THE JANUARY EFFECT AS EVIDENCED BY FOREIGN INVESTOR

TRADING AT THE NAIROBI SECURITIES EXCHANGE (NSE)

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DECLARATION

I declare that this research project is my original work and has not been submitted to any other institution for academic credit.

Signature ……………………………. Date ……………………………

Mokua Elkanah Onyari

This research project has been submitted with my approval as the University Supervisor.

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DEDICATION

I dedicate this project to my parents, Mr. & Mrs. Mokua, by siblings Oanda, Nyakoinani and Moturi and their families. Thank you for the support always.

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ABBREVIATIONS

CDS   Central Depository & Settlement

CDSC   Central Depository & Settlement Corporation

CMA   Capital Markets Authority

EMH   Efficient Market Hypothesis

NSE   Nairobi Securities Exchange

NYSE   New York Stock Exchange

ROY   Rest of the Year

RWT   Random Walk Theory

ABSTRACT

This study aimed at determining January Effect in NSE as evidenced by trading patterns of foreign investors. The study was based on the Efficient Market Hypothesis, the Random Walk Theory and the Behavioral Finance Theory. A descriptive research design was adopted. The population was 63 companies that were listed at the NSE as at the end of the year 2018. Out of this population, 60 companies qualified as they provided the full set of data on prices of stock. The secondary data was sought from the NSE data vendors. The stock prices were then utilized to compute the January mean returns and also rest of the year mean returns. A paired t-test was utilized to establish if there might have been a difference of a significant amount in mean returns. From the paired t-test, there was of significant difference in January mean returns and the rest of the year for the banking, energy and petroleum and the insurance sectors. However, the automobiles and accessories, commercial and services, construction and allied, investment, investment services, manufacturing and allied, telecommunication and technology and real estate investment trust sectors had no significant difference in January mean returns and the rest of the year. The study also concludes that both purchases and sales a strong positive and significant effect on stock prices in NSE. As there is existence of calendar anomalies at the NSE for the three sectors, the study recommends that the Capital Markets Authority need to come up with policies and regulations that will aim at improving efficiency at the NSE.

CHAPTER ONE: INTRODUCTION

1.1 Background of study

EMH theorizes that stock prices integrate all relevant information that is available in the market for that stock. An investor cannot earn atypical returns through arbitraging in the market (Levy & Post, 2005). However, Practitioners have differed with academicians with empirical evidence proving that markets are inefficient. This has been attributed to behavioral investing. Moniter (2010) argues that human beings are prone to stumble into mental pit falls.

Psychologists argue that investors suffer from cognitive and emotional biases that make them act in irrational manners. Levy & Post (2005) propose that the psychology of making decisions under uncertainty may lead to market inefficiencies and market anomalies. Market inefficiencies refer to deviations from the propositions of the efficient market hypothesis. Market anomalies exist in any form of efficiency but are more prevalent to the semi strong market efficiency. These anomalies can result in abnormal gains.

1.1.1   Market Anomalies

Market Anomalies disaffirm efficient market hypothesis and cannot be explained in any way (Jones, 1985). These anomalies negate the random walk theory creating an enabling environment for investors to make abnormal returns. Anomalies can be categorized into four; firm, accounting, calendar and event anomalies.

Firm anomalies are those that arise from characteristics that are specific to a firm such as size effect and the neglected firm effect. Accounting anomalies occur after the release of financial or accounting information such as announcement of unusually low or high

earnings. Event anomalies on the other hand are changes in security prices that follow an easily identified event such as merger and acquisition.

Calendar abnormalities are nonconformities to the EMH that are solely affected by time. Such anomalies occur in January, in the different days of the week, on the turn of the month and sometimes in the last day of the week.

1.1.2 Seasonality

Seasonality is the occurrence of events in a predictable manner. In a time-series, it is the repetitive and regular fluctuation that occurs periodically. Just like fares are likely to increase exponentially during the festive seasons, stock prices have been known to exhibit systematic patterns during certain times of the year. Seasonality effects are anomalies because they deviate from the fundamentals of the traditional asset pricing models (Drollery, Wong and Ho, 2007)

1.1.2.1 January Effect

This is the surge in prices of securities in January. Ciccone (2013) reported in the New York Times that on the first three weeks of the year the S&P 500 stock index had climbed 4.4% to hit a high that had only been last reported in December 2007 on January 18.

Over all the stock market tends to do well in January and small-company stocks tend to outdo large stock (Watchel, 1942). The performance of securities in January is attributed to sales at the end of the year that are for tax shielding purposes (Givoly & Ovadia, 1983). Stock prices are mostly depressed in December but recover in January contributing to the high return. Pittel (1984), argues that the reason for strong January is the easing of December selling resulting from tax-loss trading and the need to raise holiday cash. Kiem

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(1983) further posits that the January effect is stronger in smaller stocks. In a research carried out, it was evident that the average return of firms with small capitalization was larger than the average return of stocks of large capitalization.

1.1.2.2 Turn of month effect

The effect of end of month and other intraday anomalies occur when share prices rise in the during the end of month and the opening days of the succeeding month (Zaveria Kariuki, 2018).

1.1.3   Nairobi Securities Exchange (NSE)

The NSE is the largest exchange in the in Kenya and in East and Central Africa. It was founded and registered as an association of stockbrokers in 1954. Its main role was that of developing the securities market and overseeing the trading activities (NSE, Retrieved 2019).

The CMA was founded in 1990 after the Capital Markets Act was passed The main mandate of the CMA is to grow the market for capital, to establish, maintain and regulate of the securities market and to protect investors among others (CMA, Capital Markets Authority, Retrieved 2019). The NSE has 65 listed companies with 18 investment banks and 10 stockbrokers as of July 2019 all of which are oversighted by the CMA.

The Central Depository System (CDS) was commissioned in 2004 and is run by the Central CDSC. The main function of CDS is automation of the process of clearing and settlement of the securities traded in the NSE (NSE, Retrieved 2019). With these advances in the securities markets, and those of the banking sector such as the Real Gross Time Settlement

(RTGS) and SWIFT Code, the NSE has been able to serve both local and globally in real time.

1.1.4 Foreign Investors

The capital market Authority has classified investors in the capital market into two broad categories which are Foreign investors and Local investors. The capital markets further classify the investors in this broad classes as either individual clients or as institutional investors.

Individual investors refers to natural persons while institutional investors refers corporation whose main activity is investing funds as principal and or for clients (CMA, Capital Markes Authority, Retrieved 2019).

A local individual investor refers to a person who is a national of the East Africa Community partner states while local institutional investor means any legal persons incorporated under statute in any of EAC (CMA, Capital Markes Authority, Retrieved 2019).

Foreign Investors, both individual and institutional, are those that do not meet the above set criteria for local investors (CMA, Capital Markes Authority, Retrieved 2019).

1.2 Research Problem

According to EMH as proposed by Fama (1970), many studies have been conducted in support and equally in refute of the same. Globally, with the technological advancements coupled with superior information communication systems, a lot has changed in the securities market both in developing and developed countries.

In support of the Efficient market hypothesis existing empirical evidence show that the performance of mutual funds that are run by professional portfolio managers have been unable to achieve consistently superior returns (Charles P. Jones, 1985). Jensen (1960) concludes that on net basis, the average fund manager earned 1.1% less than an unmanaged portfolio of similar risk. Another assessment by Mains (1977) suggested a neutral performance on average on net basis, however, on gross basis, a majority of fund managers performed positively to meet fund expenses but not enough to pay fund shareholders.

In refute of the significance of Efficient market hypothesis, many studies that have been done that point to anomalies that negate the EMH. Banz (1981) and Reinganum (1981) registered abnormally large returns for small size corporations compared to large corporations. Givoly & Ovadia (1983) posits high returns for stocks in January compared to what was reported for the other months of the year.

Olowe (2009) employed the Exponential generalized autoregressive conditional heteroscedasticity model to investigate the monthly seasonality ion the Nigerian Stock Exchange. The researcher did not establish any form of monthly effect on stock returns. However, there was evidence of stock volatility in July and August. The researcher found little evidence of on the relationship between returns of stocks and the risk as a measure of own volatility.

Closer home, a number of scholars have looked into returns of stocks of companies trading on the NSE to find evidence both in support and contradiction of the EMH. Kai (2012) sought to examine the effect of turning of the month in NSE. He found no proof of these anomaly in the market. Zaveria (2018) carried out a similar research on the effect of turning the month focusing on fixed income securities at the NSE and concluded that there was no

proof of this anomaly at the NSE. Mwikali (2012) was also did not establish any proof of an anomaly in January in the NSE.

All these researchers that looked into January Effect of the returns on securities listed on the NSE overlooked the influence of the trading patterns of individual classes of investors in the NSE. The NSE as is constituted is greatly driven by the trading activity of the foreign investors who contribute circa 70% of all the activity compared to local investors who contribute a paltry 30%. As a result, it is in my opinion that the trading patterns of foreign investors in the NSE will have a bearing of the returns on the securities listed on the exchange.

The problem posed herein then is; Is there a January effect in the NSE? If there is, how is it influenced by the foreign investor trading activity?

1.3 Objective of the Study

The study aimed to determine January Effect in NSE as evidenced by trading patterns of foreign investors.

1.3.1 Specific objective

i. To find out the existence of January effect of stock prices in the NSE.

ii. To determine how the trading patterns of foreign investors affect stock prices in NSE.

1.4 Value of the Study

The study aimed at benefiting NSE, the largest exchange in Kenya, with policy recommendations aimed at reducing and if possible eliminating any anomalies in the market and enhance market efficiency.

It would also be of great benefit to scholars and academicians by adding literature review to the already existing studies on the January effect which will help in developing efficient markets.

To the investors, the study aimed at helping them understand the January effect as a seasonal anomalies and in the long run to reduce panic and impulse decision making based on the effects of these anomalies.

To regulators and the government, the study aimed at informing policies that will enhance the regulation and strengthening if the capital market in Kenya.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The research examined the presence of January effect in the NSE while demonstrating the effect of the trading patterns of Foreign Investors. Existing literature review and studies around the January effect was considered in order to aid comparison of the study findings. Theories related to the study were identified to aid the modelling the study. This study is in two parts; Theoretical and Empirical Review.

2.2 Theoretical Review

This focused on the Efficient Market Hypothesis, the Random Walk Theory and the Behavioral Finance Theory.

2.1.1 Efficient Market Hypothesis (EMH)

EMH posits that security prices incorporate wholly the information available. Fama (1970) argues that the capital market plays an important function in the allocation of capital in the economy. He further advances that in general terms, the ideal market is one where prices have accurate signals on for allocating resources; that is investors can pick among securities of a firm under the impression that the prices of securities incorporate entirely the information available.

Fama further categorizes efficient markets as either being in the weak, Semi-strong and strong forms centered on the information type that is incorporated in the prices of the securities. Securities in the weak form efficient market incorporate only historical information whereas those in the semi-strong form of efficient markets incorporate both historical and information that is available in the public domain. Strong form of is the most

seamless form in which prices of securities reflect all the private and public information that is available.

Arguments exist that propositions of EMH do not hold in the current financial markets. The deviations from the EMH are referred to as anomalies. Levy & Post (2005) argue that that the psychology of making decisions under uncertainty may lead to market inefficiencies and market anomalies. The further argue that market anomalies exist in any form of efficiency but are more prevalent to the semi strong market efficiency. These deviations form EMH, when exploited may result in abnormal returns.

According to Fama, information relation to securities should reach investors at the same time. However, in developing market such as the NSE, this is not the case. This theory therefore brings to light the benefits of the EMH and how it contributes to market anomalies.

2.1.2 Random Walk Theory

RWT hypothesizes that prices of securities evolve in a haphazard fashion and thus cannot be predicted. Fama (1995) posits that the Random walk theory diverges from the school of thought that exchanges are representation s of efficient markets. He further argues that random walks imply that changes in security price have no memory. No meaningful predictions about the future can be made based the past performance of stock.

Due to uncertainty and the resultant differences in interpreting the information available, it is challenging to determine the exact economic value that investors put on a security as a result of the information. As a result, there is latitude for disagreements in the market as to what the is correct of a security price. This therefore results in inconsistencies as to what

are the actual prices and the intrinsic prices. Therefore, in a market that is efficient, activities of sellers and buyers results to the security prices to wander about its trues economic worth (Fielitz, 1971).

Random walk therefore implies that there is no seasonality in the stock prices. Prices are in their entirety random and cannot be predicted. The presence of seasonality of any form, however minimal, therefore eliminates the randomness of the stock prices and market participants can therefore make abnormal profits riding on the seasonality. This research sought to establish the presence of seasonality in the month of January.

2.1.3   Behavioral Finance Theory

Behavioral theorist argue that investor decisions are affected by psychological, social, cognitive and emotional biases that influence their investment patterns and the consequences on market prices.

Traditional finance theories argue that investors are rational beings that take into consideration all available information prior to making investment decisions. The neoclassical finance theory posits assumptions such as the investor rationality, risk aversion, frictionless markets and ease of access of information. Szyszka (2013) argues that the main disadvantage of neoclassical finance theory is the unrealistic assumptions as the basis for its different theories. This assumptions form part of the early empirical evidence that supported the EMH (Fama E. , 1970).

Szyszka (2013) further argues that many studies have yielded results that contradict the traditional paradigm of EMH. The author further argues that it's the behavior of irrational investors may impact asset pricing and may not be eliminated by rational arbitrageurs. Thus

EMH doesn't always hold and may tend to deviate from the propositions of the traditional models.

In connecting to the study, behavioral finance is still an unmined area of study with many scholars turning their attention to it. It is believed that other than the proposition of traditional finance in investor decision making, psychological factors that are unique to individual investors. This cognitive and heuristic biases influence how investors make investment decisions. The study, therefore intended to add to the knowledge on behavioral finance.

2.2 Empirical review

Numerous studies have been carried out on seasonality of stock returns with emphasis of focus on January returns.

Rozeff (1976) studied prices of securities in an index of equal weight on the NYSE over a period 1904 -1974. The study reported a pattern in the returns of stocks in market. January reported an average market return of 3.48 compared to the other months that reported an average return of 0.42. He further posits that January returns were about eight times those of the any other month.

Window dressing by sophisticated investors at the end of the year has been put forward as the main reason for the variation of returns in January. Mark (2006) claims that a selling for tax loss shielding was the major explanation of the seasonality noted in January. Further, they posit that in as much as the seasonality in January is attributed to Tax loss selling in the US, international evidence suggests seasonality in January in jurisdictions with differing tax laws and in jurisdictions that don't tax gains on capital.

Sethapong (2006) posits that anomalies signify a lack of balance and efficient resource allocation that in an economy. They further confirm presence of seasonality in January in the Thai stocks. There has been a deviation of stock returns in January from 1975 all through 2001. In the same study, February and March were found to have very low returns, a phenomenon witnessed all through the period.

Olowe (2009) employed the Exponential generalized autoregressive conditional heteroscedasticity model to investigate the monthly seasonality ion the Nigerian Stock Exchange. The researcher did not establish any form of monthly effect on stock returns. However, there was evidence of stock volatility in July and August. The researcher found little evidence of on the relationship between returns of stocks and the risk as a measure of own volatility.

Christa (2016) established that there was a variation in the returns of securities in January compared to the other months of the year across 9 of the 10 sectors of the NSE that were studied. She further argues that the presence of the January effect provides an opportunity to the purchase securities at low prices in months prior to January and sell them in January when the prices have increased.

Dennis (2017) Studied the January effect on securities of neglected firms in the NSE for a period between 2012-2016. He concluded that the Banking sector, manufacturing sector and commercial sector indicated existence of January effect and a further concluded that neglected firms effect was nonexistent.

Another study carried out by Samuel (2003), using daily closing prices and computing average daily returns by applying holding period return method showed no evidence of the

variation of returns on the turning of the month. In the same breath, mean returns of February to December compared to the mean returns of January indicated an absence of the January Effect.

2.3 Literature Review Summary

Seasonality that occurs in January in securities contradicts the EMH and the RWT. Market anomalies and especially calendar effects have been widely researched on both globally and locally and have in most cases yielded contradicting results.

Rozeff (1976) carried out a study on the index of the NYSE prices on securities from 1904 to 1974. The study reported seasonality in stock returns. January reported an average market return of 3.48 whereas the other months reported an average return of 0.42. Sethapong (2006) confirmed presence of a variation in security returns in month of January in the Thai stock market.

Christa (2016) & Dennis (2017) sought to determine the presence of seasonality in January on NSE and concluded that the presence of this seasonal anomaly. On the other hand Samuel (2003) was unable to discover any proof seasonality in January on the NSE.

2.4   Conceptual framework

This model clarifies how the Independent, Dependent and Intervening Variables connect.

This relationship is illustrated in figure 2.1 below;
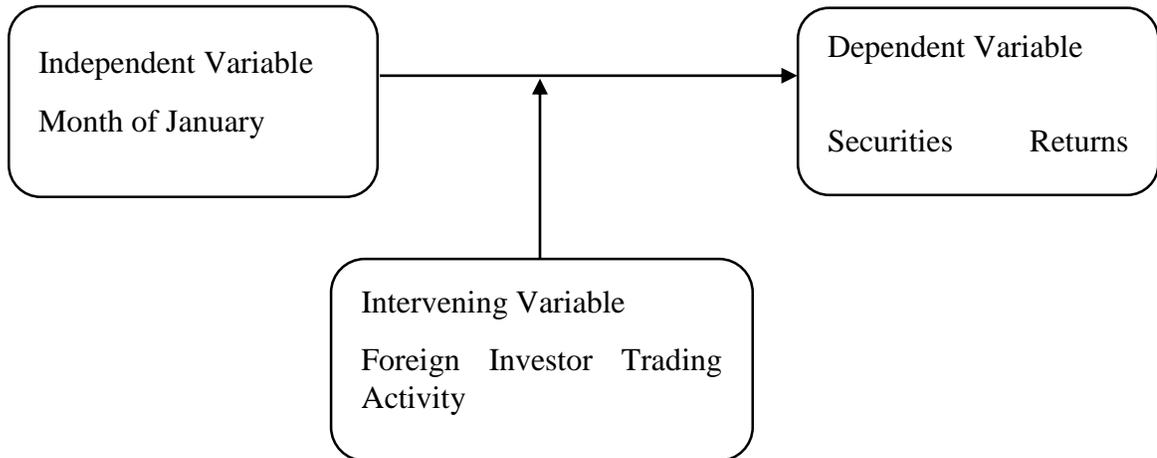
Figure 2.1 Conceptual Framework

This conceptual framework indicates that the securities returns of the equities listed on the

NSE are dependent on the month of the year and this relationship is affected by the level

of foreign investor trading activity during the month of January.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section highlights the approach applied in conducting the study. It details the design of the research, the population, how data was collected and the techniques of analyzing it.

3.2 Research Design

This design gives the roadmap that leads the researcher as they strive to address the research objectives. It creates an interlinkage between the research problem, the framework, the research variables and the techniques employed in the examination to assess the connection between the variables (Christa, 2016).

This research assumed a descriptive design. This design describes the characteristics of the population answering the "what" question of the characteristic. This approach was suitable to study of the seasonality in January on the NSE.

3.3 Population

The population targeted by the researcher was the 63 companies (See appendix II) listed on NSE as of 31st December 2018. The study spans five years between 2014- 2018.

3.4 Data Collection

This describes the method of gathering data that was employed in acquiring the requisite variables that assisted the researcher to answer the research questions. The research used secondary data on the volume weighted closing prices of equity securities listed on NSE and the daily foreign investor trading activity for the period of five years under study. All this data was collected from the NSE.

3.5 Data Analysis

The data that was collected was analyzed by applying the SPSS program. Descriptive statistics were used for analysis. A paired t-test with a significance level of 0.05 was also applied. This method of data analysis has been employed by other researchers such as Christa (2016) who sought to establish seasonality in the month of January on NSE.

Daily returns were computed as below;

Daily return $= \frac{P_t - P_{t-1}}{P_{t-1}}$ where;

P_t = price of a security of firm on time t (Stock Closing Price)

P_{t-1} = price of a security of firm on time $t-1$ (Stock Opening Price)

A mean monthly returns for all months was calculated from the daily returns. In a bid to assess the seasonality in January, a paired t-test was conducted to establish whether there existed a disparity between the returns of January and ROY.

Null hypothesis H_θ: Jan = ROY; The average return for January are equal to the average return for other months of the year.

Alternative hypothesis H_A: Jan $\neq$ ROY; the average return for January are not equal to other months of the year.

The examination considered working days of the week. Weekends and public holidays were omitted from the analysis. This is because the NSE is open for five working days of the week and remains closed during the weekends and public holidays. In addition, a correlation test was conducted to determine the how the trading patterns of foreign investors affected stock prices in NSE.

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CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the analysis and discussion on the findings on the January effect in NSE as evidenced by trading patterns of foreign investors. A total of 63 listed companies in NSE were targeted, of which 60 from 12 sectors provided complete data for the five years under the study (2014-2018). This translated to a response rate of 95% and a non-response rate of 5%. Market share prices per sector were obtained and then stock returns were obtained per day. The SPSS Version 23 was used to analyze the data.

4.2 Descriptive Presentation of Findings

This section presents the descriptive statistics of the population studied. It presents the descriptive statistics for the 12 sectors studied. The findings are presented based on the sectors.

4.2.1 Agricultural Sector

The findings shown in Table 4.1 present the descriptive statistics for the agricultural sector.

Table 4.1 Descriptive Statistics for Agricultural Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
Eaagads	.000178	.0009290	.0334955
Kapchorua Tea	.008436	.0083271	.3002368
Kakuzi	.001325	.0007994	.0288244
Limuru Tea	.006032	.0059082	.2130250
Sasini	.000688	.0008357	.0301319
Williamson Tea	.000609	.0008936	.0322198
Overall	**.0029**	**.00236**	**.08524**

The study found that the average daily returns for the agricultural sector was 0.0029 with the standard deviation of 0.08524. Kapchorua Tea had the highest average value of 0.008436 while Eaagads had the lowest mean value of 0.000178.

4.2.2 Automobiles and Accessories Sector

The findings in Table 4.2 present the descriptive statistics for the automobiles and accessories sector.

Table 4.2 Descriptive Statistics for Automobiles and Accessories Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
Car & General	.000949	.0014569	.0525285
Sameer	.000932	.0019990	.0720748
Overall	**.0009**	**.00162**	**.05840**

The study found that the average daily returns for the automobiles and accessories sector was 0.0009 with the standard deviation of 0.05840. Car & General had the highest average value of 0.000949 while Sameer had the lowest mean value of 0.000932.

4.2.3 Banking Sector

The findings in Table 4.3 present the descriptive statistics for banking sector.

Table 4.3 Descriptive Statistics for Banking Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
Barclays Bank	-.000270	.0003886	.0140122
Stanbic Bank	.000222	.0005403	.0194823
I&M Bank	-.000073	.0005442	.0196201
DTK Bank	.000077	.0004502	.0162319
HFCK Bank	-.000919	.0006107	.0220193
KCB Bank	-.000064	.0004194	.0151221
National Bank	-.000647	.0008813	.0317769
NIC Bank	-.000193	.0006077	.0219100
Standard Chartered Bank	-.000142	.0004308	.0155344
Equity Bank	.000252	.0004884	.0176104
Cooperative Bank	.000197	.0004013	.0144680
Overall	**-.0001**	**.00022**	**.00807**

The study found that the average daily returns for the banking sector was -.0001 with the standard deviation of 0.00807. Equity bank had the highest average value of 0.000252 while Housing Finance bank had the lowest mean value of -0.000919.

4.2.4 Commercial and Services Sector

The findings in Table 4.4 present the descriptive statistics for the commercial and services sector.

Table 4.4 Descriptive Statistics for Commercial and Services Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
Express Kenya	.000944	.0010887	.0392519
KQ	.000294	.0010543	.0380123
NMG	-.000992	.0004941	.0178146
Standard Group	.000731	.0009887	.0356472
TPS Serena	-.000156	.0007548	.0272156
Scan group	-.000519	.0008193	.0295410
Uchumi Supermarkets	-.002570	.0012506	.0450927
Longhorn	.004890	.0055833	.2013097
Deacons	-.003063	.0010494	.0378364
Overall	**.00001**	**.00065**	**.02351**

The study found that the average daily returns for the commercial and services sector was 0.00001 with the standard deviation of 0.02351. Longhorn had the highest average value of 0.004890 while Deacons bank had the lowest mean value of -0.003063.

4.2.5 Construction and Allied Sector

The findings in Table 4.5 show the descriptive statistics for the construction and allied sector.

Table 4.5 Descriptive Statistics for Construction and Allied Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
ARM	-.001760	.0007622	.0274801
Bamburi Cement	-.000226	.0004445	.0160270
Crown Paints	.001494	.0010261	.0369981
East African Portlands	.000327	.0017252	.0622015
East African Cable	.008962	.0107621	.3880324
Overall	**.0018**	**.00210**	**.07559**

The study found that the average daily returns for the construction and allied sector was 0.0018 with the standard deviation of 0.07559. East African Cable had the highest average value of 0.000327 while ARM had the lowest mean value of -0.001760.

4.2.6 Energy and Petroleum Sector

The findings in Table 4.6 show the descriptive statistics for the energy and petroleum sector.

Table 4.6 Descriptive Statistics for Energy and Petroleum Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
KENGEN	-.000260	.0005695	.0205334
Kenya Power	-.000808	.0004818	.0173710
Total Kenya	.000426	.0007380	.0266101
Umeme	-.000677	.0011374	.0410088
Overall	**-.0003**	**.00040**	**.01430**

The study found that the average daily returns for the energy and petroleum sector was -0.0003 with the standard deviation of .01430. KenGen had the highest average value of -0.000260 while Umeme had the lowest mean value of -0.000677.

4.2.7 Insurance Sector

The findings in Table 4.7 show the descriptive statistics for the insurance sector.

Table 4.7 Descriptive Statistics for Insurance Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
BRITAM	-.000047	.0006531	.0235475
CIC	.000022	.0005772	.0208119
Jubilee Insurance	.000620	.0005401	.0194726
Kenya RE	.000053	.0004545	.0163855
Liberty Kenya	.000321	.0008231	.0296789
SANLAM	-.000298	.0008528	.0307490
Overall	**.0001**	**.00030**	**.01074**

The study found that the average daily returns for the insurance sector was 0.0001 with the standard deviation of 0.01074. Liberty Kenya had the highest average value of 0.000321 while SANLAM had the lowest mean value of -0.000298.

4.2.8 Investment Sector

The findings in Table 4.8 show the descriptive statistics for the investment sector.

Table 4.8 Descriptive Statistics for Investment Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
Centum	.000091	.0005327	.0192060
Home Afrika	-.000667	.0012837	.0462849
Kurwitu	.000000	0.0000001	0.0000001
Olympia Capital	-.000001	.0015929	.0574338
Trans Century	.004820	.0067718	.2441599
Overall	**.0008**	**.00159**	**.05745**

The study found that the average daily returns for the investment sector was 0.0008 with the standard deviation of 0.05745. Trans Century had the highest average value of 0.004820 while Home Afrika had the lowest mean value of -0.000667.

4.2.9 Investment Services Sector

The findings in Table 4.9 show the descriptive statistics for the investment services sector.

Table 4.9 Descriptive Statistics for Investment Services Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
NSE	.000873	.0007723	.0278445
Overall	**.0009**	**.00077**	**.02784**

The study found that the average daily returns for the investment services sector was 0.0009

with the standard deviation of 0.02784.

4.2.10 Manufacturing and Allied Sector

Table 4.10 shows the descriptive statistics for the manufacturing and allied sector.

Table 4.10 Descriptive Statistics for Manufacturing and Allied Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
Mumias	-.001560	.0011815	.0425989
Flame Tree Group	-.001473	.0011922	.0429844
CARBACID	-.000954	.0006785	.0244642
EABL	-.000297	.0003781	.0136324
BAT	.000448	.0006828	.0246195
Unga	.001088	.0008686	.0313188
Kenya Orchards	.002150	.0009114	.0328622
Eveready	.004022	.0048436	.1746385
BOC Kenya	.009767	.0105677	.3810226
Overall	**.0015**	**.00127**	**.04563**

The study found that the average daily returns for the manufacturing and allied sector was

0.0015 with the standard deviation of 0.04563. BOC Kenya had the highest average value

of 0.009767 while Mumias had the lowest mean value of -0.001560.

4.2.11 Telecommunication and Technology Sector

Table 4.11 shows the descriptive statistics for the telecommunication and technology

sector.

Table 4.11 Descriptive Statistics for Telecommunication and Technology Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
Safaricom	.000656	.0004021	.0144983
Overall	**.0007**	**.00040**	**.01450**

The study found that the average daily returns for the telecommunication and technology

sector was 0.0007with the standard deviation of 0.01450.

4.2.12 Real Estate Investment Trust Sector

Table 4.11 shows the descriptive statistics for the real estate investment trust sector.

Table 4.12 Descriptive Statistics for Real Estate Investment Trust Sector

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
Stanlib Fahari	-.000298	.0008528	.0307490
Overall	**-.0003**	**.00085**	**.03075**

The study found that the average daily returns for the real estate investment trust sector

was -0.0003 with the standard deviation of 0.03075.

4.3 Paired T-test per Sector

The study used a paired t-test to test whether there existed a significant difference in mean

returns for the years 2014 to 2018. The null hypothesis of January effect was H_0: Jan =

ROY; the returns for January are equal to returns for the rest of the year. The alternative

hypothesis was H_A: Jan $\neq$ ROY. The researcher used 0.05 significant levels for t-test.

4.3.1 Agricultural Sector

The researcher conducted a paired t-test for agricultural sector for the period 2014-2018.

The findings are shown in Table 4.13.

Table 4.13 Paired t-test for Agricultural Sector

Period	Paired t-statistic	P value	Effect
2014	.989	.334	Non-significant
2015	.322	.750	Non-significant
2016	1.089	.289	Non-significant
2017	-2.230	.037	Significant
2018	-.502	.621	Non-significant

The findings show that for the years 2014-2016, and 2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period; hence, the null hypothesis for this period is not rejected. However, p-value for the year 2017 was below the significance level of 0.05. The null hypothesis is, therefore rejected for this period.

4.3.2 Automobiles and Accessories Sector

The researcher conducted a paired t-test for automobiles and accessories sector for the period 2014-2018. The findings are shown in Table 4.14.

Table 4.14 Paired t-test for Automobiles and Accessories Sector

Period	Paired t-statistic	P value	Effect
2014	.760	.456	Non-significant
2015	.430	.671	Non-significant
2016	.938	.359	Non-significant
2017	.035	.972	Non-significant
2018	-2.661	.011	Significant

The findings show that for the years 2014-2017, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period; hence, the null hypothesis for this period is not rejected. However, p-value for the year 2018 was below the significance level of 0.05. The null hypothesis is, therefore rejected for this period.

4.3.3 Banking Sector

The researcher conducted a paired t-test for the banking sector for the period 2014-2018. The findings are shown in Table 4.15.

Table 4.15 Paired t-test for Banking Sector

Period	Paired t-statistic	P value	Effect
2014	-5.092	.000	Significant
2015	23.411	.000	Significant
2016	-6.793	.000	Significant
2017	-7.206	.000	Significant
2018	-8.832	.000	Significant

The findings show that for the years 2014-2018, all the p-values obtained were below 0.05 indicating that there was a calendar effect during this period; hence, the null hypothesis for this period is rejected.

4.3.4 Commercial and Services Sector

The researcher conducted a paired t-test for commercial and services sector for the period 2014-2018. The findings are shown in Table 4.16.

Table 4.16 Paired t-test for Automobiles and Accessories Sector

Period	Paired t-statistic	P value	Effect
2014	.829	.417	Non-significant
2015	1.429	.168	Non-significant
2016	-1.021	.319	Non-significant
2017	-3.188	.004	Significant
2018	-.128	.900	Non-significant

The findings show that for the years 2014-2016, and 2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period; hence, the null

hypothesis for this period is not rejected. However, p-value for the year 2017 was below

the significance level of 0.05. The null hypothesis is, therefore rejected for this period.

4.3.5 Construction and Allied Sector

The researcher conducted a paired t-test for construction and allied sector for the period

2014-2018. The findings are shown in Table 4.17.

Table 4.17 Paired t-test for Construction and Allied Sector

Period	Paired t-statistic	P value	Effect
2014	1.062	.300	Non-significant
2015	.046	.964	Non-significant
2016	-.556	.584	Non-significant
2017	.018	.986	Non-significant
2018	-.337	.739	Non-significant

The findings show that for the years 2014-2018, the p-values obtained were above 0.05

indicating that there was no calendar effect during this period; hence, the null hypothesis

for this period is not rejected.

4.3.6 Energy and Petroleum Sector

The researcher conducted a paired t-test for energy and petroleum sector for the period

2014-2018. The findings are shown in Table 4.18.

Table 4.18 Paired t-test for Energy and Petroleum Sector

Period	Paired t-statistic	P value	Effect
2014	-.945	.356	Non-significant
2015	-1.176	.253	Non-significant
2016	-1.996	.042	Significant
2017	-1.979	.044	Significant
2018	-.618	.543	Non-significant

The findings show that for the years 2014-2015, and 2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period; hence, the null hypothesis for this period is not rejected. However, p-value for the years 2016-2017 was below the significance level of 0.05. The null hypothesis is, therefore rejected for this period.

4.3.7 Insurance Sector

The researcher conducted a paired t-test for insurance sector for the period 2014-2018. The findings are shown in Table 4.19.

Table 4.19 Paired t-test for Insurance Sector

Period	Paired t-statistic	P value	Effect
2014	.757	.457	Non-significant
2015	-1.976	.042	Significant
2016	-.915	.371	Non-significant
2017	-2.522	.020	Significant
2018	.645	.526	Non-significant

The findings show that for the years 2014, 2016 and 2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period; hence, the null hypothesis for this period is not rejected. However, p-value for the years 2015 and 2017 was below the significance level of 0.05. The null hypothesis is, therefore rejected for this period.

4.3.8 Investment Sector

The researcher conducted a paired t-test for investment sector for the period 2014-2018. The findings are shown in Table 4.20.

Table 4.20 Paired t-test for Investment Sector

Period	Paired t-statistic	P value	Effect
2014	.756	.458	Non-significant
2015	1.239	.229	Non-significant
2016	-.709	.487	Non-significant
2017	-.650	.523	Non-significant
2018	.360	.722	Non-significant

The findings show that for the years 2014-2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period; hence, the null hypothesis for this period is not rejected.

4.3.9 Investment Services Sector

The researcher conducted a paired t-test for investment services sector for the period 2014-2018. The findings are shown in Table 4.21.

Table 4.21 Paired t-test for Investment Services Sector

Period	Paired t-statistic	P value	Effect
2014	.060	.956	Non-significant
2015	-.006	.995	Non-significant
2016	-.419	.680	Non-significant
2017	-1.965	.049	Significant
2018	.583	.566	Non-significant

The findings show that for the years 2014-2016 and 2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period; hence, the null hypothesis for this period is not rejected. However, p-value for the year 2017 was below the significance level of 0.05. The null hypothesis is, therefore rejected for this period.

4.3.10 Manufacturing and Allied Sector

The researcher conducted a paired t-test for manufacturing and allied sector for the period 2014-2018. The findings are shown in Table 4.22.

Table 4.22 Paired t-test for Manufacturing and Allied Sector

Period	Paired t-statistic	P value	Effect
2014	1.072	.296	Non-significant
2015	.972	.342	Non-significant
2016	.128	.900	Non-significant
2017	-2.090	.028	Significant
2018	-.393	.698	Non-significant

The findings show that for the years 2014-2016 and 2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period; hence, the null hypothesis for this period is not rejected. However, p-value for the year 2017 was below the significance level of 0.05. The null hypothesis is, therefore rejected for this period.

4.3.11 Telecommunication and Technology Sector

The researcher conducted a paired t-test for telecommunication and technology sector for the period 2014-2018. The findings are shown in Table 4.23.

Table 4.23 Paired t-test for Telecommunication and Technology Sector

Period	Paired t-statistic	P value	Effect
2014	.380	.707	Non-significant
2015	-.672	.509	Non-significant
2016	-1.577	.130	Non-significant
2017	.817	.423	Non-significant
2018	1.240	.228	Significant

The findings show that for the years 2014-2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period; hence, the null hypothesis for this period is not rejected.

4.3.12 Real Estate Investment Trust Sector

The researcher conducted a paired t-test for real estate investment trust sector for the period 2014-2018. The findings are shown in Table 4.24.

Table 4.24 Paired t-test for Real Estate Investment Trust Sector

Period	Paired t-statistic	P value	Effect
2014	-.256	.801	Non-significant
2015	-.918	.369	Non-significant
2016	-.300	.767	Non-significant
2017	.245	.809	Non-significant
2018	-2.343	.009	Significant

The findings show that for the years 2014-2017, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period; hence, the null hypothesis for this period is not rejected. However, the p-value for the year 2018 was below the significance level of 0.05. The null hypothesis is, therefore rejected for this period.

4.3.13 Combined Paired T-test

A paired t-test was utilized to test whether there is significant difference in mean returns for January and rest of the year across the various segments at the NSE from the years 2014 to 2018. The findings are shown in Table 4.25.

Table 4.25 Combined Paired T-test

Sector	Paired t-statistic	P value	Effect
Agriculture	1.015	.321	Non-significant
Automobiles and Accessories	.743	.466	Non-significant
Banking	-8.072	.000	Significant
Commercial and Services	.536	.597	Non-significant
Construction and Allied	1.037	.311	Non-significant
Energy and Petroleum	-2.048	.049	Significant
Insurance	-3.409	.003	Significant
Investment	.817	.423	Non-significant
Investment Services	-.432	.670	Non-significant
Manufacturing and Allied	1.127	.272	Non-significant
Telecommunication and Technology	-.472	.642	Non-significant
Real Estate Investment Trust	-.945	.356	Non-significant

A t-statistic table at 0.05 indicates existence of significant difference in January mean returns and the rest of the year for the banking, energy and petroleum and the insurance sectors. The null hypothesis is, therefore rejected for these sectors. Nevertheless, the automobiles and accessories, commercial and services, construction and allied, investment, investment services, manufacturing and allied, telecommunication and technology and real estate investment trust sectors indicated non-existence of significant difference in January mean returns and the rest of the year. The null hypothesis is, therefore not rejected for these sectors.

4.4 Trading Patterns and Stock Prices

The study sought to determine how the trading patterns of foreign investors affect stock prices in NSE. The trading patterns entailed the purchases and sales, as shown in Table 4.26.

Table 4.26 Trading Patterns and Stock Prices

Correlations		Stock Prices	Purchases	Sales
Stock Prices	Pearson Correlation	1		
	Sig. (2-tailed)			
Purchases	Pearson Correlation	.803**	1	
	Sig. (2-tailed)	.007		
Sales	Pearson Correlation	.735**	.917**	1
	Sig. (2-tailed)	.009	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

The study found that both purchases and sales a strong positive and significant effect on stock prices in NSE, as the p value of 0.007 and 0.009 were obtained respectively. Pearson Chi-square values of 0.803 and 0.735 were also obtained, showing strong significant effects on stock prices.

4.5 Discussions

The study found existence of significant difference in January mean returns and the rest of the year for the banking, energy and petroleum and the insurance sectors. In line with the findings of the study, Sethapong (2006) posits that anomalies signify a lack of balance and efficient resource allocation in an economy in the affected sectors. Additionally, Christa (2016) established that there was a variation in the returns of securities in January compared to the other months of the year across 9 of the 10 sectors of the NSE that were studied. The present study found this variation for three sectors for the period 2014-2018.

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In support of the findings of the study, Dennis (2017) found the January effect on securities of neglected firms in the NSE for a period between 2012-2016. The study concluded that the banking sector, manufacturing sector and commercial sector indicated existence of January effect and a further concluded that neglected firms effect was nonexistent. The present study however did not find this effect for the manufacturing and commercial sector for the period 2014-2018.

The findings of the study, however, disagree with those of Samuel (2003), who found no evidence of the variation of returns on the turning of the month for all sectors. In the same breath, mean returns of February to December compared to the mean returns of January indicated an absence of the January Effect for all sectors studied.

The present study found that both foreign investor purchases and sales had a strong positive and significant effect on stock prices in NSE. Mark (2006) supported the study that a selling for tax loss shielding was the major explanation of the seasonality noted in January. Further, he posits that in as much as the seasonality in January is attributed to Tax loss selling in the US, international evidence suggests presence of seasonality in January in jurisdictions with differing tax laws and those that don't tax gains on capital.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of data findings, conclusions, recommendations and the recommendations for future studies. The conclusions and recommendations are drawn to address the objectives of the study on the existence January effect of stock prices in the NSE and how the trading patterns of foreign investors affect stock prices in NSE.

5.2 Summary of Findings

The study aimed to determine the January Effect in NSE as evidenced by trading patterns of foreign investors. This was conducted using paired t-test to compare the difference in mean returns for January and the rest of the year. A paired t-test was used to test the difference in mean returns for January and the mean returns for the rest of the year per sector.

For the agricultural sector, the findings indicated that for the years 2014-2016, and 2017, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period. However, p-value for the year 2017 was below the significance level of 0.05. For the automobiles and accessories sector, the findings show that for the years 2014-2017, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period. However, p-value for the year 2018 was below the significance level of 0.05.

For the banking sector, the findings showed that for the years 2014-2018, all the p-values obtained were below 0.05 indicating that there was a calendar effect during this period. For commercial and services sector, the findings showed that for the years 2014-2016, and

2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period. However, p-value for the year 2017 was below the significance level of 0.05. For the construction and allied sector, the findings showed that for the years 2014-2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period.

For the energy and petroleum sector, the findings showed that for the years 2014-2015, and 2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period. However, p-value for the years 2016-2017 was below the significance level of 0.05. For the insurance sector, the findings showed that for the years 2014, 2016 and 2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period. However, p-value for the years 2015 and 2017 was below the significance level of 0.05.

For the investment sector, the findings showed that for the years 2014-2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period. For investment services sector, the findings showed that for the years 2014-2016 and 2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period. However, p-value for the year 2017 was below the significance level of 0.05. For manufacturing and allied sector, for the years 2014-2016 and 2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period. However, p-value for the year 2017 was below the significance level of 0.05.

The findings for the telecommunication and technology sector showed that for the years 2014-2018, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period. For the real estate investment trust sector, for the years 2014-

2017, the p-values obtained were above 0.05 indicating that there was no calendar effect during this period. However, the p-value for the year 2018 was below the significance level of 0.05. Overall, there was existence of significant difference in January mean returns and the rest of the year for the banking, energy and petroleum and the insurance sectors.

5.3 Conclusion

The study concludes that there is existence of significant difference in January mean returns and the rest of the year for the banking, energy and petroleum and the insurance sectors. However, the automobiles and accessories, commercial and services, construction and allied, investment, investment services, manufacturing and allied, telecommunication and technology and real estate investment trust sectors had no significant difference in January mean returns and the rest of the year. The study also concludes that both foreign investor purchases and sales have a strong positive and significant effect on stock prices in NSE.

5.4 Recommendations

Based on the findings of the study, the presence of January effect on stock returns at the NSE for the banking, energy and petroleum and the insurance sectors requires investors to arbitrage on the difference in returns in the month of January and thus adjust themselves so as to enable them increase their returns. In addition, as there is existence of calendar anomalies at the NSE for the three sectors, the Capital Markets Authority need to come up with policies and regulations that will aim at improving efficiency at the NSE. Also, foreign investor trading should be encouraged, as it was found to positively influence stock prices at the NSE.

5.6 Suggestions for Further Studies

The study suggests that further research can be conducted to assess the existence January effect of stock prices in other areas, such as East African companies or even global companies, for comparative results. In addition, other variables that can influence stock returns, can be considered in the future studies.

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APPENDICIES

Appendix 1: Stock Prices Data Collection Form

Firm: _____

No.	Month	Date	Stock Closing Price (Day t)	Stock Opening Price (Day t-1)	Daily Return
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					

Appendix II: Companies Listed on the NSE as at December 2018

No.	Firm	Sector
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
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