An Assessment of the holiday anomaly in the Nairobi Securities Exchange

John Waweru Kamau
School of Management and Commerce (SMC)
Strathmore University

AN ASSESSMENT OF THE HOLIDAY ANOMALY IN THE NAIROBI SECURITIES EXCHANGE

Kamau John Waweru

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Kamau John Waweru

…….....
June 7, 2017

Approval
The thesis of Kamau John Waweru was reviewed and approved by the following:

Dr. Freshia Mugo-Waweru
Senior Lecturer, School of Management and Commerce
Strathmore University

Dr. David Wang'ombe
Dean, School of Management and Commerce
Strathmore University

Professor Ruth Kiraka
Dean, School of Graduate Studies
Strathmore University

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ABSTRACT

The presence of security market anomalies provide an opportunity that market participants can exploit. Studies done in Kenya have identified the presence of holiday anomaly. Based on these studies, the first objective of the study sought to establish the effect of each of the eight Kenyan holidays to the holiday anomaly. The study used closing share prices which were derived from the NSE website for the period 2010-2015. From the results of the test carried out, the study established that the eight different holidays affected the holiday anomaly differently. The state holidays exhibited higher return than the religious holidays. The study also sought to establish which sectors in the NSE were more prone to the holiday anomaly. A test of equality of mean was carried out to determine whether the mean returns for the different sectors during the holiday were significantly different. The findings of the test conducted indicated that there was no single sector that was more prone to the holiday anomaly than the other. In addition, the study sought to investigate the perception of the trading market participants in regard to market anomaly and specifically to the holiday anomaly. This information was derived from the trading market participants using questionnaires. The findings from the analysis established that majority of the trading market participants had knowledge of security market anomalies though only a few had knowledge of the holiday anomaly. Those who had knowledge of security market anomalies had designed trading strategies that enabled them to earn superior returns. The results of the study contradict the efficient market hypothesis since study has established the holiday anomaly is present. The result of the study also indicate that the eight different Kenyan holidays affect the holiday anomaly differently. The results further indicate that there is no sector in the NSE that is more prone to the holiday anomaly than the other.

TABLE OF CONTENTS

DECLARATION i

ACKNOWLEDGEMENTS ii

ABSTRACT iii

LIST OF FIGURES viii

LIST OF TABLES ix

LIST OF ABBREVIATIONS AND ACRONYMS x

CHAPTER ONE 1

INTRODUCTION 1

1.1 Background to the Study 1

1.2 Problem Statement 4

1.3 Research Objectives 4

1.3.1 Specific Research Objectives 4

1.4 Research Questions 5

1.5 Scope of the Study 5

1.6 Significance of the Study 5

1.6.1 Policy Makers 5

1.6.2 Investors 5

1.6.3 Researchers 6

CHAPTER TWO 7

LITERATURE REVIEW 7

2.1 Introduction 7

2.2Theoretical Framework 7

2.2.1 Efficient Market Hypothesis 7

2.2.2 Random Walk Hypothesis 8
2.2.2 Behavioral Finance Theory 9
2.2.3 Conclusion on the Theoretical Framework 10
2.3 Empirical Framework of the Holiday Anomalies 10
2.3.1 Pre-holiday Anomalies 11
2.3.2 Post-Holiday Anomalies 14
2.3.3 Industry Effects of Holiday Anomalies 16
2.3.4 The Influence of the Type of Holiday on Holiday Anomaly 17
2.3.5 Market Participants and Holiday Anomalies 18
2.4 Research Gap 19
2.5 The Conceptual Framework of the Holiday Anomalies 20
2.6 Summary of Literature Review 21
CHAPTER THREE 22
RESEARCH METHODOLOGY 22
3.1 Introduction 22
3.2 Research Design 22
3.3 Population and Sampling 22
3.4 Data Collection Methods 22
3.5 Data Analysis 23
3.5.1 Operationalization of Variables 24
3.6 Research Quality 25
3.7 Ethical Consideration 25
CHAPTER FOUR 27
PRESENTATION OF RESEARCH FINDINGS 27

4.1 Introduction 27
4.2 General Information 27
4.3 The susceptibility of Kenyan holidays to the holiday anomaly 27
4.4 Sectors in the NSE and Holiday Anomaly 32
4.4.1 Pre-holiday Anomaly and the NSE Sectors 32
4.4.2 Post-holiday Anomaly and the NSE Sectors 34
4.5 Market Participant's Perspective of the Holiday Anomaly 35
4.5.1 Background Information of the Respondents 36
4.5.2 The Awareness and Exploitation of the Security Market Anomalies 36
4.5.3 Period When the Anomaly Was Experienced 37
4.5.4 Use of the Anomalies to Determine Trading Strategy 38
4.5.5 Factors that Result in General Market Anomaly 39
4.5.6 Factors that Cause the Holiday Anomaly 40
4.5.7 Prior knowledge of the holiday anomaly 41
4.7 Chapter Summary 42
CHAPTER FIVE 43
DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS 43
5.1 Introduction 43
5.2 Discussion of the Findings 43
5.2.1 The susceptibility of the Kenyan holidays to the holiday anomaly in the NSE 43
5.2.2 Sectors in the NSE and Holiday Anomaly 44
5.2.3 Market Participants' Perspective of the Holiday Anomaly 45
5.3 Conclusion 45
5.4 Recommendations 46

5.4.1 Policy Makers 46
5.4.2 Investors 46
5.5 Areas for Further Study 46
5.6 Limitation of the Study 46
REFERENCES 47
APPENDIX II: QUESTIONNAIRE 55
APPENDIX III: LISTED COMPANIES AT THE NAIROBI SECURITIES EXCHANGE 58
APPENDIX IV: LIST OF AUTHORIZED TRADING PARTICIPANTS 60
APPENDIX V: THE TARGET POPULATION FOR THE STUDY 61

LIST OF FIGURES

Figure 2.1: Conceptual Framework for the Factors Influencing the Holiday Anomalies 20

Figure 4.3: Background Information 36

Figure 4.4: The Level of Experience 36

Figure 4.5: Period of the Anomaly 37

Figure 4.6: Use of the Anomalies 38

Figure 4.7: Higher Return due to the Anomalies 38

Figure 4.8: Factors that Result in the General Market Anomalies 39

Figure 4.9: Factors that Cause the Holiday Anomaly 40

Figure 4.10: Prior Knowledge of the Holiday Anomaly 41

LIST OF TABLES

Table 4.1: The test of equality of mean across the eight holidays 28

Table 4.2: The number of times the return is greater than the ordinary trading days 30

Table 4.3:T-test for the state and religious holidays 31

Table 4.4: A Test of Equality of Mean for the Pre-holiday Anomaly for the Sectors in the NSE ..... .33

Table 4.5: A Test of Equality of Mean for the Pre-holiday Anomaly for the Sectors in the NSE ..... .34

LIST OF ABBREVIATIONS AND ACRONYMS

EMH – Efficient Market Hypothesis

NASDAQ – National Association of Securities Dealers Automated Quotations

NASI – NSE All Share Index

NSE – Nairobi Securities Exchange

NYSE – New York Stock Exchange

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The capital market plays an important role in the allocation of ownership of capital stock in the economy. According to Fama (1970) in an ideal market, investors choose securities from the capital market with the assumption that security prices fully reflect all the available information at any time. Fama (1970) further states that information spreads very quickly and is incorporated in the prices of the securities as soon as it arises. This therefore implies that investors cannot earn abnormal profit from their investment strategies (Malkiel, 2003).

The efficient market hypothesis became a huge success after its introduction with researchers such as Scholes (1972), Malkiel (1973) and Jensen (1978) writing research articles in its support. The theory however started to face challenges as some studies that were done to test its validity identified average pattern in stock returns which was a contradiction to the EMH. Prior studies have identified patterns in stock return which are known as security market anomaly (Rozeff & Kinney, 1976; Yuan et al., 2006; Gibbons & Hess, 1981; Ariel, 1990; Sullivan, 2001). These security market anomalies have predictive characteristics of cross-sectional stock returns which can enable the market participants to use past behavior to buy or sell a security and benefit from the deviations that exist, which is a contradiction to the efficient market hypothesis (Latif, Arshad, Fatima, & Farooq, 2011).

According to Ziemba and Hensel (1994), the anomalies in the securities market can be classified as either calendar or fundamental anomalies. Calendar anomalies refers to the tendencies of returns of financial asset to display systematic patterns at certain times of the day, month or year (Chia, Lim, Ong, & Teh, 2015). They include the turn of the month, January effect, day of the week effect and holiday anomalies while the fundamental anomalies include price to book ratio, price to earnings ratio, earning trends and dividend yield anomaly (Ziemba & Hensel, 1994).

According to Brockman and Michayluk (1997), the holiday anomaly is the most consistent of all the calendar anomalies. Holiday anomalies refer to patterns of return in financial securities such

as stocks, bonds and even derivatives that coincide with holidays in a year (Lucey, 2005). The holiday anomalies occur either one day before the holiday or one day after the holiday in what is referred to us as pre-holiday anomalies and post-holiday anomalies respectively. Fields (1934) described the concept of the holiday anomaly after observing disproportionate frequency of return on the days that preceded the holidays while examining the Dow Jones Industrial Average. This laid a ground for other researchers such as Merrill (1965), Fosback (1976), Lakonishok and Smidt (1989), and Pettengill (1989) who studied the stock returns for U.S. stocks and found evidence of pre-holiday anomalies. However, it was Ariel (1990) who was the first to describe the holiday anomaly properly. In an investigation of stock returns on days before holidays, Ariel (1990) found out that stocks in the US from 1963 to 1982 advanced with disproportionate frequency and that they showed high mean returns that averaged nine to fourteen times the mean return of the other days of the year. According to Brockman and Michayluk (1997), the holiday anomaly is the most consistent of all the calendar anomalies. Brockman and Michayluk (1997) further state that the holiday anomaly accounted for 30% to 50% of the total return in the US stock market.

Mehran, Meisami and Busenbark (2012) argue that different holidays have different meaning to the individuals who participate in them and therefore cause the market participants to act differently when trading in stocks depending on the type of holiday that they are celebrating. In their study on the US stock market, they found out that the returns were high during the joyous holiday while the returns were negative in the holiday with a solemn demeanor. Mehran et. al. (2012) argument was confirmed by the results of another study by Shan (2013) who found out that secular holiday had significantly higher pre-holiday returns as compared to the pre-holiday return of the religious holidays.

According to Carleton and Lakonishok (1986), the anomalies present in the security market affect the firms in the different sectors differently. They further state that, some sectors experience high positive returns while others experience negative returns. These differences in the anomalies experienced are as a result of industry specific characteristics (Thomas & Zhang, 2008). Greenhut, Hung, Norman and Smithson (1985) for example argue that firms in the service industry were more prone to the anomaly as compared to firms in other sectors. On the other hand Chin (2008)

established that the holiday anomaly affecting the Czech security market affected all the sectors in the same way.

According to the Public Holiday Act (2012), there are eight public holidays in Kenya. These holidays are the New Year's Day, Good Friday, Easter holiday, Labour Day, Madaraka day, Idd-ul-Fitr, Mashujaa day, Jamhuri day and Christmas holiday. The public holidays in Kenya can be categorized as either the state holidays or the religious holidays. The religious holidays include the Easter holiday, Idd-ul-Fitr and Christmas while the state holidays include New Year's Day, Labour Day, Madaraka Day, Jamhuri day and Mashujaa Day. The Public Holiday Act (2012) further states that if a holiday falls on a Sunday, then the succeeding day shall be a public holiday. During these holidays, there are no securities that are traded in the Nairobi Securities Exchange.

Omar (2015) investigated the Nairobi Securities Exchange for the presence of holiday anomaly for seven public holidays. The seven public holidays which were considered were: New Year, Easter, Labour Day, Madaraka Day, Mashujaa Day, Jamhuri Day and Christmas holiday. The study considered the returns of five days before the holiday and five days after the holiday. The returns for both the pre-holiday and post-holiday were significantly high as compared to the returns of the other days. The research therefore established that the NSE exhibited both pre-holiday and post-holiday anomalies for the year 2010 to 2014. The research also established that there are no significant disparities between the pre and the post-holiday anomalies on the returns of the shares traded in the NSE. The presence of the holiday anomaly in the NSE was further confirmed by the results of a later research by Kamau (2016) who also found presence of holiday anomaly. This research by Kamau (2016) examined the NSE for the holiday anomaly from 2008 to 2016 using data for the 65 registered companies in the NSE. Based on the findings of the previous studies done in Kenya, this current study sought to dig deeper into the holiday anomaly by examining the effect each of the eight Kenyan holidays has to the holiday anomaly, identifying the sectors that are more prone to the holiday anomaly and to examine the perception of the market participants in regard to the holiday anomaly.

1.2 Problem Statement

In an efficient market, securities prices fully reflect all the available information at any time (Fama, 1970). According to Malkiel (2003), in an efficient market, information is quickly incorporated into the securities prices and therefore investors cannot beat the market using past stock price behavior to predict future prices. From ensuing empirical studies, some researchers have come out strongly to support the EMH while some have come out strongly to oppose the EMH. Those who oppose the EMH have argued that security market anomalies do exist in the market. Holiday anomaly is one of the predominant anomalies identified and studied in previous empirical studies (Marrett &Worthington, 2009).

In Kenya, the holiday anomaly has been identified by studies done by Omar (2015) and Kamau (2016) for period 2010 to 2014 and for the period 2008 to 2016 respectively. However, a number of questions still remains unanswered: What is the effect of each of the eight Kenyan holidays to the holiday anomaly? Which sectors in the NSE are more prone to the holiday anomaly? Is there a significant difference between the holiday anomaly caused by the state holidays and the one caused by state religious holidays? What is the perception of the market participants in regard to the holiday anomaly? This study sought to respond to the above questions.

1.3 Research Objectives

The general objective of this study was to assess the holiday anomaly in the NSE.

1.3.1 Specific Research Objectives

The specific objectives that enabled the achievement of the general objective include:

1. To examine the effect of each of the eight Kenyan holidays to the holiday anomaly in the NSE.
2. To examine which sectors in the NSE were more prone to the holiday anomaly.
3. To investigate the perception of the market participants in regard to the holiday anomaly in the NSE.

1.4 Research Questions

1. What is the effect of each of the eight Kenyan holidays to the holiday anomaly in the NSE?
2. Which sectors in the NSE are more prone to the holiday anomaly?
3. What is the perception of the market participants in regard to the holiday anomaly in the NSE?

1.5 Scope of the Study

The study was carried on the NSE All Shares Index and on shares of 50 companies that had been consistently trading in the Nairobi Securities Exchange from the year 2010-2016. The year 2010 was chosen because it is the year Kenya inaugurated the new constitution which clearly stated the days to be observed as public holidays and the year 2016 was the last year that the data was fully available. The study used daily closing price of the shares and daily closing price of the NASI as used by previous studies. Information was also sought from trading market participants from different investment firms.

1.6 Significance of the Study

This research studies holiday anomalies among the shares traded in the NSE. This information will be important to a number of parties who are involved in activities in the NSE.

1.6.1 Policy Makers

First of all it will be important to the regulatory body such as the Capital Market Authority. It will enable them to identify whether there is market inefficiency in the market. They can therefore use the information when they are formulating policies regarding the NSE.

1.6.2 Investors

The study will also be important to market participants because it can inform the way they do risk assessment and risk management when doing their investment strategies. The existence of holiday anomaly presents an opportunity for the market participants to earn abnormal returns. This research will therefore provide information that is useful in guiding the investors when they are investing.

1.6.3 Researchers

The research will also be important to behavioral-finance researchers as they seek to understand how moods and demeanor affect buying and selling decisions in the Nairobi Securities Exchange.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter outlines the various theories that form the basis for the research. Three theories are considered for the research: Efficient Market Hypothesis, Random Walk Hypothesis and Behavioral Finance theory. This chapter also reviews other research work that has been done by other researchers regarding holiday anomalies around the world. The chapter concludes with a conceptual framework which illustrates the relationship among the variables.

2.2Theoretical Framework

According to Cao et. al. (2009), research on holiday anomaly is influenced by theories of market efficiency which are the efficient market hypothesis and the random walk hypothesis. Malkiel (2003) states that efficiency in the capital markets refers to the incorporation of all the information and expectation of the market participants into the prices of the financial assets. If the markets are efficient, investors cannot earn abnormal profits from their investment strategies (Latif et. al., 2011). The presence of holiday anomaly which are patterns in stock returns during holidays would enable investors to earn an abnormal return and therefore it is a contradiction to market efficiency (Ricciardi & Simon, 2000).

The theoretical framework will also look at the behavioral finance theory. Behavioral finance theory explains the psychology and the emotions of the individuals who are trading in securities in any market (Ricciardi & Simon, 2000). It disputes the assertion that the security markets are efficient and rather states that the behavior of the individuals affect the security markets. This theory will therefore help in shedding light on how the demeanor of each holiday affects the trading of securities.

2.2.1 Efficient Market Hypothesis

This theory traces its origin to the empirical paper of Fama (1965) for seminal presentation. According to Fama (1970) a security market is said to be efficient with respect to information if

securities prices fully reflect all information that is available at any time. The widely accepted view is that when information arises in an efficient market, it is quickly incorporated into the securities price (Malkiel, 2003). The stock market therefore does not display any predictable patterns which can be exploited for abnormal returns. This therefore implies that investors cannot earn abnormal profit from their investment strategies (Shankar & Kallarackal, 2016).

The Efficient Market Hypothesis is divided into three categories. These categories are: the weak form efficiency, semi-strong form efficiency and strong form efficiency (LeRoy, 2010). In the weak form efficiency, prices fully reflect all historical information of prices and returns. For the semi-strong form efficiency, the prices fully reflect all information that is known to the market participants. For the strong form efficiency, the prices reflect fully all the information that is known to any market participant both public and private information (LeRoy, 2010).

According to (Malkiel, 2003), the holiday anomaly violates the weak form of efficiency and the semi-strong form of efficiency. This is because these anomalies results to pattern of returns around the holiday. This would therefore lead to a situation whereby technical analyst and fundamental analyst can predict returns from these patterns and therefore be able to beat the market (Ricciardi & Simon, 2000). The implication here is that the market should not have any anomaly especially the holiday anomaly if the market are efficient as advocated by the efficient market hypothesis.

2.2.2 Random Walk Hypothesis

This theory traces its origin to Bachelier (1900). Bachelier (1990) developed the mathematics and statistics of Brownian motion and explained the efficient markets in terms of a martingale. Later Pearson (1905) explained the random walk with an analogy of a drunk who staggers in a random and unpredictable fashion. This theory states that statistically, the stock prices fluctuate independently over time and are described by a random process (Horne & Parker, 1967). The current price of a given stock is unrelated to the previous market-price patterns. The logic behind the random walk theory is that information flow is unimpeded and is quickly reflected in the share price and therefore tomorrow prices will reflect tomorrow information and will be independent of the price today. This theory implies that technical trading rules or charting procedures will not

result to a profit that is greater on average than that which is obtainable with a simple buy-and-hold strategy.

One cannot predict future market prices using the past price behavior of the stock (Malkiel, 2003). According to the random-walk theory, the market assimilates new information in such a way that any deviation from the intrinsic value will be random. The current price of a stock reflects all readily available information both past and present. This implies that in an efficient market there are no systematic under-valuation or over-valuation of stocks (Pinches, 1970). Anomalies and especially holiday anomalies are a contradiction to the random walk theory. This is because holiday anomalies are patterns in stock returns during the holiday which therefore implies that stock returns during the holidays do not fluctuate independently over time as advocated by random walk hypothesis. Securities returns can therefore be predicted using past information. Investors can therefore earn abnormal returns during the holidays which contradicts the random walk theory (Toth & Kertesz, 2006).

2.2.2 Behavioral Finance Theory

Behavioral finance traces its origin to the work of Kahneman and Tversky (1992) whereby they established concept of the prospect theory. Behavioral finance looks at the sociological and psychological issues that impact the decision making process of the investors. It includes the emotional processes that are involved and the degree to which they influence the process of decision making (Aguila, 2009). According to Ricciardi and Simon (2000), behavioral finance is divided into four themes. These themes are: Financial cognitive dissonance, overconfidence, prospect theory and regret theory. However it is the prospect theory that best describes the holiday anomalies. This is because the prospect theory states that people do not always behave rationally. The decisions that people make are based on psychological factors that influence people under certain conditions.

Behavioral finance theory therefore provides explanation to the anomalies that affect the stock market as it looks at the emotional processes that affect decision making process (Ricciardi & Simon, 2000). These emotions of a human include: desire, panic, fear, joy, desire, anxiety and pleasure. According to Mehran et al. (2012) the demeanor, attitude, mood and daily experiences

of an individual is affected by the holidays that they observe. The behavior of the investor is governed by the moods which can in turn determine stock market returns and liquidity. The investors can get positive moods before the holidays which can affect their trading patterns and hence lead to change in stock return (Shankar & Kallarackal, 2016). Therefore emotions play an important role in financial markets. Behavioral finance theory therefore explain the reason for the existent of stock return anomalies and more especially the holiday anomaly.

2.2.3 Conclusion on the Theoretical Framework

The theoretical framework has highlighted and summarized the theories that influence the holiday anomaly. In summary, the holiday anomalies can be explained by three theories as stated by Ricciardi and Simon (2000), Malkiel (2003), Toth and Kertesz (2006), Leroy (2010) and Shankar and Kallarackal (2016). These theories are the efficient market hypothesis, random walk hypothesis and behavioral finance theories. However it is behavioral finance that best explains the holiday anomalies as it looks at the psychological and the emotional aspect that influences an investor to make a certain decision (Ricciardi & Simon, 2000). This theory therefore helps in explaining how the demeanor of each holiday affects the trading of securities. The next section will look at the empirical framework.

2.3 Empirical Framework of the Holiday Anomalies

According to Malkiel (2003), by the start of the 21st century, statistician and financial economists had started to believe that stock prices could be at least predicted partially. Some economists emphasized psychological and behavioral elements of stock price determination. These economists believed that future stock markets could somewhat be predicted based on past prices and certain fundamental valuation metrics. One of the patterns that has been identified is the holiday anomaly.

The holiday anomaly is one of the oldest and most famous anomaly among the calendar anomalies (Brockman & Michayluk, 1997). Holiday anomaly refers to the consistent observed patterns of returns that are exhibited around holidays (Lucey, 2005). Fields (1934) identified the holiday anomaly while examining the frequency of Dow Jones Industrial Average. Fields (1934) found a

disproportionate frequency of advances on the days that preceded long holiday weekends. These findings laid a ground for other researchers to research on holiday anomaly. For example (Merrill, 1965; Fosback, 1976; Lakonishok & Smidt, 1989; Pettengill, 1989) studied the stock returns for U.S. stocks and found evidence of pre-holiday anomalies. The holiday anomaly occurs one day before the holiday and one day after the holiday in what is known as the pre-holiday anomaly and post-holiday anomaly respectively (Dodd & Gakhovich, 2011).

2.3.1 Pre-holiday Anomalies

The pre-holiday anomaly was observed by Fields (1934) when examining frequency of Dow Jones Industrial Average advances on the days that surrounded the holidays. This research identified disproportionate frequency of returns on days that preceded the long holiday. Other researchers such as (Merrill, 1965; Roll, 1983; Lakonishok & Smidt, 1984; Pettengill, 1989) also identified abnormal pre-holiday returns in the U.S. stocks.

Ariel (1990) was however the first person to do a proper research on the pre-holiday anomaly on the USA stock market. The research used data for Dow Jones Industrial Average which was collected from the Center for Research in Security Prices. Eight holidays which could provoke the stock market to close were considered in the research. The data was analyzed using means and variances and the significance was tested using t-statistics. This study discovered that stocks advanced with disproportionate frequency on the trading day before the holidays and the mean returns averaged nine to fourteen times the mean return for the other trading days of the year. It was also discovered in the study that more than one-third of the return that was earned by the market portfolio from 1963-1982 had been earned on the eight trading days which fell before the market closed.

In furtherance of the work of Ariel (1990) on holiday anomalies, Kim and Park (1994) did a study on holiday anomalies in the three major stock markets in the US which are the NYSE, AMEX and NASDAQ. Their study found out that there were abnormally high returns on the trading days before the holiday in the three major US stock market. The study also sought to determine whether the preholiday anomaly was a manifestation of the January effect which starts in the last trading

day of December and they therefore excluded the New Year's holiday. The preholiday anomaly was still persistent though the magnitude had reduced.

Kim and Park (1994) also sought to find out whether the holiday anomaly was present in the U.K and Japanese stock markets and whether these stock markets were independent of the holiday effect in the U.S. stock markets. These countries had different holidays and also institutional arrangements. The study analyzed the U.K. FT30 and the Japanese Nikkei-Dow index returns for the period from July 1, 1972, to June 30, 1987. The study discovered that the US and Japan stock markets exhibited preholiday anomaly. The preholiday anomaly was independent of the U.S. market.

In a research outside the US stock market, Cao, Premachandra, Bhabra and Yih (2009) did a study on the pre-holiday anomaly on the shares traded in the New Zealand stock market. They collected data from the NZSE40 and NZSE50 indices from January 1967 to 2006 and got it returns. They classified the data into two categories that is pre-holidays and other trading days and then summarized the daily mean and return for the entire sample. The study found out that the pre-holiday return was 10.26 times the average return of other trading days. This implied presence of pre-holiday anomaly in the market.

The pre-holiday anomaly was also found to be present in the Portuguese stock market in a study conducted by (Silva, 2010). The data for the study was PSI-Geral and PS120-TR series collected from Dathis database. These indexes were a total reflecting price appreciation and dividends paid. The returns were regressed using the OLS regression. The results indicated that the returns on pre-holiday were twelve times higher than the other trading days.

In the emerging stock market in Asia, Tangjitprom (2010) carried a study in the Thai stock market. Data was gathered for the period from 1994 to 2009 for the Stock Exchange of Thailand index. Using OLS regression the study found out that the preholiday returns were significantly higher when compared to the non-preholiday returns. This indicated presence of preholiday anomaly in the Thai stock market.

The pre-holiday anomaly was also found to be present by Chia et al. (2015) in the Hong Kong stock market for the Chinese New Year. This study collected data from Hong Kong stock market for the period of January 1998 to July 2012. The returns were then examined using the OLS regression and GARCH-M model to test for the anomaly and also for the volatility of returns. The results from the study showed that there was significantly higher returns on the two trading days before the Chinese New Year holiday. This implied that pre-Chinese New Year effect was present. The pre-holiday effect was also found to be stronger than the post-holiday effect.

In a study conducted by Gnanasekar and Rajesh (2016) to investigate the holiday effect on the Indian stock markets, it was discovered that the Sensex and the NIFTY 50 indices had significantly high abnormal returns on pre-holidays as compared to the normal trading days. The data for the study was collected from the official website of NSE and the BSE and was for the period from 1st April 2006 to 31st March 2016. The data was analyzed and tested using descriptive statistics OLS regression and GARCH model.

These global studies on the market anomaly have identified the presence of the holiday anomaly. In Kenya, Omar (2015) tested for the presence of the pre-holiday anomaly in the Nairobi Securities Exchange using the 65 listed firms from 2010 to 2014. Data for the study was collected from the NSE database and consisted of the daily prices of the shares. The research found out that the returns for the pre-holiday and post-holiday were significantly higher as compared to the returns on the normal trading days and therefore the research was able to establish the presence of pre-holiday anomaly in the NSE. The findings of this study were confirmed by the findings of Kamau (2016) who investigated the NSE for the presence of the holiday anomaly.

There are some studies which did not find the presence of the holiday anomaly. For example, in the study of stock returns behavior during the holiday for six countries, Picou (2006) did not find presence of pre-holiday anomaly in the six countries. This study contradicted other studies as it did not find presence of preholiday anomalies and only found the presence of the anomalies after the holidays in what is known as the post-holiday anomaly. The study used data for ten years from 1989 to 1999 and used the indexes of Australia, Hong Kong, Japan, U.K, U.S.A and Canada. In order to test for the anomalies the study used dummy variable regressions with continuous data

and simple regression analysis with discrete data points. The result of this research was however similar to the research done by Rasugu (2005) which also did not find presence of holiday anomaly in the NSE. This study was testing for the presence of the holiday anomaly in the NSE from 1998 to 2002 using 44 companies that traded in the NSE. There were no discrepancies in the returns for the pre-holiday, post-holiday and normal trading day and therefore the study concluded that there was no pre-holiday anomaly.

2.3.2 Post-Holiday Anomalies

Researchers have also researched on the presence of post-holiday anomalies. Picou (2006) studied the behavior of stock returns during the holiday period for six countries around the world. The data was collected for ten years from 1989 to 1999 for six indexes which are: Australia's all ordinances, Hong Kong's Hang Seng index, Japan's Nikkei, UK's financial times' stock exchange, the US's S&P 500(S&P) and Canada's Toronto stock exchange. The study tested for the anomalies using dummy variable regressions with continuous data and simple regression analysis with discrete data points. The returns for the trading day after the holiday were significantly positive and different from all other trading days. This study therefore showed presence of post-holiday effect for all of the exchanges that were tested.

The post-holiday anomaly was found to be present in the Romanian stock market by (Dumitriu, Stefanescu, & Nistor, 2011). The study used daily closing prices for six indexes from the BSE. The returns from the indexes were calculated and then regressed. The results from the regression indicated presence of post-holiday effects for all of the six indexes and pre-holiday anomaly for four of the indexes.

Dodd and Gakhovich (2011) carried a study to investigate the presence of holiday effect in the Central and Eastern European financial markets. The study collected data from the indices of the 14 emerging market of the Central and Eastern European countries. Dummy variable regression was used to evaluate the pre and post-holiday returns. The results of the study showed significantly positive post-holiday returns. This implied that there was presence of post-holiday anomaly.

In a study for the holiday effect on the stocks of Hong Kong Stock, Chia et al. (2015) found presence of post-holiday anomaly. The returns were significantly higher than other trading days of the year. The post-holiday anomaly was however present only on one day after the Chinese New Year holiday unlike the pre-holiday effect for the same stocks which was present for two days before the holiday. Using GARCH model the research found out that the trading after the holiday had the highest mean return which was associated with the highest volatility.

A study conducted by Shankar and Kallarackal (2016) on the Indian BSE Sensex indices from December 2009 to December 2015 showed presence of post-holiday anomaly. The study considered the six public holidays celebrated in India. They used the Wilcoxon signed-rank test of parametric in order for them to compare the two related samples and assessed whether their population mean rank differed. They were able to find from their results that there was significant post-holiday anomaly in the Sensex index returns.

Contrary to the finding of the other researchers, Kim and Park (1994) while testing for the presence of holiday anomaly in the three major U.S. stock market did not find the presence of any peculiar patterns in mean return after the holiday. These results implied that that they did not exhibit post-holiday anomaly. This findings were similar to the results of a study that had been carried here in Kenya by Rasugu (2005) who did not find the presence of the holiday anomaly in the NSE. Rasugu (2005) was testing for the presence of the holiday anomaly in the NSE from 1998 to 2002 using 44 companies that traded in the NSE. There were no discrepancies in the returns for the pre-holiday, post-holiday and normal trading day and therefore the study concluded that there was no post-holiday anomaly.

Most of the studies that have been carried on holiday anomalies have been done to test the anomaly for the days prior the holiday or for the day after the holiday in what is known as pre-holiday anomaly and post-holiday anomaly respectively. There have been however other studies by (Mehran et. al., 2012; Bergsma & Jiang, 2016) that have been done to test for the anomaly on the exact day when the holiday occurred or on the month when the holiday occurred.

Mehran, Meisami and Busenbark (2012) carried out a study to investigate the impact that the nine Jewish holidays had on the US stock market returns. They collected the data of the S&P 500 for 20 years from 1990 to 2009 from Yahoo Finance which they then adjusted for dividends and stock splits. They then computed the daily market returns and then placed it into two categories: Jewish holiday and non-holiday. They then used event study and regression to determine abnormal returns on the Jewish holidays and the windowed periods surrounding the day. They discovered that there was an increase in the daily returns in the nine Jewish holidays which was 32 times greater than the other trading days of the year. They also discovered that joyous holidays had a significantly positive relationship with the stock market returns while the solemn holidays had a significantly negative returns. Using the Fama-French four-factor model, they were able to determine that the Jewish holiday impacted all the stocks regardless of momentum or book-to-market.

In a study carried on different cultural New Year holidays around the world in order to investigate whether they had an effect on the stock returns, Bergsma and Jiang (2016) found out that stock markets tend to outperform on the days that surrounded a cultural New Year. The study used data from 11 major international markets that celebrated six cultural New Year holidays that did not occur on January. The study found out that on average the stock earned 2.5% higher abnormal returns in all the markets in the month of cultural New Year in comparison to the other months of the year. Their study suggest that the positive holiday moods and the cash infusions that occur prior the cultural new year cause the stock prices to rise hence the higher returns in the months with the cultural New Year.

2.3.3 Industry Effects of Holiday Anomalies

Industry specific factors may have an influence on how firms are affected by holiday anomalies (Carleton & Lakonishok, 1986; Rowjee, 2015). Finding these industry effects may have useful implications for trading strategies and investment decisions. These effects are not the same in different stock markets. For instance, Chin (2008) found that all industries in the Malaysian stock market were weak-form inefficient except the property sector. Greenhut et. al. (1985) established that firms in the service industry were more prone to holiday anomalies as compared to other firms in Britain. In the Polish context, Gakhovich (2011) found that the consumer goods industry was

the only one that was significantly affected by holiday anomalies. Sukor (2012) found that that the size effect anomaly was more pronounced in the manufacturing industry as compared to the other sectors in Kuwait stock market.

Conversely, a study conducted by Kroon (2008) established that the Swedish stock market experienced summer effect however, the anomaly was consistent for all sectors in the stock market. In an investigation of holiday anomalies in Eastern and Central European markets, Gakhovich (2011) found that the Czech and Romanian exhibited holiday anomaly. This holiday anomaly was however not significantly different among the sectors under study.

2.3.4 The Influence of the Type of Holiday on Holiday Anomaly

Mehran et al. (2012) sought to investigate impact of the type off holiday on holiday anomaly in the US stock market. The authors classified the holidays into those with a solemn demeanor and the others as joyous. The daily returns for 20 years from 1990 to 2009 from the S&P 500 was collected and analyzed. The authors then did an event study and also regressed the data in order to determine the relationship between the holiday anomaly and the type of the holiday. The results of the study indicated that the joyous holidays had significantly positive returns while the solemn holiday had negative returns.

Shan, (2013) investigated the presence of holiday anomaly in the Malaysian stock market. In the study, the holidays were classified into two categories that is the religious and secular holidays. The data for the study comprised of the closing prices for the FTSE Bursa Malaysia KLCI from the year 2005 to 2012. The holiday anomaly was analyzed using descriptive analysis and regression analysis with dummy variable. The results of the study indicated that the holiday anomaly was stronger for the secular holidays than for the religious holidays.

In the study for holiday anomaly, Tangjitprom (2016) classified holidays into two categories, which are cultural holidays and state holidays. The study sought to identify whether the anomalies were related to the type of the holiday. The result of the study using the OLS regression showed that returns on state holidays were significantly higher with more than 0.4186% when compared to non-preholiday returns. The returns on cultural holidays were 0.3299% higher than those of

non-preholiday returns. Using GARCH models the results showed that the returns were only abnormally positive for the state holidays but not for the cultural holidays and that only the state holidays showed a positive effect on the volatility level.

Similar to the findings of these previous studies, Sukor (2012) established that the holidays experienced Kuwait affected the returns in the security market differently. This resulted to the holiday anomaly being different for the various holidays being studied. The New Year resulted to significantly higher pre and post-holiday return as compared to the returns experienced during the other periods.

2.3.5 Market Participants and Holiday Anomalies

The presence of security market anomaly provides an opportunity that can be exploited by market participants (Latif, Arshad, Fatima, & Farooq, 2011). A study done by Ali et al. (2007) on whether mutual funds profit from the accrual anomaly discovered that only few mutual funds traded on the anomaly. The mutual funds that traded on the anomaly made a significant profit even after deducting the actual transaction costs. The study also discovered that these funds were smaller, less diversified and exhibited higher fund return volatility.

In an investigation of the Ramadan anomaly in the Turkey stock market, Bialkowski et al. (2012) discovered that the mutual fund managers exploited the Ramadan anomaly. In their research they found out that the risk-adjusted fund performance for the domestic institutional funds was substantially large during the month of Ramadan as compared to the other time of the year.

Trading on the anomaly necessarily does not guarantee superior returns (Archana, Safeer, & Kevin, 2014). The authors state that, when the trading costs and taxes are taken into consideration, the profits disappear or dwindle. It therefore become difficult to consistently profit from exploiting the anomalies. This argument is similar to that made by Alagidede (2012) who states that investors must incur transaction costs in order to exploit them and also due to the illiquidity of the African market it becomes difficult to exploit the anomalies and make some profits.

According to the research done by Mehran et al. (2012) in the US stock market, it is the individual investors that were the catalyst for the increased returns during the holidays rather than the institutional investors. These findings are similar to those of Bergsma and Jiang (2016) who found that during the month of the cultural New Year for six countries that celebrated New Year in different months of the year, stocks which are most preferred and traded by individual investors tended to have elevated stock prices hence higher returns. Bergsma and Jiang (2016) discovered that this effect was more in countries whose employees received bonuses at the turn of the cultural New Year.

According to Ariel (1990) the activities of the market specialists at the market close are not the cause of the high earning on the day before the holiday. This is because the positive returns start to accrue well in advance before the close of the market. The author also disputed that the strong pre-holiday return could be as a result of short-sellers who want to close their very risky short position in advanced of holidays, this is because the strong positive returns are observed from the pre-holiday close to post-holiday open.

In their study of the Chinese New Year anomaly Chia et al. (2015) found out that due to the superstition and house money effect, the individual investors tended to become less risk averse and preferred high risk shares. This then result to high volatility that was experienced on the day immediately after the holiday and hence causing holiday anomaly.

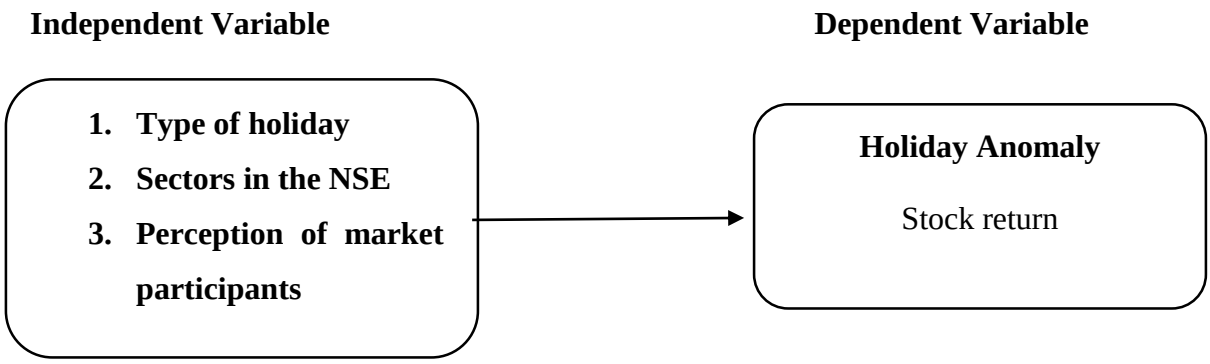
2.4 Research Gap

From the empirical review, it is evident that the holiday anomaly is one of the most researched anomaly as different authors have researched different markets to identify whether it is present. Studies carried out in Kenya by Omar (2015) and Kamau (2016) have shown presence of holiday anomaly. These studies however did not investigate how the different holidays affect the holiday anomaly. There is therefore a research gap on how this different holidays affect the holiday anomaly. Further of interest is how the different sectors of the NSE are affected by the holiday anomaly. There is also a research gap on the level of market participants' awareness on the market anomaly and whether they take advantage of such anomalies.

2.5 The Conceptual Framework of the Holiday Anomalies

The conceptual framework presented below has been arrived at after reviewing previous researches that have been done by Bhardwaj and Brooks (1992), Brockman and Michayluk (1997), Cao et al. (2009), Sukor (2012), Mehran et al. (2012), Shan (2013), Tangjitprom (2016). This framework helped in the examination of the factors that influence the holiday. The dependent variable is the holiday anomaly while the independent variables are the: type of the holiday, sectors in the NSE and perception of market participants.

Figure 2.1: Conceptual Framework for the Factors Influencing the Holiday Anomalies



Source: Author (2017)

2.6 Summary of Literature Review

This chapter reviewed the efficient market hypothesis, the random walk hypothesis and behavioral finance theory which are the theories that support the current research on holiday anomaly. It also further reviewed previous literature on the holiday anomaly by looking at the literature on pre-holiday anomaly and on post-holiday anomaly. From the literature reviewed, it is evident that despite the use of different methodology and different set of data, researchers globally have been able to identify the presence of holiday anomalies in the stock returns. This chapter further looked at the influence of the type of holiday on the holiday anomaly and the relationship between the market participants and market anomaly. The chapter concludes with a conceptual framework that help identify the variables that are being studied.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the strategies that were used to obtain the information which was relevant in achieving the objectives that had been set out for the study. This chapter therefore shows the research design, population and sampling, data collection, data analysis, research validity and ethical consideration for the study.

3.2 Research Design

Based on the research objectives, the study adopted mixed research design. Event study methodology was used for the purpose of identifying the susceptibility of the eight holidays to the holiday anomaly in the NSE. Descriptive research design was then used for the purpose of describing the attributes of the various variables under study. This research design enabled the study to establish the relationship between the holiday anomaly and the different sectors (Saunders, Lewis & Thornhill, 2007). The study also employed qualitative aspects in examining perspective of the market participants in regard to the market anomaly.

3.3 Population and Sampling

The target population was the 50 companies that have been consistently trading in the NSE from 1st January 2010 to 31st December 2016. The year 2010 was chosen because it was the year the new constitution that stipulate the days to be observed as public holidays was inaugurated while the year 2016 was the last full year that data could be obtained. There was no sampling since all the 50 companies were used in the research. A list of these 50 companies is provided in the appendix. A table showing how the 50 companies were determined is also provided in the appendix.

3.4 Data Collection Methods

The secondary data which helped in achieving the first two objectives consisted of the closing price of the NSE All Share Index and the daily closing stock prices of the 50 companies that have

been consistently trading in the NSE from 2010 to 2016. This period was chosen because it coincides with the period that the new constitution was implemented which specifies Kenya's public holidays. This data was derived from the NSE website. The closing stock prices were adjusted for stock splits and then used to calculate the stock returns for the various days of the year.

The third objective of the study sought to investigate the perception of the market participants in regard to the holiday anomaly. In order to achieve this objective, primary data was collected using questionnaire. The questionnaires consisted of both open ended and closed ended questions. These questionnaires were delivered by the researcher to 23 investment managers who worked for the 23 licensed market trading participants. The questionnaires were accompanied by a letter of introduction which politely described how they were to fill the questionnaire.

3.5 Data Analysis

According to Sekeran and Bougie (2013), when data is obtained through methods such as questionnaires, observation, interviews or through secondary sources, it needs to be edited, coded and corrected for errors. The data collected from both primary and secondary methods was therefore cleaned, coded, sorted and classified before further analysis. In order to achieve the first objective of the study a number of things were done. First stock returns were calculated for all the trading days from 1st January 2010 to 31st December 2016. For this research daily stock market returns used were the natural log of the return (ln (P1/P0)) which is the same method as used by Mehran et al. (2012). These returns were then categorized into preholiday returns, post-holiday returns and other trading day's returns. Then the average daily return for each of the five days preceding the holiday and for each of the five days after the holiday was determined.

The first objective of the study sought to evaluate the susceptibility of the Kenyan holidays to the holiday anomaly. In order to achieve this objective, the returns for the pre-holiday and post-holiday were computed for each of the eight Kenyan holidays. The returns for the pre-holiday and post-holiday were then compared using a test of equality of mean across series among the eight holidays so as to determine whether they were significantly different from each other.

The holidays were further categorized as either religious or state holiday. The pre-holiday and post-holiday return were then calculated for these two categorizes in order to determine which of the two categories had more impact on the holiday anomaly. A two sample t-test was used to test the statistical difference between the mean return of the religious holidays and the state holidays. The religious holidays included the Easter holiday, Idd-ul-Fitr and Christmas while the state holidays included New Year's Day, Labour Day, Madaraka Day, Jamhuri day and Mashujaa Day.

For the purpose of fulfilling the second objective, returns for each of the 10 sectors of the NSE were calculated. These returns were then categorized into preholiday returns, post-holiday returns and other trading day's returns. A test of equality of mean across series was used to test the statistical difference between the mean return of the ten sectors.

In order to achieve the third objective which sought to assess the level of awareness of market participants on holiday anomaly, the data collected using the questionnaires was scrutinized to ensure that it was filled adequately and corrected for errors. The data was then analyzed using descriptive statistics such as pie charts and bar graphs.

3.5.1 Operationalization of Variables

3.5.1.1 Holiday Anomaly

According to Lucey (2005), holiday anomaly refers to patterns of return in financial securities such as stocks, bonds and even derivatives that coincide with holidays in a year. Sukor (2012) further argues that the holiday anomaly can occur before the holiday in what is known as pre-holiday anomaly or after the holiday in what is known as post-holiday anomaly.

For the purpose of this study, the definition used for holiday anomaly was that used by Lucey (2005). The returns that shall be used in order to identify the holiday anomaly were measured as ln (P1/P0) as advocated by Baker and Wurgler (2006). The holiday anomaly was investigated for the five days before the holiday and five days after the holiday.

3.5.1.2 Type of the Holiday

According to Brockman and Michayluk (1997), a holiday refers to any day of the week when trading should be happening in the stock market but there is no trading because the stock market has been closed. For purpose of testing the holiday anomaly, Shan (2013) classified holidays as either state holiday or religious holidays. Mehran et al. (2012) on the other hand classified holidays as either joyous or solemn depending on the demeanor of each holiday.

The classification of the holiday anomaly that was used for this study was that used by Shan (2013) of classifying holidays as either state holidays or religious holidays. The Kenyan public holidays were therefore classified as either state holidays or religious holidays.

3.5.1.3 Sectors in a securities exchange

Sector in finance and economics, refer to part of the economy in the security market of a country. It comprises set of businesses that buy and sell similar goods and services that are in direct competition with each other (Rowjee, 2015). This study uses classify stocks in ten sectors as it has been identified by the Nairobi securities Exchange.

3.6 Research Quality

This study ensured that research validity was maintained. According to Saunders et al. (2007), research validity measures the effectiveness of the data collection instruments and whether the findings can be generalized from what they have found. Internal validity was observed by explaining the relationship between the independent variables and the dependent variable in this study.

3.7 Ethical Consideration

Ethical standards were taken into consideration throughout the whole process of the study. All the research material that have been used in this study have been fully acknowledged. The research handled with confidentiality all the information that was obtained from the questionnaires that were distributed to the respondents. The researcher sought permission to collect data from the

respondents from the research ethics office. The study also present the actual results that it obtained without manipulating the results.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents the results of the data analysis and research findings which the study had sought to investigate. The results are organized on the basis of the specific objectives that had been set for this research.

4.2 General Information

This study used data for the NSE All Share Index, the closing daily share prices for the 50 companies selected for the study from 2010 to 2016. The 50 companies that were selected had been trading consistently for the entire period under study. The primary data used for this study was collected through the use of questionnaires which were distributed to the 23 licensed market trading participants. 17 questionnaires out of the 23 that had been issued were filled and returned. This represented a response rate of 74% which was adequate for analysis.

4.3 The effect of the eight Kenyan holidays to the holiday anomaly

The first objective of the study sought to establish the effect of the eight Kenyan holidays to the holiday anomaly in the NSE. This was done for the pre-holiday, post-holiday and for the combination of both the pre-holiday and post-holiday. For the purpose of achieving this objective, the pre-holiday and post-holiday returns for the various holidays were determined. These returns were then subjected to a test of equality of mean across series in order to determine whether they were significantly different from each other. The result of the test conducted are shown in the figure 4.1.

Table 4.1: The test of equality of mean across the eight holidays

Type of Holiday	Pre-holiday Returns	Post-holiday returns	Combined (Pre and holiday returns)
New Year	0.00536	0.00392	0.00464
Easter	0.00107	0.00181	0.00144
Labour	0.00252	0.00224	0.00238
Madaraka	0.00163	0.00086	0.00125
Eid-al Fitr	0.00041	-0.00128	-0.00043
Mashujaa	0.00183	0.00238	0.00211
Jamhuri	-0.00345	-0.00037	-0.00191
Christmas	0.00332	0.00303	0.00317
P-Value	0.0075***	0.0496**	0.1396
F-statistic	2.939	2.76	1.6134
F-critical	2.098	2.098	2.098

*** $p < 0.01$

** $p < 0.05$

* $p < 0.10$

Source: Survey data

The results of the test of equality of mean across series are shown in table 4.1. The first column of the table shows the eight holidays that are considered for the study. The second column shows the

pre-holiday return for the eight holidays. The third column shows the returns for the post-holiday while the last column shows the returns for the combined return for the pre-holiday and post-holiday. The bottom three rows shows the P-value and the F-statistics from the results of the test of equality across the eight holidays.

From the test of equality of mean for the pre-holiday return, the P-Value is 0.0075 while the F-statistics 2.93. It can therefore be deduced that, there is significant difference in pre-holiday returns for the different eight holidays investigated. The P-value for the test of equality for the post-holiday returns is 0.0496 while the F-statistics is 2.76. This imply that the post-holiday returns are significantly different for the eight holidays considered. The P-Value from the test of equality for the combined pre-holiday and post-holiday returns is 0.14 while the F-statistics is 1.613. This implies that, when combined, the pre-holiday return and post-holiday mean return are not statistically different from each other.

From the results, the returns for the pre-holiday and for the post-holiday are significantly different across the eight holidays. After establishing that the returns for the eight holidays were significantly different for the pre-holiday and post-holiday, the study further established the number of times that the returns were higher as compared to the ordinary trading days. This helped to establish which holiday had more impact on the anomaly than the other. The results for this are shown in the table 4.2.

Table 4.2 The number of times the return is greater than the ordinary trading days

Type of Holiday	Number of times Pre-holiday return are greater than ordinary trading day	Number of times post-holiday return are greater than ordinary trading day
New Year	20	14.62
Easter	3.9	6.75
Labour	9.4	8.35
Madaraka	6.1	3.21
Eid-al Fitr	1.5	-4.77
Mashujaa	6.8	8.88
Jamhuri	-12.8	-1.38
Christmas	12.38	11.3

Source: Survey data

The second column of the table 4.2 shows the number of times that the pre-holiday return is greater than the ordinary trading days. The results indicate that the New Year has the highest positive returns for pre-holiday which are 20 times the returns for the ordinary trading days. Christmas has the second highest positive returns which are 12.38 times the return for the ordinary trading days. Eid-al-Fitr has the least positive pre-holiday returns which are 1.5 times the mean return for the ordinary trading days. Jamhuri day is the only holiday that exhibit negative pre-holiday returns which are -12.8 the returns for the ordinary trading days. From this findings it is clear that the returns in the NSE are affected differently depending on the type of holiday being celebrated.

The third column of table 4.2 shows the number of time that the post-holiday return for each holiday is greater than the ordinary trading days. The New Year holiday exhibit the highest positive post-holiday returns which are 14.62 times the returns of the ordinary trading days. Christmas holiday exhibit the second highest positive post-holiday returns which are 11.3 times the returns for the ordinary trading days. Madaraka holiday exhibit the lowest positive post-holiday returns which are 3.21 times the returns for the ordinary trading days. Eid-al-Fitr and Jamhuri holiday have negative post-holiday returns.

The holidays had further been categorized as either state holidays or religious holiday in order to determine which one had more impact on the holiday anomaly. T-test was used to test which category had more impact on the holiday anomaly. The results of the t-test for the pre-holiday and post-holiday are shown in the table below.

Table 4.3 T-test for the state and religious holidays

Type of Holiday	**Pre-holiday Returns**	**Post-holiday Returns**
State holidays	0.00194	0.00169
Religious holidays	0.00121	0.00139
P-Value	0.064*	0.24

*** p < 0.01

** p < 0.05

* p < 0.10

Source: Survey data

The table 4.3 shows the results of a t-test that was carried in order to determine which category of holiday had more impact on the returns. The results indicate that the pre-holiday returns are significantly higher for the state holidays as compared to the religious holidays. The returns for the post-holiday are also higher for the state holidays though not at a significance level.

The findings from the test carried established that the different holidays had different effects on the share returns for the both the pre-holiday and post-holiday. The New Year had the highest return for both the pre-holiday and post-holiday. This was followed by Christmas which had the second highest return for both the pre-holiday and post-holiday. Jamhuri day had negative returns for both the pre-holiday and post-holiday. The findings also indicate that the state holidays have significantly higher pre-holiday returns as compared to the religious holidays. There was no significantly difference between the post-holiday mean return for the state holidays and the religious holidays.

4.4 Sectors in the NSE and Holiday Anomaly

The second objective of study sought to investigate which sectors in the NSE are more prone to the holiday anomaly. Ten sectors were considered for the study. In order to achieve this objective a test of equality of mean across the ten sectors was done. The result of the test for the pre-holiday and post-holiday are presented in section 4.4.1 and section 4.4.2 below.

4.4.1 Pre-holiday Anomaly and the NSE Sectors

For the purpose of determining which sectors are more prone to the pre-holiday anomaly, the pre-holiday mean return for ten sectors was calculated. A test of equality of mean across the ten sectors was then carried out. Table 4.4 shows the result of the test.

Table 4.4: A Test of Equality of Mean for the Pre-holiday Anomaly for the Sectors in the NSE

Sectors in the NSE	*Pre-holiday returns*
Agricultural	0.00072
Automobiles & Accessories	0.00037
Banking	0.00095
Commercial And Services	-0.00145
Construction & Allied	-0.00079
Energy & Petroleum	-0.00881
Insurance	-0.00042
Investment	0.00596
Manufacturing & Allied	0.00047
Telecommunication & Technology	0.001124

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.00642	9	0.00071	0.7378	0.674	1.897
Within Groups	0.51252	530	0.00096			
Total	0.51894	539				

Source: Survey data

The first column of table 4.4 shows the ten sectors considered for the study while the second column shows the mean return for the ten sectors. Six of the sectors in the NSE exhibit positive pre-holiday anomaly. These sectors are: agriculture; automobile and accessories; banking; investment; manufacturing and allied; telecommunication and technology. The other sectors which include: commercial and services; energy and petroleum; construction and allied and insurance had negative pre-holiday return. The test of equality done resulted to a P-value of 0.6742 and an F-statistic of 0.7378. These results imply that there is no significant statistical difference of the

mean return for the ten sectors in the NSE. Thus there is no single sector in the NSE which is more prone to the pre-holiday anomaly than the other.

4.4.2 Post-holiday Anomaly and the NSE Sectors

For the purpose of determining which sectors are more prone to the post-holiday anomaly, the post-holiday mean return for ten sectors was calculated. A test of equality of mean across the ten sectors was then carried out. Figure 4.5 shows the result of the test.

Table 4.5: A Test of Equality of Mean for the Pre-holiday Anomaly for the Sectors in the NSE

Sectors in the NSE	*Post-holiday return*
Agricultural	-0.00006
Automobiles & Accessories	0.00135
Banking	-0.00112
Commercial And Services	0.00305
Construction & Allied	0.0032
Energy & Petroleum	0.00192
Insurance	0.00058
Investment	-0.00033
Manufacturing & Allied	0.00165
Telecommunication & Technology	0.00029

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F critIcal*
Between Groups	0.00087	9	0.000096	0.5564	0.8327	1.9002
Within Groups	0.07997	460	0.000173			
Total	0.08084	469				

Source: Survey data

Table 4.5 shows the result of the test of equality carried for the post-holiday anomaly. Three of the ten sectors have negative post-holiday returns. These sectors are: the agricultural sector; banking sector and the investment sector. The commercial and allied had the highest positive pre-holiday returns which was 0.0032 while Telecommunication and technology had the least positive mean return. The P-value from the test of equality of mean across series is 0.8327 while the F-statistic is 0.5564. This therefore implies that the post-holiday mean return is not significantly different across the ten sectors under consideration. Thus there is no sector in the NSE that is more prone to the post-holiday anomaly than the other.

The test conducted to investigate which sectors were more prone to both the pre-holiday anomaly and the post-holiday anomaly indicate that there is no single sector that is more prone to the holiday anomaly than the other. This study has therefore been able to achieve the second objective by concluding that there is no single sector in the NSE that is more prone to the holiday anomaly than the other.

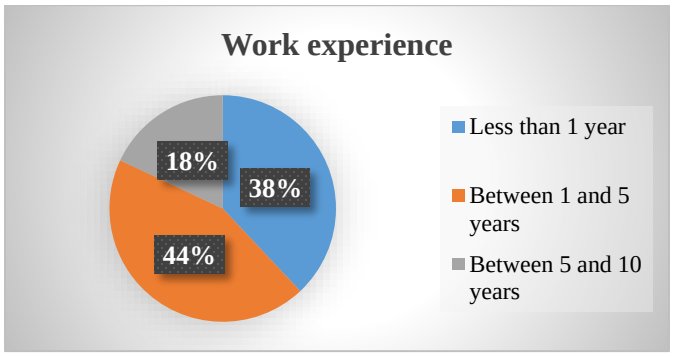
4.5 Market Participant's Perception of the Holiday Anomaly

The third objective of the study sought to investigate the perspective of the market participants in regard to the holiday anomaly. This objective was achieved through the distribution of questionnaires to the market participants. The study targeted the 23 trading participants that are licensed by the NSE. Out of the 23 questionnaires that were distributed, 17 were filled and returned. This represented a response rate of 73.9%. One of the questionnaire had not been filled appropriately and was therefore not considered for the analysis.

4.5.1 Background Information of the Respondents

The study sought background information of the respondents. The result of the response are shown on the figure 4.1.

Figure 4.1: Background Information



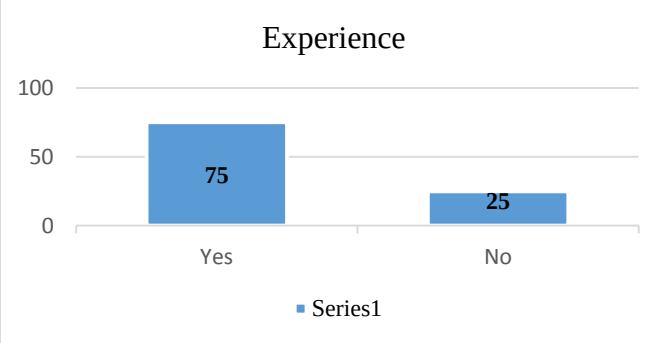
Source: Survey data

From the results shown in figure 4.1 above, majority of the respondents had work experience of between 1 and 5 years which is represented by 44%. 38% of the respondents had work experience of less than 1 year while 18% had work experience of between 5 and 10 years. The respondents were therefore in a position to answer the questions regarding the anomalies since majority of them had work experience of more than one year and could have encountered the anomalies.

4.5.2 The Awareness and Exploitation of the Security Market Anomalies

Figure 4.2 below shows the level of awareness of the holiday anomaly among the market participants.

Figure 4.2: The Level of Experience



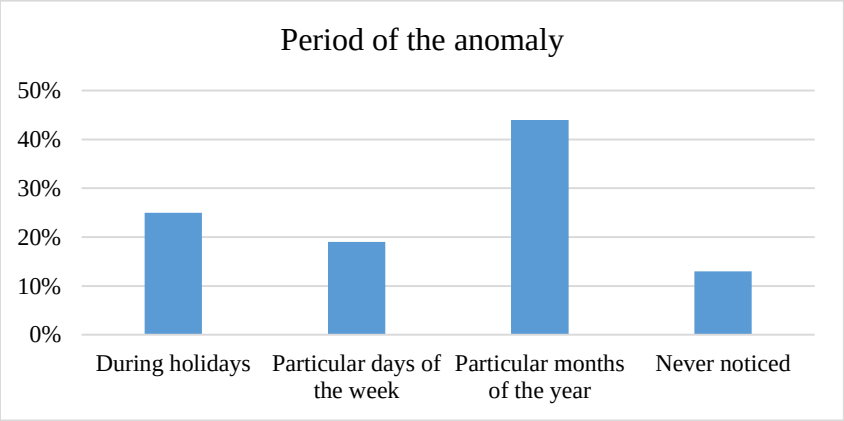
Source: Survey data

The results in figure 4.2 above show that the market participants are aware of general market anomaly since 75% of the respondents indicated that they had noticed market anomalies while 25% had not noticed it before.

4.5.3 Period When the Anomaly Was Experienced

Figure 4.4 below shows the period when the anomaly was experienced in the NSE.

Figure 4.4: Period the Anomaly was experienced

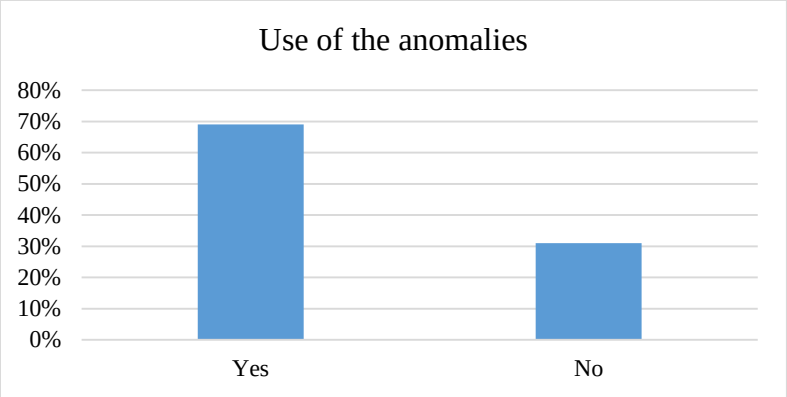


Source: Survey data

The results from figure 4.4 above indicate that the 25% of the respondent had experienced the market anomaly during the holidays period, 19% indicated that they had experienced it on particular days of the week, 44% had experienced it during particular months of the year while 13% had not experienced the anomalies at all.

4.5.4 Use of the Anomalies to Determine Trading Strategy

Figure 4.5: Use of the Anomalies

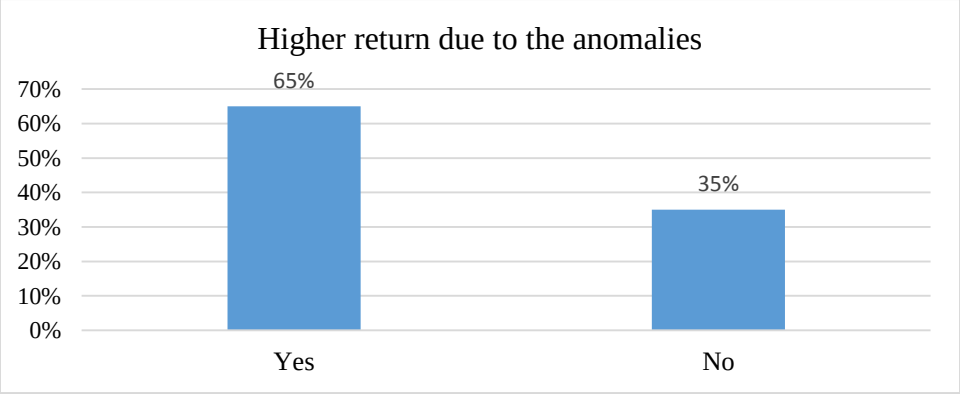


Source: Survey data

The results from figure 4.5 above show that market participants use the anomalies in the securities market to determine their trading strategies with 69% of the respondents indicating that they have used the anomalies in the NSE to inform the decision of their trading, while 31% said they had not used it to determine their trading strategy.

Figure 4.6 below shows how the use of the holiday anomaly by the market participants have affected their returns.

Figure 4.6: Higher Return due to the Anomalies

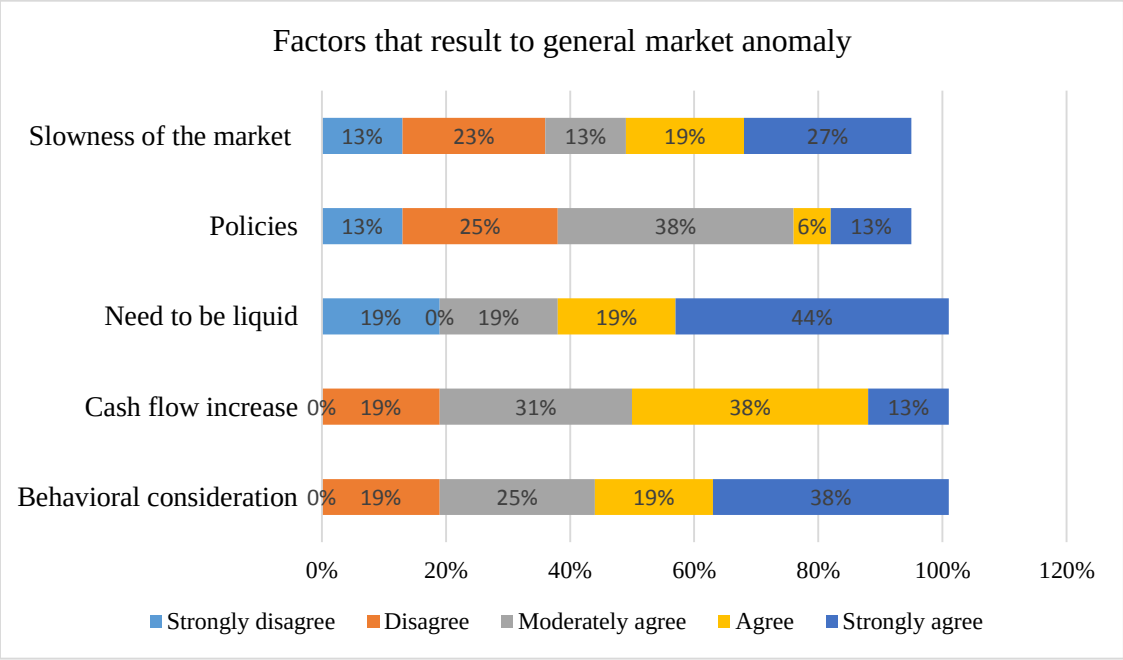


Source: Survey data

From the findings in figure 4.6 above, the use of the anomalies in the NSE has yielded higher returns for 65% of the respondents. 35% indicated that the use of the anomaly had not yielded superior returns for them.

4.5.5 Factors that Result in General Market Anomaly

Figure 4.7: Factors that Result in the General Market Anomalies



Source: Survey data

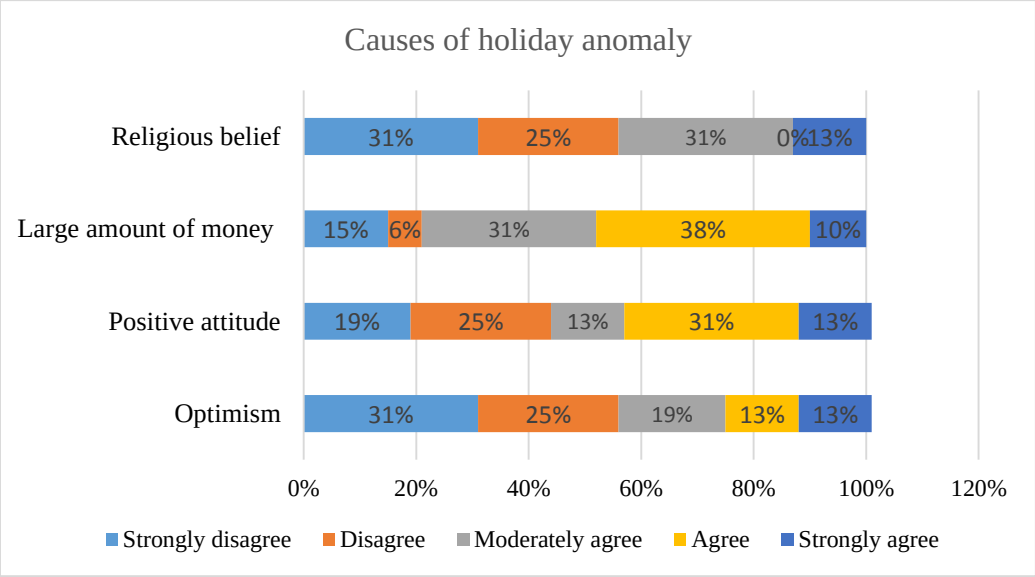
The research sought to investigate the factors that results in the general market anomaly from the market participants' point of view. Figure 4.7 above shows the results of that investigation. From the results, the market participants felt that the behavioral consideration of the investors resulted to market anomalies with 38% of the respondents strongly agreeing and 19% agreeing. The results also indicate that increase in cash flow on the days prior to the anomaly also resulted to the market anomaly. This is evident as 38% of the respondents agreed with the statement while 13% strongly agreed with it. From the results the need to be liquid by the investor also resulted to the market anomaly. This is evident because 44% of the respondent strongly agreed with it while 19% agree with it. The respondents did not feel that constraints in policy resulted in market anomaly since a

small percentage agreed and strongly agreed. Only 21% felt that constraints in policy resulted to market anomaly. The respondents also felt that the slowness of the market resulted to the market anomaly with 19% agreeing and 27% strongly agreeing. Further the market participants indicated that the policies of the government caused some anomalies in the NSE.

4.5.6 Factors that Cause the Holiday Anomaly

The study sought to investigate the factors that cause the holiday anomaly from the point of view of the market participants. The results from the analysis are shown below.

Figure 4.8: Factors that Cause the Holiday Anomaly



Source: Survey data

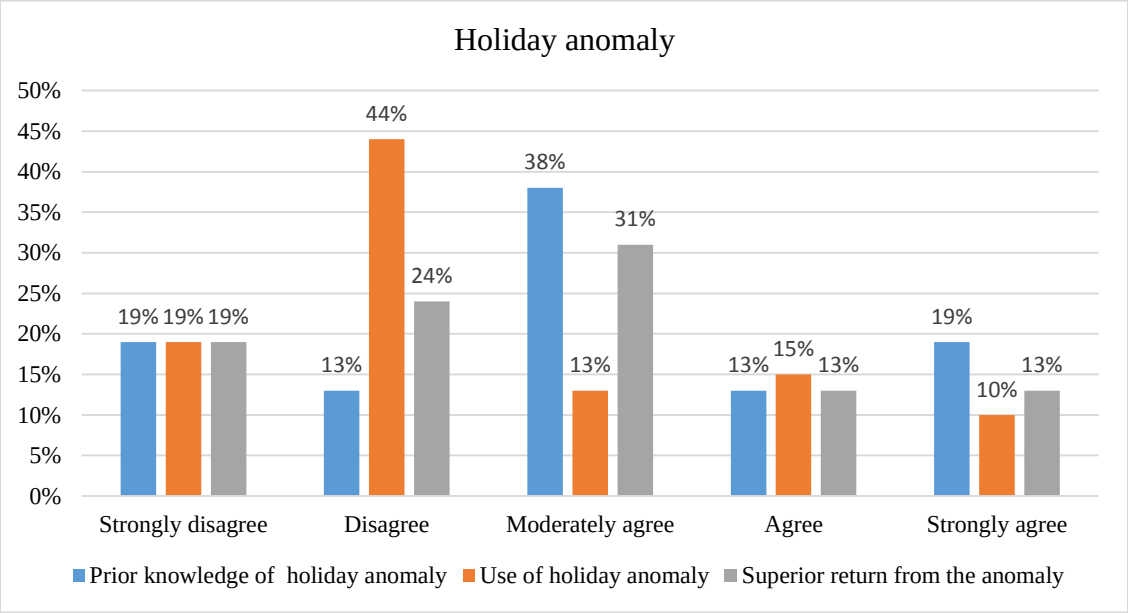
The study also sought to investigate the factors that resulted to the holiday anomaly from the market participant's point of view. From the results, the market participants disagreed that optimism brought about by the holidays resulted to holiday anomaly with 31% strongly disagreeing and 25% disagreeing. The respondents felt the positive attitude brought about by the holiday resulted to the holiday anomaly with 31% of the respondents agreeing and 13% strongly agreeing. Large amount of money during the holiday also resulted to the holiday anomaly from market participants' point of view with 38% agreeing and 10% strongly agreeing. The religious beliefs of the holidays does not result to the holiday anomaly. This is because 31% of the

respondents strongly disagreed with the statement and 31% disagreed with it. Only 13% thought that religious beliefs resulted to holiday anomaly.

4.5.7 Prior knowledge of the holiday anomaly

The study enquired the level of knowledge of the market participants. The results from the analysis are shown below.

Figure 4.9: Prior Knowledge of the Holiday Anomaly



Source: Survey data

The research also sought to investigate whether the market participants had prior knowledge of the holiday anomaly and whether they had used it in their trading strategy. This results are presented in table 4.10 above. From the results, 13% of the respondents agreed that they knew about the anomaly before this study while 19% strongly agreed that they knew about the anomaly before the study. Majority of the respondents representing 38% moderately agreed that they knew about the holiday anomaly. 25% of the respondents stated that they had used the information on holiday anomaly to determine their trading strategy. Trading on the information regarding the market anomaly yielded higher returns for some of the trading participants with 13% of the respondents

strongly agreeing that it yielded them superior returns while 13% of them agreed that it yielded them superior return.

4.7 Chapter Summary

This chapter present the findings of the study which were based on the three objectives that had been set for the study. Data used for the analysis was first checked whether it was suitable for the study. This data was then analyzed using different statistical tools in order to achieve the objectives that had been set for the study. The findings of the study established that different holidays had different impact on the holiday anomaly whereby some holidays had significantly higher returns during the holidays than other holidays. The findings of the study also established that there was no single sector that was more prone to the holiday anomaly than the other in the NSE. The results also indicate that market participants are aware of the anomalies present in the NSE. These market participants have therefore developed strategies for exploiting the anomalies present in the NSE. This has therefore enabled them to earn superior returns.

CHAPTER FIVE

DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter focuses on the discussion of the findings, conclusions and the recommendations which relate to objectives that had been set for the study. This chapter is structured as follows: 5.1 Discussion of the findings; 5.2 Conclusion of the study; 5.3 Recommendations; 5.4 Areas for further studies, 5.5 Limitation of the study.

5.2 Discussion of the Findings

Previous studies by Omar (2015) and Kamau (2016) identified the presence of the holiday anomaly in the NSE. Based on the findings of these previous studies, the current study sought to: establish the susceptibility of the Kenyan holidays to the holiday anomaly, identify which sectors are more prone to the holiday anomaly and establish the perspective of the market participants in regard to the anomalies. The results for these findings are discussed below as per the objectives.

5.2.1 The effect of the eight Kenyan holidays to the holiday anomaly in the NSE

The first objective of the study sought to establish the susceptibility of each Kenyan holiday on the holiday anomaly experienced in the NSE. The test results indicate that mean returns for each of the eight holidays during the pre-holiday were significantly different from each other. The results also indicated that the mean return for the eight holidays during the post-holiday period were also significantly different form each other. New Year holiday and Christmas holiday experienced the highest positive returns for the pre and post-holiday returns. On the other hand, the returns during the pre-holiday and post-holiday period were negative for the Jamhuri holiday. This meant that the individual holidays affected the holiday anomaly differently. These findings are consistent to the findings of Mehran et al. (2012) that established that the different Jewish holidays had different holidays impact on the holiday anomaly present in the US stock market. The impact of each holiday to the holiday anomaly depend on the demeanor that it has to the investor hence the difference in returns during the various holidays. The findings of this study are however a contradiction to the findings of Cao et al. (2009) whose findings indicate that there was

no single holiday that had more impact on the holiday than the other in the New Zealand stock market. This contradiction of the results can be attributed to the difference in the culture of the countries under the investigation.

The study further categorized the holidays into state and religious holidays. The test conducted to investigate which of these two categories had more effect on the holiday anomaly indicate that the state holidays had higher pre-holiday returns as compared to the religious holidays. These results conformed to earlier findings of Shan (2013) that established that, the holiday anomaly was stronger for the secular holidays than for the religious holidays in the Malaysia stock market. These findings were also consistent to the findings of Tangjitprom (2016) that established that state holidays had more impact than the religious holidays in the Thai stock market. The holiday type therefore has an impact on the holiday anomaly experienced in the NSE.

5.2.2 Sectors in the NSE and Holiday Anomaly

The second objective of the study sought to investigate the sectors in the NSE to find out which ones were more affected by the holiday anomaly. The test of equality of mean across series was conducted for the ten sectors in the NSE for both pre-holiday anomaly and post-holiday anomaly. The results from the test of equality of mean return for different sectors showed that there was no significant difference between the returns of the different sectors. This meant that there is no single sector in the NSE which more affected by the holiday anomaly than the other.

These findings however contradicted the results of Chin (2008) that established that some sectors in the Malaysian stock were more affected by the holiday anomaly than others. These results were similar to the findings of Kroon (2008) which established that the holiday anomalies experienced in the Swedish market were not significantly different among the various sectors in the market. These results are also similar to the results of Gakhovich (2011) that established that the holiday anomalies experienced in the Czech and Romanian market were consistent across the sectors under investigation.

5.2.3 Market Participants' Perception of the Holiday Anomaly

The third objective of the study sought to investigate the perception of the market participants in regard to the holiday anomaly. The results from the analysis showed that majority of the trading participants had noticed general market anomalies in the NSE. Despite the fact that majority of the respondents had noticed general market anomaly, only a small number of the respondents had noticed the holiday anomaly in the NSE. The results also show that majority of the market participants have utilized the anomalies present in the NSE when making their trading strategies and only few have not utilized the anomalies in the NSE. These results conform to Latif et al. (2011) who argue that market participant exploit market anomalies when they notice them in the market.

Utilizing the market anomalies has resulted to higher earnings for some the market participant since 63% of the participants indicated that the strategies that they had utilized had enabled them to earn higher returns. Trading on the anomaly did not enable 37% of the respondents to earn superior return. These findings are consistent with the argument of Archana et al. (2014) who stated that trading on stock market anomaly does not necessarily result to superior returns.

5.3 Conclusion

It is evident from this study, that the different Kenyan holidays have different effect on the return of shares in the NSE. The mean returns for the different holidays for both pre-holiday and post-holiday were significantly different from each other. State holidays also exhibited higher pre-holiday returns as compared to the religious holidays. Despite exhibiting different returns for the pre-holiday and post-holiday, the returns for the different sectors were not statistically different from each other. There was therefore no sectors in the NSE that was more prone to the holiday anomaly than the other. Market participants expressed knowledge of the existence of market anomalies in the NSE. However only a few had knowledge of the existence of the holiday anomaly in the NSE. The market participants have exploited the market anomalies in the NSE and this has enabled them to earn superior returns. Investors can therefore earn even superior returns if they have knowledge of the holiday anomaly and exploited it.

5.4 Recommendations

5.4.1 Policy Makers

The presence of anomalies implies that the NSE is not efficient. Some of these anomalies are as a result of the activities of the government as indicated in the research such as when the government makes a pronouncement. The government should therefore carefully deliberate before they make a policies because they can affect the NSE and result to an anomaly.

5.4.2 Investors

The study has confirmed the presence of holiday anomaly in the NSE. Despite this, only few of the market participants know that it does exist. Investors should therefore take advantage of the holiday anomaly in the NSE to enable them to earn superior return.

5.5 Areas for Further Study

The current study focused on the holiday anomaly caused by the public holidays in Kenya, further studies can be carried in order to establish the impact holidays in countries such as the USA and Britain have on the NSE taking into consideration that most of the investors in the NSE are foreigners. Further study can be carried to investigate possible trading strategies that market participants in order to profit from the market anomaly present in the NSE.

5.6 Limitation of the Study

The limitation of the study was experienced when collecting primary data through questionnaires. This is because some of the respondents were unwilling to fill the questionnaire provided. Some delayed in filing the questionnaire within the time frame provided which resulted to the delay of the analysis for the primary data.

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APPENDIX 1: LETTER OF INTRODUCTION

Strathmore UNIVERSITY

6th April 2017

TO WHOM IT MAY CONCERN

John Waweru Kamau-066835

Mr. John Waweru Kamau is a postgraduate student in our Master of Commerce (MCom) programme. In partial fulfilment of the MCom degree, students are required to carry out a research project and write a thesis on a contemporary subject within their field of specialisation. Among other activities, the project involves data collection and analysis.

John is requesting to gather information to be used in his research. The information he will obtain from your organization will be used for this academic purpose only and will be kept confidential. The results of the survey will be in summary form and will not disclose any individual, company name or company information in any way.

The research study is entitled **"An investigation of the factors affecting holiday anomaly in the Nairobi securities Exchange."**

We hope that your organization can assist by providing information to the above named student.

Yours faithfully,

Josphat Manani
MCOM Coordinator
School of Management and Commerce
Email: jmanani@strathmore.edu

Ole Sangale Rd, Madaraka Estate. PO Box 59857-00200, Nairobi, Kenya. Tel +254 (0)703 034000
Email admissions@strathmore.edu www.strathmore.edu

APPENDIX II: QUESTIONNAIRE

QUESTIONNAIRE

You are kindly requested to tick in the space provided and give a brief explanation in the blank spaces provided.

SECTION A: BACKGROUND INFORMATION

1. Name of the company (optional)……
2. How long have you worked in this company

a. Less than 1 year [ ]
b. Between 1 and 5 years [ ]
c. Between 5 and 10 years [ ]
d. Between 10 and 15 years [ ]
e. Over 15 years [ ]

3. Please indicate your highest level of education

Post graduate [ ] Graduate [ ] Diploma [ ] Certificate [ ]

SECTION B: QUESTIONS FOR GENERAL MARKET ANOMALY

4. While trading over the years have you noticed any pattern in stock returns during a specific period that are not consistent with the normal daily returns (Stock market anomaly).

a. Yes [ ]
b. NO [ ]

5. If your answer is yes to the fourth question, when were this patterns of stock return observed (Stock market anomaly)

a. During holidays [ ]
b. During weekends [ ]
c. Particular days of the week [ ]
d. Particular months of the year [ ]
e. Please specify any other…….

6. Have you used the patterns to determine your trading strategy

a. Yes [ ]
b. No [ ]

7. If your answer to question 6 is yes, has using the patterns to determine your strategy yielded superior returns than before

a. Yes [ ]
b. NO [ ]

8. Indicate the extent to which you believe the following factor results to market anomaly (Abnormal return patterns). **Where 1= Strongly disagree, 2= Disagree, 3= Moderately agree, 4= Agree, 5= Strongly agree**

Factor	**1**	**2**	**3**	**4**	**5**
Behavioral consideration such as the sentiments of the investor					
Increase in cash flows in days prior the anomaly period					
The need to be liquid by the investor					
Constraints in policies such as when pension fund investment are made at a particular day of the month					
Slowness of the market to react to new information					

Any other…….....

.....

SECTION C: THIS SECTION CONTAINS QUESTIONS THAT RELATE TO HOLIDAY ANOMALY

9. To which extent do you agree that the following factor are the causes of holiday anomaly

Causes of holiday anomaly	**1**	**2**	**3**	**4**	**5**
Optimism brought about by holidays					
Positive attitude brought about by the holiday					
Large amount of money during the holiday					
Religious belief of the holiday					

Any other factor that results to holiday anomaly……..

……

……

10. Please indicate the extent to which you agree with the following statements. **Where 1= Strongly disagree, 2= Disagree, 3= Moderately agree, 4= Agree, 5= Strongly agree**

Statement	**1**	**2**	**3**	**4**	**5**
Before this study I knew the holiday anomaly					
I have used the information on holiday anomaly to determine my trading strategy					
Trading on the anomaly yields higher returns than not trading on the anomaly					

Any other comment ……

……..

Thank you for your time.

APPENDIX III: LISTED COMPANIES AT THE NAIROBI SECURITIES EXCHANGE

AGRICULTURAL	**AUTOMOBILES AND ACCESSORIES**
Eaagads Ltd	Car and General (K)
Kapchorua Tea Co.	Sameer Africa Ltd
Kakuzi	Marshalls (E.A.)
Limuru Tea Co. Ltd	
Sasini Ltd	
Williamson Tea Kenya	
BANKING	**COMMERCIAL AND SERVICES**
Barclays Bank Ltd	Express Ltd
I&M Holdings Ltd	Kenya Airways Ltd
Diamond Trust Bank Kenya Ltd	Nation Media Group
HF Group Ltd	Standard Group Ltd
KCB Group Ltd	TPS Eastern Africa (Serena)
National Bank of Kenya	Scangroup Ltd
NIC Bank Ltd	Uchumi Supermarket
Standard Chartered Bank	Hutchings Biemer Ltd
Equity Group Holdings	Deacons (East Africa)
The Co-operative Bank of Kenya	
CONSTRUCTION AND ALLIED	**ENERGY AND PETROLEUM**
Athi River Mining	KenolKobil Ltd
Bamburi Cement Ltd	Total Kenya Ltd
Crown Berger Ltd	Kengen Ltd
E.A.Cables Ltd	Kenya Power & Lighting Co Ltd
INSURANCE	**INVESTMENT**
Jubilee Holdings Ltd	Centum Investment Co Ltd
Pan Africa Insurance Holdings Ltd	
Kenya Re-Insurance Corporation Ltd	
Liberty Kenya Holdings Ltd	
MANUFACTURING AND ALLIED	
B.O.C Kenya Ltd	
British American Tobacco Kenya	
Carbacid Investments Ltd	
East African Breweries Ltd	
Mumias Sugar Co. Ltd	
Unga Group Ltd	

Eveready East Africa Ltd	
Kenya Orchards Ltd	
A.Baumann CO Ltd	
TELECOMMUNICATION AND TECHNOLOGY	
Safaricom Ltd	

Source: NSE website

APPENDIX IV: LIST OF AUTHORIZED TRADING PARTICIPANTS

	Name of Trading Participant
1	Dyer & Blair Investment Bank Ltd
2	Francis Drummond & Company Limited
3	Ngenye Kariuki & Co. Ltd.
4	Suntra Investment Bank Ltd
5	Old Mutual Securities Ltd
6	SBG Securities Ltd
7	Kingdom Securities Ltd
8	AIB CAPITAL LTD
9	ABC Capital Ltd
10	Sterling Capital Ltd
11	ApexAfrica Capital Ltd
12	Faida Investment Bank Ltd
13	NIC Securities Limited
14	Standard Investment Bank Ltd
15	Kestrel Capital (EA) Limited
16	African Alliance Securities
17	Renaissance Capital (Kenya) Ltd
18	Genghis Capital Ltd
19	CBA Capital Limited
20	Equity Investment Bank Limited
21	KCB Capital
22	Barclays Financial Services Limited
23	Securities Africa Kenya Limited

Source: NSE website

APPENDIX V: THE TARGET POPULATION FOR THE STUDY

Total listed companies in the NSE as at 31st Dec 2016	68
Deduct:	
1. Companies suspended in the NSE from 1st Jan 2010 to 31st Dec 2016	5
2. Companies delisted in the NSE from 1st Jan 2010 to 31st Dec 2016	1
3. Companies listed in the NSE from 1st Jan 2010 to 31st Dec 2016	12
The target population	50

Source: Author (2017)