THE JANUARY EFFECT AND MARKET RETURNS: EVIDENCE FROM THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than The University of Nairobi for academic credit. I further declare that I followed all the applicable ethical guidelines in the conduct of the research proposal.

Peter Ndii Wachira,
Signed: _____ Date: _____

This project has been submitted for examination with my approval as the University supervisor.

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First and foremost, I acknowledge God for giving me this opportunity to live to see the completion of my project. I also acknowledge the tireless effort of my supervisor Mr. Herrick O. Ondigo who instructed and directed me throughout the project. Last but not least, my family and friends who gave me moral support.

DEDICATION

This project is dedicated to my wife for all the support and encouragement she accorded me towards making this research project a success.

ABSTRACT

The January effect is attributed to a general increase in stock prices in January. It is a phenomenon that has been observed since 1925, and researchers have found that the anomaly has existed for more than half a century (Cataldo and Savage, 2000). This anomaly has attracted tremendous interest among researchers because it is difficult to reconcile with the efficient market hypothesis (EMH). Previous works on the January effect, especially those of an empirical nature, have found this anomaly to exist in many stock markets all over the world. The objective of this study was to find out whether there exists a January effect at the Nairobi Securities Exchange. The population of interest was all the listed companies for equity stocks at the NSE as at December 2012. The data comprised of daily values of the two major indices; Nairobi Securities Exchange 20-share index and Nairobi Securities Exchange All-share index. Regression analysis was used to analyze the data collected. The results show negative coefficients in the model used. These coefficients confirm existence of January effect since they signify higher returns in January than other months. T-statistics analysis indicated that the coefficients are significant confirming that January effect does not exist at NSE. Further study should be undertaken to explain why January effect exists in this market.

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LIST OF ABBREVIATIONS

EMH – Efficient Market Hypothesis

IPO – Initial Public Offer

ITH – Integrated Transfer Hypothesis

KSE – Kuwait Stock Exchange

N20I – Nairobi 20-Share Index

NASQAD – National Association of Securities Dealers Automated Quotations

NASI – Nairobi All-Share Index

NYSE – New York Stock Exchange

NSE – Nairobi Securities Exchange Limited

S & P 500 – Standard & Poor 500 Index

SIF – Seasonal Information Flows

SPSS - Statistical Package for the Social Sciences

TLS – Tax-Loss Selling

U.K – United Kingdom

U.S – United States

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Early evidence on the efficient market hypothesis was quite favorable to it. In recent years, however, deeper analysis of the evidence suggests that the hypothesis may not always be entirely correct. Empirical evidence indicates that the hypothesis has begun to show a few cracks, referred to as *anomalies*, hence it may not always be generally applicable. One of the anomalies that have been reported is the "January effect. Different researchers like Rozeff and Kinney (1976), Agrawal & Tendon (1994), Gultekin & Gultekin (1983), and Ariel (1984) exhibited the existence of this effect with their evidences in different stock exchanges of world. This study seeks to establish the existence of January effect at Nairobi Securities Exchange and how it relates to the market return.

1.1.1 The January Effect

This is one of the market anomalies under the category of calendar anomalies. The word anomaly refers to scientific and technological matters. It has been defined by George & Elton (2001) as irregularity or a deviation from common or natural order or an exceptional condition. Anomaly is a term that is generic in nature and it applies to any fundamental novelty of fact, new and unexpected phenomenon or a surprise with regard to any theory, model or hypothesis (George & Elton 2001).

According to Rozeff & Kinney (1976) the "January effect" is a seasonal anomaly where the capital market show significant higher average returns in the month of January. The literature on monthly effects, generally, confirmed higher returns in January. Rozeff and Kinney (1976) first observed that the average return of an equal-weighted index of the New York Stock Exchange in January is statistically significantly higher than the average return for the other months in the period 1904-1974. Haugen and Jorion (1996) provide evidence confirming the persistent existence of the January effect. They conclude that the January effect still exists despite the fact

that it was well known for reasonably long time and therefore should have disappeared. Furthermore, they point out that the January effect is stronger in case of small firms than in case of well-established companies with high capitalization. They concluded, "The January effect is still going strong 17 years after its discovery" (Haugen and Jorion, 1996, p. 27). International evidence of the January effect is provided by Kato and Schallheim (1985).

Researchers have proposed explanations of the January effect as tax-loss selling, window dressing, increased liquidity at the end of the year, market microstructure effects, real economic changes such as macroeconomic news or changes in risk premium, and investor psychology. These are discussed under the theoretical framework.

1.1.2 Market Returns

Market returns are the gains or losses from a market in a particular period and are usually quoted as a percentage. It is calculated by as a percentage change in a market index based on the previous period's closing index. There are two methods that are used to calculate returns; simple returns formation and continuously compounded (logarithm) returns.

Simple returns or log returns

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}} \times 100\% \qquad R_t = \ln\left(\frac{P_t}{P_{t-1}}\right) \times 100\%$$

Where:

R_t = Market return

P_t = Market value at time t.

P_{t-1}= Market value at month t-1.

ln is the natural logarithm.

For the purpose of this study, market returns were calculated as the natural log of (Index Value at time t / Index value at time t-1):

$$R_t = \ln\left(\frac{p_t}{p_{t-1}}\right) \times 100\%$$

The reasons to choose logarithm returns over general return are justified by both theoretically and empirically. Theoretically, logarithmic returns are analytically more tractable when linking together sub-period returns to form returns over longer intervals. Empirically, logarithmic returns are more likely to be normally distributed which is prior condition of standard statistical techniques (Strong, 1992).

1.1.3 The Nairobi Securities Exchange Limited (NSE)

NSE was established in July 1953 as Nairobi Stock exchange as an overseas stock exchange. However, in 1954 the Nairobi Stock Exchange was then constituted as a voluntary association of stockbrokers registered under the Societies Act. Since Africans and Asians were not permitted to trade in securities, until after the attainment of independence in 1963, the business of dealing in shares was confined to the resident European community. 1988 saw the first privatization through the NSE, of the successful sale of a 20% government stake in Kenya Commercial Bank.

In 1996, the largest share issue in the history of NSE, the privatization of Kenya Airways, came to the market. Having sold a 26% stake to KLM, the Government of Kenya proceeded to offer 235,423,896 shares (51% of the fully paid and issued shares of Kshs. 5.00 each) to the public at Kshs. 11.25 per share. More than 110,000 shareholders acquired a stake in the airline and the Government of Kenya reduced its stake from 74% to 23%.

In July 2011, the Nairobi Stock Exchange Limited changed its name to the Nairobi Securities Exchange Limited. The aim was to reflect the strategic plan of the Nairobi Securities Exchange to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. In the same year, the equity settlement cycle moved from the previous T+4 settlement cycles to the T+3 settlement cycle. This allowed investors who sell their shares, to get their money three (3) days after the sale of their shares. In September 2011 the Nairobi Securities Exchange converted from a company

limited by guarantee to a company limited by shares and adopted a new Memorandum and Articles of Association reflecting the change.

1.1.3.1 NSE Share Indices

A stock market index is a measure of changes in the stocks markets and is usually considered to be reasonably representative of the market as a whole. Indexes are usually tabulated on a daily basis and involves summarizing sample shares price movements (NSE 20 share index, N20I) or all the share prices movements (NSE all share index, NASI)

Up to January 2008, the Nairobi Stock exchange had one index only; the Nairobi 20 share index. In 2008, the NSE All Share Index (NASI) was introduced as an alternative index. Moreover, in November 2011 the FTSE NSE Kenya 15 and FTSE NSE Kenya 25 Indices were launched. The study seeks to zero into the N20I and NSI which are discussed below.

A stock market index should not be read in its absolute numerical value but as the percentage change in its numerical value. The changes in the index reflects the future expectation of the market and its affected by many things including: news about performance of listed firms or the general country's economic performance, changing interest in the market and changing profitability levels of the listed companies which affect dividend payouts.

An investor should not base his decision fully on indices only since the constant changing of the companies included in the index makes it hard to compare the indexes over the years. Indexes are usually weighted by size of the companies included; thus disproportion representation goes to large or giant companies. If one of them has a bad day, it can affect the whole index making it biased.

An investor should stay focused on the specific stocks and evaluate them rather than trying to keep pace with the market index, which only give the historical value of the market. Even on days when the NSE indexes are down there usually are stocks that performed well and the indexes may continue falling even when some stocks continue performing better. Focusing on the index is simply a waste of valuable time that could be used to analyze a company you want to invest in.

1.1.3.2 Nairobi Securities Exchange 20 Share Index (N20I)

The NSE 20 Share Index is a price weight index calculated as a mean of the top 20 best performing counters. The members are selected based on a weighted market performance for a 12 month period based on market capitalization 40%, number of shares traded 30%, number of deals 20% and turnover 10%.

The index measures the average performance of 20 large cap stocks drawn from different industries. However, experience indicates that most large cap stocks do not record a high performance as compared to low cap stocks. At times small cap counters record growth averaging at 50%, while this is unlikely for large cap stocks. This makes the 20 Share index to be biased towards a large cap counters and thus fails to transmit the right signals on the entire market performance to potential investors. This shortfall led to the introduction of NASI.

1.1.3.3 Nairobi Securities Exchange All Share Index (NASI)

It was introduced to complimentary to the NSE 20 share index in 2008, with a base value of 100 as of January 2008. This was part of some of the recommendations by the International Finance Corporation (IFC) and regulators of world stock markets to ensure a comprehensive dissemination of market information to investors. Unlike the 20 Share Index, which measures price movement in selected, relatively stable and best performing 20 listed companies, NASI incorporates all listed companies irrespective of their performance and their time of listing. NASI is calculated based on market capitalization rather than the price movement s of the counters, meaning that it reflects the total value of all listed companies at the NSE. Prices are based on last trade information from NSE's Automated Trading System

1.2 Research Problem

According to Fama's Efficient Market Hypothesis (EMH) the market price of a security reflects all information. As a result, one cannot consistently earn increased returns on the basis of price change predictions made on the basis of a correlation between past prices and future stock prices. Stock prices move randomly and any predictable price change or observable patterns are called anomalies. Research have been carried out to uncover many anomalies in the market including:

Friday effect, day of the week effect, Halloween indicator, good weather effect, daylight savings time, January or month of the year effect, good mood effect, geographical distance, winning home-team effect, and presidential elections effect. January effect is the phenomenon of company stocks to generate more return than other asset classes and market in the first two to three weeks of January.

The NSE is currently considered one of the biggest stock markets in Africa. It is the most developed in the East African region. There has been a significant growth in the number of companies quoted at NSE; the government have divested from most of its companies that it held more than 50% shareholding through IPO's. Private companies have not been left behind in quoting their shares at the NSE. During the period January 2000 and December 2012, 10 IPO's have been witnessed in the primary equities market raising the value of the market by more than Ksh.72 billion.

The Nairobi Securities Exchange (NSE) has made various changes to its market microstructure, especially the introduction of an automated trading system. To enhance easier trading and efficient usage of this system it also initiated demutualization of all shares. This involves conversion of all share certificates previously held by shareholders to electronic shares deposited in a CDSC account.

This has triggered a need for investigation of existence of any market anomalies in this market. The aim is to assist the NSE and the Capital Markets Authority to establish laws and regulations based on empirical evidences. This would ensure that those investors taking advantage of any anomalies would do it within the law. This study investigated the existence of January effect at NSE. This anomaly has been reported in some other stock markets in the world.

For example, Rozeff and Kinney (1976) present evidence of the existence of seasonality in monthly rates of return. This research was made on the New York Stock Exchange between 1904 and 1974 and shows significant differences in mean returns among months. This difference is most significant in January where Rozeff and Kinney found a 3% higher average return compared to other months. The test was conducted in the American market, later Berges, McConnell and Schlarbaum presents evidence on the Canadian market. Also Gultekin and

Gultekin (1983) reports international evidence of seasonality's, mainly a "January effect" and therefore makes this a global issue.

Keim (1983) reports that the "January effect" is more significant for small firms and the excess return is mainly in the first week of January (Keim, 1983, p.13). . The other months, February through December, do not significantly differ between sizes of companies. This is the base of the "small-firm-in January effect" where many later studies have been made. This and further studies have made the "January effect" largely a small cap phenomenon.

King'ori (1995) examined whether NSE exhibits monthly and quarterly seasonalities and found that the mean stock returns are equal over all the months and quarters tested. She did not find existence of January effect.

Previous research on January effect has concentrated exclusively on developed economies. The few existing studies in developing economies pay little attention to the emerging equity markets of Africa. In fact very few researches have been done on Nairobi Securities Exchange. The ones that have been done have given mixed results on existence of this anomaly. This has left industry players wondering whether January effect exists in NSE. The question that is frequently asked is whether January effect phenomenon is present in NSE. It is therefore vital to extensively study and analyze this gap to enable the players make informed decisions that will benefit them to a great extent. The question that this study sought to answer was; Does January effect exist in NSE?

1.3 Objectives of the Study

1.3.1 General Objective

To examine the existence of the January effect at the Nairobi Securities Exchange.

1.3.2 Specific Objectives

1. To investigate whether January effect exists at the NSE using the N20I
2. To investigate whether January effect exists at the NSE using the NASI

1.4 Value of the Study

This study will be of benefit to the following groups:

Investors – any rational investor takes into account several parameters when making investment decisions. This study is important in assisting the investor to know the best month to sell, buy or hold his stocks. If January effect exists in NSE market, then stocks can be purchased in December and sold off in January to earn high returns.

Government – as a regulator the government should put into consideration the January effect when formulating policies affecting companies.

Stock brokers and dealers - these would require any crucial information that may enable them know when to trade and maximize on their returns. This study provides crucial information as to whether December is the best month to buy stocks and sell them in January. It also informs on which month is best to sell, buy or hold stocks in the NSE.

Management – management is charged with the responsibility of day to day running of companies. Their decisions and policies may be affected positively or negatively by seasonality on the company stocks.

Academicians – this study can be used as a basis for further research on this subject. It also adds knowledge in the finance discipline.

CHAPTER TWO

LITERATURE REVIEW

2.1: Introduction

This chapter discusses literature reviewed on the theories that relate to the January effect. As well, empirical studies and general literature relating market anomalies are discussed. The chapter ends with a conclusion giving a summary of inferences discussed.

2.2 Review of Theories

2.2.1 Efficient Market Hypothesis

The father of the efficient market hypothesis Eugene Fama (1970) first defined the term efficient market in his groundbreaking study as "a market in which prices always fully reflect available information" The efficient market hypothesis predicts that security prices follow a random walk and it should be impossible to predict future returns based on publicly available information. This means that an efficient market is one where all unexploited profit opportunities are eliminated by arbitrage.

2.2.1.1 Random Walk Hypothesis

The random walk hypothesis is closely connected with the efficient market hypothesis. This hypothesis states that stocks move randomly, because the stock markets are efficient. Thus, the random walk hypothesis is a direct consequence of the efficient market hypothesis. The random walk hypothesis was introduced by Kendall (1953) and it was later confirmed by Fama (1965). The term 'random walk' was further popularized by the 1973 book, A Random Walk Down Wall Street (Malkiel, 1973).

Walter Enders (2004) defines random walk as a cumulative sum of a white noise process.
Whereas white noise is a sequence of random variables $\{ \varepsilon_t \}$ such that

$E(\varepsilon_t) = E(\varepsilon_{t-1}) = \ldots = 0;\ E(\varepsilon^2_t) = E(\varepsilon^2_{t-1}) = \ldots = \sigma^2$ *and* $E(\varepsilon_t, \varepsilon_{t-s}) = E(\varepsilon_{t-j}, \varepsilon_{t-j-s})$ for all *j* and *s*, consequently the random walk is defined as $\rho_t = \Sigma\, \varepsilon_t$ *where* $p_t = lnP_t$. However, it is generally accepted that stock market returns do not have a zero mean and are heteroskedastic. Therefore, the time path of stock prices is more appropriately specified by a random walk plus drift model, where $\{\varepsilon_t\}$ is heteroskedastic $E(\varepsilon_t^{2)} = \sigma_t^2$. This model can be defined as $\rho_t = \alpha.t\, \Sigma\, \varepsilon_t$ or after taking first differences $\rho_t = \alpha + \varepsilon_t$.

Under the random walk hypothesis, there is no seasonality in stock prices, because the stock prices are completely random. Let us have a model treating any kind of seasonality by using dummy variables $R_{it} = \alpha_t + \delta_{1t} D_{1t} + \delta_{2t} D_{2t} + \delta_{3t} D_{3t} + \ldots + \delta_{kt} D_{kt} + \varepsilon_t$ If the random walk hypothesis holds, any such model must have all the parameters referring to the seasonality equal to zero. The only non-zero parameter should be the constant term, which is the drift.

2.2.1.2 Forms of Market Efficiency

Relevant information includes past information, publicly available information and private information. On the basis of relevant information efficient market is divided into three stages, weak form, semi strong form and strong form. In weak form of EMH, all the past information including past prices and returns is already reflected in the current prices of stocks (Bodie et al. 2007).The assumption of weak form is consistent with random walk hypothesis i.e. stock prices move randomly, and price changes are independent of each other. So if the weak form holds, no one can predict the future on the basis of past information. And no one can beat the market by earning abnormal returns. Therefore, the technical (trend) analysis, in which analysts make the chart of past price movements of stocks to accurately predict future price changes, is of no use (Bodie et al. 2007). However, one can beat the market and get abnormal returns on the basis of fundamental analysis or on the basis of private information (insider trading).

In the semi strong form, current stock prices reflect all publicly available information as well as past information. So no one can make extra profit on the basis of fundamental analysis (Bodie et al. 2007). However, one can beat the market by insider trading. In the strong form of market efficiency, all relevant information including past, public and private information is reflected in

the current stock prices. So if the strong form persists, then no one can beat the market in any way, not even by insider trading (Brealey et al.)

2.2.2 Tax-loss Selling (TLS) Theory

TLS as defined by Barron in 1991 consist in "selling of securities, usually at year end, to realize losses […] which can be used to OFFSET capital gains and thereby lower an investor's tax liability." Therefore, it represents the tendency of investors to sell securities whose value has declined through the year in order to minimize the fiscal tax liabilities, which would affect the individual income. Vice versa, investors hold stocks whose value has grown through the holding period and wait until after year-end to sell it. This is due to the method of tax calculation according to which capital gains and losses are recognized only when realized, therefore after their sales. Moreover, mutual consent suggests that "an immediate tax deduction is preferred to a deferral". The latter strengthen the decision to sell the "loser" assets and keep the appreciated ones. In addition, even if individuals are not naturally into the idea of realize loss, they might be pushed to it by the taxation benefits. Considering the market, if all investor would take this attitude, there will be an increase of offers of losing asset, whose quotation will plummet. When the New Year starts in January, the investors repurchase the stocks, driving up their prices and producing abnormally high returns.

In support of TLS, Reinganum (1983) argues that the prices of firms (in NYSE) which have previously declined in price will decline further in the later months of the year as owners sell off the shares to realize capital losses. Then, after the New Year, prices bounce up in the absence of selling pressure. It must be stressed that this argument is not based on rational behaviuor by all market participants. In fact Richard Roll (1983) calls the argument "patently absurd". He points out that even if some investors were motivated by taxes to trade in this manner other investors could buy in anticipation of excess returns in January. While Roll describes the hypothesis with obvious scorn, Reinganum finds some evidence consistent with it. He reports that stocks with negative returns over the previous year have higher returns in January.

Jones, Lee & Apenbrink (1991) tested the hypothesis on the Cowles Industrial Index before and after 1917, when a personal income tax was introduced. The conclusion they arrived at was that

whereas the January effect was not significant for the period before 1917, it proved significant for the latter period, thus the January effect was related to income taxation. Their finding is also supported by Sias and Starks (1997), and Poterba and Weisbenner (2001). They present evidence consistent with the TLS hypothesis. Chen and Singal (2004) present a comprehensive study of several explanations and find evidence in favor of the tax-loss selling hypothesis and little or no evidence for the other hypothesis.

Some economists also suggest that while taxes seem relevant to the January effect, they are not the entire explanation. First, the effect is observed in Japan where no capital gains or loss offsets exist (Kato and Schallheim, 1985). Second, Canada had no capital gains tax before 1972, yet did have a January effect before 1972 (Berges, McConnell, and Schlarbaum, 1984). Third, Great Britain and Australia have January effects, even though their tax years begin on April 1 and July 1, respectively. (Still, returns are high in April in Great Britain, and in July in Australia, so taxes do seem to be part of the story).

Other opponents of this hypothesis argue that tax-loss does not explain why institutional investors such as private pension funds, which are not subject to income taxes, do not take advantage of the abnormal returns in January and buy stocks in December, thus bidding up their price and eliminating the abnormal returns. Although most evidence supports the tax-loss selling hypothesis the discussion still remains open.

2.2.3 Window Dressing Hypothesis

Window-dressing refers to fund managers selling shares at the end of the year that have declined sharply in value and buying them back at the beginning of the new year.
According to this hypothesis, the market anomaly is due to an extraordinary and unusual approach of institutional investors to markets. Anomalies due to this motivation are evident every time funds and institutional investors have to show annual or interim results.

Lakonishok et al. (1991) find that in every quarter, funds sell poorly performing stocks and that this pattern accelerates in the fourth quarter. It is generally accepted and there are empirical

evidences that at the end of each quarter there is an increase in trading volumes, especially with reference to those operations in which more than 10,000 shares are involved.

Managers of investments funds are believed to do all the best in the last days before the publication of the results as better looking portfolio attract additional cash to be invested which is translated in higher salaries and bonuses for managers. There following are some of the tricks that money manager can use in order to better appear in the window dressing;

First, marking up the merchandise also known as “Painting the tape”: it consist in buying or placing orders, through an untrustworthy broker, upon small thinly traded firms’ stocks in the last trading hours. This will generate attention around the event and it will drive quickly quotation up. If the fund already owns a number of those shares, a significant rate of return is almost surely achievable.

Second, dumping the losers also known as “Positive feedback trading”: as the end of the quarter gets closer, management, start selling losing stocks in order to seem better off the market and to hold a winning strategy.

Third, hiding the risk: getting closer to the end of the quarter participation in small firms are sold in higher quantities than in normal times. This is consistent with their higher potential for high return but a higher risk as well. Managers tend to sell those shares in order to reduce the risk exposure index that has to be included in the report.

Lastly, tricking the technicians: bidding up prices of some stocks for which analyst expect certain price levels. Then just wait until technicians get excited for the achieved price level and hope this will stir investors up and see prices rising even further.

The peculiarity of this effect is that is it is believed to gain more importance in the next years and to be hardly fixable.

However, Chen and Singal (2004) argue that if window dressing drives the January effect, a similar pattern should exist during other quarters. They study the June through July period and conclude that window dressing does not cause the January effect.

2.2.4 Increased Liquidity at the end of the Year Hypothesis

Ligon (1997) found that January effect is due to large liquidity in this month. According to him there are higher January volume and lower interest rates correlates with greater returns in January. Ogden (1990) argues that the substantial increase in business activity near the end of the calendar year results in greater profits in December and the corresponding increase in liquidity in January put upward pressure on stock prices. This liquidity hypothesis does not explain why the January effect exists primarily among small stocks as greater profits would presumably cause the entire market to increase. Further, both the liquidity and window-dressing hypotheses are subject to Roll's critique that the market should exploit such obvious mispricing.

2.2.5 Intergeneration Transfer Hypothesis (ITH)

Referring to the intergenerational transfers' hypothesis (ITH), two different concepts can apply. Since 1942, Wachtel pointed out that the request of liquidity could be an explanation for January effect. This kind of explanation was collected under the intergenerational transfers' hypothesis as the liquidity request was coming up during Thanksgiving and Christmas time, when people tend to need liquidity to buy gifts. In this gift-giving period investors tend to incur an increase of liquidity need and therefore sell assets. The transfers of wealth are normally from older in the direction of youngest people. Generally older people tend to invest in less risky securities while younger tend to choose riskier assets. Changes in allocation of funds between these two categories of market will have big impact on the market. Considering these movements of funds, it is clear that disinvesting funds from large value-weighted companies will not have a big impact on the securities' quotation, but it will on small firms. Furthermore, there is a different grade of transparency and efficiency that characterizes the two sub-markets. Therefore even if the January effect may apply to both the categories it will be easier to detect in less capitalized businesses, characterized by few trading activity rather than in large companies.

In 1993, Gamble studied much closer this hypothesis and got some empirical results. However, not all economists headed to similar results: some estimated ITH responsible for 80% of January effect while others figured out that ITH might be responsible for less than 25%. Moreover, he realized that consistent with time flowing, as baby boomers get older the January effect gains much more importance making ITH more substantial. According to Kotlikoff, many contemporary retirees realize to have accumulated during the working years amounts that exceed either their needs or their willingness to spend it. Therefore, in recent years there has been a growth of number of transfers of wealth from older to the youngest generation.

2.2.6 Seasonal Information Flows (SIF)

For most of the firms, fiscal and calendar year are coincident. This means that in January there is an incredible unusual amount of accounting information available on the market. In other words, the SIF hypothesis relates the extra returns to a higher availability of accounting information in the market if compared to that of all the other months of the years. The way in which this information is captured by investors depends on the market efficiency. Empirical findings demonstrated that institutional investors' reaction to the publication of this kind of information is much quicker than those of small and individual investors suggesting that markets are not perfectly efficient. This indifference may be consistent with CAPM misspecification. There are no direct empirical evidences that insider trading information led to extra returns however, it can be approximate to SIF, for which evidences have been found.

2.2.7 Market Microstructure Effects

Keim (1989) shows that there are systematic tendencies for December closing prices to be recorded at the bid and January closing prices to be recorded at the ask, a pattern that may contribute to the January effect. Later studies, though, such as Jones et al. (1991), Poterba and Weisbenner (2001), and Chen and Singal (2004), explicitly account for this market microstructure issue and still find a January effect.

2.2.8 Investor Psychology

Some analysts argue that investor psychology may cause the January effect. Shiller (1999), for example, links the January effect to the tendency of individuals to place particular events into

mental compartments: “If people view the year end as a time of reckoning and a new year as a new beginning, they may be inclined to behave differently at the turn of the year, and this may explain the January effect.” Economics experiments are an ideal environment to test whether psychological effects alone can generate higher prices in January than in December because the fundamental explanations of the January effect discussed above can be controlled in the laboratory.

2.3 Financial Market Anomalies

Literary meaning of an anomaly is a strange or unusual occurrence. The word anomaly refers to scientific and technological matters. It has been defined by George & Elton (2001) as irregularity or a deviation from common or natural order or an exceptional condition. Anomaly is a term that is generic in nature and it applies to any fundamental novelty of fact, new and unexpected phenomenon or a surprise with regard to any theory, model or hypothesis (George & Elton 2001). Anomalies are the indicator of inefficient markets; some anomalies happen only once and vanish, while others happen frequently, or continuously. (Tversky & Kahneman 1986) defined market anomalies as “an anomaly is a deviation from the presently accepted paradigms that is too widespread to be ignored, too systematic to be dismissed as random error and too fundamental to be accommodated by relaxing the normative system”.

While in standard finance theory, financial market anomaly means a situation in which a performance of stock or a group of stocks deviate from the assumptions of efficient market hypotheses. Such movements or events which cannot be explained by using efficient market hypothesis are called financial market anomalies (Silver 2011). Anomalies can be divided into three basic types;

1. Fundamental anomalies
2. Technical anomalies.
3. Calendar or seasonal anomalies.

2.3.1 Calendar Anomalies

Calendar anomalies are related with particular time period i.e. movement in stock prices from day to day, month to month or year to year. Some of the main calendar anomalies have been identified as follows;

2.3.1.1 Day of the Week / Weekend Effect

This effect entails the difference in return of days in week. The findings have been lowest returns on Monday and exceptionally high return on Friday than other days of week (Hess 1981). Largest variance on Monday and lowest is on Friday. There is mixed findings on it. Dubois & louvet (1995) found that in European countries, Hong Kong and Canada lower return for beginning of week but not necessarily on Monday. Agrawal & Tendon (1994) found that out of 19 countries there are negative Monday returns in nine countries and negative Tuesday return in eight countries. Also the Tuesday returns are lower than Monday returns in those countries. Negative Monday and positive Friday effects are not observed in Indian market (Kumari).It was found that Tuesday returns are negative in Indian markets, while the Monday returns were significantly greater than other days. It was because of settlement period in India i.e. 14 days period that starts on Monday and ends at Friday. Agrawal & Tendon (1994) concluded in the findings that weekend effect is present in the half of the countries. While in the other countries the lowest return are on the Tuesday.

2.3.1.2 Intra-monthly Anomaly

Ariel (2002) observed monthly return in United States stock index return. It was found that stocks earn positive average return in beginning and first half of month and zero average return in second half of month. Weak monthly effects have been observed in foreign countries (Jaffe & Westerfield 1989). Australia, United Kingdom and Canada showed same pattern as Ariels found in United States while Japan had opposite effect. Australia and Canada had positive monthly effects while Japan market had negative monthly effects (Boudreau, 1995). Boudreau (1995) extended Jaffe & Westerfield (1989) results and observed monthly effects in Denmark, France, Germany , Norway, Switzerland and negative effect is founded in Asian pacific basin market of Singapore/Malaysia. According to Hensel (2011) cause of occurrence of higher short-term equity return anomalies i.e.Cash flow increased just after and before specific period causes anomalous return, Behavioral constraints as investors feeling and emotions that leads towards sale and purchase of specific equities. Timing constraints like delay in unfavorable reporting, and Slow react of market towards new information

2.3.1.3 Turn of the Month effect

According to this calendar anomaly the mean returns in early days of the month are higher than other days of the month (Nosheen et al. 2007). Cadsby & Ratner (1992) studied turn of the month effect for USA, Canada, Switzerland, Germany, UK and Australia while no such effect they found in Japan, Hong Kong, Italy and France. Nosheen et al. (2007) reported Turn of the month effect in KSE of Pakistan and stated that turn of the month effect and time of the month effect is almost same. While turn-of- the- month effect which is the large returns on the last trading day of the month is found in fourteen countries (Agrawal & Tandon 1994).

2.3.1.4 Turn of the Year Effect

This anomaly describes the increase in the prices of stocks and trading volume of stock exchange in the last week of December and the first half month of January. According to Agrawal & Tandon (1994) the possible reason of the year end effect is attributed to window-dressing and inventory adjustment by institutions and pension fund managers.

2.3.1.5 January Effect

This is the phenomenon of company stocks to generate more return than other asset classes and market in the first two to three weeks of January.

Ligon (1997) found that January effect is due to large liquidity in this month. There are higher January volume and lower interest rates correlates with greater returns in January.

According to watchel (1942) there are higher returns on Monday than other months in year. Rozeff & Kinney (1976) found that in New York exchange average return is 3.5% than other months 0.5% in period 1904 to 1974.The general argument is that January effect is due to tax-loss hypothesis investors sell in December and buy back in January. Keong (2010) concluded that most of the Asian markets exhibit positive December expect Hong Kong, Japan, Korea and china. Few countries also exhibit positive January, April and may effect and only Indonesia exhibit negative august effect. January effect is due to tax loss saving at the end of the tax year, portfolio rebalancing and inventory adjustment of different traders and the role of exchange specialist (Agrawal & Tandon 1994).

2.3.1.6 Holiday Effect

This is the phenomena where abnormally high returns are reported on the trading day before a holiday.

Chong et al. (2005) examined pre holiday effect across three important markets of the world i.e. U.S, U.K and Hong Kong, for the period 1973 - 2003. S&P 500, FT 30 and Hang Seng indices were used for U.S, U.K and Hong Kong markets respectively. The results provided a strong evidence for the existence of the pre holiday effect in all the three indices, effect being most significant for U.K and Hong Kong indices. It was found that the average of the returns on the days specifically before a certain holiday was more than the average of the returns on other non pre holidays. Another test was also conducted to analyze if this anomaly persists or has declined over the years in these three markets. Time series regression analysis was used for deriving results and a declining pre holiday effect was witnessed in the U.S market specifically in the 1990s. The decline was not that evident in the other two markets i.e. U.K and Hong Kong.

Al-Loughani (2005) investigated the presence and causes of holiday effect on stock returns in the Kuwait stock exchange (KSE). The general daily stock index published by the Global Investment House was the data used. The time period under study was from 1984-2000. The holidays considered for the study were those that were declared by the government and that involved closure of the stock market.

The data was split into two sub periods which were: the pre invasion period which was from 1984-1990 and the post liberation time period which was from 1993-2000. Returns during the trading days right before any specific holiday and the rest of the trading days of the year during the two sub periods were compared. T-statistics, Mann-Whitney test and Kruskal Wallis test were conducted on the data to obtain results for analysis. It was apparent from the tests that there wasn't any noticeable difference between the two sub periods , thereby indicating that holiday effect does not exist in the KSE.

A further analysis using Kruskal Wallis test was also done to determine if there was any particular pattern of returns observed during the time surrounding the holidays and it was revealed that the returns on post holidays were higher than the returns on pre holidays or other

trading days of the year. The reason quoted in the paper was that the investors engage in selling before the holidays and right after the holidays they develop their investment portfolios again.

2.3.1.7 Presidential Election Effect

This anomaly describes the change in the prices of stocks and trading volume of stock exchange in the presidential election period. For example, Nippani and Medlin (2002, Journal of Economics and Finance) studied the impact of the delay in the declaration of a winner in the US Presidential Elections of 2000 on the performance of stock markets (S & P 500, DJI, and NASDAQ). There was a significant initial negative reaction to the delay in the election results. The reaction was for only 4 days and most negative reaction was noticed immediately after the delay occurred. The market adjusted for the delay after that (confirming the market efficiency concept).

2.3.2 Fundamental Anomalies

Fundamental anomalies are those that can be based on companies' fundamentals. Some of the main fundamental anomalies have been identified as follows;

2.3.2.1 Value Anomaly

Value anomaly occurs due to false prediction of investors. They overly estimate the future earnings and returns of growth companies and underestimate the future returns and earnings of value companies.

According to Graham & Dodd (1934) value strategies outperform the market. In value strategies the stocks that have low price relative to earning, dividend, historical prices are buy out. The value stocks perform well with respect to growth stocks because of actual growth rate or sales of growth stocks are much lower than value stocks. But market overestimates the future growth of growth stocks (Lakonishok 2002; Shleifer et al. 1993).Individual investors overestimate because of two reasons. Firstly they make judgment errors and secondly they mainly focus upon past performance or growth although that growth rate is unlikely to persistent in future. But institutional investors are free from judgmental error but they prefer growth stocks because sponsor prefer these companies who outperformed in past (Lakonishok 2002; Shleifer et al. 1992).Another factor that why money managers prefer growth stock over value stocks because of

time horizon individuals prefer stocks that earn abnormal return within few months rather than to wait for a month (Shleifer et al. 1993) Some researchers are of the point of view that superior performance of value stocks are due to its riskiness.But according to Lakonishok (2002) value stocks are not more risky than growth stock based on indicators like beta and return volatility. According to them growth stocks are more affected in down market than value stocks.

2.3.2.2 Price to Book Value Anomaly

Stocks with low price to sales ratio tends to outperform than market averages. Companies may face the earning difficulties eventually the prices decline. A decline in sales is more serious than decline in earning. If sales holds up management can recover the earning difficulties, causes a rise in stock price and if sales decline than the stock price will be affected (Web page Market Anomaly)

2.3.2.3 Price to Earnings Ratio Anomaly

The stocks with low price to earnings ratio are likely generate more returns and outperform the market, while the stocks with high price to earnings ratios tend to underperform than the index.
It refer to that stocks with low P/E ratio earn large risk adjusted return than high P/E ratio because the companies with low price to earnings are mostly undervalued because investors become pessimistic about their returns after a bad series of earning or bad news. A company with high price to earning tends to overvalued (De bondt & thaler 1985).

2.3.2.4 High Dividend Yield

Stocks with high dividend yield outperform the market and generate more return. If the yield is high, then the stock generates more return. Numerous studies have supported this idea that high dividend yield stock outperforms the market than the low dividend yield stocks. According to Yao et al (2006) stocks with high dividend yield and low payout ratio outperform than the stocks with low dividend yield.

2.3.2.5 Ex-dividend Anomaly

According to Sabet et al Ex-dividend anomaly is characterized by abnormal return on that date. They found evidence that there is negative and non-significant return on ex-dividend date and there is positive and significant return on day before the dividend day payment.

2.3.2.6 Small Firm Effect

This is where small firms have higher returns on average than larger firms. Such anomaly would affect the pricing of capital assets. Researchers have given different explanations to answer such anomaly. First, Kiem (1983) has shown that half of the small firms effect occurs in January. The reasoning he gives is that investors sell securities at the end of the year to establish short-term tax losses for tax purposes. Roll (1987) tested this hypothesis and found that January effect cannot be fully explained by tax-loss selling. Secondly, Banz (1981) argued that the lack of information about small firms could cause certain investors to exclude them from their portfolios. This would lead to a higher risk adjusted returns for the undesirable small firms. After identifying the importance of size as a factor for pricing an asset in Fama and French (1995), they extended their work to find the relationship between size and firm earnings. They found that small firm effect is relevant and small firms have stronger earnings than large firms.

2.3.2.7 Over or Under Reaction of Stock Prices to Earnings Announcement

This refers to the effect that announcement of earnings in quoted companies has on their securities. Loser stocks overreact to market than winner stock because overreaction effect is much large for loser than winner stocks (De bondt & thaler, 1985).

2.3.2.8 Neglected Stocks

Neglected stocks are those stocks which are not actively traded in any market. Research has shown that prior neglected stocks generate more return subsequently over a period of time. Further, it has been reported that the prior best performers consequently underperform than the market index in the long run.

2.3.3 Technical Anomalies

"Technical Analysis" includes a number of analyzing techniques used to forecast future prices of stocks on the basis of past prices and relevant past information. Commonly technical analysis use techniques including strategies like resistance support, as well as moving averages. Many researchers like Bodie et al. (2007) have found that when the market holds weak form efficiency, then prices already reflected the past information and technical analysis is of no use. So the investor cannot beat the market by earning abnormal returns on the basis of technical analysis and past information. But here are some anomalies that deviate from the findings of these studies.

2.3.3.1 Moving Averages

This is an important technique of technical analysis in which buying and selling signals of stocks are generated by long period averages and short period averages. In this strategy buying stocks when short period averages raises over long period averages and selling the stocks when short period averages falls below the long period averages.

2.3.3.2 Trading Range Break

This technique of technical analysis is based upon resistance and support level. A buy signal is created when the prices reaches at resistance level, which is local maximum. As investor wants to sell at peak, this selling pressure causes the resistance level to breakout than previous level. This breaks out causes a buy signal. A selling signal is created when prices reaches the support level which is minimum price level. Thus technical analysis recommends buying when the prices raises above last peak and selling when prices falls below last trough. But this strategy is difficult to implement.

2.4 Review of Empirical Studies

Rozeff and Kinney (1976) first examined the January pattern using New York Stock Exchange (NYSE) stocks for the period 1904 to 1974 and find that average return for the month of January was 3.48% compared to only 0.42% for the other months. Keim (1983) employed the same data set for the period 1963-79 and find that nearly 50% of the average magnitude of risk-adjusted

premium of small firms relative to large firms is due to the January abnormal returns. Further, more than 50% of the January premium is attributable to large abnormal returns during the first week of trading in the year.

Branch (1977), Dyl (1977), Reinganum (1983), Haugen and Jorion (1996), Mehdian and Perry (2002) also confirmed existence of the January effect in the U. S. stock markets. Schwert (2003) concluded that the January effect weakened in the period from 1980-2001, but that it still existed. Moosa (2007), using monthly average returns of the U.S. stocks for period of 1970 to 2005, showed that a significant January effect existed except for the period 1990-2005 where negative July effect dominated. Mehdian and Perry (2002) reported that while January mean returns are positive in U.S. stock markets, they are not statistically significant after the 1987 U.S. stock market crash. Lindley, Liano and Slater (2004) demonstrated that many years during the period 1962-2000 did not have a significant January effect and that some years had a negative January effect.

Gultekin and Gultekin (1983) looked at the seasonal pattern in sixteen countries and found tha January returns were exceptionally large in fifteen of them. In fact, the effect in the United States is smaller than in many other countries. In Belgium, the Netherlands and Italy, the January return exceeds the average return for the whole year. However, in UK an April effect is present, and with the exception of Australia the January anomaly coincides with turn of the year. This international evidence of "January effect" made it a global issue and prompted other researches to be carried out outside US. Kato and Shallheim (1985) examined excess returns in January and the relationship between size and the January effect for the Tokyo Stock Exchange. They find no relationship between size and return in non-January months. However, they find excess returns in January and a strong relationship between return and size, with the smallest firms returning 8% and the largest 7%.

Wong et al. (2006) also analyzed the January effect inherent in the Singaporean stock market. Tests of January effect revealed that during the pre crisis period the average returns in January were higher than the average returns for the rest of the year, difference however not being very

noticeable. Average daily returns for the Straits times index were negative for the entire time period under consideration, depicting a vanishing January effect in the later years.

Ariss et al. (2011) also inquired about the January anomaly in the Gulf Cooperation Council (GCC) indices. Avery interesting pattern of returns that was observed in the GCC indices was that instead of January, high, positive and significant returns were obtained in the month of December. These returns were also significantly higher than the returns on all the other months of the year. Therefore, it was concluded that GCC countries had a December effect instead of January effect as in other markets of the world.

Boudreaux (1995) employed the Global stock indices (indexes reported by the Morgan Stanley Capital International) to investigate the monthly seasonality in seven countries. The results indicate a positive monthly effect for Denmark, Germany and Norway stock markets. A significant negative effect was found in Singapore/Malaysia. Further investigation indicated that the monthly effect is either confounded or manifested by the January effect.

Haug and Hirschey (2006) reviewed the January anomaly for large cap and small cap stocks by examining the value weighted and equal weighted returns. They also tested the existence of this anomaly for small cap stocks after the progression of the Tax Reform Act of 1986. Causes for January effect were identified as well by exploring the Fama and French's (1993) size, book to market and momentum factors.

Using daily DSE composite index data from December 1988 to November 2001, Chowdhury (2005) found turn of the year effects for both traditional (English) and the financial year in Bangladesh. He found that the first day of January produces on average 0.45491% return per day (or, 125% annual return).

Others studies that have supported January effect include; Berges, McConnell and Schlarbaum reported the January effect on the Canadian market using data for the period 1951 – 1980. Fama (1991) reports the results of the S&P 500 for the period 1941-1981. In this period, small stocks averaged a return of 8.06% in January. Large stocks managed a return of 1.342%. In Asian markets Nassir and Mohammad (1987) and Pang (1988) find support for the existence of a

January effect in Malaysia and Hong Kong respectively. January effect has also been detected in U.K. (Mills & Coutts, 1995), Greece (Mills, Siriopoulos, Markellos & Harizanis, 2000), Chile, Greece, Korea, Taiwan and Turkey (Fountas & Segredakis, 2002), India (Pandey, 2002), Sweden (Hellstrom, 2002), Nepal (Bahadur & Joshi, 2005), Poland, Romania, Hungary and Slovakia (Asteriou & Kovetsos, 2006), Argentina (Rossi, 2007).

Paul Alagidede (2012), examined the month of the year and the pre-holiday effects, and their implications for stock market efficiency in the biggest markets in Africa. He used monthly market indices for the markets namely; NSE All Share Index for Nigeria, N20I for Kenya, Tunnindex for Tunisia, MASI index for Morocco and FTSE/JSE All Share index, CASE30 Share Index and ZSE Industrial index for South Africa, Egypt and Zimbabwe respectively. The January seasonality is evident in Egypt, Nigeria and Zimbabwe. There is a February effect for Morocco, Kenya, Nigeria and South Africa. The hypothesis that returns for all months are equal can be rejected for Egypt, Nigeria and Zimbabwe. For four markets (Morocco, Kenya, Tunisia and South Africa) there is insignificant variation between monthly returns, and none of them exhibit any January seasonality. These results contrast with those of Claessens et al. (1995), who find no evidence of a month of the year effect for Zimbabwe.

Limited studies have been carried out on the NSE. These have given mixed results on existence of this anomaly. Muragu (1990) examined the price movements at the NSE. His focus was on the level of market efficiency in the stock market. The study found out that the random walk holds for the NSE, which implies that there is no systematic pattern in the price movements and future prices are independent of past prices. This was supported by King'ori (1995) who examined whether NSE exhibits monthly and quarterly seasonalities and found that the mean stock returns are equal over all the months and quarters tested. She did not find existence of January effect.

John (2012) also investigated the presence of seasonal effect in stock returns at NSE. The study included 50 companies listed in the NSE as at December 2011. Using simple regression and correlation analysis, she concluded that January effect had no significant relationship with the stock returns at the NSE.

In contrast to the above researches on NSE, Onyuma (2009) studied month of the year effect at NSE from 1980 to 2006. He found that January had the largest positive returns thus confirming a January effect. Nyamosi (2009) also reported existence of his effect in this market. He used regression analysis from which negative coefficients were generated confirming higher returns in January than the other months.

Their findings were later supported by Allan and George. In their paper on Stock Market Anomalies in the NSE Allan & George (2013) examined the NASI and N20I for a period of 12 years up to 2011. Using t-test and F-test they found that the coefficients of July, September and January were significant at 5% level. Therefore, they reported that monthly effect exists in NSE. They further reported that the return in December month is generally lower and in January month higher, as compared to return for other months.

It should be noted that it is not only in Kenya where conflicting results have been reported. For instance, January effect in Jordon (Maghayereh, 2003), Greece (Flores, 2008), Brazil, Chile and Mexico (Rossi, 2007) wasn't detected. Paul and Theodre (2006) examined calender anomalies in Ghana stock market. They found an April effect for Ghana stock prices contrary to the usual January effect. Further, Yakob, Beal and Delpachitra (2005) examined seasonal effects in ten Asian Pacific stock markets, including the Indian stock market, for the period January 2000 to March 2005. They state that this is a period of stability and is therefore ideal for examining seasonality as it was not influenced by the Asian financial crisis of the late nineties. Yakob, et al., concluded that the Indian stock market exhibited a month-of-the-year effect in that statistically significant negative returns were found in March and April whereas statistically significant positive returns were found in May, November and December. Of these five statistically significant monthly returns, November generated the highest positive returns whereas April generated the lowest negative returns.

Patel and Evans (2003) investigated seasonal patterns in the stock markets of the seven most industrialized (G7) nations. They examined seasonality for the period from January 1960 to December 2001, and found that, in all G7 countries, mean stock returns for December through

May were significantly greater than mean returns for June to November. They further demonstrated that this pattern was not related to the January effect.

2.5 Summary of Literature Review

The foregoing literature review reveals that most studies on January effect has concentrated exclusively on developed economies. The few existing studies in developing economies pay little attention to the emerging equity markets of Africa. In fact very few researches have been done on Nairobi Securities Exchange. The ones that have been done have given mixed results on existence of this anomaly. These studies have relied on company stock prices and none has relied on the indices at NSE. This has left industry players wondering whether January effect exists in NSE. Further, none of the researchers have attempted to model this anomaly in this market. The question that is frequently asked is whether January effect phenomenon is present in NSE. It is therefore vital to extensively study and analyze this gap to enable the players make informed decisions that benefits them to a great extent. The study used the two major indices (NASI & N20I) to examine the existence of the January effect in the Nairobi Securities Exchange. This study serves not only as an attempt to investigate existence of this effect but also to modeled January effect to provide an econometric framework which subsequent studies could use.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction:

This Chapter describes how the study was conducted, expounding on steps and procedures involved in Research Design, Study Population and sample, Sampling Method, Data Collection, Analysis. This chapter as well expounds on the data size and the data collection methods applied.

3.2 Research Design

This study was conducted using causal-comparative research design. According to Mugenda and Mugenda (2003), causal research explores the relationship between variables, that is, the effect of one thing on another and more specifically, the effect of one variable on another. Mugenda and Mugenda contend that causal-comparative research has the advantage of being relatively cheap and it was considered for the study so as to establish the existence of January effect and its relationship with market returns at the NSE. The study by Rozeff and Kinney (1976) presented evidence on the existence of seasonality in monthly rates of return on the New York Stock Exchange from 1904-1974. The research emphasized on the existence of seasonal anomalies and not the possible explanation of it. This research was of more interest for this study and since the study a casual-comparative research was used in the investigation, then this research design is replicated on this study due to the two studies similarities.

3.3 Population

The population of this study consisted of all companies listed in the NSE. There were 62 companies listed in the NSE as at December 2012 as shown in the appendix.

3.4 Data Collection

For the purpose of this study, Secondary data was be used. The daily closing prices of the two indices was obtained from NSE. The data under study was daily Nairobi Securities Exchange Twenty Share (N20I) and All Share Indices (NASI) for the period January 1997 to December 2012 and January 2008 to December 2012 respectively.

3.5 Data Analysis

This research focused on a 15-years basis from January 1997 until December 2012 for the N20I and 5-years period from July 2009 to August 2013 for the NASI. The data set that was used in testing the hypothesis consisted of monthly returns for the two indices. An already experienced regression model presented in 1983 by Gultekin and later in 1989 by Jaffe and Westerfield was adopted. The data was analyzed using the statistical package for the social sciences (SPSS) version 7.

To obtain the monthly returns, daily log returns in every month were calculated then these logs returns were added together for each month under consideration. The following formula was adopted in calculating the daily returns of NASI and N20I Indices;

$$R_t = In(\frac{P_t}{P_{t-1}})$$

Where:

R_t = Daily return of NASI or N20I at time t

P_t = Closing value of NASI or N20I at time t.

P_{t-1}= Closing value of NASI or N20I Index at time t-1.

The reasons to choose logarithm returns over general return are justified theoretically and empirically. Theoretically, logarithmic returns are analytically more tractable when linking together sub-period returns to form returns over longer intervals. Empirically, logarithmic returns are more likely to be normally distributed which is prior condition of standard statistical techniques (Strong, 1992).

To test the existence of January effect the following experienced regression model presented in 1983 by Gultekin and later in 1989 by Jaffe and Westerfield was adopted;

$$R_t = C + \alpha_{2t} D_{2t} + \alpha_{3t} D_{3t} + \alpha_{4t} D_{4t} + \alpha_{5t} D_{5t} + \alpha_{6t} D_{6t} + \alpha_{7t} D_{7t} + \alpha_{8t} D_{8t} + \alpha_{9t} D_{9t} + \alpha_{10t} D_{10t} + \alpha_{11t} D_{11t} + \alpha_{12t} D_{12t} + \varepsilon_t$$

$$R_t = C + \alpha_{2t} D_{it} + \varepsilon_t$$

C = Model Intercept

Where, R_t represent the stock market return in time t, the intercept C is the mean of January's Return, a_i stands for the difference between the mean of month i and January's mean (i = 2, 3, ..., 12), D_{it} are dummy variables which take value 1 if the return at time t corresponds to month i, otherwise 0, ε_t is an independent and identical distribution error term.

The goal of the regression was to understand whether there was any significant difference between returns in January and all other months, therefore the null hypothesis was that the all-dummy coefficients are equal to zero. Negative dummy coefficients turn shows evidence of extra returns reachable in January, hence evidence of January Effect. This hypothesis was tested at 5% significant level

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter shows findings of the study and discusses them in length. The study targeted the companies that are quoted at the NSE and are included in the NASI and N20I. Section 4.2 gives the descriptive analysis, Section 4.4 provides the regression anlysis and Section 4.5 is the interpretation of the findings.

4.2 Descriptive Analysis

Table 4.1 gives a summary of N20I average monthly returns for the 16 years (1997 – 2012) under study. January reported the highest average return of 0.73% which falls in the year 1997, further, this month reported the highest mean statistic of 0.06%. The month of February had the minimum average returns of -0.26% which falls in the year 2009. The lowest mean statistic was reported in March at – 0.23%.

Table 4.1 Descriptive Statistics (N20I Average Monthly Returns)

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
JANUARY	16	-.1444034	.7337043	.064622565	.0479936279	.1919745117
FEBRUARY	16	-.2566676	.0735529	-.013531726	.0183381005	.0733524020
MARCH	16	-.1363571	.1252749	-.023165636	.0176482391	.0705929564
APRIL	16	-.0636953	.1381598	.009585859	.0134971495	.0539885981
MAY	16	-.0772453	.1164397	.007744011	.0134087664	.0536350657
JUNE	16	-.0697155	.1440523	.012218613	.0137485142	.0549940567
JULY	16	-.0596187	.0368791	-.004154742	.0070027335	.0280109338
AUGUST	16	-.0959298	.0610046	-.018402803	.0111053784	.0444215135
SEPTEMBER	16	-.1061979	.1215935	-.005457792	.0142041570	.0568166279
OCTOBER	16	-.2105657	.0852961	.005968183	.0175526479	.0702105916
NOVEMBER	16	-.1057236	.1078286	-.004307437	.0148830075	.0595320301
DECEMBER	16	-.0471354	.1601930	.025545768	.0130056713	.0520226851
Valid N (list wise)	16					

Source: Research Findings

Table 4.2 gives a summary of the difference between Januarys' mean and mean of other months in the year corresponding to their dummy variables where D2t represents February; D3t represents March, up to D12t which represents December. August had the highest positive difference (0.04%) whereas October recorded the lowest compared to the other months.

The table also gives the mean of stock market returns in the years under study as 1.6% The lowest stock market returns reported was – 0.04% which falls in the year 2001. On the other hand the highest stock market return was 0.12% which was reported in the year 2008. This means that he market reacted positively after the post election violence in January 2008.

Table 4.2 Descriptive Statistics (N20I Excess over January returns)

	Mean	Std. Deviation	N
Rt	.001685113	.0112194211	190
D2t	-.000399340	.0062717527	190
D3t	-.000468331	.0063522044	190
D4t	-.000115522	.0056308860	190
D5t	-.000306708	.0048715502	190
D6t	-.000200737	.0039734194	190
D7t	-.000191909	.0046469356	190
D8t	.000046006	.0048933744	190
D9t	-.000165890	.0050511865	190
D10t	-.000732691	.0062945981	190
D11t	-.000148764	.0050206692	190
D12t	-.000639199	.0059264365	190

Source: Research Findings

Table 4.3 gives a summary of NASI average monthly returns for the 3 years (2010 – 2012) under study. January reported the highest stock market return of 0.09% whereas August reported the lowest returns of – 0.10% in the years 2010 and 2011 respectively. However, the differences among the monthly stock market returns as reported by NASI are not large with the mean ranging from -0.04% in December to 0.05% in April.

Table 4.3 Descriptive Statistics (NASI Average Monthly Returns)

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
JANUARY	3	.0121928	.0869765	.037485684	.0247474168	.0428637832
FEBRUARY	3	-.0241222	.0444013	.011124270	.0198055227	.0343041716
MARCH	3	-.0769610	.0641990	.002159099	.0416346904	.0721133991
APRIL	3	.0477072	.0653303	.054668895	.0054132290	.0093759876
MAY	3	-.0103528	.0241160	.010674229	.0106485967	.0184439105
JUNE	3	-.0200473	.0295599	.012675578	.0163642067	.0283436374
JULY	3	-.0801887	.0306103	-.007398820	.0364068507	.0630585151
AUGUST	3	-.1019140	.0166750	-.034643715	.0351505208	.0608824879
SEPTEMBER	3	-.0931064	.0316232	-.010263522	.0414223290	.0717455783
OCTOBER	3	.0341846	.0479287	.042997867	.0044170310	.0076505222
NOVEMBER	3	-.0918366	.0057650	-.043166060	.0281754565	.0488013222
DECEMBER	3	-.0019405	.0284420	.017269344	.0096474560	.0167098839
Valid N (listwise)	3					

Source: Research Findings

4.4 Regression Model

The monthly returns were regressed against the dummy variable each representing the months of the year from February all through to December.

$$R_t = C + \alpha_{2t} D_{2t} + \alpha_{3t} D_{3t} + \alpha_{4t} D_{4t} + \alpha_{5t} D_{5t} + \alpha_{6t} D_{6t} + \alpha_{7t} D_{7t} + \alpha_{8t} D_{8t} + \alpha_{9t} D_{9t} + \alpha_{10t} D_{10t} + \alpha_{11t} D_{11t} + \alpha_{12t} D_{12t} + \varepsilon_t$$

$$R_t = C + \alpha_{2t} D_{it} + \varepsilon_t$$

Variable Definition

R_t = Stock market return in time t,

C = Mean of January's Return (given by the model intercept),

a_i = The difference between the mean of month i and January's mean (i = 2, 3, ..., 12),

D_{it} = Dummy variables which take value 1 if the return at time t corresponds to month i, otherwise 0,

ε_t = An independent and identical distribution error term.

4.4.1 Nairobi Securities Exchange 20-Share Index (N20I)

4.4.1.1 Model Summary (Measure of Fitness)

Table 4.4 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.568[a]	.323	.281	.0095121978

a. Predictors: (Constant), D12t, D8t, D4t, D11t, D9t, D7t, D6t, D5t, D2t, D3t, D10t

Source: Research Findings

The model statistics show that when the independent variables (The difference between the mean of month i and January's mean (i = 2, 3, ..., 12)) and the dependent variable (stock market returns) interact, the model has a Pearson's correlation coefficient (R) of 0.568 and coefficient of determination (R Square) 0f 0.323) signifying a weak positive association.

4.4.1.2 Analysis of Variance (ANOVA)

The Analysis of Variance (ANOVA) was used to test the significance of the regression model as pertains to significance in the differences in the means of the dependent and independent variables. The ANOVA test produced an f-value of 7.721 at 0.000 significance level ($p<0.05$) signifying significant explanatory power for the variability of stock market returns.

Table 4.5 Summary of Analysis of Regression Variables

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.008	11	.001	7.721	.000[b]
	Residual	.016	178	.000		
	Total	.024	189			

a. Dependent Variable: Rt

b. Predictors: (Constant), D12t, D8t, D4t, D11t, D9t, D7t, D6t, D5t, D2t, D3t, D10t

Source: Research Findings

4.4.1.3 Regression Coefficients

Table 4.6 Summary of Regression Equation Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.001	.001		.711	.478	-.001	.002
	D2t	-.529	.110	-.296	-4.795	.000	-.747	-.311
	D3t	-.354	.109	-.201	-3.251	.001	-.569	-.139
	D4t	-.278	.123	-.140	-2.263	.025	-.521	-.036
	D5t	-.167	.142	-.073	-1.177	.241	-.447	.113
	D6t	.092	.174	.033	.528	.598	-.252	.436
	D7t	-.105	.149	-.044	-.708	.480	-.399	.188
	D8t	-.149	.141	-.065	-1.053	.294	-.428	.130
	D9t	-.198	.137	-.089	-1.448	.149	-.469	.072
	D10t	-.643	.110	-.361	-5.848	.000	-.860	-.426
	D11t	-.202	.138	-.090	-1.466	.144	-.474	.070
	D12t	-.303	.117	-.160	-2.594	.010	-.533	-.072

a. Dependent Variable: Rt

Source: Research Findings

In Table 4.6 are reported results of January effect tests on the N20I. It is clear that almost all months are characterized by a negative difference from the intercept. This is an evidence of existence of January effect since negative coefficients signify higher than January returns in other months of the year.

From the table the established regression equation is:

$$R_t = 0.001 - 0.529D_{2t} - 0\ .354D_{3t} - 0.278D_{4t} - 0.167D_{5t} + 0.092D_{6t} - 0.105D_{7t} - 0.149D_{8t} - 0.198D_{9t} - 0.643D_{10t} - 0.202D_{11t} - 0.303D_{12t} + \varepsilon_t$$

From the model, it can be seen that taking the independent variables' value at zero, the market return would be 0.001. Holding all other factors constant, a unit increase in February, March, May, July, August, September, October, November or December returns would lead to a stock market return decrease 0.529, 0.354, 0.278, 0.167, 0.105, 0.149, 0.198, 0.643, 0.202 or 0.303 respectively. A unit increase in June returns would lead to a stock market return increase of 0.092.

4.4.2 Nairobi Securities Exchange All-Share Index (NASI)

4.4.2.1 Model Summary (Measure of Fitness)

Table 4.7 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.778[a]	.605	.491	.0362583246

a. Predictors: (Constant), D12t, D4t, D10t, D2t, D3t, D11t, D9t, D6t, D5t, D7t, D8t
Source: Research Findings

The model statistics show that when the independent variables (The difference between the mean of month i and January's mean (i = 2, 3, ..., 12)) and the dependent variable (stock market returns) interact, the model has a Pearson's correlation coefficient (R) of 0.778 and coefficient of determination (R Square) of 0.605 signifying a strong positive association.

4.4.2.2 Analysis of Variance (ANOVA)

Table 4.8 Summary of Analysis of Regression Variables

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.076	11	.007	5.290	.000[b]
	Residual	.050	38	.001		
	Total	.126	49			

a. Dependent Variable: Rt

b. Predictors: (Constant), D12t, D4t, D10t, D2t, D3t, D11t, D9t, D6t, D5t, D7t, D8t

Source: Research Findings

The Analysis of Variance (ANOVA) was used to test the significance of the regression model as pertains to significance in the differences in the means of the dependent and independent variables. The ANOVA produce an f-value of 5.290 and significance level of 0.000 signifying a strong relationship between the independent and dependent variables.

4.4.2.3 Regression Coefficients

From Table 4.9 the established regression equation is:

$$\mathbf{R_t = 0.034 - 0.767D_{2t} - 1.137D_{3t} - 0.304D_{4t} - 0.195D_{5t} - 0.657D_{6t} - 0.744D_{7t} - 0.813D_{8t} - 0.964D_{9t} - 0.119D_{10t} - 0.795D_{11t} - 0.342D_{12t} + \varepsilon_t}$$

From the model, it can be seen that taking the independent variables' value at zero, the market return would be 3.4%. All dummy coefficients are negative. Holding all other factors constant, a unit increase in February, March, May, June, July, August, September, October, November or December returns would lead to a stock market return decrease 0.767, 1.137, 0.304, 0.195, 0.657, 0.744, 0.813, 0.964, 0.119, 0.795 or 0.342 respectively.

Table 4.9 Summary of Regression Equation Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.034	.006		5.607	.000	.022	.046
	D2t	-.767	.388	-.202	-1.978	.055	-1.553	.018
	D3t	-1.137	.396	-.294	-2.869	.007	-1.939	-.335
	D4t	-.304	.356	-.087	-.854	.399	-1.026	.417
	D5t	-.195	.539	-.037	-.362	.720	-1.286	.896
	D6t	-.657	.199	-.338	-3.293	.002	-1.061	-.253
	D7t	-.744	.321	-.238	-2.321	.026	-1.393	-.095
	D8t	-.813	.192	-.436	-4.233	.000	-1.202	-.424
	D9t	-.964	.305	-.324	-3.163	.003	-1.580	-.347
	D10t	-.119	.495	-.025	-.240	.811	-1.121	.883
	D11t	-.795	.211	-.386	-3.774	.001	-1.222	-.369
	D12t	-.342	.399	-.088	-.857	.397	-1.150	.466

a. Dependent Variable: Rt
Source: Research Findings

4.5 Interpretation of the Findings

The following were the findings of the research study clearly established according to the set objectives. The study focused on investigating the existence of January effect at the Nairobi Securities Exchange using its two major indices (N20I and NASI). From the findings of the research objectives the following were found out:

4.5.1 Investigating the January Effect Using N20I

When the return in the month of January is higher than the returns in other months, this anomaly is referred to as January effect. N20I was used to investigate existence of this anomaly at the NSE. This index is constituted by 20 best performing counters. It is evidenced from the regression model above that, this anomaly exist in NSE. The goal of the model was to understand

whether there is any significant difference between returns in January and all other months. The regression model results show that almost all coefficients are negative. This is evidence that the returns realized in January are higher than returns that are realized in other months of the year. Therefore we reject the null hypothesis that all the coefficients of the dummy variables are equal to zero and conclude that there is January effect in the Nairobi Securities Exchange Market.

This investigation was done against an index that measures the average performance of 20 large cap stocks drawn from different industries. Hence the 20 Share index is biased towards a large cap counters and may not transmit the right signals on the entire market performance to potential investors. This shortfall led to the introduction of NASI which was also considered in to investigate the January effect.

4.5.2 Investigating the January Effect Using NASI

NASI incorporates all listed companies irrespective of their performance and their time of listing. It is calculated based on market capitalization rather than the price movements of the counters, meaning that it reflects the total value of all listed companies at the NSE. Using NASI data in the regression model it was evidenced that January effect does exist at the NSE. Fulfilling the goal of this model; testing any significance difference between mean returns in January and other months, the NASI data gave evidence of all eleven coefficients of dummy variables are negative. This means that the stock market returns as measured by this index are higher in January than in other months of the year confirming existence of January effect at the NSE.

4.5.3 Conclusion

Results from both indices show that there exists January effect at the Nairobi Securities Exchange. This reflects results of previous studies that have been done in some emerging markets of Africa such as Egypt and Nigeria Aligidede (2012). This is an evidence that Nairobi Securities Exchange is not efficient thus investors can take advantage of this anomaly to earn abnormal returns in January.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a conclusion of the study, limitations and recommendations for further research.

5.2 Summary

This objective of this study was to investigate the existence of January effect at the Nairobi Securities Exchange. To achieve this objective, monthly returns were calculated for both N20I and NASI. From these returns, differences between mean January returns and other months of the year were calculated. The monthly returns were regressed against the dummy variables where the traditional approach to modeling anomalies was adopted. The mean returns in January were 6.46% and 3.7% as measured by N20I and NASI respectively. These were higher than any other months apart from April which had 5.4% on the NASI. The results indicated that January effect exists at the NSE where returns in this month are higher than any other month of the year. This is supported further by regression analysis results The dummy coefficients were all negative evidencing higher January returns than other months. Hence, the null hypothesis that all coefficients are equal to zero was rejected and conclusion that January effect exists was made.

5.3 Conclusions

The result of the study shows that January effects exist at the NSE. This implies that stock market returns in January differ significantly with the other months of the year. The results are evidence that the NSE is not efficient. This is consistent with what has been found in developed and emerging markets. The existence of this anomaly tend to negate the notion of market efficiency since traders can earn abnormal returns just by examining patterns and setting trading strategies accordingly, resulting in returns that are not commensurate with risk.

5.3 Limitations of the Study

Though this study investigated the existence of January effect at the Nairobi Securities Exchange, the kind and size of data considered had the following limitations; First, there was limited data available for the Nairobi Securities Exchange All-Share index. This index was introduced at NSE in the year 2008 and its data was available from July 2009 to August 2013. Secondly, dividends were ignored when calculating the stock market returns. This means that the total returns were underestimated. Third, time series properties of the data were not considered. For instance the error in the regression model may be auto correlated. Lastly, this study failed to explain why this anomaly exists at the Nairobi Securities Exchange.

5.4 Recommendations for Policy

The recommendation for this study is that investors should consider selling their shares in January since they can earn higher returns that are not commensurate with the risk. Those who wish to buy stocks should avoid buying them in January as their prices would dip in other months of the year

5.5 Suggestions for Further Research

The study has served as a foundation for further research on the existence of this anomaly and other calendar anomalies. The study considered the two major indices at the NSE in investigating the existence of the January effect.

A further study can be conducted after a period of time when the NASI data is available for more years. This will give the researcher ample data to investigate the existence of January effect. Dividends need to be included when calculating the market returns. This will enable the researcher deal with returns that are reflecting the same thus ensuring no underestimation of total returns. To address the autocorrelation issue, the researcher should include the autoregressive terms in the model proposed above. Further study need to be carried out to explain why the January effect exists at the NSE. Researchers all over the world have put forward numerous hypotheses why such anomalies exist. Theses should be tested on the NSE as well. At the same time this opens the door for further research on stock returns predictability in general and calendar anomalies in particular.

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APPENDICES

LIST OF THE CURRENT NASI CONSTITUENT COMPANIES AS AT DECEMBER 2012	
MANUFACTURING AND ALLIED	**BANKING**
A.Baumann CO Ltd	Barclays Bank Ltd
CONSTRUCTION AND ALLIED	CFC Stanbic Holdings Ltd ord.5.00
Athi River Mining	I&M Holdings Ltd
Bamburi Cement Ltd	Diamond Trust Bank Kenya Ltd Ord 4.00
Crown Berger Ltd	Housing Finance Co Ltd
E.A.Cables Ltd	Kenya Commercial Bank Ltd
E.A.Portland Cement Ltd	National Bank of Kenya Ltd
ENERGY AND PETROLEUM	NIC Bank Ltd
KenolKobil Ltd	Standard Chartered Bank Ltd
Total Kenya Ltd	Equity Bank Ltd
KenGen Ltd Ord	The Co-operative Bank of Kenya Ltd
Kenya Power & Lighting Co Ltd	**INSURANCE**
Umeme Ltd Ord	Jubilee Holdings Ltd
GROWTH ENTERPRISE MARKET SEGMENT	Pan Africa Insurance Holdings Ltd
Home Afrika Ltd	Kenya Re-Insurance Corporation Ltd Ord
AGRICULTURAL	Liberty Kenya Holdings Ltd
Eaagads Ltd	Britam Investments Company (Kenya) Ltd
Kapchorua Tea Co. Ltd	CIC Insurance Group Ltd
Kakuzi	**INVESTMENT**
Limuru Tea Co. Ltd	Olympia Capital Holdings ltd
Rea Vipingo Plantations Ltd	Centum Investment Co Ltd
Sasini Ltd	Trans-Century Ltd
Williamson Tea Kenya Ltd	**MANUFACTURING AND ALLIED**
COMMERCIAL AND SERVICES	B.O.C Kenya Ltd
Express Ltd	British American Tobacco Kenya Ltd
Kenya Airways Ltd	Carbacid Investments Ltd
Nation Media Group	East African Breweries Ltd
Standard Group Ltd	Mumias Sugar Co. Ltd
TPS Eastern Africa (Serena) Ltd	Unga Group Ltd
Scangroup Ltd	Eveready East Africa Ltd Ord.
Uchumi Supermarket Ltd	Kenya Orchards Ltd
Hutchings Biemer Ltd	**AUTOMOBILES AND ACCESSORIES**
Longhorn Kenya Ltd	Car and General (K) Ltd
TELECOM. AND TECHNOLOGY	CMC Holdings Ltd
AccessKenya Group Ltd	Sameer Africa Ltd
Safaricom Ltd	Marshalls (E.A.) Ltd

LIST OF THE CURRENT NSE 20-SHARE INDEX CONSTITUENT COMPANIES AS AT DECEMBER 2012

Agricultural Sector

Rea Vipingo
Sasini

Commercial and Services Sector

CMC Holdings
Kenya Airways
Safaricom

Finance and Investment Sector

Barclays Bank of Kenya
Equity Bank
Kenya Commercial Bank
Standard Chartered Bank
Co-operative Bank of Kenya

Industrial and Allied Sector

Bamburi Cement
British American Tobacco
KenGen
East African Breweries
Kenol Kobil
Kenya Power and Lighting Compan
Athi River Mining
Mumias Sugar

LIST OF COMPANIES QUOTED AT NAIROBI SECURITIES EXCHANGE AS AT DECEMBER 2012	
MANUFACTURING AND ALLIED	**BANKING**
A.Baumann CO Ltd	Barclays Bank Ltd
CONSTRUCTION AND ALLIED	CFC Stanbic Holdings Ltd ord.5.00
Athi River Mining	I&M Holdings Ltd
Bamburi Cement Ltd	Diamond Trust Bank Kenya Ltd Ord 4.00
Crown Berger Ltd	Housing Finance Co Ltd
E.A.Cables Ltd	Kenya Commercial Bank Ltd
E.A.Portland Cement Ltd	National Bank of Kenya Ltd
ENERGY AND PETROLEUM	NIC Bank Ltd
KenolKobil Ltd	Standard Chartered Bank Ltd
Total Kenya Ltd	Equity Bank Ltd
KenGen Ltd Ord	The Co-operative Bank of Kenya Ltd
Kenya Power & Lighting Co Ltd	**INSURANCE**
Umeme Ltd Ord	Jubilee Holdings Ltd
GROWTH ENTERPRISE MARKET SEGMENT	Pan Africa Insurance Holdings Ltd
Home Afrika Ltd	Kenya Re-Insurance Corporation Ltd Ord
AGRICULTURAL	Liberty Kenya Holdings Ltd
Eaagads Ltd	British-American Investments Company (Kenya) Ltd Ord
Kapchorua Tea Co. Ltd	CIC Insurance Group Ltd
Kakuzi	**INVESTMENT**
Limuru Tea Co. Ltd	Olympia Capital Holdings ltd
Rea Vipingo Plantations Ltd	Centum Investment Co Ltd
Sasini Ltd	Trans-Century Ltd
Williamson Tea Kenya Ltd	**MANUFACTURING AND ALLIED**
COMMERCIAL AND SERVICES	B.O.C Kenya Ltd
Express Ltd	British American Tobacco Kenya Ltd
Kenya Airways Ltd	Carbacid Investments Ltd
Nation Media Group	East African Breweries Ltd
Standard Group Ltd	Mumias Sugar Co. Ltd
TPS Eastern Africa (Serena) Ltd	Unga Group Ltd
Scangroup Ltd	Eveready East Africa Ltd Ord.
Uchumi Supermarket Ltd	Kenya Orchards Ltd
Hutchings Biemer Ltd	**AUTOMOBILES AND ACCESSORIES**
Longhorn Kenya Ltd	Car and General (K) Ltd
TELECOM. AND TECHNOLOGY	CMC Holdings Ltd
AccessKenya Group Ltd	Sameer Africa Ltd
Safaricom Ltd	Marshalls (E.A.) Ltd