THE TURN OF THE MONTH EFFECT AT THE NAIROBI SECURITIES EXCHANGE

BY

SAMUEL CHEGE KAIGU

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE IN FINANCE DEGREE, SCHOOL OF BUSINESS UNIVERSITY OF NAIROBI

2017

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.

Signed: ………………………. Date: …………………..

Samuel Chege Kaigu
D63/73104/2014

This Research proposal has been submitted for examination with my approval as the University Supervisor.

Signed: …………........................ Date: ……………..

Dr. Winnie Nyamute
Senior Lecturer,
School of Business, University of Nairobi

ACKNOWLEDGMENT

I would like to thank God for his blessings this far and for enabling me complete this research study. My sincere gratitude to my Supervisor, Dr. Winnie Nyamute, for her guidance and mentorship during my studies.

I would also like to thank my family for their encouragement and constant support. I am indebted to my wife and my niece who have borne with me and supported my studies during my Msc journey.

Thank you, to the NSE for the provision of data without which the research would not have been concluded.

Lastly, to my project moderator, Dr. Mirie Mwangi and all the Msc Lecturers and fellow students, thank you.

DEDICATION

I dedicate this project to my family for their unwavering support throughout the duration of my studies, my wife, who encouraged me all through and also my parents whose vision and dreams have propelled me to complete this project.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF 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

A calendar effect is any market anomaly or economic effect which appears to be related to the calendar. Such effects include the apparently different behavior of stock markets on different days of the week, different times of the month, and different times of year. As a result of the stock anomaly, the information filtering into the stock market would affect the capital gains of a stock by influencing stock prices. The study sought to answer one research question: does the turn of the month effect exist in the different sectors at the Nairobi Securities Exchange? The objective of the study was to investigate the turn of the month effect at the Nairobi Securities Exchange. This study adopted a descriptive research design. This research design was appropriate since the study aimed to use empirical evidence from the reports at the NSE. The study made use of all 61 firms listed at the NSE as at 31st December, 2013. This study collected market share prices per sector and then computed stock price indices and stock returns (Change in stock prices). To establish whether there exists the turn of the month effect at the NSE on sector basis, the study used a paired t-test to test if there was a significant difference in mean returns. The study established that the many sectors did not have pronounced turn of the month effect and that the effect offset when the analysis was done on the overall NSE performance. This meant that in general there was no significant difference between the end of the month prices and those recorded during the month. From the analysis of paired T-tests, in most circumstances, there was no difference between the mean at the end of the month and the mean for the rest of the month hence failure to confirm the existence of calendar effects at the NSE. The study recommended that investors assess the performance of share prices during the month so as to know when to sell off or buy shares of a certain firm. The study recommended to the investors to carefully study the market movements in prices when deciding which shares to invest in. This study therefore recommended that investors should study carefully the existing relevant market information as and when buying or selling their shares 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 also happens to be the first researcher). Research on the size effects has been confirmed that it exists by Levis (1985), Corhay, Hawawini and Michel (1988). However there have been a number of attempts 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 economy in Sub Saharan Africa. The NSE is composed of four major investments that are independent, namely: Futures and options Market Sectors, Alternative Investments' Market Sector (It provides access to capital to small and medium sized companies with high potential for growth), Main Investments Market Sector (it has most stringent listing requirements and it's also similar to past structure of securities exchange) and Fixed Income Securities Market Sector (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 the NSE and it 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 four (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 Turn of the Month 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 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, these are: number of issued stock and achieved volume, market capitalization and total assets. Market capitalization is value that a company can be bought in an open air market.

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 65 compared to the earlier years. With the new listings diversified sizes, stock returns have been presented in the market. 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 that is 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 affect 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 on the percentage of 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 Turn of the Month Effects and Stock Returns

Abnormal returns are experienced by small firms systematic risks are contained by small stocks and are not adequately measured (Fama and French, 1996). Poor performance 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). These 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

4

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 compared to the small firms, the value of common stock will be lower (Moore, 2005).

1.1.4 The 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 in 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 shares 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 based 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 interrelationship of the January and small firms effects at the NYSE were analyzed (Keim, 1983). The findings were that the effects were 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 the 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 effect 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 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 revolutionized 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 listed firms have 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. For instance, Dimension Data acquired Access Kenya then later delisted. Some have merged with others. This has improved the performance of NSE.

Oluoch, 2003 researched whether the size effect existed at the NSE, however the findings were that the anomaly in the market could not be predicted of its prevalence or existence. An investigation on the interrelationship between the 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 ago. 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 will be achieved by seeking the answers on the research objective. To investigate the turn of the calendar effect at the Nairobi Securities Exchange.

1.3 Objectives of the Study

To investigate the turn of the calendar effect 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 will help researchers to unearth whether it still does exist, it will further help in narrowing 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 will enrich the field and help 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, it will however help in formulation of policies and regulations that relate to tax that might affect firms that portray the existence of small firm effect.

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 will be 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 will be provided to individual investors that will enable them to make sound judgment while buying stocks. The observed patterns will help traders in profit maximization. It will also help traders in building up of 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 previous anomalies on calendar and their stock market effects. Random walk hypothesis and efficient market hypothesis (EMH) are the theories to be discussed, Conceptual framework, empirical studies and finally the summary of the empirical and theoretical reviews.

2.2 Theoretical Literature Review

This section reviews what has been done by scholars and researchers on calendar anomalies. The study is grounded on two theories: random walk model and efficient market hypothesis model. The two models are discussed below.

2.2.1 Random Walk Model

It was developed by Kendall in the year (1953) .This theory was and was later confirmed by Fama (1965). The random walk asserts that successive returns are independent and that the returns are identically distributed over time (Fama, 1965). According to this hypothesis, stocks move in a random way due to the fact that use the stock markets are efficient. This efficiency occurs in situations that prices of security represent information from history. Abnormal profit cannot be created by an investor by trading based on historical price information. The semi strong level of efficiency advocates that prices reflect all public available information. It means that analyzing information from the public has little or no advantage because it is inclusive in the price charged (Fama, 1970). Under this form of efficiency both fundamental and technical analysis are able to produce

excess returns in a reliable way. However, it is generally accepted that stock market returns have more than one in value of mean. Random walk drift model facilitates specification of the time path of stock prices. Seasonality in the prices of stock does not exist under this model due to the random nature of the stock prices

2.2.2 Efficient Market Hypothesis

It was introduced in the year 1960 by Fama at the University of Chicago Booth. It brings out the aspect of how fast and accurately a market can get access to new information (William, 2002). In addition it asserts that stock markets are informational efficient whereby securities prices are reflective of information available in the market. Current price reflects all information, both public private under strong form of efficiency. Professionals, who exist in the stock market, possess both private and public information. Under (EMH) there is an assumption that all investors have full access to information and by so doing, all information released is inclusive in the final price which is reflective of its rightful value.

Over valuing or undervaluing of shares cannot be felt by investors in the efficient markets Fama (1970). Non market information like dividends and all information that is public like political news is what are used under the weak form of (EMH) Reilly (1997). Share prices are usually a representation of new public information which is incorporated and adjusted in order to reflect the true value of the share. By this, gains in the stock market cannot be generated by an investor by using public information. Fama (1970) asserts that the prices of stock are a reflection of information in the previous past prices and other historical market information as per the assumption of the weak-form efficiency

2.3 Determinants of Stock Returns

This section discusses the various factors that determine stock returns. These include: inflation rate, price earnings ratio and dividend.

2.3.1 Financial Market Anomalies

A strange or unusual occurrence is what is termed as anomaly. It has been defined by George & Elton (2001) as deviations from natural order and is what is defined as anomalies according to Elton (2001). They are an indication of markets which are inefficient. Tversky and Kahneman (1986) a deviation from the presently accepted paradigms which can't be ignored is what is referred to as market anomalies. (Silver 2011) established the three categories of anomalies, namely seasonal or calendar, technical anomalies and fundamentals. Calendar anomalies relate to specific period of time .Some of the main calendar anomalies are:

2.3.1.1 Weekend Effect and Day of the Week

It contains the differences which exist in return of days of the week. There are mixed finding on this effect where some researchers establish that there exists high variances on Mondays and low on Fridays. Hess (1981) established that there are high returns on Friday but low returns on Monday as compared to other days of week. Dubois and Louvet (1995) established that in European countries, there existed low levels of returns at the beginning of week. Agrawal and Tendon (1994) established that the returns were negative on Tuesday in 8 countries and still negative on the Monday returns of the other 10 countries. The population of the study was 19 countries. The returns on Tuesday were lower than the returns on Monday.

2.3.1.2 Intra-monthly Anomaly

Ariel (2002) in his study ascertained that the revenue at the start of the month is positive; this study was carried out on the return per month basis in United States stock index return ascertained that stocks earn positive high revenue at the start of month. In addition they ascertained that in the second half month, zero average returns are earned by firms (Jaffe and Westerfield 1989). Similar pattern were explicated in Australia, United Kingdom and Canada while Japan had negative impact. Boudreau (1995) established that Denmark, France, Germany, Norway, Switzerland's monthly effect had a negative impact. Hensel (2011) established that cash flows as an example of the reasons why there are returns of stock that are short term and this is observed before and after specific period resulting into return anomalies.

2.3.1.3 Turn of the Month Effect

(Nosheen et al. 2007) found that the other days of the months have lower mean returns while the early days of the month have higher returns. Cadsby and Ratner (1992) investigated on turn of the month effect in European countries .The findings indicated that there was no effect on the stock returns this was done in Hong Kong, Japan, France and Italy. Nosheen et al. (2007) found Turn of the month effect in Pakistan. He established that there was no impact or little in the turn of the month effect and time of the month impact.

2.3.1.4 Turn of the Year Effect

Turn of the year effect occurs when firms experience higher returns and trade volumes in the first half month of the January and the last week of December as observed in the Stock Exchange. According to Agrawal & Tandon (1994) year-end effect in institutions is attributable to inventory adjustment and window dressing by managers just to cover up for the losses or just to have better results at the year end.

2.3.1.5 January Effect

This is a situation where firms stocks to generate more sales, there are many asset classes but managers make use of stock in the first two weeks of January. The situation is referred to as January effect. Ligon (1997) established that large liquidity in January is the cause of January effect. According to watchel (1942) January has high revenues as compared to other months in year. January effect arises when Investors are guided by the tax loss hypothesis; they buy back in January to cover up for what they sold in December according to many researchers. Keong (2010) established that except for Hong Kong and Japan, most of the Asian markets exhibit positive December.

2.3.1.6 Holiday Effect

A situation where abnormally high returns are reported on the trading day before a holiday is what is termed as holiday effect. Chong et al. (2005) investigated holiday effect across three markets of the world that is U.K, U.S and Hong Kong. The findings showed out of all the three indices there was existence of the pre-holiday effect. UK had the highest effect followed by Hong Kong indices. The results further ascertained that there were higher returns on some days just before a holiday. This was not shown on other non pre holidays. On the tests of the consistence or declining of the anomalies in

the markets studied, the findings indicated that decline in anomalies was low in U.K and Hong Kong. Al-Loughani (2005) in his investigation on the presence and causes of holiday effect on stock returns in the Kuwait stock exchange (KSE), ascertained that there were no differences in returns just before the holidays. Therefore there is no existence of holiday effect before KSE. More studies show that post holiday's explicit higher returns.

2.3.1.7 Presidential Election Effect

The change in the prices of stocks and trading stock volume exchange in the presidential election period is what is termed as presidential election effect. Nippani and Medlin (2002), investigated on the effects of the delay in the declaring of a winner in the US on the performance of stock markets in 2000.As per the results, a negative reaction to the delay in the election results was found. The most negative reaction was immediate to the delays.

2.3.2 Small Firm Effect

It is where small firms have lower returns as compared to larger firms. This affects prices of capital assets. According to Kiem (1983), January is when half of the small firms' effect occurs. Roll (1987) ascertained, tax-loss selling cannot be used to explain in detail the January effect. Banz (1981) further stated that unavailability of information about small firms leads to exclusion from their portfolios by investors. The resulting effect is a higher risk adjusted returns for the undesirable small firms. Fama and French (1995), in their study on the correlation between size and firm earnings, ascertained that small firm effect is relevant. Besides they concluded that large firms have lower earnings as compared to small firms.

2.3.3 Inflation Rate

Inflation is termed as a decline in purchasing power. This is also attributed to the loss of the real value of money. Inflation rate is used in measuring inflation. The percentage change in a price index over time is what is defined as inflation. The sales revenue from firms and the borrowings from lenders are affected by inflation. This is evident when the discount rates changes or the changes in nominal cash flows. The sale price and the discount rate changes accordingly due to anticipated inflation. Ratios of share prices to earnings are what are termed as P/E ratio. International activities affect business indirectly or directly due to the increase in economic globalization. Exchange rates play an important role in capital mobility leading to globalization. High inflation raises the cost of living leading to a shift of investments to consumptions. This leads to fall in demand of stocks leading to slump on share prices. Inflation also increases the cost of inputs which have a negative impact on earnings of quoted companies thus affecting stock returns (Bayramova and Ojagverdiyeva, 2010).

2.4 Empirical Literature

Globally, Ally, Mehdian and Perry (2004) conducted a study in the Egyptian stock market, they used CMAI (Capital Market Authority Index) on the daily stock market anomalies and found high returns on average on Mondays as weighed against other days of the week. However the difference was so insignificant, due to the fact that there was a consistent correlation between stock markets in Egypt and weak efficient market hypothesis. The major limitation of the study is that the number of stocks that are active in terms of trading are limited in the Egyptian market.

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 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, it is referred to as the January effect. This study was done 7 years ago thus there is need to test whether the findings still hold.

Al-Rjoub (2004) did a study where he was looking for the weekend effect anomaly in stock returns. He factored out for the sample sizes and measurement errors. The results indicated a consistent low negative effect across different time frame at start-of-the-week day's returns. Findings further ascertained that Thursday return had a tendency of being positive .Sunday return was less in most of the cases. Gao and Kling (2005) studied on the Effects of monthly and daily effects on Chinese stock market. As per the results there was a conclusion that there is a change of the calendar effect when using individual stock returns. The studies further asserted that the end of the year was strong in Shanghai and Shenzhen in 1991.Fridays are profitable as for the daily effect.

2.4.1 Local Evidence

Muragu (1990) examined the price movements at the NSE. His focus was on the level of stock market efficiency. The findings were that the random walk holds for the NSE, which implies that there is no system in the price movements pattern of future prices and that they are not dependent of past prices. This was supported by Kingori (1995) who examined whether NSE exhibits monthly and quarterly seasonalities and found that the mean stock returns are equal over all the months and quarters tested. She did not find existence of January effect.

Mulumbi (2010) did a study of the existence of turn of the month effect at the Nairobi Stock Exchange. The study was examining the patterns that are seasonal usually in markets that are developed like the United States of America. The findings showed that the returns on stocks on average were higher on the last day of the calendar month. Holiday effect and January effect are calendar anomalies that were independent of the monthly impact on the study done. The calendar anomalies have been earlier documented by others regarding their contribution towards the findings but on this one the results went hand in hand with the US findings.

Correlation and regression was used to analyze data. Analysis was also used to come up with the model expressing the relationship while correlation analysis was used to test for the overall significance of the models as well as the individual significance of the predictor variables. Further the study identified Dl (the first 24 days before the end of the month), D4 (the first day after the end of the month) and D, (the second day after the end of the month), were significantly related with market return at time (Turn of the Month Effect).

Migiro (2010) did an empirical investigation on the turn-of-the month effects for companies quoted at Nairobi Stock Exchange. This study tries to determine whether the-turn-of-the-month effect exists at the Nairobi Stock Exchange. It allows us to examine whether the seasonal effects usually found in countries like the USA are also present in the Kenyan market. The study used secondary data in the form of daily observations of the stock prices from the NSE database covering the period from 1st January, 2006 to 31st December, 2009. A comparison of the average stock returns during the turn of the month (TOM) and rest of the month (ROM) shows that the average stock returns for the rest of the month were always higher than the returns for the turn of the month for three of the four years (2006-2008).

The year 2009 was exceptional as it showed the arithmetic returns for the TOM were more than the arithmetic returns for the ROM. Performing t-test for comparison of the arithmetic means across the years, it's shown that there are no significant differences in the means for all the four years (2006-2009), implying that there does not exist turn of the month effect in any year of the study. According to the results therefore, its shown that the average stock returns for the rest of the month was always higher than the returns for the turn of the month and that the comparison of the arithmetic means across the years showed that there is no significant differences in the means for all the four years.

Muchemi (2012), investigated on the month of the year and the pre-holiday effects, and their implications for stock market efficiency in the biggest markets in Africa. He used monthly market indices for the markets in various countries. Egypt, Nigeria and Zimbabwe showed evidences of January seasonality. However, Morocco, Kenya, Nigeria and South Africa showed February effect.

Wachira (2013) studied the January effect and market returns: evidence from the Nairobi Securities Exchange. Establishing whether there exists a January effect at the Nairobi Securities Exchange was the purpose of the study. Listed companies for equity stocks at the NSE as at December 2012 were the population of the study. Negative coefficients were evident in the model used as per the findings. January effect was found to be in existence as per the findings, since they signify higher returns in January than other months. January effect does not exist at NSE since T-statistics indicated that coefficients were insignificant.

2.5 Conceptual Framework

There exists the turn of the month effect basing on some empirical studies. However according to the variables in this study, it's expected that the sectors will produce higher stock market returns as the month turns to a new one.

Independent variable   **Dependent variable**
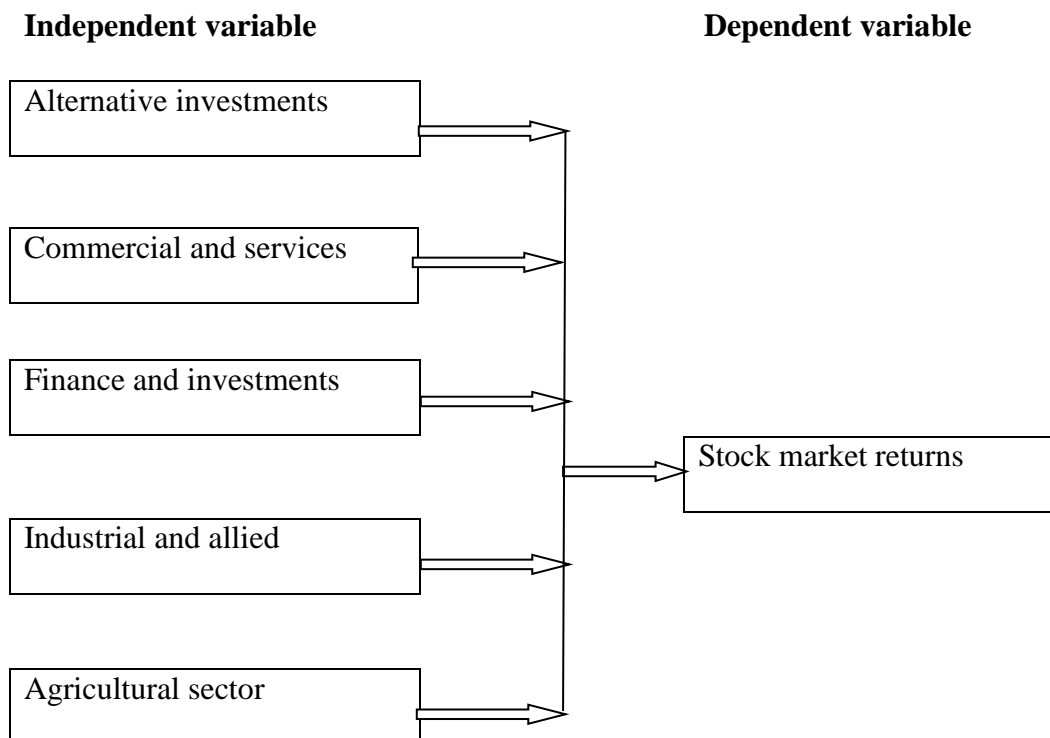
Figure 2.3: Conceptual Model
 Source: (Author, 2017)

2.6 Summary of Literature Review

The chapter reviews literature as presented by other scholars on calender effect at the securities exchanges all over the world. Aly, Mehdian and Perry (2004) investigated daily stock market anomalies in the Egyptian stock market using the Capital Market Authority Index (CMA). Gao and Kling (2005) investigated on monthly and daily effects in Chinese stock market. Wong, Agarwal and Wong (2006) also analyzed the January effect inherent in the Singaporean stock market. Chukwuogor-Ndu (2006) studied on the financial markets trends in 15 emerging and developed European financial markets. Rezvanian and Mehdian (2008) analyze the calendar anomalies in Chinese equity markets using indices from six Chinese exchanges. All these studies presented empirical literature from an international perspective which has a different operating environment and condition from that at Nairobi Securities exchange. The current study therefore presented literature from a local perspective.

On the local perspective, Muragu (1990) examined the price movements at the NSE focusing on the level of market efficiency in the stock market. Mulumbi (2010) did an investigation of the existence of turn of the month effect at the Nairobi Stock Exchange. Migiro (2010) did an empirical investigation of the turn-of-the month effects for companies quoted at Nairobi Stock Exchange. Muchemi (2012), examined the month of the year and the pre-holiday effects, and their implications for stock market efficiency in the biggest markets in Africa. Wachira (2013) studied the January effect and market returns: evidence from the Nairobi Securities Exchange. The only study that tackled calendar of the month effect was that of Migiro (2010). However, the study was

conducted on the whole NSE which could have presented some compensating effects among sectors and companies. The current study seeks to conduct an analysis on sector basis to establish whether there exists calendar of the month effect at sector level at the NSE. There is no study that has conducted an analysis on the existence of calendar effects at the NSE on sector basis. This study therefore seeks to fill this research gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a description of the research design, the sample population, sampling procedure and the sample that was used in the selected study. The data collection methods were discussed as well as the presentation techniques that were 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. The study adopted a descriptive research design. Descriptive design determines and gives reports of a phenomenon (Mugenda and Mugenda, 2003). It is used when data is to be collected to describe phenomenon, settings, organizations and persons (Creswell, 2003). Descriptive research design is used to carry out the study on firms listed at the NSE and will therefore help in answering the research question.

3.3 Population of the Study

Population is described as objects, cases and individuals with common observable characteristics (Mugenda and Mugenda 2003). The study made use all the firms listed at the NSE under the equity section. In this case there were 65 Companies as at 31 December 2016 out which 63 companies were studied representing 97% of the listed companies. The firms were grouped into sectors according to their functions.

3.4 Data Collection

Secondary data was used to carry out the study. The data was readily available at the Nairobi Stock Exchange Online Library. Monthly market share prices were obtained from NSE reports, and daily data collected for the period under study which was January 2012 to December 2016. Market prices of the shares was collected and used for computation of stock price indices and returns on stocks.

3.5 Data Analysis

According to Singleton et al., (2003) data analysis involves application of statistical or logical techniques in illustration, condensation, recapping and evaluation of data. Statistical Package for Social Sciences was used for data analysis. The non-parametric tests was conducted; the paired t tests developed by Sir William Gosset (Mugenda and Mugenda, 2003).The level of significance was set at 5%.

3.5.1 Analytical Model

A paired t test was done in order to examine the turn of the calendar effect at the Nairobi Stock Exchange. The following model was used to test the return of the NSE general index (Boudreaux, 2005).

Return t= Ln (Index t/Index t-1) = a+ut

Where

Return t=continuously compounded rate of change of the stock index

Index t= Stock market Index at time t

a =constant

ut =normal random variable with a mean of zero

R it= (P+it-Pit) /P it

P it= Ith stock index at time t (price)

t =to distinct periods

t1 = index value for the first four trading hours

t2 =second to the last trading day of the month was included in the next month's return in order to allow comparison with Ariel (1987), Jaffe and Westerfields (1989) and Boudreaux (1995).

To establish whether the calendar effect exists at the NSE on sector basis, the study used a paired t-test to test whether there is a significant difference in mean returns for equation 1 and equation 2 above.

3.5.2 Tests of Significance

The null hypothesis of the turn of the month anomaly was: H0: t1 = t2; or the returns for the five day period representing the beginning of the month was equal to the returns of the rest of the month. The alternative hypothesis of the monthly anomaly was HA: t1 $\neq$ t2 meaning that the returns for the five day period representing the beginning of the month are not equal to the returns of the rest of the month.

The overall fit of the model was tested by conducting the F-test

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents data analysis, findings and thereafter discussions on the study, turn of the calendar effect at the Nairobi security exchange. Data used is secondary in nature. The study period was five years from 2012 to 2016. This study collected market share prices per sector and then computed stock price indices and stock returns (Change in stock prices). The study used Statistical Package for Social Sciences Version 20.0 to aid in data analysis.

4.2 Descriptive Statistics

This section presents the descriptive statistics of the population studied. These statistics provided a summary of the samples used. The study presented descriptive statistics for the various sectors of the Nairobi Securities exchange.

Table 4.1 Descriptive statistics

Sector	Mean	Mode	Std. Deviation
Alternative Investments	24.35476	6.2678	27.9538
Commercial and Services	14.94749	0.1815	23.4363
Finance and Investment	7.92792	-1.0285	8.97922
Industrial and Allied	17.0518	1.5609	6.78817
Agricultural Sector	20.1096	2.662	24.8838
Fixed Income	60.58228	2.7709	125.396

Source: Research Findings, 2017

Alternative investments had a mean of 24.35476, a mode of 6.2678 and a standard deviation of 27.9538. Commercial and Services had a mean of 14.94749, a mode of 0.1815 and a standard deviation of 23.4363. Finance and Investment had a mean of 7.92792, a mode of -1.0285 and a standard deviation of 8.97922. Industrial and Allied had a mean of 17.0518, a mode of 1.5609 and a standard deviation of 6.78817.

The Agricultural Sector had a mean of 20.1096, a mode of 2.662 and a standard deviation of 24.8838. Fixed Income Sector had a mean of 60.58228, a mode of 2.7709 and a standard deviation of 125.396. The study examined the presence of the calendar effect by comparing the market price of the various stocks at the exchange by computing the differences in share price in the 28th day and the 4th day and comparing this to the different values obtained from the 27th and 5th day of each month for the 12 months each year from 2012-2016. The results of the analysis are shown in Table 4.5.

4.3 Paired t-test for difference in Means

The study conducted a paired t-test for the various sectors at the NSE for the years 2012 to 2016. The difference in significance in mean returns was tested using a paired t-test. H0: t1 = t2; was the null hypothesis of the turn of the calendar effect, it was also interpreted as the returns of the five days in the beginning of the month. The returns should also be equal to the returns of the rest of the month. The alternative hypothesis of the monthly anomaly was HA: t1 ≠ t2.

4.3.1 Alternate Investment Sector

The findings in table 4.2, the null hypothesis cannot be rejected over the period 2012-2016 except for the years 2012 and 2013 in which the monthly anomaly exists and positive. For the years 2012 to 2016, the Sig (2-Tailed) values obtained for this sector

were less than preset significance of 5% and thus for those years there was no difference in the means hence there existed no calendar effect. However, for the years 2015 and 2016, the Sig (2-Tailed) values obtained were more than the significance of 5% and thus we conclude that for this period, there existed calendar effect. These findings are well illustrated in the Table 4.2 below:

Table 4.2: Paired t-test for the Alternate Sector

Source: Research Findings, 2017

Period	Average return Beginning of the Month	Average return Remaining of the Month	The turn of Month Effect	Paired t Statistic	Effect
2012	-0.07%	0.06%	Negative	0.021	Non-Significant
2013	0.75%	0.23%	Positive	-1.202	Non-Significant
2014	1.54%	0.17%	Positive	-1.547	Non-Significant
2015	2.06%	0.31%	Positive	5.034	Significant
2016	0.34%	0.11%	Positive	6.441	Significant

4.3.2 Insurance Sector

The study further carried out a paired t-test for the Insurance sector over the study period 2012 -2016. The Table 4.3 below presents the findings of the analysis.

Table 4.3: Paired t-test for the Insurance Sector

Period	Average return Beginning of the Month	Average return Remaining of the Month	The turn of Month Effect	Paired t Statistic	Effect
2012	0.05%	-0.03%	Positive	-1.006	Non-Significant
2013	-0.51%	-0.06%	Negative	-0.765	Non-Significant
2014	1.54%	0.12%	Positive	0.01952	Non-Significant
2015	0.42%	-0.06%	Positive	0.099	Non-Significant
2016	0.29%	0.16%	Positive	0.106	Non-Significant

Source: Research Findings, 2017

From the findings in the Table 4.3, the null hypothesis cannot be rejected over the period of study in this sector because the paired t-test values were below the 5% significance level. We therefore fail to reject null hypothesis and conclude that there is no difference between the two means within this sector over the study period. In view of the above, the calendar effect never existed in this sector during the period of study.

4.3.3 Agricultural Sector

The study further carried out a paired t-test for the Agricultural sector over the study period 2012- 2016. The findings were as shown in the Table 4.4 below:

Table 4.4: Paired t-test for the Agricultural Sector

Period	Average return Beginning of the Month	Average return Remaining of the Month	The turn of Month Effect	Paired t Statistic	Effect
2012	0.24%	-0.05%	Positive	0.0371	Non-Significant
2013	2.50%	0.18%	Positive	-1.458	Non-Significant
2014	-0.46%	0.14%	Negative	-0.805	Non-Significant
2015	0.47%	0.24%	Positive	-0.292	Non-Significant
2016	0.11%	0.08%	Positive	4.699	Significant

Source: Research Findings, 2017

From the findings in the Table 4.4, the null hypothesis cannot be rejected over the period 2012-2013 because the p-values of the paired t-test are below the 5% significance level. However, there is some calendar effect in the year 2016 where the p-value is more than the significance value at 5%. This therefore shows that over the study period, there was a calendar effect for the last year of analysis.

4.3.4 Commercial and Service Sector

The study further carried out an analysis of the Commercial and Service sector over the study period. The findings were as shown in the table 4.5 below:

Table 4.5: Paired t-test for the Commercial and Service Sector

Period	Average return Beginning of the Month	Average return Remaining of the Month	The turn of Month Effect	Paired t Statistic	Effect
2012	0.05%	-0.03%	Positive	1.006	Non-Significant
2013	-0.51%	-0.06%	Negative	-1.765	Non-Significant
2014	1.54%	0.12%	Positive	0.01952	Non-Significant
2015	0.42%	-0.06%	Positive	3.599	Significant
2016	0.29%	0.16%	Positive	0.1096	Non-Significant

Source: Research Findings, 2017

From the research findings, the research study established that the results indicate that in the year 2012, there was a significant difference between the two means and thus there existed calendar effect in the commercial and service sector. For the years 2013 and 2014, there was no calendar effect as there is no significant difference between the two means: For end of the month and the beginning of the month. However, for the period 2015, there was a registered calendar effect as indicated by a higher p-value than the 5% significance level. The year 2016 registered no calendar effect. This sector registered a mixture of results from one year to the other.

4.3.5 Manufacturing and Allied sector

Study findings on the paired t-test statistics for the Manufacturing and Allied sector and the Table 4.6 below presents the findings of the analysis:

Table 4.6: Paired t-test for the Manufacturing and Allied sector

Period	Average return Beginning of the Month	Average return Remaining of the Month	The turn of Month Effect	Paired t Statistic	Effect
2012	1.25%	0.10%	Positive	1.006	Non-Significant
2013	0.75%	0.23%	Positive	-1.765	Non-Significant
2014	-0.47%	-0.02%	Negative	0.055	Non-Significant
2015	-1.44%	0.03%	Negative	0.099	Non-Significant
2016	1.58%	0.13%	Positive	2.106	Significant

Source: Research Findings, 2017

From the findings shown in the Table 4.6 above, there was calendar effect in the year 2012 as the paired t-test p-value was greater than 5%. For the years 2013 to 2015, we fail to reject null hypothesis since their p-values are less than 5% and conclude that there is no difference between the two means recorded. However, 2016 also registered higher than 5% hence the presence of calendar effect.

4.3.6 Banking Sector

The study findings on Table 4.7 below presents the banking sector analysis

Table 4.7: Paired t-test for the Banking Sector

Period	Average return Beginning of the Month	Average return Remaining of the Month	The turn of Month Effect	Paired t Statistic	Effect
2012	0.35%	1.00%	Negative	-1.128	Non-Significant
2013	-1.50%	-0.03%	Negative	-0.329	Non-Significant
2014	1.04%	-0.02%	Positive	6.756	Significant
2015	0.07%	0.25%	Negative	1.163	Non-Significant
2016	0.40%	0.41%	Negative	0.129	Non-Significant

Source: Research Findings, 2017

From the findings shown in the Table 4.7 above, there was no calendar effect in the year 2012 and 2013 as the paired t-test p-value was less than 0.05. For the years 2014 to 2015, we reject null hypothesis since their p-values are greater than 0.05 and conclude that there is a difference between the two means recorded. However, 2016 registered a lower than 0.05 p-value hence no calendar effect was present.

4.3.7 Construction and Allied Sector

Study findings on the Construction and Allied Sector are shown in the Table 4.8 below:

Table 4.8: Paired t-test for the Construction and Allied Sector

Period	Average return Beginning of the Month	Average return Remaining of the Month	The turn of Month Effect	Paired t Statistic	Effect
2012	0.32%	0.33%	Negative	-0.016	Non-Significant
2013	0.15%	0.30%	Negative	0.023	Non-Significant
2014	0.07%	0.04%	Positive	-0.081	Non-Significant
2015	0.12%	0.14%	Negative	-0.0857	Non-Significant
2016	0.65%	0.18%	Positive	0.0984	Non-Significant

Source: Research Findings, 2017

From the findings, the results indicate that in the year 2012, there was no significant difference between the two means and thus there existed no calendar effect in the Construction and Allied Sector. For the years 2013 and 2014, there was a significant difference between the means of end of the month and for the rest of the month hence the calendar effect. However, for the period 2015 and 2016, there was no calendar effect as indicated by a lower p-value than 5% significance level.

4.3.8 Energy and Petroleum Sector

The study further did a paired t-test for the Energy and Petroleum sector. The findings were as illustrated in the Table 4.9 below:

Table 4.9: Paired t-test for the Energy and Petroleum Sector

Period	Average return Beginning of the Month	Average return Remaining of the Month	The turn of Month Effect	Paired t Statistic	Effect
2012	0.05%	-0.03%	Positive	-0.232	Non-Significant
2013	0.35%	1.00%	Negative	-1.797	Non-Significant
2014	-0.17%	-0.24%	Positive	0.076	Non-Significant
2015	2.30%	0.01%	Positive	1.986	Significant
2016	1.33%	0.18%	Positive	0.129	Non-Significant

Source: Research Findings, 2017

As shown in the Table 4.9, in the period starting 2012 to 2014 and 2016, there was no significant difference between the two means at the beginning of the month and the other days of the month which leads to the conclusion that we fail to reject null hypothesis. Therefore no calendar effect existed in this sector for the above three years. The year 2015 had a significant difference and therefore we conclude there was calendar of the month effect.

4.3.9 Automobiles and Accessories

Research findings on the paired t-test for the Automobile and Accessories are illustrated in the table 4.10 below:

Table 4.10: Paired t-test for the Automobile and Accessories

Period	Average return Beginning of the Month	Average return Remaining of the Month	The turn of Month Effect	Paired t Statistic	Effect
2012	0.05%	-0.03%	Positive	-0.232	Non-Significant
2013	0.35%	1.00%	Negative	-1.797	Non-Significant
2014	-0.13%	-0.20%	Positive	0.116	Non-Significant
2015	2.36%	0.07%	Positive	2.046	Significant
2016	1.41%	0.26%	Positive	0.209	Non-Significant

Source: Research Findings, 2017

From the findings shown in the Table 4.10 above, there was no calendar effect in the years 2012 to 2014 as the paired t-test p-value was less than 0.05 meaning that there is no difference between the two means for beginning of the month and the rest of the month. For the years 2015, we reject null hypothesis since their p-values are greater than 0.05 and conclude that there is a difference between the two means recorded. However, 2016 registered a lower than 0.05 p-value hence no calendar effect was present.

4.4 Interpretation

In the Alternate sector, the observations indicate that from the years 2012-2015 there was no significant difference between the means hence no turn of the calendar effect. However, for the years 2016 there was a significant difference. In the Insurance sector we did not observe a significant difference in the means from the year 2012 and 2016. In the Agricultural sector from the year 2012 to 2015 there was no significant difference in the means. However, in 2016 a significant difference was recorded. In the Commercial and Services sector, no significant difference in the means was observed in the years 2012 to 2014 and 2016. In the year 2015 a significant difference in the means was recorded.

In the Manufacturing and Allied no significant difference in the means was observed in the years 2012 and 2015. However, in 2016 a significant difference was recorded. In the Banking sector there was no significant difference in the years 2012, 2013, 2015 and 2016. The year 2014 did record a significant difference. In the Construction and Allied sector there was no significant difference was observed in all the five years under study. In the Energy and Petroleum sector there was no significant difference in the means for the entire five years of the study apart from year 2015. While in the Automotive and Accessories sector significant difference was only recorded in the year 2015, the rest did not have a significant difference. Based on this observation, there was no significant difference in the means in overall period.

The study examined the presence of the calendar of the month effect at the Nairobi Securities Exchange. It was thus established that the calendar of the month effect was present in 7 of the 9 sectors studied at the NSE. Despite the implementation of the various regulatory requirements and development in information technology it is established that the Kenya Stock Markets are not free from seasonal anomalies.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presents the summary of data findings, conclusions, recommendations and the limitations of the study. The conclusions and recommendations were drawn to address the research question: Does the turn of the calendar effect exist in the different sectors of the listed companies at the Nairobi Securities Exchange?

5.2 Summary

The objective of the study was to investigate the turn of the calendar effect at the Nairobi Securities Exchange. This was conducted using a paired t test to compare the difference in the means between the end of the month and the rest of the month. Based on these empirical findings, there existed mixed findings as regards the existence of month effects at the NSE. As illustrated in the research findings in chapter four, at sector level, there is some form of turn of the month effect though not large. This could however, be eliminated by the netting off effect when conducted in the overall basis. For example, in the Alternate Sector, the null hypothesis cannot be rejected over the period 2012-2014 except for the years 2015 and 2016 in which the monthly anomaly exists and positive.

For the years 2012 to 2014, the Sig (2-Tailed) values obtained were less than preset significance of 5% and thus for those years there was no difference in the means hence there existed no month effect. The findings concur with Kingori (1995) who concluded that mean returns of stocks at the NSE are equal over all the months and quarters tested and thus no seasonalities in the mean returns.

In the Insurance Sector, the null hypothesis cannot be rejected over the period the study period in this sector because the paired t-test values were below the 5% significance level. We therefore fail to reject null hypothesis conclude that there is no difference between the two means within this sector over the study period. In the Agricultural Sector, the null hypothesis cannot be rejected over the period 2012-2015 because the p-values of the paired t-test are below the 0.05 significance level. However, there is some calendar effect in the year 2016 where the p-value is more than the significance value at 5%. The study findings concur with Mulumbi (2010) who found existence of the turn-of-the-month effect at the Nairobi Stock Exchange. In the Commercial and Service Sector, the results indicate that in the year 2012 and 2016, there was a significant difference between the two means and thus there existed turn of the calendar effect in the commercial and service sector.

The findings are in agreement with Migiro (2010) who found that the average stock returns for the rest of the month was always higher than the returns for the turn of the month for three of the four years (2006-2008). For the years 2013 and 2014, there was no calendar effect as there is no significant difference between the two means for end of the month and the beginning of the month. The findings are in agreement with Kingori (1995) who poised that the mean stock returns were equal over all the months and quarters tested and thus monthly seasonalities did not exist. However, for the period 2015, there was registered turn of the calendar effect as indicated by a higher p-value than the 5% significance level.

In the Manufacturing and Allied Sector, there was calendar effect in the year 2012, 2014 and 2015 as the paired t-test p-value was greater than 5%. For the years 2013 we fail to reject null hypothesis since their p-values are less than 5% and conclude that there is no difference between the two means recorded. However, for the period 2016, there was registered turn of the calendar effect as indicated by a higher p-value than the 5% significance level. In the Banking Sector, there was no calendar effect in the year 2012 and 2013 as the paired t-test p-value was less than 5%. For the years 2014 to 2016, we reject null hypothesis since their p-values are greater than 5% and conclude that there is a difference between the two means recorded.

In the Construction and Allied Sector, the results indicate that in the year 2012, there was no significant difference between the two means and thus there existed no turn of the calendar effect in the Sector. For the years 2016, there was a significance difference between the means of end of the month and for the rest of the month hence the calendar effect. However, for the period 2013 and 2015, there was no calendar effect as indicated by a lower p-value than 5% significance level. In the Energy and Petroleum Sector, in the period starting 2012 to 2013 in the study period, there was no significant difference between the two means at the beginning of the month and the other days of the month which leads to the conclusion that we fail to reject null hypothesis. Therefore, turn of the calendar effect only existed in year 2014 to 2016 as indicated by a higher p-value than 5% significance level over the study period.

In the Automobile and Accessories, there was no calendar effect in the years 2012 to 2013 as the paired t-test p-value was less than 5% meaning that there is no difference between the two means for beginning of the month and the rest of the month. For the years 2014 to 2016, we reject null hypothesis since their p-values are greater than 5% and conclude that there is a difference between the two means recorded. The findings concur with Gao and Kling (2005), who poised that there was a change of the calendar effect in the Chinese stock market when using individual stock returns.

5.3 Conclusion

Based on the above analysis, the study established that while there are many sectors, a majority of the sectors did not have pronounced turn of the month effect. I noted however, at the sectorial level there was some level of turn of the month effect in some years and months but this was not consistently recorded. On the overall, the effect offsets when the analysis is done on the overall NSE. This means that in general, there is no significant difference between the end of the month prices and those recorded during the month. From the analysis of paired T-tests, in most circumstances, there was no difference between the mean at the end of the month and the mean for the rest of the month hence failure to confirm the existence of turn of the calendar effect at the NSE.

5.4 Recommendation for Policy and Practice

From the study findings and summary above, the study recommends to the investors to carefully study then market movement and swings in prices before deciding where and which shares to invest in. The study therefore recommends that all investors assess the performance of share prices for trends that maximizes returns and avoid behavioral finance trading aspect.

Mishkin (2007) stated that the market sets stock prices. This means that stock returns are also influenced by the market forces. The investors should thereby opt for a portfolio that ensures continuous returns despite poor performance of some stocks at some time due to systematic risks and thereby mitigating incidences of total loss by just assuming the existence of the turn of the calendar effect in a particular stock.

5.5 Limitations of the Study

The period of study was also faced with several monetary and fiscal policy changes that may have had an effect on stock prices and eventually the stock returns. A case in point is the re-introduction of Capital gain tax at the NSE after it's suspension in 1985. Based on this premise, the findings may have been influenced by those fiscal and monetary policy.

The empirical data collected was representative of the listed firms only; and thus cannot be taken as a blanket approach to performance of stocks of all the firms in a particular sector owing to the fact that each firm is different owing to its debt structure, style of management, and most importantly the firm specific competitive advantages in the market.

The study focused on the turn-of-the-month effect, whereas there are other calendar anomalies; for example the small firm effect, intra-monthly anomaly, holiday effect, presidential election effect that influence returns of stocks at the Nairobi Securities exchange.

The study used closing daily share prices for the listed companies at the Nairobi Securities Exchange for the five years period (2012-2016). These data was bulky and given the time limitation to conduct an analysis and generate findings, it would be prudent to use a smaller data sample like a sector in the NSE which is manageable within the study period.

The data used in this study was secondary data collected from NSE and therefore its accuracy and completeness at the time of collection depended on the agency.

5.6 Suggestions for Further Research

To the academic world, this study result is expected to become a valuable input in studies related to the existence of Turn-of-the-Month effect. The study did not take in to consideration all variables that influences the existence of turn of the calendar effect. To enhance knowledge development, it is recommended that other researchers who are interested in similar problems to conduct a further research by incorporating additional variables other than stock returns.

The study was done for the companies operating in the Nairobi Securities Exchange, it is further recommended that a cross sectorial or segment study be done for companies with in the same sector to give more detailed analysis on the subject. This will help in policy formulation and guide investors in their investment decisions.

The study employed the use of mean to compare stock returns. This may be limiting since there exist other factors that influence stock prices. Further research can be done employing other approaches to compare stock returns.

The study concentrated the turn-of-the-month effect at the Nairobi securities exchange with a bias to establishing the-turn-of-the-month period when returns are maximized: beginning of the month and the rest of the month i.e. 7 days and 21days. Further studies should be done on the existence of other calendar anomalies, example the weekend effect and the technical anomalies example the small firm effect.

The study employed daily closing share prices to obtain stock and market returns. A security market is a component of the wider market where securities and investment instruments are traded. Further research can be done using data on the debt instruments in the NSE like bonds in comparison to the findings on equity instruments like stocks.

REFERENCES

Adrangi, B., Chatrath, A., & Sanvicente, A. Z. (2000). *Inflation, Output and Stock Prices*: Evidence from Brazil. Working Paper, 34.

Annaert, J. & Combez, J. (2002). *Value and size effect,* University of Antwerp. Belgium Management Paper, 23, 1-43.

Banz, R. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics*, 9 (3), 18-19.

Berk, J. B. (1997). Does size really matter? *Financial Analysts Journal*, 53, 5-6.

Berges, A., McConnell. J., & Schlarbaum. G. (1984). An investigation of the turn-of the year, the small firm effect and the tax-loss selling-pressure hypothesis in Canadian stock return, *Journal of Finance,* 39, 185-192.

Brealey, R.A. & Myers, S.C. (2003). *Principles of Corporate Finance.* International Edition. McGraw-Hill, 7 edition.

Brown, P., Allan W. K., & Terry A. M. (2014). Stock Returns Seasonalities and the Tax-Loss Selling hypothesis: Analysis of the arguments and the Australian evidence, *Journal of Financial Economics*, 12 (5), 12-13.

Capital Markets Authority, (2016). *History of the organization.* Retrieved from https://www.cma.or.ke/about-cma/history-of-organization.html.

Cheung, Y. L., Leung, Y. M., & Kwok-Fai, W. K. F. (1994). Small firm effect: Evidence from Korean stock exchange. *Small Business Economics*, 6(5), 373-379.

Cooper, C. R., & Schindler, P. S. (2003). Business research methods (10th ed.). Boston: correction', *American Economic Review,* 53 (3) 433–443.

Cowles, A. & Jones, H. (1937). Some A Posteriori Probabilities in Stock Market Action, *Econometrica, 5*, 280-294.

De Moor, L., Van den Bossche, F., & Verheyden, T. (2013). A Tale of Market Efficiency. *HUB Research Paper Series*, 5 (2) 45-46.

Dickinson, J., & Muragu, K. (1994). Market Efficiency in developing countries: A case study of the Nairobi Stock Exchange. *Journal of Business Finance and Accounting,* 21(1), 133-150.

Dimson, E. & Marsh, P. (1986). Event study methodologies and the size effect. *Journal of Financial Economics,* 17, 113-142.

Eita, R. (2011). A possible explanation of the small firm effect. *Journal of Finance,* 10, 99-100.

Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical work, *Journal of Finance,* 22, 412 - 4 97.

Fama, E. F. (1970). Reply to efficient capital market: A review of theory and empirical work. *Journal of Business Finance,* 25, 383-417.

Fama, E. F. (1991). Efficient Capital Markets: A Review of Theory and Empirical Work. *Journal of Finance,* 25(2), 283-417.

Fama, E. & French, K. (1995). Size and book to market factors in earnings and returns. *Journal of Finance,* 50, 131-155.

Fame, E. & French, K. (1996). Multifactor interpretations of asset pricing anomalies. *Journal of Finance,* 51, 55−84.

Fischer, S. (2011). The Role of Macroeconomic Factors in Growth, *Journal of Monetary Economics,* 32(3) 485-512.

Gartner, W. B. (1995). A conceptual framework for describing the phenomenon of new venture creation. *Academy of Management Review,* 10, 696–708.

Gibson, G. (1989). *The stock exchanges of London, Paris and New York.* New York: G. P. Puntnam's Sons, 1989.

Grossman, J. & Stiglitz, J. (1980). Impossibility of informally efficient markets. *American Economic Review,* 70 (3) 45-48.

Jacobsen B, Mamun A. & Visaltanachoti, N. (2005). Seasonal, size and value Anomalies. *Journal of Financial Economics, 52,* 1-38.

Jayen, B. P. (2012). A Further Analysis of Small Firm Stock Returns, *Managerial Finance,* 38 (7), 653–659.

Keim, D. B. (2003). Size related anomalies and stock market seasonality. *Journal of Financial Economics,* 12, 13-32.

Kendall, M. G. (1953). The analysis of economic time series, Part I: Prices. *Journal of Royal Statistical Society,* 96(1), 11-25.

Kothari, C.R. (2004). *Research Methodology: Methods and Techniques* (2nd Rev. ed.). New Age International. London.

Kuhn, T. (1970). *The Structure of Scientific Revolutions,* University of Chicago Press, Chicago.

Laibson, D. (1997). Golden eggs and hyperbolic discounting. *Quarterly Journal of Economics*, 62, 443–77.

Lakonishonik, J. & Smmidt, S. (2005). Are seasonal anomalies real? A ninety year perspective. *The Review of Financial Studies*, 1, (40), 43-44.

Lee, R. B. (1998). Anomalies: Closed End Mutual Funds. *Journal of Economic Perspectives*, 4, 153-164.

Lukale, O. C. (2007). *Interrelationship of Size effect and January Effect at The Nairobi Stock Exchange (NSE):* An Empirical Investigation. Unpublished MBA Project, University of Nairobi, School of Business.

Mabhunu, M. (2004). *The Market Efficiency Hypothesis and the Behaviour of Stock Returns on the JSE Securities Exchange* (Doctoral dissertation, Rhodes University).

Markowitz, S. (1953). Risk aversion and the martingale property of stock returns. *International Economic Review*, 14, 436.

Mghendi, F. (2014). *Testing the small firm effect on stock returns at the NSE.* Unpublished MBA research paper. University of Nairobi.

Miya, H. (2007). *Stock Market Behavior around National Elections in Kenya.* Unpublished MBA research paper. University of Nairobi.

Moore, C. (2005). *Unraveling the size effect,* Eloncollege 1-13.

Mugenda, M. O., & Mugenda, A. (2003). Research *Methods: Qualitative and Quantitative Approaches.* African Centre for Technology Studies: Nairobi, Kenya.

Murigi, B. (2008). *An Investigation of the Effect of Kenyan Election in the Returns of Stocks at the NSE.* Unpublished MBA research paper, University of Nairobi.

Nairobi Securities Exchange (2016). *History of Organization.* Retrieved from https://www.nse.co.ke/about-nse/history-of-organisation.html.

Ndung'u, N. (2003). *Liberalization of the foreign exchange market in Kenya and short term capital flows problem, AERC Research Paper No. 109, Nairobi:* African Economic Research Consortium.

Oluoch, O. L. (2003). *The size effect at the NSE.* Unpublished MBA project, University of Nairobi.

Panas, E. E. (1990). The Behaviour of Athens Stock Prices, *Applied Economics*, 22 (12)1915-1727.

Rathinasamy, R. S. & Mantripragada K. G. (2006). The January Size Effect Revisited, *Journal of Finance and Strategic Decisions*, 9, 3-56.

Roll, R. (1991). R. Squared. *Journal of Finance*, 43, 541-566.

Rozeff, M. S. & Kinney, W. R. (1976). Capital Market Seasonality: The Case of Stock Returns. *Journal of Financial Economics,* 3, 379-402.

Scleifer, G. W. (2000). *Anomalies and market efficiency*, in Forthcoming in Handbook of the Economics of Finance, ed. by M. H. George Constantinides, and R. Stulz. Elsevier Science B.V.

Seelenfreund, A., Parker, C.G. & Van, J. C. (1968). Stock Price Behaviour and Trading. *Journal of Financial and Quantitative Analysis,* 3, 263-281.

Sharpe, W. F. (1964). *Ca*pital asset prices: A theory of market equilibrium under conditions *of risk.* The Journal of Finance, 19(3), 425-442.

Shauna, S. B. (2003). Certain observation on seasonal movements in stock prices. *Journal of Business,* 15, 184-193.

Singleton, R., Straits, B.,& Straits M. (2003). *Approaches to Social Research.* Oxford University Press: London.

Stehle, H. & Richard, K. (2013). *Der Size*-Effektamdeutschen Aktienmarkt, *Zeitschriftfür Bankrechtund Bankwirtschaft* 9, 237-259.

Sunde, S. & Sanderson V. (2009). Size effect in Indian Stock Market: Some empirical evidence. *Journal of Business Perspective,* 9, (4), 27-42.

APPENDICES

Appendix 1: Firms Listed at NSE as at 31 December 2016

No.	FIRM	SECTOR
1	Kakuzi Ltd.	Agriculture
2	Rea Vipingo Plantations Ltd	Agriculture
3	Kapchorua Tea Co. Ltd	Agriculture
4	Eaagads Ltd	Agriculture
5	Sasini Ltd	Agriculture
6	Williamson Tea Kenya Ltd	Agriculture
7	Limuru Tea Co. Ltd	Agriculture
8	Car and General (K) Ltd	Automobile and Accessories
9	Sameer Africa Ltd	Automobile and Accessories
10	Marshalls (E.A.) Ltd	Automobile and Accessories
11	Barclays Bank Ltd	Banking
12	CFC Stanbic Holding Ltd	Banking
13	The Co-operative Bank of Kenya Ltd	Banking
14	Equity Group Holdings	Banking
15	Standard Chartered Bank Ltd	Banking
16	NIC Bank Ltd National Bank of Kenya Ltd	Banking
17	National Bank of Kenya Ltd	Banking
18	Kenya Commercial Bank Ltd	Banking
19	Housing Group Ltd	Banking
20	Diamond Trust Bank Kenya Ltd	Banking
21	I & M Holdings Ltd	Banking
22	Express Ltd	Commercial & services
23	Kenya Airways Ltd	Commercial & services
24	Nation Media Group Ltd	Commercial & services
25	Standard Group Ltd	Commercial & services
26	TPS Eastern Africa (Serena) Ltd	Commercial & services

27	Scangroup Ltd	Commercial & services
28	Uchumi Supermarket Ltd	Commercial & services
29	Hutchings Biemer Ltd	Commercial & services
30	Longhorn Publishers Ltd	Commercial & services
31	Atlas Development & Support Services	Commercial & services
32	Athi River Mining	Construction and Allied
33	Bamburi Cement Ltd	Construction and Allied
34	Crown Berger Ltd	Construction and Allied
35	E.A. Cables Ltd	Construction and Allied
36	E.A. Portland Cement Ltd	Construction and Allied
37	KenolKobil Ltd	Energy and Petroleum
38	Total Kenya Ltd	Energy and Petroleum
39	KenGen Ltd	Energy and Petroleum
40	Kenya Power & Lighting Co. Ltd	Energy and Petroleum
41	Umeme Ltd	Energy and Petroleum
42	Jubilee Holdings Ltd	Insurance
43	Pan Africa Holdings Ltd	Insurance
44	Kenya Re- Corporation Ltd	Insurance
45	Liberty Kenya Holdings Ltd	Insurance
46	Britam Holdings Ltd	Insurance
47	CIC Group Ltd	Insurance
48	Olympia Capital Holdings Ltd	Investment
49	Centum Co. Ltd	Investment
50	Trans-Century Ltd	Investment
51	Home Afrika Ltd	Investment
52	Kurwitu Ventures Ltd	Investment
53	Nairobi Securities Exchange Ltd	Investment
54	A.Baumann Co. Ltd	Manufacturing and Allied
55	B.O.C. Kenya Ltd	Manufacturing and Allied
56	British American Tobacco Kenya Ltd	Manufacturing and Allied

57	Carbacid Investments Ltd	Manufacturing and Allied
58	East African Breweries Ltd	Manufacturing and Allied
59	Eveready E.A. Ltd	Manufacturing and Allied
60	Kenya Orchards Ltd	Manufacturing and Allied
61	Mumias Sugar Co. Ltd	Manufacturing and Allied
62	Unga Group Ltd	Manufacturing and Allied
63	Flame Tree Group Holdings Ltd	Manufacturing and Allied
64	Safaricom Ltd	Telecommunication & Technology
65	Stanlib Fahari I-REIT	Real Estate Investment Trusts

Source: (NSE 2017)

Appendix II: Paired T-test Statistics

Period	Average return Beginning of the Month	Average return Remaining of the Month	The turn of Month Effect	Paired t Statistic	Effect
2012	-0.07%	0.06%	Negative	0.021	Non-Significant
2013	0.75%	0.23%	Positive	-1.202	Non-Significant
2014	1.54%	0.17%	Positive	-1.547	Non-Significant
2015	2.06%	0.31%	Positive	5.034	Significant
2016	0.34%	0.11%	Positive	6.441	Significant
2012	0.05%	-0.03%	Positive	-1.006	Non-Significant
2013	-0.51%	-0.06%	Negative	-0.765	Non-Significant
2014	1.54%	0.12%	Positive	0.01952	Non-Significant
2015	0.42%	-0.06%	Positive	0.099	Non-Significant
2016	0.29%	0.16%	Positive	0.106	Non-Significant
2012	0.24%	-0.05%	Positive	0.0371	Non-Significant
2013	2.50%	0.18%	Positive	-1.458	Non-Significant
2014	-0.46%	0.14%	Negative	-0.805	Non-Significant
2015	0.47%	0.24%	Positive	-0.292	Non-Significant
2016	0.11%	0.08%	Positive	4.699	Significant
2012	0.05%	-0.03%	Positive	1.006	Non-Significant
2013	-0.51%	-0.06%	Negative	-1.765	Non-Significant
2014	1.54%	0.12%	Positive	0.01952	Non-Significant
2015	0.42%	-0.06%	Positive	3.599	Significant
2016	0.29%	0.16%	Positive	0.1096	Non-Significant
2012	1.25%	0.10%	Positive	1.006	Non-Significant
2013	0.75%	0.23%	Positive	-1.765	Non-Significant
2014	-0.47%	-0.02%	Negative	0.055	Non-Significant
2015	-1.44%	0.03%	Negative	0.099	Non-Significant
2016	1.58%	0.13%	Positive	2.106	Significant
2012	0.35%	1.00%	Negative	-1.128	Non-Significant

2013	-1.50%	-0.03%	Negative	-0.329	Non-Significant
2014	1.04%	-0.02%	Positive	6.756	Significant
2015	0.07%	0.25%	Negative	1.163	Non-Significant
2016	0.40%	0.41%	Negative	0.129	Non-Significant
2012	0.32%	0.33%	Negative	-0.016	Non-Significant
2013	0.15%	0.30%	Negative	0.023	Non-Significant
2014	0.07%	0.04%	Positive	-0.081	Non-Significant
2015	0.12%	0.14%	Negative	-0.0857	Non-Significant
2016	0.65%	0.18%	Positive	0.0984	Non-Significant
2012	0.05%	-0.03%	Positive	-0.232	Non-Significant
2013	0.35%	1.00%	Negative	-1.797	Non-Significant
2014	-0.17%	-0.24%	Positive	0.076	Non-Significant
2015	2.30%	0.01%	Positive	1.986	Significant
2016	1.33%	0.18%	Positive	0.129	Non-Significant
2012	0.05%	-0.03%	Positive	-0.232	Non-Significant
2013	0.35%	1.00%	Negative	-1.797	Non-Significant
2014	-0.13%	-0.20%	Positive	0.116	Non-Significant
2015	2.36%	0.07%	Positive	2.046	Significant
2016	1.41%	0.26%	Positive	0.209	Non-Significant