AN INVESTIGATION OF THE EXISTENCE OF TURN OF THE MONTH EFFECT AT THE NAIROBI STOCK EXCHANGE

RESARCH PROJECT

BY

ERIC MULUMBI

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Declaration

This research project is my original work and has not been submitted for examination in any other university.

NAME: ERIC MULUMBI

REG.NO: D61/P/8941/06

Signature _____ **Date** 24-11-2010

This project has been submitted for examination with our approval as the University supervisors.

Dr. Josiah Aduda

Signature _____ **Date** 24/11/10

DEDICATION

This piece of research work is dedicated to my Fiancée Winnie Mbithe, she is my great source of inspiration.

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ABSTRACT

A central challenge to Efficient Market Hypothesis(EMH) is the existence of the stock market anomalies. The current study tries to examine the existence of the turn of the month effect at the Nairobi stock Exchange. This allows us to examine whether the seasonal patterns usually found in the developed markets data like the US is also present in the Kenyan data and to what extent.

According to the results the everage return for stocks listed at the Nairobi Stock Exchange is higher for the last day of the calendar month and the second day of the following calender month. The monthly effect is independent of other known calendar anomalies such as the January and the holiday effect documented by others, and also the results arc consistent with the US results.

The study adopted a descriptive survey; descriptive research portrays an accurate profile of persons, transactions /events, or situations and allows for the collection of large amount of data from a sizable population in a highly economical way. The data was analyzed using regression and correlation analysis. Regression analysis was also used to come up with the model expressing the relationship while correlation analysis was used to test for the overall significance of the models as well as the individual significance of the predictor variables.

The study found that there exist Turn-of-the-month effect at the Nairobi Stock, that is, the coefficient of determinations for all the companies listed at NSE was greater than 90%. Further the study identified D_1 (the first day before the end of the month), D_4 (the first day after the end of the month) and D_5 (the second day after the end of the month), were significantly related with market return at time (Turn of the Month Effect).

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CHAPTER ONE: INTRODUCTION

1.1 Background to this study

Capital market efficiency has been a very popular topic for empirical research since Fama (1970) introduced the theoretical analysis of market efficiency and proclaimed the efficient market hypothesis. Subsequently, a great deal of research was devoted to investigating the randomness of stock price movements for the purpose of demonstrating the efficiency of capital markets. Since then, all kinds of calendar and weather anomalies in stock market return have been documented extensively in the finance literature. The most common calendar and weather anomalies include: the January effect, turn of the month, fall, lunar, rainfall and temperature effects. Showing that market returns follow a seasonal pattern violates the assumption of weak market efficiency in that by observing the past development of returns, market participants can make extraordinary profits.

The Kenyan stock market underwent its historical crisis following the sudden corporate financial fragility and the drastic Economic slowdown between 1998 and 2002. This occurred immediately following the ripple effects of the multi party election of the 1997 and the stoppage of Donor funding thereafter. During this time, all listed companies went through a lean time with many reporting huge losses, with non payment of Dividends Ngugi (2003a). These factors caused a significant loss in the NSE 20 Index from a high of 5037 point in July 1994, to 2300 points in January 1998 on the onset of the crisis and subsequent erosion of the index down to 980.37 points in December 2001.Consequently the activity at the NSE became low during this period but became very volatile following the political elections in December 2002. This election

was significant, as it led to shifts in economic and fiscal policies, which has since seen the market index rise to historical level of 6061.46 points in January 2007. However these gains have been eroded by the current global financial crises and the December 2007 disputed presidential elections. Thus further development of the stock market becomes an important area of policy focus.

The Turn of the month effect is a form of a market anomaly where stock returns are slightly higher in few days before end of the month and a few days after a start of a new month. Findings by Lakonishok and Smidt (1988) that U.S equity returns are unusually high over the four day period that begins with the last trading day of the month and ends with the third trading day of the following month, they studied Center for Research and security prices Value Weighted and Equal Weighted market returns over the period 1963 to 1982.

The turn of the month effect is studied by comparing implied returns three trading days prior to the turn of the month with implied returns four trading days after the turn of the month (a difference of six trading days), these days are selected because they represent the periods where Lakonishok and Smidt (1988) find significantly positive rates of return over some time period after 1952.

There is a large and growing literature documenting calendar and weather anomalies in stock market returns. Finance theories such as capital asset pricing model and the arbitrage pricing theory have been used to access the efficiency of capital markets and attempting to explain different determinants of the stock returns. Past works on anomalies, the effect of calendar time on stock prices, have been examined to determine the existence of anomalies (Kettel 2001).

Existence of market anomalies has become an influencing factor in investment returns in such research. Whereas four types of investigations were conducted initially, recently imperial research has focused on the study of the stock market anomalies in areas including the day of the week effects, the month of the year or the January effect, the weekend and the holiday effect, the semi-monthly effect. However existing studies have often resulted in inconclusive results revealing the complexities of the real market operations that contradict the efficient market theory.

As noted by Siegel(1998), the persistence of the turn of the month effect for stock returns is an open question. Efficient market theory predicts that this anomaly dissipates over time. Sigels argument has therefore opened a discussion as to whether the theory of the turn of the month holds water.

Other researchers identify institutional factors as the main cause of anomalies Ogden(1990) for example argues that the fact that payment of wages dividends interest and other liabilities are often made at the end of the month explains the turn of the month effect. He finds a relation between unusually high turn of the month stock returns and loose monetary policy and concludes that increased liquidity at the end of the month drives the turn of the month effect.

Both the psychological and institutional explanations of calendar and weather anomalies are subject to the critique of Roll(1983) who points out that savvy investors would exploit easily observed patterns and eliminate the anomalies through arbitrage. If patterns in payment schedules drive the turn of the month effect for example, investors could easily recognize the patterns and profit from them.

Fama (1970) In his study of The efficient market hypothesis (EMH) says that at any given time . asset prices fully reflect all available information, the simple statement does not limit information to be strictly financial in nature, it may incorporate investor perceptions whether correct or otherwise. The chief corollary of the idea that markets are efficient that prices fully reflect all information is that price movements do not follow any pattern or trend, this means that past price movements cannot be used to predict future price movements. Rather prices follow what is known as' random walk' and intrinsically unpredictable pattern. Fama (1970) distinguished between three forms of market efficiency, the weak form, semi strong form and the strong form efficiency. His distinction was based on the amount of information impounded into the stock prices. In the weak form efficiency, security prices reflect all past prices (historical information). This implies that in the weak form efficiency, it is impossible to make abnormal profits by using past prices to make sell and buy decisions. In semi strong form efficient market, all publicly available information is reflected in the security prices. Therefore, efforts by analysts and investors to acquire and analyze public information will not yield consistently superior returns. The strong form market efficiency suggests that all public and private information is impounded in security prices. The implication is that no investors even those with insider information will make abnormal profits by using this information.

The turn-of-the-month effect in U.S. equity returns was initially identified by Ariel (1987), who studied CRSP market returns over the period 1963-1982, and Lakonishok and Smidt (L&S) (1988) who study DJIA returns over the period 1897-1986. According to the turn-of-the-month effect, equity returns over the interval beginning with the last trading day of the month and ending three days later are unusually high. For example, L&S report that over the 90-year period

covered by their study, the average cumulative return over the four-day turn-of-the-month is 0.473% whereas the average cumulative return over the full month is 0.349%, indicating that returns were, on average. negative over the remaining days of the month.

Lakonishok and Smidt (1988) using the DJIA for the period 1897-1986. Using CRSP daily returns, found that the turn-of-the-month effect persists over the recent interval of 1987-2005: in essence, over this 19-year period (and over the 109-year period of 1897-2005) all of the excess market return occurred during the four-day turn-of-the-month interval. Thus, during the other 16 trading days of the month. on average, investors received no reward for bearing market risk. They further found that the turn-of-the-month effect is not confined to small or low-priced stocks; it is not confined to the December-January turn-of-the-month; it is not confined to calendar-quarter-ends; it is not confined to the U.S.; and it is not due to market risk as traditionally measured: the standard deviation of returns at the turn-of-the-month is no higher than during other days. This persistent peculiarity in equity returns poses a challenge to both "rational" and "behavioral" models of asset pricing.

Kibuthu (2005), The Nairobi Stock Exchange (NSE) is a typical capital market in a developing country. It was established in 1920. In the early years there were no formal markets, no structure, no rules and no regulations to govern the trading. Trading took place on a gentleman's agreement and it was largely dominated by foreigners. It was constituted in 1954 as a voluntary association of stockbrokers registered under the societies Act. This was made possible after clearance was obtained from the London Stock Exchange which recognized the NSE as an Overseas Stock Exchange. Growth and development was realized after the government faced with dwindling

inflows of foreign savings launched revitalization initiatives in the 1980's. International Finance Corporation and Central Bank of Kenya (IFC/CBK) "Development of money and capital market in Kenya" became a blueprint of structural reforms in the financial markets which culminated in the formation of a regulatory body, "The Capital Market Authority, CMA" in 1989, to assist in the creation of a conducive environment for the growth and development of the country's capital markets. The guiding principle behind stock markets is the creation of an enabling forum where users of capital can obtain the same capital from owners of capital at an agreeable return. Capital markets enable price determination where the market price reflects the "true" and intrinsic value of the share based on the underlying future cashflows. Sharpe, (2001), argues that the more quickly and accurately price disclosure is achieved, the more efficiently markets will direct capital to its most productive opportunities, thereby leading to improvement in public welfare.

The NSE has been divided into three segments; the main investment market segment, alternative investment market segment and fixed income securities market segment. The main investment market segment is further subdivided in to: Agricultural, Commercial and services, Finance and investment and industrial and allied. It has over sixty listed companies, 55 equities and 7 corporate bonds three of which have listed equities. Assets traded include equities, preference shares, treasury bonds and corporate bonds. It's trading starts from 9.00a.m to 3.00pm, Monday to Friday with the exception of public holidays. Mokua (2003) in his study attempted to find out whether seasonal variations do exist at the NSE. His main objective was to establish whether or not stock prices at the NSE are affected by the weekend effect variations. He used the daily stock returns and equality of means to study a number of stocks quoted at the NSE for the period April 1, 1996 to March 31, 2001 and concluded that the weekend effect anomaly did not exist.

1.2 Statement of the problem

The Turn of the month effect is a form of a market anomaly where stock returns are slightly higher in few days before end of the month and a few days after a start of a new month. Findings by Ariel (1987) and Lakanshok and Smdt (1988) that U.S equity returns are unusually high over the four day period that begins with the last trading day of the month and ends with the third trading day of the following month Ariel studied Center for Research and security prices Value Weighted and Equal Weighted market returns over the period 1963 to 1982.

Stock market behavior is very crucial in stock returns predictability. The Kenyan capital market has become more dynamic in the recent past and the Kenyan population has also become more knowledgeable. Investors are not only assured of superior returns when earning power has increased but the time and day of the month can also play a key role. It is in this regard that the knowledge of market variations is of paramount importance. This would in turn signal the right time to buy or sell stocks in the market.

A study to provide information on turn of the month effect would be useful to both local and international investors. Studies have been done on the January effect by Rozzef and Kinney (1976). Their findings indicate that there are higher returns in the month of January as compared to other months in the New York Stock Exchange (NYSE). Lakonishok and Smidt (1988) studied the holiday and turn of the month effect and found that the US stock returns are significantly higher at the turn of the month, as defined as the last and first three trading days of the month. Studies on weather anomaly have been done by Saunders (1993) and finds that the NYSE index tends to be negative when it is cloudy. Banz (1981) studied the "small- firm effect"

also known as the "size-effect" and found that excess returns would have been earned by holding stocks of low capitalization companies. Sanjoy (1977) studied the price earning ratio and found that stocks of companies with low price earning ratios earned a premium for investors. In Kenya very little has been done so far on stock market anomalies. Rasugu (2005) studied the existence of the holiday effect at the Nairobi Stock Exchange and his findings depict the absence of holiday effect. Mokua (2003) studied the weekend effect on stock returns at the Nairobi Stock Exchange and concluded that Monday returns are not significantly lower than the other days nor are Friday returns significantly higher than the other days of the week. Ndungu (2003) studied the size effect at the NSE and concluded that the size effect is weakly exhibited at the NSE.In Kenya no study has been done to investigate the Turn of the Month effect at the Nairobi stock Exchange.

1.3 Objective of the Study

The objective of the study was to investigate the existence of the Turn-of-the-month effect at the Nairobi Stock Exchange.

1.4 Importance of the Study

There were various stakeholders who attached importance to the Stock market. Such Stakeholders included: the Government, Investors, Fund Managers, and Financial Analysts and last but not least Academicians.

The government as a regulator of the stock market through the Capital Market Authority would be able to monitor the performance of the stock market, as a signal of economic stability of a

country. The government has aimed at making major reforms through the Nairobi Stock exchange so as to attract both local and foreign investment.

Investors are very keen on the day to day performance of the stock market. The findings of this study would indicate whether the Nairobi Stock Exchange behaves like the other stock markets in the world. It would benefit the foreign investors whose investments are cross listed and those ones that the government of Kenya is targeting so as to increase the foreign Investment in the local companies. A rational investor would buy stocks when returns are low and sell them when the returns are highest. Knowledge of seasonal patterns caused by anomalies would assist investors in buy or sale decisions and return maximization.

Financial analysts offer advice to investors. Findings from the study would help them give sound information that lead investors to make informed decisions. Knowledge of such crucial information on stock variations may assist the financial analysts to plan well when to trade and get abnormal returns and when to hold in order to maximize returns.

Academicians want to contribute to the body of knowledge; the same body of knowledge has been known to change and research is always the only way to study the same phenomenon over time. This research would therefore help in opening up opportunities for doing further research on market efficiency.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section highlights the implications of the efficient market hypothesis in the stock market. It also introduces the concept of stock market calendar anomalies. Evidence against the efficient market portfolio is also discussed by looking at some other documented empirical anomalies in the stock market.

2.2 Review of theories

When looking at the stock market anomalies, there are several theories that are related, these theories include: The Efficient Market Hypothesis (EMH), The Random walk theory, The Stock Market Calendar anomalies. These theories are explained below:-

1.1.1. Arbitrage pricing Theory

According to Stephen Ross (1976), Arbitrage pricing theory is a general theory of asset pricing that has become very influential in pricing of stocks it holds that the expected return of a financial asset can be modeled as a linear function of various macro –economic factors or theoretical market indices, where sensitivity to changes in each factor is represented by a factor specific beta coefficient. The model derived rate of return with then be used to price the asset correctly- The asset price should equal the expected end of period price discounted at the rate implied by the model. If the price diverges arbitrage should bring it back to line.

1.1.2. The Efficient Market Hypothesis

The efficient market hypothesis is an idea partly developed by Eugene Fama in 1960s. states that security prices must fully reflect all available information and that it's impossible to beat the market because prices already incorporate and reflect all relevant information. Supporters for this theory believe it is pointless to search for undervalued stocks or try to predict trends in the market through Fundamental analysis or Technical analysis. This theory has been subjected to much research and analysis and has been a major source of discussion for academicians. (Copeland and Galai(1988), Prior to the 1950's, it was believed that traditional investment analysis could be used to outperform the stock market. In 1950's studies emerged for example that changes in security prices followed a random pattern. This generated theories and research that led to the efficient market notion.

1.1.3. Random Walk Theory

Maurice Kendall (1953). Random walk theory is an investment theory which claims that market prices follow a random path up and down, without any influence by past price movements, making it impossible to predict with any accuracy which direction the market will move at any point. In other words the market claims that, that path a stock price follows is a random walk that cannot be determined from historical price information especially in the shortrun. Investors who believe in the Random walk theory feel that it is impossible to outperform the market without taking on an additional risk. And believe that neither Fundamental analysis nor Technical analysis have any validity. However some proponents of this theory do acknowledge that the markets move gradually upwards in the long run. At the random reception of new information the percentage price changes should be random. Stock prices may therefore be expected to take a 'random walk', hence the random walk theory.

1.1.4. Stock Market Calendar anomalies

Calendar anomalies are empirical results that seem to be inconsistent with maintained theories of the asset pricing behavior. They indicate either market inefficiency (profit opportunities) or inadequacies in the underlying asset pricing model. Some of the main anomalies that have been identified include: day of the week effect. weekend effect, January effect, holiday and turn of the month effect, over or under reaction of stock prices to earnings announcement, weather, and small firm effect among others. Bruce I. Jacobs and Kenneth. Levy (1988)

1.1.4.1. Day of the week effect

The day of the week effect is an anomaly according to which differences in the distribution of stock returns for each day of the week may be found. Accordingly the average return on Monday is significantly less than the average return during the other days of the week.

1.1.4.2. The Weekend/ Monday Effect

Weekend effect is the tendency of stock values and prices to be low on Mondays and increase in value on other days. The theory holds that Friday returns are significantly higher than the rest of the days and that Monday returns are significantly lower than the other days of the week. In other words, the stock market tends to start the week weak and close the week strong.

1.1.4.3. The end of Quarter effect

The end of quarter effect is the tendency of stocks to offer predictable pattern returns around the end of calendar quarters. The theory holds that stock returns are significantly higher during end of a quarter compared to the other periods of the year.

1.1.4.4. Lunar Cycle effect

Lunar cycle effect is the tendency of stocks to exhibit higher returns specifically returns in the dates around new moon. Ilia Dicheu & Troy D Dichev in their study on Lunar cycle and stock returns, found that stock returns specifically returns in the 15 days around a new moon dates were about double the returns in the 15 days around full moon dates, the evidence is consistent with popular beliefs that Lunar cycle affect human behavior.

1.1.4.5. The Turn-of-The-Month effect

The Turn of the month effect is a form of a market anomaly where stock returns are slightly higher in few days before end of the month and a few days after a start of a new month. Findings by Ariel (1987) and Lakanshok and Smdt (1988) that U.S equity returns are unusually high over the four day period that begins with the last trading day of the month and ends with the third trading day of the following month Ariel studied Center for Research and security prices Value Weighted and Equal Weighted market returns over the period 1963 to 1982. In particular, unusually large returns are observed over four consecutive trading days beginning with the last trading day of the month and the last three trading days of the month. Henceforth these four trading days are known as the turn of the month trading days. Might the turn of the month effect merely proxy for other anomalies? Studies have rejected the January, Day of the week Holiday, tax loss selling and size effect as underlying causes. Methodological deficiencies seem an

unlikely explanation as various studies have controlled for Dividends, pricing errors and outliers. Some practitioners have suggested month end portfolio rebalancing as a possible explanation, investors may reinvest accumulated cash dividends at this time. A more convincing rationale is based on higher month end cash flows such as salaries. An interest rate seasonal to treasury bills maturing at the turn of the month has been attributed to investor cash flow considerations. Increased demand for equities at month end might produce the increased return regularity. The timing of earning announcements may provide additional insight. While companies often disclose good news voluntarily, the publication of bad news is suppressed until the next mandatory quarterly report. Moreover good earnings results tend to be released faster than bad ones. Some observers have suggested that the positive returns around the first of each month reflect a clustering of the positive earnings announcements. Bruce I. Jacobs and Kenneth. Levy (1988).

The turn-of-the-month effect in U.S. equity returns was initially identified by Ariel (1987), who studies CRSP market returns over the period 1963-1982, and Lakonishok and Smidt (L&S) (1988) who study DJIA returns over the period 1897-1986. According to the turn-of-the-month effect, equity returns over the interval beginning with the last trading day of the month and ending three days later are unusually high. For example, L&S report that over the 90-year period covered by their study, the average cumulative return over the four-day turn-of-the-month is 0.473% whereas the average cumulative return over the full month is 0.349%, indicating that returns were, on average, negative over the remaining days of the month.

The turn of the month effect is studied by comparing implied returns three trading days prior to the turn of the month with implied returns four trading days after the turn of the month(a difference of six trading days), these days are selected because they represent the periods where Lakinshok and Smidt find (1988) find significantly positive rates of return over some time period after 1952. (Arial 1987) also finds high rates of return over the same period.

2.3 Empirical studies

Malkiel (2003) associates the efficient market hypothesis with the idea of a random walk. The random walk hypothesis is a financial theory stating that stock market prices evolve according to a random walk. This is a term loosely used in finance literature to characterize a price series where all subsequent price changes represent random departures from previous prices The logic of the random walk idea is that if the flow of information is unimpeded and information is immediately reflected in stock prices, then tomorrows price change will reflect only tomorrows news and will be independent of the price changes today. News is by definition unpredictable and thus resulting price changes must be unpredictable and random. As a result, prices fully reflect all known information and even uninformed investors buying a diversified portfolio at the tableau of prices given by the market will obtain a rate of return as generous as that achieved by experts.

Malkiel in his study examined price reaction of equity shares around the announcement of half-yearly earnings and reaction to unexpected earnings announcements between January 1990 and March1996 in the Indian capital market. He used empirical tests to find out whether semi-strong form of efficient market hypothesis is applicable to describe stock price behavior in the Indian

stock market. He found out that rapid adjustment of stock prices to the earnings announcements leaves no scope for investors to outperform the market by analyzing results and then make investment decisions. A buy and hold strategy for securities is the best investment practice since prices will always reflect all available information.

Grossman and Stiglitz, (1980) in their study of the informationally efficient markets analyzed the behavior of security prices. The impressive evidence supporting this theory suggests that it may be very difficult and expensive to detect securities that are incorrectly priced. An interesting paradox in the market efficiency debate is that a market is efficient if some people (known as noise traders) believe that it is not efficient and trade on something other than new information. Moreover, the market must be sufficiently inefficient to allow informed traders to recover their costs of collecting information or none would be collected. Their main objective was to find out whether fund managers can systematically outperform the market. They used the capital market model to study annual rates of return of thirty four open end mutual funds during the period 1954 to 1963. They find that asset price movement over short horizons are close to a random walk, new information is rapidly incorporated into asset prices and fund managers rarely outperform the stock market on a consistent basis. Lofthouse (2001) and Sharpe (2001) work also found that security prices move in a random manner and that it is impossible to beat the market except by chance. With the emergence of mutual funds and its subsequent trading on the Nairobi Stock Exchange, Fund managers would be interested to know if they can exploit the market in the weak form.

Fama (1970) defines an efficient market as one in which security prices reflect all available information. Studies in the 1970s onwards suggest that the market is less than perfectly efficient. In his study, he made a distinction between three forms of market efficiency. These are the weak form efficiency, semi-strong form efficiency and the strong form efficiency. Fama (1991) reviewed the literature again in three categories. He replaced weak form efficiency with tests for return predictability, the semi-strong form efficiency with event studies and strong form efficiency with tests of private information. Return predictability had the greatest impact. His main objective was to find out whether security prices at any point in time 'fully reflect' a particular subset of available information. He studied the daily returns on the 30 Dow Jones Industrial stocks by testing statistically significant correlation coefficient of lags ranging from one to ten days by use of serial correlation analysis. The findings were that only a few correlation coefficients were found to differ statistically from Zero and that only small percentage of successive price changes could be explained by prior changes. This was also supported by the sign test. These studies appear to show that the market is much less efficient than the academics previously thought. Most researchers show that capital markets are efficient in the weak and semi-strong forms but not in the strong forms. Usually capital market efficiency has been tested in large and sophisticated capital markets of developed countries. It would be important to test the same in the developing countries and the Nairobi Stock exchange can be a representative of the developing capital markets.

However. any refuting evidence against efficient market hypothesis is labelled as an anomaly and is encompassed in rather adhoc modifications to the old theory Lofthouse, (2001).It is hoped that the anomalies may eventually be shown to be mistaken or that a new theory will emerge.

These adhoc modifications seem inevitable in the case of efficient market hypothesis because all tests are joint tests. Lofthouse (2001), Sharpe (2001), Copeland (1988) tests an asset pricing theory at the same time as the efficient market hypothesis. They conclude that efficient market hypothesis is simple in principle but remains elusive. Since asset pricing theories like Capital Asset Pricing Model are used to measure normal returns, any anomalies may be either due to efficient market hypothesis or the asset pricing theory used.

There is still a lot of evidence of efficiency or near efficiency and evidence of inefficiency is tricky to interpret because of the joint hypothesis problem (Lofthouse 2001). On one hand anomalies behaviour may be an indication of market inefficiencies, on the other hand, in the event that there is no bias or mis-estimation in computed abnormal returns, the regularity in returns may be indicative of shortcomings in the underlying asset pricing model.

In the early sixties, determination of prices of common stock was such a controversy. The controversy focused on the extent to which successful price changes were independent of each other. The major issue in this case was whether or not share prices followed a random walk. If prices follow a random walk, then past knowledge of prices cannot be used to secure abnormally high rates of return. Malkiel (2003) As evidence accumulated that the walk is random, the focus of academic attention shifted to an investigation of the kind of market making process which produce such a result, which led to the theory of efficient markets. This theory assumes that stock prices rapidly adjust to new information in the market.

Moore (1967) looked at the serial correlation between successive price changes of individual stocks. In the study. low coefficient suggests that previous prices cannot be used to predict future changes. He examined weekly changes of 29 stocks selected randomly between 1951 and 1958. He found an average serial correlation coefficient of -0.06. The value is extremely low, a clear indication that data on weekly changes are valueless in predicting future changes.

The assertion that a market is efficient is stronger than the assertion that the successive changes in stock prices are independent of each other. The weak form of the efficient market hypothesis merely states that current prices of stock fully reflect all that is implied by the historical sequence of prices. It follows that the knowledge of that sequence is of value in forming expectations about future prices. Corhay et al. (1987) in their study of Belgium. New York and London stock exchanges attributed these variations in the stock exchange to the tax- loss selling hypothesis. It predicts that stock returns will be higher in the first month of a fiscal year. As the fiscal year approaches the end, investors can reduce their taxes by selling stocks on which they lose money during the year. The sale of securities at the end of the year depresses prices which recover at the beginning of the next fiscal year as stock prices move back to their equilibrium prices across the three stock exchanges studied. In Belgium and New York Stock exchange. returns are high in January and this is attributable to the fiscal year ending in December. Likewise the London stock exchange has high returns in April since the fiscal year end in March. Jegadiesh (1960) also used data from Centre for Research in Security Prices of USA and obtained high returns for the month of January.

Capital gains are not taxable in Kenya and therefore the same explanation may not hold. This is because there is no tax incentive to realize capital losses and defer capital gains at the end of a fiscal year. According to Kingori (1995), In Kenya, it is probable that the need for cash increases at the end of the year due to school fees commitments. School fees paid in January is more compared to the other beginning of school terms. This may in turn make investors dispose off their stocks in December and January hence lowering prices and returns in these months.

Jaffe and Westerfield (1985) studied the weekend effect in the US, UK, Japan, Canada and Australia and found out that it existed in each of the five countries. They also concluded that foreign investors experience a weekend effect in their respective stock markets independent of the weekend effect in the US. Lakonishok and Mcberly (1990) established that on the New York Stock Exchange, Monday is the day with the lowest trade volume because there are more sellers than buyers and hence there is a price drop on Monday. The Nairobi Stock Exchange opens for trading from Monday to Friday and closes on Saturday, Sunday and public holidays. Most stock exchanges trade from Monday to Fridays. Jaffe and Westerfield (1985) found that of the five stock exchanges studied, only Tokyo stock exchange traded on Saturday. The similarity of the trading period worldwide would imply that the effect of settlement delays would affect stock price behavior in a similar manner in most world stock markets.

Lakonishok and Levi (1982) contend that payment for common stock purchased on a Friday will occur after ten calendar days, being five business days for settlement plus one day for cheque clearing together with four weekend days. On the other hand, payment for common stock purchased any other day of the week will occur eight calendar days from the purchase date.

These are six business days and two weekend days. The two day delay makes buyers pay more on Fridays by the two days interest. It is this that partially explains the abnormally high prices on Fridays and low returns observed on Mondays. At the Nairobi Stock Exchange, settlement is done seven calendar days after the transaction. It therefore means that it takes five business days to be completed, an observation by Jaffe and Westerfield (1985) in Canada and USA.

The database about efficient market hypothesis has innumerous empirical studies attempting to determine whether specific markets are in fact efficient, if so, to what extent. Researchers have however documented some technical anomalies which serve to contradict the efficient market hypothesis (French. (1980),. The anomalies which have been cited tend to work against the efficiency of the stock market. Such anomalies include the January effect, small firm and weekend effects. Findings from research on these anomalies show that stock markets efficiency (especially the weak form) may not be efficient. The weekend effect is a situation where stock returns on Monday are significantly negative and are lower than returns of the other days of the week. The weekend effect and its effects are some of the anomalies that have been uncovered as posing a challenge to the efficient market hypothesis especially in the weak form. Some of the researchers who have studied the calendar anomaly known as the Monday or weekend effect are for example Cross (1973) and more recently Schwer (1990). Results of these studies show that stock rating on Monday are significantly negative and are lower than returns of other days of the week. Main findings suggest that calendar and weather anomalies are not caused by market psychology or institutions but instead reflect a sorting of the data such that the anomalies have unusual announcement- day returns. The link between the anomalies and macroeconomic announcements implies that calendar and weather anomalies are not necessarily evidence of

market inefficiency. Instead it appears that the market's response to news causes calendar and weather anomalies, which is consistent with market efficiency.

Gibbon and Hess (1981) examined the asset returns for each day of the week effects. Researchers generally assume that the distribution of stock returns is identical for all days of the week- a convenient statistical assumption but not a necessary condition of market equilibrium. Nevertheless, there are reasons to suspect that the distribution of returns may vary according to day of the week, the most obvious being the impact of weekends on Monday returns. Their objective was to find out whether seasonal daily variations are consistent for both equity stock returns and the treasury bills returns. They used the S & P 500 and equal weighted portfolios constructed by the Centre for Research in Security Prices for the period July 2, 1962 to December 28, 1978 and for several shorter periods. They find that the most obvious manifestation of the daily seasonal effect is the strong and persistent negative mean returns on Monday for stocks and below average returns for bills on Mondays. The Nairobi stock Exchange operates in a country with government treasury bills and it would be important to find out if the day of the week effect exists given the fact that treasury bills are issued by the government.

Galai, Dan and Kedar, Haim (August 2005) studied the equity market with a view of establishing whether the stocks are affected by the day of the week anomaly. In their study, they compared the first and the last day of trading. Evidence from equity markets worldwide indicate that the day of the week anomaly appears to fade from the moment of the distribution of the daily returns. The Studies report highly significant pair -wise weekend effects in high moments when comparing the first and last trading days of the week. They observe a pattern of high returns

around the middle of the week (Tuesday and Wednesday) and lower returns towards the end of the week (Thursday and Friday). A probable explanation of the phenomena appears to be information dissemination. Corporate announcements released after closing of the last trading day of the week spill-over to the opening of the first trading day, increasing its variability and carrying the closing sign. This indicates that Friday being the last day of the week has become significant in that Monday returns are a reflection of Friday returns. Such intra-day variability is a clear indication of market inefficiency. Previous studies show a clear indication that developed markets are affected by this anomaly. It is in this regard that it is important to find out if the market anomaly exists in a developing stock market like the Nairobi stock Exchange.

French (1980) in his study of the weekend effect on stock returns aimed at finding if there is a profiting strategy that could be used in the stock market. In his study, he used the calendar time hypothesis and the trading time hypothesis to analyze daily returns of stocks. He studied the Standard and Poor composite portfolio for the period 1953-1977 and found that there is a tendency for returns to be negative on Mondays whereas they are positive on the other days of the week. He notes that these negative returns are caused only by the weekend effect and not by a general closed market effect. A trading strategy, which would be profitable in this case, would be to buy stocks on Monday and sell them on Friday. Investors at the Nairobi Stock Exchange would like to have a guiding strategy as to when to invest so as to make substantial gains.

According to Kamara (1997), security prices are supposed to be informally efficient. Some of the strongest evidence challenging the hypothesis that security prices are informationally efficient comes from the discovery of puzzling patterns in the behaviour of asset prices. Equity returns on

Monday are significantly negative and are significantly lower than the other days of the week. The seasonal raises the opportunity that many investors follow irrational trading patterns and rational traders cannot eliminate their effect on the price system. His main objective was to find out whether stock market seasonality affects the small-caps stocks and large-cap stocks equally in the US stock market. He examined the daily returns for the Standard and Poor (S&P) 500 and a small-cap index (the smallest capitalization decile of NYSE stocks) for the period July 3, 1962 to December 31, 1993. The small-cap returns were value weighted returns on a portfolio of all the NYSE stocks in the NYSE smallest capitalization decile. His findings shows that the S&P 500 has no significant Monday effect after April 1982, yet he finds the Monday effect undiminished from 1962-1993 for a portfolio of smaller U.S stocks. The Nairobi Stock Exchange also has companies that are large-caps stocks and small-caps stocks and it would be important to find out whether there is any seasonality based on the type of stocks quoted on the Nairobi Stock Exchange.

Steeley (2001) observed that there is a strong weekly pattern in the announcement dates of major macroeconomic news in UK. In particular these market wide events are clustered on Tuesday, Wednesday and Thursday and scarcely occur on Monday and Fridays. This means all other things equal the extremes of the week require less information collection on the part of the market participants. This low cost environment could be particularly important on Mondays when investors have already had three relative information sparse days within which to evaluate their portfolios. While this low cost environment could favour equally buying and selling opportunities for investors, the evidence that points to brokers making more buy than sell recommendations during the week suggests that Mondays are more likely to be dominated by

investor selling activity. This could depress prices and so produce a significantly negative return over the weekend. His objective was to find out the relationship between the intra-week information seasonality and return seasonality in the UK stock market. He used the daily returns on the Financial Times Stock Exchange (FTSE100) index and the announcement data on the macroeconomic information variables. The study covered the period April 3, 1991 to May 19, 1998. He found that there is no evidence of a weekend effect or any other day of the week related behaviour. It would appear that has happened in the early 1980s the weekend effect in the UK has disappeared in the 1990s. It would be important to study the stock market returns at the Nairobi Stock Exchange for any seasonality since the weekend effect could appear in certain years and not in others. The fact that there are trading strategies (buying stocks on Monday and selling on Friday) for higher returns is a challenge to market efficiency which purports that there are no trading rules to make excess returns.

Jaffe & Westerfield (1985a) studied the stock market returns of five countries being the USA, UK, Japan, Canada and Australia. Their study aimed at establishing whether the weekend effect existed in the five countries. They compiled daily record of returns for stock market indexes for the five countries. For each day, they computed the return as a percentage change in the value of the index from the previous day using the closing prices. The specific foreign indexes studied and the time periods are: Japan, the Nikkei Dow from January 5, 1970 to April 30, 1983. Canada. the Toronto Stock Exchange index for the period January 2, 1976 to November 30, 1983, UK financial times ordinary share index from January 2, 1950 to November 30, 1983, Australia the Statex Actuaries index from March 1, 1973 to November 30, 1982 and in the US used the Standard and Poor's 500 composite Price Index from July 2, 1962 to December 30 1983. They find a negative average Monday return and high average Friday and Saturday return for each

index. In addition, they find that the lowest mean returns for the Japanese and Australian stock markets occur on Tuesday. They concluded that the so-called weekend effect is significant in the five countries. Wong, Hui & Chan (1992), in their respective study also concluded that the weekend effect is significant in the five countries. Nairobi Stock Exchange has a five trading day period in a week unlike some Stock Exchanges studied for instance the Tokyo stock exchanges which trade on Saturdays. It would be important to find out if the Nairobi stock Exchange exhibits the same findings as the countries studied taking into accounts the difference in time zones.

Mokua (2003) objective was to establish whether or not stock returns at the NSE are affected by the weekend effect variations. In his study he used the daily stock returns and equality of means to test for the seasonality in a number of stocks quoted at the NSE for the period April 1, 1996 to March 31, 2001.He finds that Monday returns are not significantly lower than the other days nor are Friday returns significantly higher than the other days of the week. His findings also depict absence of the weekend effect on the NSE for the period under study. Given the dynamic market activities and the level of investor awareness, it would be important to find out whether the stock returns at the NSE depict the Turn of the month effect variations.

Osman (2007) in his study of the holiday effect attempted to find out if stocks listed at the NSE exhibit higher returns on average on the days preceding holidays. His study covered a period of nine years being January 1998 to December 2006 taking into account the eight-day window, being four days before and four days after the holiday. His population of study consisted of all the companies constituting the AIG index. 20 of them constituting the NSE 20 share index. He

used regression on the AIG index and correlation analysis in his study. Correlation analysis was used to test for multicollinearity between an indicator and the index. A low correlation coefficient suggests that the relationship between the two variables is weak or non-existent. A high correlation coefficient indicates that a dependent variable will most likely change when the independent variables change. He finds no holiday effect on stock returns at the NSE and hence a strategy of investing around holidays cannot be used by investors. Rasugu (2005) in his study of the holiday effect found no holiday effect at the NSE. Osman (2007) study used the AIG index and it would be important to do a study using all the firms trading in equity stocks in the Nairobi Stock exchange.

Samuel Onyuma (2009) studied the Day of the week and The Month of the Year effect in the Kenyan stock market, he observed that capital markets are normally assumed to be efficient in relation to the instantaneous incorporation of all known and new arriving information into prices of securities. Studies accessing the efficiency of capital markets have reported mixed results, some of which are against the efficient market theory. The purpose of his study was to determine if daily and seasonal anomalies do exist in the Kenyan stock market, he analyzed data on the NSE 20 share index using the regression model to identify the behavior of stock investors in Kenya during 1980-2006, Results indicated that Monday produces the lowest negative returns while Friday and January produces the largest positive returns. These results are useful in providing evidence of deviation from the efficient market hypothesis and drawing conclusions about anomalies in an emerging stock market.

Ngungi and Njiru (2005), In their survey of the factors that account for the dismal number of additional listing at the Nairobi Stock Exchange over the last fifty years of its existence. The number of listed companies at the NSE has oscillated around 50 since its establishment in 1954 despite the existence of profitable private companies whose sizes, growth rates and profitability may exceed those of the already listed companies and the potential benefits they are likely to recoup from being listed. The Government has undertaken several steps aimed at boosting the contribution of capital markets in the economic development of the country. These include the establishment of the Capital Markets Authority as the primary regulator over the activities in the sub-sector and provision of numerous fiscal and monetary incentives aimed at attracting the participation of the public in making use of the capital markets to ensure attainment of desired goals. In effect, the study was set to find out from a sample of non-listed companies whether they understand the existence of the capital markets, potential benefits and their real or perceived inhibitors to seeking listing at the NSE. The study utilized primary data collected from a sample of 25 out of 60 targeted non-listed companies. The analysis procedure involves the tabulation of the responses such as the factors considered by the sampled companies to be impediments to list at the NSE as well as suggested solutions to this phenomenon. The respondents indicated that stringent and numerous entry requirements are the main obstacles for private companies not to seek listing at the NSE. The other obstacles include the profitable track record. stringent and numerous continuous listing requirements as well as the quantity and quality of disclosures. Also Ngugi and Njiru (2005) noted that a good regulatory systemcreates an enabling environment for facilitate listing.

2.4 Conclusion

From the empirical studies done by different scholars in different markets, the findings show that there is a tendency of stock returns to be slightly higher during turn of the month compared to the other days of the month. It is on this note therefore that this study is aimed at investigating whether the stock returns at the NSE depict the Turn of the month effect variations.

Most of the studies conducted on the market efficiency in Kenya have concentrated on the weak form efficiency using various corporate announcements, with none vouching for market anomalies. For instance, Mokua (2003) and mokara (2004) on earnings, Onyango (2005) and Twala (2005) on Dividend, Karanja(2006) on rights issue, Atiti (2005) on price momentum, and Atogo (2009) on stock split, with conflicting market efficiency. Majority of these studies were conducted for a period of one year covering various facets of public announcements. Fama(1991) argues that for markets to be judged efficient then they need to gather evidence on various facets on information affecting returns and at various times in order to support the evidence of efficiency at any given level.

The above review shows that debate about market efficiency is likely to continue with proponents asserting that markets, on the average are informally efficient while opponents continue to provide new evidence about market inefficiency and the possibility of locating opportunities to achieve abnormal returns. Meanwhile, the EMH remains a significant area of interest and its significance increases when emerging markets are considered in the search for exploitable opportunities within these markets. It is in this regard thus a study on the Turn of the month effect in the Kenyan stock market will serve to add to the discussion on the stock market efficiency. If it is true that stock prices exhibit higher returns on the turn of the month, then it

follows that investors will be able to make higher returns on their investment if the purchase stocks on the other days of the bank and sell them on the turn of the month days.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0: Introduction

This chapter presented the methodology of the study. It outlined how the study was carried out. The chapter presented the research design, the population, sample and sampling technique, data collection method and instruments and data analysis.

3.1: Research design

There are several research designs ranging from exploratory studies, descriptive studies, explanatory studies. Within each of these designs are strategies that can be applied such as experiment, survey, and case study. The research design used was a descriptive survey; descriptive research portrays an accurate profile of persons, transactions /events, or situations (Robson, 2002). Surveys allow the collection of large amount of data from a sizable population in a highly economical way. It allows one to collect quantitative data which can be analyzed quantitatively using descriptive and inferential statistics (Saunders et al., 2007). Therefore, the descriptive survey was deemed the best strategy to fulfill the objectives of this study i.e. to investigate the existence of the Turn-of-the-month effect at the Nairobi Stock Exchange.

3.2: Population and sample

The target population for this study was all the companies listed at the NSE. There were 55 listed firms in Kenya. The sample for this study consisted of all firms continuously and actively trading for 3.5 years from May 2006 to December 31 2009 and for which data on stock returns was

available at the Nairobi Stock Exchange. The study used census survey of all the listed companies at the Nairobi stock Exchange

3.3: Data collection

The study used Secondary market data available at the NSE. Both monetary information on prices of securities, and value data for the NSE-20 share index were used in the analysis using a data collection sheet, the daily and monthly stock prices, and closing index values were collected from the daily price list compiled by the NSE. The data were checked against the NSE market statistical bulletins for consistencies. The data included daily prices and returns from 1st May 2006 to 31st December 2009.

3.4: Data analysis

Both descriptive and analytical approaches were utilized in data analysis. The research used SPSS version 17 as analysis software. The data collected used to analyse the research questions. The researcher got a central measure of impact levels. The two were compared using tools such as rank correlation coefficient to test the strength of the relationship on the turn of the month effect.

Regression model (Y= ax+b) It is a statistical technique used to predict the future values from the past information. In this case we predicted the Turn-of-the-month effect at different days of the month. The following model was used for the regression analysis.

Daily stock prices were transformed to daily returns using the following model:

Daily returns = (closing price – opening price)/ opening price.

Following French (1980) and Keim & Stambaugh (1984), regression model was used to analyze the returns. Regression analysis used to regress returns during the days of the turn of the month against the rest of the days of the months returns. Since this model was used with great success this study adopted the same for this study.

$R_t = \beta o + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \beta_4 D_4 + \beta_5 D_5 + \varepsilon_t$

Where:

R_t is the market return at time t,

β_o is the intercept, that is, value of R_t when all predictor variables take the value zero.

$\beta_1, \beta_2, \beta_3, \beta_4, \ldots\ldots\ldots \beta_n$ are the mean returns for each day of the month.

D_1 =1, if t is the first day before the end of the month and D_1= 0 for all other days,

D_2 =1, if t is the second day before the end of the month and D_1=0 for all other days,

D_3 =1, if t is the third day before the end of the month and D_1=0 for all other days,

D_4 =1, if t is the first day after the end of the month and D_1 = 0 for all other days,

D_5 =1, if t is the second day after the end of the month and D_1= 0 for all other days,

ε_t: is the error term at time t.

CHAPTER FOUR: ANALYSIS OF FINDINGS AND DISCUSSION

4.1 Introduction

Returns for all the 41 companies listed and trading at Nairobi stock exchange for the five trading days (Monday to Friday) were computed using the following model;

Returns = (closing price – opening price)/closing price

The period of analysis was from 1st May 2006 to 31st December 2009. Following Keim & Stambaugh (1984), the average return for the week was used in cases where a company did not trade on a particular day.

4.2 Simple Regression Model

4.2.1 Regression of days of the turn of the month against the other days of the month

Table 4.3.1 shows that the coefficient of determination (the percentage variation in the dependent variable being explained by the changes in the independent variables) for the listed companies at Nairobi stock exchange.

Table 4.1: Coefficient of determination (R^2) for firms

Name of Firm	(R^2)	P-Value	Interpretation
Kakuzi	0.97	0.00	R^2 =0.97, that is, D_1, D2, D3, D4, D5 explain 97 percent of variation in $\mathbf{R_t}$ leaving only 3 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Rea Vipingo	0.97	0.00	R^2 =0.97, that is, D_1, D2, D3, D4, D5 explain 97 percent of variation in $\mathbf{R_t}$ leaving only 3 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Sasini Tea &Coffee	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is

			significant at the 5% significance
Access Kenya Group	0.99	0.00	R^2 =0.99, that is, D_1, D2, D3, D4, D5 explain 99 percent of variation in $\mathbf{R_t}$ leaving only 1 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Car & General	.0.98	0.00	R^2 =0.98, that is, D_1, D2, D3, D4, D5 explain 98 percent of variation in $\mathbf{R_t}$ leaving only 2 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
CMC	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Kenya Airways	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Marshalls East Africa	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Unga Group	0.99	0.00	R^2 =0.99, that is, D_1, D2, D3, D4, D5 explain 99 percent of variation in $\mathbf{R_t}$ leaving only 1 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Scan Group	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Standard Group	0.99	0.00	R^2 =0.99, that is, D_1, D2, D3, D4, D5 explain 99 percent of variation in $\mathbf{R_t}$ leaving only 1 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
TPS Serena	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Barclays Bank	0.96	0.00	R^2 =0.96, that is, D_1, D2, D3, D4, D5 explain 96 percent of variation in $\mathbf{R_t}$ leaving only 4 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Centum Investment Company	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance

CFC Stanbic Holdings	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Diamond Trust Bank	0.99	0.00	R^2 =0.99, that is, D_1, D2, D3, D4, D5 explain 99 percent of variation in $\mathbf{R_t}$ leaving only 1 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Equity Bank	1.00	.000	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Housing Finance Corporation	1.00	.000	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Jubilee Holdings	0.97	0.00	R^2 =0.97, that is, D_1, D2, D3, D4, D5 explain 97 percent of variation in $\mathbf{R_t}$ leaving only 3 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Kenya Commercial Bank	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
National Bank of Kenya	0.98	0.00	R^2 =0.98, that is, D_1, D2, D3, D4, D5 explain 98 percent of variation in $\mathbf{R_t}$ leaving only 2percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
NIC Bank	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Pan African Insurance	0.99	0.00	R^2 =0.99, that is, D_1, D2, D3, D4, D5 explain 99 percent of variation in $\mathbf{R_t}$ leaving only 1 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Standard Chartered	0.99	0.00	R^2 =0.99, that is, D_1, D2, D3, D4, D5 explain 99 percent of variation in $\mathbf{R_t}$ leaving only 1 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Athi River Mining	0.96	0.00	R^2 =0.96, that is, D_1, D2, D3, D4, D5 explain 96 percent of variation in $\mathbf{R_t}$ leaving only 4 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance

Bamburi cement	0.98	0.00	R^2 =0.97, that is, D_1, D2, D3, D4, D5 explain 97 percent of variation in $\mathbf{R_t}$ leaving only 3 percent unexplained. The P
British American Tobacco Kenya Ltd	0.98	0.00	R^2 =0.98, that is, D_1, D2, D3, D4, D5 explain 98 percent of variation in $\mathbf{R_t}$ leaving only 2 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Crown Berger	0.92	0.00	R^2 =0.92, that is, D_1, D2, D3, D4, D5 explain 92 percent of variation in $\mathbf{R_t}$ leaving only 8 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
East African Cables	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
East African Portland cement	0.99	0.00	R^2 =0.99, that is, D_1, D2, D3, D4, D5 explain 99 percent of variation in $\mathbf{R_t}$ leaving only 1 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
East African Breweries	0.97	0.00	R^2 =0.97, that is, D_1, D2, D3, D4, D5 explain 97 percent of variation in $\mathbf{R_t}$ leaving only 3 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Kenya oil Company	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Kenya Power & Lighting Company	0.99	0.00	R^2 =0.99, that is, D_1, D2, D3, D4, D5 explain 99 percent of variation in $\mathbf{R_t}$ leaving only 1 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
KenGen Ltd	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Mumias Sugar Company	0.99	0.00	R^2 =0.97, that is, D_1, D2, D3, D4, D5 explain 97 percent of variation in $\mathbf{R_t}$ leaving only 3 percent unexplained. The P
Olympia Capital	0.99	0.00	R^2 =0.99, that is, D_1, D2, D3, D4, D5 explain 99 percent of variation in $\mathbf{R_t}$ leaving only 1 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Sameer Africa	1.00	0.00	R^2 =1.00, that is, D_1, D2, D3, D4, D5 explain 100 percent of variation in $\mathbf{R_t}$. The P- value of

			0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance
Total Kenya	0.99	0.00	R^2 =0.99, that is. D_1 D2, D3, D4. D5 explain 99 percent of variation in $\mathbf{R_t}$ leaving only 1 percent unexplained. The P- value of 0.000< 0.05) implies that the model of $\mathbf{R_t}$ is significant at the 5% significance

The finding in table 4.1 above shows the strength of association between. D_1. D2, D3, D4, D5 and $\mathbf{R_t}$. More specific D_1. D_2, D_3, D_4, D_5 explained 100% of the variation of the days of the turn of the month for the following companies; Sameer Africa, Kengen Ltd. Kenya oil Company, East African Cables, NIC Bank. Kenya Commercial Bank, Housing Finance Corporation. Equity Bank. Sasini Tea &Coffee, CMC, Kenya Airways, Marshalls East Africa, Scan Group, TPS Serena, Centum Investment Company and CFC Stanbic Holdings.

On the other hand D_1. D_2. D_3, D_4, D_5 explained 98% to 99% of the variation of the days of the turn of the month for the following companies; Total Kenya, Olympia Capital. Mumias Sugar Company, Kenya Power & Lighting Company, East African Portland cement, British American Tobacco Kenya Ltd. Bamburi cement, Standard Chartered. Pan African Insurance, National Bank of Kenya, Diamond Trust Bank, Access Kenya Group, Car & General, Unga Group. and Standard Group.

4.2.2 Regression of equations

Regression coefficients were used to write the regression equation for each company. P- Value was used to test on the significance of the predictor variables in the models, that is,

Ho: $D_1, D_2, D_3, D_4, D_5 = 0$

Ha: $D_1, D_2, D_3, D_4, D_5 \neq 0$

A predictor variable is not linearly related to the response variable if its P-value > 0.05

Table 4.2: Coefficient of determination (R^2) for firms

Name of Firm	Regression equation	Interpretation
Kakuzi	$R_t = 0 - .55 + .33D_5 - .49D_4 + .092D_3 + .76D_2 + 0.34D_1$ P-value [.12] [.04] [.73] [.00] [.06]	Only D_2 is linearly related with R_t
Rea Vipingo	$R_t = 0.94 + .02D_5 - .64D_4 + 1.02D_3 - .16D_2 + 0.75D_1$ P-value [.72] [.84] [.00] [.79] [.00]	Only D_1 is linearly related with R_t
Sasini Tea &Coffee	$R_t = 0.60 + .06D_5 + .05D_4 - 1.09D_3 + .01D_2 + 1.83D_1$ P-value [.94] [.02] [.02] [.59] [.00]	D_1 and D_4 is linearly related with R_t
Access Kenya Group	$R_t = 0.35 + .47D_5 - 1.49D_4 + .93D_3 - .41D_2 + 1.49D_1$ P-value [.17] [.02] [.16] [.38] [.00]	D_1 and D_4 is linearly related with R_t
Car & General	$R_t = -0.50 - .28D_5 + .74D_4 - .16D_3 + .42D_2 + .27D_1$ P-value [.09] [.00] [.56] [.10] [.16]	Only $D_4$is linearly related with R_t
CMC Holdings	$R_t = -0.04 - .81D_5 + .265D_4 + .30D_3 + .25D_2 + 1.00D_1$ P-value [.00] [.43 [.43] [.50] [.00]	D_1 and D_5 is linearly related with R_t
Kenya Airways	$R_t = 0.11 - .20D_5 + .16D_4 - .10D_3 + .02D_2 + 1.12D_1$ P-value [.28] [.64] [.75] [.95] [.00]	Only D_1 is linearly related with R_t
Marshalls East Africa	$R_t = 0.06 - .01D_4 + .05D_2 + .96D_1$ P-value [.94] [.04] [.00]	D_1 and D_2 is linearly related with R_t
Unga Group	$R_t = 0.27 + .32D_5 - .60D_4 + .03D_3 - .12D_2 + 1.35D_1$ P-value [.03] [.02] [.88] [.54] [.00]	D_1 and D_4 is linearly related with R_t
Scan Group	$R_t = 0.05 + .18D_5 - .19D_4 - .45D_3 + .55D_2 + .90D_1$ P-value [.19] [.03] [.00] [.00] [.00]	D_1, D_2 and D_3 are linearly related with R_t
Standard Group	$R_t = 0.46 + .86D_5 + .99D_4 - 1.78D_3 + .21D_2 + .71D_1$ P-value [.11] [.16] [.00] [.68] [.06]	Only D_3 is linearly related with R_t
TPS Serena	$R_t = 0.37 - .19D_5 + .11D_4 + .11D_3 - .10D_2 + 1.06D_1$ P-value [.16] [.51] [.65] [.66] [.00]	Only D_1 is linearly related with R_t
Barclays Bank	$R_t = 0.37 - .19D_5 + .11D_4 + .11D_3 - .10D_2 + 1.06D_1$ P-value [.16] [.51] [.65] [.66] [.00]	Only D_1 is linearly related with R_t

Centum Investment Company	R_t=11.29+.7.33D_5-16.17D_4+1.42D_3-1.60D_2+ 9.86D_1 P-value [.00] [.00] [.51] [.54] [.00]	D_1, D_4 and D_5 are linearly related with R_t
CFC Stanbic Holdings	R_t =-0.20+.01D_5-.38D_4+.29D_3+.16D_2+ .93D_1 P-value [.67 [.10] [.31] [.45] [.00]	Only D_1 is linearly related with R_t
Diamond Trust Bank	R_t =-0.84-.15D_5+.06D_4-.08D_3-.22D_2+ 1.42D_1 P-value [.29] [.80] [.74] [.19] [.00]	Only D_1 is linearly related with R_t
Equity Bank	R_t =0.11-.09D_5+.09D_4-.42D_3+.43D_2+ 1.00D_1 P-value [.69] [.69] [.15] [.36] [.00]	Only D_1 is linearly related with R_t
Housing Finance Corporation	R_t =0.71+.75D_5+.28D_4+.08D_3-1.97D_2+ 1.82D_1 P-value [.05] [.64] [.88] [.00] [.00]	D_1, D_2 and D_5 are linearly related with R_t
Jubilee Holdings	R_t =-9.59-.37D_5+1.05D_4-.71D_3+.90D_2+ .06D_1 P-value [.35] [.12] [.13] [.00] [.67]	Only D_1 is linearly related with R_t
Kenya Commercial Bank	R_t =0.27-.98D_5+.425D_4+.32D_3+.19D_2+ 1.05D_1 P-value [.01] [.35] [.30] [.65] [.00]	D_1 and D_5 are linearly related with R_t
National Bank of Kenya	R_t =0.70+.06D_5-.12D_4+.21D_3 -.69D_2 + 1.54D_1 P-value [.75] [.56] [.46] [.04] [.00]	D_1 and D_2 are linearly related with R_t
NIC Bank	R_t =-0.76+.16D_5+.27D_4-.83D_3 -.07D_2 + 1.47D_1 P-value [.33] [.13] [.01] [.85] [.00]	Only D_1 is linearly related with R_t
Pan African Insurance	R_t =1.94-.16D_5+.22D_4+.09D_3 -.31D_2 +1.11D_1 P-value [.42] [.47] [.71] [.14] [.00]	Only D_1 is linearly related with R_t
Standard Chartered	R_t =-1.06-.21D_5-.07D_4+.18D_3 -.98D_2 + 2.10D_1 P-value [.29] [.78] [.36] [.00] [.00]	D_1 and D_2 are linearly related with R_t
Athi River Mining	R_t =0.81+.23D_5-.18D_4+.06D_3+ .13D_2 + 0.76D_1 P-value [.32] [.50] [.83] [.61] [.00]	Only D_1 is linearly related with R_t
Bamburi cement	R_t =3.18-.14D_5+.93D_4-.91D_3 + .07D_2 + 1.02D_1 P-value [.61] [.02] [.04] [.84] [.00]	D_1 and D_4 are linearly related with R_t
British American Tobacco Kenya Ltd	R_t=3.56+.12D_5-.87D_4+.34D_3 + .36D_2 + 1.03D_1 P-value [.46] [.00] [.33] [.25] [.00]	D_1 and D_4 are linearly related with R_t
Crown Berger	R_t =0.76+.10D_5+.37D_4-.46D_3 -.63D_2 + 1.58D_1 P-value [.85] [.55] [.39] [.19] [.00]	Only D_1 is linearly related with R_t
East African Cables	R_t =0.08+.07D_5-.28D_4+.33D_3 +.88D_1 P-value [.42] [.35] [.21] [.00]	Only D_1 is linearly related with R_t
East African Portland cement	R_t =0.73-.01D_5+.11D_4+.21D_3 +.39D_2 + .28D_1 P-value [.094] [.62] [.67] [.42] [.00]	Only D_1 is linearly related with R_t
East African Breweries	R_t =-0.15+.26D_5-.10D_4-.32D_3 - .30D_2 + 1.46D_1 P-value [.43] [.80] [.34] [.24] [.00]	Only D_1 is linearly related with R_t
Unileaver	R_t =0.00+.24D_5-.48D_4+.44D_3 - .20D_2 + 1.00D_1 P-value [.09] [.02] [.01] [.17] [.00]	D_1 and D_4 are linearly related with R_t

Kenya oil Company	R_t =-0.22-.15D_5+.15D_4-.01D_3 - .13D_2 + 1.14D_1 P-value [.20] [.35] [.95] [.51] [.00]	Only D_1 is linearly related with R_t
Kenya Power & Lighting Company	R_t =3.69+.25D_5-.05D_4-.23D_3 - .19D_2 + 1.19D_1 P-value [.16] [.86] [.38] [.37] [.00]	Only D_1 is linearly related with R_t
Kengen Ltd	R_t =-0.06-.10D_5-.06D_4-.32D_3 + .11D_2 + 1.39D_1 P-value [.46] [.77] [.30] [.63] [.00]	Only D_1 is linearly related with R_t
Mumias Sugar Company	R_t =0.02-.15D_5+.22D_4-.18D_3 - .29D_2 + 1.41D_1 P-value [.24] [.31] [.16] [.06] [.00]	Only D_1 is linearly related with R_t
Olympia Capital	R_t =-0.07+.31D_5-.09D_4-.62D_3 - .21D_2 + 1.61D_1 P-value [.04] [.71] [.01] [.67] [.00]	D_1, D_3 and D_5 are linearly related with R_t
Sameer Africa	R_t =0.10+.17D_5-.06D_4-.31D_3 +.11D_2 + 1.08D_1 P-value [.52] [.88] [.40] [.71] [.00]	Only D_1 is linearly related with R_t
Total Kenya	R_t =0.17+.18D_5-.02D_4-.25D_3 +.070D_2 + .08D_1 0.14-.304] [.24] [.64] [.70] [.00]	Only D_1 is linearly related with R_t

Analysis in table 4.2 shows that D_1, influence the stock returns on day of the turn of the month for all the companies while D2 influences the day of the turn of the month for; Housing Finance Corporation, Standard Chartered, Scan Group, Marshalls East Africa and Kakuzi.

D_4 predicts the day of the turn of the month for; Unileaver, British American Tobacco Kenya Ltd, Bamburi cement, Centum Investment Company, Unga Group, Access Kenya Group, and Sasini Tea &Coffee

D_5 predicts the day of the turn of the month for; Olympia Capital, Kenya Commercial Bank, Housing Finance Corporation, Centum Investment Company,

In general D_1 (the first day before the end of the month), D_4 (the first day after the end of the month) and D_5 (the second day after the end of the month), were significantly related with market return at time (Turn of the Month Effect).

4.2.2 Summary and Interpretation of findings

Lakonishok and Smidt (1988) coined the phrase the turn of the month effect to describe the unusually high returns earned by DJIA equities over the four day interval beginning with the last trading day of the month and ending three days later. Their study covers the years 1897-1986. The turn of the month effect poses a challenge to both "rational" and "behavioral" models of security pricing.

This study examines the existence of the turn of the month effect at the Nairobi Stock exchange while turn of the month is defined as the last three days before end of the month and the first two days after end of the month. The study provides some evidence that days around the turn of the month exhibit high rates of return and the magnitude of this effect is not small.

However, considering the other studies, the non universally of such effects suggest that the anomalies are linked to local practices and institutions. Ogden (1990) hypothesizes that turn of the month effect in the US may result from the interest and principal payments on debt and dividend payments occur at the turn of the month. Usually various explanations for the monthly effects are considered, including the possibility that it is confounded with the January effect. Roll (1983) has showed that there is a tendency for significant excess return in January with much of the effect concentrated in the first few days of the month for the stocks of small firms.

In order to test the situation. 95% confidence intervals of mean returns for all trading months were examined. the study found that D_1 (the first day before the end of the month), D_4 (the first day after the end of the month) and D_5 (the second day after the end of the month), were significantly related with market return at time (Turn of the Month Effect).

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMENDATIONS

5.1 Summary

This study examines the existence of the turn of the month effect at the Nairobi Stock exchange while turn of the month is defined as the last three days before end of the month and the first two days after end of the month. The study provides some evidence that days around the turn of the month exhibit high rates of return and the magnitude of this effect is not small.

However, considering the other studies, the non universally of such effects suggest that the anomalies are linked to local practices and institutions. Ogden (1990) hypothesizes that turn of the month effect in the US may result from the interest and principal payments on debt and dividend payments occur at the turn of the month. Usually various explanations for the monthly effects are considered, including the possibility that it is confounded with the January effect. Roll (1983) has showed that there is a tendency for significant excess return in January with much of the effect concentrated in the first few days of the month for the stocks of small firms.

In order to test the situation, 95% confidence intervals of mean returns for all trading months were examined. the study found that D_1 (the first day before the end of the month), D_4 (the first day after the end of the month) and D_5 (the second day after the end of the month), were significantly related with market return at time (Turn of the Month Effect).

Foremost, the study found that D_1, D_2, D_3, D_4, D_5 explained 100% of the variation of the days of the turn of the month for the following companies; Sameer Africa, Kengen Ltd, Kenya oil Company, East African Cables, NIC Bank, Kenya Commercial Bank. Housing Finance

Corporation, Equity Bank, Sasini Tea &Coffee, CMC, Kenya Airways, Marshalls East Africa, Scan Group, TPS Serena, Centum Investment Company and CFC Stanbic Holdings. On the other hand the least correlation was obtained in the following companies; Crown Berger (92%) and Barclays bank (96%)

Secondly, the study found that returns on D_1 (the first day before the end of the month), D_4 (the first day after the end of the month) and D_5 (the second day after the end of the month), were significantly higher than the returns on the other days of the month (Turn of the Month Effect).

5.2 Conclusions

The existence of abnormal returns at calendar turning points is indisputable. Areturn regularity occurring at an arbitrary time on an arbitrary day might justifiably be regarded with suspicion. But calendar effects occur at cusps in time. These turning points have little economic significance but they apparently evoke special investor behaviour. Psycology appears to offer the most promising explanations for this behaviour.

While cross sectional return effects should be of interest to portfolio managers, calendar effects may be of greater effects to traders, both classes of anomalies have important implication for market efficiency.

On the basis of the regression done on turn of the month returns versus the other days, the researcher rejected the null hypothesis since the p-value falls within the acceptance region. Thus from the tests carried out, this study concludes that: Turn of the month returns are significantly

higher than the other days of the trading month. The researcher therefore concludes that there is a significant difference on the returns at the NSE, hence the turn of the month effect detected.

In summery, the average returns are persistently anomalous over a shorter and longer period of time (2006-2009) around the turn of the month days. By examining five days around the turn of the month being the last three trading days before the end of the month and the first two trading days after start of a new month, our research found that there exists strong evidence to show that stock prices are significantly higher around these days compared to the other days of the month.

5.3 Policy Recommendations

The existence of the turn of the month effect at the NSE can be explained by several factors among them; Payment of salaries and wages on the days of the turn of the month, type of investors, and level of market development and investor awareness among others.

The Kenyan capital market is dominated by both Speculative investors and long term investors. Speculative investors will buy shares for short term gains and therefore hold shares for a short period and dispose them off. On the other hand, Long term investors are after dividends and capital appreciation. They can use shares as securities for commercial loans. Where most investors have long term motives, the share prices and returns are likely to be fairly stable over long periods of time. It is possible then that the NSE is characterized by such short term investors which would cause the volatility in stock returns during the period of the study.

The NSE is a developing stock market and is yet to be compared to the developed markets like the New York Stock Exchange and London Stock Exchange. The size of the NSE is small and the numbers of assets traded are also few compared to those of developed markets.

Last but not least, is that the NSE is dominated by informed investors. These are individuals, brokers and institutional investors. These few players in the market have near perfect information, and hence all arbitrage opportunities are eliminated.

5.4 Limitations of the study

The period covered in this study was limited due to unavailability of data, some companies were not continuously listed throughout the study period. Other companies were also suspended during this period. This reduction in the sample size could have affected calculations in this study. The study covered a period of three and half years from May 2006 to December 31, 2009. Other studies in the developed markets like that of French (1980) covered 25 years and Kamara (1997) covered 30 years, whereas this study covered a shorter period. It is possible that the shorter period could have affected the findings.

The presidential campaigns, the election period and the subsequent post election violence witnessed in Kenya could have affected trading at the NSE for the better part of the beginning of 2008.This is because the stock market did not trade for the normal business hours.

5.5 Suggestions for further study

Suggestions for further study are enormous. Just but to name a few is that, it is important that a study be done to find out the possible causes of calendar effects at the Nairobi Stock Exchange. i.e are they related to remunerations at the end of the month, dividend payments etc

Another study should also be conducted using alternative techniques to test for seasonality at NSE. In this case, one may consider using event studies to find out the institutional factors at NSE that could be responsible for lack of seasonalities. Last but not least, it would be worth considering indicators of seasonality, in particular, NSE market index or the volume of shares traded in the market

A study should also be conducted to test for quarterly effects at NSE, that is, end of every three months effects on the stock performance for companies listed at NSE. it would be worth considering indicators of variations on the performance of companies listed at NSE, in particular, NSE market index or the volume of shares traded in the market.

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APPENDICES

Appendix I: list of firms listed at NSE

Name of Firm
Kakuzi
Rea Vipingo
Sasini Tea &Coffee
Access Kenya Group
Car & General
CMC Holdings
Kenya Airways
Marshalls East Africa
Unga Group
Scan Group
Standard Group
TPS Serena
Barclays Bank
Centum Investment Company
CFC Stanbic Holdings
Diamond Trust Bank
Equity Bank
Housing Finance Corporation
Jubilee Holdings
Kenya Commercial Bank
National Bank of Kenya
NIC Bank
Pan African Insurance
Standard Chartered
Athi River Mining
Bamburi cement
British American Tobacco Kenya Ltd
Crown Berger
East African Cables
East African Portland cement
East African Breweries
Unileaver
Kenya oil Company
Kenya Power & Lighting Company
Kengen Ltd
Mumias Sugar Company
Olympia Capital
Sameer Africa
Total Kenya

Appendix II: Output (summary of regression statistics, ANOVA and regression coefficients tables)

1. ATHI RIVER MINING LTD

Regression Statistics	
Multiple R	0.98
R Square	0.96
Adjusted R Square	0.95
Standard Error	2.67
Observations	44.00

ANOVA					
	df	SS	MS	F	Significance F
Regression	5.00	6314.37	1262.87	177.49	0.00
Residual	38.00	270.37	7.12		
Total	43.00	6584.74			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.81	3.08	0.26	0.79
D5	0.23	0.22	1.01	0.32
D4	-0.18	0.26	-0.69	0.50
D3	0.06	0.27	0.21	0.83
D2	0.13	0.26	0.51	0.61
D1	0.76	0.17	4.47	0.00

2. BRITISH AMERICAN TOBACCO LTD

Regression Statistics	
Multiple R	0.99
R Square	0.98
Adjusted R Square	0.97
Standard Error	3.76
Observations	44.00

ANOVA					
	df	SS	MS	F	Significance F
Regression	5.00		4558.52	321.63	0.00
Residual	38.00	538.58	14.17		
Total	43.00				

	Coefficients	Standard Error	t Stat	P-value
Intercept	3.56	4.32	0.83	0.41
D5	0.12	0.15	0.75	0.46

D4	-0.87	0.29	-2.99	0.00
D3	0.34	0.34	0.98	0.33
D2	0.36	0.31	1.17	0.25
D1	1.03	0.20	5.20	0.00

3. SASINI LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	0.88
Observations	44.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	49231.07	9846.21	12810.68	0.00
Residual	38.00	29.21	0.77		
Total	43.00	49260.27			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.60	0.18	3.28	0.00
D5	0.06	0.16	0.37	0.72
D4	0.05	0.25	0.20	0.84
D3	-1.09	0.16	-6.87	0.00
D2	0.10	0.39	0.27	0.79
D1	1.83	0.26	7.03	0.00

4. REA VIPINGO PLANTATIONS LTD

Regression Statistics	
Multiple R	0.98

R Square	0.97
Adjusted R Square	0.96
Standard Error	0.84
Observations	44.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	767.60	153.52	218.90	0.00
Residual	38.00	26.65	0.70		
Total	43.00	794.25			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.94	0.56	1.70	0.10
D5	0.02	0.21	0.08	0.94
D4	-0.68	0.29	-2.34	0.02
D3	1.02	0.41	2.48	0.02
D2	-0.16	0.30	-0.55	0.59
D1	0.75	0.21	3.64	0.00

5. KAKUZI LTD

Regression Statistics	
Multiple R	0.99
R Square	0.97
Adjusted R Square	0.97
Standard Error	1.12
Observations	41.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	1538.58	307.72	246.96	0.00
Residual	35.00	43.61	1.25		
Total	40.00	1582.20			

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.55	1.02	-0.54	0.59

D5	0.33	0.21	1.58	0.12
D4	-0.49	0.23	-2.16	0.04
D3	0.09	0.25	0.34	0.73
D2		0.21	3.58	0.00
D1	0.34	0.17	1.96	0.06
0.76				

6. UNILEVER LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	0.94
Observations	31.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	6931.90	1386.38	1573.82	0.00
Residual	25.00	22.02	0.88		
Total	30.00	6953.92			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.00	0.84	0.00	1.00
D5	0.24	0.14	1.77	0.09
D4	-0.48	0.19	-2.54	0.02
D3	0.44	0.15	2.86	0.01
D2	-0.20	0.14	-1.40	0.17
D1	1.00	0.13	7.84	0.00

7. TPS SERENA LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	1.15
Observations	42.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	22952.95	4590.59	3480.22	0.00
Residual	36.00	47.49	1.32		
Total	41.00	23000.44			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.37	0.46	0.79	0.43
D5	-0.19	0.13	-1.43	0.16
D4	0.11	0.17	0.66	0.51
D3	0.11	0.23	0.46	0.65
D2	-0.10	0.23	-0.45	0.66
D1	1.06	0.11	10.03	0.00

8. STANDARD GROUP LTD

Regression Statistics	
Multiple R	0.99
R Square	0.99
Adjusted R Square	0.99
Standard Error	2.86
Observations	44.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	28034.27	5606.85	683.87	0.00
Residual	38.00	311.55	8.20		
Total	43.00	28345.82			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.46	0.91	0.51	0.61
D5	0.86	0.53	1.62	0.11
D4	0.99	0.69	1.44	0.16
D3	-1.78	0.54	-3.33	0.00
D2	0.21	0.49	0.42	0.68
D1	0.71	0.37	1.95	0.06

9. SCAN GROUP LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	0.25
Observations	36.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	4325.67	865.13	13336.26	0.00
Residual	30.00	1.95	0.06		
Total	35.00	4327.61			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.05	0.07	0.66	0.51
D5	0.18	0.13	1.34	0.19
D4	-0.19	0.09	-2.21	0.03
D3	-0.45	0.13	-3.40	0.00
D2	0.55	0.14	3.96	0.00
D1	0.90	0.09	10.15	0.00

10. MARSHALS (E.A)LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	0.13
Observations	34.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	1175.64	235.13	13576.72	0.00
Residual	28.00	0.48	0.02		
Total	33.00	1176.13			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.06	0.13	0.48	0.64
D5	0.00	0.03	-0.07	0.94
D4	-0.01	0.07	-0.07	0.94
D3	0.00	0.05	-0.08	0.94
D2	0.05	0.06	0.85	0.40
D1	0.96	0.05	20.55	0.00

11. KENYA AIRWAYS LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	1.57
Observations	44.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	55186.51	11037.30	4463.85	0.00
Residual	38.00	93.96	2.47		
Total	43.00	55280.47			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.11	0.48	0.23	0.82
D5	-0.20	0.18	-1.09	0.28
D4	0.16	0.35	0.47	0.64
D3	-0.10	0.31	-0.33	0.75
D2	0.02	0.30	0.06	0.95
D1	1.12	0.15	7.48	0.00

12. CENTUM INVESTMENTS LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	1.08
Observations	44.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	402290.06	80458.01	68449.58	0.00
Residual	38.00	44.67	1.18		
Total	43.00	402334.73			

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.19	0.20	-0.94	0.35
D5	-0.31	0.09	-3.26	0.00
D4	0.62	0.18	3.47	0.00
D3	-0.46	0.07	-6.51	0.00
D2	-0.02	0.12	-0.16	0.87
D1	1.18	0.05	21.92	0.00

13. JUBILEE INSURANCE LTD

Regression Statistics	
Multiple R	0.98
R Square	0.97
Adjusted R Square	0.96
Standard Error	12.84
Observations	41.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	162960.51	32592.10	197.72	0.00
Residual	35.00	5769.39	164.84		
Total	40.00	168729.90			

	Coefficients	Standard Error	t Stat	P-value
Intercept	9.59	6.73	1.42	0.16
D5	-0.37	0.40	-0.94	0.35
D4	1.05	0.66	1.60	0.12
D3	-0.71	0.45	-1.57	0.13
D2	0.90	0.29	3.13	0.00
D1	0.06	0.14	0.43	0.67

14. KENYA COMMERCIAL BANK LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	3.04
Observations	44.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	260420.42	52084.08	5649.55	0.00
Residual	38.00	350.33	9.22		
Total	43.00	260770.75			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.27	0.62	0.44	0.66
D5	-0.98	0.34	-2.89	0.01
D4	0.42	0.44	0.95	0.35
D3	0.32	0.31	1.04	0.30
D2	0.19	0.40	0.46	0.65
D1	1.05	0.26	4.08	0.00

15. CMC HOLDINGS LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	1.82
Observations	44.00

ANOVA

	df	SS	MS	F	Significance F
Regression	5.00	96149.61	19229.92	5775.46	0.00
Residual	38.00	126.52	3.33		
Total	43.00	96276.13			

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.04	0.37	-0.10	0.92
D5	-0.81	0.23	-3.49	0.00
D4	0.26	0.33	0.81	0.43
D3	0.30	0.38	0.80	0.43
D2	0.25	0.38	0.68	0.50
D1	1.00	0.02	49.75	0.00

16. CAR & GENERAL(K) LTD

Regression Statistics	
Multiple R	0.99
R Square	0.98
Adjusted R Square	0.98
Standard Error	1.31
Observations	35.00

ANOVA

	Df	SS	MS	F	Significance F
Regression	5.00	2695.38	539.08	316.28	0.00

Residual	29.00	49.43	1.70
Total	34.00	2744.81	

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.50	1.20	0.42	0.68
D5	-0.28	0.16	-1.76	0.09
D4	0.74	0.20	3.73	0.00
D3	-0.16	0.28	-0.59	0.56
D2	0.42	0.24	1.72	0.10
D1	0.27	0.19	1.45	0.16

17. MUMIAS SUGER LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	0.45
Observations	44.00

ANOVA

	Df	SS	MS	F	Significance F
Regression	5.00	17156.43	3431.29	16913.40	0.00
Residual	38.00	7.71	0.20		
Total	43.00	17164.14			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.02	0.11	0.20	0.84
D5	-0.15	0.13	-1.19	0.24
D4	0.22	0.21	1.03	0.31
D3	-0.18	0.13	-1.42	0.16
D2	-0.29	0.15	-1.91	0.06
D1	1.41	0.10	14.27	0.00

18. KENGEN LTD

Regression Statistics	
Multiple R	1.00

R Square	1.00
Adjusted R Square	1.00
Standard Error	0.51
Observations	44.00

ANOVA

	Df	SS	MS	F	Significance F
Regression	5.00	3043.70	608.74	2358.44	0.00
Residual	38.00	9.81	0.26		
Total	43.00	3053.51			

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.06	0.23	-0.26	0.80
D5	-0.10	0.14	-0.75	0.46
D4	-0.06	0.21	-0.30	0.77
D3	-0.32	0.31	-1.04	0.30
D2	0.11	0.23	0.48	0.63
D1	1.39	0.11	12.14	0.00

19. KENYA POWER & LIGHTING CO. LTD

Regression Statistics	
Multiple R	1.00
R Square	0.99
Adjusted R Square	0.99
Standard Error	5.23
Observations	44.00

ANOVA

	Df	SS	MS	F	Significance F
Regression	5.00	106285.27	21257.05	776.49	0.00
Residual	38.00	1040.28	27.38		
Total	43.00	107325.55			

	Coefficients	Standard Error	t Stat	P-value
Intercept	3.69	3.13	1.18	0.25
D5	0.25	0.18	1.43	0.16
D4	-0.05	0.27	-0.18	0.86
D3	-0.23	0.27	-0.88	0.38
D2	-0.19	0.21	-0.91	0.37
D1	1.19	0.12	9.66	0.00

20. EQUITY BANK LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	0.99
Standard Error	5.68
Observations	41.00

ANOVA

	Df	SS	MS	F	Significance F
Regression	5.00	245226.49	49045.30	1520.75	0.00
Residual	35.00	1128.78	32.25		
Total	40.00	246355.27			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.11	1.76	0.06	0.95
D5	-0.09	0.23	-0.40	0.69
D4	0.09	0.23	0.41	0.69
D3	-0.42	0.28	-1.48	0.15
D2	0.43	0.46	0.93	0.36
D1	1.00	0.25	4.02	0.00

21. NATIONAL BANK LTD

Regression Statistics	
Multiple R	0.99
R Square	0.98

Adjusted R Square	0.98
Standard Error	1.46
Observations	44.00

ANOVA

	Df	SS	MS	F	Significance F
Regression	5.00	3932.69	786.54	369.97	0.00
Residual	38.00	80.79	2.13		
Total	43.00	4013.48			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.70	1.12	0.63	0.54
D5	0.06	0.18	0.32	0.75
D4	-0.12	0.21	-0.59	0.56
D3	0.21	0.28	0.75	0.46
D2	-0.69	0.33	-2.09	0.04
D1	1.54	0.21	7.21	0.00

22. BARCLAYS BANK LTD

Regression Statistics	
Multiple R	0.98
R Square	0.96
Adjusted R Square	0.95
Standard Error	19.77
Observations	44.00

ANOVA

	Df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	354437.51	70887.50	181.38	0.00
Residual	38.00	14851.48	390.83		
Total	43.00	369288.99			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	11.29	4.63	2.44	0.02
D5	7.33	1.24	5.91	0.00
D4	-16.17	2.07	-7.80	0.00
D3	1.42	2.14	0.66	0.51

D2	-1.60	2.59	-0.62	0.54
D1	9.86	2.21	4.45	0.00

23. CFC STANBIC HOLDINGS LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	2.58
Observations	43.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	141235.16	28247.03	4240.81	0.00
Residual	37.00	246.45	6.66		
Total	42.00	141481.60			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.20	0.94	-0.21	0.84
D5	0.01	0.02	0.43	0.67
D4	-0.38	0.23	-1.67	0.10
D3	0.29	0.29	1.02	0.31
D2	0.16	0.21	0.76	0.45
D1	0.93	0.08	11.09	0.00

24. DIAMOND TRUST BANK

Regression Statistics	
Multiple R	0.99
R Square	0.99
Adjusted R Square	0.99
Standard Error	1.76
Observations	44.00

Regression Statistics	
Multiple R	0.99
R Square	0.99

Adjusted R Square	0.99
Standard Error	1.76
Observations	44.00

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.84	1.47	-0.57	0.57
D5	-0.15	0.14	-1.07	0.29
D4	0.06	0.22	0.26	0.80
D3	-0.08	0.23	-0.34	0.74
D2	-0.22	0.17	-1.34	0.19
D1	1.42	0.17	8.40	0.00

25. HOUSING FINANCE COMPANY LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	3.90
Observations	44.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	180557.65	36111.53	2373.56	0.00
Residual	38.00	578.14	15.21		
Total	43.00	181135.79			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.71	0.91	0.78	0.44
D5	0.75	0.36	2.06	0.05
D4	0.28	0.59	0.47	0.64
D3	0.08	0.54	0.15	0.88
D2	-1.97	0.31	-6.35	0.00
D1	1.82	0.37	4.94	0.00

26. NIC BANK

Regression Statistics

Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	1.86
Observations	44.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	79166.78	15833.36	4596.42	0.00
Residual	38.00	130.90	3.44		
Total	43.00	79297.67			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.76	0.57	-1.33	0.19
D5	0.16	0.16	0.99	0.33
D4	0.27	0.18	1.54	0.13
D3	-0.83	0.28	-2.97	0.01
D2	-0.07	0.34	-0.19	0.85
D1	1.47	0.26	5.66	0.00

27. PAN AFRICAN INSURANCE

Regression Statistics	
Multiple R	1.00
R Square	0.99
Adjusted R Square	0.99
Standard Error	1.98
Observations	42.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	17217.25	3443.45	874.33	0.00
Residual	36.00	141.78	3.94		
Total	41.00	17359.03			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	1.94	1.13	1.71	0.10
D5	-0.16	0.19	-0.81	0.42

D4	0.22	0.30	0.73	0.47
D3	0.09	0.25	0.37	0.71
D2	-0.31	0.20	-1.51	0.14
D1	1.11	0.17	6.52	0.00

28. STANDARD CHARTARD BANK

Regression Statistics	
Multiple R	1.00
R Square	0.99
Adjusted R Square	0.99
Standard Error	2.80
Observations	44.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	31465.91	6293.18	800.11	0.00
Residual	38.00	298.89	7.87		
Total	43.00	31764.80			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-1.06	2.89	-0.37	0.71
D5	-0.21	0.20	-1.08	0.29
D4	-0.07	0.25	-0.28	0.78
D3	0.18	0.19	0.92	0.36
D2	-0.98	0.30	-3.25	0.00
D1	2.10	0.18	11.59	0.00

29. ACCESS KENYA LTD

Regression Statistics	
Multiple R	0.99
R Square	0.99
Adjusted R Square	0.99
Standard Error	0.67
Observations	31.00

ANOVA

	Df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	1015.47	203.09	450.82	0.00
Residual	25.00	11.26	0.45		
Total	30.00	1026.73			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.35	0.49	0.73	0.47
D5	0.47	0.33	1.43	0.17
D4	-1.49	0.59	-2.53	0.02
D3	0.93	0.64	1.45	0.16
D2	-0.41	0.46	-0.89	0.38
D1	1.49	0.30	4.97	0.00

30.UNGA LIMITED

Regression Statistics	
Multiple R	1.00
R Square	0.99
Adjusted R Square	0.99
Standard Error	0.38
Observations	32.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	558.59	111.72	757.08	0.00
Residual	26.00	3.84	0.15		
Total	31.00	562.43			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.27	0.26	1.01	0.32
D5	0.32	0.14	2.24	0.03
D4	-0.60	0.25	-2.43	0.02
D3	0.03	0.22	0.15	0.88
D2	-0.12	0.19	-0.62	0.54
D1	1.35	0.15	9.05	0.00

31. TOTAL KENYA

Regression Statistics	
Multiple R	1.00
R Square	0.99
Adjusted R Square	0.99
Standard Error	0.67
Observations	44.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	2298.91	459.78	1012.60	0.00
Residual	38.00	17.25	0.45		
Total	43.00	2316.16			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.14	0.43	0.33	0.74
D5	-0.33	0.16	-2.11	0.04
D4	0.27	0.23	1.21	0.24
D3	-0.11	0.22	-0.47	0.64
D2	-0.06	0.16	-0.38	0.70
D1	1.22	0.13	9.69	0.00

32. BAMBURI CEMENT LTD

Regression Statistics	
Multiple R	0.99
R Square	0.98
Adjusted R Square	0.98
Standard Error	3.86
Observations	44.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	30563.59	6112.72	409.39	0.00
Residual	38.00	567.39	14.93		

Total	43.00	31130.98

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	3.18	3.88	0.82	0.42
D5	-0.14	0.26	-0.52	0.61
D4	0.93	0.37	2.50	0.02
D3	-0.91	0.42	-2.14	0.04
D2	0.07	0.34	0.21	0.84
D1	1.02	0.14	7.42	0.00

33. SAMEER AFRICA LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	0.99
Standard Error	0.63
Observations	44.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	3120.05	624.01	1553.07	0.00
Residual	38.00	15.27	0.40		
Total	43.00	3135.32			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	0.10	0.19	0.55	0.58	-0.28
D5	0.17	0.27	0.64	0.52	-0.37
D4	-0.06	0.41	-0.15	0.88	-0.90
D3	-0.31	0.37	-0.85	0.40	-1.05
D2	0.11	0.30	0.38	0.71	-0.49
D1	1.08	0.18	5.86	0.00	0.71

34 OLYMPIA CAPITAL HOLDINGS LTD

Regression Statistics	
Multiple R	1.00
R Square	0.99
Adjusted R Square	0.99
Standard Error	0.59

Observations	32.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	1441.99	288.40	841.27	0.00
Residual	26.00	8.91	0.34		
Total	31.00	1450.90			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.07	0.32	-0.21	0.83
D5	0.31	0.14	2.17	0.04
D4	-0.09	0.24	-0.37	0.71
D3	-0.62	0.23	-2.65	0.01
D2	-0.21	0.48	-0.43	0.67
D1	1.61	0.36	4.42	0.00

35. CROWN BURGER LTD

Regression Statistics	
Multiple R	0.96
R Square	0.92
Adjusted R Square	0.90
Standard Error	3.27
Observations	43.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	4286.92	857.38	80.22	0.00
Residual	37.00	395.47	10.69		
Total	42.00	4682.39			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.76	1.89	0.40	0.69
D5	0.10	0.53	0.20	0.85
D4	0.37	0.61	0.61	0.55
D3	-0.46	0.53	-0.86	0.39
D2	-0.63	0.47	-1.33	0.19
D1	1.58	0.48	3.32	0.00

36.E.A PORTLAND CEMENT LTD

Regression Statistics	
Multiple R	0.99
R Square	0.99
Adjusted R Square	0.98
Standard Error	2.78
Observations	36.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	17563.08	3512.62	454.60	0.00
Residual	30.00	231.81	7.73		
Total	35.00	17794.89			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.73	2.69	0.27	0.79
D5	-0.01	0.07	-0.08	0.94
D4	0.11	0.23	0.50	0.62
D3	0.21	0.50	0.42	0.67
D2	0.39	0.48	0.82	0.42
D1	0.28	0.09	3.15	0.00

37. E.A CABLES LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00
Standard Error	1.23
Observations	44.00

ANOVA

	Df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	467520.03	93504.01	61561.94	0.00
Residual	38.00	57.72	1.52		
Total	43.00	467577.75			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.08	0.24	0.32	0.75
D5	0.07	0.09	0.82	0.42
D4	-0.28	0.29	-0.94	0.35
D3	0.33	0.26	1.29	0.21
D2	0.00	0.21	-0.01	0.99
D1	0.88	0.14	6.36	0.00

38. EAST AFRICA BREWERIES LTD

Regression Statistics	
Multiple R	0.98
R Square	0.97
Adjusted R Square	0.97
Standard Error	3.62
Observations	44.00

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	15816.11	3163.22	241.47	0.00
Residual	38.00	497.80	13.10		
Total	43.00	16313.91			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.15	4.32	-0.04	0.97
D5	0.26	0.33	0.80	0.43
D4	-0.10	0.38	-0.25	0.80
D3	-0.32	0.33	-0.97	0.34
D2	-0.30	0.25	-1.18	0.24
D1	1.46	0.31	4.70	0.00

39. KENOL KOBIL LTD

Regression Statistics	
Multiple R	1.00
R Square	1.00
Adjusted R Square	1.00

Standard Error	1.71
Observations	43.00

ANOVA

	Df	*SS*	*MS*	*F*	*Significance F*
Regression	5.00	25327.16	5065.43	1724.92	0.00
Residual	37.00	108.65	2.94		
Total	42.00	25435.81			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.22	1.00	-0.22	0.83
D5	-0.15	0.11	-1.31	0.20
D4	0.15	0.16	0.94	0.35
D3	-0.01	0.22	-0.07	0.95
D2	-0.13	0.19	-0.67	0.51
D1	1.14	0.10	11.54	0.00