STOCK MARKET BEHAVIOUR AROUND NATIONAL ELECTIONS IN KENYA

BY

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DECLARATION

This thesis is my original work and to the best of my knowledge has not been presented for the award of any degree in any University.

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DEDICATION

I would like to dedicate this work to my wonderful wife Florence Miya who has been a great source of inspiration to me and to my lovely daughter Joy who constantly reminds me that every good and perfect gift comes from above. To God be all the glory.

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DEFINITION OF TERMS AND ABBREVIATIONS

N.E.P	National election period
G7	Group of seven most industrialised nations
OPEC	Organisation of petroleum exporting countries
CBK	Central bank of Kenya
IPO	Initial public offering
NSE	Nairobi stock exchange
CMA	Capital markets authority of Kenya
ARCH	Auto regressive conditional Heteroskedastic
GARCH	Generalised auto regressive conditional Heteroskedastic
EMH	Efficient Markets Hypothesis
BRSN	Buy on rumour and sell on the news
E/P	Earnings to Price ratio
B/M	Book to Market ratio
C/P	Cashflow to Price ratio
CAPM	Capital asset pricing model
OLS	Ordinary least square

ABSTRACT

This study looked at the stock market behaviour around national elections in Kenya. Two periods were chosen namely 1997 and 2002 elections mainly because of data availability. Previous empirical research has shown that share prices respond to events. For instance, Richard (2006) cites national elections as one of the event classes that is anticipated in share price movements. A country's politics can exert significant influence on its income distribution and prosperity. Despite the importance attached to election effects, most previous studies have only concentrated on the developed countries but no scholarly work has been done in Kenya. It is therefore from this stand point that this study was warranted and therefore addressed this gap.

This study was based on an event study methodology of the stock market behaviour around the national elections of 1997 and 2002. The focus was on the NSE 20 Share index consistuent counters. These were chosen as they represent 80% of the trading volumes at the Nairobi Stock Exchange. A 60-day trading window around national election dates was chosen and the market model approach based on the 250-day daily returns benchmark model by Brown (1985) was employed. Previous studies have shown that event studies based on market model and standard parametric tests are well specified under a variety of conditions. Hence, this method provided the framework for this study.

The study's findings mirror what has been observed in previous studies. The stocks react strongly to elections outcome and

temporarily elevated levels of volatility are observed. Share prices go down before the election date and start rising thereafter. Abnormal returns shift steeply downwards after the election date and start increasing thereafter before settling to a new equilibrium. However, in both election years the abnormal returns were not found to be statistically significant.

Several limitations were encountered which included lack of data availability, problems of survivorship bias coupled with low liquidity or infrequent trading. This made it difficult for share price information to be gathered and meaningful conclusions to be derived.

This study has mainly two implications for the investors namely compensation for risk and trading strategies. One possible strategy that can be employed from the findings is to use a contrarian strategy before the election event and a momentum strategy after the election event. Both of these strategies have been covered in detail in the literature review section.

CHAPTER ONE

1.0 INTRODUCTION AND RATIONALE OF THE STUDY

Country's politics can exert significant influence on its income distribution and prosperity. In democratic states, voters elect parties which best represent their personal beliefs and interests. According to partisan theory propounded by Hibbs (1997), leftist governments attribute higher social costs to inflation. Another influential theory presented by Nordhaus (1975) postulates that, irrespective of their political orientation, incumbents will pursue policies that maximize their chances of re-election. As a result, they will try to self–servingly attune the business cycle to the timing of elections. The economy will be stimulated by unsustainable expansionary policies before elections, and harsh actions aimed at curbing the resultant inflation will follow at the beginning of the new term of office. It is noted, however, that any policy –induced cycles in real activity will be ephemeral if the economic agents and voters have rational expectations (Alesina, 1987; Rogoff, 1990).

Kenya has made great strides in its attempt to embrace democratic ideals by consistently holding its national elections after every five years as stipulated in its current constitution. Every election period is associated with great uncertainty and therefore presents challenges for investors. Kathleen (1989) whilst discussing agency theory has described the ramifications of outcome uncertainty to their implications for creating risk. In her paper, uncertainty is viewed in terms of risk/ reward trade offs , not just in terms of inability to preplan. In an

electioneering period both pre planning and outcome uncertainty is indeed a challenge.

The Nairobi Stock exchange can be categorised as an emerging market within the framework provided by the International Finance Corporation (Solnik 2000). Many emerging market economies at various times have undergone rapid growth and because their stock markets are not highly developed and therefore are less efficient, there is considerable opportunity for relatively high returns from emerging market investments. However, there is also a relatively high level of risk involved as witnessed by the melt down of several Asian emerging stock markets in 1997 and 1998 (Sharpe, Alexander and Bailey 2003)

The dynamics in emerging market therefore present challenges for investors bearing in mind that share prices respond to events. Richard (2006) cites the following event classes, though not exhaustive, that are anticipated in security prices include: earnings reports, product releases, trade show presentations, bonus issues, ipo, dividend announcements. On a global scale, Richard(2006) cites national elections, government economic and commodity data releases, Federal Reserve Board announcements, government policy decisions and G7 or OPEC statements may incite anticipatory and reactive security price movements. This study aims at focussing on the share price movements around the election period in Kenya.

1.1 STATEMENT OF THE PROBLEM

Many studies have been done to ascertain how share prices respond to various events or announcements. A study by Ball and Brown (1968) provides some evidence about the speed of share price adjustment as well as the information content of annual reports. Aharony and Swary (1980) examine all dividend and earnings announcements within the same quarter that are at least 11 trading days apart. They conclude that both quarterly earnings announcements and dividend change announcements have significant effects on stock prices. Scholes (1972) and Kraus and Stoll (1972) provided the first empirical evidence about the price effects of block trades. They observed greater price changes after block trade distribution when seller is presumed to have a knowledgeable reason for trading. A study on stock splits announcements conducted by Fama, Fisher, Jensen and Roll (1969) reveal positive abnormal returns before the split but not afterward. In a related study Grinblatt, Masulis and Titman (1984) confirm earlier work on stock dividends by Foster and Vickrey (1978) and Woolridge (1983a, 1983b) that the announcement effects for stock dividends are large. This lends support to the conjecture that splits are interpreted by investors as messages about future dividend increases.

The above cited events are assumed to take place randomly. A national election on the other hand is an anticipated event whose date is known well in advance. Politics, elections in this case, can exert significant influence on a country's income distribution and prosperity. Several papers look at whether security returns are impacted by politics. Booth and Booth (2003) report that US stock market tends to perform better in the second half of the presidential term. Knight

(2004) studied whether policy platforms are capitalized into equity prices as evident from the Bush / Gore 2000 presidential election. He confirms that favourable policies play key role in determining a firm's total value. The result is quite surprising given that candidate platforms are not actually enacted until months or even years after elections. The researcher is therefore motivated to enquire and explore as to whether these empirical findings are reflected in the Kenyan security market context.

Bialkowski et al (2006) have studied the stock market volatility around national elections The empirical findings of their study indicate that; despite many efforts to accurately predict election outcome investors are still surprised by the ultimate distribution of votes. Stock prices react strongly in response to this surprise, and temporarily elevated levels of volatility are observed. These empirical conclusions hold irrespective of the choice of event window. Narrowing the event window, however magnifies the implied percentage change in variance, suggesting that most of this is likely due to large market moves on the election day. Bailkowski et al (2006) also found that the country specific component of volatility can easily double during the week surrounding the election.

The national election period is usually characterised with uncertainty about election outcome and this has important implications for risk averse investors. This warrants investigation into the return volatility of stock around national election period (NEP) in Kenya. The researcher was therefore motivated to investigate the possible share price behaviour around this period. This led the researcher to the question as to whether there are any abnormal returns / losses around

the national election period. To the knowledge of the researcher this area has not been given scholarly attention in Kenya. However, studies have been done in the developed countries such as the USA and Japan among others.

1.2 RESEARCH QUESTIONS

The following are the research questions that will enable the researcher to obtain the relevant information on the share price behaviour around the NEP:

1. What kind of return and trading patterns are exhibited at NSE during the NEP?

1.3 OBJECTIVES OF THE STUDY

1. To establish return and trading patterns at the NSE during the NEP

1.4 SIGNIFICANCE OF THE STUDY

The following category of groups will benefit from this study:

1. Local and foreign investors will use this information in assessing and reviewing their portfolios and in making wise and prudent decisions.
2. Institutional investors will gain added value to their research activities.
3. Stockbrokers will gain added value to their advisory services to their clients.

4. To scholars, this study contributes to the body of knowledge and research programs in business and finance fields. Other scholars doing related studies can benefit from the information therein.
5. The government and quasi-governmental bodies such as Capital markets authority and Nairobi stock exchange will find the information herein as valuable for policy, legal framework and stock market development. The study will enhance financial deepening initiatives such as introduction of derivative products for managing risk and spur investor confidence through introduction of "circuit breakers" at NSE to help reduce irrational exuberance and "herding" effects.
6. Listed companies can use the information herein to devise investor communication strategies to reduce information asymmetry and induce stakeholders confidence

1.5 SCOPE OF STUDY

- The study focuses on two electioneering periods in Kenya, namely 1997 and 2002. The election dates are 28.12.1997 and 28.12.2002 respectively.
- The study predominantly focuses on the share prices of all firms listed at the Nairobi Stock Exchange under NSE 20 SHARE INDEX. The NSE 20 Share Index is a price performance index that tracks prices of 20 key shares listed at the Nairobi Stock Exchange. The counters included in the index include the following Barclays Bank, Standard Chartered Bank, Uchumi, Sasini, Unilever, Kenya Airways, Bamburi, Portland , Kenya Commercial Bank, Unga Ltd, Kakuzi,

CMC Holdings Nation Media, Housing Finance, BOC ,Kenya Ltd, Sameer Africa, Total Kenya, NIC , Williamson Tea.

1.6 HYPOTHESIS

The null hypothesis is that there are no abnormal returns associated with the election event. This is expressed mathematically as follows:

Null hypothesis H_o : Abnormal returns are equal to zero

Alternate hypothesis H_A : Abnormal returns are not equal to zero

1.7 SUMMARY

The approach of this study was to review extant literature that cover prior work that links share prices and national elections. The methodologies used in prior work has been used as a basis of deriving the research design discussed in chapter three which is basically an event study based on the market model. The rationale on the method adopted is also reviewed under the literature review chapter and further discussed in detail in chapter three. Essentially event studies are joint studies on market efficiency and asset pricing model. As discussed in the literature review section, the efficiency of market prices seems to be assured by marginal traders who arbitrage away any existing judgement biases and pricing errors (Forsythe *et al* 1999). This being the case, the researcher has included in the literature review a debate that encompasses the traditional rational

investor model verses the behavioural models used in explaining the market efficiency and the gap between theory and prior empirical findings (Campbell 2000). The study has mainly two implications for the investor notably compensation for risk and investment strategies. The researcher has therefore included in the literature review section, possible trading strategies that investors use to deal with the vagaries of the stock market. The last two chapters will cover the empirical data analysis, conclusion and recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.0 POLITICAL STOCK MARKET

Several recent papers look at whether security returns are improved by politics. Booth and Booth (2003) reports that the US stock market tends to perform better in the second half of the presidential term. This phenomenon could be a reflection of the political business cycle but can also be explained behaviourally. The authors argue that investors may be optimistic about the implications of the impending elections, but their optimism wears off quickly once the new administration fails to keep its election campaign promises. Santa – Clara and Valkanov (2003) show that the market excess return was higher under Democrat than Republican presidencies throughout the period from 1927 – 1998. The authors argue that such anomaly cannot be explained away by variation in business condition proxies. Additional evidence is provided by Nofsinger (2004), who contends that the stock market is a barometer of public sentiments and its movements can indicate whether incumbents will be re-elected.

Bialkowski, Gottschalk and Wisiewski (2004) study the interplay between politics and stock prices in 27 industrialized nations They note that most of the previous empirical studies are exclusively based on U.S. data. Since elections are essentially rare events, the single country approach leads to a small sample and many statistical problems specific to it. To overcome these obstacles, the data set compiled in their study covers 27 industrialized nations. Furthermore,

the basic conceptual framework proposed in their study departs slightly from the convention adapted in prior literature. Instead of examining the fortunes of stock markets throughout the tenure of different administrations, their analysis concentrates on the returns variability around election dates. The authors postulate that evidence of extreme price movements in these periods lend support to the conjecture that market participants tend to be surprised by the actual election results.

Bailkowski et al (2004) further state that their investigation into return volatility was warranted on at least three grounds. First, the uncertainty about election outcome has important implication for risk averse investors. Prior research has shown that investors are undiversified internationally and exhibit a significant home bias (French and Porterba, 1991; Baxter and Jermann, 1997), since they hold predominant domestics assets, the country – specific political risk will not diffuse in their respective portfolios. Consequently, the sole event of elections in their home country could have serious implications for the risk level of their portfolios.

Second, any market-wide fluctuations in response to election shocks will augment the systematic volatility of all stocks listed. It is therefore conceivable that option prices could increase around the time when voters cast their ballots. Finally, the results reported in their study could be of interest to pollsters as they provide indirect evidence on whether the accuracy of pre-election forecasts suffices for practical applications.

Bailkowski et al (2004) gauged the impact of elections on the second moment of return distribution using a volatility event – study approach. Their analysis starts with isolating the country specific component of variance within a GARCH (1,1) framework and both equations were estimated jointly using the maximum likelihood method over a period immediately preceding the event window. The convention adapted in the literature for the type of event studies described by Brown and Warner (1985) is to use 250 daily returns to estimate the benchmark model as guided by practical considerations.

To measure abnormal volatility, Bialkowski et al (2004) had to consider the variation of returns around the event date in relation to its regular non-event level. Potential complications may arise from non-normality, cross sectional dependence, or auto correlation of the regression residuals . To circumvent these problems and reinforce their results, the statistical significance of election impact was additionally tested using the bootstrap methodology of Efron (1979).

The empirical findings by Bialkowski et al (2006) indicate that; despite many efforts to accurately predict election outcome investors are still surprised by the ultimate distribution of votes. Stock prices react strongly in response to this surprise, and temporarily elevated levels of volatility are observed. These empirical conclusions hold irrespective of the choice of event window. Narrowing the event window, however magnifies the implied percentage change in variance, suggesting that most of this is likely due to large market moves on the election day. Bailkowski et al (2006) also found that the country specific component of volatility can easily double during the week surrounding the election.

The study by Bialkowski et al (2006) is quite relevant to this study as it provides the conceptual framework which can be used to research the share price behaviour around national elections. The researcher intends to use the same approach of measuring return volatility around the election period in determining the share price behaviour.

The conditional heteroskedastic models such as the Autoregressive Conditional Heteroskedastic (ARCH) and the generalized ARCH (GARCH), used by Bialkowski et al (2006) are based on the principal that speculative price changes contain volatility clusters. These models are designed to remove the systematically changing variance from the data which accounts for much of the leptokurtosis in the distribution of speculative price changes. Essentially these models allow the distribution of the data to exhibit leptokurtosis and hence are better able to describe the empirical distribution of financial data. (The professional's handbook of Financial Risk management page 46).

Despite the advantages of the GARCH model, the researcher proposes not to use it in this study because it is quite a complicated method. Brown (1984) has studied the characteristics of events studies using daily data. He concurs that the cognisance of autocorrelation in daily excess returns and changes in variance conditional on an event can sometimes be advantageous. He however concludes that a simple event study methodology based on the market model also performs well. It is from this standpoint that the researcher proposes use the later approach in this study. This is discussed in detail in the research methodology section.

Knight (2004) studied whether policy platforms are capitalized into equity prices as evident from the Bush/Gore 2000 presidential election (NBER working paper No 10333). The author systematically measured these ties between political parties and industries using evidence on equity returns during the six month period before 2000 U.S presidential election. He studied a sample of 70 firms favoured under the policy platforms of either Bush (41 firms) or Gore (29 firms), as identified by financial analyst reports.

For this sample of 70 politically sensitive firms in the United States, Knight(2004) confirms that favourable policies play a key role in determining a firm's total value. During periods in 2000 when the prospects of a Bush victory were increasing, Bush favoured firms outperform Gore- favoured firms. Likewise, during periods in which prospects of a Gore Victory were increasing, Gore – favoured firms outperformed Bush – favoured firms.

As a measure of the prospects of Bush victory, Knight (2004) used prices of political futures contracts from the IOWA electronic market; prices of these contracts can be interpreted as probability of a candidate's victory in the election. In addition the author shows that these futures contract prices moved in tandem with public opinion tracking polls.

Knight (2004) 's findings demonstrate that prospective future policies are reflected in equity prices during the electoral process. The result is surprising given that candidate platforms are not actually legislatively enacted until months, or even years, after the election of candidates to office. The study by Knight (2004) is relevant to this study as it

motivates the researcher to enquire and explore whether the empirical findings are reflected in the Kenyan security market context.

In another related study, Forsythe *et al.* (1992) analyzed results from the Iowa political stock market to ascertain how well markets work as aggregators of information. The Iowa Political Stock Market (IPSM) was designed by University of Iowa and implemented in 1988 to yield predictions of the expected vote shares of the presidential candidates in that fall's election. Forsythe *et al.* (1992) found that the markets worked extremely well, dominating opinion polls in forecasting the outcome of the 1988 presidential election, even though traders in the market exhibited substantial amounts of judgement biases. Their explanation is that judgement bias refers to average behaviour, while in markets it is marginal traders who influence price. The authors present evidence that in this market a sufficient number of traders were free of judgement bias so that the market was able to work well. This study elicits the view that investor behaviour is ultimately crucial in explaining the share price movements in the market. It is from this standpoint that the researcher has also concisely reviewed extant requisite literature on behavioural finance in a subsequent section.

2.1 RATIONAL EXPECTATIONS AND MARKET EFFICIENCY

A capital market is efficient relative to a given information set only after consideration of the costs of acquiring messages and taking actions pursuant to a particular information structure. The value of information has three parts

- The utilities of the payoffs , given an action
- The optimal actions, given the receipt of a message
- The probabilities of the states of the nature provided by the messages

It is therefore important to appreciate and understanding how the individuals 's decision making process, given the receipt information is reflected in the market prices of assets. This is not easy because it is impossible to observe the quantity and quality of information or the timing of its receipt in the real world.

There is even disagreement among theorists about what information will be used by investors. For instance, Forsythe, Palfrey and Plott (1982) identify four different hypotheses. Each hypothesis assumes that investors know with certainty what their payoffs will be across time, but they know that different individuals may pay different prices because of differing preferences. This is a classical case of the clientele effect.

The first hypothesis is particularly nonsensical (call it the naïve hypothesis) in that it asserts that asset prices are completely arbitrary and unrelated either to how much they will pay out in the future or to the probabilities of various payouts.

The second hypothesis (call it the speculative equilibrium hypothesis) asserts that all investors base their investment decisions entirely on their anticipation of other individuals' behaviour without any necessary relationship to the actual payoffs that the assets are expected to provide.

The third hypothesis is that asset prices are systematically related to their future payoffs. Called the intrinsic value hypothesis, it says that prices will be determined by each individual's estimate of the payoffs of an asset without consideration of its resale value to other individuals.

The fourth hypothesis may be called the rational expectations hypothesis. It predicts that prices are formed on the basis of the expected future payouts of the assets, including their resale value to third parties. Thus a rational expectations market is an efficient market because prices will reflect all information.

Forsythe *et al.* (1982) tested the rational expectations hypothesis by experimenting on the futures market and found that the results were consistent with the predictions of this hypothesis. Perhaps one of the key valuable implication of their experiment is that the speed with which information is made public is increased through price transactions. Hence, information about the future value of assets is revealed today.

There is a different way of looking at heterogeneous expectations. Suppose that some traders are better informed about which state of nature will actually occur. Furthermore, suppose that different individuals have different information about which states will occur. For example, suppose investor A knows for sure that a Republican will be elected president but knows nothing else. Investor B, on the other hand knows that both houses of Congress will be Democratic but knows nothing else. The question is this: Will market prices reflect the full impact of both pieces of information as though the market were

fully informed, or will prices reflect only some average of the impact of both pieces of information? If prices reflect all information, the market is said to be fully aggregating: otherwise it is only averaging prices.

Very little is known about whether real-world capital markets fully aggregate information or merely average it. A fully aggregating market, however, would be consistent with Fama 's (1970) definition of strong-form market efficiency. In a fully aggregating market even insiders who possess private information would not be able to profit by it.

One mechanism for aggregation has been suggested by Grossman and Stiglitz (1976) and Grossman (1976). In a market with two types of traders, "informed' and "uniformed', informed traders will acquire better estimates of future states of nature and take trading positions based on this information. When all informed traders do this, current prices are affected. Uninformed traders invest no resources in collecting information, but they can infer the information of informed traders by observing what happens to prices. Thus the market prices may aggregate information so that all traders (both informed and uninformed) become informed.

In general, rational investors will strive to assess voter sentiment using all available sources of information, such as polls, macroeconomic data, electoral debates or media reports. In an efficient market, their expectations will be aggregated into a consensus forecast, and stock prices will move to reflect it (Bialkowski *et al.* 2006).

2.2 REVISITING THE MARKET EFFICIENCY VS BEHAVIOURAL FINANCE DEBATE

Event studies are usually joint studies on market efficiency and the asset pricing models. It is therefore imperative to revisit the extant literature on market efficiency and the debates on the anomalies observed between theory and empirical findings.

The view of investors as objective decision makers has traditionally gone unchallenged in the academic world. In addition most academics and practioners agree that markets are efficient, in the semi strong form, by a reasonable operational criterion; there is no systematic way to exploit opportunities for superior gains.

However, efficient markets hypothesis (EMH) and its close counterpart the random walk theory make predictions that do not match empirical data. (Campbell 2000). The EMH argues that competition between investors seeking abnormal profits driven prices to their "current" value. The EMH does not assume that all investors are rational, but it does assume that markets are rational. The EMH does not assume markets can foresee the future, but it does assume that markets make unbiased forecasts of the future. (Ritter, 2003)

In contrast, behavioural finance assumes that, in some circumstances, financial markets are informationally inefficient and hence present arbitrage opportunities.

Psychological models of the overreaction, underreaction and momentum anomalies are common. Shiller (1981, 2003) and De

Boudt and Thaler (1985, 1987) argued that stock prices overreact to economic developments. Barberis, Schleifer, and Vishny (1998) formulate a model of security price over – and under reaction to information when investors judgement is biased by conservatism and the representativeness heuristic. Daniel, Hirshleifer, and Subramanyam (1998) explain event related security price anomalies according to the cognitive biases of investors overconfidence and self attribution. Daniel and Titman (2000) explain the superior returns of a momentum investing strategy over the past 35 years as the result of investors overconfidence bias. Shefrin and Statman (1985) explain why investors exhibit a disposition to sell winners and ride losers. Dremen and Lufkin (2000) present evidence that investors under and overreaction exist and are part of the same psychological peers.

Counter arguments have been presented by Fama (1970, 1998), Rubinstein (2001) and Malkiel (2003). They observe that the characteristics of markets protect it from aggregating the irrationalities of individuals into prices (Rubinstein (2001). Malkiel (2003) observes that the stock market is remarkably efficient in its utilization of information. Fama (1998) states that a workable alternative model to market efficiency is facing a "daunting task". Such a model must specify biases in information processing that cause the same investors to under react to some types of events and over react to others

Both sides of the argument agree that prices can be wrong without creating opportunities for abnormal returns. However, misallocation of economic resources could occur. In addition to variations in human behaviour based on psychological concepts, it has also been argued

that the limits of arbitrage can result in mispricing (Shleifer and Vishny (1997), Shleifer (2000).

Mauboussin (1999) presents a different perspective by exploring whether markets are in fact better understood as complex adaptive systems. He states that markets undergo a transition often called "self organized critically" – which occurs without design or help from any outside agent – rather it is a direct function of the dynamic interactions among agents in the system. In capital market language the behaviour of the market "emerges" from the interactions of investors. The complex adaptive system theory of the market does a better job of explaining reality (crashes, trading activity) than the old traditional model, but it does so at the expense of a difficult trade off; by incorporating more realistic albeit still simple – assumptions we lose the crispness of current economic models.

The study on market efficiency and behavioural finance is important for this study as it provides a framework of explaining the market dynamics that are responsible for share price behaviour.

2.3 POSSIBLE TRADING STRATEGIES

This study has implications as far as investment strategies are concerned. Investors are keen on finding ways of dealing with the vagaries of the stock market. The researcher has therefore provided an extant literature review on possible trading strategies which could be pivotal in explaining empirical share price movements around national elections.

Savvy investors are likely to realize that the stock market tends to be uncertain in nature during elections. Successful investing is about managing risk not avoiding it. Daniel Kahneman explains two factors that characterize good decisions.

- "Well – calibrated confidence" (do I understand this investment as well as I think I do?).
- "Correctly – anticipated regret" (how will I react if my analysis turns out to be wrong? (Intelligent investor, 2006).

Hence there is need to develop investment strategies for dealing with the election period uncertainty.

The trader's aphorism 'buy on the rumour and sell on the news" (BRSN) describes a strategy for exploiting a frequently observed financial market price pattern as expounded by Richard (2006). This pattern (BRSN) is characterised by security prices rising prior to and falling subsequently to positively anticipated events. Richard (2006). cites some event classes that are anticipated in security prices include; earnings reports, product releases trade show presentations, and Food & Drug Administration meetings. On a global scale, he cites national elections, government economic and commodity data releases, Federal Reserve Board announcements, government policy decisions, and G7 or OPEC policy statements may incite anticipatory and reactive security price movements.

There are two strategies that may be followed to exploit the BRSN pattern. The comprehensive strategy includes buying security before the positively anticipated event. If a positive market adjusted price movement is observed then one may enter a long position. The

security can then be sold immediately prior to the event and shorted immediately following the event. A simple strategy is to forego pre-event purchasing and to short the security immediately following the event. By staying out of the market during the event, unnecessary risk is eliminated.

Empirical evidence indicate that emerging market stocks exhibit momentum (Rouwenhorst, 1999). Fama and French (1992, 1996) and Lakonishok, Shleifer and Vishny (1994) show that value stocks with high book to market. (B/M), earnings to price (E/P), or cash flow to price (C/P) outperform growth stocks with low B/M, E/P, or C/P. Jegadeesh and Titman (1993) examine a variety of momentum strategies and document that strategies that buy stocks with high returns over the preview 3 to 12 months and sell with poor returns over the same period earn profits of about one percent per month the following year.

Momentum investors seek out for purchase of those stocks that have recently risen significantly in price on the belief that they will continue to rise owing to an upward shift in their demand curves. Conversely, those stocks that have recently fallen significantly in price are sold on the belief that their demand curves have shifted downward. Investors who call themselves contrarians do just the opposite of what most other investors are doing in the market. They buy stocks that others have been shunned and think of as losers, and they sell stocks that others have feverishly pursued and think of as winners. They do so in the belief that investors tend to overreact to news.

Investors need, however, to treat publicly known investment strategies with caution The strategy, whatever it is based on, must provide some means to identify misprised securities. The action of investors following the strategy, as discussed in the previous paragraphs, will eliminate its effectiveness at identifying misprised securities (Sharpe Alexander, Bailey 2003).

2.4 EVENT STUDIES

This study will employ the use of an event study approach to investigate the share price behaviour around the national election period. Sharpe, Alexander, Bailey (2003) indicate that event studies can be carried out to see just how fast security prices actually react to the release of information. Do they react slowly or rapidly? Are the returns after the announcement date or event date abnormally high or low, or are they simply normal? In their discussion they note that the answer to second question requires a definition of a "normal return" for a given security. Typically "normal" is defined by the use of some equilibrium based asset pricing empirical models. An improperly specified asset model can invalidate a test of market efficiency.

Thus,Sharpe et al (2003) conclude that event studies are really joint tests, as they simultaneously involve tests of the asset pricing models 's validity and tests of market efficiency. A finding that prices react slowly to information might be due markets' being inefficient, or it might be due to the use of an improper asset pricing model, or it might be due to both.

An event study methodology in the spirit of Woolridge (1983) will be employed I this study This assumes a 60-day trading window before and after the event period, in this case the election date. According to the electoral laws of Kenya, national elections must be held within 90 days after the parliament has been prorogued by the president. A 60-day window surrounding event date is an appropriate length of period for comparison period approach and is economical for all practical purposes. Adjustments are made on the prices for cash and stock dividend effects. The market model is used for determining abnormal returns. The researcher has preferred to use the market model since there is no appreciable difference between the results of market model and CAPM. In addition, CAPM has been criticised on several grounds due to the presence of market imperfections as discussed in the next section.

2.5 EMPIRICAL MODELS USED FOR RESIDUAL ANALYSIS

Copeland et al (2005) has discussed and reviewed four basic types of empirical models that are frequently employed for residual analysis. The contrasts between them are important in providing the rationale for method used in this study.

The simplest model, called the market model, simply argues that returns on security *j* are linearly related to returns on a " market portfolio". Mathematically, the market model is described by

$$R_{jt} = a_j + b_j R_{mt} + e_{jt} \qquad (2.4.1)$$

The market model is not supported by any theory. It assumes that the slope and intercept terms are constant over the time period during

which the model is fit to the available data. This is a strong assumption , particularly if the time series is long.

The second model uses the capital asset pricing model theory. It requires the intercept term to be equal to the risk free rate, or the rate o the minimum – variance zero-beta portfolio, both of which change overtime. This CAPM – based methodology is given by Eq. (2.4.2)

$$R_{jt} = R_{ft} + (R_{mt} - R_{ft}) B_j + e_{jt}$$

Note , however, that systematic risk is assumed to remain constant over the interval of estimation. But as noted earlier in the study by Bailkowski et al (2006), the systematic risk does fluctuate significantly during the election period.

The third model is the empirical market line which is given by the following equation

$$R'_{jt} = y_{0t} + y_{1t} B_{jt} + e_{jt} \qquad (2.4.3)$$

Where $y_1 = R_{mt} - R_{ft}$,

R'_{jt} = the excess return on security j = $(R_{jt} - R_{ft})$

Although related to CAPM, it does not require the intercept to be equal to the risk free rate. Instead, the intercept y_0 and the slope y_{1t} are the best linear estimates taken from cross section data each time period (typically each month). Furthermore, it has the advantage that no parameters are assumed constant over time.

Finally , there are various multifactor cross sectional models that have been used to explain returns , for example,

$$R_{jt} = a_j + b_{1j}(R_{mt}-R_{ft}) + b_{2j}(RLE_t - RSE_t) + b_{3j}(HBTM_t - LBTM_t) + e_{jt} \qquad (2.4.4)$$

In this fourth equation, the return of the *j* th stock in the *t* th time period is a function of the excess return on the market index over the risk free rate, the difference in return between a large capitalization equity portfolio and a small–cap portfolio, and the difference in return between a high and a low book to market equity portfolio.

All the four models use the residual term, e_{jt}, as measure of risk adjusted abnormal performance. The market model and the multifactor model are not subject to Roll's critique. , whereas the CAPM and the empirical line are. Roll (1977) showed that if the market portfolio were not identified exactly the practical use of the CAPM was difficult. The Roll critique does not imply that CAPM is an invalid theory. However, it does mean that tests of the CAPM must be interpreted with great caution (Copeland *et al.* 2004). The EHM and CAPM are essentially joint tests.

Therefore residual analysis that employs the CAPM or the empirical line may be subject to criticism. It is from this standpoint point that this study proposes to use the market model in this study because it is simple, robust and not subject to Roll's (1977) criticism. In any case Copeland *et al.* 2004 note that there is no appreciable difference between the results of CAPM and the market model

2.6 YEAR END EFFECT

Elections in Kenya have traditionally been held in December. This entails that we segregate the election effects from the year end effect. The year end effect is also know as December effect or January effect. The year end effect is an interesting pattern in stock prices which has been documented by Dyl (1973), Branch (1977), Keim (1983, Reinganum (1983), Roll(1983) and Gultekin (1983). Stocks returns decline during in December of each year, especially for small firms and for firms whose price had already declined during the year. The prices increase during the following January. Roll (1983) reported that for 18 consecutive years from 1963 to 1980 , average returns of small firms have been larger than average returns of large firms on the first trading day of the calendar year. That day's difference in returns between equally weighted indices of AMEX and NYSE listed stocks averaged 1.16% over the 18 years. The *t*-statistic of the difference was 8.18.

It has been argued that most likely cause of the year end effect is tax selling. Dyl (1977) examined the volume of trading in the month of December relative to the volume of trading in other months. He found that there is significant abnormal trading volume in December in common stocks that have undergone a substantial price change during the preceding year. The data reveal abnormally low volume for stocks that have appreciated during the year, presumably reflecting the year end capital gains tax lock in effect, and abnormally high volume for stocks that have declined in price during the year, presumably reflecting year end tax loss selling. Constantinides (1983) has argued that concentrated tax loss selling will occur in December when

transaction cost exist , and this is consistent with Dyl(1977)'s evidence.

However, Shefrin and Statman (1985) provide a behavioural framework to explain the December transactions. They have argued that standard theory provides no basis for Dyl (1977)'s and Constantinides (1983)'s findings. Rather, Shefrin and Statman (1985) postulate that concentrated December tax loss selling reflects a self control strategy by the investors. They conjecture that tax planning in general, and loss realization in particular, is disagreeable and requires self control. They conclude that self motivation is easier in December than other months because of the perceived deadline characteristic, hence a concentration of loss realizations in December.

Another contradictory evidence on the tax selling argument is also provided by noting that the January effect exists in Japan , yet Japan has no capital gains tax and disallows any deduction for capital losses A similar observation is has been made regarding Canada.(Berges, McConnell, and Schlarbaum 1984). Rebutting this evidence, however, is the observation that the January effect apparently did not exist before the imposition of income taxes in the United States.

Another possible explanation for January effect is that small stocks may be relatively riskier in January than during the rest of the year. If they are, then they should have relatively higher average return in January. A study finding that the betas of small stocks tend to increase at the beginning of the year lends support to this explanation.

Due to the foregoing, It is therefore imperative that this study takes cognisance of the year end effect when determining the share price behaviour around national elections in Kenya. In Kenya there is no capital gains tax and disallows deduction of capital losses on equities traded at the Nairobi stock exchange.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 INTRODUCTION

This chapter constitutes the blueprint for the collection, measurement and analysis of data. This blue print includes the population, sample, method of data collection and analysis.

3.1. POPULATION AND SAMPLE

The sample of this study constitutes the prices of the stocks included in the NSE 20 share index. The sample population of the study covers 120 prices of each share, 60 trading days before the election event and 60 trading days after the event. The election periods covered are the 1997 and 2002 elections. The actual election dates are 28/12/1997 and 28/12/2002 respectively. The shares on the NSE 20 share index were chosen because they constitute about 80 percent of market capitalization and volume of trade at the Nairobi Stock Exchange (NSE). Since the elections are carried out in December, we needed to repeat the same exercise to control for year –end effect (December effect). We selected December 2000 and December 2005 which are three years after the election event. We have assumed that this is a reasonably long enough period that we will not be affected by election effects.

3.2 DATA COLLECTION

The requisite data on the share prices was be obtained from the NSE data base which is available at the NSE library. The data was obtained by exploring and data mining the data base.

3.3 DATA ANALYSIS

The data was analysed by using the event study method based on the market model. Brown and Warner (1980, 1985) conclude that event study methodologies based on OLS, market model and using standard parametric tests are well specified under a variety of conditions. Although explicit recognition of the characteristics of daily data can sometimes be advantageous, for example in cases involving variance increases or unusually high auto correlation, the characteristics of daily data generally present few difficulties in the context of event study methodology. Furthermore, some of Brown and Warner (1980, 1985)'s results indicate a striking similarity between the empirical power of the event study procedures and the theoretical power implied by a few simple assumptions and "back of the envelope calculations". This reinforces the view that the use of daily data is straight forward.

Given that the return generating process is stochastic in nature, a security return (r_{it}) overtime can be specified as follows

$$R_{it} = r_{it} + e_{it} \qquad (1)$$

$$r_{it} = \alpha_I + \beta_I R_{mt} \qquad (2)$$

Market return (R_m) = $\underline{NSE_t - NSET_{t-1}}$ ie NSE is the market NSE 20 index

NSE_{t-1}

$R_t = \frac{P_t - P_{t-1}}{P_{t-1}}$ for individual stock returns

The expected return (r_{it}) of a security is a market determining pricing process (in the spirit of the market model) and of a security 's return characteristics. The stochastic error term (e_{it}) which has an expected value of zero and is un-correlated overtime reflects security specific influences.

The α_I and beta (β_I) can be estimated using the Scholes – Williams (1977) procedure which requires an estimation period of excess returns of 237 days (See appendix). However, a simple regression analysis technique will be employed based on a 250-day benchmark model used by Brown and Warner (1985).

If returns are stationary overtime, impact (if any) of new information on the security prices may be discovered through examination of e_{it}'s. To determine if the e_{it} 's around an event date are non-zero, a test is conducted to determine if the mean daily return of the event period (observation period) is statistically different from the mean daily return of some other representative period (comparison period). The mean daily return for the comparison period is actually an estimate of r_{it}, the expected daily return in equation (1). To minimize error in the estimation of r_{it} , portfolio of security are formed in event time around the election announcement dates. If security returns are independent and stationary overtime with finite variances, portfolio daily returns in large samples approach normal distribution. Therefore a student *t* for

the difference in population means can be employed to test equality of event period and comparison period means.

The Z or *t*- test is used to determine the statistical significance between a sample distribution mean and a parameter. When sample sizes approach 120, the sample standard deviation becomes a very good estimator of standard deviation: beyond 120, the *t* and Z distributions are virtually identical (Cooper and Schindler 2003).

$$t = \frac{X-u}{s\sqrt{n}}$$ (for calculating the specific excess returns for individual stocks)

$$t = \frac{(r_1 - r_2)}{\sqrt{[(N1-1)S^2_1 - (N2-1)S^2_2]/[N1-N2-2]\sqrt{[1/N1-1/N2]}}}$$ (t for comparison of returns)

N:B Test was made at 5% significant level

This is a standard difference of means test statistic which is *t* distributed with N1+N2-2 degrees of freedom.

Where N1 = number of portfolio daily returns in the comparison period, N2 = portfolio daily returns in the event date. r_1 = portfolio's comparison period mean daily return, S_1 = standard deviation of the comparison period return, r_2 = portfolio's event period mean daily return and S_2 = standard deviation of the announcement period mean daily return.

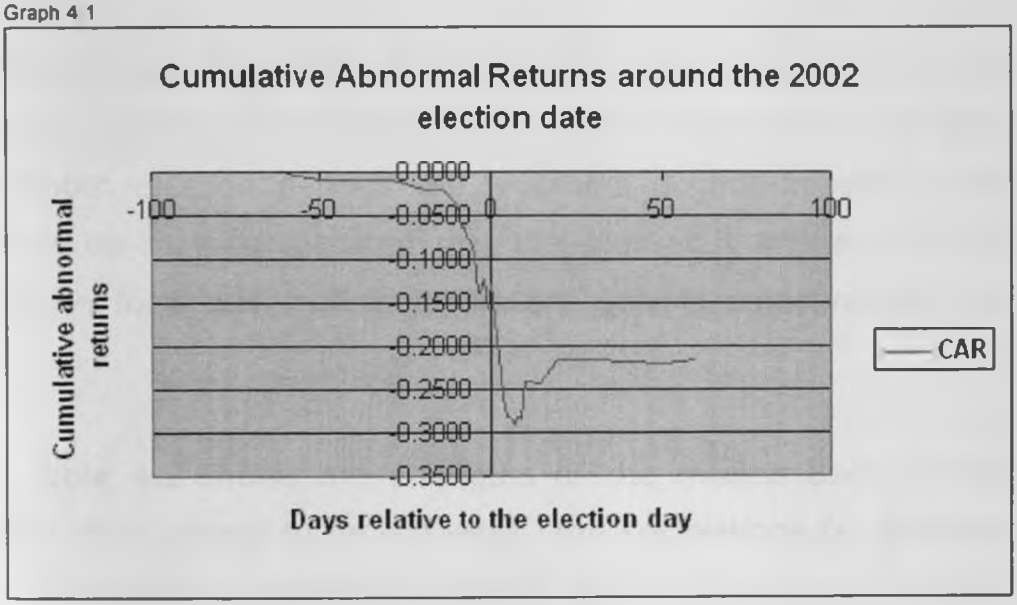
A further comparison will be made between the returns during the electioneering period and non electioneering period to find out if there are any significant differences and as a control for the year end effect.

CHAPTER FOUR:
DATA ANALYSIS AND FINDINGS

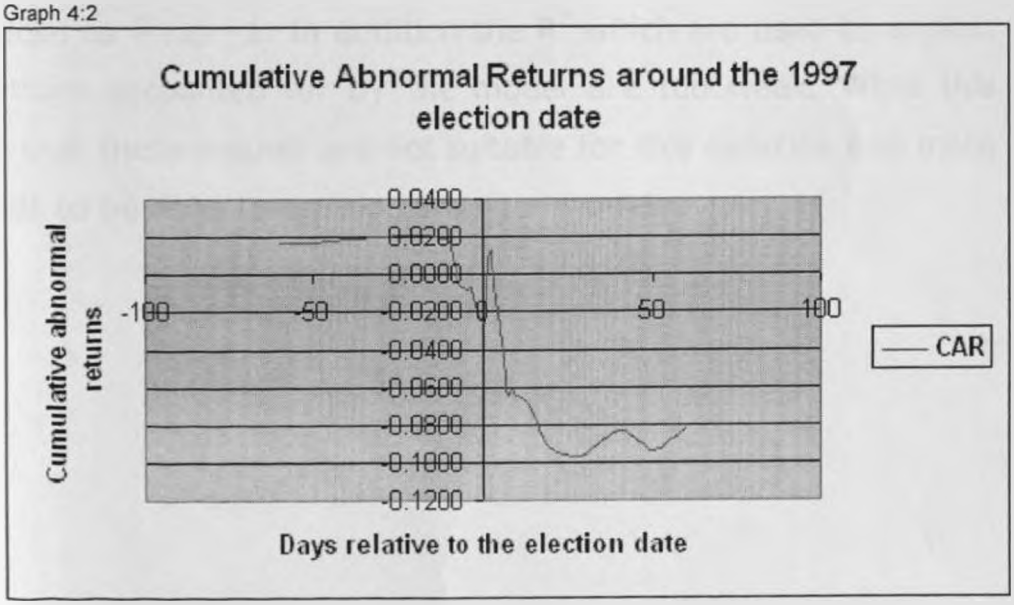
The sample time period, includes General Elections 1997 and 2002. Therefore this chapter involves a study of the stock market behaviour by analysing if there are any abnormal returns around the election periods of 1997 and 2002. The sample represents the NSE 20 Share Index companies listed at Nairobi stock exchange. Te residual returns were determined by comparing the actual returns and the estimated returns based on a benchmark market model. The market model was derived from a 250 day trading period before the election period by regressing the daily returns on the NSE 20 Share index returns.

The graphs 4.1 and 4.2 shows the average stock price behaviour around the election dates for the year 2002 and 1997 respectively The individual stock prices were determined by relating the daily returns on the stock to the corresponding returns on the stock market index (NSE 20 Share index). This calculation was made for the 60 day period immediately prior to the election date and 60 day period immediately following it. The abnormal returns were averaged out across firms for each day relative to the election date and then cumulated across time. The figures show that the stock react strongly to the election event as abnormal returns decline sharply after the election date and then rise slightly before settling to a new equilibrium

Graph 4 1



Graph 4:2



The table4:1 shows the results of the average daily abnormal returns for the 60-day window period around the election periods of 1997 and 2002. For both election periods the t- values do not appear to be significant It be may conjectured that the market is efficient in the semi – strong form and that investors are getting compensated for risk.

However, table 4.2 shows the strengths of the models used in the analysis and they appear to be too weak. The correlations (r) indicate the level of correlation between individual stocks returns and market returns are generally too low. A good estimator should atleast have an r which close to +1.or -1. In addition the R^2 which are used to explain the variations accounted for by the model are too weak. What this implies is that these models are not suitable for this exercise and more work needs to be done to develop stronger models.

THE AVERAGE DAILY RESIDUALS AROUND THE ELECTION DATES TABLE 4.1

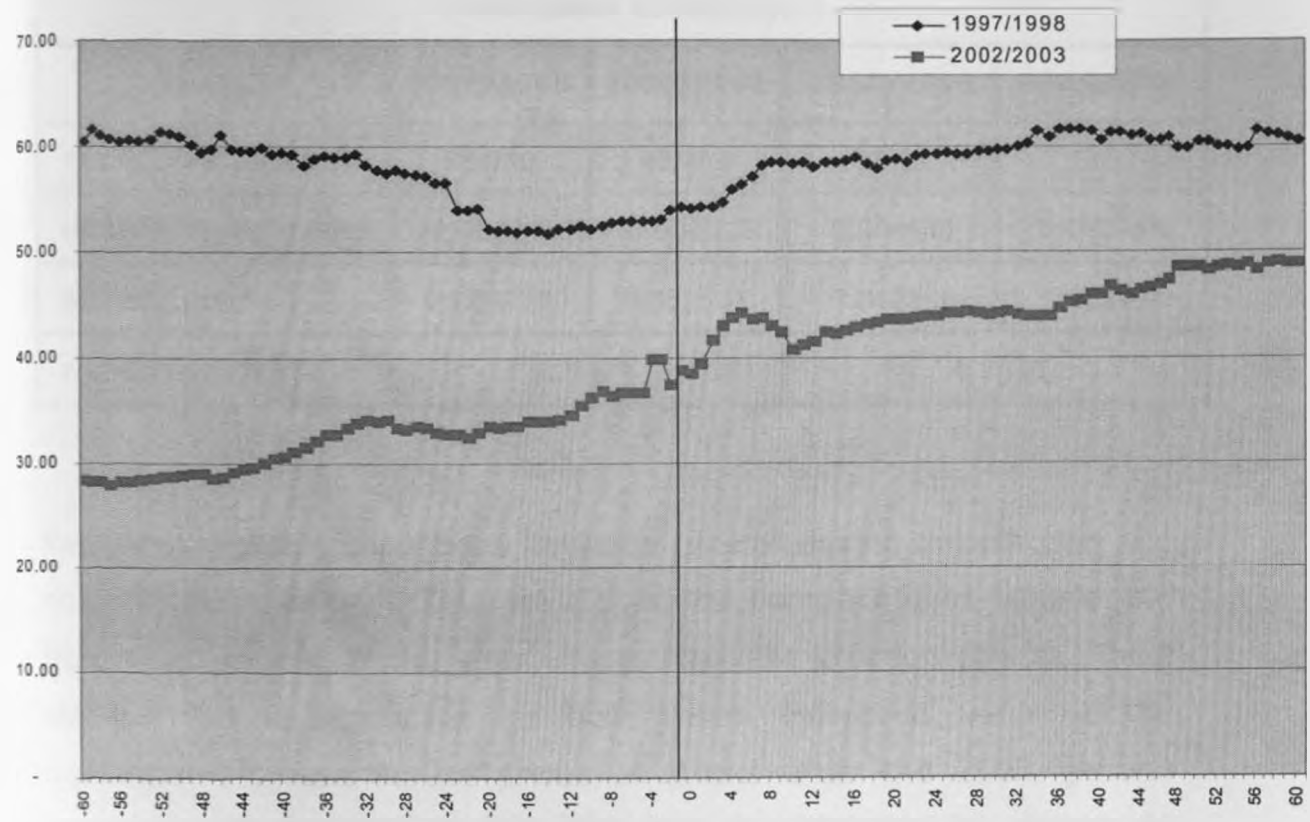
	1997 Elections Year		2002 Elections Year	
Days	**Average Daily Residuals**	T-test	**Average Daily Residuals**	T-test
-60	0.0167	0.1533	(0.0014)	(0.0087)
-50	0.0003	0.0023	(0.0068)	(0.0414)
-40	0.0027	0.0247	(0.0018)	(0.0109)
-30	0.0006	0.0056	0.0011	0.0067
-20	0.0013	0.0115	(0.0122)	(0.0750)
-15	(0.0012)	(0.0108)	0.0005	0.0029
-10	(0.0019)	(0.0177)	(0.0173)	(0.1058)
-9	(0.0101)	(0.0927)	(0.0262)	(0.1606)
-8	(0.0055)	(0.0510)	0.0001	0.0005
-7	(0.0078)	(0.0715)	(0.0104)	(0.0641)
-6	(0.0017)	(0.0159)	(0.0040)	(0.0247)
-5	(0.0015)	(0.0136)	(0.0144)	(0.0882)
-4	0.0010	0.0094	(0.0458)	(0.2811)
-3	(0.0003)	(0.0031)	0.0005	0.0029
-2	(0.0079)	(0.0729)	0.0158	0.0967
-1	(0.0083)	(0.0764)	(0.0347)	(0.2127)
0	(0.0019)	(0.0172)	0.0273	0.1675
1	0.0000	0.0004	(0.0161)	(0.0985)
2	0.0315	0.2893	(0.0469)	(0.2878)
3	0.0071	0.0656	(0.0397)	(0.2436)
4	(0.0191)	(0.1757)	(0.0264)	(0.1621)
5	(0.0143)	(0.1319)	(0.0239)	(0.1463)
6	(0.0163)	(0.1500)	(0.0015)	(0.0090)
7	(0.0210)	(0.1931)	(0.0056)	(0.0345)
8	(0.0069)	(0.0635)	0.0088	0.0542
9	0.0036	0.0329	(0.0019)	(0.0114)
10	(0.0031)	(0.0283)	0.0420	0.2574
15	(0.0078)	(0.0717)	(0.0024)	(0.0147)
20	(0.0202)	(0.1860)	0.0267	0.1636
30	(0.0046)	(0.0424)	0.0007	0.0041
40	0.0138	0.1266	(0.0027)	(0.0164)
50	(0.0112)	(0.1027)	(0.0027)	(0.0164)
60	0.0130	0.1196	0.0045	0.0276

TABLE 4.2 THE MARKET MODEL PARAMETERS

	1997 ELECTION PERIOD				2002 ELECTION PERIO			
	ALPHA	BETA	r	R2	ALPHA	BETA	r	
BAMBURI	0.0020	1.5230	0.2182	0.0476	0.0038	-0.0767	-0.0340	0.
BARCLAYS	0.0006	0.6714	0.3352	0.1123	0.0015	-0.1431	-0.0919	0.
BAT(K)	-0.0007	0.5399	0.1706	0.0291	0.0009	-0.1968	-0.0809	0.
BOC LIMITED	0.0001	0.0442	0.0310	0.0010	0.0011	-0.1419	-0.0871	0.
D.TRUST	-0.0009	0.9466	0.1682	0.0283	0.0004	0.1106	0.0798	0.
E.A.B.L	0.0010	0.3239	0.0459	0.0021	0.0022	-0.1613	-0.0936	0.
FIRESTONE	0.0006	0.7525	0.1063	0.0113	0.0012	-0.0014	-0.0005	0.
K.P.& L.C.	0.0070	3.9597	0.4121	0.1698	0.0002	-0.1884	-0.0450	0.
KAKUZI	-0.0553	0.0010	0.0878	0.0077	-0.0032	-0.1904	-0.1114	0.
KCB	0.0009	0.9535	0.1827	0.0334	0.0006	0.2332	0.0562	0.
KENYA AIRWAYS	0.0007	0.6165	0.0864	0.0075	-0.0005	-0.0647	-0.0385	0.
NATION	0.0029	-0.0064	-0.0014	0.0000	0.0072	0.0179	0.0029	0.
NIC	0.0017	1.2018	0.2131	0.0454	0.0011	-0.0630	-0.0293	0.
SASINI	0.0027	0.3963	0.0706	0.0050	-0.0004	-0.0426	-0.0246	0.
STAND CHART	0.0000	0.4850	0.1888	0.0357	0.0009	0.0887	0.0554	0.
TOTAL KENYA	-0.0006	1.1263	0.3189	0.1017	0.0011	-0.0069	-0.0021	0.
TPS-SERENA	-0.0013	0.1288	0.1270	0.0161	0.0004	0.0692	0.0737	0.
UCHUMI	0.0007	0.5974	0.1558	0.0243	-0.0005	-0.2020	-0.0590	0.
UNILEVER TEA	-0.0012	0.6595	0.1525	0.0233	-0.0012	0.0470	0.0170	0.
WILLIAMSON TEA	0.0015	0.5556	0.1086	0.0118	-0.0013	-0.0838	-0.0366	0.

AVERAGE MARKET PRICE MOVEMENT AROUND ELECTION DATES

Graph 4.3



Graph 4.3 shows the average stock price movement around the election period. During 1997/1998 period, the prices appeared to be relatively stable. However in the 2002/2003 period stock prices were exhibiting a gradual ascendancy. We conjecture that in 1997, the ruling party then, KANU, came back to power which meant that there was no change in the country's economic policies. However, in 2002/2003, it can be postulated that the investor confidence was spurred by the eminent change from a KANU led government to a NARC led government. This may have been viewed as a positive fundamental change in the economic policy for the country which led to a surge in stock prices.

TABLE 4.3

COMPARISONS BETWEEN TWO SIMILAR PERIODS FOR TURN OF THE YEAR EFFECTS.				
YEARS	**1997/1998**	**2000/2001**	**2002/2003**	**2005/2006**
TOTAL AVG PRICES	58.035	45.743	38.71	99.37
MEAN MKT. RETURNS	-0.000048	-0.000327	0.004642	0.002695
S.D RETURNS	0.009939	0.005594	0.015198	0.041450
t – TEST α = 0.05	0.0974		0.1530	

Table 4.3 shows comparisons between returns during the election and non election periods. This was done to compare and isolate the December or turn of the year effects from the election effects. The t statistic is not significant for both cases. However, we note the significant increase in the prices of stocks after the 2002 general elections. We conjecture that this was a reflection of change in economic policy which accompanied the change in the ruling political party. As a result, investor confidence was enhanced and demand for shares ensued. This reinforces the view postulated by Hibbs (1997) that voters elect parties which best represents their personal beliefs and interests.

CHAPTER FIVE
SUMMARY AND CONCLUSION

5.1 Conclusions and implication

The main objective of this study was to establish whether or not general election in Kenya does affect the share prices.

The measure of information content adopted for this study of the residual prices is obtained from the difference between the estimated returns ,in the spirit of market model ,and .actual returns The mean residual prices were computed for the full sample and for the sub sample by year of general election.

The results obtained from this study have shown that a majority of share prices for all listed companies sampled in the period under study have shown that during general election period the share prices go down but after election they start rising once again or remain relatively stable. The t- statistics for the residuals are not significant and we therefore reject the alternate hypothesis. The result should the taken with caution because the r and R^2 for the resultant market models are very weak and therefore the results are not conclusive

The implication of this study for any astute investor is to take precautions when buying shares at a period of political uncertainty. One strategy suggested by Richard (2006) is to forego pre event purchasing and then short the security immediately following the event. By staying out of the market during the event, unnecessary risk is eliminated. Alternatively investors who engage in a contrarian

strategy before election and then employ a momentum strategy after the election tend to make abnormal profits.

5.2 Limitation of the Study

Several limitations can be noted in this study:

Lack of data and data inaccuracy is key limitation in this study. There were dates in which the NSE did not record the prices of the trading on the NSE. In this case an assumption was made that the previous day's price prevailed. The returns are computed based on the prices before and after the break regardless of whether it is on a successive week. The study is limited to the extent that this assumption may not be valid.

Problems of survivorship bias coupled with low liquidity or infrequent trading makes it difficult for share price information to be gathered and meaningful conclusions to be derived. In addition, this study used individual stock betas to estimate prospective returns. Blume (1975) found that individual stock betas are not usually stable and are therefore not good predictors of future returns.

A study of this nature requires an ideal market return portfolio and this study used the NSE 20 Share index which has in the past been criticized for various reasons. One argument put forward is that it does include some stocks which trade infrequently. Odera ( ) notes that the NSE did not have a precise portfolio selection and revision policy. We now report that some of the constituent stocks have since been revised and the share index has been updated to reflect current market realities.

5.3 Recommendations for further research

The result of this study are not conclusive, there is need to carry on further research on the price movements especially before and after general election. It is imperative to apply other diagnostics to verify that the regression assumptions are met such as normality, linearity, equality of variance and independence of error. There are three basic assumptions of the error term (e_{it}) that can be tested using the Spearman Rank Correlation analysis and the Durbin – Watson (D- W) statistic. Should the result of such studies show that the assumptions are violated; this would point to the need to adopt other methods of measuring the price movements in the NSE.

This study can be repeated using the GARCH methods as this takes care of the heteroscedasticity associated with an election event. Heteroscedasticity does not affect the accuracy of the regression estimates alpha and beta. It does, however, reduce the reliability of the estimates of the standard errors and thus affects the precision with which inferences can be drawn.

Further research study can be done on the investor behaviour around national elections. Behavioral finance still remains a relatively new area that is largely unexplored.

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APPENDIX.

This appendix gives additional details of the procedures used in simulating event study test methodologies.

A.1 Scholes – Williams procedure

$$A_{i,t} = R_{i,t} - \alpha_I - \beta_I R_{m,t},$$

Where

$$\alpha_I = \frac{1}{237} \sum_{t=-243}^{\tau=-7} R_{i,t} - \beta_I \frac{1}{237} \sum_{t=-243}^{t=-7} R_{m,t}$$

$$\beta I = (\beta^-_I + \beta_I + \beta^+_I)/(1+2\rho_m)$$

β^-_I and β^+_I are OLS estimation period values of

$$\frac{Cov(R_{i,t}, R_{m,t-1})}{\sigma(R_{m,t})\,\sigma(R_{m,t-1})} \quad \text{and} \quad \frac{Cov(R_{i,t}, R_{m,t+1})}{\sigma(R_{m,t})\,\sigma(R_{m,t+1})}$$

respectively. ρ_m is the estimation period value for the first – order autocorrelation coefficient of the Equally Weighted Market Index.

A.2 The bivariate linear regression may be expressed as

$$Y = \alpha + \beta X$$

Where the OLS estimation of α and β is given by

$$\beta = \frac{n\sum XY - (\sum X)(\sum Y)}{n\sum X^2 - (\sum X)^2}$$

$$\alpha = \bar{Y} - \beta \bar{X}$$

A 3 NSE 20-SHARE INDEX

The stocks listed under this index include the following:

Unilever Tea Kenya Ltd, Kakuzi Ltd, Sasini Tea & Coffee Ltd, Kenya Airways, Nation Media Group Ltd, Uchumi Supermarkets Ltd, Barclays Kenya Ltd, Diamond Trust Bank Kenya Ltd, Kenya Commercial bank Ltd, Standard Chartered Bank Ltd, B.O.C Kenya Ltd, Bamburi cement Ltd, BAT Kenya Ltd, EA Breweries Ltd, Kenya Power & Lighting Ltd, Total Kenya Ltd, Unga Group Ltd.

Day	DATE	SAMBURU PRICE	SAMBURU RETURNS	BARCLAYS PRICE	BARCLAYS RETURNS	BAT(K) PRICE	BAT(K) RETURNS	BOC LIMITED PRICE	BOC LIMITED RETURNS	D.TRUST PRICE	D.TRUST RETURNS	E.A.B.L. PRICE	E.A.B.L. RETURNS	FIRESTONE PRICE	FIRESTONE RETURNS	K.P.&L.C. PRICE	K.P.&L.C. RETURNS	KAKUZI PRICE	KAKUZI RETURNS	KCB PRICE	KCB RETURNS
-61	26-Sep-97	42.00	0.000	70.95	0.003	38.40	-0.017	70	0.000	25	0.000	50	0.027	16.72	0.001	113.41	0.001	149.82	-0.001	98.81	-0.003
-60	29-Sep-97	40.00	-0.047	70.59	-0.005	38.00	-0.010	70	0.000	24.54	-0.018	47.62	-0.048	16.72	0.000	106.67	-0.059	149.82	0.000	97.78	-0.010
-59	30-Sep-97	42.00	0.048	70.70	0.002	38.38	0.017	71	0.014	25.5	0.039	47.24	-0.008	16.93	0.012	115.09	0.088	149	0.006	97.68	-0.001
-58	01-Oct-97	42.00	0.000	71.14	0.006	38.38	0.000	71	0.000	24.78	-0.028	46.41	-0.018	16.67	-0.015	120.00	0.034	149.88	0.000	93.87	-0.039
-57	02-Oct-97	40.50	-0.036	70.71	-0.006	37.50	-0.022	71	0.000	24.78	0.000	45	-0.030	16.33	-0.020	121.07	0.009	145.29	-0.024	94.03	0.002
-56	03-Oct-97	42.25	0.043	71.03	0.005	37.50	0.000	71	0.000	24.78	0.000	47.03	0.045	16.45	0.007	121.07	0.000	145.29	0.000	91.49	-0.027
-55	06-Oct-97	42.25	0.000	70.31	-0.010	38.03	0.014	71	0.000	24.78	0.000	47.75	0.015	16.70	0.015	123.34	0.019	145.29	0.000	90.38	-0.012
-54	07-Oct-97	39.81	-0.058	70.89	0.008	37.53	-0.013	71	0.000	25	0.009	47.4	-0.007	16.00	-0.042	125.13	0.015	145.29	0.000	89.98	-0.004
-53	08-Oct-97	39.81	0.000	71.43	0.008	37.50	-0.001	71.6	0.008	24.07	-0.037	46.8	-0.013	16.21	0.013	131.88	0.054	145.29	0.000	89.98	0.000
-52	09-Oct-97	39.81	0.000	71.13	-0.004	37.50	0.000	71.6	0.000	24	-0.003	46.98	0.004	16.67	0.028	139.45	0.057	145.29	0.000	90.04	0.001
-51	13-Oct-97	39.00	-0.020	71.57	0.006	37.50	0.000	70	-0.022	24	0.000	48	0.021	16.17	-0.030	138.67	-0.006	145.29	0.000	89.38	-0.007
-50	14-Oct-97	35.27	-0.096	71.59	0.000	37.58	0.002	70	0.000	24.00	0.001	47.58	-0.009	16.33	0.010	138.67	0.000	145.29	0.000	88.88	-0.006
-49	15-Oct-97	34.48	-0.023	72.32	0.010	38.25	0.018	70	0.000	25	0.040	47.24	-0.007	15.90	-0.027	138.67	0.000	145.29	0.000	80	-0.100
-48	16-Oct-97	31.07	-0.098	72.85	0.007	37.88	-0.010	70	0.000	24.14	-0.034	47.11	-0.003	15.90	0.000	138.54	-0.001	145	-0.002	70.31	-0.121
-47	17-Oct-97	31.25	0.006	73.36	0.007	37.88	0.000	70	0.000	24.07	-0.003	47.11	0.000	15.98	0.005	138.00	-0.004	145	0.000	77.42	0.101
-46	21-Oct-97	30.85	-0.013	72.68	-0.009	37.88	0.000	70	0.000	24	-0.003	70.37	0.494	15.98	0.000	134.67	-0.024	145	0.000	84.18	0.087
-45	22-Oct-97	30.79	-0.002	72.89	0.003	38.49	0.016	70	0.000	24	0.000	47	-0.332	15.38	-0.037	136.67	0.015	145	0.000	80.78	-0.040
-44	23-Oct-97	31.25	0.015	72.43	-0.006	38.60	0.003	70	0.000	24	0.000	45.88	-0.024	15.33	-0.004	133.42	-0.024	145	0.000	80.88	0.001
-43	24-Oct-97	31.25	0.000	72.64	0.003	38.60	0.000	70	0.000	23.95	-0.002	45.08	-0.018	15.38	0.002	130.78	-0.020	145	0.000	82.88	0.023
-42	27-Oct-97	33.25	0.064	73.09	0.006	38.42	-0.005	70	0.000	23.5	-0.019	44.33	-0.016	15.00	-0.023	132.51	0.013	145	0.000	85.22	0.031
-41	28-Oct-97	33.25	0.000	71.61	-0.020	38.42	0.000	70	0.000	23	-0.021	45.04	0.016	14.17	-0.056	124.75	-0.059	145	0.000	85.18	-0.001
-40	29-Oct-97	36.63	0.102	72.53	0.013	38.63	0.005	70	0.000	23	0.000	46.07	0.023	14.55	0.027	125.59	0.007	145	0.000	85.51	0.004
-39	30-Oct-97	36.29	-0.009	72.06	-0.006	38.25	-0.010	70	0.000	22.25	-0.033	46.1	0.001	14.49	-0.004	126.57	0.008	145	0.000	83.58	-0.023
-38	31-Oct-97	36.93	0.018	71.88	-0.003	38.25	0.000	70	0.000	22.5	0.011	46.1	0.000	14.33	-0.011	125.67	-0.007	145	0.000	89.73	0.074
-37	03-Nov-97	36.25	-0.018	71.82	-0.001	38.25	0.000	70	0.000	23.2	0.031	47.12	0.022	14.33	0.000	126.67	0.008	145	0.000	80.54	-0.102
-36	04-Nov-97	37.00	0.021	70.99	-0.012	39.00	0.020	70	0.000	23.2	0.000	47.5	0.008	14.33	0.000	126.65	0.000	145	0.000	81.72	0.015
-35	05-Nov-97	36.21	-0.021	71.79	0.011	39.00	0.000	69.5	-0.007	23.2	0.000	47.5	0.000	14.33	0.000	126.73	0.001	145	0.000	82.34	0.008
-34	06-Nov-97	36.32	0.003	71.34	-0.006	38.64	-0.009	69.5	0.000	23	-0.009	48.25	0.016	14.67	0.024	123.33	-0.027	145	0.000	82.37	0.000
-33	07-Nov-97	36.15	-0.005	71.68	0.005	38.64	0.000	69.5	0.000	23	0.000	48.01	-0.005	15.50	0.056	120.87	-0.020	145	0.000	80.73	0.101
-32	10-Nov-97	36.15	0.000	71.51	-0.002	39.00	0.009	67.5	-0.029	23	0.000	48.02	0.000	14.92	-0.037	119.14	-0.014	139	-0.041	81.98	-0.006
-31	11-Nov-97	36.15	0.000	71.49	0.000	40.50	0.038	67.5	0.000	23	0.000	48.13	0.002	16.33	0.098	109.81	-0.078	139	0.000	81.12	-0.011
-30	12-Nov-97	34.25	-0.053	71.65	0.002	38.65	-0.046	67.5	0.000	23.1	0.004	48.29	0.003	16.33	0.000	106.67	-0.029	139	0.000	80.33	-0.010
-29	13-Nov-97	34.00	-0.007	70.22	-0.020	39.25	0.016	67.5	0.000	23	-0.004	48.19	0.019	16.32	-0.001	109.89	0.030	139	0.000	80.24	-0.001
-28	14-Nov-97	33.36	-0.019	70.94	0.010	39.25	0.000	67.5	0.000	23.24	0.010	48.1	-0.022	16.33	0.001	106.67	-0.029	139	0.000	80.48	0.003
-27	17-Nov-97	32.00	-0.040	70.56	-0.005	39.25	0.000	67.5	0.000	23.16	-0.003	48.95	0.018	16.15	-0.011	106.67	0.000	139	0.000	77.1	-0.042
-26	18-Nov-97	32.00	0.000	70.01	-0.008	39.38	0.003	67.5	0.000	23	-0.007	50.46	0.031	15.79	-0.023	103.85	-0.026	139	0.000	76.75	-0.005
-25	19-Nov-97	31.88	-0.004	69.17	-0.012	39.38	0.000	67.5	0.000	23	0.000	50	-0.009	14.42	-0.087	95.97	-0.076	139	0.000	74.76	-0.026
-24	20-Nov-97	31.88	0.000	67.17	-0.029	39.19	-0.005	67.5	0.000	23	0.000	50	0.000	14.67	0.017	96.00	0.000	139	0.000	75	0.003
-23	21-Nov-97	31.00	-0.028	66.76	-0.006	39.19	0.000	67.5	0.000	23.24	0.010	50	0.000	14.50	-0.011	95.97	0.000	97.03	-0.302	71.08	-0.052
-22	24-Nov-97	31.00	0.000	67.47	0.011	39.00	-0.005	67.5	0.000	23	-0.010	50.06	0.001	14.83	0.023	96.00	0.000	94.5	-0.026	71.97	0.013
-21	25-Nov-97	30.50	-0.016	69.01	0.023	38.69	-0.008	67.5	0.000	23.05	0.002	49.13	-0.019	14.67	-0.011	97.39	0.014	94.5	0.000	74.68	0.037
-20	26-Nov-97	30.50	0.000	69.66	0.009	37.50	-0.031	70	0.037	22.63	-0.018	49.21	0.002	14.67	0.000	102.45	0.052	92.14	-0.025	74.78	0.002
-19	27-Nov-97	30.50	0.000	70.54	0.013	37.59	0.002	70	0.000	22.35	-0.012	49.21	0.000	14.67	0.000	106.49	0.039	92.14	0.000	70.87	-0.052
-18	28-Nov-97	31.28	0.025	70.38	-0.002	37.58	0.000	70	0.000	22.26	-0.004	50	0.016	15.00	0.023	108.67	0.002	92.14	0.000	71.27	0.008
-17	01-Dec-97	30.25	-0.032	70.11	-0.004	37.50	-0.002	70	0.000	22	-0.011	49.3	-0.014	15.00	0.000	108.67	0.000	92.14	0.000	72.11	0.012
-16	02-Dec-97	30.25	0.000	72.40	0.033	37.52	0.001	70	0.000	22	0.000	48.15	-0.023	15.17	0.011	108.28	-0.004	92.14	0.000	72.27	0.002
-15	03-Dec-97	33.00	0.091	73.53	0.016	37.50	-0.001	70	0.000	22	0.000	48.98	0.017	15.33	0.011	103.33	-0.029	92.14	0.000	72.87	0.008
-14	04-Dec-97	30.00	-0.091	73.62	0.001	36.75	-0.020	70	0.000	22	0.000	48.51	-0.010	15.25	-0.005	102.77	-0.005	92.14	0.000	72.77	0.001
-13	05-Dec-97	35.24	0.175	74.19	0.008	36.94	0.005	67.5	-0.036	21.82	-0.008	48.01	-0.010	15.33	0.005	105.30	0.025	92.14	0.000	73.38	0.008
-12	08-Dec-97	36.00	0.022	74.93	0.010	37.49	0.015	67.5	0.000	21.85	0.001	48.24	0.005	15.34	0.000	106.67	0.013	92.14	0.000	73.71	0.004
-11	09-Dec-97	30.00	-0.167	75.10	0.002	37.50	0.000	67.5	0.000	22	0.007	48.02	-0.005	15.39	0.003	113.13	0.061	94	0.020	74.08	0.005
-10	10-Dec-97	30.00	0.000	75.41	0.004	37.50	0.000	67.5	0.000	22	0.000	48	0.000	15.39	0.000	106.65	-0.058	92.29	-0.018	73.52	-0.007
-9	11-Dec-97	30.00	0.000	76.29	0.012	37.88	0.010	67.5	0.000	22	0.000	48	0.000	15.17	-0.014	107.49	0.008	92.29	0.000	75.36	0.025
-8	15-Dec-97	35.00	0.167	77.06	0.010	37.50	-0.010	67.5	0.000	21	-0.045	48.15	0.003	15.35	0.012	107.49	0.000	92.29	0.000	75.65	0.004
-7	16-Dec-97	35.00	0.000	76.15	-0.012	37.50	0.000	65	-0.037	22	0.048	48.11	-0.001	15.50	0.010	110.00	0.023	92.29	0.000	75.33	-0.004
-6	17-Dec-97	34.50	-0.014	76.21	0.001	36.84	-0.018	65	0.000	22	0.000	48	-0.002	15.78	0.018	110.95	0.009	92.29	0.000	75.62	0.003
-5	18-Dec-97	34.50	0.000	75.53	-0.009	37.50	0.018	65	0.000	22	0.000	48.65	-0.007	16.00	0.014	110.54	-0.004	92.29	0.000	76.68	0.015
-4	19-Dec-97	34.50	0.000	75.09	-0.006	37.50	0.000	65	0.000	22	0.000	48.02	0.008	15.67	-0.021	113.33	0.025	92.29	0.000	77.39	0.009
-3	22-Dec-97	34.02	-0.014	75.43	0.005	37.50	0.000	66	0.015	22	0.000	46	-0.082	15.67	0.000	113.33	0.000	92.29	0.000	76.77	-0.008
-2	23-Dec-97	36.75	0.080	76.31	0.012	37.50	0.000	66	0.000	21.01	-0.045	49.05	0.090	15.67	0.000	120.08	0.060	92.29	0.000	78.52	0.023
-1	24-Dec-97	36.75	0.000	76.53	0.003	37.50	0.000	66	0.000	21.01	0.000	48.5	-0.011	15.67	0.000	120.08	0.000	96	0.040	78.53	0.000
0	31-Dec-97	35.54	-0.033	75.61	-0.012	36.80	-0.018	66	0.000	22.1	0.052	48.5	0.000	15.67	0.000	120.08	0.000	96	0.000	76.94	-0.020
1	02-Jan-98	35.54	0.000	76.83	0.016	36.80	0.000	66	0.000	22	-0.005	48.5	0.000	15.67	0.000	120.08	0.000	96	0.000	77.23	0.004
2	05-Jan-98	36.92	0.039	76.92	0.001	37.50	0.019	66	0.000	22	0.000	[illegible]	0.000	15.50	-0.011	116.67	-0.028	96	0.000	77.88	0.008
3	06-Jan-98	37.04	0.003	77.24	0.004	37.50	0.000	66	0.000	22.1	0.005	47.78	-0.015	15.83	0.022	121.25	0.039	96	0.000	79.03	0.015
4	07-Jan-98	37.21	0.005	78.61	0.018	37.50	0.000	66	0.000	23.25	0.052	48.5	0.015	15.98	0.009	121.20	0.000	96	0.000	80.33	0.016
5	08-Jan-98	37.21	0.000	78.97	0.005	37.50	0.000	66	0.000	23.08	-0.007	48.99	0.010	16.13	0.010	122.49	0.011	96	0.000	81.57	0.015
6	09-Jan-98	42.59	0.144	80.07	0.014	37.49	-0.001	66	0.000	23	-0.003	48.79	-0.004	16.20	0.005	125.89	0.028	96	0.000	83.98	0.030
7	12-Jan-98	44.21	0.038	79.92	-0.002	37.50	0.001	66	0.000	23	0.000	48.72	0.019	16.05	-0.009	127.14	0.012	96	0.000	84.16	0.121
8	13-Jan-98	44.31	0.002	80.01	0.001	37.50	0.000	66	0.000	23	0.000	48.07	-0.013	16.67	0.038	131.07	0.031	96	0.000	82.49	-0.018
9	14-Jan-98	44.48	0.004	80.37	0.004	37.50	0.000	65	-0.015	23.04	0.002	50	0.019	16.67	0.000	134.62	0.027	96	0.000	80.78	-0.030
10	15-Jan-98	44.00	-0.011	80.61	0.003	37.50	0.000	65	0.000	23.84	0.035	50.09	0.002	16.67	0.000	134.28	-0.003	96	0.000	87.62	-0.024
11	16-Jan-98	44.00	0.000	80.56	-0.001	37.50	0.000	65	0.000	23	-0.035	51.96	0.038	16.95	0.017	132.27	-0.015	96	0.000	88.17	0.006
12	19-Jan-98	43.75	-0.006	80.41	-0.002	37.50	0.000	65	0.000	23.03	0.001	50	-0.038	16.59	-0.021	126.97	-0.040	96	0.000	87.87	-0.003
13	20-Jan-98	43.75	0.000	80.75	0.004	37.61	0.003	65	0.000	22.78	-0.011	50.04	0.001	17.54	0.057	126.67	-0.002	96	0.000	90.18	0.026
14	21-Jan-98	43.25	-0.011	79.79	-0.012	37.57	-0.001	65	0.000	23	0.010	50.04	0.000	18.27	0.042	126.67	0.000	96	0.000	88.87	-0.015
15	22-Jan-98	43.25	0.000	78.61	-0.015	37.50	-0.002	65	0.000	23	0.000	50.05	0.000	18.31	0.057	126.00	-0.005	96	0.000	86.81	-0.023
16	23-Jan-98	43.00	-0.006	78.49	-0.001	37.50	0.000	65	0.000	23	0.000	50.15	0.002	18.27	-0.002	131.43	0.043	96	0.000	87	0.002
17	26-Jan-98	41.84	-0.027	78.15	-0.004	37.50	0.000	65	0.000	23	0.000	50.92	0.015	18.63	-0.022	122.05	-0.071	96	0.000	86.34	-0.008
18	27-Jan-98	39.90	-0.046	77.79	-0.005	37.53	0.001	65	0.000	23	0.000	50.99	0.001	19.15	0.017	127.82	0.046	96	0.000	84.47	-0.022
19	28-Jan-98	39.93	0.000	77.43	-0.005	37.56	0.001	65	0.000	22.5	-0.022	50.92	-0.001	19.21	0.003	124.17	-0.029	110	0.146	81.6	-0.034
20	29-Jan-98	40.00	0.002	[illegible]	-0.017	38.75	0.058	65	0.000	22.67	0.008	51.04	0.002	19.33	0.006	124.00	-0.001	111	0.009	80.85	-0.009
21	02-Feb-98	40.00	0.000	76.61	0.006	37.93	-0.046	65	0.000	22.01	-0.029	51	-0.001	18.97	0.033	124.04	0.000	111	0.000	82.75	0.024
22	03-Feb-98	40.00	0.000	76.88	0.003	38.00	0.002	65	0.000	22.28	0.013	51.14	0.003	19.65	-0.016	126.90	0.023	111	0.000	82.91	0.002
23	04-Feb-98	40.00	0.000	77.28	0.005	38.16	0.004	65	0.000	22.43	0.008	50.5	-0.013	18.71	0.003	126.90	0.000	111	0.000	81.48	-0.017
24	05-Feb-98	40.00	0.000	79.17	0.024	38.25	0.002	64.67	-0.005	22	-0.018	50.28	-0.005	17.48	-0.114	129.18	0.018	111	0.000	82.27	0.010
25	06-Feb-98	40.00	0.000	79.36	0.002	37.50	-0.020	64.67	0.000	22.04	0.002	50.13	-0.003	17.83	0.021	130.49	0.010	111	0.000	81.38	-0.011
26	09-Feb-98	40.00	0.000	79.21	-0.002	37.51	0.000	67.97	0.051	23	0.044	49.97	-0.003	17.83	0.000	129.73	-0.006	111	0.000	81.08	-0.004
27	10-Feb-98	40.00	0.000	[illegible]	0.024	37.53	0.001	69	0.015	22.13	-0.038	50.44	0.009	16.81	-0.058	129.73	0.000	111	0.000	81.45	0.004
28	11-Feb-98	40.00	0.000	82.42	0.016	37.52	0.000	69	0.000	22.13	0.000	50.31	-0.003	17.00	0.012	130.41	0.005	111	0.000	81.98	0.007
29	12-Feb-98	39.84	-0.002	82.54	0.001	38.25	0.020	69	0.000	22.16	0.001	50.22	-0.002	18.00	0.059	130.61	0.001	111	0.000	82.06	0.001
30	13-Feb-98	36.85	0.000	82.26	-0.003	39.00	0.020	69	0.000	23	0.038	49.41	-0.016	16.85	-0.064	130.43	-0.001	114	0.027	81.12	-0.011
31	16-Feb-98	40.00	0.001	80.45	-0.022	37.50	-0.038	69	0.000	22	-0.043	50	0.012	16.69	-0.008	131.33	0.007	114	0.000	81.27	0.002
32	17-Feb-98	40.00	0.000	81.49	0.013	37.50	0.000	69	0.000	22.04	0.002	50	0.000	16.80	0.007	131.62	0.002	114	0.000	81.07	-0.002
33	18-Feb-98	40.50	0.013	82.36	0.011	37.57	0.002	67	-0.029	22.04	0.000	49.99	0.000	17.00	0.012	133.23	0.012	114	0.000	79.95	-0.014
34	19-Feb-98	40.50	0.000	84.42	0.025	37.59	0.001	69.5	0.037	22	-0.002	50.07	0.002	17.33	0.020	132.00	-0.009	128.43	0.127	78.33	-0.020
35	20-Feb-98	21.00	-0.309	90.82	0.076	37.88	0.008	69.5	0.000	22	0.000	47	-0.061	17.33	0.000	132.73	0.006	123	-0.042	79.68	0.017
36	23-Feb-98	32.25	0.162	89.62	-0.013	37.88	0.000	69.5	0.000	22.44	0.020	49.97	0.063	17.33	0.000	132.00	-0.006	129	0.049	81.19	0.019
37	24-Feb-98	32.25	0.000	85.97	-0.041	37.50	-0.010	69	-0.007	22.98	0.024	51	0.021	21.49	0.240	131.33	-0.005	129	0.000	81.83	0.008
38	25-Feb-98	32.19	-0.002	84.06	-0.022	37.50	0.000	69	0.000	22.98	0.000	51	0.000	22.22	0.034	132.18	0.006	129	0.000	81.68	-0.002
39	26-Feb-98	34.50	0.072	83.81	-0.003	37.75	0.007	69	0.000	22.88	-0.004	50.97	-0.001	22.51	0.013	132.14	0.000	129	0.000	80.49	-0.015
40	27-Feb-98	34.50	0.000	84.38	0.007	37.75	0.000	69	0.000	22.37	-0.022	30	-0.411	23.01	0.022	133.29	0.009	129	0.000	81.48	0.012
41	02-Mar-98	34.50	0.000	84.83	0.005	37.75	0.000	69	0.000	22.37	0.000	50.48	0.683	23.32	0.014	132.00	-0.010	129	0.000	80.34	-0.014
42	03-Mar-98	31.18	0.049	85.59	0.009	37.75	0.000	69	0.000	22	-0.017	50	-0.010	23.17	-0.007	132.49	0.004	129	0.000	82.18	0.023
43	04-Mar-98	31.18	0.000	85.89	0.004	37.50	-0.007	69	0.000	22.41	0.019	51.05	0.021	22.98	-0.008	132.08	-0.003	129	0.000	75	-0.087
44	05-Mar-98	31.40	0.006	85.11	-0.009	37.50	0.000	69	0.000	21.52	-0.040	51.08	0.000	22.98	0.000	132.00	0.000	129	0.000	76.11	0.015
45	06-Mar-98	37.25	0.023	85.93	0.010	37.50	0.000	69	0.000	22.34	0.038	51.05	0.000	22.67	-0.013	132.81	0.006	129	0.000	76.97	0.011
46	09-Mar-98	41.07	0.103	85.83	-0.001	37.50	0.000	69	0.000	22.34	0.000	51.04	0.000	21.89	-0.034	132.00	-0.006	129	0.000	76.58	-0.005
47	10-Mar-98	41.00	-0.002	85.81	0.000	37.50	0.000	69	0.000	22.48	0.006	49.25	-0.035	21.89	0.000	132.00	0.000	129	0.000	77.56	0.013
48	11-Mar-98	41.00	0.000	83.72	-0.024	37.50	0.000	69	0.000	22.48	0.000	51.5	0.046	21.89	0.000	132.00	0.000	115	-0.109	79.04	0.019
49	12-Mar-98	41.00	-0.024	78.43	-0.061	37.50	0.000	69	0.000	22.04	-0.020	51	-0.010	17.00	-0.224	131.97	0.000	115	0.000	78.55	-0.006
50	13-Mar-98	40.08	0.002	78.81	0.008	37.50	0.000	70	0.014	22.5	0.021	50.4	-0.012	17.08	0.005	130.67	-0.010	127	0.104	77	-0.020
51	16-Mar-98	40.08	0.000	77.54	-0.030	37.50	0.000	70	0.000	22.5	0.000	51	0.012	17.69	0.035	128.40	-0.017	129.89	0.023	77.74	0.010
52	17-Mar-98	39.17	-0.022	79.16	0.021	34.47	-0.081	70	0.000	22.38	-0.005	51.43	0.008	17.58	-0.006	128.40	0.000	130	0.001	70.57	-0.092
53	18-Mar-98	40.00	0.021	79.70	0.007	33.77	-0.020	70	0.000	22.04	-0.014	50.95	-0.009	17.33	-0.014	130.00	0.012	130	0.000	70.78	0.003
54	19-Mar-98	40.00	0.000	78.86	-0.011	33.75	0.000	70	0.000	22.04	0.000	50.98	0.001	17.33	0.000	126.00	-0.031	131	0.008	69.02	-0.025
55	20-Mar-98	40.00	0.000	78.64	-0.003	33.75	0.000	69	-0.014	22.04	0.000	51.5	0.010	17.33	0.000	126.54	0.004	133.87	0.023	65.67	-0.049
56	23-Mar-98	40.00	0.000	79.04	0.005	33.66	-0.003	69	0.000	22	-0.002	50.91	-0.011	20.00	0.154	126.62	0.001	133.87	0.000	69.89	0.066
57	24-Mar-98	40.00	0.000	78.49	-0.007	33.60	-0.001	68	-0.014	22.03	0.001	51.08	0.004	18.70	-0.015	124.75	-0.015	133.87	0.000	70.58	0.008
58	25-Mar-98	40.00	0.000	76.76	-0.022	33.00	-0.018	68	0.000	22.03	0.000	51.5	0.008	18.86	0.009	124.67	-0.001	133.38	-0.004	70	-0.008
59	26-Mar-98	40.00	0.000	76.30	-0.006	33.35	0.010	68	0.000	22.3	0.012	51	-0.010	18.92	0.002	124.56	-0.001	130	-0.025	70.07	0.001
60	27-Mar-98	40.00	0.000	75.64	-0.009	33.74	0.012	68	0.000	22.5	0.009	51	0.000	18.98	0.003	121.24	-0.027	135	0.038	69.05	-0.015
61	30-Mar-98	40.00	0.000	77.46	0.024	33.53	-0.006	68	0.000	22	-0.022	51	0.000	18.65	-0.017	120.00	-0.010	130	-0.037	67.42	-0.024

KENYA AIRWAYS		NATION		NIC		SASINI		STAND CHART		TOTAL KENYA		TPS-SERENA		UCHUMI		UNILEVER TEA		WILLIAMSON TEA		NSE 20 Share Index	
PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	INDEX	MKT RETURNS
8.58	0.282	42.22	0.004	41.77	-0.028	85.75	-0.014	29.54	-0.001	57.4	-0.012	17.02	0.001	40.18	0.004	121	0.002	122.93	0.024	3,436.12	-0.003
7.51	-0.210	42.13	-0.002	40.28	-0.036	85.33	-0.005	29.69	0.005	57.4	0.000	16.5	-0.031	40.00	-0.004	120	-0.008	125.22	0.019	3,411.31	-0.007
7.6	0.012	42.13	0.000	39.98	-0.007	85.33	0.000	29.82	0.004	57.4	0.000	16.5	0.000	40.34	0.009	120	0.000	128.65	0.027	3,447.41	0.011
7.6	0.000	43.97	0.044	39.54	-0.011	85.33	0.000	29.76	-0.002	57.33	-0.001	16.53	0.002	39.55	-0.020	121	0.008	127	-0.013	3,420.58	-0.008
7.58	-0.003	44.68	0.016	38.50	-0.026	86.65	0.020	29.96	0.007	56.5	-0.014	16.53	0.000	40.25	0.018	121	0.000	127	0.000	3,425.05	0.001
7.58	0.000	38.33	-0.142	38.48	0.000	83.00	-0.055	29.93	-0.001	57	0.009	16.5	-0.002	40.25	0.000	121	0.000	127	0.000	3,416.81	-0.002
8.90	0.162	43.00	0.122	39.18	0.018	83.00	0.000	30.00	0.002	57	0.000	16.52	0.001	39.08	-0.030	121	0.000	124.96	-0.016	3,403.84	-0.004
7.51	-0.162	42.07	-0.022	38.55	-0.016	83.00	0.000	30.01	0.000	57.5	0.009	16.64	0.007	38.21	-0.022	120.19	-0.007	124.96	0.000	3,415.86	0.003
7.54	0.004	42.79	0.017	38.68	0.003	83.33	0.005	29.75	-0.009	56	-0.043	16.52	-0.007	38.34	0.003	120.19	0.000	125	0.000	3,411.79	-0.001
7.51	-0.004	43.19	0.009	39.18	0.014	83.37	0.001	29.89	0.006	58.5	0.027	16.52	0.000	40.29	0.051	120	-0.002	127	0.016	3,425.80	0.004
7.51	0.000	41.88	-0.030	39.62	0.011	83.59	0.003	29.73	-0.006	56.09	-0.025	16.5	-0.001	38.33	-0.049	122.88	0.024	127	0.000	3,398.15	-0.008
7.55	0.005	42.74	0.021	39.21	-0.010	83.45	-0.002	29.63	-0.003	56	-0.002	16.26	-0.015	38.01	-0.008	122.88	0.000	127	0.000	3,381.06	-0.004
7.5	-0.007	42.33	-0.010	39.90	0.018	83.45	0.000	29.61	-0.001	54.25	-0.014	16.06	-0.012	38.03	0.001	122.88	0.000	120	-0.055	3,358.44	-0.007
7.43	-0.009	42.33	0.000	39.92	0.000	83.33	-0.002	29.36	-0.008	55.82	0.029	15.98	-0.005	37.99	-0.001	122.88	0.000	120	0.000	3,314.74	-0.013
7.43	0.000	41.91	-0.010	39.90	-0.001	83.33	0.000	29.33	-0.001	55.82	0.000	15.82	-0.010	37.50	-0.013	122	-0.007	120	0.000	3,321.49	0.002
7.44	0.001	42.31	0.010	40.24	0.009	83.33	0.000	29.11	-0.007	53.69	-0.038	15.97	0.009	37.80	0.008	122	0.000	120	0.000	3,322.70	0.000
7.33	-0.015	42.56	0.006	39.48	-0.019	83.33	0.000	29.05	-0.002	53.5	-0.004	15.1	-0.054	37.66	-0.004	119	-0.025	128	0.067	3,312.58	-0.003
7.25	-0.011	42.33	-0.005	39.89	0.010	83.33	0.000	29.07	0.001	54.5	0.019	14.76	-0.023	37.00	-0.018	120	0.008	128	0.000	3,309.45	-0.001
7.12	-0.018	42.62	0.007	42.04	0.054	83.33	0.000	29.03	-0.002	52.07	-0.045	14.41	-0.024	36.92	-0.002	120	0.000	128	0.000	3,298.65	-0.003
7.18	0.008	48.18	0.130	39.43	-0.062	82.01	-0.021	29.02	0.000	53	0.018	13.96	-0.031	36.14	-0.021	120	0.000	128	0.000	3,300.81	0.001
7.2	0.003	42.52	-0.117	40.28	0.022	81.67	-0.006	29.08	0.001	53	0.000	14	0.003	38.80	0.074	120	0.000	128	0.000	3,284.18	-0.005
7.09	-0.015	42.50	-0.001	40.00	-0.007	82.19	0.006	29.05	0.000	51	-0.038	13.91	-0.006	36.64	-0.056	120	0.000	128	0.000	3,317.55	0.010
7.13	0.006	42.29	-0.005	39.68	-0.008	82.19	0.000	29.31	0.009	52.7	0.033	13.91	0.000	36.76	0.003	120	0.000	128	0.000	3,302.13	-0.005
7.21	0.011	42.33	0.001	40.64	0.024	82.19	0.000	29.31	0.000	51	-0.032	13.92	0.001	37.00	0.007	120	0.000	100	-0.219	3,314.85	0.004
7.19	-0.003	41.90	-0.010	39.94	-0.017	82.19	0.000	29.29	0.000	51.23	0.005	13.89	-0.002	36.50	-0.014	118	-0.017	122	0.220	3,290.20	-0.007
7.19	0.000	41.78	-0.003	40.22	0.007	82.19	0.000	28.85	-0.015	51.54	0.006	13.82	-0.005	38.84	0.084	118	0.000	122	0.000	3,308.34	0.006
7.27	0.011	42.00	0.005	38.48	-0.043	82.19	0.000	29.21	0.012	51.44	-0.002	13.7	-0.009	36.82	-0.082	120	0.017	122	0.000	3,290.84	-0.005
7.13	-0.019	42.02	0.000	40.46	0.052	82.19	0.000	29.25	0.001	51.44	0.000	13.76	0.006	37.34	0.014	120	0.000	122	0.000	3,278.10	-0.004
7.12	-0.001	42.66	0.015	41.28	0.020	82.19	0.000	29.27	0.000	51.5	0.001	13.76	0.000	37.17	-0.005	118.67	-0.011	122	0.000	3,275.19	-0.001
7.21	0.013	42.16	-0.012	39.88	-0.034	80.50	-0.027	29.23	-0.001	51	-0.010	13.83	0.004	37.25	0.002	120	0.011	122	0.000	3,256.00	-0.006
7.08	-0.018	42.57	0.010	39.95	0.002	80.50	0.000	29.33	0.004	52	0.020	13.81	-0.001	32.00	-0.141	120	0.000	122	0.000	3,215.82	-0.012
7.06	-0.003	41.87	-0.016	40.00	0.001	82.64	0.035	29.06	-0.010	52	0.000	13.85	0.003	34.57	0.080	120	0.000	122	0.000	3,219.80	0.001
7.08	0.003	43.32	0.035	39.56	-0.010	81.33	-0.021	28.80	-0.009	52.5	0.010	13.88	0.002	35.85	0.037	120	0.000	122	0.000	3,210.78	-0.002
7.06	-0.003	43.11	-0.005	40.04	0.011	81.33	0.000	28.85	0.005	51.06	-0.027	13.85	-0.002	36.33	0.013	120	0.000	122	0.000	3,208.79	-0.001
7.12	0.008	41.87	-0.029	40.00	-0.001	82.66	0.022	28.63	-0.011	52.03	0.019	14.09	0.017	37.14	0.022	120	0.000	122	0.000	3,185.83	-0.007
7.11	-0.001	42.25	0.009	40.00	0.000	82.66	0.000	28.07	-0.020	51.99	-0.001	13.87	-0.016	37.00	-0.004	120	0.000	122	0.000	3,188.23	0.001
7.09	-0.003	42.15	-0.002	41.40	0.035	82.66	0.000	28.26	0.007	51.1	-0.017	13.84	-0.002	36.82	-0.005	120.11	0.001	122	0.000	3,159.32	-0.009
7.05	-0.006	43.88	0.041	43.83	0.059	81.67	-0.012	28.08	-0.007	51.02	-0.002	13.69	-0.011	36.25	-0.015	120	-0.001	122	0.000	3,151.58	-0.002
7.23	0.026	42.00	-0.043	38.60	-0.119	81.51	-0.002	27.88	-0.008	51	0.000	13.76	0.005	37.09	0.023	120.74	0.006	122	0.000	3,088.91	-0.020
7.12	-0.015	42.00	0.000	39.93	0.034	81.51	0.000	27.85	-0.001	51	0.000	13.66	-0.008	36.34	-0.020	120.74	0.000	122	0.000	3,091.67	0.001
7	-0.017	42.98	0.023	37.64	-0.057	81.33	-0.003	28.01	0.006	52	0.020	13.76	0.007	37.98	0.045	120	-0.006	122	0.000	3,085.89	-0.002
7.02	0.003	43.56	0.013	37.52	-0.003	59.33	-0.003	28.10	0.003	52	0.000	13.82	0.003	37.00	-0.026	120	0.000	80.5	-0.340	3,029.00	-0.018
7.15	0.019	43.88	0.006	37.78	0.007	59.33	0.000	29.17	0.038	50	-0.038	13.89	0.005	37.00	0.000	117	-0.025	80.66	0.002	3,044.73	0.005
7.12	-0.004	42.83	-0.024	37.91	0.003	59.33	0.000	28.69	-0.016	52	0.040	13.97	0.006	37.00	0.000	114.53	-0.021	80.66	0.000	3,046.60	0.001
7.2	0.011	42.93	0.002	37.54	-0.010	59.33	0.000	29.96	0.044	52	0.000	13.9	-0.005	37.25	0.007	110	-0.040	81	0.004	3,046.64	0.000
7.18	-0.003	43.93	0.023	37.60	0.001	59.33	0.000	29.89	-0.002	52.5	0.010	13.71	-0.014	37.00	-0.007	110	0.000	82	0.012	3,041.48	-0.002
7.23	0.007	42.88	-0.024	36.73	-0.023	59.33	0.000	28.79	-0.037	52.18	-0.006	13.71	0.000	36.86	-0.004	110	0.000	82	0.000	3,040.11	0.000
7.22	-0.001	43.13	0.006	38.00	0.035	59.33	0.000	28.93	0.005	51	-0.023	13.75	0.003	36.98	0.003	110	0.000	82	0.000	3,045.50	-0.001
7.19	-0.004	43.33	0.005	37.31	-0.018	59.33	0.000	30.48	0.054	51	0.000	13.8	0.004	37.58	0.017	110	0.000	82	0.000	3,068.72	0.008
7.07	-0.017	43.17	-0.004	37.74	0.011	58.68	-0.011	29.41	-0.035	51	0.000	13.84	0.003	37.59	0.000	110	0.000	81	-0.012	3,077.50	0.003
7.21	0.020	43.33	0.004	37.71	-0.001	58.68	0.000	29.39	-0.001	52	0.020	13.97	0.009	37.00	-0.016	110	0.000	83	0.025	3,078.97	0.000
7.23	0.003	43.04	-0.007	39.69	0.052	58.68	0.000	29.41	0.001	52	0.000	13.97	0.000	37.12	0.003	110	0.000	83	0.000	3,077.97	0.000
7.31	0.011	43.33	0.007	39.20	-0.012	59.33	0.011	29.87	0.016	52	0.000	14.04	0.005	37.28	0.004	111	0.009	83	0.000	3,063.05	-0.005
7.19	-0.016	42.71	-0.014	39.78	0.015	62.73	0.057	29.36	-0.017	52	0.000	13.88	-0.011	36.37	-0.024	111	0.000	83	0.000	3,073.97	0.004
7.23	0.006	43.33	0.015	40.03	0.006	62.73	0.000	29.41	0.002	52	0.000	14	0.009	37.01	0.018	111	0.000	83	0.000	3,066.67	-0.002
7.39	0.022	42.91	-0.010	40.00	-0.001	62.73	0.000	29.32	-0.003	52.17	0.003	13.78	-0.016	37.71	0.019	111	0.000	83	0.000	3,069.46	0.001
7.35	-0.005	42.98	0.001	40.74	0.018	63.00	0.004	29.44	0.004	52	-0.003	13.94	0.012	38.00	0.008	107.71	-0.030	83	0.000	3,078.42	0.003
7.38	0.004	43.19	0.005	39.90	-0.021	62.67	-0.005	29.40	-0.001	52	0.000	14.22	0.020	38.03	0.000	107.71	0.000	81	-0.024	3,088.69	0.003
7.43	0.007	43.30	0.003	40.47	0.014	62.67	0.000	30.64	0.042	52	0.000	14.45	0.016	39.04	0.027	107.71	0.000	85.5	0.056	3,110.85	0.007
7.3	-0.017	43.37	0.002	39.94	-0.013	62.67	0.000	29.06	-0.052	52	0.000	14.04	-0.028	38.00	-0.027	113	0.049	85.5	0.000	3,113.12	0.001
7.55	0.032	43.21	-0.004	40.80	0.021	62.67	0.000	30.21	0.040	52	0.000	14	-0.003	39.00	0.026	113	0.000	86	0.006	3,117.47	0.001
7.45	-0.013	43.67	0.011	40.00	-0.020	62.67	0.000	31.20	0.033	52.5	0.010	14	0.000	39.00	0.000	113	0.000	86	0.000	3,115.14	-0.001
7.37	-0.008	43.67	0.000	39.68	-0.008	62.67	0.000	31.11	-0.003	52.5	0.000	13.77	-0.016	39.00	0.000	113	0.000	86	0.000	3,118.78	0.001
7.54	0.023	43.33	-0.008	40.27	0.015	61.67	-0.016	31.85	0.024	52.5	0.000	14	0.017	39.62	0.016	113	0.000	86	0.000	3,273.16	0.050
7.49	-0.007	43.27	-0.001	40.38	0.003	61.67	0.000	32.31	0.014	52.5	0.000	14.18	0.013	40.79	0.030	115.38	0.021	85.8	-0.002	3,341.56	0.021
7.73	0.032	43.27	0.000	40.40	0.000	61.67	0.000	32.26	-0.002	52.5	0.000	14.16	-0.001	41.88	0.027	134	0.161	85.8	0.000	3,338.49	-0.001
8.15	0.056	43.33	0.002	40.54	0.003	61.67	0.000	33.28	0.031	53.27	0.015	14.77	0.043	44.83	0.070	134	0.000	85.8	0.000	3,341.56	0.001
8.23	0.009	44.56	0.028	41.16	0.015	61.67	0.000	32.71	-0.016	53.27	0.000	15.11	0.023	45.00	0.004	134	0.000	85.8	0.000	3,338.09	-0.001
9.11	0.107	43.33	-0.027	41.34	0.004	61.67	0.000	33.06	0.010	54	0.014	15.35	0.016	46.15	0.026	134	0.000	90.5	0.055	3,338.49	0.000
8.9	-0.023	43.59	0.006	40.85	-0.012	62.67	0.014	33.25	0.006	54	0.000	15.22	-0.008	49.57	0.074	134	0.000	90.5	0.000	3,338.49	0.000
8.96	0.007	43.86	0.006	41.75	0.022	62.67	0.000	33.67	0.012	56	0.037	15.32	0.007	50.16	0.012	131.17	-0.021	88.5	-0.022	3,377.34	0.012
9.08	0.013	43.93	0.002	40.95	-0.019	62.68	0.000	33.27	-0.012	56	0.000	15.34	0.001	50.06	-0.002	131	-0.001	88.5	0.000	3,369.65	-0.002
8.97	-0.012	43.75	-0.004	41.63	0.017	62.68	0.000	33.25	-0.001	56	0.000	15.25	-0.006	51.28	0.024	131	0.000	88.5	0.000	3,362.29	-0.002
9	0.003	43.67	-0.002	41.76	0.003	63.00	0.005	33.38	0.004	58.27	0.041	15.26	0.001	50.00	-0.025	131	0.000	88.5	0.000	3,343.52	-0.006
9	0.000	44.00	0.008	41.56	-0.005	63.33	0.005	33.36	-0.001	62.16	0.067	15.78	0.034	49.64	-0.007	130	-0.008	88.5	0.000	3,353.26	0.003
9.04	0.004	43.96	-0.001	40.80	-0.018	63.33	0.000	33.25	-0.003	66.96	0.081	16.39	0.039	49.91	0.005	130	0.000	88.5	0.000	3,335.81	-0.005
9.01	-0.003	44.22	0.006	40.87	0.002	63.00	-0.005	33.38	0.004	73.24	0.110	17.8	0.086	47.38	-0.051	130	0.000	88.5	0.000	3,344.91	0.003
9.05	0.004	44.29	0.002	40.21	-0.016	63.00	0.000	32.80	-0.018	73.08	-0.002	18.59	0.044	46.16	-0.026	128.02	-0.015	93	0.051	3,329.74	-0.005
9.01	-0.004	44.03	-0.006	41.47	0.031	63.19	0.003	32.05	-0.023	69.2	-0.053	19.84	0.067	45.50	-0.014	128.02	0.000	93	0.000	3,340.27	0.003
8.54	-0.052	43.94	-0.002	40.54	-0.023	63.00	-0.003	32.15	0.003	63.86	-0.077	16.45	-0.171	44.50	-0.022	128.02	0.000	93	0.000	3,335.93	-0.001
8.44	-0.012	44.04	0.002	40.00	-0.013	63.31	0.005	32.11	-0.001	63.86	0.000	16.24	-0.013	42.01	-0.056	128.02	0.000	104.14	0.120	3,325.94	-0.003
7.74	-0.083	44.08	0.001	41.51	0.038	63.33	0.000	31.56	-0.017	64.5	0.010	16.12	-0.007	42.74	0.017	130.19	0.017	104.14	0.000	3,254.27	-0.022
7.36	-0.049	44.30	0.005	40.43	-0.026	60.05	-0.052	31.39	-0.005	63	-0.023	15.49	-0.039	40.71	-0.047	130	-0.001	105	0.008	3,277.59	0.007
7.32	-0.005	44.33	0.001	40.28	-0.004	58.33	-0.029	31.85	0.015	63.69	0.011	15.53	0.003	42.52	0.044	127	-0.023	115	0.095	3,311.48	0.010
7.65	0.045	43.83	-0.011	40.22	-0.001	58.33	0.000	31.77	-0.003	63.69	0.000	15.53	0.000	44.15	0.038	132.49	0.043	115	0.000	3,279.40	-0.010
7.62	-0.004	43.99	0.003	40.79	0.014	58.33	0.000	31.81	0.001	63	-0.011	16.27	0.048	44.05	-0.002	132.49	0.000	110	-0.043	3,275.64	-0.001
7.8	0.024	44.65	0.015	41.30	0.012	60.00	0.029	31.56	-0.008	62.42	-0.009	16.05	-0.014	43.62	-0.010	134	0.011	110	0.000	3,271.35	-0.001
7.81	0.001	44.63	0.000	40.39	-0.022	60.00	0.000	30.97	-0.018	62.42	0.000	15.86	-0.012	45.21	0.036	130	-0.030	110	0.000	3,269.38	0.006
7.6	-0.027	44.96	0.007	40.01	-0.009	60.00	0.000	31.29	0.010	59.25	-0.051	15.67	-0.011	44.05	-0.026	130	0.000	111.03	0.009	3,257.00	-0.010
7.57	-0.004	44.83	-0.003	40.72	0.018	61.33	0.022	31.37	0.003	59.03	-0.004	15.98	0.020	44.49	0.010	131.9	0.015	111.03	0.000	3,252.98	-0.001
8	0.057	44.83	0.000	40.47	-0.006	61.33	0.000	31.21	-0.005	59.03	0.000	16.02	0.002	43.53	-0.021	131.9	0.000	111.03	0.000	3,236.59	-0.005
7.83	-0.021	45.00	0.004	40.44	-0.001	61.33	0.000	31.50	0.009	59.03	0.000	16.02	0.000	43.82	0.007	131.9	0.000	111.03	0.000	3,222.27	-0.004
7.73	-0.013	44.89	-0.003	39.67	-0.019	66.67	0.087	31.10	-0.013	58	-0.017	16.03	0.001	44.44	0.014	130	-0.014	111.03	0.000	3,224.64	0.001
7.83	0.013	45.03	0.003	41.42	0.044	70.67	0.060	30.90	-0.006	58	0.000	16.02	-0.001	43.74	-0.016	129.95	0.000	111.03	0.000	3,202.97	-0.007
7.77	-0.008	45.00	-0.001	41.30	-0.003	73.73	0.043	29.99	-0.029	59.16	0.020	16.1	0.005	43.66	-0.002	134.79	0.037	111.03	0.000	3,213.30	0.003
7.8	0.004	45.19	0.004	40.39	-0.022	73.80	0.001	29.69	-0.010	60	0.014	16.13	0.002	43.98	0.007	125	-0.073	120	0.081	3,191.99	-0.007
7.78	-0.003	45.19	0.000	40.22	-0.004	75.33	0.021	29.81	0.004	60	0.000	16.35	0.014	43.63	-0.008	125	0.000	120	0.000	3,190.67	0.000
7.72	-0.008	45.33	0.003	40.31	0.002	76.33	0.012	30.00	0.006	60	0.000	16.5	0.009	43.82	0.004	123.21	-0.014	120	0.000	3,185.61	-0.002
7.57	-0.019	45.00	-0.007	42.29	0.049	74.79	-0.019	30.02	0.001	60	0.000	16.44	-0.004	44.31	0.011	123.21	0.000	120	0.000	3,115.05	-0.022
7.64	0.009	45.00	0.000	41.21	-0.026	75.43	0.008	29.99	-0.001	60	0.000	16.39	-0.003	44.28	-0.001	123.21	0.000	122	0.017	3,087.82	-0.009
7.67	0.004	45.00	0.000	40.57	-0.016	74.75	-0.008	29.09	-0.030	60	0.000	16.49	0.006	43.91	-0.008	120	-0.026	122	0.000	3,072.30	-0.005
7.72	0.007	45.04	0.001	42.39	0.045	74.60	-0.002	27.57	-0.052	60	0.000	16.5	0.001	44.01	0.002	120	0.000	121.25	-0.006	3,057.19	-0.005
7.56	-0.021	45.00	-0.001	42.28	-0.003	73.47	-0.014	28.75	-0.030	60	0.000	16.51	0.001	44.00	0.000	120	0.000	122	0.006	3,052.21	-0.002
7.56	0.000	43.33	-0.037	40.74	-0.036	72.67	-0.010	27.13	0.014	60	0.000	16.63	0.007	44.91	0.021	118	-0.017	122	0.000	3,056.78	0.001
7.52	-0.005	45.00	0.038	42.30	0.038	72.67	0.000	27.69	0.020	58.5	-0.025	16.62	-0.001	44.86	-0.001	115	-0.025	122	0.000	3,041.78	-0.005
7.53	0.001	45.06	0.001	38.82	-0.086	72.67	0.000	27.79	0.004	58	-0.009	16.59	-0.002	47.38	0.056	115	0.000	125	0.025	3,038.38	-0.001
7.52	-0.001	45.00	-0.001	40.13	0.008	60.54	-0.167	28.13	0.012	57.19	-0.014	16.55	-0.002	44.96	-0.051	115	0.000	125	0.000	3,033.85	-0.001
7.52	0.000	44.97	-0.001	40.17	0.001	61.67	0.017	28.11	0.000	56.5	-0.012	16.52	-0.002	45.00	0.001	115	0.000	125	0.000	3,038.81	0.002
7.51	-0.001	44.97	0.000	40.04	-0.003	67.29	0.084	28.23	0.004	56.5	0.000	16.57	0.003	44.85	-0.003	115	0.000	125	0.000	3,046.97	0.003
7.49	-0.003	45.29	0.007	34.67	-0.134	61.33	-0.089	28.15	-0.003	54.5	-0.035	16.58	0.001	44.80	-0.001	114.86	-0.001	129.94	0.040	3,036.90	-0.003
7.46	-0.004	45.56	0.006	41.60	0.200	60.67	-0.010	28.04	-0.004	54	-0.009	16.5	-0.005	44.67	-0.003	119.41	0.039	130	0.000	3,034.65	-0.001
7.49	0.004	45.67	0.002	41.44	-0.004	61.33	0.010	28.12	0.003	54	0.000	16.5	0.000	44.48	-0.004	119.74	0.003	130	0.000	3,022.68	-0.004
7.49	0.000	45.50	-0.004	41.53	0.002	60.22	-0.017	28.01	-0.004	54	0.000	16.5	0.000	44.97	0.011	119.74	0.000	131	0.008	3,016.40	-0.002
7.45	-0.005	46.00	0.011	40.41	-0.027	60.67	0.007	28.01	0.000	54	0.000	16.51	0.001	44.98	0.000	120.27	0.004	130	-0.008	3,012.29	-0.001
7.2	-0.034	46.70	0.015	38.87	-0.038	60.67	0.000	28.03	0.000	54	0.000	16.5	-0.001	44.97	0.000	119.88	-0.003	130.97	0.007	3,015.01	0.001
7.25	0.007	47.05	0.007	40.08	0.032	60.67	0.000	28.00	-0.001	54	0.000	16.2	-0.018	44.01	-0.021	120	0.001	130	-0.007	3,005.69	-0.003
7.11	-0.019	48.39	0.029	38.86	-0.030	60.67	0.000	28.28	0.010	54	0.000	16.31	0.007	43.87	-0.003	120	0.000	134	0.031	2,991.06	-0.005
7.1	-0.001	48.38	0.000	38.18	-0.017	88.00	0.440	28.04	-0.009	52	-0.037	16.48	0.010	43.58	-0.007	120	0.000	134	0.000	2,974.30	-0.006
7.06	-0.006	48.23	-0.003	38.37	0.005	88.00	0.000	28.27	0.008	52.44	0.008	16.48	0.000	40.16	-0.078	120	0.000	134	0.000	2,971.40	-0.001
7.08	0.003	48.41	0.004	38.38	0.000	87.33	-0.008	28.24	-0.001	53	0.011	16.48	0.000	44.96	0.120	120	0.000	134	0.000	2,967.23	-0.001
8	0.130	49.00	0.012	38.28	-0.003	88.00	0.007	28.10	-0.005	51	-0.038	14.74	-0.106	43.62	-0.030	120	0.000	134	0.000	2,957.03	-0.003
7.31	-0.086	48.88	-0.002	37.74	-0.014	86.88	-0.013	28.06	-0.002	51	0.000	13.82	-0.056	41.33	-0.052	120	0.000	134	0.000	2,973.12	0.005
7.96	0.082	48.50	-0.008	37.68	-0.002	86.43	-0.005	28.34	0.010	51.57	0.011	13.76	-0.011	40.00	-0.032	120	0.000	134	0.000	2,984.11	0.004

DATE
SANDERS
BARCLAYS
BRITOIL
ROC LIMITED
D'ARCY
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FIRESTONE
K.P.A.L.C.
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KENYA AIRWAYS		NATION		NIC		SASINI		STAND CHART		TOTAL KENYA		TPS-SERENA		UCHUMI		UNILEVER TEA		WILLIAMSON TEA		NSE 20 Share Index	
PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	PRICE	RETURNS	INDEX	MKT RETURNS
6.1	0.017	44.83	0.004	13	-0.030	13.2	0.000	53.90	0.001	15.5	-0.031	16	0.000	15	0.000	46.50	0.000	24	0.000	1,504.20	0.040
6.1	0.000	44.75	0.005	13.4	0.031	13.2	0.000	54.52	0.012	15.5	0.000	16	0.000	15	0.000	46.50	0.000	24	0.000	1,538.12	0.023
6.03	-0.011	44.58	-0.004	13.4	0.000	13.2	0.000	54.38	-0.003	15.41	-0.006	16.1	0.006	15	0.000	46.50	0.000	24	0.000	1,565.84	0.018
6.07	0.007	44.51	-0.002	13.25	-0.011	13	-0.015	53.88	-0.009	15.41	0.000	16.2	0.006	15	0.000	46.50	0.000	24	0.000	1,572.12	0.004
6.05	-0.003	44.5	0.000	13.32	0.005	13	0.000	53.91	0.001	15.5	0.006	16.1	-0.006	15	0.000	46.50	0.000	24	0.000	1,578.21	0.004
6.1	0.008	44.5	0.000	13.25	-0.005	13	0.000	53.75	-0.003	15.5	0.000	16.2	0.006	15	0.000	47.00	0.011	24	0.000	1,551.06	-0.017
6.09	-0.002	43	-0.034	13.3	0.004	13	0.000	53.70	-0.001	15.5	0.000	16.2	0.000	15	0.000	47.00	0.000	24	0.000	1,550.88	0.000
6.08	-0.002	42.97	-0.001	13.3	0.000	13	0.000	54.00	0.006	15.5	0.000	16	-0.012	15	0.000	47.00	0.000	24	0.000	1,488.59	-0.040
6.04	-0.007	43	0.001	13.3	0.000	13	0.000	54.22	0.004	15.5	0.000	16	0.000	15	0.000	47.00	0.000	26	0.083	1,507.11	0.012
6.05	0.002	43	0.000	13.3	0.000	13	0.000	54.48	0.005	15.49	-0.001	16	0.000	15	0.000	47.00	0.000	27	0.038	1,518.92	0.008
6	-0.008	43.28	0.007	13.23	-0.005	13	0.000	54.81	0.006	15.07	-0.027	16.2	0.013	15	0.000	47.00	0.000	27	0.000	1,546.19	0.018
5.96	-0.007	43.5	0.005	13.32	0.007	12.75	-0.019	54.97	0.003	15	-0.005	16.2	0.000	15	0.000	47.00	0.000	27	0.000	1,551.63	0.004
6	0.007	43.75	0.006	13.25	-0.005	12.75	0.000	54.87	-0.002	15	0.000	16.2	0.000	15	0.000	47.00	0.000	27	0.000	1,554.07	0.002
5.98	-0.003	43.75	0.000	13.25	0.000	12.75	0.000	55.25	0.007	15	0.000	16.1	-0.006	15	0.000	47.00	0.000	27	0.000	1,560.51	0.004
6	0.003	44.25	0.011	13.25	0.000	12.75	0.000	55.34	0.002	15	0.000	16.3	0.012	15	0.000	36.00	-0.234	27	0.000	1,559.79	0.000
6	0.000	46.25	0.023	13.5	0.019	12.75	0.000	55.48	0.003	15	0.000	16.1	-0.012	15	0.000	36.00	0.000	27	0.000	1,565.07	0.003
5.99	-0.002	45.65	0.009	13.53	0.002	13	0.020	55.63	0.001	15	0.000	16.3	0.012	15	0.000	43.00	0.194	27	0.000	1,568.82	0.002
6	0.002	46.5	0.019	13.58	0.004	13	0.000	55.50	-0.001	15	0.000	16.3	0.000	15	0.000	43.00	0.000	27	0.000	1,510.63	-0.037
6	0.000	46.56	0.001	13.58	0.000	13	0.000	56.04	0.010	15	0.000	16.3	0.000	15	0.000	43.00	0.000	27	0.000	1,511.59	0.001
6	0.000	49.91	0.072	13.5	-0.006	13	0.000	57.41	0.024	15	0.000	16.1	-0.012	15	0.000	43.00	0.000	27	0.000	1,522.99	0.008
6	0.000	52	0.042	13.5	0.000	13	0.000	58.48	0.019	15.05	0.003	16.7	0.037	15	0.000	43.00	0.000	28	0.037	1,530.93	0.005
6	0.000	51.42	-0.011	13.6	0.007	13	0.000	58.48	-0.001	15.05	0.000	17	0.018	15	0.000	43.00	0.000	28	0.000	1,528.68	-0.001
6	0.000	51.79	0.007	13.6	0.000	12.3	-0.054	58.38	0.018	16.05	0.066	17.3	0.018	15	0.000	42.47	-0.012	30	0.071	1,536.75	0.005
6.02	0.003	51.09	-0.014	13.81	0.015	12.3	0.000	60.16	0.013	16.05	0.000	17.3	0.000	15	0.000	41.00	-0.035	33	0.100	1,535.51	-0.001
6	-0.003	51.2	0.002	15.43	0.117	12	-0.024	60.38	0.003	16.05	0.000	17.3	0.000	15	0.000	41.25	0.006	36	0.091	1,537.67	0.001
6	0.000	51.5	0.006	16.18	0.049	12	0.000	59.81	-0.009	16.05	0.000	17.3	0.000	15	0.000	41.25	0.000	38	0.056	1,527.96	-0.006
6.03	0.005	50.83	-0.013	17.19	0.062	12	0.000	59.07	-0.012	17.65	0.100	17.6	0.017	16	0.067	41.25	0.000	38	0.000	1,519.94	-0.005
6.03	0.000	51.27	0.009	17.19	0.000	12	0.000	59.38	0.005	19.4	0.099	17.6	0.000	17	0.063	43.75	0.061	38	0.000	1,520.18	0.000
5.93	-0.017	51.75	0.009	18.72	0.089	12	0.000	58.38	-0.017	21.25	0.095	18.4	0.045	19	0.118	43.13	-0.014	41	0.079	1,519.69	0.000
5.98	0.008	52	0.005	18.64	-0.004	12	0.000	58.57	0.003	23.32	0.097	18.7	0.016	20	0.053	43.25	0.003	41	0.000	1,518.90	-0.001
6	0.003	52	0.000	18.62	-0.001	12	0.000	58.53	-0.001	23.19	-0.006	18.6	-0.005	21	0.050	43.25	0.000	41	0.000	1,510.95	-0.005
5.8	-0.033	51.96	-0.001	18.55	-0.004	12	0.000	58.52	0.000	21.64	-0.067	18.6	0.000	22	0.048	43.25	0.000	43	0.049	1,510.07	-0.001
5.55	-0.043	51.96	0.000	18.55	0.000	12.15	0.013	58.16	-0.006	21.64	0.000	18.9	0.016	20	-0.091	43.25	0.000	43	0.000	1,507.96	-0.001
5.38	-0.031	52	0.001	18.35	-0.011	12.01	-0.012	58.00	-0.003	19.8	-0.085	18.8	-0.005	20	0.000	43.75	0.012	43	0.000	1,515.94	0.005
5.31	-0.013	52	0.000	18.35	0.000	12.43	0.035	58.09	0.002	19.8	0.000	18.7	-0.005	20	0.000	43.75	0.000	44	0.023	1,510.85	-0.003
5.18	-0.024	52.59	0.011	18.35	0.000	13.05	0.050	59.00	0.016	19.87	0.004	18.7	0.000	19	-0.050	43.50	-0.006	44	0.000	1,534.46	0.016
5.26	0.015	53.61	0.019	17.8	-0.030	13.05	0.000	58.40	-0.010	19.87	0.000	18.9	0.011	17	-0.105	43.50	0.000	44	0.000	1,537.42	0.002
5.19	-0.013	53.81	0.004	18.5	0.039	13.05	0.000	58.00	-0.007	19.87	0.000	18.5	-0.021	16	-0.059	43.50	0.000	44	0.000	1,557.74	0.013
5.29	0.019	53.81	0.000	17.8	-0.038	13.38	0.025	57.86	-0.003	19.51	-0.018	18.5	0.000	16	0.000	43.50	0.000	44	0.000	1,540.84	-0.011
5.3	0.002	53.04	-0.014	16.61	-0.072	13.38	0.000	57.16	-0.012	18.5	-0.052	18.5	0.000	16	0.000	43.50	0.000	44	0.000	1,538.27	-0.002
5.36	0.011	58.85	0.110	16.35	-0.010	13.38	0.000	57.44	0.005	18.35	-0.008	18.8	0.016	16	0.000	43.50	0.000	44	0.000	1,550.80	0.008
5.29	-0.013	60.5	0.028	16.39	0.002	13.38	0.000	57.24	-0.004	18.5	0.008	18.8	0.000	16	0.000	43.75	0.006	44	0.000	1,545.73	-0.003
5.3	0.002	61	0.008	16.25	-0.009	13.38	0.000	57.47	0.004	18.5	0.000	19	0.011	16	0.000	43.75	0.000	44	0.000	1,549.68	0.002
5.17	-0.025	61.05	0.001	16.2	-0.003	13.38	0.000	57.90	0.008	18.5	0.000	19	0.000	16	0.000	43.75	0.000	44	0.000	1,569.03	0.012
5.37	0.039	61.05	0.000	16.07	-0.008	13.38	0.000	58.13	0.002	18.5	0.000	19	0.000	16	0.000	43.75	0.000	44	0.000	1,600.76	0.020
5.3	-0.013	61.44	0.006	16.03	-0.002	13.38	0.000	60.17	0.035	18.5	0.000	19	0.000	17	0.063	45.00	0.029	44	0.000	1,601.57	0.001
5.3	0.000	61.44	0.000	16.03	0.000	13.38	0.000	60.17	0.000	18.5	0.000	19	0.000	17	0.000	45.00	0.000	44	0.000	1,601.25	0.000
5.3	0.000	61.85	0.006	15.5	-0.033	13.38	0.000	60.23	0.001	18.61	0.006	19	0.000	17	0.000	45.00	0.000	44	0.000	1,542.73	-0.037
5.45	0.028	63.6	0.027	15.4	-0.006	13.38	0.000	57.86	-0.040	19.57	0.052	19	0.000	17	0.000	45.00	0.000	44	0.000	1,559.28	0.011
5.82	0.068	67.62	0.062	15.4	0.000	13.38	0.000	58.20	0.006	19.57	0.000	19.1	0.005	17	0.000	45.00	0.000	44	0.000	1,560.29	0.001
6.03	0.036	75.04	0.111	16.58	0.077	13.38	0.000	58.88	0.012	20.25	0.035	19.1	0.000	18	0.059	45.00	0.000	44	0.000	1,566.96	0.004
6.16	0.022	83.42	0.112	17.08	0.029	13.38	0.000	60.09	0.021	20.25	0.000	19.2	0.005	18	0.000	45.00	0.000	44	0.000	1,565.47	-0.001
6.28	0.019	83.16	-0.003	17.87	0.047	13.5	0.009	59.10	-0.017	21.5	0.062	19.2	0.000	19	0.056	45.00	0.000	44	0.000	1,564.20	-0.001
6.1	-0.029	81	-0.026	18.25	0.021	13.5	0.000	58.25	-0.014	22	0.023	19.2	0.000	19	0.000	45.00	0.000	44	0.000	1,605.82	0.027
6.1	0.000	75.71	-0.065	18.19	-0.003	13.5	0.000	58.81	0.007	22	0.000	19.2	0.000	22	0.158	45.00	0.000	44	0.000	1,614.42	0.005
6.04	-0.010	72.01	-0.049	18.25	0.003	13.6	0.007	58.83	-0.016	22	0.000	19.2	0.000	23	0.045	45.00	0.000	44	0.000	1,607.09	-0.005
6.1	0.010	68.93	-0.029	18.5	0.014	13.6	0.000	59.00	0.003	22	0.000	19.2	0.000	23	0.000	49.50	0.100	44	0.000	1,600.46	-0.004
6.08	-0.003	128.01	0.831	18.5	0.000	13.6	0.000	59.96	0.016	22	0.000	19	-0.010	23	0.000	49.50	0.000	44	0.000	1,596.81	-0.001
6.08	0.000	128.01	0.000	18.5	0.000	13.6	0.000	59.96	0.000	22	0.000	19	0.000	23	0.000	49.50	0.000	44	0.000	1,606.34	0.006
6.23	0.025	75.46	-0.411	18.5	0.000	13.6	0.000	58.00	-0.033	22	0.000	19	0.000	23	0.000	51.98	0.050	44	0.000	1,616.44	0.006
6.81	0.081	84.46	0.120	19.2	0.038	13.6	0.000	61.94	0.068	22.49	0.022	19.1	0.005	23	0.000	51.98	0.000	44	0.000	1,617.27	-0.001
6.85	0.036	84	-0.006	8	-0.583	13.6	0.000	62.00	0.001	22.75	0.012	15.8	-0.173	25.75	0.120	54.00	0.039	43.75		1,620.71	0.002
7.25	0.058	87.50	0.042	8.00	0.000	13.60	0.000	66.00	0.087	22.75	0.000	15.00	0.000	25.75	0.000	54.00	0.000	43.75	0.000	1,623.01	0.001
7.95	0.097	94.00	0.074	8.00	0.000	13.60	0.000	74.50	0.086	24.00	0.055	15.00	0.000	25.75	0.000	54.00	0.000	43.75	0.000	1,624.99	0.001
8.00	0.006	93.00	-0.011	8.00	0.000	14.75	0.085	72.00	-0.034	26.25	0.094	15.00	0.000	28.25	0.097	54.00	0.000	43.75	0.000	1,626.42	0.001
7.80	-0.025	96.00	0.032	8.00	0.000	16.13	0.095	72.50	0.007	27.25	0.038	14.25	-0.098	31.00	0.097	54.00	0.000	43.75	0.000	1,635.08	0.005
7.10	-0.090	94.50	-0.016	8.00	0.000	17.75	0.099	71.50	-0.014	27.25	0.000	14.20	-0.004	34.00	0.097	54.00	0.000	43.75	0.000	1,653.66	0.011
7.65	0.077	93.00	-0.016	8.00	0.000	17.75	0.000	70.50	-0.014	29.50	0.083	13.70	-0.035	34.00	0.000	54.00	0.000	43.75	0.000	1,656.39	0.002
7.05	-0.078	94.50	0.016	8.00	0.000	17.55	-0.011	66.00	-0.064	32.00	0.085	13.70	0.000	30.75	-0.096	54.00	0.000	43.75	0.000	1,680.14	0.014
6.65	-0.057	95.00	0.005	8.00	0.000	17.55	0.000	65.00	-0.015	30.00	-0.063	13.70	0.000	27.75	-0.098	54.00	0.000	43.75	0.000	1,692.09	0.007
6.25	-0.060	94.00	-0.011	8.00	0.000	17.60	0.003	60.00	-0.077	32.25	0.075	13.70	0.000	25.50	-0.081	54.00	0.000	43.75	0.000	1,705.13	0.008
6.20	-0.008	84.00	-0.106	8.00	0.000	17.50	-0.006	60.50	0.008	29.00	-0.101	13.70	0.000	23.25	-0.088	54.00	0.000	43.75	0.000	1,727.73	0.013
6.20	0.000	82.00	-0.024	8.00	0.000	17.50	0.000	62.50	0.033	26.75	-0.078	13.70	0.000	25.00	0.075	59.00	0.093	48.00	0.097	1,751.39	0.014
6.25	0.008	80.00	-0.024	8.00	0.000	17.50	0.000	63.50	0.016	28.00	0.047	13.00	-0.051	25.00	0.000	63.00	0.068	50.50	0.052	1,763.43	0.007
6.00	-0.040	85.00	0.063	8.80	0.100	17.50	0.000	66.00	0.039	25.50	-0.089	13.00	0.000	25.50	0.020	63.00	0.000	55.50	0.099	1,766.48	0.002
6.10	0.017	83.00	-0.024	8.80	0.000	17.75	0.014	66.00	0.000	25.50	0.000	13.00	0.000	26.25	0.029	63.00	0.000	59.50	0.083	1,787.21	0.012
6.00	-0.016	82.00	-0.012	8.80	0.000	17.50	-0.014	65.00	-0.015	25.50	0.000	13.00	0.000	27.75	0.057	67.00	0.063	64.50	0.080	1,808.14	0.012
6.00	0.000	82.00	0.000	8.80	0.000	17.50	0.000	65.00	0.000	25.75	0.010	13.00	0.000	27.75	0.000	70.00	0.045	64.50	0.000	1,846.63	0.021
6.00	0.000	82.00	0.000	8.80	0.000	17.50	0.000	65.50	0.008	24.00	-0.068	13.00	0.000	28.00	0.009	70.00	0.000	67.00	0.039	1,886.36	0.022
6.00	0.000	82.00	0.000	8.80	0.000	17.50	0.000	66.00	0.008	25.00	0.042	13.00	0.000	29.25	0.045	70.00	0.000	67.00	0.000	1,917.72	0.017
6.05	0.008	85.00	0.037	8.90	0.011	17.50	0.000	67.00	0.015	25.00	0.000	13.00	0.000	31.25	0.068	70.00	0.000	67.00	0.000	1,980.96	0.033
6.00	-0.008	84.00	-0.012	8.90	0.000	17.50	0.000	69.50	0.037	25.00	0.000	5.85	-0.550	30.00	-0.040	70.00	0.000	67.00	0.000	2,005.74	0.013
6.00	0.000	86.50	0.030	8.90	0.000	17.50	0.000	70.00	0.007	24.75	-0.010	5.85	0.000	30.00	0.000	70.00	0.000	67.00	0.000	2,101.16	0.048
6.00	0.000	85.00	-0.017	8.90	0.000	17.50	0.000	70.00	0.000	26.00	0.051	5.85	0.000	30.00	0.000	70.00	0.000	64.00	-0.045	2,187.48	0.041
6.00	0.000	83.50	-0.018	8.90	0.000	17.50	0.000	70.00	0.000	27.00	0.038	5.85	0.000	29.00	-0.033	70.00	0.000	60.00	-0.063	2,240.29	0.024
6.00	0.000	84.00	0.006	8.90	0.000	17.50	0.000	70.00	0.000	27.00	0.000	5.85	0.000	28.50	-0.017	70.00	0.000	60.00	0.000	2,270.95	0.014
6.00	0.000	86.00	0.024	8.90	0.000	17.40	-0.006	70.00	0.000	28.25	0.046	5.85	0.000	27.00	-0.053	70.00	0.000	63.00	0.050	2,243.41	-0.012
6.00	0.000	85.50	-0.006	8.90	0.000	17.50	0.006	70.50	0.007	28.25	0.000	5.85	0.000	27.00	0.000	70.00	0.000	63.00	0.000	2,179.16	-0.029
5.90	-0.017	85.00	-0.006	8.90	0.000	17.55	0.003	72.00	0.021	28.50	0.009	5.85	0.000	28.00	0.037	70.00	0.000	63.00	0.000	2,119.13	-0.028
6.00	0.017	86.50	0.018	8.90	0.000	17.55	0.000	71.00	-0.014	29.00	0.018	5.85	0.000	28.00	0.000	68.00	-0.029	63.00	0.000	2,057.61	-0.029
6.00	0.000	85.00	-0.017	8.90	0.000	17.55	0.000	71.00	0.000	29.00	0.000	5.85	0.000	27.25	-0.027	68.00	0.000	63.00	0.000	2,039.73	-0.009
6.00	0.000	85.00	0.000	8.90	0.000	17.50	-0.003	71.50	0.007	29.00	0.000	5.85	0.000	26.75	-0.037	68.00	0.000	63.00	0.000	2,069.29	0.014
6.00	0.000	86.00	0.012	8.90	0.000	17.50	0.000	71.50	0.000	29.00	0.000	5.85	0.000	26.25	0.000	68.00	0.000	63.00	0.000	2,093.51	0.012
5.90	-0.017	85.00	-0.012	8.90	0.000	17.50	0.000	70.50	-0.014	29.00	0.000	5.85	0.000	28.00	0.067	68.00	0.000	63.00	0.000	2,083.21	-0.005
6.00	0.017	85.00	0.000	8.90	0.000	17.15	-0.020	70.00	-0.007	29.00	0.000	5.85	0.000	28.00	0.000	68.00	0.000	62.00	0.000	2,056.39	-0.013
6.00	0.000	85.00	0.000	8.90	0.000	17.15	0.000	71.00	0.014	28.50	-0.017	5.85	0.000	30.25	0.080	67.00	-0.015	63.00	0.000	2,040.83	-0.008
6.00	0.000	85.00	0.000	8.90	0.000	17.15	0.000	70.00	-0.014	28.50	0.000	5.85	0.000	29.00	-0.041	67.00	0.000	63.00	0.000	2,016.08	-0.012
6.00	0.000	85.00	0.000	8.90	0.000	17.15	0.000	70.00	0.000	28.50	0.000	22.00	2.761	29.00	0.000	67.00	0.000	63.00	0.000	2,049.80	0.017
6.00	0.000	85.00	0.000	8.90	0.000	17.15	0.000	71.50	0.021	28.50	0.000	22.00	0.000	29.00	0.000	70.00	0.045	63.00	0.000	2,074.67	0.012
6.00	0.000	85.00	0.000	8.90	0.000	17.15	0.000	71.00	-0.007	26.00	-0.088	23.00	0.045	29.00	0.000	70.00	0.000	61.00	-0.032	2,041.80	-0.016
6.00	0.000	88.50	0.041	8.90	0.000	17.15	0.000	71.00	0.000	27.00	0.038	24.00	0.043	29.00	0.000	70.00	0.000	61.00	0.000	2,018.84	-0.011
6.00	0.000	86.00	-0.028	8.90	0.000	17.15	0.000	70.50	-0.007	26.25	-0.028	26.50	0.104	29.00	0.000	70.00	0.000	61.00	0.000	2,012.24	-0.003
6.00	0.000	88.00	0.023	8.90	0.000	17.15	0.000	71.50	0.014	28.25	0.076	29.00	0.094	29.00	0.000	70.00	0.000	61.00	0.000	2,016.87	0.002
6.00	0.000	88.00	0.000	8.90	0.000	17.15	0.000	70.00	-0.021	26.00	-0.080	27.00	-0.069	29.00	0.000	70.00	0.000	61.00	0.000	2,027.48	0.005
6.00	0.000	85.00	-0.034	8.90	0.000	17.15	0.000	71.00	0.014	26.00	0.000	27.00	0.000	30.00	0.034	70.00	0.000	61.00	0.000	2,021.82	-0.003
5.95	-0.008	85.00	0.000	8.90	0.000	17.75	0.035	71.00	0.000	26.50	0.019	26.00	-0.037	30.00	0.000	70.00	0.000	61.00	0.000	2,003.38	-0.009
6.00	0.008	85.00	0.000	8.90	0.000	17.75	0.000	71.00	0.000	26.50	0.000	24.00	-0.077	30.50	0.017	70.00	0.000	61.00	0.000	2,024.68	0.011
6.00	0.000	85.00	0.000	8.90	0.000	17.50	-0.014	71.50	0.007	26.50	0.000	23.00	-0.042	30.75	0.008	70.00	0.000	61.00	0.000	2,015.34	-0.005
6.00	0.000	85.00	0.000	8.90	0.000	17.50	0.000	71.50	0.000	28.25	0.066	23.50	0.022	31.00	0.008	68.00	-0.029	62.00	0.016	2,007.51	-0.004
6.00	0.000	85.00	0.000	8.90	0.000	17.50	0.000	74.00	0.035	30.00	0.062	24.00	0.021	31.25	0.008	68.00	0.000	62.00	0.000	1,961.03	-0.023
5.95	-0.008	85.00	0.000	8.90	0.000	17.50	0.000	74.50	0.007	29.00	-0.033	23.00	-0.042	31.00	-0.008	68.00	0.000	64.50	0.040	1,961.37	0.000
5.95	0.000	85.00	0.000	8.90	0.000	17.50	0.000	74.00	-0.007	27.00	-0.069	23.00	0.000	31.00	0.000	68.00	0.000	64.50	0.000	1,953.15	-0.004
6.00	0.008	85.00	0.000	8.90	0.000	17.50	0.000	75.00	0.014	27.50	0.019	24.25	0.054	16.95	[illegible]	67.00	-0.015	64.50	0.000	1,959.60	0.003
6.00	0.000	85.00	0.000	8.90	0.000	17.50	0.000	74.50	-0.007	33.00	0.200	25.25	0.041	16.95	0.000	67.00	0.000	65.00	0.008	1,979.18	0.010
6.00	0.000	84.00	-0.012	8.90	0.000	17.20	-0.017	75.50	0.013	31.00	-0.061	26.50	0.050	[illegible]	0.098	67.00	0.000	66.50	0.023	1,976.48	-0.001
5.95	-0.008	80.00	-0.048	8.90	0.000	17.20	0.000	75.00	-0.007	32.00	0.032	27.00	0.019	[illegible]	0.100	67.00	0.000	68.00	0.023	1,956.79	-0.010
5.90	-0.008	80.00	0.000	8.90	0.000	17.20	0.000	75.50	0.007	31.75	-0.008	25.50	-0.056	[illegible]	0.000	67.00	0.000	68.00	0.000	1,966.38	0.005
5.90	0.000	80.00	0.000	8.90	0.000	17.00	-0.012	75.50	0.000	31.00	-0.024	26.00	0.020	14.50	0.086	67.00	0.000	68.00	0.000	1,948.73	-0.009
5.90	0.000	81.00	0.013	8.90	0.000	17.00	0.000	76.00	0.007	32.50	0.048	26.00	0.000	23.25	0.603	65.00	-0.030	68.00	0.000	1,934.96	-0.007
5.90	0.000	81.00	0.000	8.90	0.000	17.00	0.000	74.50	-0.020	32.50	0.000	27.00	0.038	25.00	0.075	65.00	0.000	68.00	0.000	1,929.44	-0.003
5.90	0.000	81.00	0.000	8.90	0.000	17.00	0.000	74.00	-0.007	29.25	-0.100	25.75	-0.046	26.75	0.070	65.00	0.000	68.00	0.000	1,934.46	0.003
5.90	0.000	80.00	-0.012	8.90	0.000	17.00	0.000	74.00	0.000	28.25	-0.034	24.50	-0.049	26.75	0.000	65.00	0.000	68.00	0.000	1,930.77	-0.002
5.80	-0.017	80.50	0.006	8.90	0.000	17.00	0.000	74.00	0.000	27.50	-0.027	24.25	-0.010	27.50	0.028	65.00	0.000	68.00	0.000	1,920.52	-0.005