

**AN INVESTIGATION OF JANUARY EFFECT ON THE RETURNS
OF NEGLECTED FIRMS AT THE NAIROBI SECURITIES
EXCHANGE**

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DECLARATION

This research project is my original work and has not been presented in any other University.

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D63/88645/2016

This research Project has been submitted for examination with my approval as University Supervisor.

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DEDICATION

I dedicate this research paper to my parents and siblings, thanks big brother (Dominic), for the support they showed me in the entirety. Your love and support did not go unnoticed. Love you all.

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List of Abbreviations and Acronyms

CAPM – Capital Asset Pricing Model

CMA – Capital Markets Authority

EMH – Efficient Market Hypothesis

NSE – Nairobi Securities Exchange

ROY – Rest of Year

ABSTRACT

This research studied January effect on the returns of neglected firms with a motive of identifying the relationship between January effect and neglected firm effect. The objectives of this study was to investigate whether January effect and neglected firm effect at the Nairobi Securities Exchange for the periods 2012 to 2016. A descriptive research design was employed for the study. The population of the study consisted of 64 firms that were listed at the NSE. The daily stock returns for all listed firms per sector were gathered and analyzing the data statistically to determine if January effect exists. A paired t-test at a significance level of 0.05 was applied to the means of January returns and the means of Rest of Year (ROY) in order to investigate the existence of January effect. It was noted that the Banking sector, Manufacturing sector and Commercial and Services sector portrayed existence of January effect. In order to investigate neglected firm effect which is of the assumption that lesser known firms tend to generate higher returns compared to well-known firms, two portfolios were created, popular and neglected portfolio. Abnormal returns were thereafter calculate for each portfolio and a paired t-test at a significance level of 0.05 applied thereof. It was noted that all p-values were greater than 0.05, hence neglected firm effect does not exist. Investors should take advantage of the arbitrage opportunities resulting from the existence of the market anomaly. Companies and regulatory authorities should put in place measures that counter such anomalies and ensure efficiency of the market. This study was however limited to a five year period thus limiting the sample data. Therefore, more years of study should be studied to afford more conclusive findings. Some sectors showed that January mean returns were significantly lower than the rest of the year means, an anomaly that needs investigating.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Markets are supposed to be efficient but the existence of anomalies have provided a fertile ground for stock return seasonality (Sharpe, Alexander and Bailey, 2005). January effect is an anomaly witnessed in financial markets. This is a case where January mean returns are higher than the rest of the months (Riepe, 2001). Arbel and Strebel (1982) and Merton (1987) indicated that small-sized firms are neglected by market analysts due to limited information and lower liquidity problems, resulting to neglected firm effect.

This study's cornerstone was EMH, Random Walk theory, CAPM and Behavioral Finance theories. Efficient Market Hypothesis (EMH) associates with the Random Walk Theory which is of the notion that the flow of information is not hindered, arising information is also reflected in the securities prices and that stocks are efficiently priced to reflect all the information available (Clarke et al., 2001). Fama (1970) found out that where a market is efficient, the prices of securities reflect the publicly available information. EMH has strongly been contradicted by previous researches done that show evidence of market anomalies (Silver, 2011).

Rozeff & Kimney suggested that January effect anomaly shows that the daily mean returns during the month of January is relatively higher than daily mean returns for other months. Mixed results have been provided at the NSE, Kamau (2003) and John (2012) noted non-existence of January effect at the NSE whereas Onyuma (2009), Nyamosi (2009) and Nyabuto (2011) found the presence of January effect the securities market. Most studies done on January effect have generalized all the firms and no study has yet been done on neglected firms alone, the closest being a study on January effect on small firms (Osango, 2007). The objectives of the study were to investigate the existence of January effect at the Nairobi Securities Exchange, determine the existence of neglected firm effect and determine the relationship between January effect and Neglected firm effect.

1.1.1 January Effect

This anomaly is a situation where the average stock return in any other month is less than that of January (Riepe, 2001). A popular hypothesis that tries to explain this anomaly is the tax loss selling (Reinganum, 1983). Investors that are experiencing losses sell their stock in December so they could qualify for tax loss and thus buy in January. In effect, stocks experiencing capital losses in December resulting in their prices being driven down would in effect have their prices driven up in January (Ogden, 1990).

Keim (1983) made the assertion that in developed countries like the United States and the United Kingdom, January effect in essence may be a result of settlement procedures, insider trading and tax-loss selling. Several studies in Kenya have also tried testing the existence of January effect and understanding the reason for the effects.

Lakonishok et al., (1987) asserted that seasonality in stock markets refers varied compilation of outcomes with regard to calendar anomalies; stock markets collectively indicate returns are constantly greater during some calendar periods than others. Marc Reinganum (1983) asserted that January effect was prevalent for small firms that witnessed declining prices the preceding year. The focus of this study emanated from the effects of this January effect anomaly on the returns of neglected firms.

1.1.2 Stock Returns

Investors have an opportunity of making returns from their investments. Return is a pick up or loss of a security in a specific period comprising of the wage and the capital increases relative on a speculation cited as a percentage (Gartner, 1995). These returns may be in the form of dividends or profits or capital gains (Strong, 1992).

Factors such as other anomalies, macroeconomic variables, liquidity, elections (Kabiru et al., 2015) and seasonality influence the performance of stock markets. The strategies that can be utilized to figure returns are the continuously compounded log returns and simple returns (Lee, 1998). This study utilized simple returns.

A sign of a healthy economy is the performance of its security market (Haroon and Shah, 2013); it therefore provides investors with an opportunity and means to evaluate their

portfolio in a way to ensure they obtain profitability. Ondiala (2014) noted that trading in the secondary market is a common way of generating stock return, by buying low and selling high.

1.1.3 January effect and Stock returns

The relationship between January effect and stock returns focuses on investors making profit out of calendar periods which contradicts the EMH. A noteworthy connection between months of the year and securities exchange return exists (Berument and Kiyamaz 2003). Investors are able to make arbitrage profits in January due to this differentials brought about by this January effect anomaly.

Nyamosi (2009) conducted a study on the existence of January effect at the NSE and he found the existence of January effect; it demonstrated that the mean returns in January is higher than whatever remains of the months. This was confirmed by Nyabuto (2011) where he also found the existence of January effect at the NSE.

The existence of January effect gives an opportunity for an investor to make profits by buying during other months prior to January and selling in January. This shows there is a relationship between January effect and stock returns. This relationship also enables companies know when to release information.

1.1.4 Neglected Firms at the Nairobi Securities Exchange

The Nairobi Securities Exchange (NSE) offers a stage for the posting and exchanging of securities being the main chief bourse in Kenya. It likewise gives a stage to the trading of different instruments, the debt market, derivatives market as well as equities in the securities market (NSE, 2017).

Ibalai (2017) conducted a research to examine the existence of Neglected Firm Effect at the NSE; he concluded that the impact does not exist at the Nairobi Securities Exchange. Onyuma (2009), Nyamosi (2009) and Nyabuto (2011) conducted studies at the NSE regarding January effect and they found the existence of January effect at the NSE.

Contrary to the studies above King'ori (1995) and John (2012) who were examining the presence of January effect at the NSE found that this anomaly did not exist at the NSE. No study has however been done on the relationship between January effect and Neglected firms. This study sought to reveal the relationship between neglected firm and January effects, determine existence of Neglected firm effect at the Nairobi Securities Exchange and also existence of January effect at the same platform.

1.2 Research Problem

Investors are not always promised good returns only because the earning power of a company has grown. In this case, it is important to note that the month in question has an effect in the earning capacity of an investor (Chen, 2001). The knowledge of this seasonality is quite important for investors in that they will know when to buy and when to sell stocks in order to make positive returns. Since stock price movements are independent, it makes technical analysis inaccurate and thus making it impossible to outperform the market (Fama, 1970). These calendar effects on stock returns are manifested and evident in the global markets (Wong et al., 2007).

Various studies have been done globally on January effect. Having been coined by Rozeff and Kinney (1976) where they noted existence of January effect by the fact that returns of January were 3.5% whereas the returns of other months averaged 0.5%. This showed the existence of the effect. Other studies done showed the existence of January effect. Haugand Hirschey (2006) and Reinganum (1983) found the existence of January effect and they made the assertion for this to be the tax loss selling hypothesis. This is where companies sell non performing stocks in December in order to make losses in the specific financial year thus reducing their taxable income. Kato and Schallheim (1985) in Japan discovered the January effect but did not corroborate this with the tax loss selling as in Japan capital losses offsets did not exist. They however found that there was a relationship between size and return.

Related studies investigating stock market anomalies in Kenya have focused on the size effect at the NSE (Oluoch, 2003), stock market seasonality (Kingori, 1995), turn of the month and January effects (Kamau, 2003), however, no study has yet been undertaken at

the NSE to investigate whether there is any interrelationship between neglected firm effect and January effects. Onyuma (2009), Nyamosi (2009) and Nyabuto (2011) conducted studies at the NSE regarding January effect and they found the existence of January effect at the NSE. Contrary to the studies above, King'ori (1995) and John (2012) who were examining the presence of January effect at the NSE found that this anomaly did not exist at the NSE. The research will focus on the existence of January effect specifically on neglected firms which has not been done by any of the above researchers.

The researcher sought to investigate the presence of January effect on the returns of neglected firms at the NSE. Descriptive research design was used in the study and a sectorial analysis as well as a summarized analysis of the findings was conducted. The questions this research sought to address were:

- i. Is there January effect on stock returns at the Nairobi Securities Exchange?
- ii. Is there neglected firm effect at the Nairobi Securities Exchange?
- iii. Is there a relationship between January and Neglected firm effects?

1.3 Research Objectives

The specific objectives of the study were;

- i. To investigate the presence of January effect at the NSE,
- ii. To investigate neglected firm effect and,
- iii. To investigate the relationship between January and neglected firm effects at the Nairobi Securities Exchange.

1.4 Value of the Study

This study is beneficial to investors. Rational investors take note of various parameters before investing. An investor therefore will be interested in the performance of company returns in relation to month and type of firm. This study will help investors evaluate their portfolios. Seasonality has been witnessed at NSE such as the January in various sectors as shown in this study which provides a platform for investment.

This study is beneficial to scholars and academicians. They would be able to use this study as reference. It would be used as a basis of further research. Researchers are given an opportunity to critique or affirm to findings from other research done and thus it is a basis of research. This study is value additive to the academicians and researchers.

This study is beneficial to the government in the sense that they would be able to monitor the performance of the stock market and therefore act as a basis for providing a signal of the economic stability of a country. The government being a regulator is able to formulate policies and factor in the effects of this study. The government as a regulator would be able to ensure a conducive platform for investors.

This study is beneficial to the management. It will instill knowledge to the management on when to release information and the making of critical decisions such as dividend declarations and stock splits. It is important to note that the management have been tasked with the responsibility of running companies and therefore the findings of this study will be critical in how they apply.

This information is essential to stock brokers. This is because they would have the information on when to trade large volumes to make abnormal returns as the study proves market inefficiency. This study enables them to know when to increase trading so as to maximize their returns. It informs the brokers on the best months to sell stock.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this section the research will be discussing theoretical review, the determinants of stock returns, and empirical studies on the topic, conceptual framework and summary of literature review.

2.2 Theoretical Review

This area will cover theories underpinning the study that have been done by various researchers. These theories have been used as a foundation and basis for the empirical study.

2.2.1 Efficient Market Hypothesis

It was presented by Markowitz in 1952 and forthwith by Fama in 1970. It assumes that security prices reflect all freely accessible data. Fama (1970) categorized efficiency into weak, semi-strong and strong forms of efficiency based on the availability of the data. It is important to note that the stock prices show the information available.

Strong form EMH asserts that all information including private information are available; all freely accessible data are reflected in security prices as asserted by semi-strong form EMH, it contains past and current information; the weak form EMH asserts that past information is reflected in the prices if securities.

EMH suggests that when information is released it is reflected in the stock prices speedily. Seasonality reported have violated this theory, these seasonality include January effect, neglected firm effect, small firm effect and days of the week effect. This theory was therefore relevant to this study as the data collected in form of security prices was assumed to reflect all publicly available information.

2.2.2 Random Walk Theory

This theory states that the prices of securities are random and cannot be predicted and that they follow a random walk (Fama 1965). This hypothesis was authored by Kendal (1953) and was later affirmed by Fama (1965). The more random the pricing of securities are, the more efficient the market is.

It should be impossible to predict prices based on publicly available information as well as the past price trends. Random walk is of the idea that information flow is uninterrupted and is reflected in stock prices and that news that are for tomorrow will only be reflected in tomorrow's price change (Fama, 1991).

This theory was relevant to the study as it for the proposition that prices cannot be predicted and are random in nature thus the data collected will be of the assumption that random walk hypothesis holds. This theory also states that returns that are successive are independent and follow a random walk.

2.2.3 Behavioral Finance

This theory in finance was coined by Kahneman & Tversky (1979). This theory suggests that investors are irrational in making investment decisions and are predictable in decision making. It focuses on issues such as framing, heuristic drivers such as anchoring and representativeness.

Heuristic drivers such as herding may explain why analysts tend to neglect some firms so as to focus on big and well known firms. Anchoring can also explain why some months such as January have higher returns than other months. This is because the investors once they have made up their mind to sell, with the anchoring heuristic trait, even if new information is presented, the investor will still sell.

Experimental economists and psychologists have documented existence of heuristic drivers that affect investor decision making, overreaction (DeBondt and Thaler, 1985), herding (Huberman and Regev, 2001). These studies show that investors are often irrational and exhibit predictable behavior. These cases provided relevance of this theory to this study.

2.2.4 Capital Asset Pricing Model (CAPM)

Sharpe (1964) coined this commonly used theory in determining the stock returns. As indicated by CAPM, direct connections between the non-diversifiable risks over the risk free rate and its return on the benefits. The practicability of this model has been put to question by various studies done.

It projects the relationship between the expected return of a security and its risk. It defines risk in Neglected portfolio are said to have more returns than popular firms which may be as a result of wrong use of an application of CAPM in predicting returns. This has the commonly used measure of returns.

CAPM has been criticized by various researchers. Rose (1976) came up with the Arbitrage Pricing Model as an alternative to CAPM which explains phenomena for risky assets in the capital markets; it states that returns is dependent on several macroeconomic factors such as inflation.

2.3 Determinants of Stock Returns

This section will be covering the determinants of stock returns. The determinants to be looked at are market anomalies, elections, macroeconomic variables and liquidity.

2.3.1 Market anomalies

In this section the researcher will be looking at the following market anomalies: January effect, small firm effect, P/E effect and neglected firm effect.

2.3.1.1 January Effect

This is a scenario where returns are higher in January compared to other months. Various studies have been done to determine the existence of this anomaly in the financial markets. At the NSE, various studies have been done to examine the existence of the effect, King'ori (2005) and John (2012) did not find significant evidence of the effect.

2.3.1.2 Neglected Firm Effect

Arbel and Strebel (1982) indicated that small-sized firms are neglected by market analysts due to limited information and lower liquidity problems, this was also affirmed by and Merton (1987). These firms earned higher returns than well-known firms.

Neglected firms will therefore have an effect on the returns of firms. This is an anomaly that has been witnessed partly in the NSE (Ibilaiu, 2017). Returns are therefore affected by neglected firm effect.

2.3.1.3 Price Earning (P/E) Effect

The stocks with low P/E are likely to create more returns and beat the market this can be explained by the assertion that stocks with low P/E ratio earn large risk adjusted return than firms with high P/E ratio. Firms with low P/E tend to be undervalued while firms with high P/E more often than not are overvalued (De bondt& thaler 1985).

Firms with low P/E more often than note outperform the market indicating the existence of anomalies in the financial markets. This anomaly therefore has an effect on the returns of stocks.

2.3.1.4 Small Firm Effect

This is where small firms earn higher returns on average compared to big firm. Banz (1981) suggested that lack of information is the reason why small firms perform better than big firms. Kiem (1983) established that short term loss for tax purposes is the reason behind the performance of small firms over big firms.

Small firms are often neglected by analysts and also investors. These firms often outperform the market. Small firm effect therefore affects the performance of stocks in the financial markets.

2.3.2 Elections

Kabiru et al., (2015) made the findings that market reaction to elections is highly negative or highly positive depending on the election done and information given to the public.

Their study found that the abnormal returns during the general elections of 1997 and 2007 were statistically significant. This is evidence that elections information is an important determinant of returns.

Markets react differently to elections and therefore this is a variable that should be put in consideration. In Kenya elections take place every five years with the one affecting my study will be the 2013 elections.

2.3.3 Macroeconomic Variables

A recent study by Elly and Ndegwa (2017) concluded that macroeconomic variables have an effect on stock returns. Elly and Ndegwa (2017) found that money supply had a beneficial outcome on stock returns whereas exchange rate had a negative supply on stock returns whereas CBK lending rate had a weak positive effect on stock returns. This is evidence of macroeconomic variables affecting stock returns.

It is evident that macroeconomic variables therefore affect the returns of stock. Stock reacts differently to various macroeconomic strategies employed. The CBK lending rate in Kenya has shown to have a minimal effect on stock returns (Elly and Ndegwa, 2017).

2.3.4 Liquidity

Liquidity is the ease at which investors are able to buy or sell stock in a stock market. This liquidity can be measured by volume of transactions. A study by Swedroe (2012) that focused on the top 3500 U.S. stocks by capitalization covering period between 1972 and 2010 found that liquidity substantially impact valuation and returns for different kinds of securities, and has a positive long-run effect on stock returns. This is an indicator that liquidity affects market returns.

2.4 Empirical Review

Haug and Hirschey (2006) did an examination of wide specimens of significant worth weighted and equivalent weighted returns of U.S. values records that anomalous high rates of profit for little capitalization stocks keep on being seen amid the period of January. This January impact in stock comes back with small-cap and is amazingly

reliable after some time and does not seem to have been influenced by section of the Tax Reform Act of 1986. This finding conveyed another point of view to the tax-loss selling hypothesis and proposes that behavioral clarifications are applicable to the January impact. After an era of escalated ponder, the January impact keeps on displaying a genuine test to the EMH.

Wong et al., (2007), did an analysis of the monthly effect for the Malaysian stock market. Wong et al., (2007) regression results revealed monthly patterns in the Malaysian market, evidence of January effect on post crisis period. Wong et al., 2007 study employed the Kuala Lumpur Composite Index (KLCI) on a sample of 100 stocks from January 1994 through to December 2006, t test was conducted to test hypothesis on single regression.

Al-Rjoub and Alwaked (2010) investigated January effect in the U.S during financial crisis. Al-Rjoub and Alwaked (2010) made the discoveries that normal January returns are reliably negative amid crises, and to some degree, the average loss in returns of January amid crises are substantially littler than normal misfortune in returns amid different periods of the crises, gives new proof of another conduct of January, the long stretch of January is all things considered, enlist positive returns amid emergencies. Al-Rjoub and Alwaked (2010) used Ordinary Least Square (OLS) regression to derive the factor loading of crises in general and January during crises. This study was only limited to when there is a financial crisis.

John (2012) also explored the presence of seasonal effects in stock returns at the NSE. He conducted a study of the companies listed in the NSE as at December 2011. Using simple linear regression and correlation analysis, John (2012) concluded that January effect had no noteworthy association with the stock returns at the NSE. The study focused on a 10 year period.

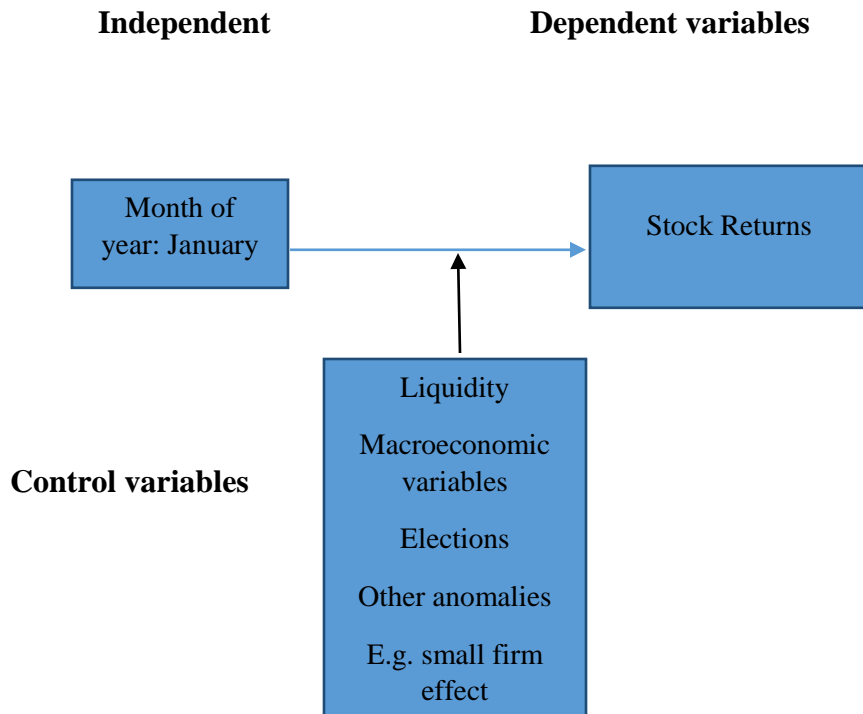
Guler (2013) sought to investigate January effect on developing countries. Guler (2013) investigated January effect on Brazil, Shanghai, India, Argentina and Turkey stock markets. Guler (2013) made the findings that January effect existed in China, Argentina and Turkey but did not exist in Brazil and India. Guler (2013) used the power ratio method and monthly logarithmic returns were also used.

Klock (2014) investigated market efficiency with respect to January effect and made the findings that the market is weak form efficient concerning end of year selling, used the risk adjusted event study methodology and randomly selected 90 firms. The study revealed that stock prices begin rising before the last trading day of the year instead of decreasing. These firms were selected randomly and therefore effects such as size were not factored in the study.

Akhter et al., (2015) sought to investigate neglected firm effect and stylized equity returns in Pakistan. Akhter et al., 2015 selected a sample of 200 stocks listed at the largest stock market of Pakistan, and used the Fama and French (1992 & 1993) methodology. Akhter et al., 2015 found evidence of neglected firm effect. The downside of this study was on the sample selected as they selected firms that are non-financial in nature.

Contrary to the studies above at the NSE, Onyuma (2009), Nyamosi (2009) and Nyabuto (2011) found the presence of January effect in the securities market. Onyuma (2009) conducted a research during the years 1980 to 2006 and found that January had the largest positive returns making an affirmation of the January effect. Nyamosi (2009) on the other hand used regression analysis where he showed that January generates higher returns compared to other months. Nyabuto (2011) used regression analysis of beta coefficients and showed a positive dependent variable for the month of January whereas February to December showed negative coefficients. T-statistics analysis carried out also showed positive significant effect between January and the other months and hence affirmed that returns in January were significantly higher compared with the other months. This study was done for the period 2001 to 2010.

2.5 Conceptual framework



(Author, 2017)

Figure 1: Conceptual Framework

Figure 1 tries to illustrate the relationship between the dependent variable, stock returns and independent variable, month of the year (January). The controlled variables are liquidity, macroeconomic variables, elections, other anomalies.

2.6 Summary of Literature Review

Empirical studies have indicated the existence of January effect in various financial markets. Neglected firm effect has as well been acknowledged to exist in various financial markets. However, there has not been a study conducted to investigate the relationship between January effect and Neglected firm effect.

Empirical studies have shown that researchers have mainly focused on January effect and Neglected firm effect independently but using different methodologies to examine their findings. The table below will provide a summary of the literature review, showing the focus of the study, methodology, findings and the research gaps.

Author	Focus of study	Methodology	Findings	Research/knowledge gaps
Al-Rjoub and Alwaked (2010)	January effect in the US during the financial crisis	Ordinary Least Square (OLS) regression to derive the factor loading of crisis	Average January returns are consistently negative during crisis	Study only limited to financial crisis
Wong et al., (2007)	Monthly effects in Malaysian stock markets	T test was applied	January effect post crisis was found and February effect pre crisis	Limited to crisis period
Klock, (2014)	The January effect: A test of market efficiency	Risk adjustment event study methodology, 90 randomly selected firms	Market is weak form efficient with respect to year end selling.	These firms were selected randomly and therefore effects such as size were not factored in the study
Akhter et al., (2015)	Neglected firm effect & stylized equity returns	Sample (200 stocks) that were listed at the in the stock market of Pakistan were selected. Fama and French (1992 & 1993) methodology	Neglected firm effect is present	Stock consisted of companies in the non-financial sector only.

		applied.		
Guler (2013)	January effect in stock returns	Power ratio method used. Brazil, Shangai, India, Argentina and Turkey monthly logarithmic returns.	Presence of January effect in Turkey, Argentina and China. No January effect witnessed in Brazil and India.	Anomalies as size effect and neglected firms were not factored in.
John (2012)	presence of seasonal effect in stock returns at NSE	Conducted study of 50 companies listed at the NSE. Used simple linear regression an correlation analysis	January effect had no noteworthy association with the stock returns at the NSE	The study was non sectorial hence the findings were summarized.

Table 1: Summary of Literature Review

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter will discuss the research methodology utilized in the study. It will discuss the research design, study population, methods of data collection and the data analysis techniques to be employed.

3.2 Research design

The investigation utilized a descriptive research design. The research design was consummate for this study as it was carried out on firms listed at the NSE and raw data were readily available for the study. The research design covered firms listed at the NSE from 1st January 2012 to 31st December, 2016.

3.3 Population

The population of the study was made up of 64 companies listed at the NSE as at 31st December, 2016 (CMA, 2017). This population consisted of companies continuously and consistently listed at the NSE.

3.4 Sample

The sample size was made up of 64 companies and included companies that were consistently quoted at the Nairobi Stock exchange over the period of 5 years (January 1, 2012 to December 31, 2016), for which data on stock returns were available and further extracted a sample from the population based on trading volume.

3.5 Data Collection

This study sought to determine the existence of the January effect on the returns of neglected firms at the NSE. It covered a period of five years from 1st January, 2012 to 31st December, 2016. The daily stock prices for all listed companies at the NSE were obtained from the NSE website (www.nse.co.ke) from a document named “Historical daily market reports for equity and debt data”. This secondary data was used for the

study. The data was collected and filled in the stock prices collection sheet as per appendix 1.

3.6 Diagnostic Tests

External validity was used to test on the reliability and accuracy of the secondary data collected. Shapiro-Wilk test and Darling Anderson tests were used to test for normality of the data.

3.7 Data Analysis

The analysis of this data was to investigate January effect on returns of neglected firms at the NSE. This analysis was aided by Microsoft Excel 2013 and R programing. This study used descriptive and comparative statistics. The monthly stock prices for the listed companies were collected over the period of 5 years, 2012-2016. Parametric test of differences; the paired t-test will be used as a test of significance with a significance level of 0.05 (95% confidence interval).

Step 1: Calculation of actual returns

Actual daily stock returns were calculated using the formula below;

$$\text{Daily stock returns} = \frac{S_{it} - S_{it-1}}{S_{it} - 1}$$

Where; S_{it} =Stock closing price of firm i stock on day t

S_{it-1} =Stock closing price of firm i stock on day t-1

Step 2: Descriptive analysis

A descriptive analysis was done to identify and establish the pattern of the data distribution and also to identify outliers.

Step 3: Paired t-test applied on the mean returns of January and the mean returns of ROY (Test of hypothesis)

The null hypothesis H_0 : January mean returns = ROY; the mean returns for January are equal to mean returns for the rest of the year.

The alternative hypothesis H_A : January mean returns \neq ROY; the mean returns for January are not equal to mean returns for the rest of the year.

The sectorial mean returns of January and those of ROY were acquired for the 5 year period (2012-2015). Paired t-test was then applied to check if there was a significant mean difference between January and the ROY per sector. This test was used to check if January effect existed at the NSE.

Step 4: Selection of neglected portfolio and popular portfolio

Neglected and popular portfolio were selected on the basis of trading volumes per month. The neglected portfolio were the firms with the least trading volumes per month. Ten percent of the total securities that were traded in a month enabled the formation of popular as well as neglected portfolio; the highest ten percent being popular while the lowest portfolio being neglected portfolio.

Step 5: Calculation of abnormal returns

Abnormal returns of popular portfolio and neglected portfolio were determined. Abnormal return was calculated as follows;

$$\text{Abnormal return} = \text{Expected return} - \text{Actual return}$$

Step 6: Paired t-test to establish if neglected firm effect exists

A paired t-test applied of significance level 0.05, was applied on the popular and neglected portfolio to check if the differences in the portfolios were statistically significant.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter provides the analysis of and discussions of January effect with respect to neglected firms at the NSE. The target population was of 66 firms listed at the NSE.

4.2 Response Rate

The sample size of this project was the target population of 63 firms listed at the NSE. The following firms were excluded from the sample due to incomplete data I&M, Umeme, CIC, Kurwitu Ventures, Home Afrika, NSE, Flame Tree, Kenya Orchards, Stanlib Fahari I-Reit, Barclays New Gold ETF, ATLAS (stock suspended), Deacons, Longhorn, Nairobi Business Ventures. The remaining 49 firms had complete data and was sufficient enough for the analysis.

4.3 Descriptive Statistics

This section will present a summarized descriptive statistics of the combined sectors that were studied.

Details	Values
Mean	0.325
Standard Error	0.008
Median	0.320
Standard Deviation	0.030
Sample Variance	0.001
Kurtosis	1.039
Skewness	0.901
Range	0.109
Minimum	0.283
Maximum	0.393
Sum	3.908
Count	12

Table 2: Descriptive statistics

The mean, standard error, standard deviation, sample variance, kurtosis, skewness and range are provided by the table populated above. Each of the 10 sectors are factored in the descriptive analysis. The mean returns was 0.32568 with a standard deviation of 0.03. The Kurtosis was 1.03909 meaning the data is approximately normal as was confirmed by the tests for normality.

4.4 Diagnostic Tests

Shapiro-Wilk test and Darling Anderson tests were used to test for normality of the data at 5% level of significance and gave the following results.

Test	Test statistics	P-value	Comments
Shapiro-Wilk test	W = 0.942	0.532	Normally distributed
Darling Anderson test	A = 0.317	0.492	Normally distributed

Table 3: Test for Normality

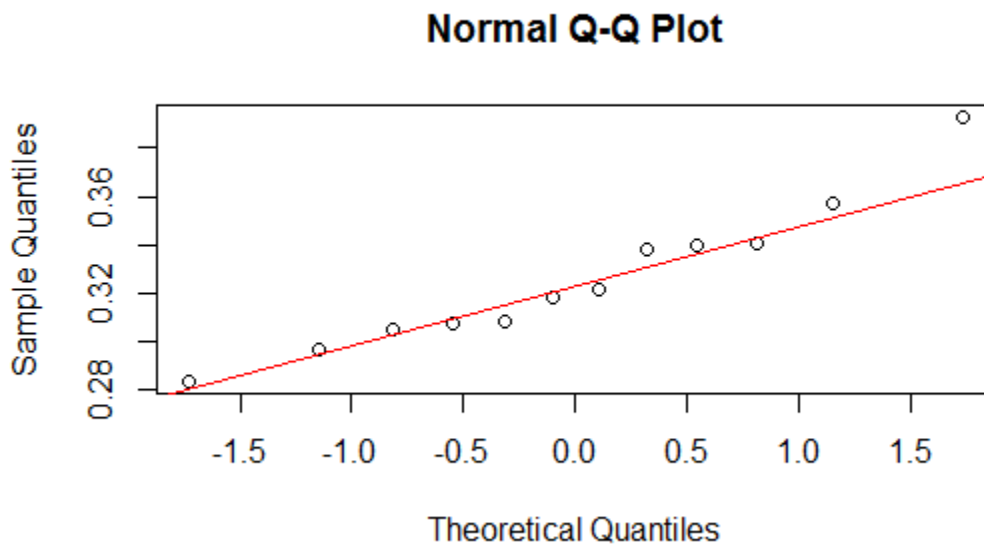


Figure 2: Q-Q plot graph for normality test

The aggregated data reflecting all the sectors were subjected to normality test using two approaches, Shapiro Wilk test ($W = 0.94261$, $p\text{-value} = 0.5326$) and Darling Anderson test ($A = 0.31752$, $p\text{-value} = 0.4922$) showed that the data is normally distributed. The normality test was then confirmed using a computationally rigorous method, by testing whether the kurtosis and skewness are significantly different from zero. The resulting values (Skewness $p\text{-value} = 0.8244$) and Kurtosis ($p\text{-value} = 0.4132$) showed that the skewness and kurtosis are not significantly different from zero hence the data is normally distributed.

4.5 Hypothesis testing

Paired t-test was conducted to investigate the existence of January effect and also to determine the existence of neglected firm effect by comparing popular returns and neglected returns. The null hypothesis H_0 : January mean returns = ROY; the mean returns for January are equal to mean returns for the rest of the year. The alternative hypothesis H_A : January mean returns \neq ROY; the mean returns for January are not equal to mean returns for the rest of the year.

4.5.1 Paired T-test for January effect

The following is a sectorial summary of the results after applying a paired t-test for each period of study.

4.5.1.1 Agricultural sector

Period	Paired t-test	Effect
2012	0.005	Significant
2013	0.000	Significant
2014	0.203	Not Significant
2015	0.003	Significant
2016	0.000	Significant

Table 4: Agricultural sector

The findings for 2012, 2013, 2015, 2016 have p-values lower than 0.05 showing existence of calendar effects thus we reject the null hypothesis. The findings of 2014 on the other hand has a p-value of above 0.05 hence we do not reject the null hypothesis.

4.5.1.2 Banking sector

Period	Paired t-test	Effect
2012	0.124	Not Significant
2013	0.001	Significant
2014	0.156	Not Significant
2015	0.298	Not Significant
2016	0.000	Significant

Table 5: Banking Sector

The findings for 2013 and 2016 have p-values lower than 0.05 showing existence of calendar effects thus we reject the null hypothesis. The findings of 2012 and 2016 on the other hand have a p-values of above 0.05 hence we do not reject the null hypothesis.

4.5.1.3 Automobiles sector

Period	Paired t-test	Effect
2012	0.008	Significant
2013	0.000	Significant
2014	0.035	Significant
2015	0.098	Not Significant
2016	0.133	Not Significant

Table 6: Automobiles sector

The findings for 2012, 2013, 2014 have p-values lower than 0.05 showing existence of calendar effects thus we reject the null hypothesis. The findings of 2015 and 2016 on the other hand have a p-values of above 0.05 hence we do not reject the null hypothesis.

4.5.1.4 Construction sector

Period	Paired t-test	Effect
2012	0.000	Significant
2013	0.002	Significant
2014	0.576	Not Significant
2015	0.401	Not Significant
2016	0.339	Not Significant

Table 7: Construction sector

The findings for 2012, 2013 have p-values lower than 0.05 showing existence of calendar effects thus we reject the null hypothesis. The findings of 2014, 2015 and 2016 on the other hand have a p-values of above 0.05 hence we do not reject the null hypothesis.

4.5.1.5 Energy sector

Period	Paired t-test	Effect
2012	0.000	Significant
2013	0.004	Significant
2014	0.911	Not Significant
2015	0.553	Not Significant
2016	0.002	Significant

Table 8: Energy sector

The findings for 2012, 2013, 2016 have p-values lower than 0.05 showing existence of calendar effects thus we reject the null hypothesis. The findings of 2014 and 2015 on the other hand have a p-values of above 0.05 hence we do not reject the null hypothesis.

4.5.1.6 Insurance sector

Period	Paired t-test	Effect
2012	0.000	Significant
2013	0.375	Not Significant
2014	0.084	Not Significant
2015	0.448	Not Significant
2016	0.004	Significant

Table 9: Insurance sector

The findings for 2012, 2016 have p-values lower than 0.05 showing existence of calendar effects thus we reject the null hypothesis. The findings of 2013, 2014 and 2015 on the other hand have a p-values of above 0.05 hence we do not reject the null hypothesis.

4.5.1.7 Investment sector

Period	Paired t-test	Effect
2012	0.046	Significant
2013	0.480	Not Significant
2014	0.278	Not Significant
2015	0.194	Not Significant
2016	1.812	Not Significant

Table 10: Investment sector

The findings for 2012 have p-values lower than 0.05 showing existence of calendar effects thus we reject the null hypothesis. The findings of 2013, 2014, 2015 and 2016 on the other hand have a p-values of above 0.05 hence we do not reject the null hypothesis.

4.5.1.7 Manufacturing sector

Period	Paired t-test	Effect
2012	0.004	Significant
2013	0.079	Not Significant
2014	0.033	Significant
2015	0.002	Significant
2016	0.497	Not Significant

Table 11: Manufacturing sector

The findings for 2012, 2014 and 2015 have p-values lower than 0.05 showing existence of calendar effects thus we reject the null hypothesis. The findings of 2013 and 2016 on the other hand have a p-values of above 0.05 hence we do not reject the null hypothesis.

4.5.1.8 Telecommunication sector

Period	Paired t-test	Effect
2012	0.008	Significant
2013	0.654	Not Significant
2014	0.321	Not Significant
2015	0.460	Not Significant
2016	0.000	Significant

Table 12: Telecommunication sector

The findings for 2012 and 2016 have p-values lower than 0.05 showing existence of calendar effects thus we reject the null hypothesis. The findings of 2013, 2014, 2015 on the other hand have a p-values of above 0.05 hence we do not reject the null hypothesis.

4.5.1.9 Commercial and services sector

Period	Paired t-test	Effect
2012	0.017	Significant
2013	0.000	Significant
2014	0.273	Not Significant
2015	0.013	Significant
2016	0.001	Significant

Table 13: Commercial and services sector

The findings for 2012, 2013, 2015 and 2016 have p-values lower than 0.05 showing existence of calendar effects thus we reject the null hypothesis. The findings of 2014 on the other hand have a p-values of above 0.05 hence we do not reject the null hypothesis.

4.5.1.10 T-test Summary

The table below illustrates the t-test summary for all the 10 sectors covered. It shows the summary for all years covered by the study per sector.

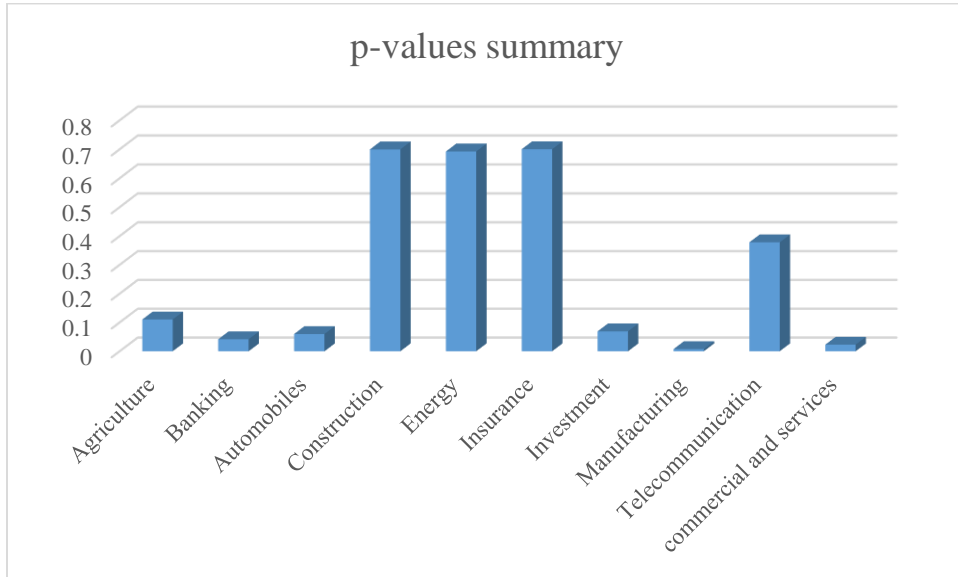
T-test Summary

Sector	p-value
Agriculture	0.1104656
Banking	0.0416955
Automobiles	0.0598555
Construction	0.6998122
Energy	0.6925951
Insurance	0.7003654
Investment	0.0691918
Manufacturing	0.0075864
Telecommunication	0.3784809
commercial and services	0.0230548

Table 14: T-test Summary

The figure below shows the summary of the paired t-test per sector. The y-axis will be representing the p-values.

Figure 3: T-test summary



4.5.2 Paired t-test to investigate neglected firm effect

To investigate neglected firm effect a paired t-test was applied on the abnormal returns of neglected and popular portfolio. The following table summarizes the abnormal returns per period for both neglected and popular portfolio.

Abnormal returns

Month	Popular	Neglected
January	-0.130711	-0.12187253
February	-0.254979	0.567055172
March	0.8578156	0.329139729
April	-0.111452	-0.25574812
May	0.0167824	0.034947037
June	-0.219411	-0.22197573

July	0.072432	-0.0835119
August	0.0192313	0.396678619
September	-0.12355	-0.36770809
October	-0.104967	0.267205703
November	0.4507198	0.062726534

Table 15: 2012 abnormal returns

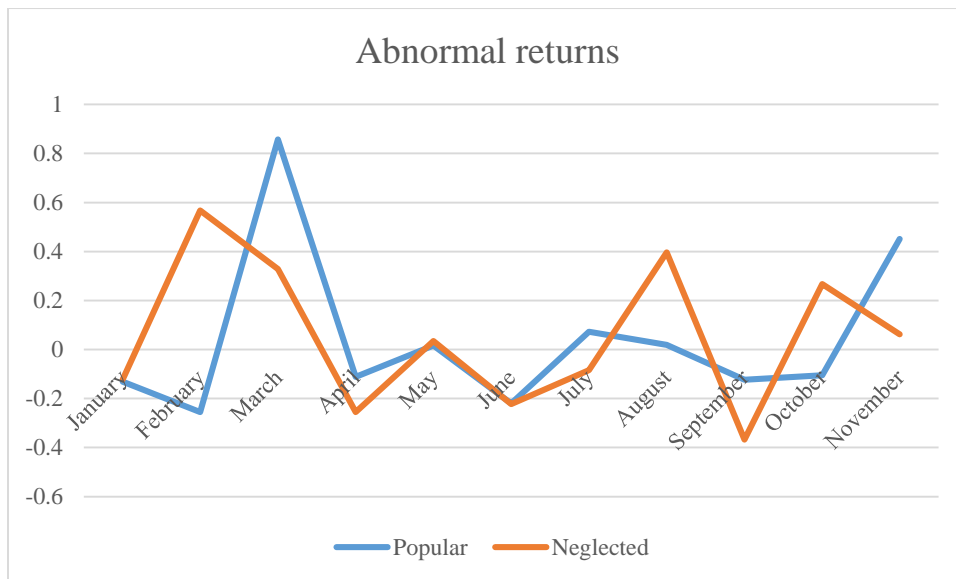


Figure 4: 2012 abnormal returns

Abnormal returns for neglected firms were higher than those of popular firms in the months of February, May, August and October.

Abnormal returns

Month	Popular	Neglected
February	-0.455078	0.36241395
March	0.7734533	-0.21069052
April	-0.000528	-0.0189079

May	-0.461534	0.040813304
June	0.7016072	0.686705127
July	-0.325262	-0.50494041
August	0.0358852	0.715349764
September	-0.161829	-0.55739119
October	0.1817625	1.324663102
November	0.5941199	-0.27906001
December	-0.531468	0.725208143

Table 16: 2013 abnormal returns

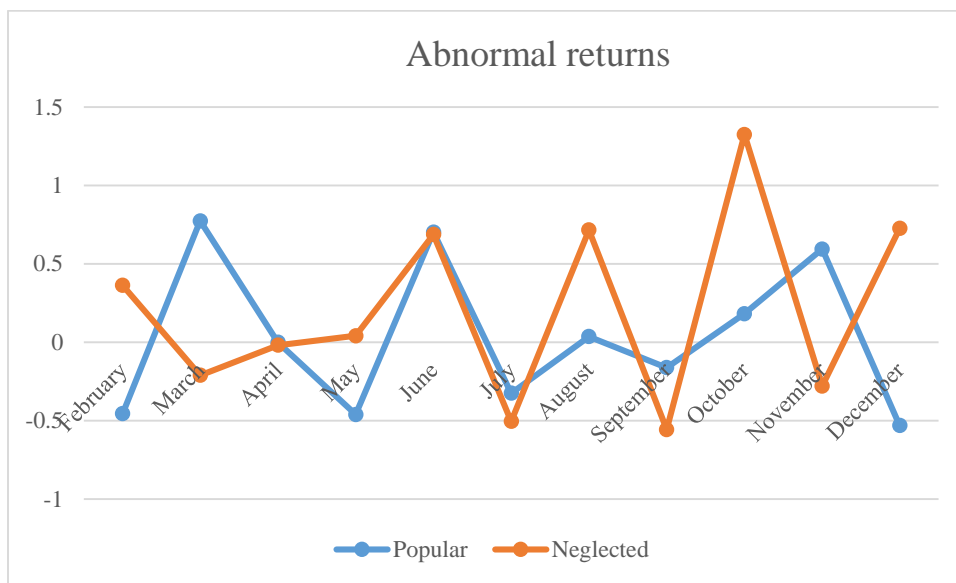


Figure 5: 2013 abnormal returns

Abnormal returns for neglected firms were higher than those of popular firms in the months of February, May, August, October and December.

Abnormal returns

Month	Popular	Neglected
February	0.2357935	-0.08535544
March	-0.08367	-0.36505162
April	-0.213556	0.457175572
May	-0.267673	0.011612733
June	0.1909952	0.100708445
July	0.0530351	-0.23264335
August	0.1641264	-0.11329539
September	2.0064187	0.173274627
October	-0.65105	-0.11016624
November	1.0392913	0.152937385
December	-0.694465	-0.19301257

Table 17: 2014 abnormal returns

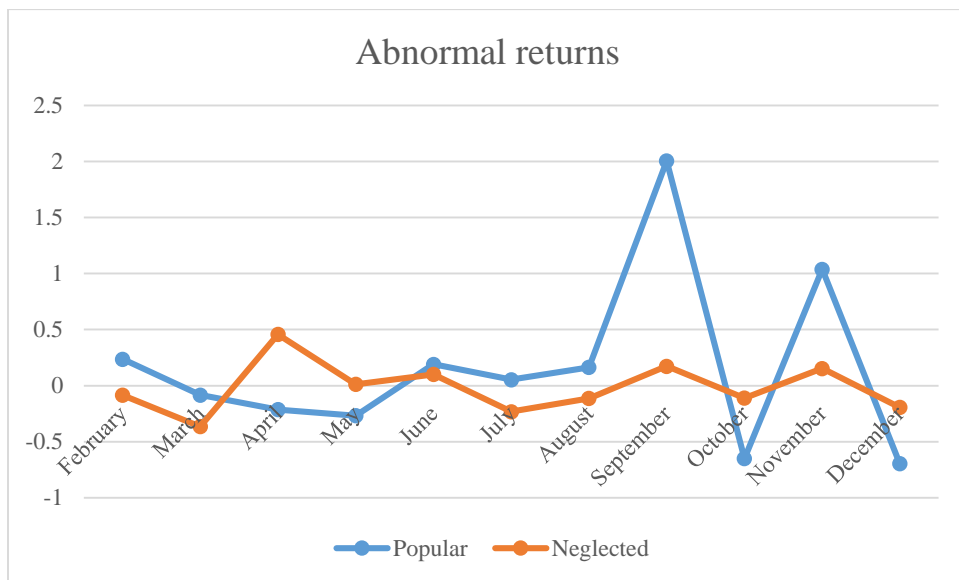


Figure 6: 2014 abnormal returns

Abnormal returns for neglected firms were higher than those of popular firms in the months of April, May and December.

Abnormal returns

Month	Popular	Neglected
February	0.4363397	-0.14318318
March	-0.479062	-0.05573784
April	0.5335852	0.67067491
May	-0.571578	-0.32592947
June	-0.100097	-0.01393098
July	0.0708013	0.072179904
August	1.5191131	-0.14414928
September	-0.524339	0.344549305
October	-0.301028	-0.15816274
November	-0.420638	0.319519261
December	-0.090698	-0.4753607

Table 18: 2015 abnormal returns

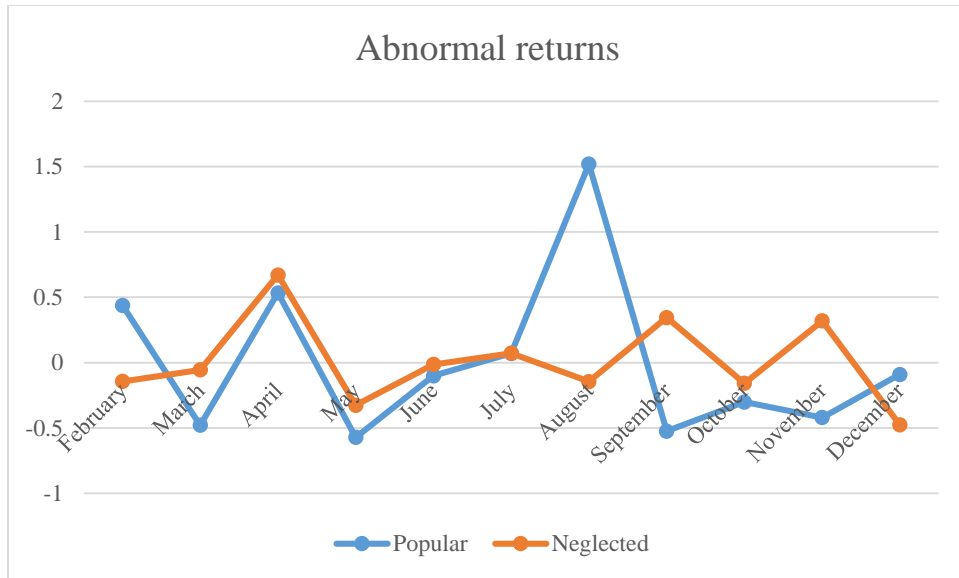


Figure 7: 2015 abnormal returns

Abnormal returns for neglected firms were higher than those of popular firms in the months of March, April, May, June, September, October and November.

Abnormal returns

Month	Popular	Neglected
February	0.0819596	-0.31336984
March	-0.300559	-0.1207705
April	0.5181722	0.444205707
May	0.14243	-0.44555775
June	-0.618261	0.259411033
July	0.1576685	-0.12897023
August	0.4176063	0.029993704
September	0.1384318	0.19188253
October	-0.026692	0.120459807

November	-0.333792	-0.18471232
December	0.1381625	0.856454072

Table 19: 2016 abnormal returns

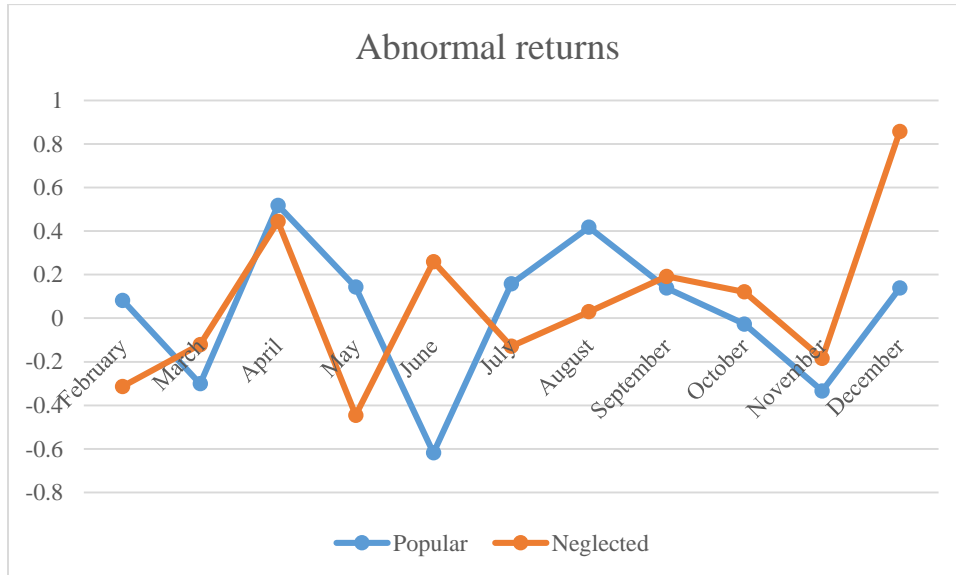


Figure 8: 2016 abnormal returns

Abnormal returns for neglected firms were higher than those of popular firms in the months of March, June, September, October, November and December.

4.5.2 The paired t-test summary for neglected firm effect

Period	T-test	Effect
2012	0.916129	Not Significant
2013	0.775344	Not Significant
2014	0.323001	Not Significant
2015	0.993135	Not Significant
2016	0.80035	Not Significant

Table 20: T-test summary neglected firms

The p-values of all the periods were higher than 0.05 hence rejecting the null hypothesis, therefore neglected firm effect does not exist.

4.6 Interpretation of Findings

The objectives of this study were to investigate the existence of January effect, neglected firm effect and the relationship thereof. A paired t-test was applied on the mean returns of January and the rest of the year to find out if any significant variances exist. There were mixed results per sector as January effect was exhibited in the banking sector, manufacturing sector and commercial and services sector.

In agricultural sector, January effect existed in all years except for 2014 where it had a p-value of 0.2030 which is greater than 0.05 level of significance, the p-values of 2012, 2013, 2015 and 2016 were 0.005, 0.000, 0.003 and 0.000 respectively. This shows that the year all years except for 2014 the mean returns of stock deviated significantly from the means. This may imply that in 2014, the NSE market viewed January as inconsequential and trading occurred just like any other month and also December of the previous year did not experience high selling.

The banking sector barely shows the existence of January effect in that only 2 years showed the existence of the effect where 2012, 2014 and 2015 showed no January effect with p-values 0.0124, 0.155, 0.298 respectively. This shows that the year all years except for 2012, 2014 and 2015 the mean returns of stock deviated significantly from the means. This may imply that in 2012, 2014 and 2015, the NSE market viewed January as inconsequential and trading occurred just like any other month and also December of the previous years did not experience high selling.

Automobiles industry had mixed results where 2012 to 2014 showed existence of January effect with p-values of 0.008, 0.000, and 0.035 respectively whereas the year 2015 and

2016 had p-values of 0.098 and 0.133 respectively to indicate the existence of January effect. This shows that the year all years except for 2016 and 2015 the mean returns of stock deviated significantly from the means. This may imply that in 2016 and 2015, the NSE market viewed January as inconsequential and just like any other month and also December of the previous years did not experience high selling.

The construction industry barely showed the existence of January effect having registered only 2 years (2012 and 2013) with January effect having p-values of 0.000 and 0.002 whereas the rest of the years showed no January effect (p-values: 0.576, 0.401, 0.339). This shows that the year all years except for 2016 and 2015 the mean returns of stock deviated significantly from the means. This may imply that in 2016 and 2015, the NSE market viewed January as inconsequential and just like any other month and also December of the previous years did not experience high selling.

The energy industry had mixed reactions. January effect was witnessed in the years 2012, 2013 and 2016 with p-values of 0.000, 0.004, 0.002 respectively, while 2014 and 2015 had p-values of 0.911 and 0.553 signifying nonexistence of January effect. This shows that the year all years except for 2014 and 2015 the mean returns of stock deviated significantly from the means. This may imply that in 2014 and 2015, the NSE market viewed January as inconsequential and just like any other month and also December of the previous years did not experience high selling.

The insurance sector barely shows January effect in that the years 2013, 2014 and 2015 with p-values of 0.375, 0.084 and 0.448 respectively showing no January effect, the years 2012 and 2016 had p-values of 0.000 and 0.004 signifying the existence of January effect. This shows that the year all years except for 2013, 2014 and 2015 the mean returns

of stock deviated significantly from the means. This may imply that in 2013, 2014 and 2015, the NSE market viewed January as inconsequential and just like any other month and also December of the previous years did not experience high selling.

The investment sector mostly showed nonexistence of January effect with the years 2013 to 2016 showing no effect with p-values 0.480, 0.278, 0.194, 1.812 respectively, the year 2012 had p-value of 0.046 showing existence of January effect. This shows that the year all years except for 2013 to 2016 the mean returns of stock deviated significantly from the means. This may imply that in 2013 to 2016, the NSE market viewed January as inconsequential and just like any other month and also December of the previous years did not experience high selling.

The manufacturing sector had 3 years showing presence of January effect, 2012, 2014 and 2015 with p-values of 0.004, 0.033, and 0.002 respectively whereas the years 2013 and 2016 showed no existence of January effect with p-values of 0.791 and 0.497 respectively. This shows that the year all years except for 2013 and 2016 the mean returns of stock deviated significantly from the means. This may imply that in 2013 and 2016, the NSE market viewed January as inconsequential and just like any other month and also December of the previous years did not experience high selling.

Telecommunication sector merely showed presence of January effect with the years 2013 to 2015 showing nonexistence of January effect with p-values of 0.654, 0.321, 0.461 respectively, whereas 2012 and 2016 showed the presence of January effect with p-values of 0.008 and 0.000 respectively. This shows that the year all years except for 2013 to 2015 the mean returns of stock deviated significantly from the means. This may imply

that in 2013 to 2015, the NSE market viewed January as inconsequential and just like any other month and also December of the previous years did not experience high selling.

The commercial and services sector showed significant presence of January effect throughout the periods having the years 2012, 2013, 2015 and 2016 with p-values 0.017, approx. 0.000, 0.013 and 0.001 respectively showing existence of January effect with only the year 2014 with a p-value of 0.274 showing nonexistence of January effect. This shows that the year all years except for 2014 the mean returns of stock deviated significantly from the means. This may imply that 2014, the NSE market viewed January as inconsequential and just like any other month and also 2013 December did not experience high selling.

A paired t-test was applied to the abnormal returns of popular and neglected portfolio to investigate if neglected firm effect exists at the NSE. At 5% level of significance, the data showed nonexistence of neglected firm effect at the NSE, with years 2012-2016 having p-values higher than 0.05 (0.916, 0.775, 0.323, 0.993, 0.800 respectively). This showed that no mean return deviated significantly from the mean returns. This may imply that the regulatory authority has put in place measures to deal with this anomaly.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section summarizes the findings, provides a conclusion of the study, it provides recommendations based on the study, limitations of the study and suggestions for further research.

5.2 Summary of Findings

The objectives of the study were to determine existence of January effect, neglected firm effect and the resulting relationship thereof. A descriptive methodology was used for this study. A paired t-test was applied for both objectives. There were mixed reactions in the investigation January effect per sector as shown in table 14, three sectors banking, manufacturing and commercial and services sectors, showed statistical significance of January effect existence with p-values of 0.044, 0.008 and 0.023 respectively. This implied that the sectors returns deviated significantly from the mean. In this cases we reject the null hypothesis. The rest of the sectors did not show existence of January effect, in that their returns did not significantly deviate from the mean. The manufacturing sector showed strong existence of January effect with the smallest p-value compared to the rest of the sectors. Construction, energy and insurance sectors had the largest p-values indicating high nonexistence January effect compared to the rest of the sectors.

In the year 2012, neglected firms showed high abnormal returns in the months of January, February, August and October whereas popular firms had higher abnormal returns in the rest of the months. In 2013, neglected firms registered high abnormal returns in the months of January, February, August, October and December whereas popular firms had

higher abnormal returns in the rest of the months. In 2014, neglected firms had high abnormal returns in the months of April and May whereas popular firms had higher abnormal returns in the rest of the months. In 2015, neglected firms had high abnormal returns in the months of March, April, May, June, September, October and November whereas popular firms had higher abnormal returns in the rest of the months. In 2016, neglected firms had high abnormal returns in the months of March, June, September, October, November and December whereas popular firms had higher abnormal returns in the rest of the months. However, results on the examination of neglected firm effect as shown in table 20 showed that neglected firm effect does not exist at the NSE as t-test applied provided p-values above 0.05 level of significance. This results show that the abnormal returns do not deviate significantly from the mean. This may imply that the regulatory authorities may have put in place measures to counter this anomaly.

This findings contradicts various studies done at the NSE that showed that the stock returns did not deviate significantly from the mean, to show nonexistence of January effect. Studies by Onyuma (2009), Nyamosi (2009) and Nayabuto (2012) have been affirmed by this study on existence of January effect in some sectors of the NSE. The findings of this study are in line with studies done in other international markets such as Turkey by Guler (2013).

5.3 Conclusion

This study covered 64 firms listed at the NSE on a sectorial level, of which 10 sectors existed. This study came to the conclusions that January effect existed in the Banking, manufacturing and commercial and services sectors. This is because the January stock of the sectors significantly deviated from the means.

The existence of January effect in the banking sector may result to investors taking an arbitrage opportunity to profit. The same case applies to the manufacturing sector. This sector showed the existence of January effect thus investors can take an advantage of the anomaly existing. The commercial and services sector also portrayed the existence of January effect having a p-value of less than 0.05, thus arbitragers can take advantage of this sector and make arbitrage profit thereof.

This study has confirmed the existence of market anomalies as has been portrayed in the past by Onyuma (2009) who found the existence of January effect, Nayamosi (2009) found the existence of January effect at the NSE also Nyabuto (2011) confirmed the existence of January effect at the NSE.

This study also confirms the study done by Ibilai (2017) where he found nonexistence of neglected firm effect at the NSE as the abnormal returns of popular portfolio are not significantly different than those of neglected portfolio. However, it is evident that market anomalies exist at the NSE and thus the market is not efficient. Thus, regulators as well as the government should put in place measures to ensure that market efficiency is achieved.

5.4 Recommendations

This study provides evidence of January effect, a market anomaly on some sectors of the market. This provides an arbitrage opportunity for investors to make an arbitrage profit out of this anomaly. This is because January mean returns have shown to be significantly higher than the ROY in some sectors.

Companies and the regulatory authorities should therefore put in place mechanisms to try and counter such anomalies and ensure efficiency of the market. The existence of this anomaly has highlighted the inefficiencies in market and thus giving investors an opportunity to make arbitrage returns.

Markets are meant to be efficient and the security prices should reflect all available information (Clarke et al., 2001). Efficient market hypothesis strongly suggests that information should be available to the public and reflect this information should be reflected in the security prices (Fama, 1970). This study is a contradiction of the EMH as market anomalies exist in some sectors of the market.

5.5 Limitations of the Study

The data was only limited to a period of 5 years as a result of the cost of the data. This had an effect of reducing the sample size and data information available. Research should therefore be undertaken with more information in order to come up with more conclusive results.

A t-test was applied to measure the significance of the difference in means between the January mean returns as well as the rest of the year means as well as those of abnormal returns of popular and neglected firms. More sensitive statistical tests such as permutation tests that employs resampling technique to an otherwise smaller data set to obtain reliable results can be used.

Some sectors showed that their January mean returns were significantly lower to the ROY which may be as a result of a different anomaly that has not been directly assessed

in this study. This limits the study in the sense that the researcher could not explain the reasons for the significantly lower January mean returns compared to ROY mean returns.

5.6 Suggestions for Further Research

The relationship between turn of the calendar year and neglected firm effect should be researched on. This can enable investors and scholars to have information on the relationships of these anomalies. The relationship between all other market anomalies can be researched on as this will be essential information in understanding the markets and how they behave.

This study should also be applied to other markets as this only focused on the Kenyan market, specifically companies listed at the NSE. More informed decisions can be made when further research can be made on other markets. This information will be very essential for scholars as well as investors.

Research should be done to investigate cases where there are significantly lower January mean returns compared to the ROY. This will enable scholars come up with a more conclusive findings on how to approach this kind of pattern or market behavior as and when it exists.

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APPENDICES

Appendix 1: Stock Prices Collection Sheet

Firm:.....

Sector:

No	Month	Date	Volume	Closing stock price day t	Opening stock price day t-1	Daily return

Appendix 2: Companies listed at the NSE

1. Eaagads Limited
2. Kapchorua Tea Company Limited
3. Kakuzi Company Limited
4. Limuru Tea Company Limited
5. Rea vipingo Plantations Limited
6. Sasini Limited
7. William Tea Kenya Limited
8. Express Kenya Limited
9. Kenya Airways Limited
10. Nation Media Group
11. Standard Group Limited
12. TPS Eastern Africa Limited
13. Scan Group Limited
14. Uchumi Supermarkets Limited

15. Hutchings Biemer Ltd
16. Longhorn Kenya Limited
17. Atlas Development and Support Services
18. Safaricom Limited
19. Car and General (K) Limited
20. Sameer Africa Ltd
21. Mashalls East Africa Limited
22. Barclays Bank Limited
23. CFC Stanbic Holdings Limited
24. Diamond Trust Bank Kenya Limited
25. Housing Finance company Ltd
26. Kenya Commercial Bank Ltd
27. National Bank of Kenya Ltd
28. NIC Bank ltd
29. Standard Chartered Bank Ltd
30. Equity Bank Limited
31. Cooperative Bank of Kenya Ltd
32. Jubilee Holdings Ltd
33. Pan Africa Insurance Holdings Ltd
34. Kenya Re- Insurance corporation Ltd
35. CIC Insurance Holdings
36. Liberty Kenya Holdings Limited
37. Britam Holdings Limited.
38. Olympia Capital Holdings Ltd
39. Centum Investment Company Ltd
40. Trans Century Ltd
41. Home Africal Limited
42. Kurwitu Ventures
43. BOC Kenya Limited
44. British American Tobacco Limited
45. Carbacid Investiments Ltd

46. East African Breweries Ltd
47. Mumias Sugar Company Ltd
48. Eveready East Africa Ltd
49. Kenya Orchards Ltd
50. A. Baumann Company Ltd
51. Frame Tree group Holdings Ltd
52. Unga Group Ltd
53. Nairobi Securities Exchange Ltd
54. Stanlib I- Reit
55. Athi river Mining Ltd
56. Bamburi Cement
57. Crown Berger
58. E.A Cables Ltd
59. E.A. Portlands Cement Ltd
60. Kenol Kobil Limited
61. Total Kenya Limited
62. KenGen Ltd
63. Kplc Ltd
64. Umeme Ltd

Appendix 3: Data summary per Sector

2012	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Dec
Agriculture	47.29	68.64	71.25	62.13	72.73	78.07	63.06	43.58	50.58	64.76	49.19	41.27
Banking	35.49	35.50	36.98	37.78	39.41	41.09	40.97	42.11	45.08	47.16	49.31	48.65
Automobiles	20.18	20.28	21.67	21.79	24.03	23.25	21.53	19.78	19.86	20.49	20.10	20.50
Construction	30.87	30.69	32.02	34.56	39.21	40.09	40.01	40.28	42.68	45.54	44.22	43.52
Energy	7.84	7.15	6.99	7.54	8.06	7.94	8.07	8.08	7.99	8.39	9.18	8.60
Insurance	4.78	4.13	4.15	4.61	5.52	5.23	5.54	5.81	6.15	6.26	6.23	5.82
Investment	14.48	13.83	13.42	14.71	14.97	14.14	12.81	11.96	12.09	12.37	12.38	12.48
Manufacturing	100.29	118.88	118.57	115.00	110.74	111.86	121.57	109.40	102.21	107.43	110.57	99.71
Telecom	3.17	3.20	3.18	3.25	3.40	3.44	3.72	3.85	4.05	4.18	4.72	5.06
commercial and services	1.73	1.55	1.49	1.62	1.74	1.78	1.74	1.86	1.83	1.68	1.76	2.00

Table 21: 2012 data

2013

2013	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Agriculture	44.36	50.90	60.84	60.93	54.16	61.94	54.16	61.61	50.58	59.84	61.94	41.27
Banking	53.37	57.21	62.31	65.95	66.29	66.34	66.44	67.98	68.48	70.75	73.85	72.51
Automobiles	18.59	20.13	18.60	20.10	19.66	20.82	19.70	18.09	19.69	19.47	21.53	23.36
Construction	54.85	59.55	67.03	66.73	68.50	1.28	67.38	70.19	71.21	75.54	85.65	88.37
Energy	10.67	11.44	12.84	14.77	14.29	15.30	15.05	15.68	15.59	16.06	15.59	14.26
Insurance	6.24	6.74	8.36	8.94	8.35	8.21	8.14	8.04	8.13	9.57	12.08	14.80
Investment	12.82	14.17	16.72	21.05	21.87	22.20	22.33	24.53	24.93	28.24	31.61	32.95
Manufacturing	99.47	102.62	101.81	109.34	112.00	113.02	114.89	116.04	123.42	120.11	125.89	123.81
Telecom	5.55	5.62	6.01	6.50	7.12	6.98	6.98	7.75	8.37	9.07	10.18	10.41
commercial and services	1.97	1.90	2.00	2.89	2.61	3.04	2.79	2.89	2.65	2.83	2.81	2.79

Table 22: 2013 data

2014	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Agriculture	81.39	74.43	69.36	70.31	75.80	71.42	77.95	70.31	92.22	121.58	120.96	135.98
Banking	77.01	77.19	80.13	81.67	86.17	86.97	86.91	89.41	94.41	93.80	92.14	90.42
Automobiles	28.15	31.71	31.65	31.81	40.00	38.76	42.40	44.10	45.79	50.82	55.05	52.21
Construction	93.54	83.56	87.95	85.28	83.29	79.29	81.11	83.10	86.12	87.96	87.66	83.67
Energy	12.30	11.00	11.18	11.25	10.49	9.51	9.35	10.03	10.04	10.79	9.80	9.83
Insurance	17.28	18.93	18.14	18.09	17.67	18.19	21.78	24.19	30.56	29.45	25.75	27.23
Investment	36.63	38.07	37.24	37.88	39.01	39.56	42.32	48.50	62.51	60.62	61.57	59.62
Manufacturing	156.17	163.97	154.63	143.47	141.53	144.85	145.58	139.98	134.80	153.37	138.96	137.98
Telecom	11.62	11.04	12.13	12.84	12.93	12.76	15.69	12.76	12.93	12.52	13.33	14.11
commercial and services	2.92	3.12	3.49	3.46	3.62	3.61	3.51	3.15	3.05	3.92	3.72	3.60

Table 23: 2014 data

2015

2015	Jan	Feb	Mar	Apr	Ma y	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Agriculture	97. 74	97. 76	101 .27	116 .26	94. 90	107 .96	137 .14	131 .45	107 .22	104 .85	80. 87	88. 06
Banking	91. 51	94. 03	92. 83	89. 18	86. 10	79. 14	78. 19	71. 77	66. 98	63. 31	63. 86	60. 20
Automobiles	50. 27	51. 47	49. 00	47. 65	45. 93	41. 58	45. 78	41. 21	39. 89	40. 81	39. 63	39. 50
Construction	81. 91	86. 64	83. 99	76. 46	77. 20	72. 20	72. 09	59. 07	46. 94	38. 46	39. 25	39. 92
Energy	9.2 4	9.8 6	10. 63	9.6 2	9.0 8	8.6 7	8.4 0	7.7 7	7.9 0	8.3 1	7.9 1	7.0 5
Insurance	28. 89	29. 39	27. 56	24. 09	23. 07	21. 56	17. 55	17. 79	17. 07	15. 69	15. 10	14. 00
Investment	64. 36	62. 44	60. 03	60. 83	63. 24	63. 70	57. 89	51. 57	51. 91	47. 76	44. 48	46. 22
Manufacturing	137 .38	150 .67	136 .59	134 .20	127 .66	130 .93	137 .78	124 .42	121 .26	114 .43	101 .57	101 .30
Telecom	14. 20	15. 02	15. 95	12. 84	16. 49	16. 19	15. 69	14. 60	14. 89	14. 89	15. 66	15. 45
commercial and services	3.8 0	4.4 3	4.1 0	4.0 5	4.1 7	4.2 1	4.0 6	3.6 0	3.0 3	2.9 2	2.9 0	2.7 4

Table 24: 2015 data

2016	Jan	Feb	Mar	Apr	Ma y	Jun	Jul	Aug	Sep	Oct	Nov	De c
Agriculture	152. 40	159. 45	136. 36	101. 02	98. 92	107. 96	127. 09	109. 62	127. 05	120. 40	104. 88	86. 60
Banking	61.1 0	60.9 3	64.2 0	64.7 5	62. 80	62.3 1	59.1 9	57.8 4	51.3 9	50.6 2	51.0 9	48. 15
Automobiles	39.5 1	36.9 3	31.5 9	34.0 3	34. 60	35.6 2	33.7 5	33.8 9	28.1 5	27.0 0	27.0 0	27. 00
Construction	36.2 9	32.5 1	30.5 0	30.8 3	33. 90	33.0 3	31.0 3	30.5 0	46.9 4	25.5 4	27.0 2	24. 41
Energy	5.98	6.24	7.34	7.75	6.9 6	6.68	6.65	6.29	6.54	6.53	5.92	5.8 3
Insurance	12.4 6	12.0 3	11.3 1	12.4 5	14. 70	14.4 4	13.5 0	12.2 6	10.4 3	10.6 1	10.1 5	10. 06
Investment	46.6 6	44.6 9	45.1 8	45.7 7	42. 98	45.0 3	43.9 5	41.5 7	41.2 5	39.8 4	40.7 2	38. 03
Manufacturing	95.2 9	95.4 0	96.4 9	99.7 1	91. 67	86.5 8	83.3 3	83.4 0	89.2 5	89.2 7	86.6 1	88. 00
Telecom	15.8 7	15.9 5	16.6 2	16.9 9	17. 15	17.8 6	17.8 7	20.3 5	19.3 1	20.0 0	20.4 3	19. 30
commercial and services	2.81	2.81	2.75	2.69	2.4 3	2.10	2.06	1.97	1.98	2.49	2.49	2.4 3

Table 25: 2016 data

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