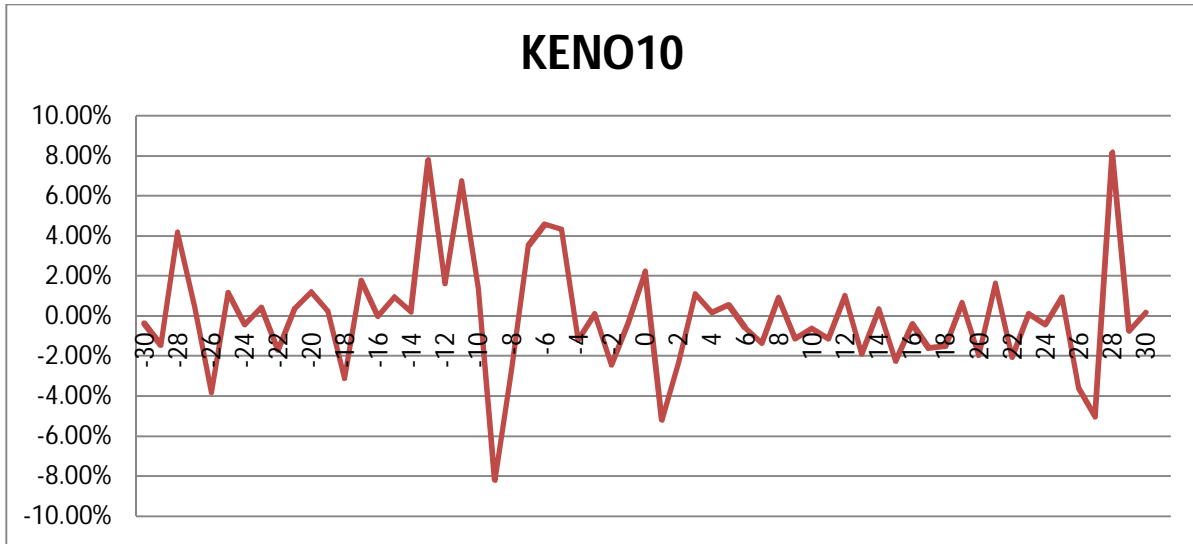
**FIGURE 13: Athi River Mining Abnormal Returns**



#### 4.4.14 Kenol Kobil Ltd – 2010

The company announced plan to split its shares on 21/5/2010. During the 30 day pre-stock split announcement period, the Kenol Kobil share registered nineteen (19) positive abnormal returns and eleven (11) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed twelve (12) positive abnormal returns and eighteen (18) negative abnormal returns.

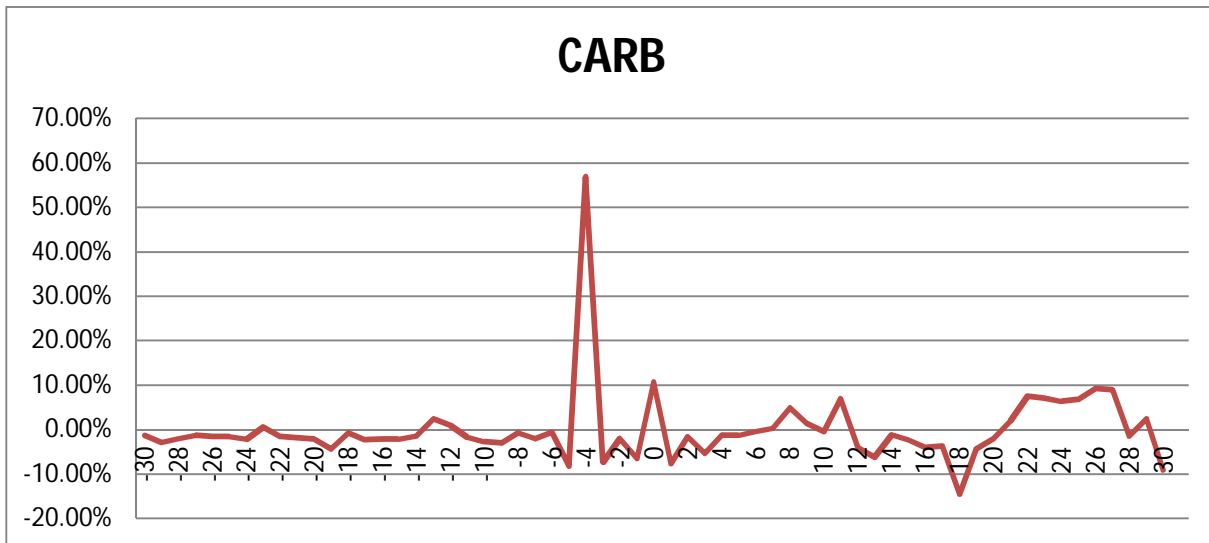
**FIGURE 14: Kenol Kobil (2010) Abnormal Returns**



**4.4.15 Carbacid Investments Ltd**

The company announced plan to split its shares on 23/10/2013. During the 30 day pre-stock split announcement period, the Carbacid Investments Ltd share registered four (4) positive abnormal returns and twenty six (26) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed twelve (12) positive abnormal returns and eighteen (18) negative abnormal returns.

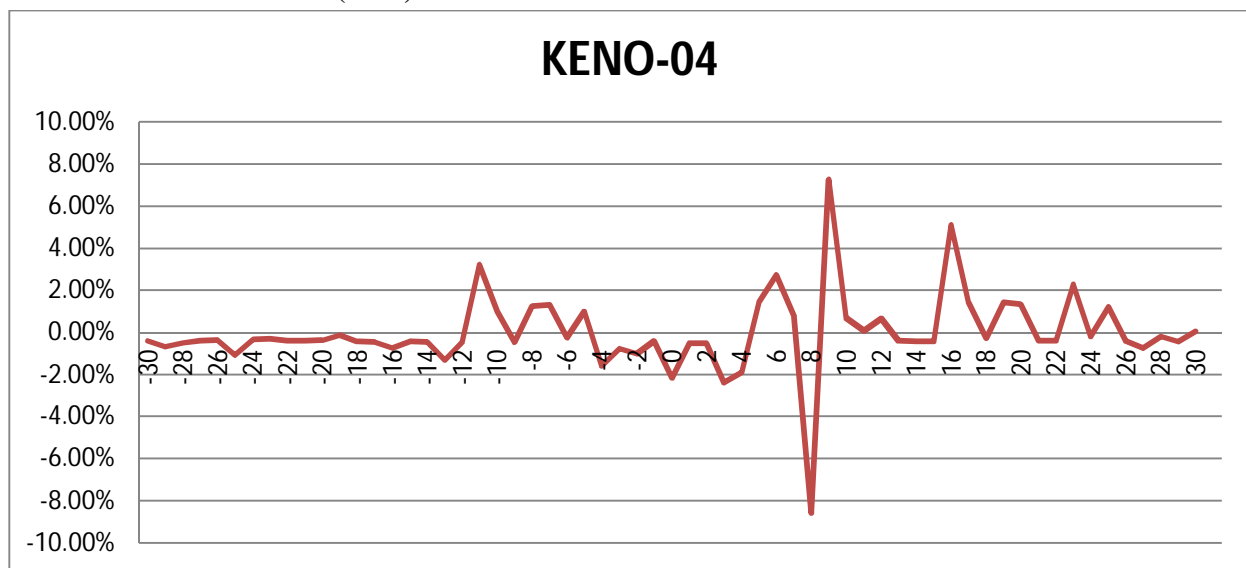
**FIGURE 15: Carbacid Investments Ltd Abnormal Returns**



#### 4.4.16 Kenol Kobil Ltd – 2004

The company announced plan to split its shares on 19/5/2004. During the 30 day pre-stock split announcement period, the Kenol Kobil share registered five (5) positive abnormal returns and twenty five (25) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed fourteen (14) positive abnormal returns and sixteen (16) negative abnormal returns.

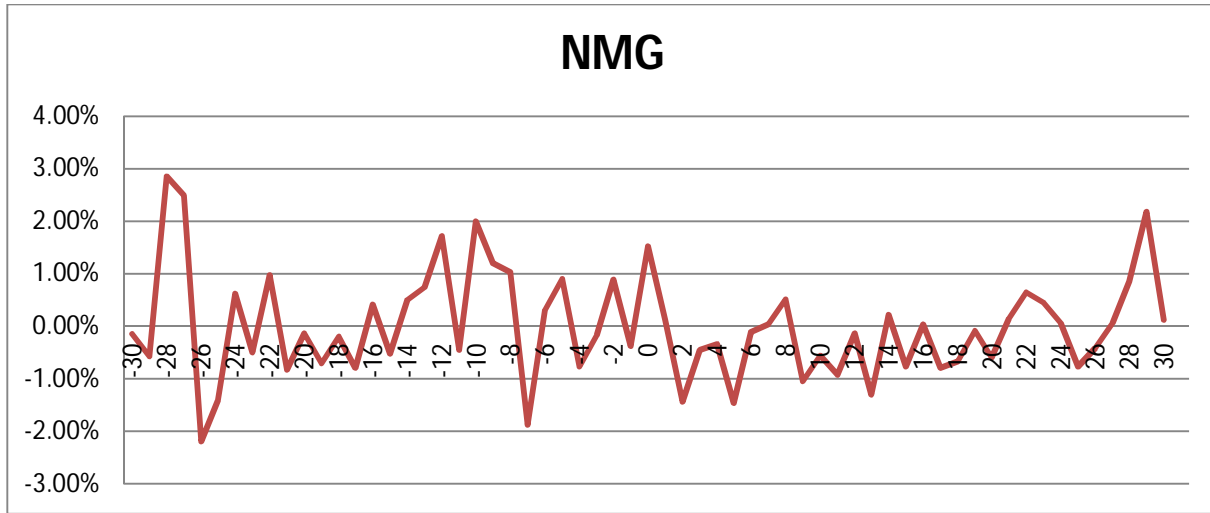
**FIGURE 16: Kenol Kobil (2004) Abnormal Returns**



#### 4.4.17 Nation Media Group Ltd

The company announced plan to split its shares on 18/3/2008. During the 30 day pre-stock split announcement period, the Nation Media Group share registered fourteen (14) positive abnormal returns and sixteen (16) negative abnormal returns. In the 30 day post stock split announcement period, the share witnessed thirteen (13) positive abnormal returns and seventeen (17) negative abnormal returns.

**FIGURE 17: Nation Media Group Abnormal Returns**



**4.5 Average Abnormal Returns (AARs)**

The daily percentage average abnormal returns (AARs %), daily percentage cumulative abnormal returns (CAARs %) and their respective t-values of AAR of the 61 days window period are contained in Appendix 4. T value (AARs) indicates significance for the window period (-30 to +30).

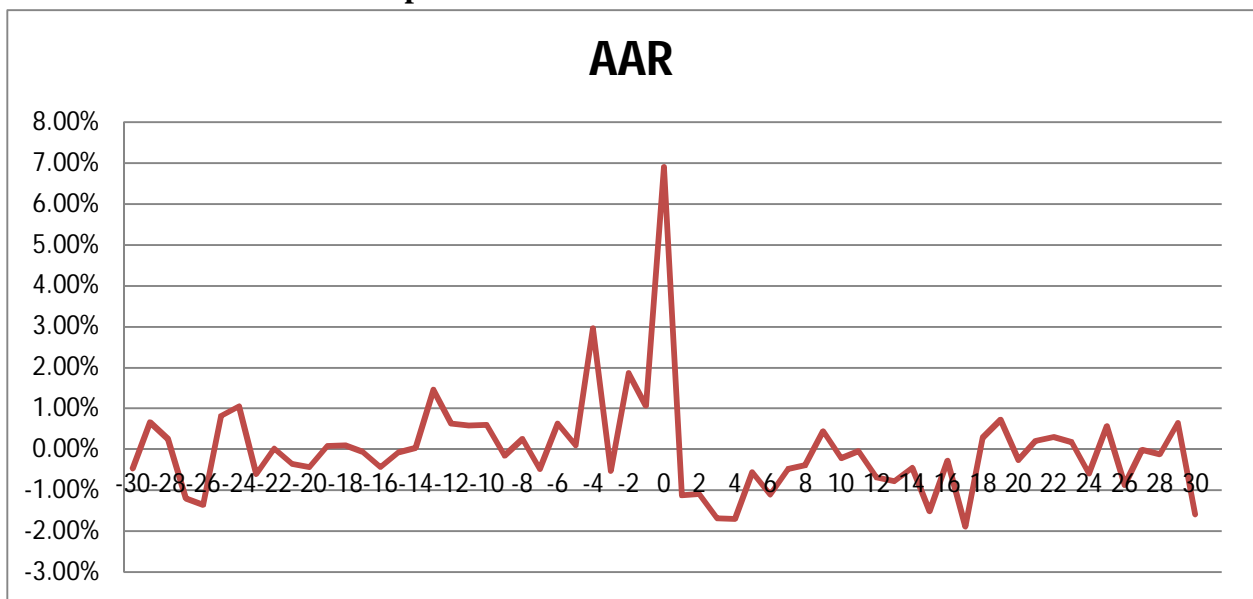
The values of AAR presented in Appendix 4 shows that there are fluctuating returns both positive and negative around the events day. The AAR was positive for eighteen days and negative for twelve days during the thirty day pre-announcement period. During the post-announcement period there were eight (8) positive AARs and twenty two (22) negative AARs.

<b>TABLE 3 Summary of AAR Frequency</b>			
Event window	Positive Returns	Negative Returns	Total Observations
Pre-announcement window i.e day -30 to -1	18	12	30
Post-announcement window i.e day +1 to +30	8	22	30

AAR was found to be positively significant on day -2 at 10% level, which is a reflection of possible leakage of insider information by either directors, employees, or even a major

shareholder. On the event day 0, it was found that there was a positive share reaction of 6.9% and this was also found to be significant at 5% level. This is a clear demonstration that the announcement of stock splits provided some significant positive information to the firms. From the analysis, the noted presence of both positive and negative returns around the stock split announcement leads to a rejection of the (null) **Hypothesis 1** which states that “*There is no significant impact on share prices around the announcements of share splits*”.

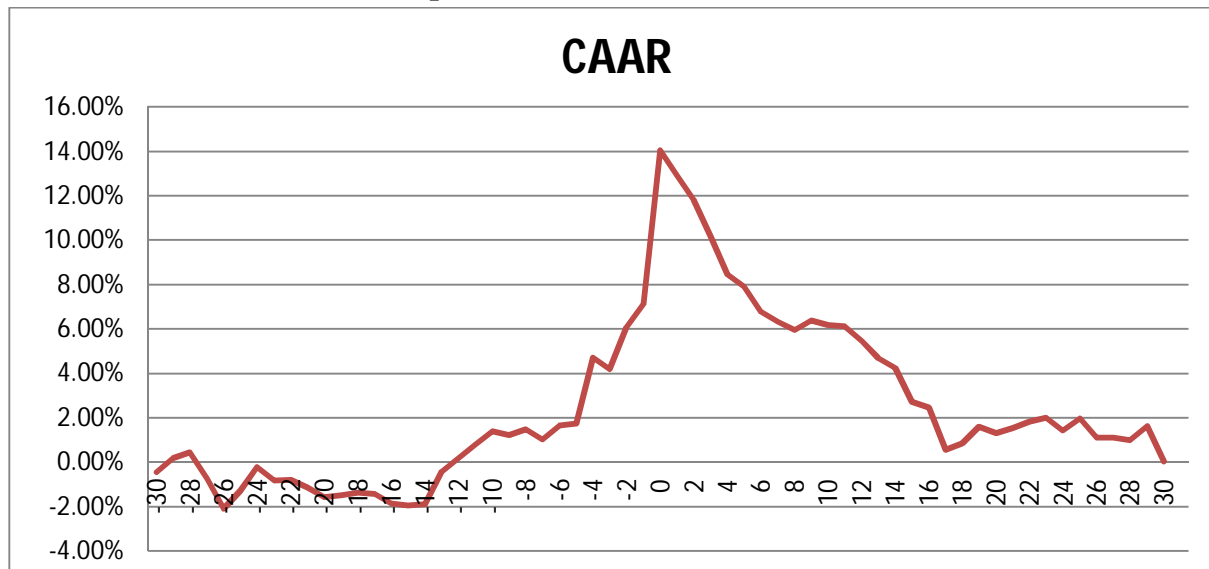
**FIGURE 18: AAR of Stock Splits**



#### 4.6 Cumulative Average Abnormal Returns (AARs)

The CAAR during the (-30 to -10 days) was 1.38%, (-30 to 0 days) was 14.04% and 0.04% from (-30 to 30 days). This implies that investors are likely to gain abnormal returns in the pre-announcement period and suffer reduced returns during the post-announcement event window.

**FIGURE 19: CAAR of Stock Splits**



#### 4.7 Paired t test for AAR

Paired t test normally consist of a sample of matched pairs of similar units or one group of units. They are also referred to as dependent samples t tests. In this case, AARs for the sample companies has been separated into two categories; pre-announcement AAR and post-announcement AAR. A paired t test has been done using the two categories and the calculated results are shown in table 4 below:

<b>t Test: Paired Two Sample for Means</b>	<b>PRE-AAR</b>	<b>POST-AAR</b>
Mean	0.0023783	-0.0046651
Variance	0.000078	0.000056
Observations	30	30
Correlation	0.3053	
Hypothesized Mean Difference	0	
Degrees of Freedom	29	
t Statistics	3.9897	
P(T<=t) one-tail	0.0002	
t Critical one-tail	1.6991	
P(T<=t) two-tail	0.0004	
t Critical two-tail	2.0452	

The observed T-statistic (3.9897) is greater than the tabular t-value (1.6991) so we reject the Hypotheses 2. The P-value (one tail) is 0.02% which is smaller than the significant level of 5% so we also reject the Hypotheses 2. The conclusion is that there is a significant difference in abnormal returns of NSE listed shares, when a comparison is done between the pre-stock split announcement and post-stock split announcement which would allow investors to gain or suffer abnormal returns on stock prices.

## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter discusses the summary of the findings in chapter four (Findings and discussion). Conclusions and recommendations drawn from the findings are discussed in relation to the objective of the study which was to find out the effect of stock split announcements on share prices of companies listed at the Nairobi Securities Exchange by examining the presence or absence of abnormal returns around the announcement date.

#### 5.2 Summary

##### 5.2.1 *Direction of share price on stock split announcement date*

The study finds significant reaction on the announcement date as the information on the split is absorbed by the market which is an indicator of information efficiency. The study found that fourteen (14) shares had a positive price mean change while three (3) shares had a negative price mean change on the event date which can be interpreted to mean that stock splits have a positive impact on the company's stock prices at the Nairobi Securities Exchange.

##### 5.2.2 *Abnormal return around the announcement date*

From the empirical results it was evident that the average abnormal return is statistically significant at 5% on the event (announcement) date. The shareholders are able to earn a positive AAR of 6.9% on the split announcement day.

However, as noted in the summary of AAR frequency, the post-split announcement event window is characterized by negative abnormal returns (22 out of 30 days) which ends up wiping out the CAAR of 14.4% (-30 to 0 days) to a mere CAAR of 0.04% at the end of the event



window (-30 to +30 days). Overall, it can be argued that the investor eventually suffers negative abnormal returns in post-split announcement period.

### **5.3 Conclusions**

It was observed out of the seventeen stock split announcements that have been made by fifteen companies listed at the Nairobi Securities Exchange that split their stocks, share prices of those companies were observed to have risen on the announcement date for thirteen shares, three shares did not change and one share exhibited a fall in price. The upward reaction in share price on the announcement date confirms that such announcements contain some information content and that the Nairobi Security Exchange is semi strong.

The negative returns witnessed in the post announcement period can be attributed to investors adjusting quickly to the information and a less amount of time passes before the relevant information in the split announcement is incorporated in the prices. The speedy response has the potential of generating negative abnormal returns, based on publicly available information.

### **5.4 Recommendations of the study**

Based on the study findings, and given that the stock splits are relatively new in the Kenyan market, the researcher recommends that the Capital Markets Authority and relevant stakeholders need to develop proper policy framework that will govern and encourage firms to adopt both forward and reverse stock splits. The presence of abnormal returns during the event window is an indication of speculative retail trading which may be caused by information asymmetry. The Capital Markets Authority should undertake educational forums to enlighten the investing public on the operations of the Nairobi Securities Exchange.

Additionally, it was observed that some share prices started rising some days before the announcement of the stock splits which is an indication of information asymmetry and possible insider trading. The capital Markets Authority should enforce rules against insider trading through effective monitoring to safeguard the integrity of the operations at Nairobi Securities Exchange. This will ultimately boost investor confidence through equal access to market information.

### **5.5 Suggested areas for further research**

This study focused on the effects of stock split announcements on stock prices of companies listed at the Nairobi Securities Exchange. Most of the previous studies conducted in this area focused on the actual stock split date and not the announcement date. For example, Aduda and Chemarum stated that they were unable to determine the announcement dates and opted to use the split dates as the event date. There is need for more studies to be conducted using the announcement date to check whether they arrive at the same results.

Secondly, even the few researchers who used the announcement date ended up using a sample instead of conducting a census like in this study. We recommend that future researchers conduct a census study and check if the results will be similar to the ones arrived at in this study.

Lastly, this study was conducted using an event window of 61 days (-30 to 30days). There is need for future researchers to conduct a similar census study either using a shorter or longer event window and check if the study will yield similar results.

### **5.6 Limitation of the study**

This study heavily relied on secondary data that was obtained from the Nairobi Securities Exchange. Given that stock splits are relatively new in Kenya and that a few companies listed at

the NSE have split their stocks, the study also depended heavily on literature review from developed markets outside Africa.

The study was also limited to the NSE listed companies that have ever split their shares leaving out those companies that are not publicly listed. A study of the effect of stock split announcements on share prices covering both the listed and non-listed companies would probably have given a more representative result.

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## APPENDICES

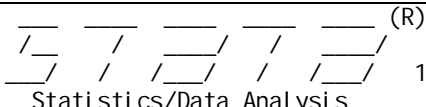
### APPENDIX I: Population of study

<b>Companies that have ever split their shares</b>			
No.	Company	Split ratio	Split Announcement (Event) date
1	Kenol Kobil	10: 1	19-May-04
	Kenol Kobil	10:1	21-May-10
2	East African Breweries	5:1	26-Aug-04
3	East African Cables	10:1	10-Aug-06
4	ICDC Investments	10:1	19-Oct-06
5	Barclays Bank	5:1	8-Nov-06
	Barclays Bank	4:1	22-Feb-11
6	Sasini	5:1	18-Dec-06
7	CMC Holdings	10:1	11-Jan-07
8	Kenya Commercial Bank	10:1	5-Mar-07
9	Nation Media Group	2:1	18-Mar-08
10	Equity Bank	10:1	12-Feb-09
11	Kenya Power	8:1	7-Oct-10
12	Athi River Mining	5:1	14-May-12
13	City Trust	5:1	23-Jan-13
14	Carbacid Investment	5:1	23-Oct-13
15	Limuru Tea	2:1	12-May-15

Source: NSE



## APPENDIX II : Regression Analysis - coefficients

		12.0	Copyright 1985-2011 StataCorp LP StataCorp 4905 Lakeway Drive College Station, Texas 77845 USA 800-STATA-PC http://www.stata.com 979-696-4600 stata@stata.com 979-696-4601 (fax)																		
Single-user Stata network perpetual license: Serial number: 93611859953 Licensed to: Santiago Adamcik DPE-Bs. As.																					
Notes:																					
<pre>. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\ER - Expected Returns.xlsx", sheet("ICDC") firstrow  . regress PRICE MARKET</pre>																					
<table border="1"> <thead> <tr> <th>Source</th> <th>SS</th> <th>df</th> <th>MS</th> </tr> </thead> <tbody> <tr> <td>Model</td> <td>.001681903</td> <td>1</td> <td>.001681903</td> </tr> <tr> <td>Residual</td> <td>.336504648</td> <td>59</td> <td>.005703469</td> </tr> <tr> <td>Total</td> <td>.338186551</td> <td>60</td> <td>.005636443</td> </tr> </tbody> </table>		Source	SS	df	MS	Model	.001681903	1	.001681903	Residual	.336504648	59	.005703469	Total	.338186551	60	.005636443	Number of obs = 61 F( 1, 59) = 0.29 Prob > F = 0.5891 R-squared = 0.0050 Adj R-squared = -0.0119 Root MSE = .07552			
Source	SS	df	MS																		
Model	.001681903	1	.001681903																		
Residual	.336504648	59	.005703469																		
Total	.338186551	60	.005636443																		
<table border="1"> <thead> <tr> <th>PRICE</th> <th>Coef.</th> <th>Std. Err.</th> <th>t</th> <th>P&gt; t </th> <th>[95% Conf. Interval]</th> </tr> </thead> <tbody> <tr> <td>MARKET</td> <td>.556753</td> <td>1.025254</td> <td>0.54</td> <td>0.589</td> <td>-1.494776 2.608282</td> </tr> <tr> <td>_cons</td> <td>.0127039</td> <td>.0102382</td> <td>1.24</td> <td>0.220</td> <td>-.0077828 .0331906</td> </tr> </tbody> </table>		PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	MARKET	.556753	1.025254	0.54	0.589	-1.494776 2.608282	_cons	.0127039	.0102382	1.24	0.220	-.0077828 .0331906		
PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]																
MARKET	.556753	1.025254	0.54	0.589	-1.494776 2.608282																
_cons	.0127039	.0102382	1.24	0.220	-.0077828 .0331906																
<pre>. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\ER - Expected Returns.xlsx", sheet("SASN") firstrow clear  . regress PRICE MARKET</pre>																					
<table border="1"> <thead> <tr> <th>Source</th> <th>SS</th> <th>df</th> <th>MS</th> </tr> </thead> <tbody> <tr> <td>Model</td> <td>.014922363</td> <td>1</td> <td>.014922363</td> </tr> <tr> <td>Residual</td> <td>.12987938</td> <td>59</td> <td>.002201345</td> </tr> <tr> <td>Total</td> <td>.144801743</td> <td>60</td> <td>.002413362</td> </tr> </tbody> </table>		Source	SS	df	MS	Model	.014922363	1	.014922363	Residual	.12987938	59	.002201345	Total	.144801743	60	.002413362	Number of obs = 61 F( 1, 59) = 6.78 Prob > F = 0.0117 R-squared = 0.1031 Adj R-squared = 0.0879 Root MSE = .04692			
Source	SS	df	MS																		
Model	.014922363	1	.014922363																		
Residual	.12987938	59	.002201345																		
Total	.144801743	60	.002413362																		
<table border="1"> <thead> <tr> <th>PRICE</th> <th>Coef.</th> <th>Std. Err.</th> <th>t</th> <th>P&gt; t </th> <th>[95% Conf. Interval]</th> </tr> </thead> <tbody> <tr> <td>MARKET</td> <td>1.877653</td> <td>.7211749</td> <td>2.60</td> <td>0.012</td> <td>.4345852 3.32072</td> </tr> <tr> <td>_cons</td> <td>.0015635</td> <td>.0060167</td> <td>0.26</td> <td>0.796</td> <td>-.0104758 .0136029</td> </tr> </tbody> </table>		PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	MARKET	1.877653	.7211749	2.60	0.012	.4345852 3.32072	_cons	.0015635	.0060167	0.26	0.796	-.0104758 .0136029		
PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]																
MARKET	1.877653	.7211749	2.60	0.012	.4345852 3.32072																
_cons	.0015635	.0060167	0.26	0.796	-.0104758 .0136029																
<pre>. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\ER - Expected Returns.xlsx", sheet("CMC") firstrow clear</pre>																					

```

. regress PRICE MARKET

-----+-----
Source |      SS      df      MS                Number of obs =      61
-----+-----+-----+-----
Model |   .011632505      1   .011632505            F( 1, 59) =      6.32
Residual |   .108559599     59   .001839993            Prob > F      =    0.0147
-----+-----+-----+-----
Total |   .120192103     60   .002003202            R-squared     =    0.0968
                                           Adj R-squared =    0.0815
                                           Root MSE     =    .0429

-----+-----
PRICE |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-----+-----+-----+-----
MARKET |   1.559766   .6203417     2.51   0.015     .3184653   2.801067
_cons |   .0008303   .0054923     0.15   0.880    -.0101598   .0118204
-----+-----

. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\Kca\NSE DATA\ER - Expected Returns.xlsx",
sheet("KCB") firstrow clear

. regress PRICE MARKET

-----+-----
Source |      SS      df      MS                Number of obs =      61
-----+-----+-----+-----
Model |   .042175927      1   .042175927            F( 1, 59) =     39.95
Residual |   .062289063     59   .001055747            Prob > F      =    0.0000
-----+-----+-----+-----
Total |   .10446499     60   .001741083            R-squared     =    0.4037
                                           Adj R-squared =    0.3936
                                           Root MSE     =    .03249

-----+-----
PRICE |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-----+-----+-----+-----
MARKET |   1.744865   .2760638     6.32   0.000     1.192463   2.297267
_cons |   .0045259   .0042248     1.07   0.288    -.0039279   .0129798
-----+-----

. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\Kca\NSE DATA\ER - Expected Returns.xlsx",
sheet("CTRUST") firstrow clear

. regress PRICE MARKET

-----+-----
Source |      SS      df      MS                Number of obs =      61
-----+-----+-----+-----
Model |   .001304671      1   .001304671            F( 1, 59) =      3.30
Residual |   .023324507     59   .000395331            Prob > F      =    0.0744
-----+-----+-----+-----
Total |   .024629178     60   .000410486            R-squared     =    0.0530
                                           Adj R-squared =    0.0369
                                           Root MSE     =    .01988

-----+-----
PRICE |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-----+-----+-----+-----
MARKET |  -.7538381   .4149614    -1.82   0.074    -1.584174   .0764978
_cons |   .0055063   .0026997     2.04   0.046     .0001042   .0109083
-----+-----

. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\Kca\NSE DATA\ER - Expected Returns.xlsx",
sheet("LIMIT") firstrow clear

. regress PRICE MARKET

-----+-----
Source |      SS      df      MS                Number of obs =      61
-----+-----+-----+-----
Model |   .001136452      1   .001136452            F( 1, 59) =      1.62
-----+-----+-----+-----
Total |   .001136452     60   .001136452            Prob > F      =    0.2079

```

Residual		.041360269	59	.000701022		R-squared	=	0.0267
-----								
Total		.042496721	60	.000708279		Adj R-squared	=	0.0102
-----								
PRICE		Coef.	Std. Err.	t	P> t	[95% Conf. Interval]		
-----								
MARKET		1.125459	.8839335	1.27	0.208	-.6432884	2.894205	
_cons		.0037429	.0036374	1.03	0.308	-.0035356	.0110214	
-----								

```
. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\ER - Expected Returns.xlsx",
sheet("BBK11") firstrow clear
```

```
. regress PRICE MARKET
```

Source		SS	df	MS		Number of obs =	61	
-----								
Model		.000178055	1	.000178055		F( 1, 59) =	0.39	
Residual		.026757287	59	.000453513		Prob > F =	0.5333	
-----								
Total		.026935342	60	.000448922		R-squared =	0.0066	
-----								
						Adj R-squared =	-0.0102	
-----								
						Root MSE =	.0213	
-----								
PRICE		Coef.	Std. Err.	t	P> t	[95% Conf. Interval]		
-----								
MARKET		.2622758	.4185778	0.63	0.533	-.5752964	1.099848	
_cons		.0002902	.0028788	0.10	0.920	-.0054703	.0060507	
-----								

```
. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\ER - Expected Returns.xlsx",
sheet("EQTY") firstrow clear
```

```
. regress PRICE MARKET
```

Source		SS	df	MS		Number of obs =	61	
-----								
Model		.037724567	1	.037724567		F( 1, 59) =	50.35	
Residual		.044207151	59	.000749274		Prob > F =	0.0000	
-----								
Total		.081931718	60	.001365529		R-squared =	0.4604	
-----								
						Adj R-squared =	0.4513	
-----								
						Root MSE =	.02737	
-----								
PRICE		Coef.	Std. Err.	t	P> t	[95% Conf. Interval]		
-----								
MARKET		1.74959	.2465724	7.10	0.000	1.2562	2.24298	
_cons		.0042838	.0036735	1.17	0.248	-.0030669	.0116345	
-----								

```
. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\ER - Expected Returns.xlsx",
sheet("EABL") firstrow clear
```

```
. regress PRICE MARKET
```

Source		SS	df	MS		Number of obs =	61	
-----								
Model		.000104281	1	.000104281		F( 1, 59) =	0.14	
Residual		.04509661	59	.000764349		Prob > F =	0.7132	
-----								
Total		.045200891	60	.000753348		R-squared =	0.0023	
-----								
						Adj R-squared =	-0.0146	
-----								
						Root MSE =	.02765	
-----								

PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
MARKET	.2803361	.7589659	0.37	0.713	-1.238351	1.799023
_cons	.0007675	.0035403	0.22	0.829	-.0063166	.0078516

```

. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\Kca\NSE DATA\ER - Expected Returns.xlsx",
sheet("BBK06") firstrow clear

. regress PRICE MARKET

```

Source	SS	df	MS	Number of obs =	61
Model	.018928622	1	.018928622	F( 1, 59) =	6.38
Residual	.175179079	59	.002969137	Prob > F =	0.0143
Total	.194107701	60	.003235128	R-squared =	0.0975
				Adj R-squared =	0.0822
				Root MSE =	.05449

PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
MARKET	1.959817	.7761955	2.52	0.014	.4066533	3.51298
_cons	-.0024668	.0072172	-0.34	0.734	-.0169084	.0119748

```

. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\Kca\NSE DATA\ER - Expected Returns.xlsx",
sheet("CAB") firstrow clear

. regress PRICE MARKET

```

Source	SS	df	MS	Number of obs =	61
Model	.007769495	1	.007769495	F( 1, 59) =	2.21
Residual	.207211963	59	.003512067	Prob > F =	0.1422
Total	.214981459	60	.003583024	R-squared =	0.0361
				Adj R-squared =	0.0198
				Root MSE =	.05926

PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
MARKET	-1.991602	1.339022	-1.49	0.142	-4.670978	.6877739
_cons	.0194852	.0080213	2.43	0.018	.0034347	.0355358

```

. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\Kca\NSE DATA\ER - Expected Returns.xlsx",
sheet("KPLC") firstrow clear

. regress PRICE MARKET

```

Source	SS	df	MS	Number of obs =	61
Model	.001869702	1	.001869702	F( 1, 59) =	6.56
Residual	.016828046	59	.000285221	Prob > F =	0.0130
Total	.018697749	60	.000311629	R-squared =	0.1000
				Adj R-squared =	0.0847
				Root MSE =	.01689

PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-------	-------	-----------	---	------	----------------------	--

MARKET	1.171842	.4576925	2.56	0.013	.2560018	2.087683
_cons	.0014241	.0021634	0.66	0.513	-.0029048	.005753
-----						
. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\ER - Expected Returns.xlsx", sheet("ARM") firstrow clear						
. regress PRICE MARKET						
Source	SS	df	MS	Number of obs = 61		
Model	.000022874	1	.000022874	F( 1, 59) = 0.06		
Residual	.023788679	59	.000403198	Prob > F = 0.8126		
Total	.023811553	60	.000396859	R-squared = 0.0010		
				Adj R-squared = -0.0160		
				Root MSE = .02008		
-----						
PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
MARKET	-.1237766	.5196636	-0.24	0.813	-1.163621	.9160678
_cons	.0042379	.0027224	1.56	0.125	-.0012097	.0096854
-----						
. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\ER - Expected Returns.xlsx", sheet("KEN010") firstrow clear						
. regress PRICE MARKET						
Source	SS	df	MS	Number of obs = 61		
Model	.003876219	1	.003876219	F( 1, 59) = 4.79		
Residual	.047708576	59	.00080862	Prob > F = 0.0325		
Total	.051584795	60	.000859747	R-squared = 0.0751		
				Adj R-squared = 0.0595		
				Root MSE = .02844		
-----						
PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
MARKET	1.474923	.6736548	2.19	0.033	.1269429	2.822903
_cons	.0034488	.0037076	0.93	0.356	-.0039701	.0108677
-----						
. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\ER - Expected Returns.xlsx", sheet("CARB") firstrow clear						
. regress PRICE MARKET						
Source	SS	df	MS	Number of obs = 61		
Model	.005069051	1	.005069051	F( 1, 59) = 0.65		
Residual	.45684103	59	.007743068	Prob > F = 0.4217		
Total	.461910081	60	.007698501	R-squared = 0.0110		
				Adj R-squared = -0.0058		
				Root MSE = .08799		
-----						
PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
MARKET	2.289838	2.830075	0.81	0.422	-3.37313	7.952806
_cons	.0129051	.0117037	1.10	0.275	-.010514	.0363241
-----						
. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\ER - Expected Returns.xlsx", sheet("KEN004") firstrow clear						

```
. regress PRICE MARKET
```

Source	SS	df	MS	Number of obs =	61
Model	.000035736	1	.000035736	F( 1, 59) =	0.10
Residual	.021922195	59	.000371563	Prob > F =	0.7576
-----				R-squared =	0.0016
Total	.021957931	60	.000365966	Adj R-squared =	-0.0153
-----				Root MSE =	.01928

PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
MARKET	-.0934865	.3014494	-0.31	0.758	-.6966853	.5097122
_cons	.0041485	.0024689	1.68	0.098	-.0007918	.0090887

```
. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\Kca\NSE DATA\ER - Expected Returns.xlsx",  
sheet("NMG") firstrow clear
```

```
. regress PRICE MARKET
```

Source	SS	df	MS	Number of obs =	61
Model	.00375909	1	.00375909	F( 1, 59) =	35.80
Residual	.00619491	59	.000104998	Prob > F =	0.0000
-----				R-squared =	0.3776
Total	.009954	60	.0001659	Adj R-squared =	0.3671
-----				Root MSE =	.01025

PRICE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
MARKET	.6448944	.1077802	5.98	0.000	.4292269	.860562
_cons	.0015199	.0013351	1.14	0.260	-.0011516	.0041914

```
. save "C:\Users\pnyaga.BROOKSIDE\Desktop\Kca\NSE DATA\REGRESS DATA 31.8.dta"  
file C:\Users\pnyaga.BROOKSIDE\Desktop\Kca\NSE DATA\REGRESS DATA 31.8.dta saved
```



**APPENDIX IV: Average Abnormal Returns (AAR), Cumulative Average Abnormal Returns (CAAR) and t Values of stock split announced companies**

<b>Average Abnormal Returns(AAR), Cumulative Average Abnormal Returns(CAAR) And T Values Of Stock Split Announced Companies</b>									
<b>EVENT WINDOW</b>	<b>AAR</b>	<b>CAAR</b>	<b>t-value (AAR)</b>	<b>T-VALUE (CAAR)</b>	<b>EVENT WINDOW</b>	<b>AAR</b>	<b>CAAR</b>	<b>t-value (AAR)</b>	<b>T-VALUE (CAAR)</b>
-30	-0.46%	-0.46%	(3.58)	(0.21)	0	6.90%	14.04%	<b>2.81**</b>	0.34
-29	0.66%	0.19%	1.08	0.02	1	-1.12%	12.92%	(0.43)	0.29
-28	0.25%	0.45%	0.35	0.04	2	-1.09%	11.83%	(1.52)	0.97
-27	-1.19%	-0.75%	(1.73)	(0.06)	3	-1.68%	10.15%	(2.24)	0.80
-26	-1.36%	-2.10%	(1.59)	(0.15)	4	-1.70%	8.45%	(2.91)	0.85
-25	0.82%	-1.28%	1.21	(0.11)	5	-0.56%	7.90%	(1.02)	0.85
-24	1.06%	-0.22%	1.70*	(0.02)	6	-1.10%	6.80%	(1.53)	0.56
-23	-0.60%	-0.82%	(0.72)	(0.06)	7	-0.47%	6.32%	(1.12)	0.88
-22	0.03%	-0.79%	0.04	(0.06)	8	-0.38%	5.95%	(0.37)	0.35
-21	-0.35%	-1.14%	(0.47)	(0.09)	9	0.44%	6.38%	0.72	0.62
-20	-0.43%	-1.57%	(0.80)	(0.17)	10	-0.22%	6.17%	(0.31)	0.51
-19	0.08%	-1.49%	0.12	(0.13)	11	-0.04%	6.12%	(0.06)	0.51
-18	0.10%	-1.39%	0.20	(0.16)	12	-0.68%	5.45%	(1.35)	0.64
-17	-0.06%	-1.45%	(0.14)	(0.19)	13	-0.77%	4.68%	(1.73)	0.62
-16	-0.42%	-1.87%	(1.26)	(0.33)	14	-0.44%	4.23%	(1.35)	0.76
-15	-0.07%	-1.94%	(0.15)	(0.25)	15	-1.50%	2.73%	(2.16)	0.23
-14	0.04%	-1.90%	0.10	(0.25)	16	-0.28%	2.45%	(0.35)	0.18
-13	1.47%	-0.43%	<b>2.04**</b>	(0.04)	17	-1.89%	0.56%	(1.61)	0.03
-12	0.62%	0.19%	<b>1.78*</b>	0.03	18	0.29%	0.85%	0.19	0.03
-11	0.59%	0.78%	0.85	0.07	19	0.73%	1.58%	1.16	0.15
-10	0.60%	1.38%	1.08	0.15	20	-0.27%	1.31%	(0.30)	0.09
-9	-0.15%	1.23%	(0.20)	0.10	21	0.21%	1.53%	0.26	0.11
-8	0.26%	1.49%	0.50	0.17	22	0.30%	1.83%	0.37	0.13
-7	-0.48%	1.01%	(0.75)	0.09	23	0.18%	2.00%	0.32	0.21
-6	0.63%	1.64%	0.79	0.12	24	-0.59%	1.41%	(0.77)	0.11
-5	0.10%	1.74%	0.12	0.12	25	0.56%	1.98%	0.64	0.13
-4	2.97%	4.71%	0.89	0.08	26	-0.87%	1.11%	(0.98)	0.07
-3	-0.52%	4.18%	(0.76)	0.35	27	-0.01%	1.10%	(0.01)	0.06
-2	1.87%	6.06%	<b>1.83*</b>	0.35	28	-0.12%	0.98%	(0.14)	0.07
-1	1.08%	7.14%	1.21	0.47	29	0.65%	1.63%	0.91	0.13
0	6.90%	14.04%	<b>2.81**</b>	0.34	30	-1.59%	0.04%	(1.21)	0.00

\*Significant at 10% \*\*Significant at 5%



## APPENDIX V: Paired t Test for Pre and Post Stock Split Announcement AAR

```

. import excel "C:\Users\pnyaga.BROOKSIDE\Desktop\KcaU\NSE DATA\FINAL DATA\PAIRED T
TEST.xlsx", sheet("Sheet1") firstrow

. ttest PREAAR == POSTAAR

Paired t test
-----+-----
Variable |      Obs      Mean   Std. Err.   Std. Dev.   [95% Conf. Interval]
-----+-----
PREAAR |      30   .0023783   .0016143   .0088419   -.0009233   .0056799
POSTAAR |      30  -.0046651   .001361    .0074544   -.0074486  -.0018816
-----+-----
diff |      30   .0070434   .0017654   .0096694   .0034328   .010654
-----+-----
mean(diff) = mean(PREAAR - POSTAAR)                                t = 3.9897
Ho: mean(diff) = 0                                                degrees of freedom = 29

Ha: mean(diff) < 0          Ha: mean(diff) != 0          Ha: mean(diff) > 0
Pr(T < t) = 0.9998          Pr(|T| > |t|) = 0.0004          Pr(T > t) = 0.0002

. correlate PREAAR POSTAAR
(obs=30)

|   PREAAR   POSTAAR
-----+-----
PREAAR |   1.0000
POSTAAR |  0.3053   1.0000

```

APPENDIX VI: t Table

**t Table**

cum. prob	$t_{.50}$	$t_{.75}$	$t_{.80}$	$t_{.85}$	$t_{.90}$	$t_{.95}$	$t_{.975}$	$t_{.99}$	$t_{.995}$	$t_{.999}$	$t_{.9995}$
one-tail	0.50	0.25	0.20	0.15	0.10	0.05	0.025	0.01	0.005	0.001	0.0005
two-tails	1.00	0.50	0.40	0.30	0.20	0.10	0.05	0.02	0.01	0.002	0.001
df											
1	0.000	1.000	1.376	1.963	3.078	6.314	12.71	31.82	63.66	318.31	636.62
2	0.000	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327	31.599
3	0.000	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215	12.924
4	0.000	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	0.000	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	0.000	0.718	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	0.000	0.711	0.896	1.119	1.415	1.895	2.365	2.998	3.499	4.785	5.408
8	0.000	0.706	0.889	1.108	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	0.000	0.703	0.883	1.100	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	0.000	0.700	0.879	1.093	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	0.000	0.697	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	0.000	0.695	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	0.000	0.694	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	0.000	0.692	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	0.000	0.691	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	0.000	0.690	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	0.000	0.689	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	0.000	0.688	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	0.000	0.688	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	0.000	0.687	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	0.000	0.686	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	0.000	0.686	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	0.000	0.685	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.485	3.768
24	0.000	0.685	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	0.000	0.684	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	0.000	0.684	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	0.000	0.684	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	0.000	0.683	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	0.000	0.683	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	0.000	0.683	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.385	3.646
40	0.000	0.681	0.851	1.050	1.303	1.684	2.021	2.423	2.704	3.307	3.551
60	0.000	0.679	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.232	3.460
80	0.000	0.678	0.846	1.043	1.292	1.664	1.990	2.374	2.639	3.195	3.416
100	0.000	0.677	0.845	1.042	1.290	1.660	1.984	2.364	2.626	3.174	3.390
1000	0.000	0.675	0.842	1.037	1.282	1.646	1.962	2.330	2.581	3.098	3.300
<b>Z</b>	0.000	0.674	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.090	3.291
	0%	50%	60%	70%	80%	90%	95%	98%	99%	99.8%	99.9%
	<b>Confidence Level</b>										

**APPENDIX VII: Companies Listed at the Nairobi Securities Exchange (NSE)**

<b>FEATURES OF NSE EQUITY SECURITIES</b>	
<b>SECURITIES</b>	<b>TRADING SYMBOL</b>
<b>AGRICULTURAL</b>	
1. Eaagads Ltd	EGAD
2. Kakuzi Ltd	KUKZ
3. Kapchorua Tea Co. Ltd	KAPC
4. The Limuru Tea Co. Ltd	LIMIT
5. Sasini Ltd	SASN
6. Williamson Tea Kenya Ltd	WTK
<b>AUTOMOBILES &amp; ACCESSORIES</b>	
7. Car & General (K) Ltd	C&G
8. Marshalls (E.A.) Ltd	MASH
9. Sameer Africa Ltd	FIRE
<b>BANKING</b>	
10. Barclays Bank of Kenya Ltd	BBK
11. CFC Stanbic of Kenya Holdings Ltd	CFC
12. Diamond Trust Bank Kenya Ltd	DTK
13. Equity Group Holdings Ltd	EQTY
14. Housing Finance Group Ltd	HFCK
15. I&M Holdings Ltd	I&M
16. KCB Group Ltd Ord	KCB
17. National Bank of Kenya Ltd	NBK
18. NIC Bank Ltd	NIC
19. Standard Chartered Bank Kenya Ltd	SCBK
20. The Co-operative Bank of Kenya Ltd	COOP
<b>COMMERCIAL AND SERVICES</b>	
21. Atlas African Industries Ltd	ADSS
22. Express Kenya Ltd	XPRS
23. Hutchings Biemer Ltd	HBER
24. Kenya Airways Ltd	KQ
25. Longhorn Publishers Ltd	LKL
26. Nairobi Business Ventures Ltd	NBV
27. Nation Media Group Ltd	NMG
28. Standard Group Ltd	SGL
29. TPS Eastern Africa Ltd	TPSE
30. Uchumi Supermarket Ltd	UCHM
31. WPP Scangroup Ltd	SCAN
<b>CONSTRUCTION &amp; ALLIED</b>	
32. ARM Cement Ltd	ARM
33. Bamburi Cement Ltd	BAMB
34. Crown Paints Kenya Ltd	BERG
35. E.A.Cables Ltd	CABL
36. E.A.Portland Cement Co. Ltd	PORT

<b>ENERGY &amp; PETROLEUM</b>	
37. KenGen Co. Ltd	KEGN
38. KenolKobil Ltd	KENO
39. Kenya Power & Lighting Co Ltd	KPLC
40. Kenya Power & Lighting Ltd 4% Pref 20.00	KPLC.P0004
41. Kenya Power & Lighting Ltd 7% Pref 20.00	KPLC.P0007
42. Total Kenya Ltd	TOTL
43. Umeme Ltd	UMME
<b>INSURANCE</b>	
44. Britam Holdings Ltd	BRIT
45. CIC Insurance Group Ltd	CIC
46. Jubilee Holdings Ltd	JUB
47. Kenya Re Insurance Corporation Ltd	KNRE
48. Liberty Kenya Holdings Ltd	CFCI
49. Pan Africa Insurance Holdings Ltd	PAFR
<b>INVESTMENT</b>	
50. Centum Investment Co Ltd	ICDC
51. Home Afrika Ltd	HAFR
52. Kurwitu Ventures Ltd	KURV
53. Olympia Capital Holdings Ltd	OCH
54. Trans-Century Ltd	TCL
<b>INVESTMENT SERVICES</b>	
55. Nairobi Securities Exchange Ltd Ord 4.00	NSE
<b>MANUFACTURING &amp; ALLIED</b>	
56. A.Baumann & Co Ltd	BAUM
57. B.O.C Kenya Ltd	BOC
58. British American Tobacco Kenya Ltd	BAT
59. Carbacid Investments Ltd	CARB
60. East African Breweries Ltd	EABL
61. Eveready East Africa Ltd	EVRD
62. Flame Tree Group Holdings Ltd	FTGH
63. Kenya Orchards Ltd	ORCH
64. Mumias Sugar Co. Ltd	MSC
65. Unga Group Ltd	UNGA
<b>TELECOMMUNICATION &amp; TECHNOLOGY</b>	
66. Safaricom Ltd	SCOM
<b>REAL ESTATE INVESTMENT TRUST</b>	
67. STANLIB FAHARI I-REIT. Ord.20.00	FAHR