

**TESTING THE FIRM SIZE EFFECT ON STOCK MARKET RETURNS AT
THE NAIROBI SECURITIES EXCHANGE**

BY

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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

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DEDICATION

I wish to dedicate this project to one Mr Simon Munene and my daughter Stecy Wanjiku for being with me and providing me with financial support throughout the academic period, my parents for laying the foundation on my education and instilling the virtue of hard work from my early years of education. Thank you to my siblings for their love, prayers and moral support throughout the entire academic period.

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ABBREVIATION

ANOVA	Analysis of Variance
CIC	Capital Issue Committee
CMA	Capital Markets Authority
EMH	Efficient Markets Hypothesis
FTSE	Financial Times Stock Exchange
NSE	Nairobi Securities Exchange
NYSE	New York Stock Exchange

ABSTRACT

The study sought to test the existence of small firm effect on stock market returns at the Nairobi Securities Exchange. Secondary data was obtained from NSE reports for the Firms listed. The listed stocks were divided into four quartiles based on market capitalization. The study used only two quartiles (quartile one and quartile four) in the analysis. Quartile one consisted of the largest firms while Quartile Four consisted of the smallest firms as per market capitalization. Analysis of the data was done with the aid of SPSS (version 21) and Microsoft's Excel (2013). NSE All Index (NASI) was used as the proxy for market stock returns and was regressed against the small firm and big firm stock returns. The study established that there is a very strong relationship ($R=0.750$) between market returns and small firm stock returns. The adjusted R-Square value of 0.964 implies that 96.4% of the total variance in market stock returns can be attributed to changes in small firm stock returns and big market stock returns. To test the significance of individual parameters, the t-test was used. Further, ANOVA statistics established that the regression model was highly reliable and good for data at 100% confidence. The study established that there is a positive and statistically significant small firm effect on the stock listed at NSE. This study concludes that there is a positive and statistically significant small firm effect at the NSE. This implies that market stock returns are highly influenced by the stock of small firms. The stock investors who want to make profit in stock trading should invest the stocks of small firms. The researcher recommends that investors wishing to yield more returns in stock trading should invest more on the stocks of the small firms listed at the NSE.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

In the recent years, financial researchers have been attracted by the stock return anomalies. Financial market anomalies are not predicted by a central paradigm or theory as they are cross sectional and follow the time series patterns in their security returns. The anomalies are categorized as size effects, earning/price ratio, calendar, and will concentrate on testing the small firm effect on stock market returns at the Nairobi Securities Exchange (Kuhn, 1970). The results are empirical and are inconsistent with the theories of asset pricing behavior.

Banz, 1981 according to the small firm effect, it's the cross section of stock returns and that its stock returns is a decreasing function of the firm size. The common stock returns and the size of a firm are inversely related (Annaert and Combez, 2002). The persistent abnormal returns that are obtained by capitalization firms that are small realize the small firm effect. The small firm effect is however difficult to be explained within the efficient market framework. Banz (1981) documented this phenomenon for U.S stocks and it also happens to be the first researcher.). Research on the size effects has been confirmed that it exists by Levis (1985) and Corhay, Hawawini and Michel (1988). However there have been a number of attempts being done at further analyzing the small size effect. Some cross sectional behavior of expected returns are described by the book to market value ratio (Timmermann, 1996).

According to EMH stock past prices have no basis in predicting the future prices. In an efficient market all the information is readily available and it's reflected in the stock market prices.

Despite the modern financial theory not explaining some anomalies, the market efficiency should not be overlooked for behavioral finance. According to the conventional theories, most of the anomalies are considered to be short term chance events that are corrected over some time (Fama, 1970) the leading securities exchange in East Africa is currently The NSE and it's also the fastest growing economies in Sub Saharan Africa. The NSE is composed of four major investments that are independent ,namely; Futures and options Market Segments, Alternative Investments' Market Segment(Its provides access to capital to small and medium sized companies with high potential growth), Main Investments Market Segment(it has most stringent listing requirements and it's also similar to past structure of securities exchange) and Fixed Income Securities Market Segment (It's a window that provide trading for fixed income securities such as treasury bonds).The capital markets authority provides jurisdiction for the operation of NSE. One of the members of Association of Futures Market is NSE and it's also happens to be a partner in exchange in the United Nations-led SSE initiative, (NSE, 2017).

Kihenjo (2016) tested the small size effect on stock market returns at the Nairobi Securities Exchange for the period 2011 to 2015.The population was on the 65 listed firms. The secondary data for analysis was gathered from the firms listed at the NSE. The listed stocks were divided into 4 quartiles based on market capitalization. The study used only two quartiles (quartile one and quartile four) in the analysis. Quartile one consisted of the largest firms while Quartile Four consisted of the smallest firms as per market capitalization. The findings were that big firms recorded relatively poor results compared to the returns of the small firms.

1.1.1 Small Firm Effect

Cheung et al (1994) defines the persistent abnormal returns that are obtained by small

capitalization firms as small firm effect. Studies have been conducted and the findings are that where risk is measured by market beta, In terms of value of equity, large firms earn lower returns in terms of equity value than smaller firms of equivalent risk. Dimson and Marsh (1986) found that the annual returns of large stocks did not exceed the returns of the small stocks thus referring the anomaly to as the small size effect.

Banz (1981) observed that excess returns are earned by holding stocks of low capitalization firms. The findings on studies of small firm effect have several implications. It tests market efficiency and provides to companies profitable strategies. There are differentiate ways of measuring the size of a firm, the ways are number of issued stock and achieved volume, market capitalization and total assets. Market capitalization is value that accompany can be bought in an open air market.

Roll (1983) found that about half of the size effect can be attributed to the use of daily vs. annual holding periods in calculation of risk-adjusted returns. These investigators conclude that significant abnormal returns still exist. Roll (1981) suggests that infrequent trading may give rise to underestimated betas for small firms, because of the greater autocorrelation of returns in such circumstances.

There have been changes in the NSE that are massive; this has resulted to the revolution in the way businesses are being conducted. The effectiveness and efficiency in trading has been witnessed due to the technological changes that have increased in the markets. The number of firms listed has increased over the years, the trading hours too. The NSE has increased 65

compared to the earlier years. With the new listings diversified sizes, stock returns have been presented in the market. Oluoch, 2003 researched whether there is existence of size effect at the NSE, however the findings was that the anomaly in the market could not be predicted of its prevalence or existence. An investigation on the interrelationships between January effect and small firm effect at Nairobi Securities Exchange, the findings were that between January effect and the small firm effect is that it was not significant (Lukale, 2007).

1.1.2 Stock Returns

Lee (1998) defines a stock return as a loss or gain on an investment and that highly sensitive to expectations and fundamentals in a market. The return is monetary and it's measured over a particular period. The returns are either capital or income, relative on a security and expressed as a percentage (Gartner, 1995).The following factors affects the performance of the stock market namely, change of composition of investors, market sentiments, political process, government policies, market sentiments, economic activities and the general performance of the economy (Mishkin &White Eugene, 2002).The stock market returns is arrived at by the market index based percentage on the previous closing index. Continuously compounded (logarithm) returns and simple returns are the two methods that are normally used to calculate returns, (Lee, 1998).

1.1.3 Stock Returns and Small Firm Effect

Abnormal returns are experienced by small firms systematic risks are contained by small stocks and are not adequately measured (Fama and French,1996).Poor permanent makes market values to go down or high discount rate used to capitalize the future cash flows makes a firm to be small.(Berk, 1995). This increases the likelihood of having cash flow problems and during adverse economic times is likely not to survive. The empirical models do not easily capture these

risks thus a higher risk adjusted return are exhibited by the small stocks (Gomes, Kogan Zhang, & 2003). The willingness of compromising returns of a higher liquidity by investors is higher than those of lower liquidity. Larger stocks are generally highly liquid as investigated by (Stoll and Whaley, 1983). There equilibrium returns of small stocks are higher than those of large stocks (Brennan, Chordia & Subrahmanya, 2005). The concerns of small markets is gaining market share and building equity. The distributions of the small and large stocks earnings are different. Large firms are less likely to reinvest in retained earnings than small firms. The growth of the retained earnings increases the value of the common stock faster in small firms than large firms. Large firms would prefer paying dividends to stockholders, the effect is that their retained earnings will be slow paced comparing with the small firms, the value of common stock will be lower (Moore, 2005).

1.1.4 Nairobi Securities Exchange

The NSE is licensed and regulated by the Capital Markets Authority of Kenya (CMA) which was formed in the year 1990; it has the sole authority to provide a trading platform to the firms listed at the NSE. Trading on this market can be traced back to the year 1920 when Kenya was still a British colony. The desire by stock brokers and the government to have a formal trading platform necessitated the need to have a formal trading exchange (Murigi, 2008). The NSE was then formally organized in 1954 as a voluntary association under the societies Act (Miya, 2007). The main indices in the NSE are: the NSE 20 share index, Nairobi all shares index and AIG 27-share index (NSE website 2016). The Local investors hold share totaling 52.39% of shares trading at the NSE with the balance allocated as follows: Local corporate 25.39%, foreign corporate 20.44%, East African Individuals 0.13% and East African Corporate 0.62% (NSE, 2016).

Currently there are 65 quoted companies representing twelve different sectors. Trading on the stock exchange has become a recognized tool for raising capital. Investors have become increasingly aware of the potential of the Nairobi stock exchange (Miya, 2007). The mid-eighties and early nineties witnessed many firms raising new equity from the stock market for the first time and consequently many investors investing in their shares through primary initial offering and secondary markets. The growth of the NSE has placed it fourth and fifth in terms of trading volume and market capitalization as a ratio of Gross domestic product respectively. It also participates in cross-listing of some of its equities with neighboring East African bourses the Uganda Securities Exchange and the Dar es Salaam Stock Exchange in Tanzania. NSE market index comprises of a selection of listed companies which represent a significant portion of market capitalization and trade actively.

The trading of stocks and shares in Kenya started in the 1920s under British rule. Francis Drummond, an Estate Agent started the first stock broking firm that was professional in 1951. The Nairobi Stock Exchange was registered under the societies Act after being constituted as an association of stockbrokers that was voluntary. Trading of securities was not permitted to Asians and Africans until independence was attained in the year 1963. It was only allowed to the European community residents. Due to the uncertainty about the future of Kenya after the dawn of Independence, all the activities in the stock market slumped (NSE 2017). The first privatization was successful when 20% of the stake in government was sold to the Kenya Commercial bank by the NSE in the year 1988. Nairobi Stock Exchange Live trading was implemented on the September 2006 with the automation of trading systems (NSE, 2017).

The NSE adopted the name Nairobi securities Exchange Limited in July 2011, The NSE adopted a new Memorandum and article of association in September 2011 due to the conversion to a company limited by share from initial limitation by guarantee (NSE, 2017). Several Studies have been done at the NSE concerning the small firm effect. The anomaly was not predicted regarding its existence or prevalence in the market by (Oluoch, 2003). There was no significant relationship between January effect and small firm effect (Lukale, 2007).

1.2 Research problem

According to EMH, Extra normal profits cannot be earned by result market participants; this is as a result of all market information being reflected in the stock prices of securities. However the variations in the volatility of stock returns have been proved from the anomalies studied. The weak form of EMH is denied the inference showing the market to be inefficient. Investment decisions can easily be made basing on risk and returns of the stock if other market participants and investors are able to tell the pattern in the volatility of returns. The small firms' achieving higher returns than the large firms is what is referred to as the small firm effect. Studies on size effect have been done both internationally and locally. Internationally the interrelationships of January effects and small firms at the NYSE were analyzed (Keim, 1983). The findings was the effects was more pronounced in January than the other months over the year. Data from the Centre for Research in security prices was used in examining Small firm effect and January effect. The findings showed that despite adjusting for risks abnormal returns are generated from small firms justifying the existence of January effect (Rathinasamy and Matripragada, 1996). An investigation on the interaction of January effects and size based portfolios was carried out. The conclusion from the findings was that an important role was played by the January effect

(Jacobsen, Mamun and Visaltanachoti, 2005).

Empirical studies carried out on the emerging and developing markets have shown the existence of the small firm effect. The studies have done include (Banz 1981, Berges, McConnel and Schlanbaum, 1982, Sehgal and Tripathi, 2005, Oluoch, 2003 and Lukale, 2007). There have been changes in the NSE that are massive; this has resulted to the revolution in the way businesses are being conducted. The effectiveness and efficiency in trading has been witnessed due to the technological changes that have increased in the markets. The number of firms listed has increased over the years, the trading hours too. The NSE has increased to more than 60 compared to the earlier years (Oluoch 2003). With the new listings diversified sizes, stock returns have been presented in the market. Dimension data acquired access Kenya then later delisted. Some have merged with others. This has improved the performance of NSE.

Oluoch, 2003 researched whether there is existence of size effect at the NSE, however the findings was that the anomaly in the market could not be predicted of its prevalence or existence. An investigation on the interrelationships between January effect and small firm effect at Nairobi Securities Exchange, the findings were that between January effect and the small firm effect is that it was not significant (Lukale, 2007).

There have been a lot of technological changes and the listings too have been diversified among others. From the review of studies above it shows that the last time studies were done on the existence of small firm effect is about fourteen years. It calls for research on the area to establish whether the findings still hold or not. This study sought to test the existence of small firm effect

on stock market returns at the Nairobi Securities Exchange Limited. This was achieved by seeking the answers on the research question. Does the Small Firm effect exist on stock market returns at the Nairobi Securities Exchange?

1.3 Objective of the study

The objective of the study was to test the small firm effect on stock market returns at the Nairobi securities exchange.

1.4 Value of the Study

Studies carried out in the developed countries show that the small firm effect does exist if outliers are included but in developing countries it does exist. This study is of help researchers to as it has unearthed the small firm effect does exist, it will further help in narrowing up the research gap in this area by conducting research on the existence of small firm effect and findings of the Nairobi stock market. Its documentation has enriched the field in the building up of the existence theory. Kenya is no longer an undeveloped country its economy has been growing over the years but currently due to the political season it has slumped, formulation of policies and regulations that relate to tax that might affect firms that portray the existence of small firm effects has been eased.

Buy or sell decisions on stock can be made by portfolio managers. The findings have helped with the formulation of policies and strategies by top management in earning high returns from small firms. Listed firms in NSE and private firms have been provided with knowledge on seasons of stock market returns and when to issue new shares. Stock brokers and consultants will get information that will help them in provision of better service delivery to their clients. Useful information has been provided to individual investors that will enable them to make sound

judgment while buying stocks. The observed patterns will be of help traders in profit maximization. Traders are in a position to build up portfolios that are profitable.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter is divided into five sections, the first section will cover the theoretical review, and the second will cover the determinants of stock returns for listed firms, conceptual framework, empirical studies and finally the summary of the empirical and theoretical reviews.

2.2 Theoretical Review

The purpose of theoretical review is reviewing what has been done by other scholars and researchers in relation to small firm effect. It uncovers the existing theories in support of the small size effect on stock market returns in securities exchange. It's a review of the theories that explain the small firm effect on stock returns. The following section describes and discusses different theories such as the Efficient Markets Hypothesis theory, the Random walk theory. Random walk theory dictates that the returns of stocks are unpredictable and random behavior. According to Efficient Markets Hypothesis market prices of stocks should fully reflect all the available information if markets are efficient. It will provide detailed knowledge of what has been done and form a framework within which the research findings of the current study would be used to be interpreted and also to overcome the limitations of previous studies.

2.2.1 The Efficient Market Hypothesis

The efficient markets hypothesis (EMH) maintains that all the available information is reflected in the market prices. An independent study was done by Fama and Samuelson in the 1960s and it states that if the expectations and information of all market participants price changes must be unpredictable in an information efficient market. There are three forms of market efficiencies

namely; the strong form, semi strong form and the weak form (Fama, 1970). The weak form incorporates all the past information is incorporated into their future prices. The semi strong form incorporates into their security prices all the publicly available information. There are no overvalued or undervalued securities therefore there is no room for provision of superior returns. The strong form incorporates all the privately and publicly available information into their securities prices. However there exist seasons in stock returns which violates the hypotheses in finance. The seasonal anomalies are the following, holiday effect, neglected form, turn of the year, day of the week form, January effect and small firm effect among others.

Bell (1982) the behavior and preferences of market participants form the basis for most critiques of efficient market hypotheses. The modeling preferences should be standard and that should optimize additive with separation of time to the expected utility functions from certain families that are parametric for instance the risk aversion. However there is paradigm shift where experimental economists and psychologists have documented behavioral biases that are specific decision making to an individual under uncertain condition (Gervais and Odean,2001),herding (Huberman and Regev,2001),Loss aversion(Odean,1988), Overreaction (DeBondt and Thaler, 1985), Probabilities miscalibration (Lichtenstein),Psychological accounting(Tversky and Kahneman,1981),regret(Bell,1982) and hyperbolic discounting(Laibson,1997).The critics of EMH argue that the market participants' often act irrationally which is analyzed in behavioral finance. Recently in the market history there is evidence that rather than investors being rational they exhibit spectacle psychological considerations that affects the asset prices (Schwert, 2001). Noise trading, irrational investors, social movements, psychological factors reflect the predictability of stock returns in a market that is reflective (La Porta, Lakonishok, Shlifer and Vishny, 1997).

2.2.2 Random Walk Hypothesis

Stock prices react instantly with availability of new information available in the market. The stock prices are random and that investors are not able to get any opportunity in getting profits. Kendall (1953) came up with the premise. Fama (1991) confirmed the assertion later. The efficiency of stock market makes the prices to be unpredictable, this is so because all the past information are already incorporated to the security prices and future prices cannot be predicted using the information. It brings the random walk in terms of security prices and the hypothesis is drawn from the EMH. Past price behaviors' and publicly available information will not predict future prices. However, the empirical studies carried out bring about sharp critics over the implications of the tests done over the years. The Martingale model and Random walk hypothesis (RWH) are the two statistical descriptions that formed much of the EMH literature (Lucas ,1978) .They are the two statistical descriptions were initially taken to be implications of EMH showing unpredictability of stock prices (Leroy,1973).

Cowles and Jones (1937) RWH first tests compared historical stock returns reversals and the frequency of sequences, where the later are pairs of returns that are consecutive and have the equal and same sign. The reversals of historical stock returns bear a sign that is opposite. Existence of Successful moves that are too many with movement in the same direction and Serial correlations that are short run are zero, they reject the assertion that stock prices are random (Lo and Mackinlay, 1999). Scholars, psychologists and Economists found that the short run momentum there is consistent contribution towards the feedback mechanisms that is psychological in behavioral finance. At times the bandwagon effect maybe experienced when individuals are drawn into the market from the rise of stock prices.

Fama (1991) stated that tomorrow's price changes will only incorporate tomorrow's news and today's price will only incorporate today's price and the random walk idea will hold if there is no interruption of the flow of information as it will be reflected in the security prices. The semi-strong form of the market suggests that stock prices adjust rapidly to the release of all public information which is relevant for the purpose of valuing a firm. The strong form efficiency states that stock prices fully reflect all information; public and private about a particular stock. The existence of seasonality in stock returns however has been seen to violate the assumptions of the hypothesis. Various studies have been conducted to test the EMH theory around the globe.

Pana (1990) News cannot be predicted therefore the price changes are random. Prices reflect all the available information, investors whether informed or not will obtain a rate of return for their diversified portfolios given by the market that is the same with that obtained by experts. Shleifer (2000) carried out a study on how investors react to corporate news and concluded that the market followed semi-strong form of market efficiency. In his claims, he stated that stock prices started drifting before the actual announcement was made an indication of market anticipation or information leaks and on the day of announcement stock prices would adjust to reflect the new intrinsic value and would remain relatively constant for about one month.

2.3 Determinants of Stock Returns for listed firms

There exist factors in the emerging economies that influence the stock returns from the empirical studies. The factors are probability ratios, activity ratios, firm size, firm beta and money supply, exchange rates and inflation rate. Other factors are equity to price ratio, book to market equity

ratio, debt management ratios. All the factors explain the significance of stock returns. The factors are available from the analysis of literature review that is cross sectional and time series.

2.3.1 Market Anomalies

Kuhn (1970) found that Financial Market anomalies is the time series and cross sectional patterns of security returns that is not supported or predicted by a central theory. A new paradigm is created with the documentation of the anomalies. A new theory is likely to be formulated with the documentation of the anomalies. Fama (1991) in financial economics the documentation of the anomalies is regarded as strong evidence against EMH. The anomalies are the low PE ratio effect, the small firm effect, neglected firm effect, the January effect, market overreaction, the day of the week effect, the weekend effect, The persistence of technical analysis, low priced stocks, the weather effect, seasoned equity offerings effect, the weather effect, the holiday effect, stock buy outs, price to book value effects and final thoughts effects.

2.3.2 Macro Economics Variables

Eita (2011) found that stock returns are influenced by some macro economical variables. Money supply, exchange rates, inflation and interest rates are some of the macro economic variables that determine the stock prices in Namibia. There was positive relationship between economic activity and money supply and stock market prices. Stock prices go down with an increase in interest rates. An increase in inflation rates decreases the stock prices in the market and vice versa. The discounted cash flows will decrease in value, less investment, the stock market returns will subsequently reduce.

2.3.3 Elections and Political Stability of a country

Currently the Nairobi Securities Exchange the security prices went down with the verdict of the

Supreme Court (NSE 2017). Studies show that prices are usually affected by elections. The investment and financial experiences changes that is remarkable to the securities prices. The relationship between securities prices and elections is negative (Murigi, 2008). However months before elections the returns on securities improves with investors settling on different economic activities. According to Miya (2007), during election period prices go down but after election the prices rises then stabilizes.

2.3.4 Information related to a company

Pandey (1995) found that investors are willing to buy stock of a firm that has positive news and vice versa. However sometimes in spite of the good news the prices changes can be least and less remarkable. The performance of a firm is what matters but not news alone. Stock returns are also explained by the perceptions of the investors. The perceptions of investors are usually demonstrated during many seasons. For example during the festive season, a fall in prices of shares is usually expected and because of this, some shareholders are compelled to redeem their share before the festive season starts (Sunde & Sanderson 2009). Investor's level of confidence in the direction of the economy and policies are also determinants of the share prices. Shauna (2003) stated that the land reform program, social unrest and policy reversals experienced in the period between 1997 and 2001 had a negative effect on the stock market and because of this uncertainty investors predicted a fall in the stock returns.

2.4 Empirical studies

Market capitalization of stocks was used in studying quoted stocks from 1926-1980 in NYSE. The firms were grouped into five; regression analysis was used in estimation of the returns of the stock. The findings were that large firms have lower returns than the stock of the smaller firms. The returns of the risk of the adjusted stocks have a decreasing function to size of a firm. Small

firms had higher returns than large firms (Banz, 1981).

Keim (1983) examined the relationship between stock market values of AMEX and NYSE and abnormal returns on monthly basis between 1963-1979. The findings were that there was a negative relationship between the size of a firm and the abnormal returns. The abnormal returns were more pronounced in January than the other months. It was arrived at by forming ten groups and that the first group comprised of the large stock firms and the tenth portfolio was the small in terms of size. The study tested January effect on stock market returns.

Berges, McConnell and Schlarbaum (1984) investigated the monthly returns of the stocks traded at Montreal Stock Exchanges and Toronto for the period 1950-1980, where portfolios were grouped into five depending on their market capitalization. The portfolios were grouped in an ascending order. The first portfolio had an amount with the largest market capitalization. The fifth portfolio had an amount that was least in its market capitalization. The finding was that average returns of the portfolios were found to be highest in January for stocks of small firms. This study tested the effect of January effect on stock market return.

Brown, Kleidon and Marsh (1983) examined the behavior of the size effect. The data used to carry out the study was for the period 1967-1979. The findings were that there was a linear correlation between the size of the portfolio and the average returns (risk adjusted) to the logarithm of the size of the variable. Although, the sign and the magnitude differed with the periods observed. The returns decreased between 1969-1973 and showed positive increase for the period 1974-1979. The study tested on the size effect of the returns on the firms but was done back 44 years ago.

Lakonishok and Smidt (1986) used the daily Chicago tape data for the years 1970 through to 1980. Stocks was divided into 10 deciles, daily returns were calculated for the 5 days towards the end of the year and four days after the beginning of the year. The CRSP return, open to open and close to close methods were used to calculate the daily returns. The findings were that the large firms had lower returns than those of smaller firms. This study was international and was done back in the 1970 there is need to test it.

Sehgal and Tripathi (2005) did a test on the Indian Stock market involving the size effect. The 482 top Indian firms were used as data for the study. The study conducted was for the period 1990-2003. The findings was that use of the following alternative measures namely net working capital, total assets, net annual sales, net fixed assets, enterprise value and market capitalization brought about a strong evidence for size premium. There is doubt in the Indian equity market about the informational efficiency due the size premium.

Jayen (2012) observed that the performance of large firms was lower compared to the small firms in emerging and developing stock markets. The differences in stock returns were tested using the T-tests. Size a premium was tested using the medium statistics and ANOVA analysis over the years. The evidence was that the large firms generated significantly different results than the small firms in the recent years. Therefore reverse size effect and size effect were no longer exhibited in the stock markets. There Kenyan economy has been growing over the years and studies shows that the size effect is pronounced in less developed countries.

Oluoch (2003) a study was conducted to determine whether the small size effect is present in the

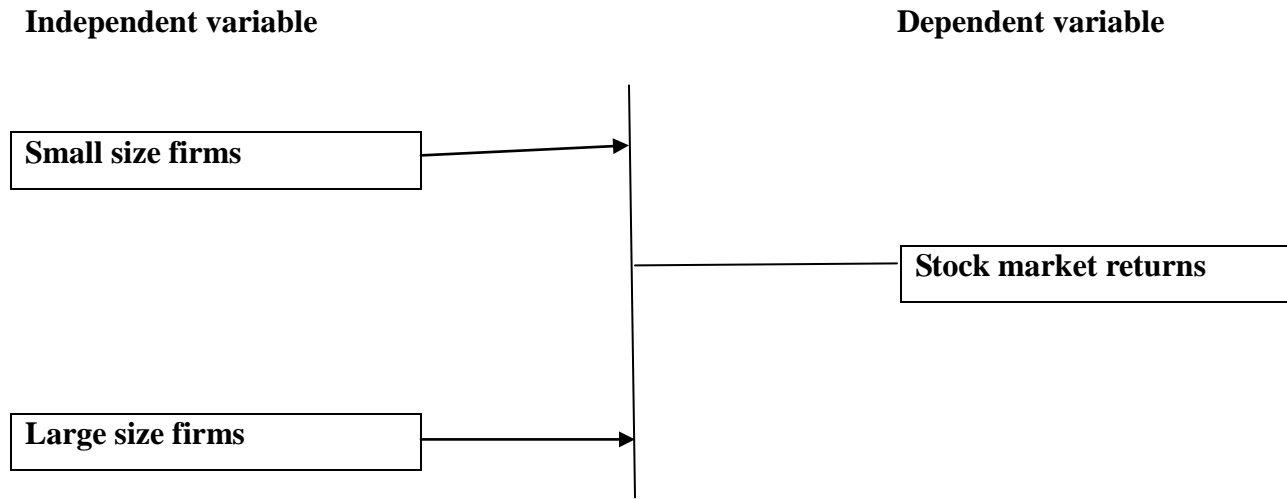
NSE. Listed firms in the equity section in the NSE were used. The OLS regression was used for analysis. There was no any prediction of the presence of the anomaly. However the returns of the small firms have higher mean returns than those of the large firms, medium sized firms and the market on average. The study tested on the presence of size effect however according to the study there was limitation on the secondary data as it was solely dependent on the information provided by the respondent hence there is need to retest.

Lukale (2007), Investigated the interrelationship of the January effect and size effect at the NSE. It covered the period 1999-2006. Forty six firms were selected from the total fifty four firms listed. Ten portfolios were formed based on size. All the portfolios were used for the study. The finding was that strong returns and firm size exhibited a decreasing function. When the stock returns are pronounced in January than the other month is referred to as January effect. This study was done 7 years ago thus there is need to test whether the findings still hold.

Kihenjo (2016) tested the small size effect on stock market returns at the Nairobi Securities Exchange for the period 2011 to 2015. The population was on the 65 listed firms. The secondary data for analysis was gathered from the firms listed at the NSE. The listed stocks were divided into 4 quartiles based on market capitalization. The study used only two quartiles (quartile one and quartile four) in the analysis. Quartile one consisted of the largest firms while Quartile Four consisted of the smallest firms as per market capitalization. The findings were that big firms recorded relatively poor results compared to the returns of the small firms. The study discarded the information of the second and third quarters thus there is need to study the whole population.

2.5 Conceptual Framework

There exists small firm effect on stock market returns basing on some empirical studies. However according to the variables in this study, it's expected that small size firms will produce higher stock market returns than in large firms.



Source: Author 2017

2.6 Summary of Literature Review

The literature review has given an overview of researchers and scholars on the existence of small size effect on stock market returns at NSE. The different findings therefore do not necessarily replace each other but explain different aspects of the same phenomenon. The international empirical studies on stock markets was for the period 1926 to 1980 in NYSE includes, (Banz,1981); Keim(1983); Berges McConell and Schlarbaum (1982); Brown, Kleidon and Marsh(1983); Lakonishok and Smidt(1986) ; Sehgal and Tripathi(2005) ; Javen, (2012) . Locally the studies done Oluoch (2003); Lukale, (2007) and Mghendi (2014). Kenya is growing and the NSE too is growing too, researchers have paid little attention to it. Internationally studies show

that the small size effect is exhibited on the developing economies therefore there was a need to unearth where NSE stands in terms of the small size effect. This has helped the industry players in formulating policies and strategies that will lead to profitable investment decisions.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides description of the research design, the sample population, sampling procedure and the sample that has been used in the selected study. The data collection methods has been discussed and lastly the presentation techniques used in the study.

3.2 Research design

According to Kothari (2004), a research design is a frame of methods and procedures for acquisition of information that is needed. It is the overall plan of conducting the study and it helps to answer the research questions and achieve the objective of the study. The study adopted a descriptive research design. Descriptive design determines and gives reports of a phenomenon (Mugenda and Mugenda, 2003). It's used when data is to be collected to describe phenomenon, settings, organizations and persons (Creswell, 2003). Descriptive research design was used to carry out the study on firms listed at the NSE and answered the research question.

3.3 Population of the Study

The number of firms listed at the NSE under equity section was 65 as at 31 December 2016. Mugenda and Mugenda (2003) describe a population as a complete set of individuals, cases or objects with some common observable characteristics. A particular population has some characteristics that differentiate it from other populations. Berk (1997) explains that portfolios can be grouped into four. The group was used to carry out the study. A descending order was used according to their market values. The listed firm was divided into four sections with the first quartile being the large firms and the fourth quartile as the small firms.

Moore (2005) found that the second and the third quartile were discarded to reduce bias and that the size gap was significant between the two categories.

3.4 Data Collection

The large and small firm at the NSE was the sample. Secondary data was collected for the period January 2009 to December 2016. The information was readily available at the Nairobi Stock Exchange Library and the firms to be studied too. Monthly market share prices were obtained from NSE reports.

3.5 Data analysis

Singleton et al., (2003) Data Analysis is the task of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data. Data analysis is developed to deal with manipulation of the information that has been gathered so as to present the evidence. The study made use of computer software SPSS (Version 21) to analyze the data. Given that the study model is bivariate, the study used multiple regression technique in analyzing the relationship between the large firms and the small firms and small size effect on firms listed at NSE. Regression analysis was run in analyzing the small firm effects on firms listed at the NSE. Market capitalization was used to determine the size of the firms. The upper quartile represented the large firms while the lower quartile represented the small firms. Blume (1980) stated that small firm effect is overstated by use of daily returns and that monthly returns were preferred.

3.5.1 Analytical model

Oluoch (2003) found that size is determined by market capitalization. The size of a firm was calculated by getting the product of the market value of quoted shares and the total number of

outstanding shares. Monthly returns were transformed from the monthly stock prices by use of the below formula.

The study used the Sharpe- Linter model below for stock returns:-

$$R_s = R_f + \beta_s (R_m - R_f)$$

Where: R_s = Return on the stock

R_f = Risk free rate of return

R_m = Expected market return

β_s = Beta of security

$$\text{Where: } \beta_s = \text{Cov}(R_s, R_m) / \text{Var}(R_m)$$

Monthly indices points into monthly market returns as per below:-

$$R_m = \text{NASI}_{t+1} - \text{NASI}_t / \text{NASI}_t$$

Where: R_m = NASI return for month t , where $t=1, 2, \dots, 12$

NASI_{t+1} = NASI at the end of the month

NASI_t = NASI at the beginning of the month

$$R_{it} = (P_{it+1} - P_{it}) / P_{it}$$

Where

P_{it+1} = Market price of stock I at the end of the month.

P_{it} = Market price of stock I at the beginning of the month.

R_{it} = Return on stock I for month t , where $t=1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12$.

$$R_T = \alpha + \beta_1 SS + \beta_2 SL + \varepsilon_t$$

Where SL =represents large sized firms,

SS represents small sized firms,

β size coefficients,

α The model concept and

ϵ the error term.

The researcher used twenty four months of former stock and market return data to establish pre-ranking betas for each portfolio. This is so as to differentiate between the small size effect and the systemic risk effect and determine excess returns as per Fama and French (1995). The weighted average returns of the stocks and portfolios then calculated over the study period. The researcher then regress the beta portfolio returns against the market returns and ranked them. The same was tested for significance.

3.6.2 Tests of significance

The T-test was used in testing the significance between average returns of large firms and small firms by testing the individual coefficients of the variables. The overall fit of the model was tested by conducting the F-test. Correlation Coefficient (r) was computed to determine the strength and direction of the relationship between the dependent variable (stock market returns) and each of the Independent variables. Coefficient of determination (R square) was used to measure the percentage of change in the explained variable that that is caused by the explanatory variables. If f calculated was less than the table value then the decision will be there will be no statistical evidence of significance correlation at 5% level of significance. t test was used to test for the significance of the association between stock market returns and each of the explanatory variables.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter is divided into the following sections: Data analysis and discussion of findings collected from Nairobi Securities Exchange reports. The data is secondary in nature. The study sought to test the existence of small firm effect at the Nairobi Securities Exchange. The secondary data used for analysis was gathered from the firms listed at the NSE. The listed stocks were divided into four quartiles based on market capitalization. The study used only two quartiles (quartile one and quartile four) in the analysis. Quartile one consisted of the largest firms while Quartile Four consisted of the smallest firms as per market capitalization. Analysis of the data was done with the aid Microsoft's Excel (2013) and SPSS (version 21). Correlation and Regression analysis were used to show the relationship between market returns and small firm stock returns. The findings of the study were presented in form graphs and tables to ease interpretation.

4.2 Descriptive Statistics

The section discusses the market returns, the stock returns of big firms and the stock returns of small firms. The study further discusses the abnormality of the market stock returns and the cumulative abnormality. The detailed stock returns, abnormal returns and cumulative stock returns are as discussed in the subsequent sub-sections.

4.2.1 Small Firms Stock Returns

The fourth quartile comprise of small firms listed in Nairobi Securities Exchange. The quartiles were arrived at using market capitalization. The study sought to evaluate the stock returns of the small firms. The sought to evaluate the stock returns of the small firms. The findings are as shown in the Table 4.2.1

4.2.1 Small firms stock returns

Month	2009	2010	2011	2012	2013	2014	2015	2016
Dec	0.0382	(0.0005)	0.0205	0.0194	0.0348	0.0432	0.0360	0.0239
Nov	0.0071	0.0206	0.0209	0.0110	0.0299	0.0517	0.0271	0.0223
Oct	0.0030	(0.0114)	0.0506	0.0958	0.0463	(0.0108)	0.0082	0.0028
Sep	0.2193	0.0142	(0.0040)	(0.0036)	0.0159	(0.0024)	0.0441	0.0822
Aug	0.1051	0.0351	(0.0017)	0.0968	0.0277	(0.0121)	0.0019	0.0134
Jul	0.0571	0.0616	0.0327	0.1036	0.0379	0.0454	(0.0022)	0.0604
Jun	0.0983	0.0194	0.0006	0.0869	0.0284	(0.0088)	0.0194	0.1086
May	0.0065	(0.0866)	(0.0009)	0.0427	0.0298	0.0916	0.0247	0.0233
Apr	0.0203	0.0136	0.0028	0.0358	0.0355	(0.0197)	0.0298	0.0808
Mar	(0.0583)	0.0315	(0.0248)	(0.0063)	0.0182	0.0276	(0.0080)	0.0407
Feb	0.0563	(0.0545)	(0.0240)	0.0845	0.0362	(0.0368)	0.0117	0.0354
Jan	0.0308	0.2142	0.0104	0.0456	0.0191	0.0062	(0.0062)	(0.0064)
Mean	0.0486	0.0214	0.0069	0.0510	0.0300	0.0146	0.0155	0.0406
Std dev	0.0695	0.0727	0.0218	0.0410	0.0090	0.0373	0.0172	0.0353
Max	0.2193	0.2142	0.0506	0.1036	0.0463	0.0916	0.0441	0.1086
Min	(0.0583)	(0.0866)	(0.0248)	(0.0063)	0.0159	(0.0368)	(0.0080)	(0.0064)

Skewness	1.226	1.556	0.434	-0.057	-0.050	0.699	0.109	0.657
Kurtosis	2.754	4.723	0.209	-1.672	-0.366	-0.106	-1.225	-0.481

Source: Research Findings (2017)

In the study period 2009 to 2016 shows that stock returns for small firms had been fluctuating heavily. The lowest stock returns of ($M= 0.0069, SD= 0.0218$) was recorded in the year 2011 while the highest stock returns ($M= 0.0510, SD= 0.0410$) was recorded in the year 2012. Most of the values recorded skewness and kurtosis values within the range of ± 1.96 indicating that the data was normally distributed. This was with the exception of the years 2009 and 2010 where kurtosis values of 2.754 and 4.723 were recorded respectively indicating possible presence of outlier values. It also implies that the values are not widely spread around the mean. The trend of small firms' stock returns over the study period is as shown in Figure 4.2.1.

Figure 4.2.1 Small firms stock returns

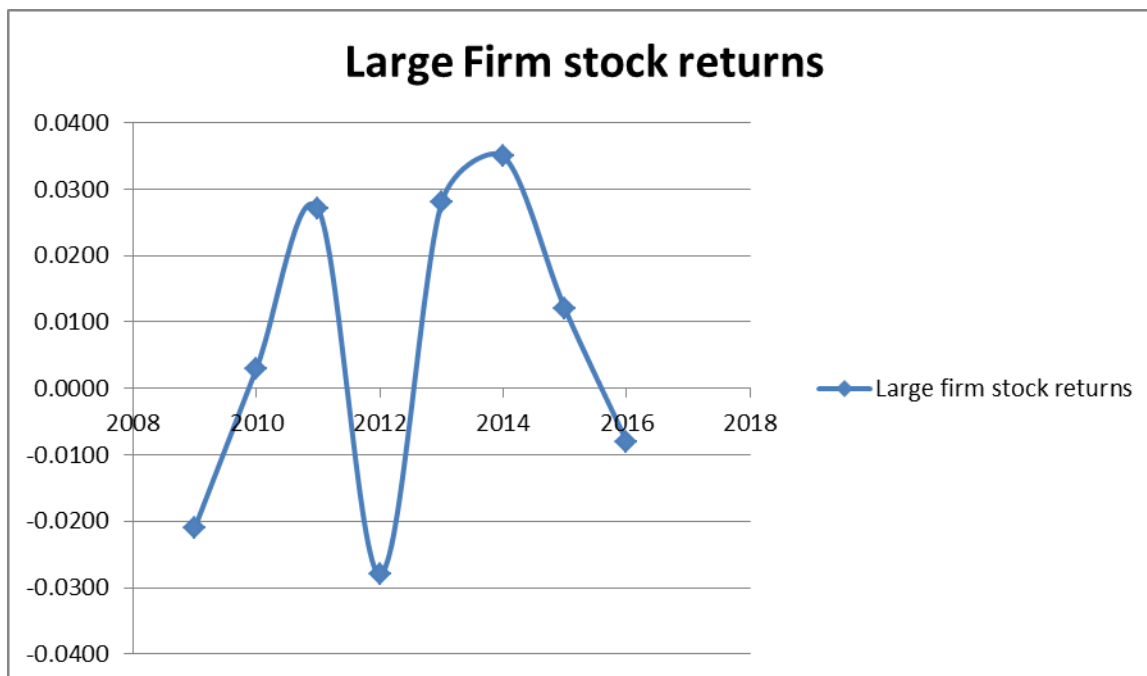


Source: Research Findings (2017)

4.2.2 Large Firm Stock Returns

The first quartile comprise of small firms listed in Nairobi Securities Exchange. The quartiles were arrived at using market capitalization. The study sought to evaluate the stock returns of the small firms. The study sought to evaluate the stock returns of the small firms. The findings are as shown in the Table 4.2.2

Figure 4.2.2: Large firm stock returns



Source: Research Findings (2017)

Table 4.2.2 Large Firm Stock Returns

Month	2009	2010	2011	2012	2013	2014	2015	2016
Dec	0.0293	0.0049	(0.0019)	0.0256	0.0289	(0.0320)	(0.0023)	0.0155
Nov	0.0354	0.0533	(0.0425)	(0.0877)	0.0046	0.0595	0.0254	0.0451
Oct	(0.2155)	0.0142	0.0348	0.0480	0.0504	0.0463	(0.0258)	(0.0656)
Sep	(0.1004)	(0.0156)	0.0312	(0.0889)	0.0321	0.0616	0.0349	0.0289
Aug	(0.0413)	(0.0510)	(0.0185)	(0.0969)	0.0168	(0.0236)	0.0412	(0.0377)
Jul	(0.0925)	0.0066	0.0278	(0.0771)	0.0311	0.0563	0.0088	(0.0974)
Jun	0.0302	0.1876	0.0300	(0.0198)	0.0289	(0.0827)	0.0011	0.0141
May	0.0096	0.0151	0.0244	(0.0103)	0.0204	0.0739	(0.0062)	(0.0639)
Apr	0.1388	(0.0106)	0.0675	0.0523	0.0468	0.0014	0.0503	(0.0109)
Mar	(0.0402)	0.1263	0.0663	(0.0741)	0.0194	0.1029	0.0201	(0.0034)
Feb	0.0000	(0.2136)	0.0132	(0.0238)	0.0454	0.0329	0.0475	0.0597
Jan	0.0000	(0.0845)	0.0909	0.0123	0.0134	0.1226	(0.0461)	0.0155
Mean	(0.0205)	0.0027	0.0269	(0.0284)	0.0282	0.0349	0.0124	(0.0083)
Std dev	0.0883	0.1001	0.0373	0.0553	0.0142	0.0592	0.0299	0.0483
Max	0.1388	0.1876	0.0909	0.053	0.0504	0.1226	0.0503	0.0597
Min	(0.215)	(0.214)	(0.0425)	0.0969)	0.0046	(0.0827)	(0.0461)	(0.0974)
Skewness	-0.60052	-0.28513	-0.13642	0.153203	0.137309	-0.56397	-0.53981	-0.5156
Kurtosis	1.627	1.729	0.049	-1.585	-0.752	-0.087	-0.354	-0.674

Source: Research Findings (2017)

4.2.3 Market Stock Returns

The study sought to establish market stock returns. To arrive at the market stock returns NSE All Stock Index was used as a proxy of the market returns. NSE All Stock Index (NASI) was used as the proxy for the market stock return. The study analyzed the stock returns of the big firms for the years 2009-2016. The Table 4.2.3 shows the results of the study. The study established that the market recorded both positive and negative stock returns over the study period 2009 to 2016. The highest market return was recorded in the year 2012 with an average stock return of ($M=$

0.0510, $SD= 0.0410$) followed by the year 2009 when a stock return of ($M= 0.0486$, $SD= 0.0695$). The lowest stock return were recorded in the year ($M= 0.0486$, $SD= 0.0695$).

Table 4.2.3: Market Stock Returns

Month	2009	2010	2011	2012	2013	2014	2015	2016
Dec	0.0160	-0.0350	0.0014	-0.0130	-0.0210	0.0210	0.0150	-0.0130
Nov	-0.0285	-0.0049	0.0019	-0.0250	-0.0280	0.0331	0.0023	-0.0153
Oct	-0.0342	-0.0506	0.0444	0.0962	-0.0046	-0.0562	-0.0247	-0.0431
Sep	0.2747	-0.0140	-0.0336	-0.0458	-0.0479	-0.0442	0.0265	0.0702
Aug	0.1116	0.0159	-0.0302	0.0976	-0.0311	-0.0580	-0.0337	-0.0280
Jul	0.0431	0.0537	0.0189	0.1073	-0.0165	0.0242	-0.0396	0.0391
Jun	0.1019	-0.0066	-0.0270	0.0835	-0.0301	-0.0533	-0.0087	0.1080
May	-0.0293	-0.1580	-0.0291	0.0202	-0.0281	0.0902	-0.0011	-0.0139
Apr	-0.0096	-0.0149	-0.0238	0.0104	-0.0200	-0.0688	0.0062	0.0683
Mar	-0.1219	0.0107	-0.0632	-0.0497	-0.0447	-0.0014	-0.0479	0.0110
Feb	0.0418	-0.1121	-0.0622	0.0800	-0.0191	-0.0933	-0.0197	0.0034
Jan	0.0054	0.2717	-0.0130	0.0244	-0.0434	-0.0319	-0.0453	-0.0563
Mean	0.0309	(0.0037)	(0.0180)	0.0322	0.0279)	(0.0199)	(0.0142)	0.0109
Std dev	.0993	0.1039	0.0312	0.0585	0.0128	0.0533	0.246	0.0504
Max	.2747	0.2717	0.0444	0.1073	0.0046)	0.0902	0.0265	0.1080
Min	(0.1219)	(0.1580)	(0.0632)	(0.0497)	(0.0479)	(0.093)	(0.0479)	(0.0563)
Skewness	1.226	1.556	0.434	-0.0575	-0.0497	0.699	0.109	0.657
Kurtosis	2.754	4.724	0.209	-1.672	-0.366	-0.106	-1.225	-0.433

Source: Research Findings (2017)

The study recorded skewness and kurtosis values falling within the acceptable range of ± 1.96 indicating that the data for market return was normally distributed except for the years 2009 and 2010 where kurtosis values of 2.754 and 4.724 were registered implying that the stock returns for those two years were not normally distributed. The trend of market stock returns as proxied by NASI is as shown in Figure 4.2.3

Figure 4.2.3: Large firm stock returns



Source: Research Findings (2017)

4.2.4 Abnormality of Stock Returns

The difference between the market actual stock returns and expected returns were computed using Sharpe- Linter model. This was done in order to establish the abnormal returns of the market. The study findings revealed that there were high levels of variability in abnormal returns over the study period. This implies that the stocks were highly volatile. The lowest abnormal return (0.0188) was recorded in the year 2012. The highest abnormal return of 0.0579 was recorded in the year 2013. However, these abnormal returns were less than 1 implying that none of the investors benefited during this period. The results for the abnormal returns are as shown in detail in Table 4.3.

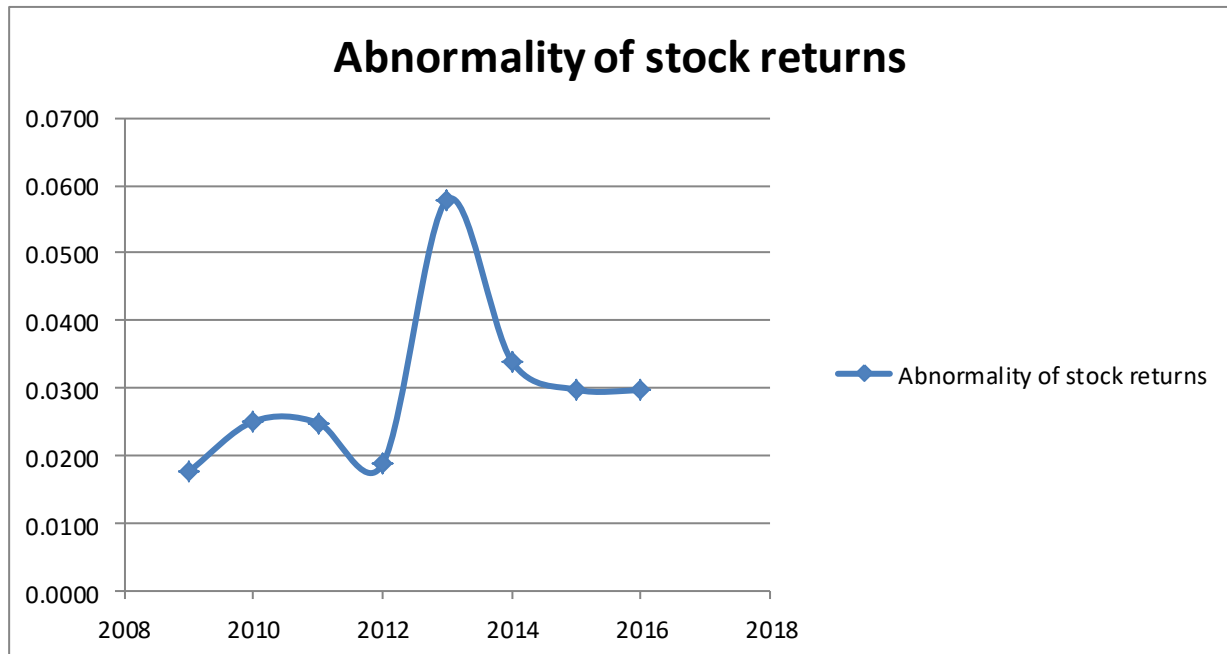
Table 4.3: Abnormality of Stock Returns

	2009	2010	2011	2012	2013	2014	2015	2016
Dec	0.022	0.035	0.019	0.032	0.056	0.022	0.021	0.037
Nov	0.036	0.025	0.019	0.036	0.058	0.019	0.025	0.038
Oct	0.037	0.039	0.006	0.000	0.051	0.045	0.033	0.046
Sep	-0.055	0.028	0.030	0.042	0.064	0.042	0.018	0.012
Aug	-0.006	0.019	0.029	-0.001	0.059	0.046	0.036	0.041
Jul	0.014	0.008	0.014	-0.004	0.054	0.021	0.037	0.021
Jun	-0.004	0.026	0.028	0.003	0.059	0.044	0.028	0.001
May	0.036	0.071	0.028	0.022	0.058	0.001	0.026	0.037
Apr	0.030	0.028	0.027	0.025	0.056	0.049	0.024	0.013
Mar	0.064	0.021	0.038	0.043	0.063	0.029	0.040	0.030
Feb	0.014	0.058	0.038	0.005	0.055	0.056	0.031	0.032
Jan	0.025	-0.058	0.023	0.021	0.063	0.038	0.039	0.050
Mean AR	0.018	0.025	0.025	0.019	0.058	0.034	0.030	0.030
Std dev	0.030	0.031	0.009	0.018	0.004	0.016	0.007	0.015

Source: Research Findings (2017)

Graph showing the trend of the abnormality over the study period from 2009 to 2016 as shown in Figure 4.3.1

Figure 4.3:1 Abnormality of stock returns



Source: Research Findings (2017)

4.5 Inferential Statistics

The study sought to establish the relationship between small firm stock returns and market returns. NSE All Index (NASI) was used as the proxy for market stock returns and was regressed against the small firm and big firm stock returns. Statistical Package for Social Sciences (SPSS Version 21) was used in conducting regression analysis.

4.5.1 Model Summary

Table 4.5.1 shows the summary of the findings from the regression analysis.

Table 4.5.1 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.982 ^a	.965	.964	.0121114
a. Predictors: (Constant), Big Firm Returns, Small Firm Returns				

Source: Research Findings (2017)

From the regression analysis results it shows that there is a strong relationship between small firms stock returns and market returns of (R=0.982). The adjusted R-Square value of 0.964 implies that 96.4% of the total variance in market stock returns can be attributed to changes in small firm stock returns and big market stock returns.

4.5.2 Coefficients of Determination

The direction of the independent and dependent variable was shown using Coefficients of determination. A significant level of less than 5% was used to signify statistically significant findings. The findings are shown in Table 4.3.2.

Table 4.5.2: Coefficients of Determination

It can be said with 95% confidence that only Small Firm Stock Returns (t= 0.257, p= 0.000) has a positive and statistically significant effect on market stock return.

Big Firm Returns (t= 0.580, p= -0.695) was found to have a negative but statistically insignificant effect on market stock return.

The regression model equation is expressed as:

$$Y = \beta + \beta_1 X_1 + \beta_2 X_2 + \epsilon$$

$$Y = -0.041$$

Where:

Y= Market Return

X1= Small Firm Return

X2= Big Firm Return

These findings indicate that there is a positive and statistically significant small firm effect on the stock listed at NSE. The constant value of -0.041 implies that market stock return would be negative 0.041 in the absence of small firms stocks in the market. Increase in small firm return by 1 unit would lead to increase in market return by 1.398 while a unit increase in big firm return would lead to decrease in market return by 0.014. For the purpose of estimating the regression equation, the researcher estimated the stochastic error term to be zero.

4.5.3 Analysis of Variance (ANOVA)

The analysis of Variance (ANOVA) was carried out to test the overall goodness of fit and the reliability of the regression model. The findings are as tabulated in Table 4.5.3.

Table 4.5.3 Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.375	2	.188	1.2793	.000a
	Residual	.014	93	.000		
	Total	.389	95			

a. Predictors: (Constant), Big Firm Returns, Small Firm Returns

b. Dependent Variable: Market Returns

Source: Research Findings (2017)

The ANOVA statistics results show that the regression analysis model has a 0.0% significance level. This implies that the researcher can be 100% confident that the regression model is highly reliable and is fit for the data collected in regard to how small and big firms returns affects the market return.

4.6 Discussion of the Research Findings

The study sought to test the existence of small firm effect on stock market returns at the Nairobi Securities Exchange. NSE All Index (NASI) was used as the proxy for market stock returns and was regressed against the small firm and big firm stock returns. The study established that there is a very strong relationship ($R= 0.983$) between market returns and small firm stock returns. The adjusted R-Square value of 0.964 implies that 96.4% of the total variance in market stock returns can be attributed to changes in small firm stock returns and big market stock returns. Further, ANOVA statistics established that the regression model was highly reliable and good for data at 100% confidence. The study established that there is a positive and statistically significant small firm effect on the stock listed at NSE.

These findings corroborate existing literature. Ndungu (2003) undertook an empirical investigation of the size effect at the NSE and concluded that there was presence of the small firm effect at the NSE. Oluoch (2003) conducted a study aimed to determine whether the small size effect is present at the Nairobi Securities Exchange (NSE) and established that small firms have higher mean returns than the medium sized firms and the large firms and the market on average. Mghendi (2014) tested the small firm effect at the Nairobi Securities Exchange (NSE) market using a descriptive research design found out that there is indeed a small firm effect at the Nairobi Securities exchange. Kihenjo (2015) established that presence of small size effect at

Nairobi Securities Exchange.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter is discusses the summary of findings, the conclusions drawn by the study, recommendations for policy change and suggestions for future research. The study then presents the major limitations of the study.

5.2 Summary of Findings

The study sought to test the existence of small firm effect on stock market returns at the Nairobi Securities Exchange. The secondary data for analysis was gathered from the firms listed at the NSE. The listed stocks were divided into 4 quartiles based on market capitalization. The study used only two quartiles (quartile one and quartile four) in the analysis. Quartile One consisted of the largest firms while Quartile Four consisted of the smallest firms as per market capitalization. SPSS (version 21) and Microsoft's Excel (2013) was used in analyzing the data. NSE All Index (NASI) was used as the proxy for market stock returns and was regressed against the small firm and big firm stock returns.

The study established that there is a very strong relationship ($R= 0.983$) between market returns and small firm stock returns. The adjusted R-Square value of 0.964 implies that 96.4% of the total variance in market stock returns can be attributed to changes in small firm stock returns and big market stock returns. Further, ANOVA statistics established that the regression model was highly reliable and good for data at 100% confidence. The study established that there is a positive and statistically significant small firm effect on the stock listed at NSE.

These findings corroborate existing literature. Ndungu (2003) undertook an empirical investigation of the size effect at the NSE and concluded that there was presence of the small firm effect at the NSE. Oluoch (2003) conducted a study aimed to determine whether the small size effect is present at the Nairobi Securities Exchange (NSE) and established that small firms have higher mean returns than the medium sized firms and the large firms and the market on average. Mghendi (2014) tested the small firm effect at the Nairobi Securities exchange (NSE) market using a descriptive research design found out that there is indeed a small firm effect at the Nairobi Securities exchange. Kihenjo (2015) investigated small firm effect at the Nairobi Securities Exchange market; descriptive research design was used and found that small size effect does exist at Nairobi Securities Exchange.

5.3 Conclusion

This study concludes that there is a positive and statistically significant small firm effect at the NSE. This implies that market stock returns are highly influenced by the stock of small firms. The stock investors who want to make profit in stock trading should invest the stocks of small firms.

5.4 Limitation of the Study

The researcher encountered difficulties in obtaining the secondary data because the contact people at the NSE had busy working schedules which derailed the completion of the data collection process. The researcher made extra effort in reminding respondent on the urgency of the data in order to meet academic deadlines. The study was mainly dependent on secondary data available. This means that the accuracy of the data provided was dependent on the information available. This is however a general problem when dealing with secondary data. The accuracy of the data was established by crosschecking data from NSE and Capital Markets Authority. This

study was being undertaken within a limited period of eight years. In order to come up with more conclusive findings and recommendations, the research should have been conducted over a longer period of time.

5.5 Recommendation

This study established that there exists small market effect at the Nairobi Securities Exchange. The researcher recommends that investors wishing to make more profit in stock trading should invest more on the stocks of the small firms listed at the NSE. It demystifies the myth that large firms make more returns compared to small firms. In order to come up with more conclusive findings, a study should be undertaken considering a longer period of time such as twenty years as this might yield different results. This is because stock returns fluctuate over time.

5.6 Suggestions for Further Research

In future, scholars should consider other ways of determining firm size other than using market capitalization only. For instance, firm size can be also established using total asset value. Moore (2005) successfully used this method in his study. Studies done on the developed economies shows that small firm effect does not exist in their markets, bearing this in mind Kenyan economy is a developing economy and that studies should be done in testing the existence of small size effect until results shows otherwise.

Further, this study should be replicated using value added portfolios to check small firm effect still exists. A reference would be when Mamun and Visaltanachoti (2005) used value added portfolios in their study; they established that there was no small firm effect.

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APPENDIX 1: FIRMS LISTED AT NSE

1. A Baumann & Co Ltd
2. ARM Cement Co Ltd
3. Atlas African Industries Ltd
4. B O C Kenya Co Ltd
5. Bamburi Cement
6. Barclays Bank of Kenya
7. BAT Kenya
8. Britam (Kenya)
9. Car and General (K)
10. Carbacid Investments
11. Centum Investment Co
12. CIC Insurance Group
13. Co operative Bank of Kenya
14. Crown Paints Kenya
15. Deacons East Africa
16. Diamond Trsust Bank Kenya
17. Eaagads
18. East Africa Breweries
19. East African cables
20. East African Portland Cement
21. Equity Group

22. Eveready East Africa
23. Express Kenya
24. Flame Tree Group Holdings
25. Housing Finance Co Kenya
26. Home Africa
27. I M Holdings
28. Jubilee Holdings
29. Kakuzi
30. Kapchorua Tea Company
31. KCB Group
32. KenGen Company
33. Kenol Kobil
34. Kenya Airways
35. Kenya Orchards
36. Kenya Power and Lighting Co
37. Kenya Power and Lighting Co
38. Kenya Re
39. Kurwitu Ventures
40. Liberty Kenya Holdings
41. Limuru Tea Co
42. Longhorn Publishers
43. Mumias Sugar Co
44. Nairobi Business Ventures

45. Nairobi Securities Exchange
46. Nation Media Group
47. National Bank of Kenya
48. NIC Bank
49. Olympia Capital Holdings
50. Safaricom
51. Sameer Africa
52. Sanlam Kenya
53. Sasini
54. CFC Stanbic Holdings
55. Standard Chartered Bank of Kenya
56. Standard Group
57. Stanlib Fahari I-REIT
58. Total Kenya
59. TPS Eastern Africa
60. TransCentury
61. Uchumi Supermarkets
62. Umeme
63. Unga Group
64. Williamson Tea Kenya Ltd
65. WPP Scan group

Source: NSE Reports (2017)

APPENDIX 11: LARGE SIZE FIRMS

Firm	Capitalization
Kenya Commercial Bank RW	9.02M
Mumias Sugar	1.92M
Cooperative B	1.23M
Barclays Bank	880.85K
Equity Bank	843.89K
NIC Bank	756.84K
Safaricom	519.75K
Kenya Airways TZ	357.53K
CFC Stanbic	247.38K
Kengen	209.90K
East Africa Breweries	183.65K
British American	80.54K
Kenya Oil Company	63.74K
Diamond Ken	52.61K
EA Cables	42.74K
Centum Investment	39.59K

Source: NSE 2017

APPENDIX 111: SMALL SIZE FIRMS

Small size firms	Capitalization
Carbacid Investment	3.99K
Nairobi Exchange	3.47K
National bank of Kenya	3.15K
Housing Finance	3.05K
Std Chartered Kenya	2.21K
Sasini	2.00K
Standard group	1.68K
Sameer Africa	1.26K
Scan group	0.84K
Olympia Capita	0.42K
Bamburi	0.21K
EA Portland	0.21K
Limuru Tea	0.21K
Pan Africa Insurance	0.15K
BAT Kenya	0.11K

Source: NSE (2017)

APPENDIX 1V: NSE ALL STOCK INDEX (NASI)

Month/Year	Price	Month/year	Price
Dec -09	77.04	Dec -10	75.22
Nov-09	74.84	Nov-10	74.85
Oct-09	72.28	Oct-10	71.06
Sep-09	92.14	Sep-10	70.07
Aug-09	102.42	Aug-10	71.18
July-09	106.83	July-10	75.00
June-09	117.72	June-10	74.51
May-09	114.26	May-10	62.74
April-09	113.17	April-10	61.80
March-09	99.37	March-10	62.46
Feb-09	103.53	Feb-10	55.46
Jan-09	104.09	Jan-10	70.52
Month/Year	Price	Month/year	
Dec -11	102.71	Dec -12	71.43
Nov-11	102.91	Nov-12	69.65
Oct-11	107.48	Oct-12	76.35
Sep-11	103.87	Sep-12	72.85
Aug-11	100.73	Aug-12	80.33
July-11	102.63	July-12	88.54
June-11	99.86	June-12	95.93

May-11	96.95	May-12	97.87
April-11	94.64	April-12	97.87
March-11	88.65	March-12	93.98
Feb-11	83.14	Feb-12	101.49
Jan-11	82.06	Jan-12	103.97
Month/Year	Price	Month/year	Price
Dec -13	99.60	Dec -14	143.48
Nov-13	96.81	Nov-14	148.23
Oct-13	96.37	Oct-14	139.90
Sep-13	91.75	Sep-14	133.72
Aug-13	88.89	Aug-14	125.96
July-13	87.42	July-14	129.00
June-13	84.79	June-14	122.13
May-13	82.40	May-14	133.14
April-13	80.76	April-14	123.97
March-13	77.14	March-14	123.81
Feb-13	75.67	Feb-14	112.26
Jan-13	72.39	Jan-14	108.68
Month/Year	Price	Month/year	Price
Dec -15	163.70	Dec -16	146.43
Nov-15	164.09	Nov-16	144.19
Oct-15	160.03	Oct-16	137.97
Sep-15	164.27	Sep-16	147.65

Aug-15	158.73	Aug-16	143.51
July-15	152.45	July-16	149.13
June-15	151.89	June-16	165.23
May-15	150.95	May-16	162.94
April-15	151.89	April-16	174.07
March-15	144.61	March-16	175.99
Feb-15	141.76	Feb-16	176.58
Jan-15	138.33	Jan-16	166.63

Source: NSE (2017)