THE EFFECTS OF STOCK SPLIT ANNOUNCEMENTS ON SHARE RETURNS AT THE NAIROBI SECURITIES EXCHANGE

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF REQUIREMENTS FOR AWARD OF THE DEGREE OF MASTER DEGREE IN BUSINESS ADMINISTRATION OF UNIVERSITY OF NAIROBI.

June, 2012

DECLARATION

I declare that to the best of my knowledge this study is my original work and has not been presented in any other university

EDWARD OUMA OLOO

Signature..... *Date* 11.11.2012

This research has been presented for examination with my approval as a university.

Supervisor

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Dedication

This study is dedicated to my daughters Prizy and Maggy, my Friend Terry and my sister Molly for their patience and constant encouragement during my studies.

Acknowledgement

God is good all the time and all the time God is good and that's God. I therefore take this time to thank God for his unconditional love and for granting me the opportunity to do this course.

Mentioning all persons who made their valuable contribution to this project would fill several pages. Therefore, I limit myself to expressing my sincere thanks to the key persons. I am particularly grateful to my supervisors, Otieno Luther for his valuable comments and guidance during the preparation of this project. I sincerely acknowledge the assistance that he gave me as he was always ready to help.

I thank my sister Molly and friend Terry for the financial assistance and moral support they accorded to me during my studies. I am also very grateful to my colleagues at work and my friends for their patience and encouragements.

Abstract

In Kenya, stock were splits unheard of on stock exchange market until the year 2004 when the Kenya oil company became the first company to announce a stock split of shares and other companies followed suit. It is therefore necessary to establish whether or not stock splits announcements have information content in the long run.

The study covered ten (10) companies out of eleven (11) companies listed at the NSE which had announced stock split between January 2004 to June 2010 which the event study methodology was used.

Inferential statistics and regression analysis was applied. The study covered event window period of 107 weeks before and after the event week. Secondary data from the NSE formed the main source of data.

This study was aimed at gaining investors' confidence in the Nairobi Security exchange and search for the lost glory and build investors' confidence in the market. It can be said that the NSE is semi-strong efficient but in weak form efficiency. The market did not react efficiently to stock split announcement with regards to stock returns in the long run as per the findings of this study. The capital market authority should try to find out and eliminate those factor causing the inefficiency both in information and operational.

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LIST OF ABBREVIATIONS

Term	Meaning
AIMS	Alternative Investment Market Segment
CBK	Central Bank of Kenya
EMH	Efficient Market Hypothesis
FIMS	Fixed Income Market Segment
FTSE	Financial Times Stock Exchange
IFC	International Finance Corporation
LSE	London Stock Exchange
MIMS	Main Market Segment
NSE	Nairobi Security Exchange
NYSE	New York Stock Exchange

CHAPTER ONE: INTRODUCTION

1.1Background to the study

The Kenya capital market is called the Nairobi Security Exchange. It was formed in 1954 as a voluntary organization of stock brokers, and is now one of the most active markets in Africa. The market deals in both variable income securities and fixed income securities. Variable income securities are the ordinary shares which have no fixed rate of dividend payable as dividend is dependent upon profitability of the company while fixed income securities are those securities which have a constant rate of return like preference shares and bonds.

In the year 2007-2008, the market was badly affected due to poll chaos which left the economy wobbling and has yet to recover from the chaos. The collapse of the Kenyan shilling to a low of sh.107 against the US dollar in 2011 being the lowest since independence makes NSE as the worst performing security market comparable to its peers of late.

The year 2011 showed additional changes at the NSE whereby two indices were introduced i.e. the FTSE NSE Kenya 25 index and FTSE Kenya 15 index. The FTSE NSE Kenya 25 index measures the performance of the 25 most liquid securities trading on the NSE, while FTSE NSE 15 index reflects the performance of largest 15 securities ranked by the full market capitalization. The two indices run concurrently with the NSE 20-share index and NSE all share indices.

The NSE also re-classified her business segment in the year 2011. The previous market segments were: the Main Investment Market Segments (MIMS), the Alternative Investment Market Segments (AIMS), and the Fixed Income Market Segments (FIMS). The market has been re-classified under the industry sectors for equities and debt securities including preference shares.

The year 2012 also realized the CMA setting aside 40M budget to serve as an intelligent market surveillance system with the ability to track transactions and report anomalies at the security market in real time and later launched investors education program throughout the country having realized that out of 40 million Kenyans only 5 % are investing in capital market .the apathy being attributed to lack of awareness on importance of such investments and how the capital market work.

The market underwent through another radical transformation in the same year 2012 when demutualization of the bourse which separates ownership and trading rights of members firms and open the broker owned bourse to the public as the latest development the NSE members mainly the stockbrokers and investment banks have retained 88% stake in the demutualization exchange and hope to dilute their shareholding to less than 40% through initial public offer is a clear manifestation that the rapid changes at the bourse. The bourse efficiency is wanting both on operation and information, and that is why it's very necessary to carry out a study on stock split announcements at the NSE which will measure both the effect of the information on share returns and the efficiency of the market.

1.2 Research problem

Researchers and other scholars have come up with different opinion on whether the stock split announcements do influence returns of companies listed at NSE. The study attempted to establish if there is any evidence that stock splits announcements influence returns of companies. Many stakeholders are concerned about returns and they seek to know the behavior of prices at the stock market to enable them make rational decisions. Practitioners and investors who do not believe in market efficiency often use reported annual and interim earning information to make investment decisions in the companies listed at the Nairobi Security Exchange (Atogo, 2009).

Other investors use trading rules and a set of investment strategies. Chartist on the other hand predicts future movement in share prices on the assumption that history repeats itself. Fundamental analyst study corporate financial reports and the relevant public information to try to gain an insight into true worth of shares thereby identifying mispriced shares. Behavioral finance also explains how investors have become irrational while making investment decisions due to psychological factors in human behavior.

The concept of efficiency to investors is very important. So far there have been no specifications of effects of stock splits on security returns at the Nairobi Security Exchange. In 2007, there were allegations that the share prices of some securities at the NSE were being manipulated. It is therefore important to establish the levels of efficiency in the NSE via a study on stock split information in order to elicit full information. The core question is – Does stock returns in the market react to the information event of the stock split announcements?

1.3 Research Objective

To examine the long run effect of stock split on stock return

1.4 Value of the study

Some observers believe that the prices of stock that split will increase because the shares are priced low, which tend to increase demand for them. Advocates of efficiency would not expect changes reasoning that the firm has simply issued additional stock and nothing fundamentally affecting the firm has occurred.

Fama et al (1969) study asserts that stock split alone should not cause high rates of return because they add nothing to the value of return. That study assumes that any relevant information that cause the split will already be discounted. Price increases are

usually expected because companies typically raise their dividends when they split their stocks.

The investors at the Nairobi securities exchange should be optimistic that the bourse can be rebound. The market expansion ,new listings, and new indices should be studied to help claw back the losses incurred so far in the past.

The study on the effects of stock split announcements on share returns at the Nairobi securities exchange is an important area for new investors, the government, management of different companies, regulatory bodies, academicians and other interested parties.

The studies done at the NSE to test the effects of stock split announcements on share returns used daily data in the short run while this study used the weekly data over a long run. Most scholars found that the stock split resulted into positive significant market reaction

CHAPTER TWO: LITERATURE REVIEW

2.1 Studies on stock split

A major study on the semi-strong form of efficient market hypothesis with reference to stock split was by Fama et al (1969). The researcher examined security returns of 960 stock splits on the New York Stock Exchange in the period 1926-1960. The study estimated the statistical relationship on monthly rates of returns of all listed stocks on the New York Stock Exchange based on the 420 months during the period 1926-1960 except for the 15 months before and 15 months after the split. The argument was that the split contained information that altered expectations about the rates of returns on the stock which split. The study concluded that stock splits per se have no information content which is captured by the changes in stock return.

Sivombo (2006) found conflicting results in testing liquidity of stock splits firms compared to stock distributions firms.He used daily adjusted prices for sample stocks for the event window.

Atogo (2009) calculated the values of MAR surrounding stock splits announcement of all the companies under study when aggregated are not significant while the MCAR was significant. The market did not react efficiently to stock split announcement with regards to returns of all companies in her study. used daily prices ,event window of 15 days that's 7 days pre event day and 7 days post event days and estimation window for market returns of 20 days before the event window and 20 days after the the event window .

Munyi (2010) found that Average Cumulative Abnormal Returns (ACAR) exhibited a reducing trend following split announcements, therefore the study recommended that management can use stock splits to adjust stock price to a more marketable range, downward for stock splits. The study also recommended that Capital Market

Authority (CMA) to take stern action or stringent regulations against the possibility of insider trading as there is generally highly abnormal returns during periods to stock split announcements.

Nkonge (2010) concluded that stock splits remain one of the most popular and the least understood phenomena in equity markets. The widely view among investors is that stock splits are a positive event for the company. However the matching process in his study could not be perfectly achieved and only chose firms that were close to the sample firm's characteristics. He used the daily prices of 10 days event period while calculating the abnormal returns of companies listed at the NSE.

Aduda and Chemarum (2010) concluded that generally there is an increase in volumes of shares traded when stock splits are announced especially days around the the stock splits. They used daily adjusted prices for sample stocks for event window of 101 days consisting of 50 days before and 50 days after the event date.

2.2 Event Study Methodology

In his work (Fama, 1991) decided to change the title but retain the coverage of the forms of market efficiency. Instead of semi – strong form tests of the adjustments of prices to public information, he used the term event studies. Fama argued that event studies give the most direct evidence on efficiency. The study documents interesting regularities in the response of stock prices to investment decisions, financing decisions and changes in corporate control. The results stand up to replication. The event studies therefore pass the tests of scientific usefulness. Event studies have been used to test the response of stock prices to investment decisions, financing decisions and changes in corporate control transactions. When the announcement of an event can be dated to the day, daily data allows precise measurement of the speed of the stock price response which is the central issue for market efficiency (Mac Kinlay,

1997). When the stock price response is large and concentrated in a few days, the way one estimates daily expected returns (normal returns) in calculating abnormal returns will have little effects on inference (Fama, 1991).

In this study the main the other object will be not only to test the efficiency of the market but to look at how the stock split affects the market in the long run. Instead of using the daily returns then weekly returns were used.

2.3 Theoretical Framework

The theory behind the Market efficiency is the Efficient Market Hypothesis /Theory which states that in an efficient market prices fully reflect available information. This implies that no excess returns can be made from information because prices already reflect the information in an efficient market (Fama, 1970). Fama in his study stated that there are three forms of Market Efficiency, Weak, Semi-strong and Strong forms of efficiency. The level of efficiency is determined by the information subset.

In the weak form of efficiency, the stock prices fully incorporate information contained in the past history of prices, and nobody can detect mispriced securities by studying past prices and beat the market.

In the semi-strong form of efficiency (Fama, 1970), the current prices fully incorporate all publicly available information. Public information includes not only past prices, but also data reported in a company's financial statements (annual reports, income statements, filings for the Capital Markets. Authority, earnings and dividend announcements, announced merger plans, the financial situation of company's competitors, expectations regarding macroeconomic factors such as inflation and unemployment). Weak form is a subset of semi-strong form of efficiency.

Strong form of market efficiency states that the current price fully incorporates all existing information, both public and private, sometimes called inside information

(Fama, 1970). A number of studies have been carried on market efficiency worldwide in the developed world exchange markets (Fama, 1965, 1979, 1991; Fama et al, 1969; Asquith 1983; Roll, 1986 and Mac Kinlay, 1997) among others. These markets have been found to impound information and incorporate such information almost immediately hence approaching strong forms of efficiency. It is therefore important for stock markets in Africa and especially Kenya to be able to pass at least the tests of efficiency of the lower levels. Semi-strong form is a subset of strong form efficiency.

2.4 Models for calculating Expected Returns

An event study has four components (Bhagat and Romano, 2001): - Defining the event and the announcement date, measuring the stock returns during the announcement period, estimating the expected return of the stock during the announcement period in the absence of the announcement, computing the abnormal return which is given as actual returns minus expected returns and measuring its statistical significance. The event under investigation defined first, where events refer to the announcements of various corporate or financial characters. Under the event study, the date of the first public announcement must be determined. This is because under the semi-strong form of the efficient market hypothesis, the impact of the event on the value of the firm should occur on the announcement date (Bhagat and Romano, 2001). There are several models for calculating expected returns: examples are constant expected model, market model and capital asset pricing model.

The Constant Expected model is expressed as

$$R_{it} = \mu + e_{it} \quad (1)$$

Where R_{it} is the return of stock $_i$ over time $_t$; μ is the expected return of stock $_i$ and e_{it} is the statistical error term.

The Market Model is expressed as

$R_{it} = \alpha + \beta_j * R_{mt} + e_{it}$ ..... (2)

Market Model is widely used in empirical accounting research and it was developed by Sharpe (1964). It states that security returns is a linear function of returns on a market portfolio. The Market Model describes the relationship between the rate of returns on individual securities or portfolios and the rate of return on the market. The Market model proposes that the returns in any period $_t$ of any stock $_j$, R_{jt} is linearly related to the returns on the market portfolio in that period $_t$, R_{mt} where R_{mt} is the average returns across all stocks.

$\beta_j R_{mt}$ = is the total period return that is due to market wide movements in stock prices.

α_j = any expected return to stock $_j$ that are independent of the market and are therefore not affected by market forces. e_{it} are the returns which are as a result of the independent variable which is expected to affect the return.

β_j = is the risk level coefficient.

The model states that the best guess of the return of stock $_j$ is $\alpha + \beta_j * R_{mt}$. If by any chance, certain factors or events occur unexpectedly in the industry or within the firm and they cause the actual return in any period $_t$ to be different from the expected return, then the difference is captured in the error term e_{it}. The unexpected return which is also refered to as Abnormal Return (AR) can therefore be expressed as:-

$e_{it} = R_{jt} - E(R_{jt}) = R_{jt} - [\alpha + \beta_j E(R_{mt})] = AR$ ..... (3)

On the other hand the Expected return can be expressed as follows

$E(R_{jt}) = \alpha + \beta_j E(R_{mt})$ ..... (4)

$E(R_{mt})$ = is the expected market return. $E(R_{jt})$ = is the expected return of security $_j$ at time $_t$.

The market model is a statistical model used to express the association between stock returns and the Market returns as a whole. α is the intercept on the vertical axis of a Regression Analysis and represents the period return when market return is zero. β can be defined as the slope coefficient of the market model line. β_j represents the sensitivity of the returns R_{jt} to factors affecting the market and that it moves proportionately up or down further than the market. A value of $\beta_j < 1$ implies that the stock is less volatile than the market. According to the market model, the return on the stock, is a function of three factors namely

(i) β_j (R_{mt}) which is explained by market wide events and variables and is referred to as systematic risk.

(ii) α_j and e_{it} are due to events and variables that are more specific to the stock $_j$. This is referred to as unsystematic risk. The slope of the market model equation β_j can be interpreted as an index of systematic risk of stock $_j$. In the portfolio theory, the slope coefficient is referred to as beta coefficient of the stock.

The market model may explain only some of the variations in R_{jt}. The portion of R_{jt} variation that is explained by the market factor is measured by the coefficient of determination (r^2). The unexplained portion is captured by the error term e_{jt} and by definition these changes in R_{jt} are due to events that do not affect all stocks in the market. (r^2) acceptability with regards to the market model will be how well it explains security returns relative to other models.

2.5 Capital Asset Pricing Model

This is a model that relates the required rate of return for a security to its risk as measured by beta. This model was first proposed by Sharpe (1964) and tries to predict the relationship between the risk and expected returns on risky assets. The relationship can be expressed mathematically as follows

$R_{it} = R_f + \beta i^*(R_{mt} - R_f) + _I$ ..... (5)

Where R_f is the risk free rate of return and β_i is the beta or systematic risk of stock $_i$

2.6 Model Derivation

Fama (1991) argued that market model; equation (2) can be used to measure market efficiency when the phenomenon being studied is firm specific. Mac Kinlay (1997) argued that the market model dominates equilibrium based models like CAPM in event studies hence the study has adopted the market model. Market model given as $R_{it} = \alpha + \beta_j * R_{mt} + e_{it}$ requires the use of some proxy for the market return. The study used the NSE-20 share index. The choice is due to its recognized source computed by NSE and the fact that it includes highly traded companies which provide a more reliable proxy for the market. The index can also be used easily by other researchers. The theory behind event study is the Efficient Market Hypothesis. This means that the capital markets are considered efficient with respect to an information event if the returns of the capital market securities fully impound the return implications of the event. Event studies are cross sectional in nature because they focus on variables in a single group over different time periods. Event study typically involves two variables: - Independent variable and Dependent variable. The independent variable is the event introducing information. Dependent variable is the daily changes in stock returns. The independent variable is active and is only available for a limited period of time during the study. This allowed the study to use the dependent variables as a measure of the effect of the independent variable hence it is possible to infer that the event is responsible for the difference in changes in stock returns as shown in equation (6).

The independent variable is operationalized by first specifying the date when the information of the stock split first became available to the market. This is called the event day zero. Once the date had been established, the relevant period over which the

event is expected to impact on stock returns is specified. This is referred to as the event window. During the periods outside an event window, the event is not expected to have any influence on the stock returns and is called the estimation window. The independent event can take only two variables that is the event can be present or absent.

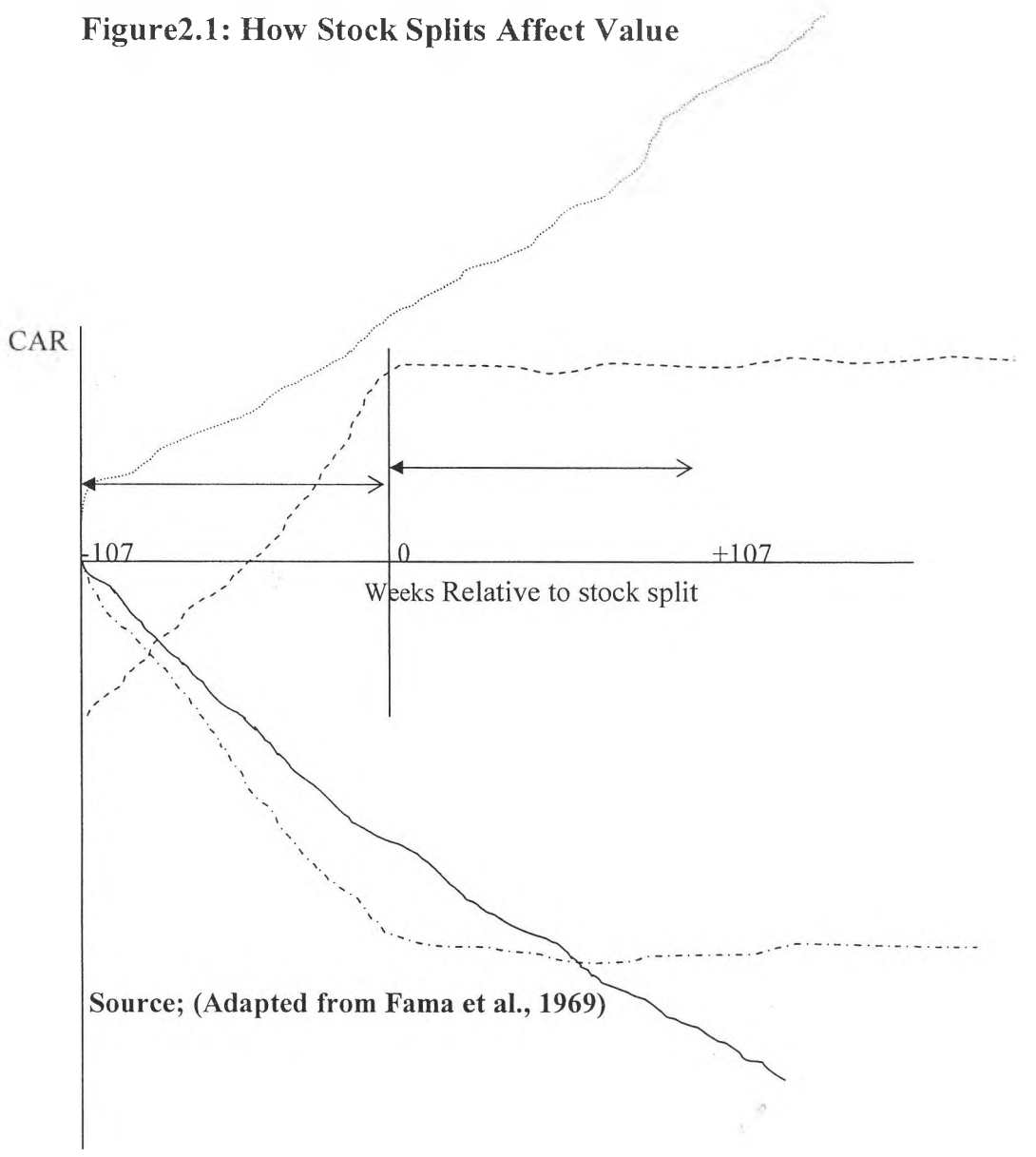
Dependent variable is the day to day changes in the returns of the stock sold in the market expressed as the difference between the stock price the day before and the day after divided by the stock price the day before times 100. Since the independent variable can only take two variables, the dependent variable will also take only two variables. There can either be a change or no change in the returns.

For a given performance of AR, CAR, MAR, MCAR, a t statistic (t-test) computed at 5% level of significance and compared to its assumed distribution under the null hypothesis that average abnormal performance over the event window will not equal to zero or that the Cumulative abnormal return - CAR over the event window will not equal to zero. The Null hypothesis will be rejected, if t-statistics exceeds the critical value at 5% level of significance or accepted if the t- statistic falls within the critical region. For market to be in Semi-strong form of efficiency CAR should be equal to zero before the event, rise/fall to positive/negative number respectively then remain relatively constant as shown in Figure 2.1

2.7 Conceptual Framework

Market Efficiency has been defined in many ways and in different contexts. In this study, a capital market is considered efficient with respect to an information event if the prices of the market securities fully impound the return implications of the event. The figure below gives the various ways in which returns can move during an announcement of stock splits.

Figure2.1: How Stock Splits Affect Value



Source; (Adapted from Fama et al., 1969)

Key

- - - - - Increase in returns prior to announcements before leveling off

-·-·-·-·- Decrease in returns prior to announcements before leveling off

..... Increase or decrease continues before and after the announcements

CAR -Cumulative abnormal return

The region between -7 and 0 is the pre-split announcement period. During this period the price of the stock is expected to move up or down in anticipation of the upcoming event. The movement will continue until the announcement period day 0 after which the prices are expected to level off between period 0 to +7 regions. When the market is inefficient the increase or decrease will continue long after the event announcement.

This definition can be represented notationally as

$F(R_{it} \ldots\ldots\ldots \mid \varnothing^{m}_{t-1}) = f(R_{i,t} \ldots \varnothing^{m}_{t-1} \mid \varnothing^{a}_{t-1}$ .... (6)

$F(\ldots\ldots)$ is the probability distribution function

$\varnothing^{m}_{t-1}$ is the information set by the market at time $_{t-1}$

$\varnothing^{a}_{t-1}$ is the specific information item placed in the public domain

CHAPTER THREE: RESEARCH METHODOLOGY

The analysis of market prices reflect not only the past price movements but all the public available information tested using the event study methodology. In this case it was used to test the returns reaction to stock split announcements in a semi strong efficient market. Information given in published accounts, dividends and profit announcements, appointment of a new chief executive or product breakthrough should be captured into stock price the moment it is announced.

3.1 Study Design

The research used a complete census while adopting event study methodology. Through event study methodology, variable was estimated using the market models, causation determined and statistically tested for significance. Fama, (1991).argued that event studies are the cleanest evidence we have on efficiency.

3.2 Target Population

The target population was the companies listed at the Nairobi Security exchange between January 2004 and June 2010.

3.3 The Sample

The sample consisted of ten companies out of eleven that have performed stock split at the NSE equity bank was omitted in the study due to some technical issues .The source of data for the study was Nairobi Security Exchange. The types of data required for the study was the announcement dates which was found in the notice to dealings files on corporate announcements. Daily share prices were required to get average weekly prices. This is available in the daily price list at the NSE. The NSE - 20 share index was also used in order to determine the market return. The data is available at the NSE library, NSE data base, NSE website or the NSE daily price lists.

3.4 The Data and Instruments

Secondary data was used in the study. The data is quantitative in nature and needed both content and quantitative analysis. The period covered by the study was between January 1996 and June 2012. This was done to ensure that all companies are included in the study because (Mac Kinlay, 1997) concluded that the event study technique improves as the number of firms increase. The data collection form comprised of four sections.Companies particulars, Announcement dates, Event window, and estimation window.

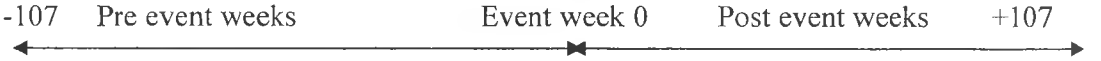


Figure 3.1 **Event Window**

Source ;(Oloo, 2012)

3.5 Model Specification

i) The actual returns of each firm over estimation window was calculated using the holding period return by considering only the share prices.

Actual Return = $(P_1-P_0) / P_0*100 = R_{jt}$ ..... (7)

Where P_o is the price of the stock at time $_{t-1,}$ P_1 is the price of the stock at time $_t$ and R_{jt} is the return of stock $_j$ at time $_t$.

ii) R_{mt}= (NSEI$_1$-NSEI$_o$) /NSEI$_o$*100..... (8)

Where Rmt is the return of market at time t. NSEIo is the Nairobi security exchange index at time t-$_1$ and NSEI$_1$ is the Nairobi security exchange index at time t.

(iii) Regression Analysis was used during none report period to determine α and β. Error term was assumed to be zero. Return series was used instead of simple price changes because movement of price is an increasing function of the price levels for the shares (Fama, 1965). α and β was estimated by simple regression of the results of step (i) above corresponding to each of the stocks by assuming a stable linear

relation between the market return and security returns. The intercept and the slope of regression were obtained by regressing the security returns against market returns during the estimation period as follows.

iv) Expected returns of each security for each week over the event window was calculated by introducing the results of step (iii) into the estimation model in step (iv)

$$E(R_{jt}) = \alpha_j + \beta R_{mt} \quad \ldots\ldots (9)$$

Where E ($R_{j,t}$) is the expected return of each security for each week in the event window and the rest of the terms as defined. R_{jt} and R_{mt} are as obtained in step (i) and (ii) respectively.

α and β are intercept and slope coefficient respectively.

βR_{mt} is the market return at time $_t$

v) Actual returns of each firm over the event window were calculated using the holding period return as given in equation (7).

Where P_o is the price of the stock at time $_{t-1,}$ P_1 is the price of the stock at time $_t$ and R_{jt} is the return of stock $_j$ at time t.

vi) The difference between expected return and actual return for each security on each event week was computed. This difference is the AR which is the part of the return that is not predicted and is therefore an estimate of change in the firm's return on that week which is caused by the event (DeBondt and Thaler, 1985) as cited by Barakat and Terry, Undated).

E ($R_{i,t}$) = the expected return of each security for each week in the event window

AR = the part of the return that is not predicted, the difference between actual and expected return. R_{jt} = return of stock $_j$ at time $_t$

The AR was tested for significance by calculating the t-statistic at 5 % level of significance, where AR is the Abnormal Return.

The Cumulative Average Return (CAR) was calculated by summing all weekly AR_s (Abnormal Returns) across time. Then they were standardized and given a t-test to find if they will be statistically different from zero.

Individual weekly ARs was averaged to give MAR which was examined to determine whether on average the event on stock split announcement produce expected returns.

MCAR was computed for all securities across time. Then it was standardized and a t-test applied to find if it was statistically different from zero.

3.6 Model Assumptions

For the capital markets to be efficient in its semi:-strong form, the value of CAR should be equal to zero before the event, rise to a positive number just after the event and then stay. In an inefficient capital market CAR will continue rising/falling for several weeks after the event as shown in figure 2.1 above.

The region between -107 and 0 is the presplit announcement period. During this period the returns of the stock is expected to move up or down in anticipation of the upcoming event. The movement should continue until the announcement period week 0 after which the prices will be expected to level off between period 0 to +107 region

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This study uses Fama, Fisher, Jensen and Roll (1969) model in estimating the effect of stock splits on share prices. Fama, Fisher, Jensen and Roll (1969) examine the effect of the announcement of a stock split on stock prices. To capture the effect of the stock split on stock i, they control for the normal relation between the return on i during month t, Rit, and the return on a broad stock market index. They use a sample of monthly return data from 1926 to 1960 including the period containing the event, they estimate the parameters of the following "market" model for each stock i in the sample.The market model defines a stock's return as:

$R_i = \alpha_i + \beta_i \times r_m + \varepsilon_i$

Where:

R_i = return on risky security i;

β_i = beta of risky security i;

r_m = return on the market

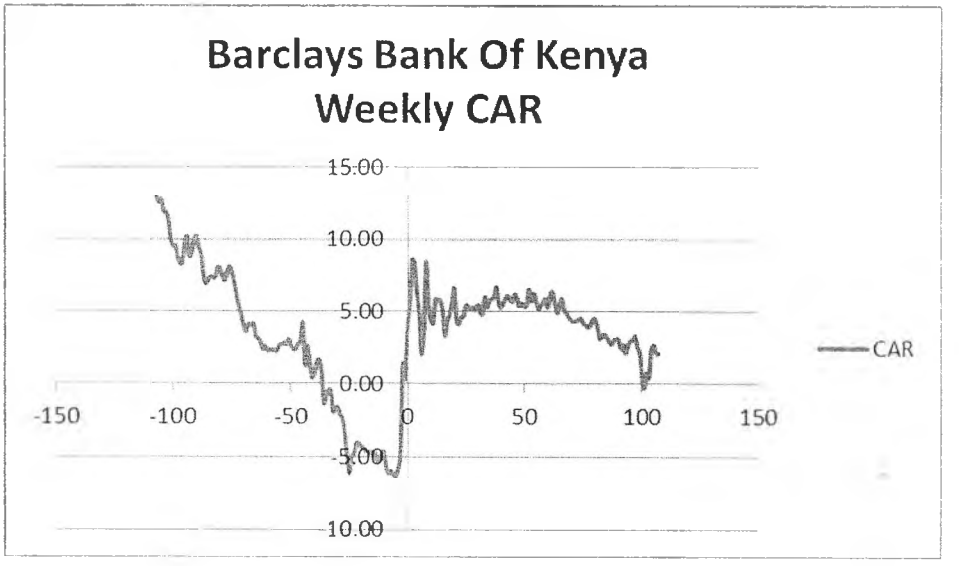
ε_i = error term

Aduda and Chemarum (2010) uses daily data while this study uses weekly data over the period 1996 to 2012 June inclusive of the event windows. The use of weekly data is to overcome flat prices inherent in daily prices and is appropriate in testing long term effect of stock splits. The data capture cover 856 weeks, including the event window. The weekly return were calculated for each period and used in market model to estimate abnormal returns.

4.2 Effects of stock splits on the returns of companies listed at Nairobi security exchange Barclays Bank of Kenya

The share split was announced on 8th. November 2006 and books closed on 29th. November and fell into the week 45 in the year 2006. From the data analysis and resulting graphs, it appears that BBK had an eventful share split (The detailed data is in appendix…). The graph below confirms a turning point in cumulative abnormal returns. However, the magnitude must be confirmed using relevant statistics.

Figure 4.1: Barclays bank returns



Two-sample T for BBKr

PeriodS	N	Mean	StDev	SE Mean
0	107	0.72	3.20	0.31
1	107	-0.30	4.87	0.47

Difference = mu (0) - mu (1)

Estimate for difference: 1.021

95% CI for difference: (-0.090, 2.132)

T-Test of difference = 0 (vs not =): T-Value = 1.81 P-Value = 0.071 DF = 182

The average weekly return before the stock split is 0.72 while that after the stock split is -0.30. The Two-sample T for average weekly return (BBKr) table gives a confidence interval for the difference in weekly return before (0) and after (1) the right issue. For this company, a 95% confidence interval is (-0.090, 2.132)) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is 1.81, with p-value of 0.070, and 182 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly returns before and after stock split.

Two-Sample T-Test and CI: Residual, PeriodS

Two-sample T for Residual

PeriodS	N	Mean	StDev	SE Mean
0	107	-0.41	3.17	0.31
1	107	-0.06	3.37	0.33

Difference = mu (0) - mu (1)

Estimate for difference: -0.348

95% CI for difference: (-1.229, 0.533)

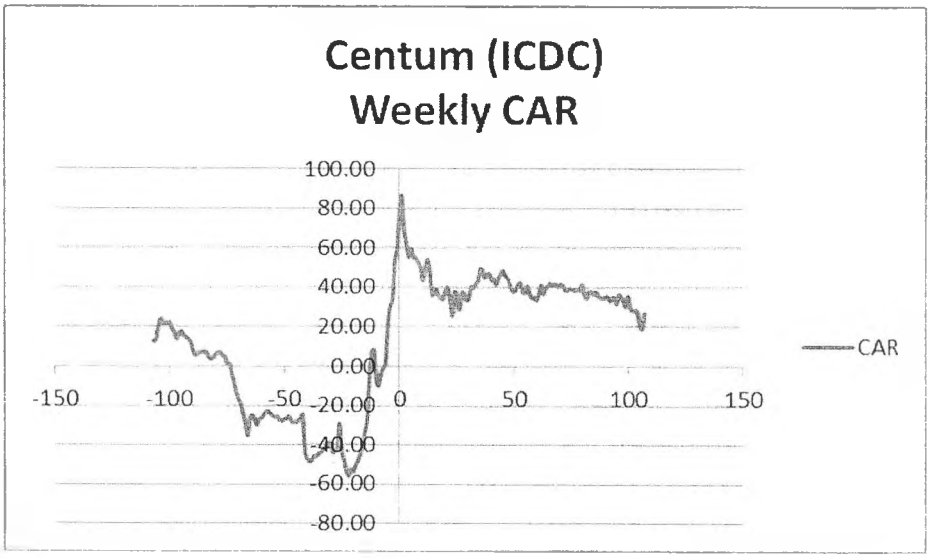
T-Test of difference = 0 (vs not =): T-Value = -0.78 P-Value = 0.437 DF = 211

The average weekly residual before the stock split is -0.41while that after the stock split is -0.06. The Two-sample T for average weekly residual (BBKr) table gives a confidence interval for the difference in weekly return before (0) and after the right issue. For this company, a 95% confidence interval is (-1.229, 0.533) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is -0.78 with p-value of 0.437, and 211 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly returns before and after stock split.

CENTUM (ICDC)

The share split was announced on 19th. October 2006 and books closed on 4th. January, 2007, and fell into the week 42 in the year 2006. From the data analysis and resulting graphs, it appears that **CENTUM** had an eventful share split. The graph below confirms a turning point in cumulative abnormal returns. However, the magnitude must be confirmed using relevant statistics.

Figure 4.2: Centum returns



Two-Sample T-Test and CI: CENTUMr, PeriodS

Two-sample T for CENTUMr

PeriodS	N	Mean	StDev	SE Mean
0	107	1.94	5.67	0.55
1	107	-0.56	6.92	0.67

Difference = mu (0) - mu (1)

Estimate for difference: 2.497

95% CI for difference: (0.792, 4.203)

T-Test of difference = 0 (vs not =): T-Value = 2.89, P-Value = 0.004, DF = 204

The average weekly return before the stock split is 1.94 while that after the stock split is -0.56. The Two-sample T for average weekly return (CENTUMr) table gives a confidence interval for the difference in weekly return before (0) and after (1) the right issue. For this company, a 95% confidence interval is (0.792, 4.203) which does not includes zero, thus suggesting that there is difference. Next is the hypothesis test result. The test statistic is 2.89, with p-value of 0.004, and 182 degrees of freedom. Since the p-value is less than commonly chosen a-levels of 0.05, there is evidence for a difference in weekly returns before and after stock split.

Two-Sample T-Test and CI: Residual, PeriodS

Two-sample T for Residual

PeriodS	N	Mean	StDev	SE Mean
0	107	0.42	5.63	0.54
1	107	-0.49	4.10	0.40

Difference = mu (0) - mu (1)

Estimate for difference: 0.909

95% CI for difference: (-0.420, 2.238)

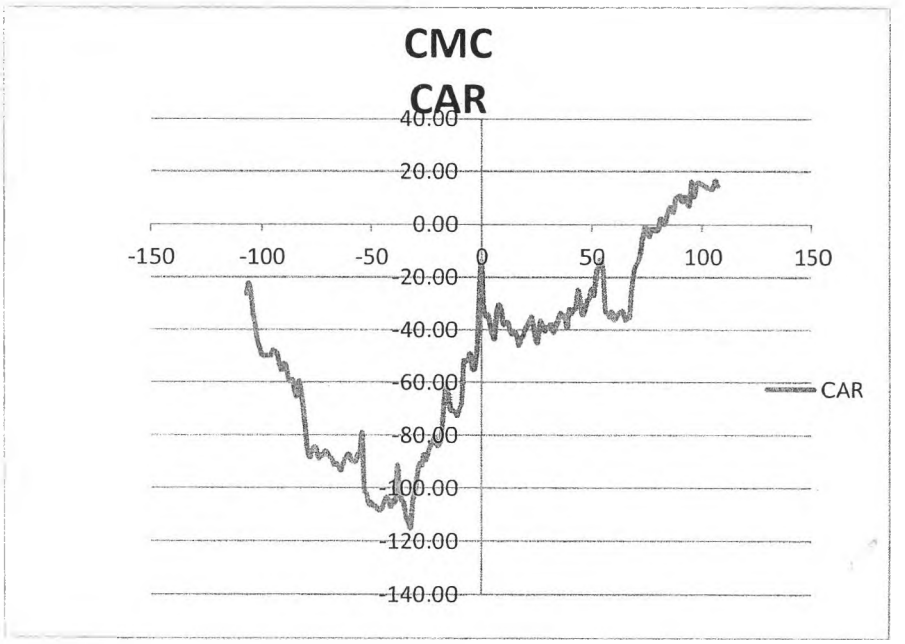
T-Test of difference = 0 (vs not =): T-Value = 1.35 P-Value = 0.179 DF = 193

The average weekly residual before the stock split is 0.42 while that after the stock split is -0.49. The Two-sample T for average weekly residual (CENTUMr) table gives a confidence interval for the difference in weekly return before (0) and after the right issue. For this company, a 95% confidence interval is (-0.420, 2.238) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is 1.35with p-value of 0.179, and 193 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly returns before and after stock split. For this company though there is evidence that the returns before and after the stock split are different, the residual show absence of abnormal return to investors.

CMC

The share split was announced on 11th. January 2007 and books closed on 2nd .February 2007 and fell into week 2 in the year 2007. From the data analysis and resulting graphs, it appears that CMC had an eventful share split and that the effect of the split could have been felt earlier. This company was suspended from the NSE in 2011. The graph below confirms a turning point in cumulative abnormal returns. However, the magnitude must be confirmed using relevant statistics.

Figure4.3: CMC returns



Two-Sample T-Test and CI: CMCr, PeriodS

Two-sample T for CMCr

PeriodS	N	Mean	StDev	SE Mean
0	107	1.33	5.39	0.52
1	102	-0.28	6.53	0.65

Difference = mu (0) - mu (1)

Estimate for difference: 1.608

95% CI for difference: (-0.031, 3.246)

T-Test of difference = 0 (vs not =): T-Value = 1.93 P-Value = 0.054 DF = 196

The average weekly return before the stock split is 1.33 while that after the stock split is -0.28. The Two-sample T for average weekly return (CMCr) table gives a confidence interval for the difference in weekly return before (0) and after (1) the right issue. For this company, a 95% confidence interval is (-0.031, 3.246) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is 1.93, with p-value of 0.054, and 196 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly returns before and after stock split.

Two-Sample T-Test and CI: Residual, PeriodS

Two-sample T for Residual

PeriodS	N	Mean	StDev	SE Mean
0	107	-0.04	5.04	0.49
1	102	0.28	4.10	0.41

Difference = mu (0) - mu (1)

Estimate for difference: -0.323

95% CI for difference: (-1.573, 0.927)

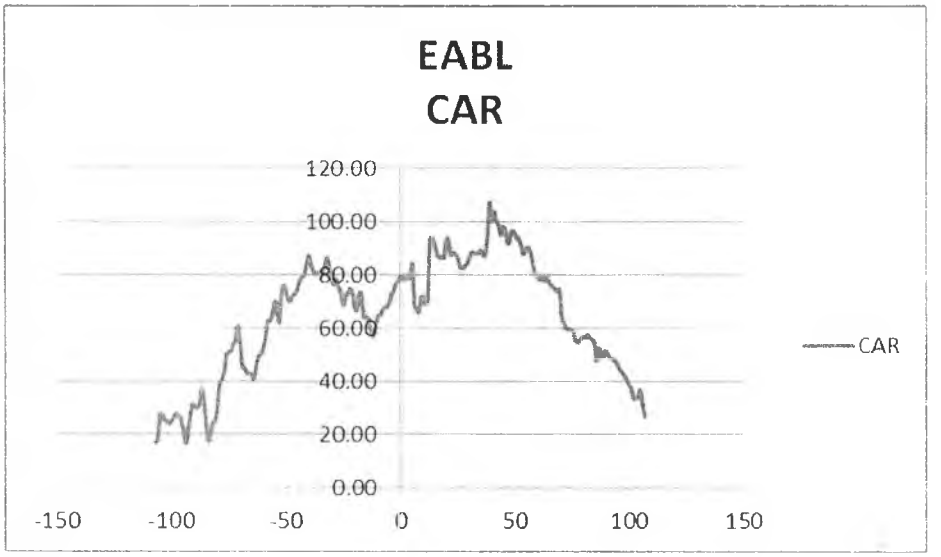
T-Test of difference = 0 (vs not =): T-Value = -0.51 P-Value = 0.611 DF = 202

The average weekly residual before the stock split is -0.04 while that after the stock split is -0.28. The Two-sample T for average weekly residual (CMCr) table gives a confidence interval for the difference in weekly return before (0) and after the right issue. For this company, a 95% confidence interval is (-1.573, 0.927) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is -0.51 with p-value of 0.611, and 202 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly returns before and after stock split.

EABL

The share split was announced on 27th August 2004 and books closed on 26th November, 2004 and fell into the week 35 in the year 2004. From the data analysis and resulting graphs, it appears that EABL had an eventful share split and that the effect of the split could have been felt earlier or later than week 35. The graph below confirms a turning point in cumulative abnormal returns. However, the magnitude must be confirmed using relevant statistics.

Figure4.4: EABL returns



Two-Sample T-Test and CI: EABLr, PeriodS

Two-sample T for EABLr

PeriodS	N	Mean	StDev	SE Mean
0	107	1.77	3.98	0.38
1	107	0.55	4.02	0.39

Difference = mu (0) - mu (1)

Estimate for difference: 1.223

95% CI for difference: (0.146, 2.301)

T-Test of difference = 0 (vs not =): T-Value = 2.24 P-Value = 0.026 DF = 211

The average weekly return before the stock split is 1.77 while that after the stock split is 0.55. The Two-sample T for average weekly return (EABLr) table gives a confidence interval for the difference in weekly return before (0) and after (1) the right issue. For this company, a 95% confidence interval is (0.146, 2.301) which does not includes zero, thus suggesting that there is difference. Next is the hypothesis test result. The test statistic is 2.24, with p-value of 0.026, and 211 degrees of freedom. Since the p-value is less than commonly chosen a-levels of 0.05, there is evidence for a difference in weekly returns before and after stock split.

Two-Sample T-Test and CI: Residual, PeriodS

Two-sample T for Residual

PeriodS	N	Mean	StDev	SE Mean
0	107	0.59	3.79	0.37
1	107	-0.49	3.96	0.38

Difference = mu (0) - mu (1)

Estimate for difference: 1.080

95% CI for difference: (0.035, 2.124)

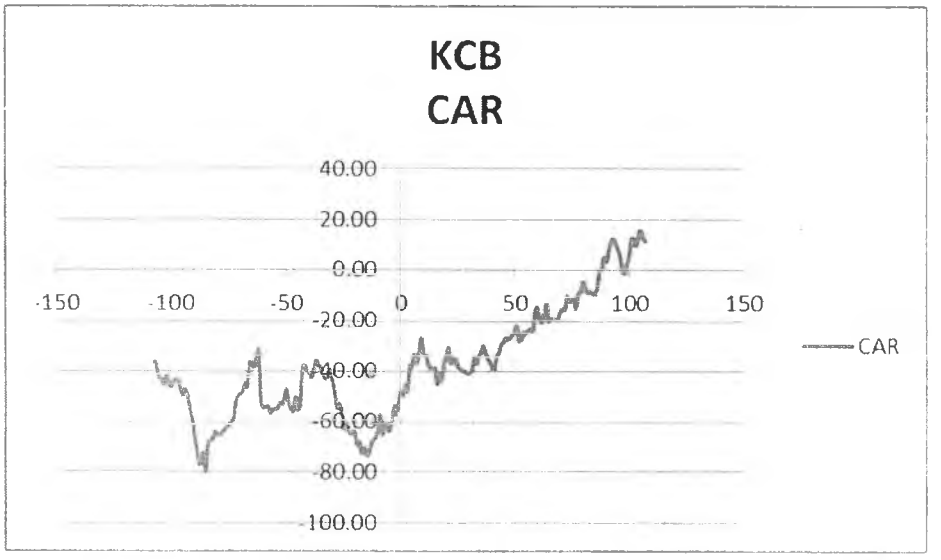
T-Test of difference = 0 (vs not =): T-Value = 2.04 P-Value = 0.043 DF = 211

The average weekly residual before the stock split is 0.59while that after the stock split is -0.49. The Two-sample T for average weekly residual (EABLr) table gives a confidence interval for the difference in weekly return before (0) and after the right issue. For this company, a 95% confidence interval is (0.035, 2.124) which does not includes zero, thus suggesting that there is difference. Next is the hypothesis test result. The test statistic is 2.04, with p-value of 0.043, and 211 degrees of freedom. Since the p-value is less than commonly chosen a-levels of 0.05, there is evidence for a difference in weekly returns before and after stock split. An average the investors in this company earned abnormal return.

KCB

The share split was announced on 5th March 2007 and books closed on 2nd April, 2007 and fell into the week 35 in the year 2007. From the data analysis and resulting graphs, it appears that KCB had an eventful share split and that the effect of the split could have been felt earlier or later than week 10. The graph below confirms a turning point in cumulative abnormal returns. However, the magnitude must be confirmed using relevant statistics.

Figure4.5: KCB bank returns



Two-Sample T-Test and CI: KCBr, PeriodS

Two-sample T for KCBr

PeriodS	N	Mean	StDev	SE Mean
0	107	1.21	5.10	0.49
1	107	-0.11	6.12	0.59

Difference = mu (0) - mu (1)

Estimate for difference: 1.320

95% CI for difference: (-0.199, 2.840)

T-Test of difference = 0 (vs not =): T-Value = 1.71 P-Value = 0.088 DF = 205

The average weekly return before the stock split is 1.21 while that after the stock split is -0.11. The Two-sample T for average weekly return (**KCBr**) table gives a confidence interval for the difference in weekly return before (0) and after (1) the right issue. For this company, a 95% confidence interval is (-0.199, 2.840) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is 1.71, with p-value of 0.088, and 205 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly returns before and after stock split over the event window.

Two-Sample T-Test and CI: Residual, PeriodS

Two-sample T for Residual

PeriodS	N	Mean	StDev	SE Mean
0	107	-0.17	4.31	0.42
1	107	0.56	3.29	0.32

Difference = mu (0) - mu (1)

Estimate for difference: -0.727

95% CI for difference: (-1.760, 0.306)

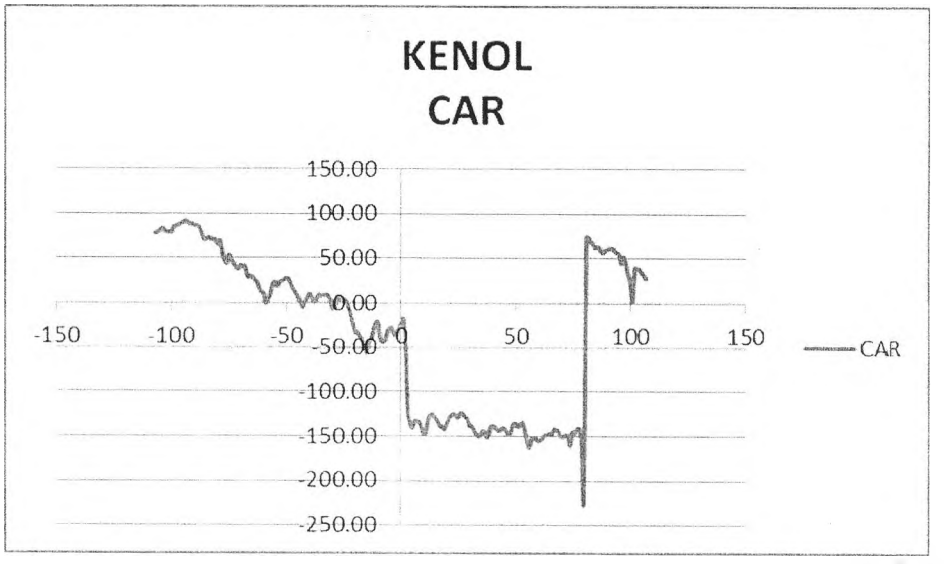
T-Test of difference = 0 (vs not =): T-Value = -1.39 P-Value = 0.167 DF = 198

The average weekly residual before the stock split is -0.17 while that after the stock split is -0.56. The two-sample t-test for average weekly residual (KCBr) table gives a confidence interval for the difference in weekly return before (0) and after the right issue. For this company, a 95% confidence interval is (-1.760, 0.306) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is -1.39 with p-value of 0.167, and 198 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly returns before and after stock split.

KENOL

The share split was announced on 23rd June 2004 and books closed on 5th July, 2004, and fell into the week 25 in the year 2004. From the data analysis and resulting graphs, it appears that KENOL had an eventful share split and that the effect of the split could have been felt in week 25. The graph below confirms a turning point in cumulative abnormal returns. However, the magnitude must be confirmed using relevant statistics.

Figure4.6: KENOL returns



Two-Sample T-Test and CI: KENOLr, PeriodS

Two-sample T for KENOLr

PeriodS	N	Mean	StDev	SE Mean
0	107	1.68	4.11	0.40
1	107	2.1	33.9	3.3

Difference = mu (0) - mu (1)

Estimate for difference: -0.40

95% CI for difference: (-6.94, 6.14)

T-Test of difference = 0 (vs not =): T-Value = -0.12 P-Value = 0.904 DF = 109

The average weekly return before the stock split is 1.68 while that after the stock split is 2.1. The Two-sample T for average weekly return (**KENOL**) table gives a confidence interval for the difference in weekly return before (0) and after (1) the right issue. For this company, a 95% confidence interval is (-6.94, 6.14) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is -0.12, with p-value of 0.904, and 109 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly returns before and after stock split over the event window.

Two-Sample T-Test and CI: Residual, PeriodS

Two-sample T for Residual

PeriodS	N	Mean	StDev	SE Mean
0	107	-0.99	5.45	0.53
1	107	0.5	31.1	3.0

Difference = mu (0) - mu (1)

Estimate for difference: -1.47

95% CI for difference: (-7.52, 4.59)

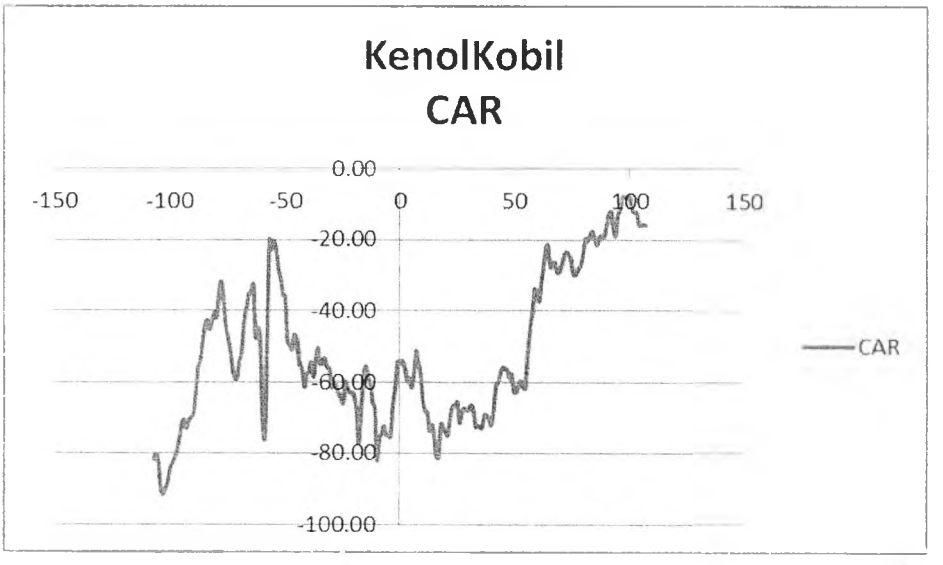
T-Test of difference = 0 (vs not =): T-Value = -0.48 P-Value = 0.632 DF = 112

The average weekly residual before the stock split is -0.99 while that after the stock split is -0.5. The two-sample t-test for average weekly residual (KENOL) table gives a confidence interval for the difference in weekly return before (0) and after the right issue. For this company, a 95% confidence interval is (-7.52, 4.59) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is -0.99 with p-value of 0.632, and 112 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly residuals before and after stock split.

KENOLKOBIL

The share split was announced on 20th. May 2010 and books closed on 1st. June, 2010, and fell into the week 21 in the year 2010. From the data analysis and resulting graphs, it appears that KenolKobil had an eventful share split and that the effect of the split could have been felt in week 25. The graph below confirms a turning point in cumulative abnormal returns. However, the magnitude must be confirmed using relevant statistics.

Figure4.7: KenolKobil returns



Two-Sample T-Test and CI: KenolKobilr, PeriodS

Two-sample T for KKOBILr

PeriodS	N	Mean	StDev	SE Mean
0	107	0.36	7.45	0.72
1	107	0.24	3.02	0.29

Difference = mu (0) - mu (1)

Estimate for difference: 0.120

95% CI for difference: (-1.416, 1.657)

T-Test of difference = 0 (vs not =): T-Value = 0.15 P-Value = 0.877 DF = 139

The average weekly return before the stock split is 0.36 while that after the stock split is 0.24. The Two-sample T for average weekly return (**KenolKobilr**) table gives a confidence interval for the difference in weekly return before (0) and after (1) the right issue. For this company, a 95% confidence interval is (-1.416, 1.657) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is 0.15, with p-value of 0.877, and 139 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly returns before and after stock split over the event window.

Two-Sample T-Test and CI: Residual, PeriodS

Two-sample T for Residual

PeriodS	N	Mean	StDev	SE Mean
0	107	0.29	6.33	0.61
1	107	0.36	3.23	0.31

Difference = mu (0) - mu (1)

Estimate for difference: -0.069

95% CI for difference: (-1.426, 1.288)

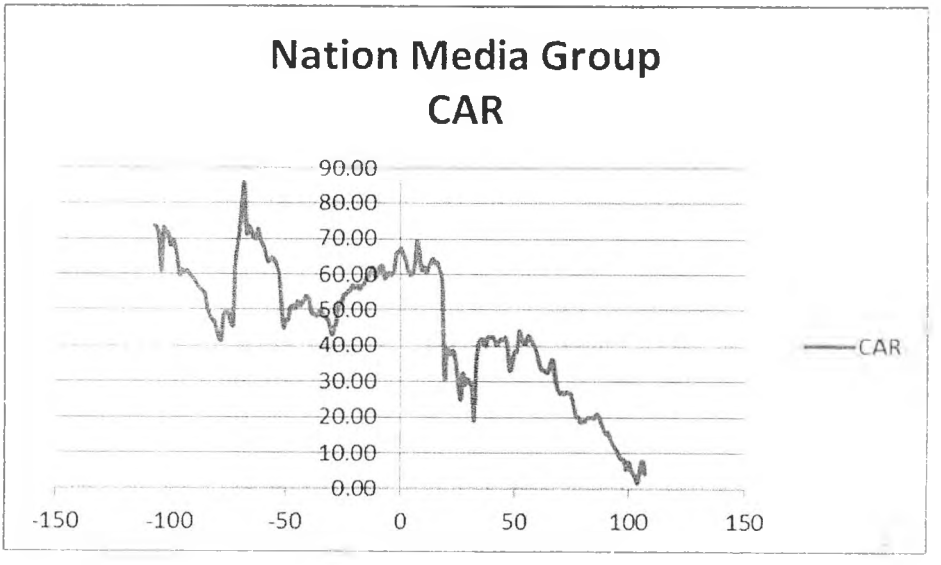
T-Test of difference = 0 (vs not =): T-Value = -0.10 P-Value = 0.920 DF = 157

The average weekly residual before the stock split is 0.29 while that after the stock split is 0.36. The two-sample t-test for average weekly residual (KenolKobil) table gives a confidence interval for the difference in weekly return before (0) and after the right issue. For this company, a 95% confidence interval is (-1.426, 1.288) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is -0.10 with p-value of 0.920, and 157 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly residuals before and after stock split.

Nation Media Group

The share split was announced on 18th. March 2008 and books closed on 25th July 2008, and fell into the week 12 in the year 2008. From the data analysis and resulting graphs, it appears that KenolKobil had an eventful share split and that the effect of the split could have been felt in week 15. The graph below confirms a turning point in cumulative abnormal returns. However, the magnitude must be confirmed using relevant statistics.

Figure4.8: Nation Media Group returns



Two-Sample T-Test and CI: NMGr, PeriodS

Two-sample T for NMGr

PeriodS	N	Mean	StDev	SE Mean
0	107	0.57	4.60	0.44
1	107	-0.28	5.29	0.51

Difference = mu (0) - mu (1)

Estimate for difference: 0.854

95% CI for difference: (-0.481, 2.190)

T-Test of difference = 0 (vs not =): T-Value = 1.26 P-Value = 0.209 DF = 208

The average weekly return before the stock split is 0.57 while that after the stock split is -0.28. The Two-sample T for average weekly return (NMGr) table gives a confidence interval for the difference in weekly return before (0) and after (1) the right issue. For this company, a 95% confidence interval is (-0.481, 2.190) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is 1.26, with p-value of 0.209, and 208 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly returns before and after stock split over the event window.

Two-Sample T-Test and CI: Residual, PeriodS

Two-sample T for Residual

PeriodS	N	Mean	StDev	SE Mean
0	107	-0.08	3.59	0.35
1	107	-0.59	4.02	0.39

Difference = mu (0) - mu (1)

Estimate for difference: 0.511

95% CI for difference: (-0.517, 1.539)

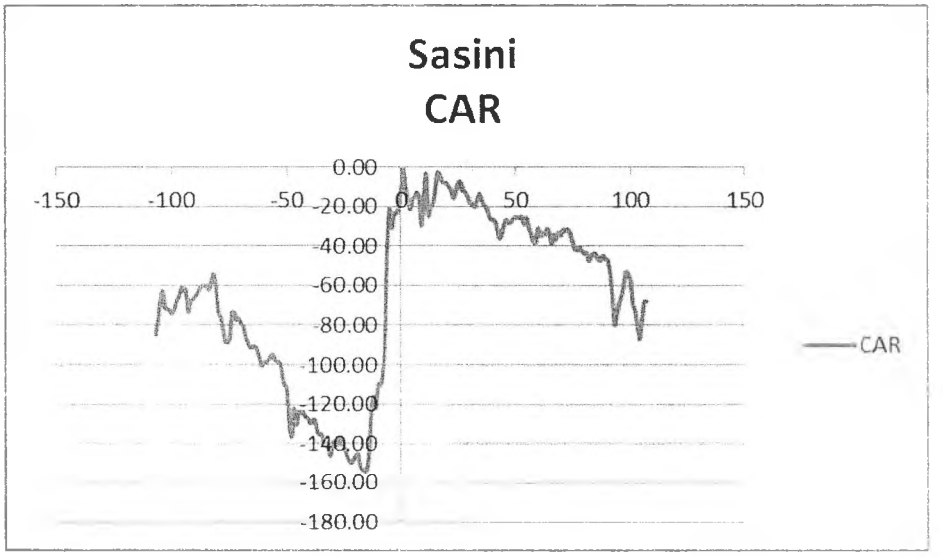
T-Test of difference = 0 (vs not =): T-Value = 0.98 P-Value = 0.328 DF = 209

The average weekly residual before the stock split is -0.08 while that after the stock split is -0.59. The two-sample t-test for average weekly residual (NMGr) table gives a confidence interval for the difference in weekly return before (0) and after the right issue. For this company, a 95% confidence interval is (-0.517, 1.539) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is 0.98 with p-value of 0.328, and 209 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly residuals before and after stock split.

SASINI

The share split was announced on 18th. December 2006 and books closed on 14th.February, 2007, and fell into the week 21 in the year 2007. From the data analysis and resulting graphs, it appears that KenolKobil had an eventful share split and that the effect of the split could have been felt in earlier weeks. The graph below confirms a turning point in cumulative abnormal returns. However, the magnitude must be confirmed using relevant statistics.

Figure4.9: Sasini returns



Two-Sample T-Test and CI: SASINIr, PeriodS

Two-sample T for SASINIr

PeriodS	N	Mean	StDev	SE Mean
0	107	1.86	8.24	0.80
1	107	-0.88	6.73	0.65

Difference = mu (0) - mu (1)

Estimate for difference: 2.74

95% CI for difference: (0.71, 4.77)

T-Test of difference = 0 (vs not =): T-Value = 2.66 P-Value = 0.008 DF = 203

The average weekly return before the stock split is 1.86 while that after the stock split is -0.88. The Two-sample T for average weekly return (SASINIr) table gives a confidence interval for the difference in weekly return before (0) and after (1) the right issue. For this company, a 95% confidence interval is (0.71, 4.77) which does not includes zero, thus suggesting that there is difference. Next is the hypothesis test result. The test statistic is 2.66, with p-value of 0.008, and 203 degrees of freedom. Since the p-value is less than commonly chosen a-levels of 0.05, there is evidence for a difference in weekly returns before and after stock split.

Two-Sample T-Test and CI: Residual, PeriodS

Two-sample T for Residual

PeriodS	N	Mean	StDev	SE Mean
0	107	0.55	7.38	0.71
1	107	-0.51	5.34	0.52

Difference = mu (0) - mu (1)

Estimate for difference: 1.066

95% CI for difference: (-0.671, 2.802)

T-Test of difference = 0 (vs not =): T-Value = 1.21 P-Value = 0.228 DF = 193

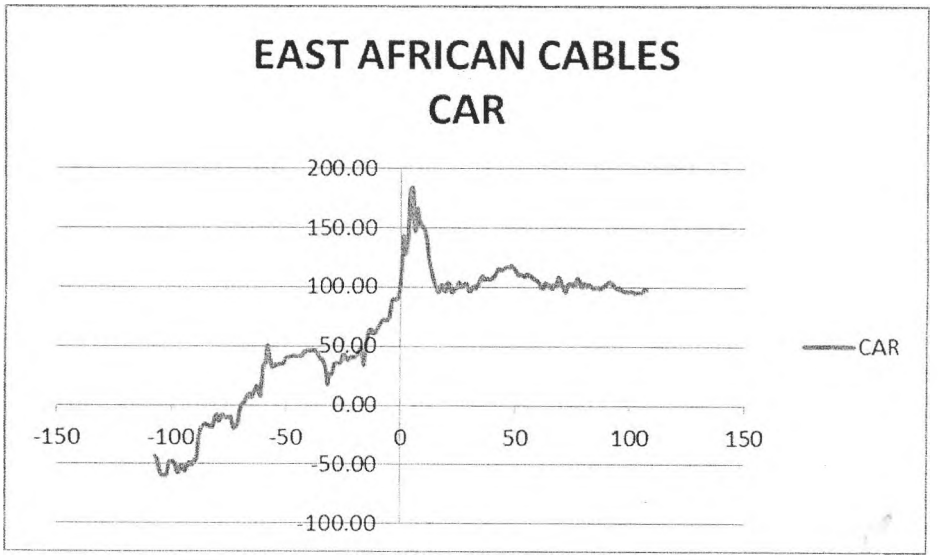
The average weekly residual before the stock split is 0.55 while that after the stock split is -0.51. The two-sample t-test for average weekly residual (SASINIr) table gives a confidence interval for the difference in weekly return before (0) and after the right issue. For this company, a 95% confidence interval is (-0.671, 2.802) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is 1.21with p-value of 0.228, and 193 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly residuals before and after stock split.

with all companies that split their shares.

EAST AFRICAN CABLES

The share split was announced on 10th. August 2006 and books closed on 4th September, 2006, and fell into the week 22 in the year 2006. From the data analysis and resulting graphs, it appears that East African Cables had an eventful share split and that the effect of the split could have been felt in earlier weeks. The graph below confirms a turning point in cumulative abnormal returns. However, the magnitude must be confirmed using relevant statistics

Figure4.10 East African Cables



Two-Sample T-Test and CI: EACABLEr, PeriodS

Two-sample T for EACABLEr

PeriodS	N	Mean	StDev	SE Mean
0	107	2.49	6.84	0.66
1	107	0.13	8.08	0.78

Difference = mu (0) - mu (1)

Estimate for difference: 2.36

95% CI for difference: (0.34, 4.38)

T-Test of difference = 0 (vs not =): T-Value = 2.31 P-Value = 0.022 DF = 206

The average weekly return before the stock split is 2.49 while that after the stock split is 0.13. The Two-sample T for average weekly return (EACABLEr) table gives a confidence interval for the difference in weekly return before (0) and after (1) the right issue. For this company, a 95% confidence interval is (0.34, 4.38) which does not includes zero, thus suggesting that there is difference. Next is the hypothesis test result. The test statistic is 2.31, with p-value of 0.022, and 206 degrees of freedom. Since the p-value is less than commonly chosen a-levels of 0.05, there is evidence for a difference in weekly returns before and after stock split.

Two-Sample T-Test and CI: Residual, PeriodS

Two-sample T for Residual

PeriodS	N	Mean	StDev	SE Mean
0	107	1.41	5.97	0.58
1	107	-0.13	7.40	0.72

Difference = mu (0) - mu (1)

Estimate for difference: 1.545

95% CI for difference: (-0.268, 3.358)

T-Test of difference = 0 (vs not =): T-Value = 1.68 P-Value = 0.094 DF = 202

The average weekly residual before the stock split is 1.41while that after the stock split is -0.13. The two-sample t-test for average weekly residual (EACABLEr) table gives a confidence interval for the difference in weekly return before (0) and after the right issue. For this company, a 95% confidence interval is (-0.268, 3.358) which includes zero, thus suggesting that there is no difference. Next is the hypothesis test result. The test statistic is 1.68 with p-value of 0.094, and 202 degrees of freedom. Since the p-value is greater than commonly chosen a-levels, there is no evidence for a difference in weekly residuals before and after stock split.

4.3Test of Abnormal Returns over Event Window

The results above were to confirm difference in share performance 107 weeks before and 107 weeks after the stock split using weekly returns. In this section we determine whether the abnormal returns are statistically different from zero (0), i.e. whether investors earned abnormal returns.

This requires a one sample t-test or t-confidence interval for the mean. We use 1-Sample t to compute a confidence interval and perform a hypothesis test of the mean when the population standard deviation, s, is unknown. We test whether the mean of abnormal returns over the event window is different from zero.

The tables below relate to the Test of mu = 0 vs mu not = 0.The highest average abnormal return is by Kenol/Kobil which is equally erratic with the highest standard deviation. BBK, NMG and Kenol posted negative returns.

Variable	N	Mean	StDev	SEMean
BBKar	215	-0.174	3.366	0.23
CENTUMar	215	0.063	5.116	0.349
CMCar	210	0.177	4.67	0.322
EABLar	215	0.056	3.898	0.266
KCBar	215	0.216	3.844	0.262
KENOLar	215	-0.23	22.26	1.52
KENOLKOBILar	215	0.324	5.002	0.341
NMGar	215	-0.327	3.807	0.26
SASINIar	215	0.059	6.458	0.44

The test statistic, T, for Ho: m = 0 is calculated and presented in the table below

Table....

Variable	95.0% CI	T	P
BBKar	(-0.627, 0.278)	-0.76	0.448
CENTUMar	(-0.625, 0.750)	0.18	0.857
CMCar	(-0.458, 0.812)	0.55	0.584
EABLar	(-0.468, 0.580)	0.21	0.833
KCBar	(-0.301, 0.733)	0.82	0.411
KENOLar	(-3.22, 2.76)	-0.15	0.878
KENOLKOBILar	(-0.348, 0.997)	0.95	0.343
NMGar	(-0.838, 0.185)	-1.26	0.210
SASINIar	(-0.809, 0.927)	0.13	0.894

For BBK at 95 % confidence interval for the population mean, m, is (-0.627, 0.278). The test statistic, T, for Ho: m = 0 is calculated as -0.76.The p-value of this test, or the probability of obtaining more extreme value of the test statistic by chance if the null hypothesis was true, is 0.448. This is the attained significance level, or p-value. Therefore, accept Ho if your acceptable a level (which is p = 0.05) is less than the p-value, or 0.448. No investor earned abnormal return over the event window.

For CENTUM at 95 % confidence interval for the population mean, m, is (-0.625, 0.750). The test statistic, T, for Ho: m = 0 is calculated as 0.18 .The p-value of this test, or the probability of obtaining more extreme value of the test statistic by chance if the null hypothesis was true, is 0.857. This is the attained significance level, or p-value. Therefore, accept Ho if your acceptable a level (which is p = 0.05) is less than the p-value, or 0.857.

For CMC at 95 % confidence interval for the population mean, m is (-0.458, 0.812). The test statistic, T, for Ho: m = 0 is calculated as 0.55. The p-value of this test, or the

probability of obtaining more extreme value of the test statistic by chance if the null hypothesis was true, is 0.584. This is the attained significance level, or p-value. Therefore, accept Ho if your acceptable a level (which is p = 0.05) is less than the p-value, or 0.584. No investor earned abnormal return over the event window.

From the table above the evidence is that there were no abnormal returns associated

4.4 Summary of results and findings

Baraka and Terry (undated) argued that the use of cumulative average returns (CAR) in an event study methodology could lead to misleading inferences around market efficiency and post event behavior. They stated that the use of artificial portfolios biases CAR onward and the increased volatility around post event events and on event days lowers the significance of abnormal returns. They suggested the use of component GARCH to capture the effects of an event .It is not that all event studies are flawed, but under certain conditions event studies relying on CAR methodology may provide incorrect results Barat and Terry (undated).

The results above on the weekly data, 80% shows that there are no evidences for differences in weekly returns before and after stock splits and these is not an exceptional to Barakat and Terry (undated) argument.

CHAPTER FIVE

5.1 Introduction and Summary

The objective of this study was to examine the long run effect of stock split on stock returns using weekly average prices as opposed to daily prices. The market model was used and the result showed that most sampled companies performance 107 weeks before and after stock split were not different. Furthermore, over the event window none of the companies earned abnormal return.

5.2 Conclusion

Positive abnormal returns have been observed by different scholars Atogo (2009),munyi (2010), sivombo (2006) , Aduda and Chemarum (2010) on the day of stock split announcement as well as few days before and after the announcement. From the results in this study, we have seen conflicting signals; the market did not react effectively to stock split announcements with regard to returns of many companies listed at the Nairobi security exchange in the long run. While Aduda and Chemarum (2010) study showed that there were positive mean returns, the two results are not in agreement. Hence, the market cannot be said to be inefficient given that abnormal returns are free lunches. There could be other factors causing market inefficiency as a result of other factors affecting individual companies.

5.3 Recommendation

Further studies should be conducted to test long term performance of the securities after the stock split with objective of testing for momentums and reversals in the long run. A similar study should be conducted to determine the effects of stock splits on firms within the same industry unlike the one across industries.

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APPENDIX I

Study Population

	Company Name	Split Factor	Split announcement dates	Books closure date
1	Kenya oil company ltd	10:1	23rd/June/2004	05th/July/2004
2	East African breweries ltd	5:1	27th/August/2004	26th/November/2004
3	EA Cables	10:1	10/thAugust2006	04th/September/2006
4	ICDC	10:1	19th/October/2006	04th/January/2007
5	Barclays bank of Kenya	10:5	08th/November/2006	29th/Novemer/2006
6	Sasini Ltd	5:1	18th/December/2006	14th/February/2007
7	CMC Holdings	10:1	11th/January/2007	02nd/April/2007
8	Kenya commercial bank	10:1	05th/March/2007	02nd/April/2007
9	Nation Media Group	2:1	18th/March/2008	25th/July/2008
10	Equity Bank	1:10	12th/February/2009	25th/March/2009
11	KenolKobil	10:1	20th/May/2010	01st/June/2010

Source; (NSE, 2010)

APPENDIX II

BARCLAYS BANK OF KENYA - WEEKLY RETURNS AND CUMMULATIVE ABNORMAL RETURNS

YearWeek	Obs	MARKETr	BBKr	Fit	SE Fit	Residual	St Resid	PeriodS	EventWin	CAR	t-value
200443	451	2	0.74	1.69	0.14	-0.95	-0.28	0	-107	12.95	-6.85
200444	452	1.8	0.09	1.52	0.13	-1.43	-0.42	0	-106	12.53	-10.70
200445	453	-0.8	0.02	-0.67	0.13	0.68	0.2	0	-105	12.73	5.37
200446	454	1.9	-1.13	1.66	0.14	-2.79	-0.82	0	-104	11.91	-20.22
200447	455	0.6	0.22	0.5	0.12	-0.28	-0.08	0	-103	11.83	-2.39
200448	456	1.7	-0.25	1.43	0.13	-1.68	-0.49	0	-102	11.34	-12.79
200449	457	2.6	-2.62	2.2	0.16	-4.83	-1.42	0	-101	9.92	-31.14
200450	458	1.4	-0.13	1.21	0.13	-1.34	-0.4	0	-100	9.52	-10.56
200451	459	-1.7	-1.28	-1.41	0.15	0.14	0.04	0	-99	9.56	0.94
200452	460	-1.2	-3.81	-0.95	0.13	-2.86	-0.84	0	-98	8.72	-21.53
200453	461	1.8	0.04	1.57	0.14	-1.53	-0.45	0	-97	8.27	-11.36
200501	462	0.8	1	0.7	0.12	0.30	0.09	0	-96	8.36	2.54
200502	463	1.6	6.37	1.36	0.13	5.01	1.48	0	-95	9.84	38.56
200503	464	0.9	1.95	0.8	0.12	1.15	0.34	0	-94	10.18	9.70
200504	465	3.9	-1.35	3.26	0.2	-4.61	-1.36	0	-93	8.82	-23.40
200505	466	1.4	2.24	1.19	0.13	1.05	0.31	0	-92	9.13	8.30
200506	467	1.6	4.55	1.38	0.13	3.17	0.93	0	-91	10.06	24.38
200507	468	0.5	0.97	0.43	0.12	0.54	0.16	0	-90	10.22	4.58
200508	469	-1.2	-3.49	-0.94	0.13	-2.55	-0.75	0	-89	9.47	-19.17
200509	470	0	-1.91	-0.01	0.12	-1.90	-0.56	0	-88	8.91	-16.22
200510	471	0.1	-4.92	0.14	0.12	-5.05	-1.49	0	-87	7.42	-43.57
200511	472	-0.5	-2	-0.35	0.12	-1.65	-0.49	0	-86	6.93	-13.66
200512	473	-0.7	0.48	-0.52	0.12	1.00	0.29	0	-85	7.22	8.05
200513	474	-0.1	0.54	-0.09	0.12	0.63	0.19	0	-84	7.41	5.34
200514	475	0.5	0.1	0.46	0.12	-0.36	-0.11	0	-83	7.30	-3.09
200515	476	0	0.2	0	0.12	0.20	0.06	0	-82	7.36	1.72
200516	477	1	3.28	0.85	0.12	2.42	0.71	0	-81	8.07	20.18
200517	478	1.6	1.02	1.35	0.13	-0.33	-0.1	0	-80	7.97	-2.57
200518	479	2.5	0.01	2.13	0.15	-2.12	-0.63	0	-79	7.34	-13.86
200519	480	2.1	1.2	1.82	0.14	-0.62	-0.18	0	-78	7.16	-4.39
200520	481	0.4	2.41	0.35	0.12	2.06	0.61	0	-77	7.77	17.77
200521	482	4.5	4.95	3.76	0.22	1.18	0.35	0	-76	8.12	5.41
200522	483	2.7	0.75	2.27	0.16	-1.53	-0.45	0	-75	7.67	-9.65
200523	484	3	-0.08	2.57	0.17	-2.65	-0.78	0	-74	6.89	-15.66
200524	485	5.4	1.71	4.57	0.26	-2.86	-0.84	0	-73	6.05	-11.17
200525	486	4.6	1.39	3.86	0.22	-2.47	-0.73	0	-72	5.32	-11.06
200526	487	5	2.17	4.19	0.24	-2.02	-0.6	0	-71	4.72	-8.46
200527	488	6.3	2.44	5.31	0.29	-2.88	-0.85	0	-70	3.87	-9.85
200528	489	4	2.5	3.39	0.2	-0.90	-0.26	0	-69	3.61	-4.42
200529	490	-5.6	-2.97	-4.7	0.29	1.74	0.51	0	-68	4.12	6.00
200530	491	-2.2	-2.12	-1.83	0.16	-0.29	-0.08	0	-67	4.04	-1.78
200531	492	0.9	1.2	0.77	0.12	0.43	0.13	0	-66	4.17	3.63
200532	493	2.1	-1.35	1.83	0.14	-3.17	-0.94	0	-65	3.23	-22.20

200533	494	-0.3	-0.4	-0.21	0.12	-0.19	-0.06	0	-64	3.17	-1.62
200534	495	-0.1	-1.13	-0.05	0.12	-1.08	-0.32	0	-63	2.85	-9.20
200535	496	-1.1	-2.45	-0.89	0.13	-1.55	-0.46	0	-62	2.39	-11.77
200536	497	-1.2	-0.25	-1.01	0.14	0.76	0.22	0	-61	2.61	5.64
200537	498	-0.3	-1.34	-0.18	0.12	-1.16	-0.34	0	-60	2.27	-9.72
200538	499	0.6	0.85	0.52	0.12	0.33	0.1	0	-59	2.37	2.83
200539	500	1.3	1.01	1.15	0.13	-0.14	-0.04	0	-58	2.33	-1.11
200540	501	0.2	0.25	0.2	0.12	0.05	0.01	0	-57	2.34	0.41
200541	502	0.8	0.48	0.73	0.12	-0.25	-0.07	0	-56	2.27	-2.08
200542	503	1.9	3.1	1.65	0.14	1.45	0.43	0	-55	2.70	10.61
200543	504	0.3	0.3	0.27	0.12	0.03	0.01	0	-54	2.71	0.29
200544	505	-0.6	-0.08	-0.45	0.12	0.37	0.11	0	-53	2.82	3.06
200545	506	-0.2	-0.48	-0.16	0.12	-0.32	-0.09	0	-52	2.73	-2.72
200546	507	-1.2	0.16	-1.02	0.14	1.18	0.35	0	-51	3.08	8.75
200547	508	2	0.24	1.69	0.14	-1.45	-0.43	0	-50	2.65	-10.43
200548	509	0.6	-0.4	0.5	0.12	-0.91	-0.27	0	-49	2.38	-7.74
200549	510	0.5	0.56	0.48	0.12	0.08	0.02	0	-48	2.40	0.68
200550	511	-1.1	0.3	-0.86	0.13	1.16	0.34	0	-47	2.74	8.85
200551	512	0.2	0.98	0.22	0.12	0.76	0.22	0	-46	2.96	6.56
200552	513	-1.9	2.78	-1.53	0.15	4.32	1.27	0	-45	4.23	28.58
200601	514	16.2	3.84	13.6	0.72	-9.81	-2.96	0	-44	1.27	-13.60
200602	515	2.7	6.94	2.28	0.16	4.66	1.37	0	-43	2.64	29.49
200603	516	2.6	-1.87	2.23	0.16	-4.10	-1.21	0	-42	1.43	-26.28
200604	517	-0.7	-3.95	-0.58	0.13	-3.37	-0.99	0	-41	0.44	-26.94
200605	518	-0.2	0.95	-0.12	0.12	1.08	0.32	0	-40	0.76	9.12
200606	519	-0.2	2.11	-0.16	0.12	2.27	0.67	0	-39	1.43	19.22
200607	520	-0.5	0.43	-0.42	0.12	0.85	0.25	0	-38	1.68	6.98
200608	521	-0.5	-2.91	-0.39	0.12	-2.52	-0.74	0	-37	0.94	-20.79
200609	522	-0.5	-8.11	-0.41	0.12	-7.70	-2.27	0	-36	-1.33	-63.09
200610	523	-2.6	-0.24	-2.13	0.17	1.89	0.56	0	-35	-0.77	10.94
200611	524	-1.2	0.24	-0.96	0.13	1.20	0.35	0	-34	-0.42	8.98
200612	525	1	0.64	0.87	0.12	-0.23	-0.07	0	-33	-0.49	-1.95
200613	526	4.2	-1.34	3.59	0.21	-4.93	-1.45	0	-32	-1.94	-23.36
200614	527	-0.5	0.56	-0.37	0.12	0.93	0.27	0	-31	-1.67	7.71
200615	528	-1.1	-0.78	-0.93	0.13	0.16	0.05	0	-30	-1.62	1.17
200616	529	7.3	4.41	6.16	0.33	-1.75	-0.52	0	-29	-2.14	-5.24
200617	530	-3.9	-4.02	-3.21	0.22	-0.80	-0.24	0	-28	-2.38	-3.67
200618	531	4.2	0.18	3.55	0.21	-3.37	-0.99	0	-27	-3.37	-16.04
200619	532	6.9	-0.02	5.79	0.32	-5.81	-1.72	0	-26	-5.09	-18.39
200620	533	4.9	0.56	4.13	0.24	-3.57	-1.05	0	-25	-6.14	-15.14
200621	534	-3	1.43	-2.49	0.19	3.92	1.16	0	-24	-4.98	20.96
200622	535	1.1	1.39	0.95	0.12	0.45	0.13	0	-23	-4.85	3.65
200623	536	-1	1.72	-0.78	0.13	2.50	0.74	0	-22	-4.11	19.36
200624	537	0.7	0.68	0.58	0.12	0.11	0.03	0	-21	-4.08	0.91
200625	538	1.6	0.6	1.4	0.13	-0.80	-0.23	0	-20	-4.31	-6.07
200626	539	1.2	0.75	1.02	0.12	-0.27	-0.08	0	-19	-4.39	-2.16
200627	540	1.3	0.37	1.13	0.13	-0.76	-0.22	0	-18	-4.61	-6.04
200628	541	1	0.74	0.9	0.12	-0.16	-0.05	0	-17	-4.66	-1.32
200629	542	0.6	0.44	0.51	0.12	-0.07	-0.02	0	-16	-4.68	-0.58
200630	543	0.5	0.29	0.48	0.12	-0.18	-0.05	0	-15	-4.73	-1.55

200631	544	0.8	0.8	0.7	0.12	0.11	0.03	0	-14	-4.70	0.92
200632	545	5.9	3.12	5	0.28	-1.88	-0.56	0	-13	-5.26	-6.80
200633	546	2.3	2.6	2	0.15	0.61	0.18	0	-12	-5.08	4.09
200634	547	2.1	2.81	1.82	0.14	0.99	0.29	0	-11	-4.79	6.99
200635	548	1.3	1.53	1.09	0.12	0.44	0.13	0	-10	-4.66	3.56
200636	549	3.3	-0.79	2.79	0.18	-3.57	-1.05	0	-9	-5.71	-20.19
200637	550	6.9	4.24	5.83	0.32	-1.59	-0.47	0	-8	-6.18	-5.00
200638	551	4.9	4.76	4.15	0.24	0.62	0.18	0	-7	-6.00	2.60
200639	552	-0.6	-1.33	-0.45	0.12	-0.88	-0.26	0	-6	-6.26	-7.25
200640	553	2.2	1.47	1.88	0.14	-0.41	-0.12	0	-5	-6.38	-2.83
200641	554	0.4	2.07	0.38	0.12	1.70	0.5	0	-4	-5.88	14.61
200642	555	-0.2	3.19	-0.1	0.12	3.29	0.97	0	-3	-4.91	27.87
200643	556	3.3	24	2.78	0.18	21.24	6.26	0	-2	1.35	120.01
200644	557	7.1	2.6	6	0.33	-3.41	-1.01	0	-1	0.34	-10.45
200645	558	2.8	14.5	2.41	0.16	12.09	3.56		0	3.90	74.18
200646	559	-0.8	4.85	-0.65	0.13	5.50	1.62	1	1	5.52	43.64
200647	560	1.5	11.8	1.25	0.13	10.52	3.1	1	2	8.62	82.85
200648	561	-0.7	-1.2	-0.59	0.13	-0.61	-0.18	1	3	8.44	-4.90
200649	562	-3.9	-10.1	-3.27	0.22	-6.79	-2.01	1	4	6.43	-30.74
200650	563	1.4	-3.88	1.21	0.13	-5.09	-1.5	1	5	4.93	-40.41
200651	564	-0.3	-10	-0.22	0.12	-9.79	-2.89	1	6	2.04	-82.29
200652	565	1.5	5.35	1.27	0.13	4.08	1.2	1	7	3.24	31.88
200701	566	5.9	22.6	4.99	0.28	17.65	5.21	1	8	8.45	63.94
200702	567	6.8	-4.07	5.75	0.31	-9.81	-2.9	1	9	5.55	-31.25
200703	568	-2.7	-6.01	-2.2	0.18	-3.81	-1.12	1	10	4.43	-21.63
200704	569	-2.9	-3.13	-2.37	0.18	-0.77	-0.23	1	11	4.20	-4.22
200705	570	-4.4	2.07	-3.68	0.24	5.75	1.7	1	12	5.90	23.95
200706	571	-1.7	-1.65	-1.39	0.15	-0.26	-0.08	1	13	5.82	-1.77
200707	572	1.9	1.55	1.6	0.14	-0.05	-0.02	1	14	5.80	-0.39
200708	573	-1.7	-3.43	-1.38	0.15	-2.05	-0.6	1	15	5.20	-14.01
200709	574	-8.3	-13.3	-6.96	0.4	-6.31	-1.87	1	16	3.33	-15.69
200710	575	-2.9	0.76	-2.44	0.19	3.20	0.94	1	17	4.27	17.28
200711	576	-1	0.9	-0.77	0.13	1.67	0.49	1	18	4.76	12.97
200712	577	-10.2	-5.81	-8.52	0.48	2.71	0.81	1	19	5.57	5.62
200713	578	1.7	5.06	1.42	0.13	3.64	1.07	1	20	6.64	27.81
200714	579	12.1	2.79	10.2	0.54	-7.38	-2.2	1	21	4.44	-13.69
200715	580	0.2	-0.92	0.21	0.12	-1.13	-0.33	1	22	4.11	-9.72
200716	581	-4	-1.66	-3.33	0.22	1.67	0.49	1	23	4.60	7.45
200717	582	0.9	1.2	0.78	0.12	0.42	0.12	1	24	4.72	3.56
200718	583	-0.2	2.34	-0.15	0.12	2.49	0.74	1	25	5.46	21.14
200719	584	-2.2	-2.29	-1.84	0.16	-0.44	-0.13	1	26	5.33	-2.73
200720	585	1.8	1.04	1.52	0.13	-0.48	-0.14	1	27	5.19	-3.55
200721	586	-0.3	0.15	-0.2	0.12	0.35	0.1	1	28	5.29	2.94
200722	587	-0.9	-1.25	-0.7	0.13	-0.55	-0.16	1	29	5.13	-4.30
200723	588	0.2	1.41	0.18	0.12	1.24	0.36	1	30	5.49	10.66
200724	589	2.4	0.29	2.08	0.15	-1.79	-0.53	1	31	4.96	-11.83
200725	590	2.1	1.32	1.83	0.14	-0.52	-0.15	1	32	4.81	-3.60
200726	591	-1	3.32	-0.79	0.13	4.11	1.21	1	33	6.02	31.88
200727	592	1.8	-0.84	1.52	0.13	-2.35	-0.69	1	34	5.33	-17.56
200728	593	0.3	1.69	0.28	0.12	1.41	0.42	1	35	5.75	12.16

200729	594	0.9	1.25	0.82	0.12	0.43	0.13	1	36	5.88	3.59
200730	595	2	2.46	1.74	0.14	0.73	0.21	1	37	6.09	5.19
200731	596	1.7	3.61	1.47	0.13	2.14	0.63	1	38	6.72	16.18
200732	597	-0.4	-4.25	-0.34	0.12	-3.91	-1.15	1	39	5.57	-32.31
200733	598	-0.5	-1.35	-0.39	0.12	-0.95	-0.28	1	40	5.29	-7.87
200734	599	-0.3	0.96	-0.2	0.12	1.15	0.34	1	41	5.63	9.68
200735	600	2.8	3.51	2.37	0.16	1.14	0.34	1	42	5.97	7.09
200736	601	2.8	2.87	2.37	0.16	0.50	0.15	1	43	6.12	3.11
200737	602	2.3	0.89	1.95	0.15	-1.06	-0.31	1	44	5.81	-7.23
200738	603	-0.1	-0.38	-0.08	0.12	-0.30	-0.09	1	45	5.72	-2.53
200739	604	-3.6	-1.26	-3	0.21	1.74	0.51	1	46	6.23	8.32
200740	605	-3.2	-3.84	-2.69	0.2	-1.15	-0.34	1	47	5.89	-5.86
200741	606	-4.3	-5.25	-3.56	0.24	-1.69	-0.5	1	48	5.39	-7.20
200742	607	2.9	3.16	2.47	0.17	0.69	0.2	1	49	5.59	4.19
200743	608	0.4	-0.41	0.37	0.12	-0.78	-0.23	1	50	5.36	-6.72
200744	609	-2.4	-1.78	-2.01	0.17	0.23	0.07	1	51	5.43	1.38
200745	610	2.2	5.7	1.88	0.14	3.82	1.13	1	52	6.56	26.52
200746	611	0.6	-2.24	0.54	0.12	-2.77	-0.82	1	53	5.74	-23.71
200747	612	1.7	3.23	1.45	0.13	1.78	0.52	1	54	6.26	13.46
200748	613	1.1	-0.65	0.94	0.12	-1.60	-0.47	1	55	5.79	-13.08
200749	614	1.3	-0.92	1.15	0.13	-2.07	-0.61	1	56	5.18	-16.52
200750	615	1.2	1.82	1.03	0.12	0.80	0.23	1	57	5.41	6.46
200751	616	-0.7	0.33	-0.52	0.12	0.85	0.25	1	58	5.66	6.85
200752	617	2	2.43	1.68	0.14	0.75	0.22	1	59	5.88	5.45
200801	618	-5.6	-6.65	-4.68	0.29	-1.97	-0.58	1	60	5.30	-6.83
200802	619	3.7	5.76	3.12	0.19	2.64	0.78	1	61	6.08	13.82
200803	620	-3.4	-1.76	-2.86	0.2	1.09	0.32	1	62	6.40	5.39
200804	621	-4.2	-5.91	-3.5	0.23	-2.40	-0.71	1	63	5.69	-10.36
200805	622	-4.3	-6.1	-3.6	0.24	-2.50	-0.74	1	64	4.95	-10.56
200806	623	-1.4	-0.15	-1.14	0.14	1.00	0.29	1	65	5.24	7.17
200807	624	5.7	7.1	4.78	0.27	2.32	0.68	1	66	5.92	8.69
200808	625	-0.6	-2.9	-0.51	0.12	-2.39	-0.7	1	67	5.22	-19.41
200809	626	0.4	-0.71	0.39	0.12	-1.10	-0.32	1	68	4.90	-9.46
200810	627	7	5.01	5.92	0.32	-0.90	-0.27	1	69	4.63	-2.80
200811	628	-4.3	-4.23	-3.56	0.24	-0.67	-0.2	1	70	4.43	-2.87
200812	629	-4.5	-4.08	-3.71	0.24	-0.37	-0.11	1	71	4.32	-1.54
200813	630	-0.1	0.1	-0.06	0.12	0.16	0.05	1	72	4.37	1.32
200814	631	1	0.89	0.84	0.12	0.06	0.02	1	73	4.39	0.46
200815	632	3	3.09	2.56	0.17	0.53	0.16	1	74	4.55	3.16
200816	633	2.6	1.14	2.21	0.16	-1.06	-0.31	1	75	4.24	-6.86
200817	634	1.6	0.85	1.37	0.13	-0.52	-0.15	1	76	4.09	-4.02
200818	635	2.7	1.75	2.25	0.16	-0.50	-0.15	1	77	3.94	-3.20
200819	636	0.3	0.62	0.31	0.12	0.31	0.09	1	78	4.03	2.66
200820	637	-2.4	-0.68	-1.97	0.17	1.29	0.38	1	79	4.41	7.72
200821	638	-1.2	-0.55	-0.96	0.13	0.41	0.12	1	80	4.53	3.06
200822	639	-0.3	-1.97	-0.26	0.12	-1.71	-0.5	1	81	4.03	-14.24
200823	640	5.4	1.59	4.52	0.25	-2.93	-0.87	1	82	3.16	-11.54
200824	641	-0.2	0.56	-0.15	0.12	0.71	0.21	1	83	3.37	6.02
200825	642	-0.5	-0.14	-0.4	0.12	0.26	0.08	1	84	3.45	2.16
200826	643	-1.9	-2.35	-1.58	0.15	-0.77	-0.23	1	85	3.22	-5.08

200827	644	-0.3	-1.28	-0.26	0.12	-1.02	-0.3	1	86	2.92	-8.47
200828	645	-1.7	-2.01	-1.43	0.15	-0.58	-0.17	1	87	2.75	-3.95
200829	646	-1	0.15	-0.84	0.13	0.99	0.29	1	88	3.04	7.61
200830	647	-1.5	-0.88	-1.21	0.14	0.34	0.1	1	89	3.14	2.38
200831	648	-2.7	-2.51	-2.27	0.18	-0.24	-0.07	1	90	3.07	-1.36
200832	649	-2.3	-4.09	-1.91	0.16	-2.18	-0.64	1	91	2.43	-13.27
200833	650	-1.1	0.16	-0.87	0.13	1.02	0.3	1	92	2.73	7.80
200834	651	2.3	0	1.99	0.15	-1.99	-0.59	1	93	2.14	-13.46
200835	652	-3	-0.63	-2.49	0.19	1.86	0.55	1	94	2.69	9.96
200836	653	-2.2	-0.95	-1.86	0.16	0.91	0.27	1	95	2.96	5.60
200837	654	-4.1	-3.04	-3.41	0.23	0.37	0.11	1	96	3.07	1.62
200838	655	-3.4	-1.98	-2.81	0.2	0.83	0.24	1	97	3.31	4.11
200839	656	2.9	-0.17	2.46	0.17	-2.63	-0.78	1	98	2.53	-15.96
200840	657	-1.9	-2.61	-1.58	0.15	-1.03	-0.3	1	99	2.23	-6.80
200841	658	-4.7	-9.85	-3.93	0.25	-5.92	-1.75	1	100	0.48	-23.49
200842	659	-4.5	-6.24	-3.77	0.24	-2.48	-0.73	1	101	-0.25	-10.15
200843	660	-7.8	-3.1	-6.55	0.38	3.45	1.02	1	102	0.77	9.06
200844	661	-5.4	-5.6	-4.48	0.28	-1.13	-0.33	1	103	0.44	-4.06
200845	662	18.5	22.1	15.6	0.82	6.48	1.97	1	104	2.41	7.87
200846	663	-4.7	-2.94	-3.91	0.25	0.97	0.29	1	105	2.70	3.87
200847	664	-3.9	-5.2	-3.21	0.22	-1.99	-0.59	1	106	2.11	-9.06
200848	665	-3.5	-2.99	-2.91	0.21	-0.08	-0.02	1	107	2.09	-0.37

APPENDIX III

ICDC - WEEKLY RETURNS AND CUMMULATIVE ABNORMAL RETURNS

YearWeek	Obs	MARKETr	EABLr	Fit	SE Fit	Residual	St Resid	PeriodS	EventWin	CAR	t-value
200234	336	-0.4	2.313	0.046	0.122	2.267	0.66	0	-107	17.03	49.28
200235	337	-0.6	0.741	-0.1	0.125	0.845	0.24	0	-106	17.88	-8.13
200236	338	-0.7	9.404	-0.17	0.127	9.575	2.77	0	-105	27.45	-55.99
200237	339	-0.5	-0.246	-0	0.123	-0.244	-0.07	0	-104	27.21	122.00
200238	340	1.1	-0.567	1.023	0.124	-1.59	-0.46	0	-103	25.62	-1.55
200239	341	1.6	0.404	1.341	0.133	-0.937	-0.27	0	-102	24.68	-0.70
200240	342	-0.2	-0.592	0.147	0.12	-0.739	-0.21	0	-101	23.94	-5.03
200241	343	1	2.351	0.914	0.122	1.437	0.42	0	-100	25.38	1.57
200242	344	0.7	1.747	0.739	0.12	1.007	0.29	0	-99	26.39	1.36
200243	345	1.2	2.405	1.062	0.125	1.343	0.39	0	-98	27.73	1.26
200244	346	4.8	2.598	3.422	0.238	-0.824	-0.24	0	-97	26.90	-0.24
200245	347	6.5	3.621	4.496	0.306	-0.875	-0.25	0	-96	26.03	-0.19
200246	348	3.2	-2.033	2.357	0.177	-4.39	-1.27	0	-95	21.64	-1.86
200247	349	-1.6	-5.787	-0.74	0.146	-5.046	-1.46	0	-94	16.59	6.81
200248	350	0.4	3.599	0.547	0.118	3.052	0.88	0	-93	19.65	5.58
200249	351	1	8.008	0.939	0.123	7.069	2.05	0	-92	26.71	7.53
200250	352	3.1	6.873	2.277	0.173	4.596	1.33	0	-91	31.31	2.02
200251	353	6.3	3.971	4.397	0.299	-0.426	-0.12	0	-90	30.88	-0.10
200252	354	-0.5	-0.978	-0.02	0.123	-0.958	-0.28	0	-89	29.93	47.90
200253	355	7.5	6.388	5.132	0.347	1.256	0.37	0	-88	31.18	0.24
200301	356	5.2	9.721	3.664	0.253	6.057	1.76	0	-87	37.24	1.65
200302	357	14.1	5.677	9.384	0.636	-3.707	-1.09	0	-86	33.53	-0.40
200303	358	-1.5	-10.05	-0.66	0.143	-9.386	-2.72	0	-85	24.15	14.14
200304	359	1.2	-5.499	1.09	0.126	-6.589	-1.91	0	-84	17.56	-6.04
200305	360	0.9	2.905	0.889	0.122	2.015	0.58	0	-83	19.57	2.27
200306	361	1.7	6.101	1.372	0.134	4.729	1.37	0	-82	24.30	3.45
200307	362	1	1.546	0.933	0.122	0.613	0.18	0	-81	24.91	0.66
200308	363	-2.5	4.02	-1.31	0.172	5.327	1.54	0	-80	30.24	-4.08
200309	364	0.5	9.304	0.621	0.119	8.683	2.52	0	-79	38.92	13.98
200310	365	-0.2	1.927	0.147	0.12	1.78	0.52	0	-78	40.70	12.11
200311	366	3.7	5.872	2.675	0.194	3.197	0.93	0	-77	43.90	1.20
200312	367	-0.6	6.103	-0.07	0.124	6.175	1.79	0	-76	50.08	-86.97
200313	368	0.1	1.278	0.377	0.118	0.901	0.26	0	-75	50.98	2.39
200314	369	1.4	1.582	1.214	0.129	0.368	0.11	0	-74	51.35	0.30
200315	370	3.2	5.113	2.362	0.177	2.751	0.8	0	-73	54.10	1.16
200316	371	3.7	3.726	2.664	0.194	1.061	0.31	0	-72	55.16	0.40
200317	372	3.9	8.492	2.791	0.201	5.701	1.65	0	-71	60.86	2.04
200318	373	8.1	1.075	5.523	0.373	-4.448	-1.3	0	-70	56.41	-0.81

200319	374	17.9	1.055	11.85	0.806	-10.793	-3.21	0	-69	45.62	-0.91
200320	375	-0.7	-0.806	-0.15	0.126	-0.653	-0.19	0	-68	44.96	4.24
200321	376	-2.9	-3.378	-1.58	0.187	-1.795	-0.52	0	-67	43.17	1.13
200322	377	-2.5	-1.623	-1.34	0.174	-0.284	-0.08	0	-66	42.89	0.21
200323	378	0.3	0.067	0.487	0.118	-0.421	-0.12	0	-65	42.46	-0.86
200324	379	2.2	-0.091	1.694	0.146	-1.785	-0.52	0	-64	40.68	-1.05
200325	380	-2.2	4.483	-1.12	0.163	5.606	1.62	0	-63	46.29	-4.99
200326	381	-1.2	2.544	-0.51	0.137	3.058	0.89	0	-62	49.34	-5.96
200327	382	-0.7	0.675	-0.15	0.126	0.827	0.24	0	-61	50.17	-5.44
200328	383	-0.9	1.644	-0.31	0.13	1.949	0.56	0	-60	52.12	-6.39
200329	384	0	4.239	0.309	0.119	3.93	1.14	0	-59	56.05	12.72
200330	385	1.1	7.616	1.018	0.124	6.598	1.91	0	-58	62.65	6.48
200331	386	2.7	2.092	2.03	0.161	0.062	0.02	0	-57	62.71	0.03
200332	387	2.5	3.859	1.9	0.155	1.958	0.57	0	-56	64.67	1.03
200333	388	2.4	6.661	1.866	0.153	4.794	1.39	0	-55	69.46	2.57
200334	389	3.2	2.712	2.334	0.176	0.378	0.11	0	-54	69.84	0.16
200335	390	3.8	-5.214	2.748	0.198	-7.961	-2.31	0	-53	61.88	-2.90
200336	391	2.6	13.042	1.982	0.158	11.059	3.21	0	-52	72.94	5.58
200337	392	1.6	4.505	1.317	0.132	3.188	0.92	0	-51	76.13	2.42
200338	393	2.4	-0.289	1.875	0.154	-2.165	-0.63	0	-50	73.96	-1.15
200339	394	6.1	0.676	4.214	0.288	-3.538	-1.03	0	-49	70.42	-0.84
200340	395	4.2	2.717	3.014	0.214	-0.297	-0.09	0	-48	70.13	-0.10
200341	396	-0.4	2.252	0.001	0.123	2.251	0.65	0	-47	72.38	2251.00
200342	397	1.5	1.594	1.264	0.13	0.33	0.1	0	-46	72.71	0.26
200343	398	1.3	2.809	1.159	0.127	1.649	0.48	0	-45	74.36	1.42
200344	399	-0.4	3.223	0.032	0.122	3.191	0.92	0	-44	77.55	99.72
200345	400	0.1	1.821	0.363	0.118	1.458	0.42	0	-43	79.00	4.02
200346	401	0.3	1.178	0.482	0.118	0.697	0.2	0	-42	79.70	1.45
200347	402	3.4	6.43	2.487	0.184	3.944	1.14	0	-41	83.65	1.59
200348	403	9.5	10.034	6.429	0.434	3.605	1.05	0	-40	87.25	0.56
200349	404	0.5	-2.916	0.634	0.119	-3.55	-1.03	0	-39	83.70	-5.60
200350	405	-4.3	-4.935	-2.48	0.239	-2.453	-0.71	0	-38	81.25	0.99
200351	406	1.6	0.421	1.326	0.132	-0.905	-0.26	0	-37	80.34	-0.68
200352	407	3.2	2.916	2.393	0.179	0.523	0.15	0	-36	80.87	0.22
200353	408	0.4	0.683	0.561	0.118	0.122	0.04	0	-35	80.99	0.22
200401	409	0.8	-0.108	0.805	0.12	-0.913	-0.26	0	-34	80.07	-1.13
200402	410	3.4	5.466	2.51	0.185	2.956	0.86	0	-33	83.03	1.18
200403	411	5	6.846	3.541	0.245	3.304	0.96	0	-32	86.33	0.93
200404	412	5.3	0.385	3.709	0.256	-3.324	-0.97	0	-31	83.01	-0.90
200405	413	5.8	-0.702	4.036	0.276	-4.738	-1.38	0	-30	78.27	-1.17
200406	414	-1.4	-2.472	-0.61	0.141	-1.859	-0.54	0	-29	76.41	3.03
200407	415	2.4	3.844	1.839	0.152	2.005	0.58	0	-28	78.42	1.09
200408	416	1.8	-1.43	1.48	0.137	-2.911	-0.84	0	-27	75.51	-1.97
200409	417	3.2	-0.231	2.382	0.178	-2.614	-0.76	0	-26	72.89	-1.10
200410	418	3.9	-1.497	2.845	0.204	-4.341	-1.26	0	-25	68.55	-1.53
200411	419	-6.5	-0.224	-3.89	0.328	3.663	1.07	0	-24	72.22	-0.94

200412	420	-2.9	-0.752	-1.57	0.186	0.815	0.24	0	-23	73.03	-0.52
200413	421	-6.4	-2.132	-3.86	0.326	1.724	0.5	0	-22	74.75	-0.45
200414	422	-5.8	-4.88	-3.49	0.303	-1.39	-0.4	0	-21	73.36	0.40
200415	423	-0.5	-5.976	-0.07	0.124	-5.911	-1.71	0	-20	67.45	90.94
200416	424	8.2	4.845	5.572	0.376	-0.727	-0.21	0	-19	66.73	-0.13
200417	425	1.8	7.865	1.481	0.138	6.384	1.85	0	-18	73.11	4.31
200418	426	-1	-0.221	-0.39	0.133	0.167	0.05	0	-17	73.28	-0.43
200419	427	-2.3	-10.23	-1.18	0.166	-9.047	-2.62	0	-16	64.23	7.65
200420	428	-1.4	-0.724	-0.64	0.142	-0.08	-0.02	0	-15	64.15	0.12
200421	429	-1.7	-1.551	-0.82	0.149	-0.734	-0.21	0	-14	63.42	0.90
200422	430	5.7	-0.658	3.97	0.272	-4.629	-1.34	0	-13	58.79	-1.17
200423	431	1.3	-0.818	1.136	0.127	-1.954	-0.57	0	-12	56.83	-1.72
200424	432	1.1	3.24	1.01	0.124	2.23	0.65	0	-11	59.06	2.21
200425	433	-0.5	5.399	-0.01	0.123	5.411	1.57	0	-10	64.47	-450.92
200426	434	-2.1	-0.819	-1.05	0.16	0.229	0.07	0	-9	64.70	-0.22
200427	435	-2.8	0.111	-1.52	0.183	1.63	0.47	0	-8	66.33	-1.07
200428	436	-2.4	0.163	-1.24	0.169	1.406	0.41	0	-7	67.74	-1.13
200429	437	0.2	0.797	0.439	0.118	0.358	0.1	0	-6	68.10	0.82
200430	438	-0.5	0.899	-0.05	0.124	0.947	0.27	0	-5	69.04	-19.73
200431	439	0.6	4.008	0.663	0.119	3.346	0.97	0	-4	72.39	5.05
200432	440	0	1.847	0.263	0.119	1.584	0.46	0	-3	73.97	6.02
200433	441	-0.7	2.642	-0.16	0.126	2.805	0.81	0	-2	76.78	-17.21
200434	442	-0.4	0.718	0.029	0.122	0.69	0.2	0	-1	77.47	23.79
200435	443	1.1	3.112	0.97	0.123	2.142	0.62		0	79.61	2.21
200436	444	1	-0.195	0.954	0.123	-1.149	-0.33	1	1	78.46	-1.20
200437	445	-0.8	-0.089	-0.23	0.128	0.139	0.04	1	2	78.60	-0.61
200438	446	-1.3	0.014	-0.54	0.138	0.55	0.16	1	3	79.15	-1.03
200439	447	0	0.177	0.265	0.119	-0.088	-0.03	1	4	79.06	-0.33
200440	448	1	5.999	0.929	0.122	5.07	1.47	1	5	84.13	5.46
200441	449	0.3	-15.19	0.508	0.118	-15.697	-4.55	1	6	68.44	-30.90
200442	450	1.4	-0.152	1.196	0.128	-1.347	-0.39	1	7	67.09	-1.13
200443	451	2	0.458	1.571	0.141	-1.113	-0.32	1	8	65.98	-0.71
200444	452	1.8	6.822	1.444	0.136	5.378	1.56	1	9	71.35	3.72
200445	453	-0.8	0.304	-0.25	0.129	0.551	0.16	1	10	71.91	-2.24
200446	454	1.9	-1.295	1.548	0.14	-2.843	-0.82	1	11	69.06	-1.84
200447	455	0.6	3.007	0.654	0.119	2.353	0.68	1	12	71.42	3.60
200448	456	1.7	23.519	1.371	0.134	22.148	6.42	1	13	93.56	16.15
200449	457	2.6	2.303	1.967	0.158	0.336	0.1	1	14	93.90	0.17
200450	458	1.4	-1.089	1.205	0.129	-2.294	-0.66	1	15	91.61	-1.90
200451	459	-1.7	-4.626	-0.82	0.149	-3.804	-1.1	1	16	87.80	4.63
200452	460	-1.2	-1.787	-0.46	0.135	-1.323	-0.38	1	17	86.48	2.85
200453	461	1.8	1.9	1.483	0.138	0.418	0.12	1	18	86.90	0.28
200501	462	0.8	0.266	0.81	0.12	-0.545	-0.16	1	19	86.35	-0.67
200502	463	1.6	7.687	1.317	0.132	6.37	1.85	1	20	92.72	4.84
200503	464	0.9	1.937	0.881	0.122	1.055	0.31	1	21	93.78	1.20
200504	465	3.9	-3.595	2.786	0.2	-6.381	-1.85	1	22	87.40	-2.29

200505	466	1.4	1.945	1.19	0.128	0.755	0.22	1	23	88.15	0.63
200506	467	1.6	1.182	1.329	0.132	-0.147	-0.04	1	24	88.00	-0.11
200507	468	0.5	-0.842	0.601	0.119	-1.443	-0.42	1	25	86.56	-2.40
200508	469	-1.2	-3.848	-0.46	0.135	-3.39	-0.98	1	26	83.17	7.40
200509	470	0	-0.524	0.262	0.119	-0.786	-0.23	1	27	82.38	-3.00
200510	471	0.1	1.387	0.375	0.118	1.011	0.29	1	28	83.40	2.70
200511	472	-0.5	0.896	-0	0.123	0.899	0.26	1	29	84.29	-299.67
200512	473	-0.7	2.379	-0.14	0.126	2.514	0.73	1	30	86.81	-18.62
200513	474	-0.1	1.868	0.198	0.12	1.67	0.48	1	31	88.48	8.43
200514	475	0.5	0.395	0.62	0.119	-0.225	-0.07	1	32	88.25	-0.36
200515	476	0	0.083	0.27	0.119	-0.187	-0.05	1	33	88.07	-0.69
200516	477	1	1.195	0.926	0.122	0.269	0.08	1	34	88.34	0.29
200517	478	1.6	2.323	1.307	0.132	1.016	0.29	1	35	89.35	0.78
200518	479	2.5	-0.047	1.914	0.155	-1.96	-0.57	1	36	87.39	-1.02
200519	480	2.1	1.442	1.674	0.145	-0.232	-0.07	1	37	87.16	-0.14
200520	481	0.4	8.003	0.541	0.118	7.462	2.16	1	38	94.62	13.79
200521	482	4.5	15.606	3.173	0.223	12.434	3.61	1	39	107.06	3.92
200522	483	2.7	-4.839	2.022	0.16	-6.861	-1.99	1	40	100.19	-3.39
200523	484	3	5.672	2.25	0.172	3.421	0.99	1	41	103.62	1.52
200524	485	5.4	0.195	3.793	0.261	-3.597	-1.04	1	42	100.02	-0.95
200525	486	4.6	1.864	3.245	0.227	-1.38	-0.4	1	43	98.64	-0.43
200526	487	5	-0.095	3.504	0.243	-3.599	-1.04	1	44	95.04	-1.03
200527	488	6.3	7.358	4.368	0.297	2.99	0.87	1	45	98.03	0.68
200528	489	4	1.623	2.886	0.206	-1.263	-0.37	1	46	96.77	-0.44
200529	490	-5.6	-8.231	-3.36	0.294	-4.872	-1.42	1	47	91.89	1.45
200530	491	-2.2	-0.268	-1.14	0.164	0.877	0.25	1	48	92.77	-0.77
200531	492	0.9	4.47	0.863	0.121	3.607	1.04	1	49	96.38	4.18
200532	493	2.1	1.632	1.678	0.145	-0.046	-0.01	1	50	96.33	-0.03
200533	494	-0.3	-2.402	0.108	0.121	-2.51	-0.73	1	51	93.82	-23.24
200534	495	-0.1	0.259	0.228	0.119	0.031	0.01	1	52	93.85	0.14
200535	496	-1.1	-3.23	-0.42	0.134	-2.81	-0.81	1	53	91.04	6.69
200536	497	-1.2	-3.738	-0.51	0.137	-3.225	-0.93	1	54	87.82	6.29
200537	498	-0.3	1.664	0.127	0.121	1.537	0.45	1	55	89.36	12.10
200538	499	0.6	1.637	0.668	0.119	0.969	0.28	1	56	90.32	1.45
200539	500	1.3	-0.268	1.155	0.127	-1.424	-0.41	1	57	88.90	-1.23
200540	501	0.2	-4.038	0.425	0.118	-4.463	-1.29	1	58	84.44	-10.50
200541	502	0.8	-3.576	0.829	0.121	-4.405	-1.28	1	59	80.03	-5.31
200542	503	1.9	1.273	1.54	0.14	-0.268	-0.08	1	60	79.76	-0.17
200543	504	0.3	-0.898	0.475	0.118	-1.372	-0.4	1	61	78.39	-2.89
200544	505	-0.6	0.725	-0.08	0.125	0.806	0.23	1	62	79.20	-9.95
200545	506	-0.2	-1.151	0.145	0.12	-1.296	-0.38	1	63	77.90	-8.94
200546	507	-1.2	0.291	-0.52	0.137	0.809	0.23	1	64	78.71	-1.56
200547	508	2	0.435	1.573	0.141	-1.137	-0.33	1	65	77.57	-0.72
200548	509	0.6	-0.289	0.658	0.119	-0.947	-0.27	1	66	76.63	-1.44
200549	510	0.5	-0.435	0.641	0.119	-1.076	-0.31	1	67	75.55	-1.68
200550	511	-1.1	-1.201	-0.39	0.133	-0.807	-0.23	1	68	74.74	2.05

200551	512	0.2	-0.552	0.435	0.118	-0.987	-0.29	1	69	73.76	-2.27
200552	513	-1.9	0	-0.91	0.153	0.912	0.26	1	70	74.67	-1.00
200601	514	16.2	0.185	10.8	0.734	-10.612	-3.14	1	71	64.06	-0.98
200602	515	2.7	-0.185	2.026	0.16	-2.211	-0.64	1	72	61.85	-1.09
200603	516	2.6	0	1.99	0.159	-1.99	-0.58	1	73	59.86	-1.00
200604	517	-0.7	-0.148	-0.18	0.127	0.032	0.01	1	74	59.89	-0.18
200605	518	-0.2	-0.148	0.174	0.12	-0.323	-0.09	1	75	59.57	-1.86
200606	519	-0.2	-1.337	0.146	0.12	-1.483	-0.43	1	76	58.08	-10.16
200607	520	-0.5	-3.012	-0.06	0.124	-2.954	-0.86	1	77	55.13	50.93
200608	521	-0.5	-0.311	-0.03	0.124	-0.276	-0.08	1	78	54.85	8.12
200609	522	-0.5	1.09	-0.05	0.124	1.139	0.33	1	79	55.99	-23.24
200610	523	-2.6	-0.462	-1.38	0.176	0.913	0.26	1	80	56.90	-0.66
200611	524	-1.2	-0.774	-0.48	0.136	-0.299	-0.09	1	81	56.61	0.63
200612	525	1	2.028	0.94	0.123	1.088	0.32	1	82	57.69	1.16
200613	526	4.2	1.835	3.035	0.215	-1.201	-0.35	1	83	56.49	-0.40
200614	527	-0.5	-0.601	-0.02	0.123	-0.582	-0.17	1	84	55.91	30.63
200615	528	-1.1	-1.624	-0.45	0.135	-1.174	-0.34	1	85	54.74	2.61
200616	529	7.3	-1.919	5.023	0.34	-6.943	-2.02	1	86	47.79	-1.38
200617	530	-3.9	2.701	-2.21	0.223	4.909	1.42	1	87	52.70	-2.22
200618	531	4.2	0.419	3.006	0.213	-2.587	-0.75	1	88	50.12	-0.86
200619	532	6.9	3.833	4.737	0.321	-0.904	-0.26	1	89	49.21	-0.19
200620	533	4.9	5.848	3.456	0.24	2.392	0.69	1	90	51.60	0.69
200621	534	-3	-3.29	-1.65	0.191	-1.638	-0.47	1	91	49.97	0.99
200622	535	1.1	-0.026	0.998	0.124	-1.024	-0.3	1	92	48.94	-1.03
200623	536	-1	-1	-0.33	0.131	-0.669	-0.19	1	93	48.27	2.02
200624	537	0.7	0.289	0.713	0.119	-0.425	-0.12	1	94	47.85	-0.60
200625	538	1.6	0	1.347	0.133	-1.347	-0.39	1	95	46.50	-1.00
200626	539	1.2	-0.719	1.052	0.125	-1.772	-0.51	1	96	44.73	-1.68
200627	540	1.3	0	1.138	0.127	-1.138	-0.33	1	97	43.59	-1.00
200628	541	1	-0.29	0.964	0.123	-1.254	-0.36	1	98	42.34	-1.30
200629	542	0.6	-0.872	0.661	0.119	-1.534	-0.44	1	99	40.80	-2.32
200630	543	0.5	-1.32	0.635	0.119	-1.954	-0.57	1	100	38.85	-3.08
200631	544	0.8	-0.594	0.805	0.12	-1.399	-0.41	1	101	37.45	-1.74
200632	545	5.9	0.299	4.127	0.282	-3.828	-1.11	1	102	33.62	-0.93
200633	546	2.3	2.385	1.809	0.151	0.575	0.17	1	103	34.20	0.32
200634	547	2.1	1.601	1.67	0.145	-0.069	-0.02	1	104	34.13	-0.04
200635	548	1.3	3.868	1.111	0.126	2.757	0.8	1	105	36.88	2.48
200636	549	3.3	-2.759	2.417	0.18	-5.176	-1.5	1	106	31.71	-2.14
200637	550	6.9	-0.142	4.762	0.323	-4.904	-1.43	1	107	26.80	-1.03

APPENDIX IV

EABL - WEEKLY RETURNS AND CUMULATIVE ABNORMAL RETURNS

YearWeek	Obs	MARKETr	EABLr	Fit	SE Fit	Residual	St Resid	PeriodS	EventWin	CAR	t-value
200234	336	-0.4	2.313	0.046	0.122	2.267	0.66	0	-107	17.03	49.28
200235	337	-0.6	0.741	-0.1	0.125	0.845	0.24	0	-106	17.88	-8.13
200236	338	-0.7	9.404	-0.17	0.127	9.575	2.77	0	-105	27.45	-55.99
200237	339	-0.5	-0.246	-0	0.123	-0.244	-0.07	0	-104	27.21	122.00
200238	340	1.1	-0.567	1.023	0.124	-1.59	-0.46	0	-103	25.62	-1.55
200239	341	1.6	0.404	1.341	0.133	-0.937	-0.27	0	-102	24.68	-0.70
200240	342	-0.2	-0.592	0.147	0.12	-0.739	-0.21	0	-101	23.94	-5.03
200241	343	1	2.351	0.914	0.122	1.437	0.42	0	-100	25.38	1.57
200242	344	0.7	1.747	0.739	0.12	1.007	0.29	0	-99	26.39	1.36
200243	345	1.2	2.405	1.062	0.125	1.343	0.39	0	-98	27.73	1.26
200244	346	4.8	2.598	3.422	0.238	-0.824	-0.24	0	-97	26.90	-0.24
200245	347	6.5	3.621	4.496	0.306	-0.875	-0.25	0	-96	26.03	-0.19
200246	348	3.2	-2.033	2.357	0.177	-4.39	-1.27	0	-95	21.64	-1.86
200247	349	-1.6	-5.787	-0.74	0.146	-5.046	-1.46	0	-94	16.59	6.81
200248	350	0.4	3.599	0.547	0.118	3.052	0.88	0	-93	19.65	5.58
200249	351	1	8.008	0.939	0.123	7.069	2.05	0	-92	26.71	7.53
200250	352	3.1	6.873	2.277	0.173	4.596	1.33	0	-91	31.31	2.02
200251	353	6.3	3.971	4.397	0.299	-0.426	-0.12	0	-90	30.88	-0.10
200252	354	-0.5	-0.978	-0.02	0.123	-0.958	-0.28	0	-89	29.93	47.90
200253	355	7.5	6.388	5.132	0.347	1.256	0.37	0	-88	31.18	0.24
200301	356	5.2	9.721	3.664	0.253	6.057	1.76	0	-87	37.24	1.65
200302	357	14.1	5.677	9.384	0.636	-3.707	-1.09	0	-86	33.53	-0.40
200303	358	-1.5	-10.05	-0.66	0.143	-9.386	-2.72	0	-85	24.15	14.14
200304	359	1.2	-5.499	1.09	0.126	-6.589	-1.91	0	-84	17.56	-6.04
200305	360	0.9	2.905	0.889	0.122	2.015	0.58	0	-83	19.57	2.27
200306	361	1.7	6.101	1.372	0.134	4.729	1.37	0	-82	24.30	3.45
200307	362	1	1.546	0.933	0.122	0.613	0.18	0	-81	24.91	0.66
200308	363	-2.5	4.02	-1.31	0.172	5.327	1.54	0	-80	30.24	-4.08
200309	364	0.5	9.304	0.621	0.119	8.683	2.52	0	-79	38.92	13.98
200310	365	-0.2	1.927	0.147	0.12	1.78	0.52	0	-78	40.70	12.11
200311	366	3.7	5.872	2.675	0.194	3.197	0.93	0	-77	43.90	1.20
200312	367	-0.6	6.103	-0.07	0.124	6.175	1.79	0	-76	50.08	-86.97
200313	368	0.1	1.278	0.377	0.118	0.901	0.26	0	-75	50.98	2.39
200314	369	1.4	1.582	1.214	0.129	0.368	0.11	0	-74	51.35	0.30
200315	370	3.2	5.113	2.362	0.177	2.751	0.8	0	-73	54.10	1.16

200316	371	3.7	3.726	2.664	0.194	1.061	0.31	0	-72	55.16	0.40
200317	372	3.9	8.492	2.791	0.201	5.701	1.65	0	-71	60.86	2.04
200318	373	8.1	1.075	5.523	0.373	-4.448	-1.3	0	-70	56.41	-0.81
200319	374	17.9	1.055	11.85	0.806	-10.793	-3.21	0	-69	45.62	-0.91
200320	375	-0.7	-0.806	-0.15	0.126	-0.653	-0.19	0	-68	44.96	4.24
200321	376	-2.9	-3.378	-1.58	0.187	-1.795	-0.52	0	-67	43.17	1.13
200322	377	-2.5	-1.623	-1.34	0.174	-0.284	-0.08	0	-66	42.89	0.21
200323	378	0.3	0.067	0.487	0.118	-0.421	-0.12	0	-65	42.46	-0.86
200324	379	2.2	-0.091	1.694	0.146	-1.785	-0.52	0	-64	40.68	-1.05
200325	380	-2.2	4.483	-1.12	0.163	5.606	1.62	0	-63	46.29	-4.99
200326	381	-1.2	2.544	-0.51	0.137	3.058	0.89	0	-62	49.34	-5.96
200327	382	-0.7	0.675	-0.15	0.126	0.827	0.24	0	-61	50.17	-5.44
200328	383	-0.9	1.644	-0.31	0.13	1.949	0.56	0	-60	52.12	-6.39
200329	384	0	4.239	0.309	0.119	3.93	1.14	0	-59	56.05	12.72
200330	385	1.1	7.616	1.018	0.124	6.598	1.91	0	-58	62.65	6.48
200331	386	2.7	2.092	2.03	0.161	0.062	0.02	0	-57	62.71	0.03
200332	387	2.5	3.859	1.9	0.155	1.958	0.57	0	-56	64.67	1.03
200333	388	2.4	6.661	1.866	0.153	4.794	1.39	0	-55	69.46	2.57
200334	389	3.2	2.712	2.334	0.176	0.378	0.11	0	-54	69.84	0.16
200335	390	3.8	-5.214	2.748	0.198	-7.961	-2.31	0	-53	61.88	-2.90
200336	391	2.6	13.042	1.982	0.158	11.059	3.21	0	-52	72.94	5.58
200337	392	1.6	4.505	1.317	0.132	3.188	0.92	0	-51	76.13	2.42
200338	393	2.4	-0.289	1.875	0.154	-2.165	-0.63	0	-50	73.96	-1.15
200339	394	6.1	0.676	4.214	0.288	-3.538	-1.03	0	-49	70.42	-0.84
200340	395	4.2	2.717	3.014	0.214	-0.297	-0.09	0	-48	70.13	-0.10
200341	396	-0.4	2.252	0.001	0.123	2.251	0.65	0	-47	72.38	2251.00
200342	397	1.5	1.594	1.264	0.13	0.33	0.1	0	-46	72.71	0.26
200343	398	1.3	2.809	1.159	0.127	1.649	0.48	0	-45	74.36	1.42
200344	399	-0.4	3.223	0.032	0.122	3.191	0.92	0	-44	77.55	99.72
200345	400	0.1	1.821	0.363	0.118	1.458	0.42	0	-43	79.00	4.02
200346	401	0.3	1.178	0.482	0.118	0.697	0.2	0	-42	79.70	1.45
200347	402	3.4	6.43	2.487	0.184	3.944	1.14	0	-41	83.65	1.59
200348	403	9.5	10.034	6.429	0.434	3.605	1.05	0	-40	87.25	0.56
200349	404	0.5	-2.916	0.634	0.119	-3.55	-1.03	0	-39	83.70	-5.60
200350	405	-4.3	-4.935	-2.48	0.239	-2.453	-0.71	0	-38	81.25	0.99
200351	406	1.6	0.421	1.326	0.132	-0.905	-0.26	0	-37	80.34	-0.68
200352	407	3.2	2.916	2.393	0.179	0.523	0.15	0	-36	80.87	0.22
200353	408	0.4	0.683	0.561	0.118	0.122	0.04	0	-35	80.99	0.22
200401	409	0.8	-0.108	0.805	0.12	-0.913	-0.26	0	-34	80.07	-1.13
200402	410	3.4	5.466	2.51	0.185	2.956	0.86	0	-33	83.03	1.18
200403	411	5	6.846	3.541	0.245	3.304	0.96	0	-32	86.33	0.93
200404	412	5.3	0.385	3.709	0.256	-3.324	-0.97	0	-31	83.01	-0.90
200405	413	5.8	-0.702	4.036	0.276	-4.738	-1.38	0	-30	78.27	-1.17
200406	414	-1.4	-2.472	-0.61	0.141	-1.859	-0.54	0	-29	76.41	3.03
200407	415	2.4	3.844	1.839	0.152	2.005	0.58	0	-28	78.42	1.09
200408	416	1.8	-1.43	1.48	0.137	-2.911	-0.84	0	-27	75.51	-1.97

200409	417	3.2	-0.231	2.382	0.178	-2.614	-0.76	0	-26	72.89	-1.10
200410	418	3.9	-1.497	2.845	0.204	-4.341	-1.26	0	-25	68.55	-1.53
200411	419	-6.5	-0.224	-3.89	0.328	3.663	1.07	0	-24	72.22	-0.94
200412	420	-2.9	-0.752	-1.57	0.186	0.815	0.24	0	-23	73.03	-0.52
200413	421	-6.4	-2.132	-3.86	0.326	1.724	0.5	0	-22	74.75	-0.45
200414	422	-5.8	-4.88	-3.49	0.303	-1.39	-0.4	0	-21	73.36	0.40
200415	423	-0.5	-5.976	-0.07	0.124	-5.911	-1.71	0	-20	67.45	90.94
200416	424	8.2	4.845	5.572	0.376	-0.727	-0.21	0	-19	66.73	-0.13
200417	425	1.8	7.865	1.481	0.138	6.384	1.85	0	-18	73.11	4.31
200418	426	-1	-0.221	-0.39	0.133	0.167	0.05	0	-17	73.28	-0.43
200419	427	-2.3	-10.23	-1.18	0.166	-9.047	-2.62	0	-16	64.23	7.65
200420	428	-1.4	-0.724	-0.64	0.142	-0.08	-0.02	0	-15	64.15	0.12
200421	429	-1.7	-1.551	-0.82	0.149	-0.734	-0.21	0	-14	63.42	0.90
200422	430	5.7	-0.658	3.97	0.272	-4.629	-1.34	0	-13	58.79	-1.17
200423	431	1.3	-0.818	1.136	0.127	-1.954	-0.57	0	-12	56.83	-1.72
200424	432	1.1	3.24	1.01	0.124	2.23	0.65	0	-11	59.06	2.21
200425	433	-0.5	5.399	-0.01	0.123	5.411	1.57	0	-10	64.47	-450.92
200426	434	-2.1	-0.819	-1.05	0.16	0.229	0.07	0	-9	64.70	-0.22
200427	435	-2.8	0.111	-1.52	0.183	1.63	0.47	0	-8	66.33	-1.07
200428	436	-2.4	0.163	-1.24	0.169	1.406	0.41	0	-7	67.74	-1.13
200429	437	0.2	0.797	0.439	0.118	0.358	0.1	0	-6	68.10	0.82
200430	438	-0.5	0.899	-0.05	0.124	0.947	0.27	0	-5	69.04	-19.73
200431	439	0.6	4.008	0.663	0.119	3.346	0.97	0	-4	72.39	5.05
200432	440	0	1.847	0.263	0.119	1.584	0.46	0	-3	73.97	6.02
200433	441	-0.7	2.642	-0.16	0.126	2.805	0.81	0	-2	76.78	-17.21
200434	442	-0.4	0.718	0.029	0.122	0.69	0.2	0	-1	77.47	23.79
200435	443	1.1	3.112	0.97	0.123	2.142	0.62		0	79.61	2.21
200436	444	1	-0.195	0.954	0.123	-1.149	-0.33	1	1	78.46	-1.20
200437	445	-0.8	-0.089	-0.23	0.128	0.139	0.04	1	2	78.60	-0.61
200438	446	-1.3	0.014	-0.54	0.138	0.55	0.16	1	3	79.15	-1.03
200439	447	0	0.177	0.265	0.119	-0.088	-0.03	1	4	79.06	-0.33
200440	448	1	5.999	0.929	0.122	5.07	1.47	1	5	84.13	5.46
200441	449	0.3	-15.19	0.508	0.118	-15.697	-4.55	1	6	68.44	-30.90
200442	450	1.4	-0.152	1.196	0.128	-1.347	-0.39	1	7	67.09	-1.13
200443	451	2	0.458	1.571	0.141	-1.113	-0.32	1	8	65.98	-0.71
200444	452	1.8	6.822	1.444	0.136	5.378	1.56	1	9	71.35	3.72
200445	453	-0.8	0.304	-0.25	0.129	0.551	0.16	1	10	71.91	-2.24
200446	454	1.9	-1.295	1.548	0.14	-2.843	-0.82	1	11	69.06	-1.84
200447	455	0.6	3.007	0.654	0.119	2.353	0.68	1	12	71.42	3.60
200448	456	1.7	23.519	1.371	0.134	22.148	6.42	1	13	93.56	16.15
200449	457	2.6	2.303	1.967	0.158	0.336	0.1	1	14	93.90	0.17
200450	458	1.4	-1.089	1.205	0.129	-2.294	-0.66	1	15	91.61	-1.90
200451	459	-1.7	-4.626	-0.82	0.149	-3.804	-1.1	1	16	87.80	4.63
200452	460	-1.2	-1.787	-0.46	0.135	-1.323	-0.38	1	17	86.48	2.85
200453	461	1.8	1.9	1.483	0.138	0.418	0.12	1	18	86.90	0.28
200501	462	0.8	0.266	0.81	0.12	-0.545	-0.16	1	19	86.35	-0.67

200502	463	1.6	7.687	1.317	0.132	6.37	1.85	1	20	92.72	4.84
200503	464	0.9	1.937	0.881	0.122	1.055	0.31	1	21	93.78	1.20
200504	465	3.9	-3.595	2.786	0.2	-6.381	-1.85	1	22	87.40	-2.29
200505	466	1.4	1.945	1.19	0.128	0.755	0.22	1	23	88.15	0.63
200506	467	1.6	1.182	1.329	0.132	-0.147	-0.04	1	24	88.00	-0.11
200507	468	0.5	-0.842	0.601	0.119	-1.443	-0.42	1	25	86.56	-2.40
200508	469	-1.2	-3.848	-0.46	0.135	-3.39	-0.98	1	26	83.17	7.40
200509	470	0	-0.524	0.262	0.119	-0.786	-0.23	1	27	82.38	-3.00
200510	471	0.1	1.387	0.375	0.118	1.011	0.29	1	28	83.40	2.70
200511	472	-0.5	0.896	-0	0.123	0.899	0.26	1	29	84.29	-299.67
200512	473	-0.7	2.379	-0.14	0.126	2.514	0.73	1	30	86.81	-18.62
200513	474	-0.1	1.868	0.198	0.12	1.67	0.48	1	31	88.48	8.43
200514	475	0.5	0.395	0.62	0.119	-0.225	-0.07	1	32	88.25	-0.36
200515	476	0	0.083	0.27	0.119	-0.187	-0.05	1	33	88.07	-0.69
200516	477	1	1.195	0.926	0.122	0.269	0.08	1	34	88.34	0.29
200517	478	1.6	2.323	1.307	0.132	1.016	0.29	1	35	89.35	0.78
200518	479	2.5	-0.047	1.914	0.155	-1.96	-0.57	1	36	87.39	-1.02
200519	480	2.1	1.442	1.674	0.145	-0.232	-0.07	1	37	87.16	-0.14
200520	481	0.4	8.003	0.541	0.118	7.462	2.16	1	38	94.62	13.79
200521	482	4.5	15.606	3.173	0.223	12.434	3.61	1	39	107.06	3.92
200522	483	2.7	-4.839	2.022	0.16	-6.861	-1.99	1	40	100.19	-3.39
200523	484	3	5.672	2.25	0.172	3.421	0.99	1	41	103.62	1.52
200524	485	5.4	0.195	3.793	0.261	-3.597	-1.04	1	42	100.02	-0.95
200525	486	4.6	1.864	3.245	0.227	-1.38	-0.4	1	43	98.64	-0.43
200526	487	5	-0.095	3.504	0.243	-3.599	-1.04	1	44	95.04	-1.03
200527	488	6.3	7.358	4.368	0.297	2.99	0.87	1	45	98.03	0.68
200528	489	4	1.623	2.886	0.206	-1.263	-0.37	1	46	96.77	-0.44
200529	490	-5.6	-8.231	-3.36	0.294	-4.872	-1.42	1	47	91.89	1.45
200530	491	-2.2	-0.268	-1.14	0.164	0.877	0.25	1	48	92.77	-0.77
200531	492	0.9	4.47	0.863	0.121	3.607	1.04	1	49	96.38	4.18
200532	493	2.1	1.632	1.678	0.145	-0.046	-0.01	1	50	96.33	-0.03
200533	494	-0.3	-2.402	0.108	0.121	-2.51	-0.73	1	51	93.82	-23.24
200534	495	-0.1	0.259	0.228	0.119	0.031	0.01	1	52	93.85	0.14
200535	496	-1.1	-3.23	-0.42	0.134	-2.81	-0.81	1	53	91.04	6.69
200536	497	-1.2	-3.738	-0.51	0.137	-3.225	-0.93	1	54	87.82	6.29
200537	498	-0.3	1.664	0.127	0.121	1.537	0.45	1	55	89.36	12.10
200538	499	0.6	1.637	0.668	0.119	0.969	0.28	1	56	90.32	1.45
200539	500	1.3	-0.268	1.155	0.127	-1.424	-0.41	1	57	88.90	-1.23
200540	501	0.2	-4.038	0.425	0.118	-4.463	-1.29	1	58	84.44	-10.50
200541	502	0.8	-3.576	0.829	0.121	-4.405	-1.28	1	59	80.03	-5.31
200542	503	1.9	1.273	1.54	0.14	-0.268	-0.08	1	60	79.76	-0.17
200543	504	0.3	-0.898	0.475	0.118	-1.372	-0.4	1	61	78.39	-2.89
200544	505	-0.6	0.725	-0.08	0.125	0.806	0.23	1	62	79.20	-9.95
200545	506	-0.2	-1.151	0.145	0.12	-1.296	-0.38	1	63	77.90	-8.94
200546	507	-1.2	0.291	-0.52	0.137	0.809	0.23	1	64	78.71	-1.56
200547	508	2	0.435	1.573	0.141	-1.137	-0.33	1	65	77.57	-0.72

200548	509	0.6	-0.289	0.658	0.119	-0.947	-0.27	1	66	76.63	-1.44
200549	510	0.5	-0.435	0.641	0.119	-1.076	-0.31	1	67	75.55	-1.68
200550	511	-1.1	-1.201	-0.39	0.133	-0.807	-0.23	1	68	74.74	2.05
200551	512	0.2	-0.552	0.435	0.118	-0.987	-0.29	1	69	73.76	-2.27
200552	513	-1.9	0	-0.91	0.153	0.912	0.26	1	70	74.67	-1.00
200601	514	16.2	0.185	10.8	0.734	-10.612	-3.14	1	71	64.06	-0.98
200602	515	2.7	-0.185	2.026	0.16	-2.211	-0.64	1	72	61.85	-1.09
200603	516	2.6	0	1.99	0.159	-1.99	-0.58	1	73	59.86	-1.00
200604	517	-0.7	-0.148	-0.18	0.127	0.032	0.01	1	74	59.89	-0.18
200605	518	-0.2	-0.148	0.174	0.12	-0.323	-0.09	1	75	59.57	-1.86
200606	519	-0.2	-1.337	0.146	0.12	-1.483	-0.43	1	76	58.08	-10.16
200607	520	-0.5	-3.012	-0.06	0.124	-2.954	-0.86	1	77	55.13	50.93
200608	521	-0.5	-0.311	-0.03	0.124	-0.276	-0.08	1	78	54.85	8.12
200609	522	-0.5	1.09	-0.05	0.124	1.139	0.33	1	79	55.99	-23.24
200610	523	-2.6	-0.462	-1.38	0.176	0.913	0.26	1	80	56.90	-0.66
200611	524	-1.2	-0.774	-0.48	0.136	-0.299	-0.09	1	81	56.61	0.63
200612	525	1	2.028	0.94	0.123	1.088	0.32	1	82	57.69	1.16
200613	526	4.2	1.835	3.035	0.215	-1.201	-0.35	1	83	56.49	-0.40
200614	527	-0.5	-0.601	-0.02	0.123	-0.582	-0.17	1	84	55.91	30.63
200615	528	-1.1	-1.624	-0.45	0.135	-1.174	-0.34	1	85	54.74	2.61
200616	529	7.3	-1.919	5.023	0.34	-6.943	-2.02	1	86	47.79	-1.38
200617	530	-3.9	2.701	-2.21	0.223	4.909	1.42	1	87	52.70	-2.22
200618	531	4.2	0.419	3.006	0.213	-2.587	-0.75	1	88	50.12	-0.86
200619	532	6.9	3.833	4.737	0.321	-0.904	-0.26	1	89	49.21	-0.19
200620	533	4.9	5.848	3.456	0.24	2.392	0.69	1	90	51.60	0.69
200621	534	-3	-3.29	-1.65	0.191	-1.638	-0.47	1	91	49.97	0.99
200622	535	1.1	-0.026	0.998	0.124	-1.024	-0.3	1	92	48.94	-1.03
200623	536	-1	-1	-0.33	0.131	-0.669	-0.19	1	93	48.27	2.02
200624	537	0.7	0.289	0.713	0.119	-0.425	-0.12	1	94	47.85	-0.60
200625	538	1.6	0	1.347	0.133	-1.347	-0.39	1	95	46.50	-1.00
200626	539	1.2	-0.719	1.052	0.125	-1.772	-0.51	1	96	44.73	-1.68
200627	540	1.3	0	1.138	0.127	-1.138	-0.33	1	97	43.59	-1.00
200628	541	1	-0.29	0.964	0.123	-1.254	-0.36	1	98	42.34	-1.30
200629	542	0.6	-0.872	0.661	0.119	-1.534	-0.44	1	99	40.80	-2.32
200630	543	0.5	-1.32	0.635	0.119	-1.954	-0.57	1	100	38.85	-3.08
200631	544	0.8	-0.594	0.805	0.12	-1.399	-0.41	1	101	37.45	-1.74
200632	545	5.9	0.299	4.127	0.282	-3.828	-1.11	1	102	33.62	-0.93
200633	546	2.3	2.385	1.809	0.151	0.575	0.17	1	103	34.20	0.32
200634	547	2.1	1.601	1.67	0.145	-0.069	-0.02	1	104	34.13	-0.04
200635	548	1.3	3.868	1.111	0.126	2.757	0.8	1	105	36.88	2.48
200636	549	3.3	-2.759	2.417	0.18	-5.176	-1.5	1	106	31.71	-2.14
200637	550	6.9	-0.142	4.762	0.323	-4.904	-1.43	1	107	26.80	-1.03

APPENDIX V
KCB - WEEKLY RETURNS AND CUMULATIVE ABNORMAL RETURNS

Year Week	Obs	MARKETr	KCBr	Fit	SE Fit	Residual	St Resid	PeriodS	EventWin	CAR	t-value
200507	468	0.5	-0.53	0.581	0.156	-1.113	-0.25	0	-107	-36.09	-1.92
200508	469	-1.2	-4.35	-1.661	0.178	-2.686	-0.59	0	-106	-38.78	1.62
200509	470	0	-4.14	-0.136	0.157	-4.006	-0.88	0	-105	-42.78	29.46
200510	471	0.1	-0.66	0.103	0.156	-0.763	-0.17	0	-104	-43.55	-7.41
200511	472	-0.5	-2.53	-0.697	0.162	-1.835	-0.4	0	-103	-45.38	2.63
200512	473	-0.7	2.417	-0.977	0.165	3.395	0.75	0	-102	-41.99	-3.47
200513	474	-0.1	-2.85	-0.271	0.158	-2.58	-0.57	0	-101	-44.57	9.52
200514	475	0.5	-1.05	0.622	0.156	-1.675	-0.37	0	-100	-46.24	-2.69
200515	476	0	1.732	-0.12	0.157	1.853	0.41	0	-99	-44.39	-15.44
200516	477	1	2.141	1.269	0.161	0.872	0.19	0	-98	-43.52	0.69
200517	478	1.6	1.755	2.076	0.173	-0.321	-0.07	0	-97	-43.84	-0.15
200518	479	2.5	0.102	3.359	0.204	-3.257	-0.72	0	-96	-47.09	-0.97
200519	480	2.1	0.409	2.852	0.191	-2.443	-0.54	0	-95	-49.54	-0.86
200520	481	0.4	2.704	0.454	0.156	2.25	0.5	0	-94	-47.29	4.96
200521	482	4.5	4.156	6.024	0.293	-1.868	-0.41	0	-93	-49.15	-0.31
200522	483	2.7	-2.03	3.589	0.211	-5.62	-1.24	0	-92	-54.77	-1.57
200523	484	3	0.408	4.072	0.225	-3.663	-0.81	0	-91	-58.44	-0.90
200524	485	5.4	0.633	7.337	0.343	-6.704	-1.48	0	-90	-65.14	-0.91
200525	486	4.6	0.234	6.176	0.299	-5.942	-1.31	0	-89	-71.08	-0.96
200526	487	5	0.747	6.725	0.319	-5.978	-1.32	0	-88	-77.06	-0.89
200527	488	6.3	10.8	8.555	0.391	2.243	0.5	0	-87	-74.82	0.26
200528	489	4	7.772	5.418	0.271	2.354	0.52	0	-86	-72.46	0.43
200529	490	-5.6	-15.5	-7.803	0.387	-7.702	-1.7	0	-85	-80.17	0.99
200530	491	-2.2	8.25	-3.114	0.216	11.364	2.51	0	-84	-68.80	-3.65
200531	492	0.9	2.234	1.135	0.159	1.099	0.24	0	-83	-67.70	0.97
200532	493	2.1	3.985	2.861	0.191	1.124	0.25	0	-82	-66.58	0.39
200533	494	-0.3	1.854	-0.463	0.159	2.317	0.51	0	-81	-64.26	-5.00
200534	495	-0.1	-1.09	-0.209	0.157	-0.883	-0.19	0	-80	-65.15	4.22
200535	496	-1.1	-1.84	-1.581	0.176	-0.26	-0.06	0	-79	-65.41	0.16
200536	497	-1.2	-0.75	-1.778	0.18	1.028	0.23	0	-78	-64.38	-0.58
200537	498	-0.3	0.378	-0.422	0.159	0.8	0.18	0	-77	-63.58	-1.90
200538	499	0.6	1.882	0.723	0.156	1.159	0.26	0	-76	-62.42	1.60
200539	500	1.3	2.709	1.754	0.167	0.956	0.21	0	-75	-61.46	0.55
200540	501	0.2	1.439	0.208	0.155	1.231	0.27	0	-74	-60.23	5.92
200541	502	0.8	2.394	1.063	0.159	1.331	0.29	0	-73	-58.90	1.25
200542	503	1.9	9.235	2.569	0.184	6.666	1.47	0	-72	-52.23	2.59
200543	504	0.3	2.51	0.313	0.155	2.197	0.48	0	-71	-50.04	7.02
200544	505	-0.6	0.206	-0.864	0.164	1.07	0.24	0	-70	-48.97	-1.24
200545	506	-0.2	0.617	-0.384	0.158	1.002	0.22	0	-69	-47.97	-2.61
200546	507	-1.2	1.329	-1.788	0.181	3.118	0.69	0	-68	-44.85	-1.74

200547	508	2	1.11	2.637	0.185	-1.528	-0.34	0	-67	-46.38	-0.58
200548	509	0.6	10.58	0.7	0.156	9.879	2.18	0	-66	-36.50	14.11
200549	510	0.5	0.361	0.666	0.156	-0.305	-0.07	0	-65	-36.80	-0.46
200550	511	-1.1	-3.1	-1.526	0.175	-1.576	-0.35	0	-64	-38.38	1.03
200551	512	0.2	4.316	0.229	0.155	4.086	0.9	0	-63	-34.29	17.84
200552	513	-1.9	-0.13	-2.623	0.202	2.489	0.55	0	-62	-31.80	-0.95
200601	514	16.2	1.114	22.164	0.965	-21.05	-4.74	0	-61	-52.85	-0.95
200602	515	2.7	1.85	3.598	0.211	-1.748	-0.39	0	-60	-54.60	-0.49
200603	516	2.6	3.806	3.521	0.209	0.286	0.06	0	-59	-54.31	0.08
200604	517	-0.7	-0.67	-1.073	0.167	0.406	0.09	0	-58	-53.91	-0.38
200605	518	-0.2	-3.19	-0.322	0.158	-2.865	-0.63	0	-57	-56.77	8.90
200606	519	-0.2	1.04	-0.382	0.158	1.422	0.31	0	-56	-55.35	-3.72
200607	520	-0.5	-0.52	-0.814	0.163	0.3	0.07	0	-55	-55.05	-0.37
200608	521	-0.5	-0.69	-0.764	0.162	0.075	0.02	0	-54	-54.98	-0.10
200609	522	-0.5	1.562	-0.795	0.163	2.357	0.52	0	-53	-52.62	-2.96
200610	523	-2.6	-4.27	-3.602	0.231	-0.671	-0.15	0	-52	-53.29	0.19
200611	524	-1.2	0.714	-1.697	0.179	2.412	0.53	0	-51	-50.88	-1.42
200612	525	1	4.965	1.298	0.161	3.667	0.81	0	-50	-47.21	2.83
200613	526	4.2	0.169	5.734	0.282	-5.565	-1.23	0	-49	-52.78	-0.97
200614	527	-0.5	-3.54	-0.731	0.162	-2.81	-0.62	0	-48	-55.59	3.84
200615	528	-1.1	-2.1	-1.644	0.177	-0.454	-0.1	0	-47	-56.04	0.28
200616	529	7.3	15.63	9.941	0.447	5.684	1.26	0	-46	-50.36	0.57
200617	530	-3.9	-10.7	-5.367	0.293	-5.366	-1.18	0	-45	-55.72	1.00
200618	531	4.2	7.483	5.672	0.28	1.81	0.4	0	-44	-53.91	0.32
200619	532	6.9	24.75	9.335	0.422	15.413	3.41	0	-43	-38.50	1.65
200620	533	4.9	7.484	6.623	0.316	0.861	0.19	0	-42	-37.64	0.13
200621	534	-3	-6.24	-4.189	0.251	-2.054	-0.45	0	-41	-39.69	0.49
200622	535	1.1	-0.13	1.421	0.163	-1.549	-0.34	0	-40	-41.24	-1.09
200623	536	-1	-2.95	-1.392	0.172	-1.557	-0.34	0	-39	-42.80	1.12
200624	537	0.7	4.756	0.819	0.157	3.937	0.87	0	-38	-38.86	4.81
200625	538	1.6	5.422	2.161	0.175	3.262	0.72	0	-37	-35.60	1.51
200626	539	1.2	-0.36	1.536	0.164	-1.895	-0.42	0	-36	-37.49	-1.23
200627	540	1.3	0.12	1.717	0.167	-1.597	-0.35	0	-35	-39.09	-0.93
200628	541	1	-1.2	1.35	0.162	-2.549	-0.56	0	-34	-41.64	-1.89
200629	542	0.6	-0.85	0.709	0.156	-1.558	-0.34	0	-33	-43.20	-2.20
200630	543	0.5	2.203	0.652	0.156	1.551	0.34	0	-32	-41.65	2.38
200631	544	0.8	3.353	1.012	0.158	2.341	0.52	0	-31	-39.31	2.31
200632	545	5.9	3.592	8.044	0.371	-4.452	-0.98	0	-30	-43.76	-0.55
200633	546	2.3	-1.23	3.138	0.198	-4.369	-0.96	0	-29	-48.13	-1.39
200634	547	2.1	-3.51	2.844	0.19	-6.354	-1.4	0	-28	-54.48	-2.23
200635	548	1.3	3.286	1.66	0.166	1.626	0.36	0	-27	-52.86	0.98
200636	549	3.3	1.25	4.425	0.237	-3.175	-0.7	0	-26	-56.03	-0.72
200637	550	6.9	2.469	9.389	0.425	-6.92	-1.53	0	-25	-62.95	-0.74
200638	551	4.9	8.215	6.645	0.316	1.569	0.35	0	-24	-61.38	0.24
200639	552	-0.6	-3.04	-0.857	0.164	-2.179	-0.48	0	-23	-63.56	2.54
200640	553	2.2	1.566	2.949	0.193	-1.384	-0.3	0	-22	-64.94	-0.47

200641	554	0.4	1.105	0.494	0.156	0.61	0.13	0	-21	-64.33	1.23
200642	555	-0.2	-0.13	-0.289	0.158	0.162	0.04	0	-20	-64.17	-0.56
200643	556	3.3	-0.66	4.42	0.237	-5.082	-1.12	0	-19	-69.25	-1.15
200644	557	7.1	10.76	9.677	0.436	1.081	0.24	0	-18	-68.17	0.11
200645	558	2.8	-0.74	3.809	0.217	-4.549	-1	0	-17	-72.72	-1.19
200646	559	-0.8	0.932	-1.18	0.169	2.112	0.47	0	-16	-70.61	-1.79
200647	560	1.5	-0.92	1.925	0.17	-2.848	-0.63	0	-15	-73.46	-1.48
200648	561	-0.7	-0.65	-1.083	0.167	0.431	0.09	0	-14	-73.03	-0.40
200649	562	-3.9	-1.6	-5.458	0.296	3.864	0.85	0	-13	-69.16	-0.71
200650	563	1.4	3.551	1.851	0.169	1.7	0.37	0	-12	-67.46	0.92
200651	564	-0.3	0.621	-0.487	0.159	1.109	0.24	0	-11	-66.35	-2.28
200652	565	1.5	4.758	1.954	0.171	2.804	0.62	0	-10	-63.55	1.44
200701	566	5.9	14.19	8.017	0.37	6.175	1.36	0	-9	-57.38	0.77
200702	567	6.8	1.568	9.258	0.419	-7.69	-1.7	0	-8	-65.07	-0.83
200703	568	-2.7	-0.3	-3.716	0.235	3.415	0.75	0	-7	-61.65	-0.92
200704	569	-2.9	-4.68	-3.984	0.244	-0.698	-0.15	0	-6	-62.35	0.18
200705	570	-4.4	-7.53	-6.128	0.321	-1.4	-0.31	0	-5	-63.75	0.23
200706	571	-1.7	0.171	-2.393	0.195	2.565	0.57	0	-4	-61.18	-1.07
200707	572	1.9	10.01	2.488	0.182	7.52	1.66	0	-3	-53.66	3.02
200708	573	-1.7	-6.14	-2.377	0.195	-3.766	-0.83	0	-2	-57.43	1.58
200709	574	-8.3	-7.04	11.495	0.538	4.452	0.99	0	-1	-52.98	-0.39
200710	575	-2.9	0.535	-4.107	0.248	4.642	1.02		0	-48.34	-1.13
200711	576	-1	-2.75	-1.382	0.172	-1.367	-0.3	1	1	-49.70	0.99
200712	577	-10.2	-9.94	14.039	0.645	4.103	0.91	1	2	-45.60	-0.29
200713	578	1.7	-0.1	2.195	0.176	-2.297	-0.51	1	3	-47.90	-1.05
200714	579	12.1	26.65	16.474	0.721	10.172	2.27	1	4	-37.72	0.62
200715	580	0.2	-0.5	0.224	0.155	-0.724	-0.16	1	5	-38.45	-3.23
200716	581	-4	-0.3	-5.563	0.3	5.261	1.16	1	6	-33.19	-0.95
200717	582	0.9	-2.62	1.149	0.16	-3.77	-0.83	1	7	-36.96	-3.28
200718	583	-0.2	3.52	-0.375	0.158	3.894	0.86	1	8	-33.06	-10.38
200719	584	-2.2	3	-3.134	0.216	6.134	1.35	1	9	-26.93	-1.96
200720	585	1.8	-4.08	2.352	0.179	-6.43	-1.42	1	10	-33.36	-2.73
200721	586	-0.3	-1.01	-0.455	0.159	-0.557	-0.12	1	11	-33.92	1.22
200722	587	-0.9	-4.4	-1.27	0.17	-3.127	-0.69	1	12	-37.04	2.46
200723	588	0.2	-1.82	0.165	0.156	-1.983	-0.44	1	13	-39.03	-12.02
200724	589	2.4	3.486	3.274	0.202	0.212	0.05	1	14	-38.81	0.06
200725	590	2.1	2.737	2.866	0.191	-0.129	-0.03	1	15	-38.94	-0.05
200726	591	-1	-7.58	-1.419	0.173	-6.163	-1.36	1	16	-45.11	4.34
200727	592	1.8	6.652	2.351	0.179	4.301	0.95	1	17	-40.81	1.83
200728	593	0.3	-2.5	0.334	0.155	-2.829	-0.62	1	18	-43.63	-8.47
200729	594	0.9	7.463	1.209	0.16	6.254	1.38	1	19	-37.38	5.17
200730	595	2	6.151	2.711	0.187	3.44	0.76	1	20	-33.94	1.27
200731	596	1.7	5.607	2.275	0.177	3.333	0.73	1	21	-30.61	1.47
200732	597	-0.4	-6.9	-0.684	0.161	-6.218	-1.37	1	22	-36.83	9.09
200733	598	-0.5	1.331	-0.766	0.162	2.096	0.46	1	23	-34.73	-2.74

200734	599	-0.3	-1.13	-0.445	0.159	-0.68	-0.15	1	24	-35.41	1.53
200735	600	2.8	0.949	3.749	0.216	-2.8	-0.62	1	25	-38.21	-0.75
200736	601	2.8	2.82	3.749	0.216	-0.929	-0.2	1	26	-39.14	-0.25
200737	602	2.3	2.194	3.053	0.196	-0.859	-0.19	1	27	-40.00	-0.28
200738	603	-0.1	-0.36	-0.251	0.157	-0.107	-0.02	1	28	-40.10	0.43
200739	604	-3.6	-5.93	-5.024	0.28	-0.9	-0.2	1	29	-41.00	0.18
200740	605	-3.2	-4.2	-4.513	0.262	0.314	0.07	1	30	-40.69	-0.07
200741	606	-4.3	-4.88	-5.937	0.314	1.056	0.23	1	31	-39.63	-0.18
200742	607	2.9	8.901	3.905	0.22	4.996	1.1	1	32	-34.64	1.28
200743	608	0.4	-1.92	0.482	0.156	-2.405	-0.53	1	33	-37.04	-4.99
200744	609	-2.4	-0.39	-3.401	0.225	3.008	0.66	1	34	-34.04	-0.88
200745	610	2.2	4.331	2.952	0.193	1.379	0.3	1	35	-32.66	0.47
200746	611	0.6	3.396	0.754	0.157	2.643	0.58	1	36	-30.01	3.51
200747	612	1.7	0.182	2.249	0.177	-2.067	-0.46	1	37	-32.08	-0.92
200748	613	1.1	-1.64	1.418	0.163	-3.057	-0.67	1	38	-35.14	-2.16
200749	614	1.3	0.37	1.749	0.167	-1.378	-0.3	1	39	-36.52	-0.79
200750	615	1.2	-0.83	1.552	0.164	-2.382	-0.52	1	40	-38.90	-1.53
200751	616	-0.7	-1.63	-0.978	0.165	-0.65	-0.14	1	41	-39.55	0.66
200752	617	2	7.801	2.619	0.185	5.183	1.14	1	42	-34.36	1.98
200801	618	-5.6	-6.14	-7.762	0.385	1.622	0.36	1	43	-32.74	-0.21
200802	619	3.7	8.411	4.976	0.256	3.435	0.76	1	44	-29.31	0.69
200803	620	-3.4	-4.31	-4.789	0.272	0.479	0.11	1	45	-28.83	-0.10
200804	621	-4.2	-3.78	-5.842	0.31	2.058	0.45	1	46	-26.77	-0.35
200805	622	-4.3	-6.74	-6.001	0.316	-0.74	-0.16	1	47	-27.51	0.12
200806	623	-1.4	-1.41	-1.992	0.185	0.586	0.13	1	48	-26.92	-0.29
200807	624	5.7	8.758	7.686	0.357	1.072	0.24	1	49	-25.85	0.14
200808	625	-0.6	0.187	-0.96	0.165	1.147	0.25	1	50	-24.71	-1.19
200809	626	0.4	3.178	0.506	0.156	2.671	0.59	1	51	-22.03	5.28
200810	627	7	3.623	9.537	0.431	-5.914	-1.31	1	52	-27.95	-0.62
200811	628	-4.3	-5.77	-5.928	0.314	0.159	0.04	1	53	-27.79	-0.03
200812	629	-4.5	-2.91	-6.184	0.323	3.277	0.72	1	54	-24.51	-0.53
200813	630	-0.1	-0.64	-0.217	0.157	-0.42	-0.09	1	55	-24.93	1.94
200814	631	1	2.308	1.241	0.16	1.067	0.24	1	56	-23.87	0.86
200815	632	3	4.511	4.053	0.225	0.458	0.1	1	57	-23.41	0.11
200816	633	2.6	2.698	3.478	0.208	-0.781	-0.17	1	58	-24.19	-0.22
200817	634	1.6	10.68	2.111	0.174	8.572	1.89	1	59	-15.62	4.06
200818	635	2.7	4.43	3.553	0.21	0.877	0.19	1	60	-14.74	0.25
200819	636	0.3	-4.7	0.382	0.155	-5.079	-1.12	1	61	-19.82	-13.30
200820	637	-2.4	-4.29	-3.343	0.223	-0.95	-0.21	1	62	-20.77	0.28
200821	638	-1.2	1.495	-1.686	0.178	3.181	0.7	1	63	-17.59	-1.89
200822	639	-0.3	3.519	-0.551	0.16	4.069	0.9	1	64	-13.52	-7.38
200823	640	5.4	0.711	7.255	0.34	-6.543	-1.44	1	65	-20.06	-0.90
200824	641	-0.2	-0.16	-0.375	0.158	0.218	0.05	1	66	-19.84	-0.58
200825	642	-0.5	0	-0.778	0.163	0.778	0.17	1	67	-19.07	-1.00
200826	643	-1.9	-3.15	-2.702	0.204	-0.443	-0.1	1	68	-19.51	0.16
200827	644	-0.3	-0.81	-0.546	0.16	-0.266	-0.06	1	69	-19.77	0.49

200828	645	-1.7	0.491	-2.457	0.197	2.948	0.65	1	70	-16.83	-1.20
200829	646	-1	-0.33	-1.499	0.175	1.174	0.26	1	71	-15.65	-0.78
200830	647	-1.5	-2.12	-2.104	0.188	-0.021	0	1	72	-15.67	0.01
200831	648	-2.7	1.503	-3.823	0.238	5.325	1.17	1	73	-10.35	-1.39
200832	649	-2.3	-5.26	-3.241	0.22	-2.022	-0.45	1	74	-12.37	0.62
200833	650	-1.1	-1.22	-1.535	0.175	0.32	0.07	1	75	-12.05	-0.21
200834	651	2.3	3.691	3.13	0.198	0.56	0.12	1	76	-11.49	0.18
200835	652	-3	-7.97	-4.192	0.251	-3.774	-0.83	1	77	-15.26	0.90
200836	653	-2.2	2.762	-3.159	0.217	5.922	1.31	1	78	-9.34	-1.87
200837	654	-4.1	-4.84	-5.691	0.305	0.852	0.19	1	79	-8.49	-0.15
200838	655	-3.4	-0.94	-4.707	0.269	3.765	0.83	1	80	-4.73	-0.80
200839	656	2.9	0.951	3.901	0.22	-2.95	-0.65	1	81	-7.68	-0.76
200840	657	-1.9	-3.96	-2.704	0.204	-1.25	-0.28	1	82	-8.93	0.46
200841	658	-4.7	-6.37	-6.539	0.337	0.166	0.04	1	83	-8.76	-0.03
200842	659	-4.5	-6.55	-6.272	0.327	-0.272	-0.06	1	84	-9.03	0.04
200843	660	-7.8	-11.6	-10.82	0.51	-0.799	-0.18	1	85	-9.83	0.07
200844	661	-5.4	-5.33	-7.43	0.372	2.106	0.47	1	86	-7.72	-0.28
200845	662	18.5	31.9	25.319	1.1	6.577	1.49	1	87	-1.15	0.26
200846	663	-4.7	-4.57	-6.504	0.336	1.935	0.43	1	88	0.79	-0.30
200847	664	-3.9	-1.28	-5.371	0.293	4.095	0.9	1	89	4.88	-0.76
200848	665	-3.5	-6.47	-4.882	0.275	-1.583	-0.35	1	90	3.30	0.32
200849	666	-4.8	-2.54	-6.7	0.343	4.165	0.92	1	91	7.46	-0.62
200850	667	0.8	4.905	1.085	0.159	3.821	0.84	1	92	11.29	3.52
200851	668	3.3	5.465	4.419	0.237	1.046	0.23	1	93	12.33	0.24
200852	669	1	-0.29	1.305	0.161	-1.59	-0.35	1	94	10.74	-1.22
200853	670	2.3	0.714	3.098	0.197	-2.384	-0.53	1	95	8.36	-0.77
200901	671	3.5	1.862	4.777	0.249	-2.915	-0.64	1	96	5.44	-0.61
200902	672	-2.4	-8.93	-3.416	0.225	-5.514	-1.22	1	97	-0.07	1.61
200903	673	-3.2	-5.73	-4.395	0.258	-1.339	-0.3	1	98	-1.41	0.30
200904	674	-3.6	-1.46	-4.986	0.279	3.526	0.78	1	99	2.12	-0.71
200905	675	-4.1	-2.47	-5.673	0.304	3.203	0.71	1	100	5.32	-0.56
200906	676	-6.7	-2.23	-9.214	0.444	6.986	1.55	1	101	12.30	-0.76
200907	677	-3.8	-5.33	-5.241	0.288	-0.093	-0.02	1	102	12.21	0.02
200908	678	-5.7	-10.4	-7.828	0.388	-2.566	-0.57	1	103	9.65	0.33
200909	679	-6.8	-6.17	-9.343	0.449	3.177	0.7	1	104	12.82	-0.34
200910	680	-2.2	-0.26	-3.031	0.213	2.771	0.61	1	105	15.59	-0.91
200911	681	9.3	9.915	12.631	0.559	-2.716	-0.6	1	106	12.88	-0.22
200912	682	0.4	-1.01	0.429	0.155	-1.438	-0.32	1	107	11.44	-3.35

APPENDIX VI

KENYA OIL - WEEKLY RETURNS AND CUMULATIVE ABNORMAL RETURNS

YearWeek	Obs	MARKETr	KENOL	Fit	SE Fit	Residual	St Resid	PeriodS	EventWin	CAR	t-value
200224	326	-0.4	0	-0.59	0.42	0.589	0.05	0	-107	78.18	-1.00
200225	327	-0.3	0	-0.39	0.416	0.39	0.03	0	-106	78.57	-1.00
200226	328	-1.2	0.833	-2.02	0.467	2.852	0.24	0	-105	81.42	-1.41
200227	329	-0.1	1.791	-0.19	0.413	1.98	0.17	0	-104	83.40	-10.48
200228	330	1.4	-0.541	2.485	0.44	-3.026	-0.25	0	-103	80.38	-1.22
200229	331	1.5	1.35	2.741	0.449	-1.391	-0.12	0	-102	78.99	-0.51
200230	332	0.5	1.549	0.952	0.409	0.597	0.05	0	-101	79.58	0.63
200231	333	0.6	0.666	1.217	0.411	-0.55	-0.05	0	-100	79.03	-0.45
200232	334	-1.7	2.823	-2.9	0.509	5.722	0.48	0	-99	84.76	-1.97
200233	335	-0.8	0	-1.45	0.445	1.445	0.12	0	-98	86.20	-1.00
200234	336	-0.4	0.153	-0.61	0.421	0.764	0.06	0	-97	86.96	-1.25
200235	337	-0.6	0.683	-1.03	0.431	1.709	0.14	0	-96	88.67	-1.67
200236	338	-0.7	-0.041	-1.21	0.437	1.169	0.1	0	-95	89.84	-0.97
200237	339	-0.5	1.031	-0.74	0.424	1.775	0.15	0	-94	91.62	-2.39
200238	340	1.1	0.329	2.089	0.428	-1.761	-0.15	0	-93	89.86	-0.84
200239	341	1.6	1.25	2.968	0.458	-1.718	-0.14	0	-92	88.14	-0.58
200240	342	-0.2	0	-0.33	0.415	0.331	0.03	0	-91	88.47	-1.00
200241	343	1	0	1.788	0.421	-1.788	-0.15	0	-90	86.68	-1.00
200242	344	0.7	0.926	1.306	0.412	-0.38	-0.03	0	-89	86.30	-0.29
200243	345	1.2	0.306	2.197	0.431	-1.892	-0.16	0	-88	84.41	-0.86
200244	346	4.8	2.195	8.721	0.82	-6.526	-0.55	0	-87	77.88	-0.75
200245	347	6.5	5.012	11.69	1.054	-6.678	-0.56	0	-86	71.21	-0.57
200246	348	3.2	5.691	5.777	0.61	-0.086	-0.01	0	-85	71.12	-0.01
200247	349	-1.6	-1.084	-2.79	0.503	1.703	0.14	0	-84	72.82	-0.61
200248	350	0.4	0	0.773	0.408	-0.773	-0.06	0	-83	72.05	-1.00
200249	351	1	0	1.857	0.422	-1.857	-0.16	0	-82	70.19	-1.00
200250	352	3.1	6.114	5.557	0.596	0.557	0.05	0	-81	70.75	0.10
200251	353	6.3	5.946	11.42	1.032	-5.47	-0.46	0	-80	65.28	-0.48
200252	354	-0.5	3.423	-0.79	0.425	4.216	0.35	0	-79	69.50	-5.31
200253	355	7.5	0	13.45	1.197	-13.447	-1.13	0	-78	56.05	-1.00
200301	356	5.2	0.321	9.389	0.872	-9.068	-0.76	0	-77	46.98	-0.97
200302	357	14.1	22.08	25.2	2.193	-3.122	-0.27	0	-76	43.86	-0.12
200303	358	-1.5	6.712	-2.57	0.493	9.284	0.78	0	-75	53.14	-3.61
200304	359	1.2	-3.433	2.274	0.434	-5.707	-0.48	0	-74	47.44	-2.51
200305	360	0.9	-2.651	1.72	0.419	-4.371	-0.37	0	-73	43.06	-2.54
200306	361	1.7	-0.681	3.055	0.461	-3.735	-0.31	0	-72	39.33	-1.22
200307	362	1	0	1.84	0.422	-1.84	-0.15	0	-71	37.49	-1.00
200308	363	-2.5	0	-4.35	0.594	4.349	0.37	0	-70	41.84	-1.00

200309	364	0.5	-1.263	0.978	0.409	-2.24	-0.19	0	-69	39.60	-2.29
200310	365	-0.2	0.987	-0.33	0.415	1.318	0.11	0	-68	40.92	-3.98
200311	366	3.7	-5.318	6.656	0.67	-11.973	-1.01	0	-67	28.94	-1.80
200312	367	-0.6	-0.074	-0.94	0.429	0.861	0.07	0	-66	29.80	-0.92
200313	368	0.1	-0.179	0.304	0.408	-0.483	-0.04	0	-65	29.32	-1.59
200314	369	1.4	-1.071	2.617	0.445	-3.688	-0.31	0	-64	25.63	-1.41
200315	370	3.2	3.783	5.791	0.611	-2.008	-0.17	0	-63	23.63	-0.35
200316	371	3.7	0.634	6.626	0.668	-5.992	-0.5	0	-62	17.63	-0.90
200317	372	3.9	1.417	6.977	0.692	-5.559	-0.47	0	-61	12.07	-0.80
200318	373	8.1	13.32	14.53	1.287	-1.21	-0.1	0	-60	10.86	-0.08
200319	374	17.9	20.19	32.01	2.781	-11.823	-1.02	0	-59	-0.96	-0.37
200320	375	-0.7	3.182	-1.16	0.435	4.345	0.37	0	-58	3.39	-3.74
200321	376	-2.9	0.552	-5.11	0.644	5.667	0.48	0	-57	9.05	-1.11
200322	377	-2.5	7.555	-4.44	0.6	11.993	1.01	0	-56	21.05	-2.70
200323	378	0.3	2.478	0.609	0.408	1.868	0.16	0	-55	22.91	3.07
200324	379	2.2	-0.299	3.945	0.503	-4.244	-0.36	0	-54	18.67	-1.08
200325	380	-2.2	0	-3.84	0.562	3.841	0.32	0	-53	22.51	-1.00
200326	381	-1.2	0	-2.16	0.473	2.156	0.18	0	-52	24.67	-1.00
200327	382	-0.7	0	-1.16	0.435	1.158	0.1	0	-51	25.83	-1.00
200328	383	-0.9	0	-1.58	0.45	1.581	0.13	0	-50	27.41	-1.00
200329	384	0	-1	0.117	0.41	-1.117	-0.09	0	-49	26.29	-9.55
200330	385	1.1	-4.04	2.076	0.428	-6.116	-0.51	0	-48	20.17	-2.95
200331	386	2.7	0	4.873	0.554	-4.873	-0.41	0	-47	15.30	-1.00
200332	387	2.5	0	4.514	0.533	-4.514	-0.38	0	-46	10.79	-1.00
200333	388	2.4	0	4.421	0.528	-4.421	-0.37	0	-45	6.37	-1.00
200334	389	3.2	0	5.713	0.606	-5.713	-0.48	0	-44	0.65	-1.00
200335	390	3.8	0.842	6.857	0.684	-6.014	-0.51	0	-43	-5.36	-0.88
200336	391	2.6	10.43	4.742	0.546	5.693	0.48	0	-42	0.33	1.20
200337	392	1.6	8.511	2.903	0.455	5.608	0.47	0	-41	5.94	1.93
200338	393	2.4	8.771	4.445	0.529	4.326	0.36	0	-40	10.27	0.97
200339	394	6.1	6.639	10.91	0.991	-4.272	-0.36	0	-39	5.99	-0.39
200340	395	4.2	2.134	7.594	0.736	-5.46	-0.46	0	-38	0.53	-0.72
200341	396	-0.4	2.145	-0.74	0.424	2.881	0.24	0	-37	3.41	-3.91
200342	397	1.5	8.167	2.756	0.45	5.411	0.45	0	-36	8.83	1.96
200343	398	1.3	1.634	2.466	0.44	-0.833	-0.07	0	-35	7.99	-0.34
200344	399	-0.4	-0.463	-0.65	0.422	0.187	0.02	0	-34	8.18	-0.29
200345	400	0.1	0.525	0.265	0.409	0.261	0.02	0	-33	8.44	0.98
200346	401	0.3	0.844	0.594	0.408	0.25	0.02	0	-32	8.69	0.42
200347	402	3.4	1.97	6.136	0.634	-4.166	-0.35	0	-31	4.52	-0.68
200348	403	9.5	6.051	17.03	1.496	-10.981	-0.93	0	-30	-6.46	-0.64
200349	404	0.5	1.895	1.015	0.409	0.88	0.07	0	-29	-5.58	0.87
200350	405	-4.3	0.118	-7.6	0.824	7.715	0.65	0	-28	2.14	-1.02
200351	406	1.6	6.195	2.927	0.456	3.267	0.27	0	-27	5.41	1.12
200352	407	3.2	3.399	5.876	0.617	-2.477	-0.21	0	-26	2.93	-0.42
200353	408	0.4	1.786	0.812	0.408	0.973	0.08	0	-25	3.90	1.20
200401	409	0.8	-0.529	1.488	0.415	-2.017	-0.17	0	-24	1.88	-1.36

200402	410	3.4	-0.02	6.2	0.638	-6.22	-0.52	0	-23	-4.34	-1.00
200403	411	5	0.331	9.051	0.846	-8.72	-0.73	0	-22	-13.06	-0.96
200404	412	5.3	-1.028	9.514	0.881	-10.542	-0.89	0	-21	-23.60	-1.11
200405	413	5.8	0.462	10.42	0.952	-9.956	-0.84	0	-20	-33.55	-0.96
200406	414	-1.4	-1.739	-2.43	0.486	0.693	0.06	0	-19	-32.86	-0.28
200407	415	2.4	-0.12	4.346	0.524	-4.466	-0.38	0	-18	-37.33	-1.03
200408	416	1.8	-0.557	3.354	0.474	-3.911	-0.33	0	-17	-41.24	-1.17
200409	417	3.2	-0.799	5.847	0.615	-6.646	-0.56	0	-16	-47.88	-1.14
200410	418	3.9	-0.932	7.125	0.703	-8.057	-0.68	0	-15	-55.94	-1.13
200411	419	-6.5	-0.114	-11.5	1.132	11.368	0.96	0	-14	-44.57	-0.99
200412	420	-2.9	-1.881	-5.07	0.641	3.186	0.27	0	-13	-41.39	-0.63
200413	421	-6.4	-1.24	-11.4	1.125	10.155	0.86	0	-12	-31.23	-0.89
200414	422	-5.8	-1.175	-10.4	1.043	9.21	0.78	0	-11	-22.02	-0.89
200415	423	-0.5	-0.297	-0.92	0.428	0.62	0.05	0	-10	-21.40	-0.68
200416	424	8.2	-4.834	14.66	1.298	-19.497	-1.65	0	-9	-40.90	-1.33
200417	425	1.8	0.124	3.355	0.474	-3.23	-0.27	0	-8	-44.13	-0.96
200418	426	-1	0.243	-1.81	0.458	2.053	0.17	0	-7	-42.08	-1.13
200419	427	-2.3	5.647	-4.01	0.573	9.653	0.81	0	-6	-32.42	-2.41
200420	428	-1.4	1.839	-2.52	0.49	4.355	0.37	0	-5	-28.07	-1.73
200421	429	-1.7	-3.324	-3	0.514	-0.326	-0.03	0	-4	-28.39	0.11
200422	430	5.7	2.212	10.24	0.938	-8.024	-0.68	0	-3	-36.42	-0.78
200423	431	1.3	4.082	2.402	0.437	1.68	0.14	0	-2	-34.74	0.70
200424	432	1.1	8.122	2.053	0.427	6.069	0.51	0	-1	-28.67	2.96
200425	433	-0.5	4.913	-0.77	0.425	5.683	0.48		0	-22.99	-7.38
200426	434	-2.1	1.659	-3.64	0.55	5.294	0.44	1	1	-17.69	-1.46
200427	435	-2.8	-34.35	-4.94	0.632	-29.413	-2.47	1	2	-47.11	5.96
200428	436	-2.4	-80.07	-4.17	0.583	-75.896	-6.38	1	3	-123.00	18.20
200429	437	0.2	-12.74	0.475	0.408	-13.217	-1.11	1	4	-136.22	-27.83
200430	438	-0.5	-5.815	-0.87	0.427	-4.945	-0.42	1	5	-141.16	5.68
200431	439	0.6	9.237	1.093	0.41	8.144	0.68	1	6	-133.02	7.45
200432	440	0	-0.785	-0.01	0.411	-0.773	-0.06	1	7	-133.79	70.27
200433	441	-0.7	-1.175	-1.19	0.436	0.015	0	1	8	-133.78	-0.01
200434	442	-0.4	-6.771	-0.66	0.422	-6.113	-0.51	1	9	-139.89	9.29
200435	443	1.1	-6.656	1.942	0.424	-8.598	-0.72	1	10	-148.49	-4.43
200436	444	1	5.553	1.899	0.423	3.654	0.31	1	11	-144.83	1.92
200437	445	-0.8	14.08	-1.37	0.442	15.448	1.3	1	12	-129.39	-11.29
200438	446	-1.3	1.397	-2.22	0.476	3.617	0.3	1	13	-125.77	-1.63
200439	447	0	0.451	-0.01	0.411	0.458	0.04	1	14	-125.31	-65.43
200440	448	1	-2.67	1.829	0.422	-4.499	-0.38	1	15	-129.81	-2.46
200441	449	0.3	-3.37	0.665	0.408	-4.036	-0.34	1	16	-133.85	-6.07
200442	450	1.4	-2.848	2.567	0.443	-5.415	-0.45	1	17	-139.26	-2.11
200443	451	2	4.289	3.605	0.486	0.684	0.06	1	18	-138.58	0.19
200444	452	1.8	-0.493	3.252	0.47	-3.745	-0.31	1	19	-142.32	-1.15
200445	453	-0.8	4.436	-1.42	0.444	5.855	0.49	1	20	-136.47	-4.13
200446	454	1.9	10.49	3.541	0.483	6.944	0.58	1	21	-129.52	1.96
200447	455	0.6	3.887	1.069	0.41	2.818	0.24	1	22	-126.71	2.64

200448	456	1.7	5.088	3.051	0.461	2.038	0.17	1	23	-124.67	0.67
200449	457	2.6	1.99	4.699	0.544	-2.709	-0.23	1	24	-127.38	-0.58
200450	458	1.4	0.797	2.592	0.444	-1.795	-0.15	1	25	-129.17	-0.69
200451	459	-1.7	2.039	-3.01	0.515	5.05	0.42	1	26	-124.12	-1.68
200452	460	-1.2	-2.307	-2.02	0.467	-0.287	-0.02	1	27	-124.41	0.14
200453	461	1.8	-0.291	3.36	0.474	-3.651	-0.31	1	28	-128.06	-1.09
200501	462	0.8	-0.546	1.501	0.415	-2.047	-0.17	1	29	-130.11	-1.36
200502	463	1.6	-5.197	2.902	0.455	-8.099	-0.68	1	30	-138.21	-2.79
200503	464	0.9	1.558	1.698	0.419	-0.14	-0.01	1	31	-138.35	-0.08
200504	465	3.9	0.687	6.964	0.691	-6.277	-0.53	1	32	-144.62	-0.90
200505	466	1.4	-0.046	2.551	0.442	-2.597	-0.22	1	33	-147.22	-1.02
200506	467	1.6	-0.192	2.936	0.457	-3.128	-0.26	1	34	-150.35	-1.07
200507	468	0.5	4.124	0.924	0.409	3.2	0.27	1	35	-147.15	3.46
200508	469	-1.2	1.756	-2	0.466	3.76	0.32	1	36	-143.39	-1.88
200509	470	0	-6.014	-0.01	0.411	-6.002	-0.5	1	37	-149.39	461.69
200510	471	0.1	-1.01	0.299	0.408	-1.309	-0.11	1	38	-150.70	-4.38
200511	472	-0.5	9.781	-0.75	0.424	10.526	0.88	1	39	-140.17	-14.13
200512	473	-0.7	1.302	-1.11	0.434	2.414	0.2	1	40	-137.76	-2.17
200513	474	-0.1	-2.499	-0.19	0.413	-2.31	-0.19	1	41	-140.07	12.22
200514	475	0.5	-2.408	0.977	0.409	-3.385	-0.28	1	42	-143.45	-3.46
200515	476	0	0.079	0.008	0.411	0.071	0.01	1	43	-143.38	8.88
200516	477	1	4.668	1.823	0.422	2.846	0.24	1	44	-140.54	1.56
200517	478	1.6	2.253	2.876	0.454	-0.622	-0.05	1	45	-141.16	-0.22
200518	479	2.5	1.11	4.552	0.535	-3.442	-0.29	1	46	-144.60	-0.76
200519	480	2.1	0.126	3.889	0.5	-3.764	-0.32	1	47	-148.36	-0.97
200520	481	0.4	3.468	0.758	0.408	2.71	0.23	1	48	-145.65	3.58
200521	482	4.5	17.76	8.031	0.769	9.724	0.82	1	49	-135.93	1.21
200522	483	2.7	5.827	4.852	0.553	0.976	0.08	1	50	-134.95	0.20
200523	484	3	1.348	5.482	0.591	-4.134	-0.35	1	51	-139.09	-0.75
200524	485	5.4	10.99	9.746	0.899	1.24	0.1	1	52	-137.85	0.13
200525	486	4.6	11.98	8.23	0.783	3.752	0.32	1	53	-134.10	0.46
200526	487	5	2.002	8.946	0.838	-6.944	-0.58	1	54	-141.04	-0.78
200527	488	6.3	-1.473	11.34	1.026	-12.81	-1.08	1	55	-153.85	-1.13
200528	489	4	-2.143	7.24	0.711	-9.383	-0.79	1	56	-163.23	-1.30
200529	490	-5.6	-1.46	-10	1.014	8.564	0.72	1	57	-154.67	-0.85
200530	491	-2.2	-0.37	-3.9	0.566	3.53	0.3	1	58	-151.14	-0.90
200531	492	0.9	0.372	1.647	0.418	-1.275	-0.11	1	59	-152.41	-0.77
200532	493	2.1	0.926	3.901	0.5	-2.975	-0.25	1	60	-155.39	-0.76
200533	494	-0.3	0.917	-0.44	0.417	1.357	0.11	1	61	-154.03	-3.08
200534	495	-0.1	1.455	-0.11	0.412	1.562	0.13	1	62	-152.47	-14.46
200535	496	-1.1	2.509	-1.9	0.462	4.408	0.37	1	63	-148.06	-2.32
200536	497	-1.2	-2.448	-2.16	0.473	-0.291	-0.02	1	64	-148.35	0.13
200537	498	-0.3	1.075	-0.39	0.416	1.461	0.12	1	65	-146.89	-3.78
200538	499	0.6	0	1.11	0.41	-1.11	-0.09	1	66	-148.00	-1.00
200539	500	1.3	8.156	2.455	0.439	5.701	0.48	1	67	-142.30	2.32
200540	501	0.2	0.82	0.437	0.408	0.383	0.03	1	68	-141.92	0.88

200541	502	0.8	-1.423	1.553	0.416	-2.975	-0.25	1	69	-144.89	-1.92
200542	503	1.9	-1.031	3.52	0.482	-4.551	-0.38	1	70	-149.44	-1.29
200543	504	0.3	-0.333	0.574	0.408	-0.907	-0.08	1	71	-150.35	-1.58
200544	505	-0.6	0.334	-0.96	0.43	1.297	0.11	1	72	-149.05	-1.35
200545	506	-0.2	0	-0.34	0.416	0.337	0.03	1	73	-148.72	-1.00
200546	507	-1.2	-14.17	-2.17	0.474	-11.996	-1.01	1	74	-160.71	5.53
200547	508	2	19.03	3.609	0.486	15.42	1.3	1	75	-145.29	4.27
200548	509	0.6	0	1.08	0.41	-1.08	-0.09	1	76	-146.37	-1.00
200549	510	0.5	5.383	1.035	0.409	4.348	0.37	1	77	-142.03	4.20
200550	511	-1.1	-0.929	-1.83	0.459	0.899	0.08	1	78	-141.13	-0.49
200551	512	0.2	-12.15	0.464	0.408	-12.613	-1.06	1	79	-153.74	-27.18
200552	513	-1.9	-69.76	-3.26	0.529	-66.505	-5.59	1	80	-220.24	20.40
200601	514	16.2	323.5	29.11	2.53	294.422	25.3	1	81	74.18	10.12
200602	515	2.7	3.75	4.863	0.553	-1.113	-0.09	1	82	73.07	-0.23
200603	516	2.6	0.402	4.762	0.547	-4.361	-0.37	1	83	68.70	-0.92
200604	517	-0.7	-4	-1.24	0.438	-2.764	-0.23	1	84	65.94	2.24
200605	518	-0.2	-4.167	-0.26	0.414	-3.911	-0.33	1	85	62.03	15.28
200606	519	-0.2	0.58	-0.33	0.415	0.914	0.08	1	86	62.94	-2.74
200607	520	-0.5	-4.467	-0.9	0.428	-3.568	-0.3	1	87	59.38	3.97
200608	521	-0.5	-3.771	-0.83	0.426	-2.938	-0.25	1	88	56.44	3.53
200609	522	-0.5	1.411	-0.87	0.427	2.283	0.19	1	89	58.72	-2.62
200610	523	-2.6	-2.937	-4.54	0.606	1.602	0.13	1	90	60.32	-0.35
200611	524	-1.2	-1.274	-2.05	0.468	0.777	0.07	1	91	61.10	-0.38
200612	525	1	2.581	1.86	0.423	0.721	0.06	1	92	61.82	0.39
200613	526	4.2	4.717	7.652	0.741	-2.935	-0.25	1	93	58.89	-0.38
200614	527	-0.5	-3.303	-0.79	0.425	-2.514	-0.21	1	94	56.37	3.19
200615	528	-1.1	-2.95	-1.98	0.465	-0.969	-0.08	1	95	55.40	0.49
200616	529	7.3	2	13.15	1.173	-11.146	-0.94	1	96	44.26	-0.85
200617	530	-3.9	1.176	-6.84	0.768	8.02	0.67	1	97	52.28	-1.17
200618	531	4.2	0.388	7.572	0.735	-7.185	-0.6	1	98	45.09	-0.95
200619	532	6.9	0.386	12.36	1.108	-11.969	-1.01	1	99	33.12	-0.97
200620	533	4.9	-0.462	8.814	0.828	-9.275	-0.78	1	100	23.85	-1.05
200621	534	-3	-27.74	-5.31	0.657	-22.439	-1.89	1	101	1.41	4.23
200622	535	1.1	40.11	2.021	0.426	38.086	3.2	1	102	39.49	18.85
200623	536	-1	-2.137	-1.65	0.452	-0.485	-0.04	1	103	39.01	0.29
200624	537	0.7	0.624	1.234	0.411	-0.61	-0.05	1	104	38.40	-0.49
200625	538	1.6	-0.775	2.986	0.459	-3.762	-0.32	1	105	34.64	-1.26
200626	539	1.2	-1.094	2.171	0.431	-3.265	-0.27	1	106	31.37	-1.50
200627	540	1.3	-1.422	2.407	0.438	-3.829	-0.32	1	107	27.54	-1.59