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Relationship between Returns on Classified Split Securities and Market Portfolio in Nairobi Securities Exchange

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Abstract: **Maximizing shareholders wealth has been a driving force for all corporate actions including stock splits. There have been numerous empirical studies covering diverse aspects of a stock split. The splitting company's stock price has been seen to react differently through the stages of the split life-cycle, starting from the event announcement date to the record date, and even beyond. While some researchers believe that stock split announcements are a signal of the management's optimism about the company's future earnings, others argue that the firms use the positive reaction to the split announcement to raise more funds at a higher price after the split. Yet others believe that a split is meant to boost liquidity. The objective of this study was to investigate the effect of stock split on stock prices for firms listed at the Nairobi Securities Exchange. Companies that split their stock between the year 2006 and 2015 will be studied to establish whether there were any abnormal returns recorded within the event window and calculate the magnitude of the returns. The event study methodology was used to examine the behavior of firms' stock prices around the stock split. Abnormal returns within the event will be measured. objectives of the study were to establish the behavior of securities returns around time of stock split and to establish the relationship between stock split and securities' returns at the Nairobi Stock Exchange. To achieve these objectives the event study methodology of the single-index market model was used to regress the stock returns and the market returns (NSE 20 index) during the estimation period to get the constants determined by simple regression using daily data for up to 120 days before the 21 days test period. A return of firm which did not announce stock split but whose P/E ratio was equal or close to the sample firm was used as a benchmark for abnormal return computation. The abnormal returns were calculated as the difference between the return of the sample firm and that of the matching control firm over the test period. The abnormal returns were aggregated by averaging them across firms and cumulating them over the test period.**

Keywords: **Splitting Company's Stock Price, Split Life-Cycle.**

1. BACKGROUND OF THE STUDY

Stock splits remain one of the most popular and least understood phenomena in equity markets. At the Nairobi Securities Exchange there is insufficient evidence from prior research of the effects of stock splits on the securities returns. This study sought to establish such effects using pure stock splitting firms. These are firms that only announced stock splits and not mixed with those that announced stock dividends.Prior literature give evidence of event clustering during stock split announcements as firms tend to announce dividends increases alike. To mitigate for possible effect of event clustering on the tests results, control firm approach will be employed. This involved selection of a firm which did not perform stock split but with similar characteristics as the sample firm. Such a matching firm will be used in place of the sample firm that had simultaneous dividend announcement.The findings of the tests performed reveal that the stock splits signal to the market. The market interpret stock split as good information as returns are observed to increase significantly around the time of stock split announcement.

2. STOCK MARKET GLOBAL PERSPECTIVE ON STOCK SPLITS

Multiple researchers have proven that stock splits effectively lead to increased volatility. Desai, Nimalendran and Venkataraman examined sample splits consisting of 366 split accouterments by 41 firms listed on the NASDAQ .The authors, categorizing volatility into permanent (information driven) and transient (noise driven) components, found that median pre-split 5-day, 10-day, 20-day and 30-day volatility measures increase in both noise-driven and information-driven components. Ohlson and Penman in their research show that stock splits cause short-term increases in volatility upon announcement and long-term increases in volatility after the date the split is effective. Another method of capturing volatility change caused by stock splits is examining the behavior of options written on such stocks. Philip Gharghori, Edwin D. Maberly and Annette Nguyen examined the implied volatility of 1780 stock split announcements spanning the period 1998 to 2012. The authors conclude that information-driven option traders expect increase in stock volatility, which is reflected in the implied volatility of both calls and puts. The researchers examined the behavior of option traders and observed that prior to the split announcement the implied volatility of short-dated options increases, which suggests that traders take short-term speculative positions based on upward expectations in volatility. During the announcement period, an expected increase in volatility is reflected in the market, as well as in both short- and long-dated options.

With Apple stock trading above $500, an investor at the company's annual shareholder meeting asked Chief Executive Officer Tim Cook about the pros and cons of a stock split. Cook said the board considered a stock split and determined that in most cases, splits "do nothing" for shareholders. That's a new take for Apple, which has split its stock three times, most recently in 2005. Companies often split their stock when share prices get high Apple instituted a 2-to-1 split in 2005, when its shares were about $80 to bring them down to levels more accessible to individual investors. Many investors like splits, viewing them as a sign of management's confidence in the company's future. One CEO famous for shunning splits is Warren Buffett, who tries to discourage short-term trading in Berkshire Hathaway shares, saying he wants shareholders to view themselves as "owners" who will hold their stake for the long haul. The shares now go for $120,000. But Buffett has had to bow to investor demand for affordable shares. In 1996 the company created a new share class, B shares, worth 1/30 of the A shares. In 2010 it split the B shares 50-to-1. They now trade at about $80.Splits don't have any impact on a company's total value. After a 2-for-1 split, for example, a company would have twice the number of shares at half the price. Academics say stock splits don't help investors. "Stock splits are empty gestures," says Aswath Damodaran, a finance professor at New York University's Stern School of Business. He says lowering stock prices can enlarge the pool of potential investors; with more investors bidding for a stock, the price can go up. Still, he says, any such effect is "overwhelmed" by the increased transaction costs of buying a lower-priced stock because the spread between the bid and ask prices represents a larger percentage of the stock price. Indeed, after stocks split, professional investors are more likely to sell, while unsophisticated individual investors are more likely to buy, according to research from the Yale School of Management.

MasterCard announced a 10-for-1 stock split after the closing bell, as well as a dividend boost and a $3.5 billion buyback program. Shares were up modestly in late trading on the news.It's not hard to see why the company wanted to split the shares: At closing price of $778.88, shares were getting into that heady range in which few companies tread. The stock, in fact, has been on a nearly vertical ascent since its 2006 IPO, and is up roughly 60% this year alone. MasterCard is bucking the trend with this move. Only 11 companies in the S&P 500 have split their shares this year, the fourth lowest number on record. MasterCard makes that 12, but it's not going to alter the general trend.

Shares were up in late trading, rising 2.3% to $781.00, the split is effective. Based on its current share price, the $781 stock will be worth only $78.10 after the split; of course, investors will have nine other new shares to go along with the one. The company's shares outstanding will increase from 120 million to 1.2 billion after the split. There's no real science behind stock splits; companies do it to make their stock more attractive to investors. So if the board feels the stock price is keeping investors away, they split. There are a few reasons behind the decline in their popularity, as our Jason Zweig wrote. Then again, there are only a handful of companies that have shares trading above the $500 mark anyway: there are only six stocks over $500, and two above $1,000.Stocks splits may be mostly dead, but mostly dead is partially alive.

Stock Splits at the Nairobi Securities Exchange:

Stock splits are a recent phenomenon at Nairobi Securities Exchange. Unlike in more established markets where stock splits are more entrenched, firms intending to perform stock splits at Nairobi Securities Exchange must seek additional approval of Capital Markets Authority (CMA) other than that of the shareholders. Section 6.2 of the Nairobi Securities Exchange listing Manual does not mention stock split as one of the specific methods available to a firm intending to list

additional securities. Under this section, an issuer may seek the listing of additional securities of the same class as those already listed by way of a rights issue; capitalization issue (or bonus issue) in lieu of dividend or otherwise; scrip dividend; or any other method approved by the Authority. In Kenya stock splits/stock dividends are fairly frequent mode of paying dividends. In the last 10 years about 20% of all companies quoted at Nairobi Securities Exchange have declared stock split/stock dividend in each year. At the same time the rationale behind issuing stock dividends has been put into question with some companies seeming to abuse the issue. Good examples cited are; Kenya Finance bank which declared stock dividends in 1994/1995 and subsequently will be put under receivership a few months after the 1995 dividend declaration; Unga group in 1998 issues stock dividends and subsequently reporting huge losses the same year (Mbugua, 2006).The first ever stock split to be implemented at Nairobi Securities Exchange was Kenya Oil Limited (KENOL) which took place in June 2004. The company share price had reached a pitch height of Kenya Shillings 350 per share. On announcement of 10:1 stock split ratio the share price reached a record high of Kenya Shillings 420 per share to the date of splitting.

The stock market in Kenya:

One crucial tool for allocating the available capital to the most efficient users is the capital market. Capital markets are markets for long term funds with maturity period of more than one year. This is where financial instruments like debentures, term loans, bonds, ordinary shares, and so on, are traded. Capital market financial institutions include the stock exchange, hire purchase companies, building societies and leasing firms. The capital market is very key as it provides long term funds which are necessary for investment decisions. Capital markets also facilitate international capital flow as well as acting as vehicles through which foreign investments find their way into the market. In Kenya, the capital market is an important arm of the general financial market that provides investment opportunities, allocates savings to real investment, distributes financial resources of long term nature, offers investment advice to investors, mobilizes capital and hence help achieve real economic output, and also helps in pricing of securities.

In the 1980s, the Kenya government realized the need to design and implement policy reforms to foster sustainable economic development with an efficient and stable financial system. In 1989, the Capital Markets Authority (CMA) was formed to assist in the creation of a conducive environment for growth and development of the country's capital market. A stock exchange is one of the financial institutions of the capital market. Stock exchanges are developed along with and are an essential part of the free enterprise system. The need for this kind of market came about as a result of two major characteristics of joint stock (public limited) company shares: they are irredeemable and, for them to be transferred, there is need for signing of a share transfer from, to facilitate the updating of the issuing company's shareholders register. A stock exchange is a special market place where already held stocks and bonds are bought and sold. An efficient stock market is not a choice for any economy that intends to utilize scarce resources for development. A market is said to be efficient if the prices of securities or assets reflect all the available information. A market can be efficient in the weak-form, the semi-strong form or the strong form. The former refers to where share prices reflect only all available past information. The semi strong form exists when prices reflect all public information (both past and present). A strong form of market efficiently exists when prices reflect all information both public and private (Fama, 2006)

The Efficient Market Hypothesis (EMH) asserts that for a market to be efficient, prices must at all times reflect all available relevant information. Dixon and Holmes (2006) explain that a respond at Nairobi Securities Exchange to new information in terms of a price adjustment must be both almost instantaneous and of a direction and size that fully reflects the significance of the information. The most important concept of a stock market is pricing efficiency. Prices react to new information in varying proportions, directions and length of time. This study looks into these reactions by stock prices following announcement of stock splits by firms selected from Nairobi Securities Exchange.

The Nairobi Securities Exchange (NSE):

The Nairobi Securities Exchange was constituted in 1954 as a voluntary association of stock brokers registered under societies act. Since its inception the Nairobi Securities Exchange has undergone various major changes. In early 1980s the government began to focus more on Nairobi Securities Exchange on the country's financial system. It aimed at adopting more friendly reforms to foster competition and more sustainable economic growth. These reforms gained momentum in the late 1980s with privatization program targeting the state corporations such as Kenya Commercial Bank and Kenya Airways. The Nairobi Securities Exchange was chosen as the market in which shares of the government in these state corporations were floated to the public (Kihumba, 2006).In line with governments aim to re-emphasize its commitment to the financial reform process and further boost investors' confidence, a regulatory body to oversee Nairobi Securities

Exchange activities, amongst other objectives was created through the act of parliament, the Capital Market Authority Act (Cap 485 A) Laws of Kenya. The key words in the objectives of creating the Capital Markets Authority were "promotion" and "facilitation" of an orderly, fair and efficient capital market in Kenya (Kihumba, 2006) Nairobi Securities Exchange is an example of an emerging stock market that has been characterized by humble beginnings yet has grown considerably over time. It stands out as average stock market with great potential for growth, one that is making considerable effort to be a more significant driver of the economy in Kenya and East African region. In 1994 the Nairobi Securities Exchange was rated by the International Finance Corporation (IFC) as the best performing emerging market in the world with a return of 179% in dollar terms. From 2003, the Nairobi Securities Exchange has experienced robust activity and high returns on investments. It is a reference point in terms of setting standards for other markets in the East African region. As an emerging capital market it has faced challenges to its development and growth such as economic depression and political uncertainty, among others (Kibuthu, 2006).Dickson and Muragu (2007) provide evidence of market efficiency in Nairobi Securities Exchange. They present evidence that small markets such as Nairobi Securities Exchange provide empirical results consistent with weak-form efficiency.

Statement of the Problem:

Efficient Market Hypothesis (EMH) contends that prices in capital markets reflect all available information. However, empirical tests from various markets done in the past have shown mixed results. Previous studies at the Nairobi Securities Exchange have reported cases of prices overreacting to new information and remaining unstable for many days, which raise doubts about a market's ability to instantaneously and accurately reflect the correct significance of information. For example, Crown Berger's share price fell from Kshs.38.00 to Ksh.8.00 in August 2008 and later settled at Ksh.26.00 after it released its half-year results(Nyamosi 2011).He recommended that a study with a longer time period be conducted since his 28-day study noted that excess returns did not cease within the study period. Nonetheless, it is safe to conclude that an earnings announcement event will generally cause the stock price to go up. A major problem exists with stock split announcements; the investors view and studies results have been known to vary considerably. Most investors believe that prices of stocks will increase in value after stock split news because share prices are lower. In contrast, advocates of EMH would not expect any changes in stock value. Many studies done on stock splits in other markets found that majority of the time, markets reacted positively to stock split news. In many of the studies, stock split announcements elicited positive results in support of the signaling, market maker and trading range hypotheses. For instance, Dhar and Chhaochharia (2008) carried out a research on market reaction to stock splits and bonus issues in the Indian Stock market. They found a positive average abnormal return which will be very significant. They noted that stock split announcements resulted in positive returns during the entire event window although the effect on announcement date will be not that sharp. They recommended further research into this phenomenon while appreciating that stock splits are more common to momentum stocks whereas bonus issues are made for all types of stocks. There were however, studies that found results to the contrary.

There then seemed to be no agreement on the effects of the stock splits announcements. The studies done in the Kenyan market have also been too few to give a conclusive result, hence the need to carry out further research. There has been no consensus on how markets generally reacted to stock splits news. It will be then not possible to generalize the kind of market reaction elicited by stock split to the Kenyan market, hence there existed a gap. This problem is what triggered the researcher to conduct an investigation into the reaction of stock prices to stock splits announcements. The study therefore sought to establish what happens to a stock's price following a stock split announcement.

Objectives of the Study:

The main objective of the study is to establish the relationship between returns on classified split securities and market portfolio in Nairobi Securities Exchange.

3. THEORETICAL REVIEW

In theory, stock split is merely an accounting change, which leaves investors no better or worse off than they were before the split. Yet stock splits are relatively common occurrences. This implies that there must be some benefit, either real or perceived, that results from a firm splitting its stock. Survey evidence indicates that managers split their stock to get the stock's price into some optimal trading range, (Baker and Gallagher, 2006).

Market Efficiency Theory:

Market efficiency theory suggests that market is rational and provides correct pricing. That is, the current prices of securities are close to their fundamental values because of either the rational investors or the arbitragers buy and sell action of underpriced or overstocked priced stocks. On the other hand, observed market anomalies have a challenge for this argument. Fama, Fisher and Roll (2008) presented a landmark paper on the efficient market which focused on comprehensive review of the theory and beyond the theory to empirical work. He defines market efficiency very clearly as a market in which prices always fully reflect all available information. Fama distinguished three nested information sets: past prices, publicly-available information and all the information including private information. Efficient market hypothesis is divided into three stages as the weak form, semi-strong form, and the strong form with respect to the availability of the above mentioned three information sets. Weak form of efficiency claims that the current stocks prices already reflect all historical market data such as the past prices and trading volumes, Bodie, Kane and Marcus (2007). The assertion of weak form of efficiency is very much consistent with the findings of researches on random walk hypothesis; that is, the price changes from one time to another are independent, (Dixon,2006).

Semi strong form of efficiency states that, in addition to the past prices, all publicly available information including fundamental data on the firms' product line, earnings forecast, dividend, stock splits announcements, quality of management, balance sheet composition, and patent held, accounting practices etc. should be fully reflected in security prices. Thus, one cannot make superior profit by using the fundamental analysis in the market which is efficient in the semi-strong form. Strong form of efficiency states that market prices reflect all information including the past prices and all publicly available information plus all private information. In such a market, prices would always be fair and any investor, even consider traders cannot beat the market.

Liquidity Hypothesis:

Liquidity is described by Lamoureux and Poon (2006) as essentially the degree to which a trader is able to effect a transaction at a favorable (equilibrium) price. There are many measures of liquidity, which Katerina et al. (2006) has expressed as either measures of friction or activity reflecting the two dimensions of liquidity. Friction is identified as the price concession for immediacy; whereby activity measures reflect extent of trading. An increase in a friction measure indicates reduced liquidity, while an increase in an activity measure indicates increased liquidity. Friction measures include the bid-ask spread measures, price measures, and return measures. Activity measures can be categorized into depth measures, volume measures and size measures. The most common rationale behind stock splits according to liquidity hypothesis as presented by Leung et al. (2006) is that there is an optimal price range for securities. This optimal price range is a relatively lower price for the underlying security. It is assumed that the liquidity/marketability of the security will improve after the split, as the lower price of the stock will attract more small investors.

According to Angel (2008) positioning a stock within its optimal trading range increases liquidity as it lowers the nominal share price, which lowers the cost of a round lot of stock. Liquidity is also created by the increased number of new shareholders being attracted by the lower share price. Angel (2009) argues that liquidity is further boosted by the fact that stock splits provide stronger financial incentives for intermediaries such as stockbrokers and dealers to promote the stock. Larger volume due to a greater number of shares traded tends to attract broker/dealer attention, which in turn attracts additional investor attention.

4. RESEARCH METHODOLOGY

This chapter lays its focus on the method and procedures that was used to conduct the investigation.

Research Design:

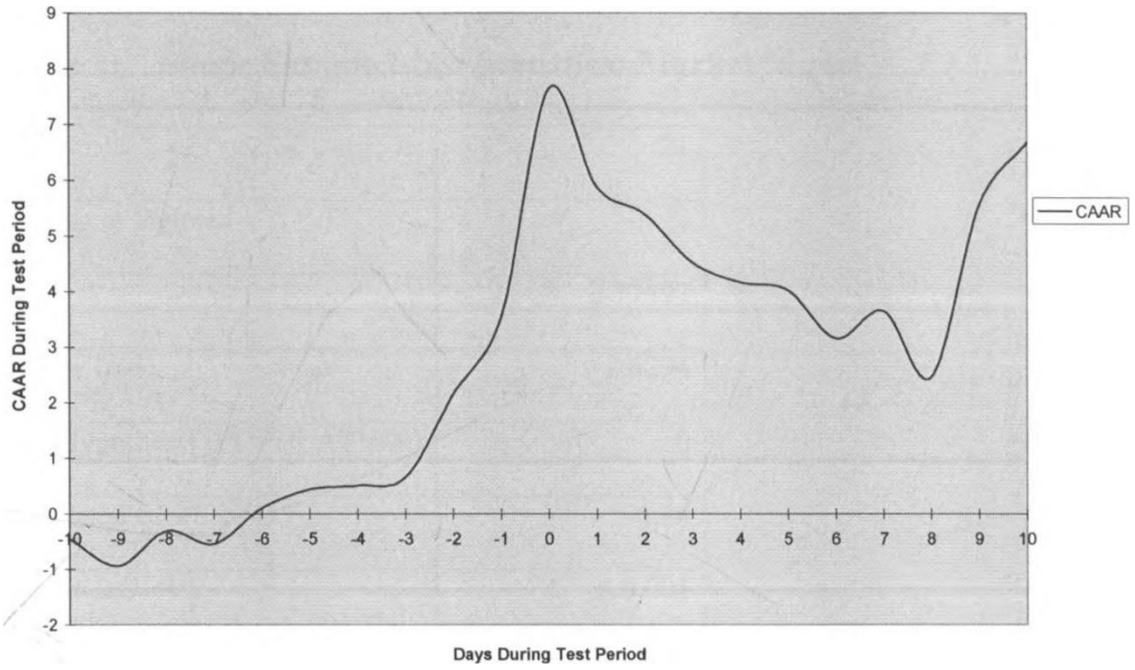
A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure (Kothari, 2009).According to Cooper and Schindler, (2011), research design is the plan and structure of investigation so conceived as to obtain answers to research questions. The plan is the overall scheme or program of the research. It includes an outline of what the investigator will do from writing hypotheses and their operational implications to the final analysis of data. The study adopted a descriptive research design. Descriptive research design seeked to provide the frequency of a given event and it is usually used when the problem is clear and there exist theories and information. It also determined the relationship between dependent and independent variables and to establish any association between these variables. The researcher chose this research design

because the study looks into the relationship between stock splits announcement events and stock price changes. According to Mugenda and Mugenda (2008), descriptive survey design helps a researcher to gather, summarize, present and interpret information for the purpose of clarification.

5. RESULTS AND DISCUSSIONS

The two objectives of the study were to establish the behavior of securities returns around time of stock split and to establish the relationship between stock split and securities' returns at the Nairobi Stock Exchange. To achieve these objectives the event study methodology of the single-index market model was used to regress the stock returns and the market returns (NSE 20 index) during the estimation period to get the constants determined by simple regression using daily data for up to 120 days before the 21 days test period. The constants were then used to predict stock returns during the event window hence determine the excess returns (or residuals). The excess returns were standardized before aggregating the same across sample firms and over the event period to determine the cumulative average abnormal returns (CAAR). This method, as argued by Henderson (1990) has been proven to be robust to most of econometric problems of regression models such as; non-normality of residuals, serial correlation and non-synchronous trading, residuals variance shifts, correlation between residuals and the market return and contemporaneous covariance. The CAAR was graphed to observe the behavior of stock return on stock split announcement.

CAAR < Market Model)



To establish whether the CAAR observed were statistically significant over the test period, t-test was conducted. A **null hypothesis** was constructed that stated that the mean average of residuals over the test period is zero; that is to suggest there is no abnormal reaction to stock split announcement. The **alternative hypothesis** was that the mean average residual over the test period is not equal to zero. A two-tailed single sample test was conducted to test the null hypothesis.

Table 1 presents the summary statistics for 2tailed t-test at 95% confidence level. A low value of p (< 0.001) presented on the results supports rejection of the null hypothesis. The P value is a probability, with a value ranging from zero to one that the mean average residual over the test period will be greater than zero. There is evidence that the actual mean of residuals over the test period is significantly different from the hypothesized mean of zero.

Table 1: Single Sample t-test Statistics: Market Model

N	21
Missing or Deleted	0
Mean	2.77597
S.D (n-1)	2.6294

Null Hypothesis (POPULATION)	0
Calculated t with 20 D.F.	4.84
p (2 - sided test)	<0.001
95% C.l. about Mean	(1.57676,3.97517)

A low value of p supports rejection of the null hypothesis. There is evidence that the actual mean is different from the hypothesized mean.

Test of Robustness:

When using event study methodology to measure the abnormal share price reaction of an event, the clustering of corporate events is a common problem. Fama et al. (2009) suggests that when a dividend-paying firm announces a split it is also most likely to announce a dividend increase. Table 2 summarizes stock split firms and other events that occurred concurrently with the stock split announcement at the NSE

Table 2

Company	Split Rati	Announcement Date	Other Event	Dividend Announcement	Previous Dividend	Current Dividend	Increase
Kplc	1:8	October – 2010	Nil	Nil	Nil	Nil	Nil
Arm	5:1	May – 2012	Bonus	Final Div	15.00	18.00	3.00
Ea Cables	10:1	August 10, 2006	Nil	Nil	Nil	Nil	Nil
Icdc	10:1	October 19, 2006	Nil	Final Div	3.00	4.00	Loo
Barclays	1:5	November 8, 2006	Bonus	Nil	Nil	Nil	Nil
Sasini	5:1	December 18, 2006	Bonus	Nil	Nil	Nil	Nil
CMC	10:1	January 11,2007	Nil	1st & Final	1.50	2.30	0.80
KCB	10:1	March 5, 2007	Nil	1st & Final	4.00	5.00	Loo

To control for the potential impact of event clustering the control firm approach returns was employed. A return of firm which did not announce stock split but whose P/E ratio was equal or close to the sample firm was used as a benchmark for abnormal return computation. The abnormal returns were calculated as the difference between the return of the sample firm and that of the matching control firm over the test period. The abnormal returns were aggregated by averaging them across firms and cumulating them over the test period.

6. CONCLUSIONS

Stock splits remain one of the most popular and least understood phenomena in equity markets. The widely-held view among investors is that stock splits are a positive event for the company. On the other hand, neo-classical financial theory suggests that splits are simply numerical changes that should have no impact on the market value of the firm. Financial economic studies over the years have addressed this apparent contradiction and discovered empirical regularities associated with stock splits. Prior related research at the NSE had failed to make important distinction between stock dividend and stock split. This study sought to establish the behavior of securities of stock-splitting firms at Nairobi Stock Exchange. Using event study methodology tests were performed to establish the reaction of the securities around the time of stock split announcement. The control firm approach was used to control for event clustering. This involved selection of a firm with similar characteristics as the stock splitting firm in terms of size market value and book-to- market ratios. Positive abnormal returns are observed on the day of stock split announcement as well as two days before announcement and several days after the announcement. The two tailed t-tests present statistically significant results to support that stock split announcement has effect on returns of the stock-splitting firms. This is to suggest the market perceives a stock split as good news according to the signaling hypothesis, for the time period the event was investigated. There are consistent results observed after controlling for event clustering.

7. RECOMMENDATIONS

From the study findings, it was established that stock split positively impacts on the share prices therefore the policy on this event may need to be reviewed by CMA to encourage firms to adopt stock splitting. Secondly, to reduce abnormal reaction of prices caused by speculative trading by retail investors, the public should be educated on the operations of NSE in a bid to encourage more long-term investments than short-term ones as well as impart knowledge on the public regarding stock market activity. NSE should maintain a record of the dates of various events and make the information available to encourage scholars to undertake research on these events. That way, they will gain from the research and researchers would have easy access to information regarding stock split CMA should ensure compliance with insider trading laws, guidelines, rules and regulations by effectively monitoring the market. This will eliminate incidences of collision between brokers and traders, inside trading and leaking information and hence boosting investor's confidence.

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