

**SHARE PRICE BEHAVIOUR AROUND 2010 CONSTITUTION OF
KENYA REFERENDUM ON NAIROBI SECURITIES EXCHANGE**

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DECLARATION

This research is my original work and has not been submitted for a degree in any other university and where I have used other people's work I did duly acknowledge such works herein.

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Dedication

To my loving wife Eunice Kerubo for supporting and encouraging me during my study years and offering to be available to our lovely children Miriam, Rose, Valeria, Zawadi, John and Alicia whenever I was engaged with this work.

Abstract

Share price behaviour of a market is influenced by how quickly that market assimilates the relevant new information it receives in its trading prices and volume patterns to the extent that no trader can sustainably make abnormal returns while riding on such information. In an efficient market, all information is reflected in trading prices. Where a market is efficient in the semi strong form, it is expected that her prices reflect all the relevant publicly available information in its trading prices. A securities market is said to be efficient with respect to economic announcements such as dividend announcements, stock splits, mergers and acquisitions, rights issues and non-economic announcements such as wars, election of presidents and prime ministers, death or resignation of presidents or prime ministers, or referendum vote announcements. The speed and accuracy with which a securities market reflects the information content of these events shows how efficient the securities market is. This paper reports on the behaviour of the share prices at the Nairobi Securities Exchange as observed in the share price index with respect to the August 4, 2010 constitution of Kenya referendum vote results announcement.

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CHAPTER ONE

INTRODUCTION

1.1 Background

A key challenge to security traders is to know the right time to execute a decision to buy, hold or sell securities in order to make maximum returns given that prices do change depending on their sensitivity to information signals available to the market. Jordan and Miller (2009) have explained that the responsiveness of a security's price to relevant information is what is generally termed as security price behaviour. They assert that security price behaviour results from the sum total of all actions of market players with respect to new information becoming available about the given security. These actors, they posit, are profit motivated. Hence, traders are always looking for opportunities to beat the market by trading in securities that generate higher excess returns compared to similar securities of equal risk profile over a long period of time. Such opportunities, they argue, are rare due to the interplay of three market efficiency factors. These factors are investor irrationality, independent deviations from rationality and arbitrage. These factors act to neutralize opportunities for supernormal returns. However, few chances may exist occasioned by the speed of responsiveness of securities to relevant news announcements. In which case, such a security may exhibit spontaneous and instantaneous response implying an efficient market reaction to the news; a delayed response with the security price adjusting gradually over time towards a price that eventually reflects the new news; or the security may immediately overreact to the news only to correct itself gradually to the price that reflects the news. Depending on how securities respond to relevant news announcements, investors are faced with the challenges of , first, optimally selecting

super-performing securities and, secondly, of timely exercising their securities buying, holding or selling decision such that they buy securities when they are undervalued and selling those that are overvalued by timely analysing security market sensitivity to relevant information signals.

1.1.1 Share Price Behaviour

The conceptual foundation for this study is based on the idea that the market's performance is as a result of the sum total of the various pieces of information that players in the market contain. In the model below, if the relevant information contains good news, the market may regard it positively. Good news creates positive prospects in the market. Such prospects increase the expected gains and increases trading volume activity in the market thus pushing the market index upwards. On the other hand, if the relevant news is of no relevance, the market players remain indifferent as to its prospects. Finally, if the information available in the market may contain relevant bad news, the market may perceive such information as causing negative prospects and cause a resultant drop in the market share index.

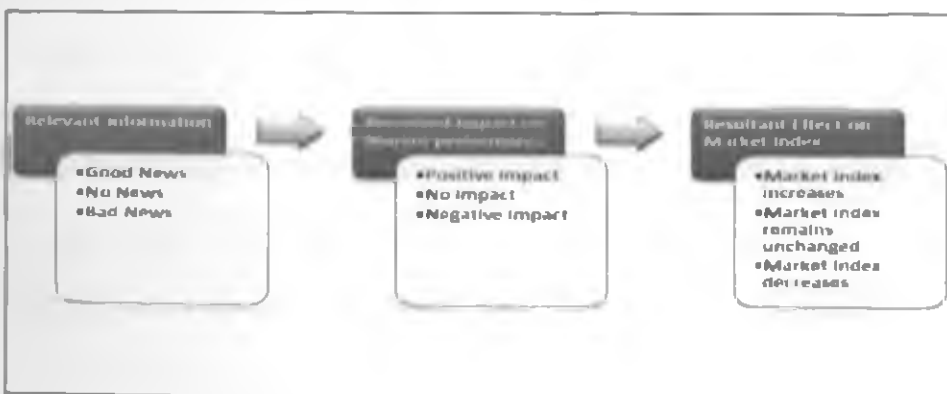


Figure 1: Conceptual Framework of Resultant effect of Relevant Information on Market Performance

The market, in its analysis of information before it, may overreact, not react or underreact to a given piece of information.

Some of these signals are internal to the specific organizations while others are industry specific. Yet, others are economy wide affecting all firms in the market. An example of an economy wide (macroeconomic) factor is political events and decisions.

1.1.2 Nairobi Securities Exchange

This research study was based on the Nairobi Securities Exchange and reports on the impact of the then proposed constitution of Kenya referendum poll result news, a political event, on the general movement of stock prices of companies listed at the Nairobi Securities Exchange during the study duration as represented by the Nairobi Securities Exchange Index. This study employed an event study methodology design with the event of interest being the August 4th, 2010 vote on the then proposed constitution of Kenya referendum. The announcements of referendum vote results were assumed to have significant information content that signal investor expectation on future prospects of the economy and the Nairobi Securities Exchange in particular. It is these expectations that were assumed to cause impact on the stock price movement.

This study was grounded on the theory of efficient market hypothesis. This theory suggests that stock prices do reflect all available information about the stock or a given market that is under consideration. While i state, that this study assumed that the Nairobi Securities Exchange is efficient in the semi-strong version of this founding theory, i do discuss these theories in detail in section 2.2.1 of this paper.

While appreciating that referendums, being political in nature, may portray economic impact similar to that of other political events such as national elections, resignation of Presidents or death of Presidents. For instance, Malik, Hussain and Ahmed (2009)

studied the political impact of Ex-President Pervez Musharraf's resignation on stock price and trading volumes at the Karachi Stock Exchange. They investigated the relationship between aggregate stock market trading and daily stock returns during the period 18th Feb 2008 to 18th Feb 2009. This study found that there was a positive correlation between trading volumes and stock returns due to the resignation of the Ex-President.

Besides the existence of evidence that political factors do influence stock price movements, there are other factors that cause prices to move. Somoye, Akitoye and Oseni (2009) examined the extent to which various factors affect stock prices at the Nigerian capital markets. They found that besides the primary factor of demand and supply dynamics of stocks, there were other indeterminate industry and firm specific factors that influenced price movement such as earnings per share, dividend per share, prices of crude oil, GDP, inflation rate, interest rate and exchange rate.

This study used the Nairobi Securities Exchange as the case study emerging securities exchange market. It assessed the impact that the August 4th, 2010 referendum on the proposed constitution of Kenya poll results news had on the price movement of companies listed at the Nairobi Securities Exchange. These findings inform the conclude whether there was a positive or negative impact on general stock price behaviour occasioned by the announcement of the actual referendum results on the referendum question on the proposed new constitution Kenya. This impact and the relationship between poll results and price movement were evaluated statistically to find their correlation. Such results are instrumental to beneficiaries of this study and similar events in future in forming informed stock trading strategies if other factors hold constant.

A referendum, as defined by Wikipedia online dictionary, is a general vote by the electorate on a single political question that has been referred to them for direct decision. In addition, the word referendum is used to refer to the process of referring a political question to the electorate for decision. The referendum question is the issue referred to the electorate in the form of a question. It is this issue that the electorate are asked to accept or reject. This question is crafted in such a manner that it solicits an approving or disapproving response over the issue. These expected responses are the referendum votes.

While it has been observed that referendums have over time grown in popularity, some countries are decided not to use them. For instance De Vreese and Semetko (2004) noted that though the United States of America has no provision for national referenda, individual states have and do continue to use referenda as means of direct democracy. They further note that Canada has been to referendum processes at a national level more frequently than most countries.

Usually, the Referendums have been used in many countries to decide on important national public policy issues. Interestingly, referendums have been used in Canada to make national constitutional decisions and in Argentina to make regional integration decisions (Remmer & Gelineau. 2003).

In a country, the way decision power is structured may influence the performance of its economy at a macro and micro level. In Kenya, Kimenyi (2006) observed that when power is concentrated on a monarch or a ruling coalition economic growth is impeded hence occasioning the need for institutional change to diffuse power. In his view, that was why in November 2005, Kenyans rejected a proposed constitution primarily because it did not reduce the powers of the executive to any significant

degree. The 2010 Constitution of Kenya was drawn to replace the 1963 independence constitution. Several attempts had been made to amend it with little success. The August 4, 2010 referendum was a result of deliberate action by the coalition government formed after the 2007 presidential general elections. The proposed constitution was presented to the Attorney General on April 7, 2010 and published in May 6, 2010 and a referendum over it set for August 4, 2010. The referendum question was announced on May 13, 2010. The announced referendum question was: "Do you approve of the proposed new Constitution?" The expected responses were either a Yes or a No vote. Due to high levels of illiteracy, symbolic colours were chosen by the Interim Independent Electoral Commission for the responses; green for Yes and Red for No. In order for the proposed new constitution to pass, the referendum required a simple majority with at least 25% of votes in five of Kenya's eight provinces. Unlike, the November, 2005 referendum that rejected it then, the August 2010 referendum approved it with a 65% majority vote.

From the above, it is evident that political decisions are a factor that is critical in the decision process of firms in an economy. According to Ball, et al (2004) the political condition and practice of a country influences its country risk rating. Thus, a country's relative risk rating influences its ability to attract new investments and marshal capital for growth of existing investments.

Therefore, referendums as political decision making process bear information that is critical for economic decision making. In Kenya particularly, pollsters have not been common for many years. They first gained popularity with their findings and result releases as Kenya approached the 2007 general elections. Though such opinion results were faced with acrimony from various political quarters, they were accurate in

tracking and reporting fluctuations in the presidential candidates' standings. Other research about political risk point out that political news affects financial markets. In particular, stock markets respond to new information on political decisions affecting domestic or foreign policy. Suleman (2010), examined how good and bad political news affect returns and volatility of Karachi Stock Exchange (KSE) 100 index and eight sector indexes. His result showed that good news had positive impact on KSE 100 index and also decreases volatility. While bad news, on the other hand, exhibited negative influence on returns and increase volatility.

In Kenya, dealing in shares and stocks started in the 1920's when the country was still a British colony. However, the market was not formal then as there were no rules and regulations to govern stock broking activities. Trading took place on a 'gentleman's agreement.' In 1951, an Estate Agent by the name of Francis Drummond established the first professional stock broking firm and influenced the then Finance Minister of Kenya, Sir Ernest Vasey to set up a stock exchange in East Africa which, in July of 1953 got London Stock Exchange recognition as an overseas stock exchange.

In 1954 the Nairobi Securities Exchange got constituted as a voluntary association of stockbrokers registered under the Societies Act. Since Africans and Asians were not permitted to trade in securities, until after the attainment of independence in 1963, the business of dealing in shares was confined to the resident European community. At the dawn of independence, stock market activity slumped, due to uncertainty about the future of independent Kenya. Since then, the NSE has grown and currently is located (since July 1994) at the spacious Nation Centre, has set up a computerized delivery and settlement system (DASS). The number of stockbrokers has increased to 19 licensed brokers and 63 listed companies. On Monday 11 September 2006 live

trading on the automated trading systems of the Nairobi Securities Exchange was implemented.

This paper examined whether there is a relationship between 2010 referendum polls result announcements over the then proposed constitution of Kenya and the general share price behaviour of stocks at the Nairobi Securities Exchange as evidenced by the Market Index in order to resolve the following identified research problem.

1.2 Research Problem

Investors usually expect a positive return on their investment. It is this expectation that leads them to evaluate various investment options and trading strategies. Investing and trading in publicly listed stocks poses a challenge to many investors with regard to the optimum time to buy, sell or hold stocks. Research has been conducted about the behaviour of stock prices with respect to news announcements.

According to Fama (1969), an efficient stock market is one whose prices reflect all available information about those stocks. Otherwise, there would be anomalies that traders can take advantage of to create arbitrage. Shrewd investors look for such opportunities to create arbitrage.

In their assessment of impact of political news in Baltic state stock markets, Soutanaeva (2008) found that generally sensitivity of these markets to political events decreased over time. Specifically, some markets exhibited increasing political risk (e.g. Russia), others a decreasing political risk (as was seen in Riga and Tallinn), while Vinius seemed unaffected by political news over the same period. This alludes to the fact that various markets react differently to political news.

Other published research on the behaviour of stock market returns before and after election dates report high volatility of returns about the election date. However, most of these studies were done in the context of developed markets.

In emerging markets, there exist few reported studies on the behaviour of stock returns about election dates. For instance, Miya (2007) found that although there were stock return volatilities about the election dates of 1992 and 2002 in Kenya, the volatility was not significant.

On the other hand, Muringi (2008) observed that not all sectors represented in the Nairobi Securities Exchange react or act in the same way to the same election period and event. In her study, the finance sector experienced the highest price volatility than the industrial and allied sector and the agricultural were the least affected.

While studies exist about the impact of general elections on the stock prices at the Nairobi Stock Exchange, none of them had focused on the effect of referendum poll results announcements on companies listed in this market. Bowler and Donovan (1998) did find out that comparatively fewer studies have been carried out in the context of national referendum processes even though this process has increasingly become popular. Besides, most research on election behaviour has dwelt on general elections of a presidential, prime minister or parliamentary vote. These involve a nation in deciding on the country's leadership over a short period of time; such as five years. The 2010 referendum on the constitution of Kenya has policy and long-term decision implications on the country. Though Kimenyi and Shughart (2008) did study and report about the 2005 constitution of Kenya referendum, their focus skewed towards the causes of its rejection and the voting patterns in the then 210 constituencies. So far, to the best of my knowledge, none of these studies had reported

on the general behaviour of stock market prices of companies listed in the Nairobi Securities Exchange around the August 4th, 2010 constitution of Kenya referendum polls.

This therefore evokes the following research questions: what is the relationship between referendum results announcements over the proposed constitution of Kenya and the general market share price index movement of listed stocks at the Nairobi Securities Exchange?

1.3 Research Objective

The objective of this study was to establish the general behaviour of securities listed at the Nairobi Securities Exchange around proposed constitution of Kenya 2010 referendum poll results announcement.

1.4 Value of the study

By conducting this study, new knowledge is created that relates a long-term political decision made at a national level of a referendum magnitude in the context of a developing country with respect to the impact such referendum results announcement has on price behaviour of listed and actively trading equity securities in an emerging stock exchange. This study attempted to ascribe referendum poll yes and no vote results announcements to the observed equity price movement at the Nairobi Securities Exchange.

The results of this study can be useful in five ways to various people groups. First, the study can inform the interested public if there is a relationship between referendum announcements over the proposed constitution of Kenya and the share price movements of securities at the Nairobi Securities Exchange. The public may hold informed related expectations in future on the behaviour of security prices where

similar political events are foreseen. Secondly, it can enlighten investors on the behaviour of securities in anticipation of related events following the release of vote poll announcements. Hence, offering investors a spring-board against which to craft trading strategies. Thirdly, company management can use findings of this study as a point of reference for evaluating the external environment. This becomes handy when performing environmental analysis for purposes of corporate decision making and accessing how anticipated political events may affect the value of their companies. Fourthly, this study's findings can aid analysts to evaluate the relevant information content of referendum vote announcements in shaping investor expectations on stock price trends in the stock market. Finally, new knowledge is added to the scholarly world as other researcher shall refer to it, build new studies around it, test its consistency after some time or even critique it in order to grow the body of knowledge.



CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In assessing the impact of referendum poll result announcement on the prices of companies listed at the Nairobi Securities Exchange over the identified study period, it was relevant to review the underlying theory of efficient market hypothesis. This theory creates the fundamental background of this study that focuses on the referendum event of 2010 August 4th about the proposed constitution of Kenya. In addition, key models on stock price of relevance to this study, including the Capital Assets Pricing Model, are also discussed in the theoretical review. The following section discusses the empirical works of relevance to market efficiency and responsiveness of stock prices to news announcements especially as the news relates to issues of political risk and policy decisions taken through election processes. The focal decision making process of interest being cases of national referenda.

2.2 Theoretical review

In the following section, I have discussed the Efficient Market Hypothesis, the Capital Asset Pricing Model and Arbitrage Pricing Theory in relation to market efficiency.

2.2.1 Efficient Market Hypothesis

Grounded on the theory of Efficient Market Hypothesis (EMH), this paper assessed how quickly and correctly referendum announcement news of 2010 about the constitution of Kenya reflected in stock prices at the Nairobi Securities Exchange. The EMH was popularized by E. Fama (1969) as a market equilibrium theory that asserted that stocks are always in equilibrium and that it is impossible for any investor

to outperform the market and consistently earn a high return that is unjustifiable by that stock's risk level. The logic of this theory is that stock prices will adjust almost immediately to any new developments. The EMH has three variations: the weak form; semi-strong form; and strong form of efficiencies. This weak form of EMH portends that past trends and patterns can be used to predict future stock prices. Thus, any past information that can affect prices is already assimilated in current prices. Hence, past information has no added value in selecting stocks to buy, sell or hold. The semi-strong form version of the EMH states that current stock prices reflect all publicly available information. This implies that when information is released to the public the market will respond to it only if it is not what it expected. This form of efficiency is the basis of his study. The strong form of EMH holds that current market prices do reflect all relevant information irrespective of whether it is publicly available or privately owned. This implies that, even insiders can not take advantage of the market over an extended period of time.

2.2.2 Capital Assets Pricing Model

As Ehrhardt and Brigham (2011) report, many empirical studies have been conducted to test the EMH with a view to justify the validity of the three forms. Most of these studies combine a test of EMH with an asset pricing model. The common pricing models researchers have used are the Capital Asset Pricing Model (CAPM) and the Fama-French Three-Factor Model. For instance, when EMH is evaluated alongside CAPM, CAPM sets the expected return on stock and any abnormalities will be cases of long-term reversals and momentum stocks where short-run above normal returns have been reported in the case of weak form of efficiency as evidenced by Jagadeesh and Titman (1993) and DeBondt and Thaler (1985). CAPM is basically a single factor

model and the factor in question is the risk of the stock under evaluation relative to rest of the market return.

2.2.3 Arbitrage Pricing Theory

This theory, which was initiated by economist Stephen Ross, holds that the expected return of a financial asset can be modelled as a linear function of various macro-economic factors, where sensitivity to changes in each factor is represented by a factor-specific beta coefficient. This model's derived rate of return is used to price the asset correctly. In which case, the asset price should equal the expected end of period discounted at the rate implied by the model. In event the price diverges, arbitrage should bring it back into line.

Arbitrage pricing model, unlike CAPM, is a multi-factor model. However, unlike CAPM, whose factor is known, API does not specify the factors in the model and they may vary from one analysis to another. Therefore, this model allows for a variety of factors to be considered in assessing the behaviour of share prices in the market. In the context of this paper, one such factor is politics.

This model depends on two factors: the risk premiums associated with each factor and the stock's own sensitivity to each of the factors. While there are numerous theories on asset pricing and variations of these theories, it still remains that these two are the popular asset pricing theories.

2.3 Referendum theories

There are no clear theories on the referendum process per se. However, the first known attempt at developing a model about the referendum was by Buchanan and Tullock (1962) who wrote a book about the calculus of consent. They used the

economic concepts of utility maximization to show how an individual derives choice satisfaction from among presenting alternatives to reach a political decision. In their model, the calculus of a utility-maximizing individual, they showed how a rational man chooses among alternative rules for reaching collective or political decision by minimizing cost while at the same time maximizing benefit to the self. In as much as their model focused on the individual, they managed to rationalize the same argument for a group of individuals with a common cause such as a political party or a leftist or rightist wing on a political issue. As relates to referendums, they proposed that, the individual, acting collectively, can check on the selfish wishes of the few legislators that purport to act on behalf of the masses they represent. They do so directly through voluntary choice using their voting rights. The individual in taking the choice accepts the verdict of the majority vote and will abide by the majority's verdict, even though one was of a contrary opinion.

The works of Buchanan and Tullock (1962) faced several criticisms especially as a model for constitution making that explains the logic for referendum as a tool for direct democracy. For instance, in as much as Block and DiIorenzo (2001) criticized some arguments fronted by the former, they did identify that their work has a lot of benefit to the theory of economic and political choice. In part, they refuted the idea of individuals making legislative decisions that are supposed to be the task of elected legislators and they considered the concept of simple majority a tyranny of the majority over the minority.

Other sources have argued against referendums pointing among others that referendums are in themselves inconsistent with the belief in parliamentary sovereignty; that the issues in question might be too complex to be resolved by a

Yes/No vote or even for the general populace to comprehend; that using the referendum process regularly can lead to public apathy; that a low voter turnout can distort results but still the majority shall have their way; that the wishes of the minority in a closely contested referendum are ignored unfairly; and funding differences may unfairly sway the final vote if the other side of the argument are not well financially endowed. These notwithstanding, there are positive arguments fronted in favour of referendums. These include firstly, that they are a very real form of direct democracy. Secondly, they can be a perfect check on elective dictatorship. Thirdly, they increase people's political participation. Fourthly, referendum might provide a clear answer to questions the government has been grumbling with. Fifthly, governments can use referendum to seek mandate on controversial issues or policies. Finally, referendums are used to legitimise important constitutional issues such as devolution. (<http://www.historylearningsite.co.uk/referendums.html>)

2.4 Empirical review

Economists have over time studies events of a diverse nature and related them to specific economic objectives. MacKinlay (1997), in his analysis of event studies concluded that the event studies have had a major contribution in the study of finance and economics in general. Events studies have been more successful in cases where there is precision as to the date of the event being studied relative to cases where such a date is difficult to identify or anticipate. Events with a précis date have shown that market prices do respond to new information.

However, not all firms in a particular stock exchange respond in like manner to a particular announcement of news event. According to King (1966), while he is supportive of the fact that market prices do respond to new information, he observed

that the magnitude of the impact need not necessarily be the same. He found out, for instance, that some announcements only affect a certain group of stocks and not the rest of the stocks in that market. This he related to the fact that security price changes resulted from the transmission of incoming information through changes in anticipation that get loaded by a given security in a manner distinctive to it. In conclusion, he discovered that the movement of a group of security price changes can be broken down into market and industry components.

The performance of a firm can be attributed to its board's performance. Therefore, the appointment of a new board, its composition, age and or resignation can connote useful pricing information. In one study, Gurgul and Majdosz (2007) analysed whether the announcement of resignations of board members conveys valuable information in an emerging stock market like the Polish one. Using an event study methodology, they provided empirical evidence supporting the hypothesis of market reaction to managerial resignations. They noted that before the announcement release there was a tendency towards an increase in stock prices. When the firm announced the resignation of members of the board, this tendency got reversed, and stock prices started to fall. In order to explain this phenomenon, they referred to differences in the interpretation of a resignation announcement by insiders and other investors operating on the Warsaw Securities Exchange. Insiders, who knew the true motives behind a resignation decision, were inclined to buy shares expecting that such a resignation, by reducing conflict and/or improving management, would result in better firm performance. With the limited information in an official announcement, other market participants were left to guess what the resignation means for the current and future position of a firm. This study results showed resignations as a loss of valuable human

capital. Hence, stock prices tended to go down over the period following the announcement.

Besides board resignation, studies have been done on the effects of board diversity on corporate performance with the premise that any effects of gender diversity must result from changes in the efficacy, or monitoring capabilities, of boards. These changes are expected to affect profits directly and stock performance indirectly. One such study by Dobbin, F. and Jung, J., (2011) reported that corporate performance was not influenced by board gender composition shaping the efficacy or monitoring capabilities of boards themselves, but rather by board gender diversity activating bias on the part of the institutional investors who now control eighty per cent of the shares of America's leading companies.

Besides firm board constitution and performance, dividend announcements do contain relevant pricing information. Using an event study methodology Mehndiratta and Gupta (2010) found that despite the fact that investors do not gain significant value in the period preceding as well as on the dividend announcement day, but they can gain value in the post announcement period. Investors did shift their security positions at the time of dividend announcement, which indicated that in post announcement period there was a possibility of information content in dividend announcement in India's National Stock Exchange. The evidence nevertheless shows that dividend increases lead more positive abnormal returns, supporting the Efficient Market Hypothesis.

The following study by Docking and Koch (2005) investigated the effect on firm return at different market directions and volatilities to dividend change announcements. Using an event study methodology, they found that announcements

to increase dividends tended to elicit greater positive abnormal returns when the market direction was normal or down and volatility was high. This implied that good news was perceived as better news in such situations. On the other hand, announcements to decrease dividends showed significantly greater negative abnormal returns when the market direction has been up and volatility high. This implied that investors reacted strongly to the bad news.

In addition to dividend announcements, merger announcement contain some informational of value to the shareholders to earn abnormal return. In an event study by Padmavathy and Ashok (2012), to find out the abnormal return gained by the 97 companies listed in Bombay Stock Exchange which entered into merger activity during the year 2010 analysed the behaviour of Abnormal Returns (ARs), Average Abnormal Returns (AARs) and Cumulative Average Abnormal Returns (CAARs) computed for 10 days before and after the event day by comparing the closing share price of the Acquiring Companies. The study found that the impact of the announcement of merger does not hold any significant difference on the movements of the share price and no significant abnormal return is gained during the event window of 21 days (i.e., -10 to +10) by the Acquiring companies' shareholders. Therefore their study concluded that a merger announcement does not hold important information to the Indian stock market during the study period.

Another event that influences a firm's performance on the market is a stock split. Aduda and Chemarum (2010), using an event study methodology, examined the effect of stock splits at the Nairobi Stock Exchange by studying nine companies that had undergone stock splits in the period 2002 to 2008. Their study made use of the trading

activity ratio to determine whether stock splits elicit any reaction in the Kenyan market. The study made use of daily adjusted prices for sample stock for the event window of 101 days, consisting of 50 days before and 50 days after the stock split.

The study found out that the Kenyan market reacts positively to stock splits, as shown by a general increase in volumes of shares traded around the stock split. There was also an increase in trading activity after the stock split as compared to that before the stock split. This was consistent with the signalling hypothesis, which states that managers of companies split their stock to act as a means of passing information to stock holders and potential investors. The study equally found out that on the split date and on days around the stock split, there was a positive average abnormal return that was very significant at 0.05% significance level. Results of the cumulative abnormal return indicated that there is a positive cumulative abnormal return across the different event windows.

While other studies, such as that of King (1966) studied how stocks responded to news, Louhichi (2008) set out to study the speed at which financial information news was incorporated into stock prices in effect evaluating one major characteristic of a perfectly efficient market; that all available information is reflected in prices. Unlike other studies that used monthly or daily data, he opted to use exact time of news announcement. Using intraday data and exact time of announcement allowed him to examine market reaction just before and just after the event. He found out that intraday analysis was more precise than daily studies. In addition, they found that price reaction to earnings disclosure begun very quickly. Hence, they concluded that Euronext Paris was informationally efficient according to the semi strong form of efficiency described by Eugene Fama. Further, he reported that prices converged quickly for good news than for bad news with a reversal of 30 minutes for the later

and that trading volumes remained abnormally high for a few more days after announcements that did not generate price reaction; a situation he was unable to explain.

While it is held by Fama (1969) that a well-developed stock market is the proxy for all events that take place in the economy. For a stock market to be efficient to that extent, the prices should be adjusted based on both economic and noneconomic information that may be relevant. In a study by Robbani and Anantharaman (2002), they analysed the effect of political events on the prices of the emerging stock market indices of India, Indonesia, Pakistan and Sri Lanka. These four emerging markets from South-East Asia exhibited political uncertainties. Their results indicated that these financial markets carefully monitored important political events. Stock prices reacted properly and at appropriate times only to those events that seem to have some long-term effects. This result supports the notion that emerging stock markets too are of semi-strong form efficiency in the sense that they reflect not only relevant economic information but also important political information through their pricing.

Beaulieu, et al (2004) used an event methodology and investigated the effect of the October 30th, 1995 Quebec referendum on the common stock returns of Quebec firms. Their results showed that the referendum had positive and statistically significant impact on the stock returns of Quebec firms. They also found that the effect of the referendum varied with the political risk exposure of Quebec firms, that is, the structure of assets and the degree of foreign involvement.

Moskalenko (2005) investigated the existence of a relationship between economic and non-economic news and behaviour of Ukraine stock market and found that economic

and political news did influence the Ukraine stock market returns. In addition, this study found that stock returns responded more to non-monetary news yet their response to monetary news was weak and insignificant. Moskalenko concluded that though political events influenced the behaviour of the Ukraine stock market returns, only "good" political news had significant influence on it.

Handa and Tiwari (2006), provide evidence in support of stock return predictability in the US stock market over a short time and in an unsustainable longevity. In the American electoral system, characterized as it is by majority representation and single-party governments, elections generate news to the extent that the results are unexpected. In countries with proportional representation, governments are frequently multi-party coalitions whose composition is difficult to predict from the election results. These results therefore contain much less information about future policies. Results from a study by Vuchelen (2003), obtained for the Brussels stock market, support this distinction. Furthermore, the ideological composition of the government also matters; these effects support a rational partisan approach.

Peterson (2006) demonstrated that there exists a relationship between investor psychology and security pricing around the anticipated events. Taking a multidisciplinary approach, he pulled together research in finance, psychology and neuroscience literature. The event studies in the finance literature demonstrated analogous security price movements around the dates of anticipated events. From the neuroscience, he demonstrated correlations between reward anticipation and the arousal of affect. Finally, from the cognitive psychology he extracted evidence of the central role of the affect in motivating investor behaviour.

In a study of 16 firms listed at the Nigeria Securities Exchange. (EXchange. 2009)found significant abnormal price react reactions around earnings announcements suggesting that earnings announcement contain around earnings announcements suggesting that earnings announcement contain value-relevant information. Afeyo noted that there were significant price reactions before the event date. This suggested that there were possibilities of some market players having some private acquisition value-relevant information and most likely there could be cases of insider trading.

Kithinji and Ngugi (2008) analysed the performance of stocks over four election years of 1992, 1997, 2002 and 2007 assessing the stock performance before and after the election events. They used month end indices for the period 31 January 1991 to 30th September 2008. They found that stock performance was influenced by the political activities around the event dates though in the short-term. In addition, they found that stock performance was better in the first two years following an election and poor during the two year prior to the next general election. They concluded their study by cautioning investors that pre-election investments could be eroded in the short-run by after-election effects and such strategies should target for better returns in future post-election periods.

Muringi (2008), in her evaluation of the effect of Kenyan election on the various segments of the Nairobi Securities Exchange (NSE) over a three national election years found out that there was evidence of drastic change in share price and stock volume traded at the NSE during election periods. This suggests that there is a price and volume effect on stocks caused by the election events.

This paper examined the impact that final poll results about the proposed New Constitution of Kenya referendum had on general stock price movements of listed

firms in the Nairobi Securities Exchange. The event of this study was set as Wednesday the 4th day of August 2010. All firms listed at the Nairobi Stock Exchange and were not under suspension were included in the study population. The period of study spanned 121 days; 60 trading days before and after the event date.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In the following section, I have discussed the research design followed by the population from which the firms were drawn. In the last two sections, I have discussed the instruments I employed for data collection and the models for data analysis.

3.2 Research Design

This is an event study that sought to study the general behaviour of stock returns in the Nairobi Stock Exchange in response to the 2010 Constitution of Kenya referendum vote on the then proposed new constitution. The objective was to investigate the informational content of the referendum vote result announcements and its general effect on the stock market prices behaviour. The study was designed to infer the causal relationship between referendum vote result announcements and the general stock price behaviour over the period of this study. Therefore, this paper studied market share price index changes at the Nairobi Stock Exchange over a scope of 121 day with a focus on 60 days before referendum event date and after referendum event date; that is August 4th 2010.

First, data of the daily all shares market index of companies trading in the Nairobi Securities Exchange during the testing period (see Figure 1) were collected.

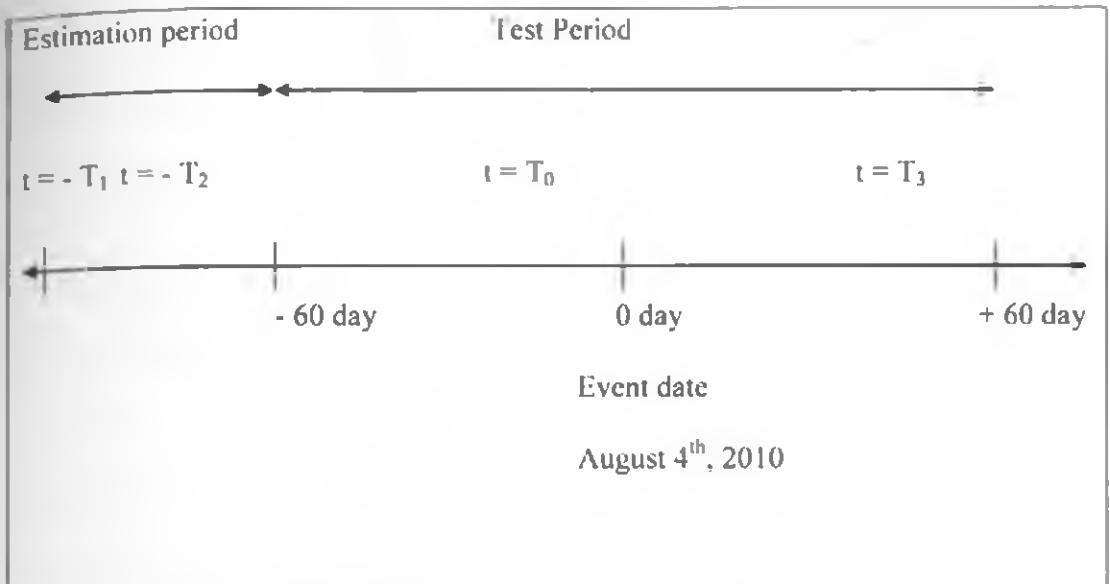


Figure 2: Timeline for study event

Secondly, data on daily all shares market index was collected over the estimation period. Thirdly, mean adjusted returns were calculated using data from the estimation period. These have been recommended by various studies (Seiler, 2000; Johnson, 1998; and Henderson, 2002) as a benchmark for evaluating market behaviour over the testing period.

The source of data on poll results announcements was the Independent Electoral and Boundaries Commission (formerly Interim Independent Electoral Commission) and the source of the daily all shares market index was be the Nairobi Stock Exchange.

3.3 Population

The population for this study included all companies that were listed in the Nairobi Stock Exchange and that were not under suspension from active transaction during the 121 day period of the study. All the active stocks for the test period were 54 stocks.

3.4 Instruments and Data Collection

Data for this study was obtained from a secondary source. The data on the daily all shares market index were obtained from the Nairobi Stock Exchange library. On the other hand, data on referendum results announcement were sourced from the database of the Independent Electoral and Boundaries Commission.

Data extraction forms were used to extract data from the above sources that is relevant to the objectives of this study. Data on referendum vote results is presented in Appendix 1. The daily all shares market index data from the Nairobi Stock Exchange during the estimation period is presented in Appendix 2. While, Appendix 3 presents data collected on the daily all shares market index data during the testing period. Appendix 4 contains a listing of all participating firms.

3.5 Data Analysis

Two sets of data were developed and analysed for relationship. The first data set constituted poll results announcements (Appendix 1) about actual outcome of the referendum on the proposed new constitution vis-a-vis the daily all shares market index of companies listed at the Nairobi Stock Exchange (Appendix 3). The daily all shares market index data set covered the 60 days before August 4, 2010, referendum day, and 60 days after the referendum day.

The variable for each set shall be:

Set 1 Variables: Poll result proportions

Set 2 Variables: The daily all shares market index

These variables are suitable for this kind of event study because a referendum is passed or won based on a simple majority vote and investors perception of the environment of their investment is shaped by decision of such a vote. Besides, the perceived effect of the vote will reflect of the daily all shares market index at the Nairobi Securities Exchange.

To analyse the changes in market index, there is need to determine what was to be the expected market index. In this case, I borrowed on the proposition of Glenn (2002) and used the mean return model which assumes that the market shall be expected to operate at the same return that it averaged during the estimation period. In this case, I determined the mean market index of Nairobi Securities Exchange by a simple average of the estimation period which I took to be all trading days constituting 12 months prior to 11th May 2010.

$$E (R_{i,t}) = \bar{R}_i \quad (1)$$

I therefore calculate the excess returns using the mean-adjusted model proposed by Brown and Warner (1980) which shall be the observed event period all shares market index minus a constant; which is that all shares market index mean market index derived over the estimation period. For the daily market index, the excess return takes the model

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) \quad (2)$$

Cumulative abnormal returns (CAR) were calculated for the daily market index over the event window $t = - T_2$ to T_3 . For the daily market index, the following CAR model shall be used to compute the cumulative abnormal returns

T_3

$$CAR (- T_2, T_3) = \sum AR_{i,t} \quad (3)$$

$$t = - T_2$$

I proceeded to perform statistical tests to assess the significance of the observed abnormal returns owing the poll result announcements. I shall perform a parametric test of simple Student – t statistic. Other writers on event studies prefer to use parametric tests (e.g. Brown and Warner, 1985; Barber and Lyon, 1997). In addition, parametric t-tests have been found to work well (Berry, Gallinger and Henderson, 1990). Therefore, I have used for ease of generalization the Nairobi Securities Exchange the t-statistic model

$$tAR = AR_{i,t} / Sc_{i,t} \quad (5)$$

where $Sc_{i,t}$ is the standard deviation over the estimation period.

CHAPTER FOUR

DATA ANALYSIS, RESULTS and DISCUSSION

4.1 Introduction

This section presents the data analysis of referendum data and the Nairobi Securities Exchange market share index over the estimation period and event window. It's followed by a presentation of the results and a detailed discussion of the data and results.

4.2 Data Analysis

The referendum vote results on the New Constitution of Kenya were announced on 5th August 2010 after tallying of votes taken on 4th August 2010; a day after the event date of this study. The detailed result of this referendum vote with constituency level vote results and aggregated result is available at www.iebc.or.ke.

The summary of the announced vote result is shown in Appendix 1. This results shows that the Interim Independent Electoral Commission had registered 12,616,627 eligible voters. Of these 9,106,285 or 72.18% turned out to vote. Of the 9,106,285 votes cast, 8,887,652 or 97.60% were valid votes and 218,633 or 2.4% votes of the valid votes cast got rejected. Of the valid votes, those that voted for the new constitution to approve it, i.e. Yes votes were 6,092,593 or 68.55% and those who voted against it to disapprove it, i.e. No votes were 2,795,059 or 31.45%.

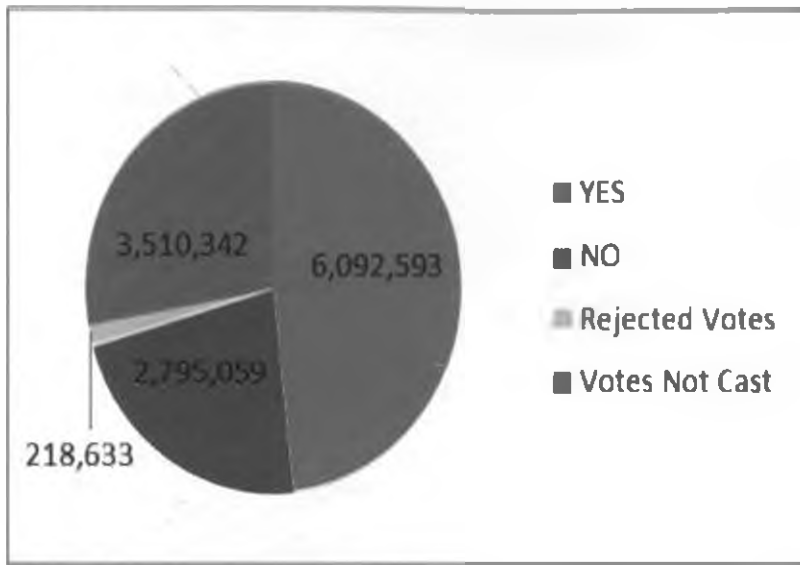


Figure 1 Final Referendum Results on 2010 Constitution of Kenya Vote (Source: Research data)

Based on this result, the Interim Independent Electoral Commission Chairman announced to the public that pursuant to the Constitution of Kenya Review Act, 2008 and the Referendum Regulations, 2010, the Proposed New Constitution is ratified

Data on daily closing market index over the estimation period was obtained from the Nairobi Securities Exchange. All companies that were not under suspension from trading were included in the study. During the estimation period, as presented in Appendix 2, the daily closing Market Share Price index were collected for a 253 trading day period covering a calendar year period spanning May 11, 2009 to May 10, 2010.

The estimation period is the control period for this study. The performance of Nairobi Securities Exchange over the estimation period is summarized in Figure 4 below. Looking at the trend line charted for the daily closing market share price index data, shows a general growth in market performance as days approach the end of the

estimation period (day 1, May 10, 2010) and the commencement of the event window (day -60, May 11, 2010).



Figure 2 Market Share Price Performance during the estimation period May 11, 2009 to May 10, 2010 with trend line of expected market share price index (Source: Research data)

The event window period constituted 121 days being 60 days before August 4th, 2010, 60 days after August 4, 2010 and the actual event day of August 4th, 2010. Day zero, August 4th, was the day the referendum vote was taken. The Nairobi Securities Exchange was no trading on this day as it was closed. The event period spanned a calendar period between May 11, 2010 and October 29, 2010, both dates inclusive. Daily closing Market Share price Index data was collected from the Nairobi Securities Exchange over this event window. This data is presented in Appendix 3. As seen in Figure 5 below, the Nairobi Securities Exchange Market share price index realized results above those estimated to be realized during the event window.

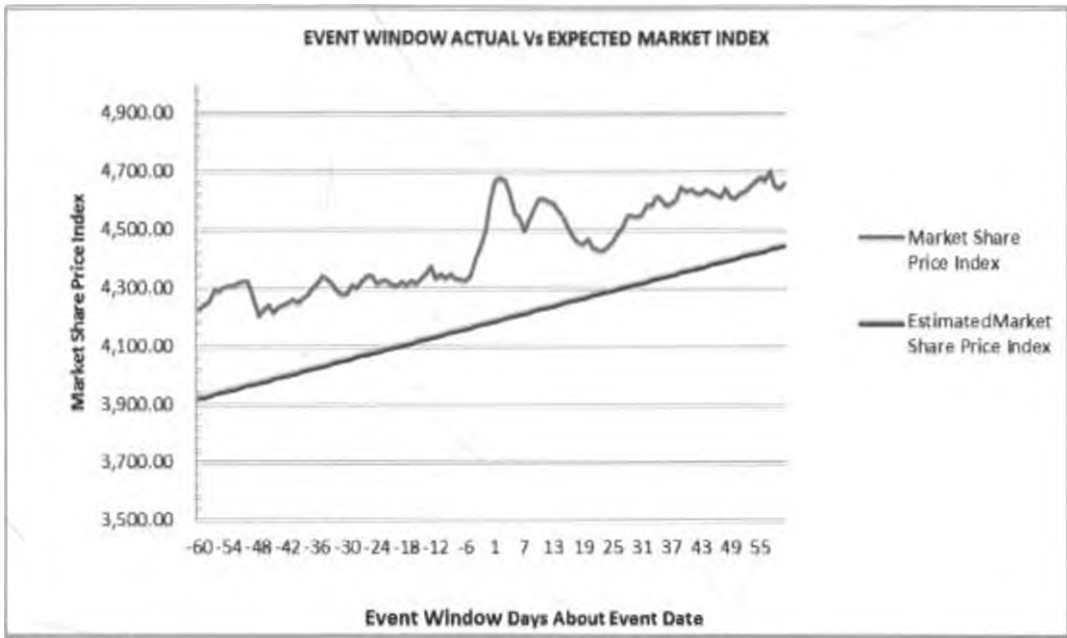


Figure 3: Event Window actual Market Share Price Index Versus the Expected Market Share Price Index based on estimation period projection (Source: Research data)

4.3 Results

The behaviour of abnormal returns over the event window and cumulative abnormal return for the Nairobi Securities Exchange about the August 4, 2010 Constitution of Kenya are presented below. Table 1 presents the key descriptive and inferential statistics of analysis that shows the general performance of the Nairobi Securities Exchange was better during the event window than during the estimation window. During the estimation window, the mean Market Share Price Index was 3365.95 points with a low of 2819.73 and a best performance of 4289.85. Comparatively, the event window posted an average market share price index of 4444.73 points with a low of 4203.40 and a best of 4701.15. This performance exhibited a positive Cumulative Abnormal return of 0.027% with an average return of 6.10%.

Table 1: Descriptive and Statistical information for Study Period(Source: Research data)

	Estimation Window	Event Window
mean Absolute Market Price index	3,365.95	4,444.73
Minimum Market share Price Index	2,819.73	4,203.40
Maximum Market share Price Index	4,289.85	4,701.15
Mean Abnormal Return	0.04%	6.10%
Standard Deviation	223.95	419.42
CAR		6.01%
t-test		0.027%

A further analysis of the abnormal returns during the 121 event period shows that the percentage change in abnormal market price share index tended to reduce as is depicted in Figure 6 below. While the general performance of Nairobi Stock Exchange exhibited an upward trend as shown in Figure 5 above, the percentage increase was gradually reducing with time. On the other hand, assessment of daily variability in Market share price index showed that there was greater variability around the event day of August 4, 2010. This is graphically depicted in Figure 7 below.



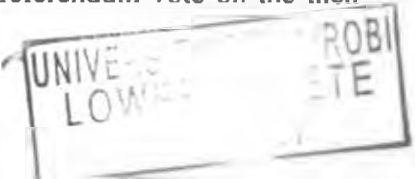
Figure 4: Percentage daily abnormal market share price index about the event date of August 4, 2010(Source: Research data)



Figure 5: Percentage day to day change in Market Share Price Index (Source: Research data)

4.4 Discussion

In theory, a market is informationally efficient in the semi-strong form is no trader can make abnormal gains sustainably by trading on relevant publicly available information about that market. This study assessed the behaviour of share prices generally as represented by the Market share price index of trading firms listed at the Nairobi Securities Exchange about the August 4, 2010 referendum vote on the then



proposed new constitution of Kenya. The key announcement was the declaration of the referendum vote result and pronouncement of whether the referendum ratified or rejected the proposed constitution.

The event of the referendum occurred at a time when the market performance was on a general positive growth trend. This is evident from the data plotting on Figure 4 and Figure 5. The fact that there was a sustained positive abnormal return relative to the projected performance based on estimation period data shows that the results announcement contained good political news. Moskaleiko (2005) concluded that only good political news could have significant impact on stock prices. He attributed this to the fact that economic players most likely revise their trading strategies in line with the new prospect contained in good political news than in bad political news which he said was found to be of little consequence to price behaviour. While the 68.55 % Yes win vote on the Kenyan constitution was good news, based on price reactions at the Nairobi Securities Exchange, Beaulieu, Cosset & Essaddam (2004) showed that a No win on the Quebec referendum of October 30, 1995 was good news too as it assured investors of reduced economic and political uncertainty. Robbani & Anantharaman (2002) reported findings that emerging markets are efficient in the semi-strong form as they carefully evaluated political events and their stocks reacted accurately and timely to both economic and political announcements. This strongly supports the fact that the Nairobi Securities Exchange is also efficient in the semi-strong form.

An efficient market of the semi-strong form will see event announcement information assimilated into share prices many days prior to event day. This shows that such a market has strong signalling effects on the market. This study found this to be true

about the Nairobi Securities Exchange as it started recording positive abnormal returns four days before the event date with the highest abnormal return being noted on the announcement day. This finding is consistent with Aduda & Chemarum (2010) who showed in their study that prices adjust days early in anticipation of stock split announcement.

Figure 6 showed a reduction in percentage of the abnormal returns that was observed in this study. This trend in price behaviour is also noted by Beaulieur, Cosset & Essaddam (2004) who also showed a reduction in percentage of abnormal returns on days succeeding the actual referendum event day supporting the price correction argument following an over or under reaction.

This study findings show that the Nairobi Securities Exchange reaction around referendum day was random in nature as shown in Figure 7. This is consistent with the random walk theory propagated by Fama (1969). Though, Raja, Sudhakar & Selvam (2009) did not find strong evidence for the randomness of price reaction in their study, their findings showed that price reaction to announcement of stock split of IT firms in India took place for only a few days surrounding the event day 0. These few days' reaction is consistent with the findings of this study that show significant unusual reaction between -10 and +10 days about the event day. A similar finding is also recorded by Aduda & Chemarum (2010) in their event study that assessed the effect of select company's stock split announcement on their prices at the Nairobi Securities Exchange.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The next section presents the summary of this paper followed by the conclusion. The last section presents the recommendations from this study.

5.2 Summary

The objective of this study was to establish the general price behaviour of securities listed at the Nairobi Securities Exchange around August 4, 2010 proposed constitution of Kenya referendum poll results announcement. To meet this objective, data was collected from the Nairobi Securities exchange about the general share price behaviour during the 121 event window period spanning 60 trading days before and after the referendum date (August 4, 2010); which was the event date. In addition data was collected for the estimation period of 253 days prior to the event window period. Results of the referendum vote were sourced from the web pages of the Independent Electoral and Boundaries Commission.

Using the event study design, the behaviour of the share prices during the event window was related to the expected behaviour based on data from the estimation period and the results presented graphically and computations of abnormal returns and cumulative abnormal returns analysed.

Results showed generally that the Nairobi Securities Exchange overreacted for two days immediately following the event day and thereafter entered the correction period reaching a similar index value on the last 5 days of the event window.

This study was designed to answer whether there was a relationship between referendum results announcements over the proposed constitution of Kenya and the

general market index movement of listed stocks at the Nairobi Securities Exchange. This relationship is important to various stakeholders and is influential in determining the trading strategies that investors can employ in future referendum or similar events that have long-term policy implication dimensions to a country's prospects. Based on the results presented above, the findings of this study have shown that there was a significant relationship between the referendum event and the behaviour of the trading securities listed at the Nairobi Securities Exchange.

5.3 Conclusion

This study has empirically examined the informational efficiency of Nairobi Securities Exchange with regards to the August 4, 2010 Constitution of Kenya referendum results announcement released by the Independent Electoral and Boundaries Commission (then called Interim Independent Electoral Commission). From the result of the study, it was observed that market performance started increasing days before the actual event day and attained peak performance on the day following event day zero. Based on this observation, traders who were optimistic that a YES vote win result could elicit positive market prospects could buy undervalued securities beforehand and target to offload them speculatively during the first few days following event day zero.

Besides, following the erratic market performance - /+ 5 days about the event date and the observed gradual correction period marked with reducing percentage growth in market performance, the study can conclude that though the market holds positive prospects over the new constitution as ratified through a YES win vote, the benefits of did not accrue immediately but are anticipated in the future. Therefore, conservative and long term investors can buy new shares around earlier than the erratic period or soon after it and hold them long term. Similarly, existing shareholders may use his

argument to hold on to their investment in anticipation of its value appreciating as the anticipated positive prospects expected of the new constitution materialize.

Generally, this study has shown that prices of security listed and actively trading at the Nairobi Securities Exchange reacted to the event of the referendum vote over the then proposed Constitution of Kenya referendum results announcement. The reaction took place for a few days surrounding event day 0; August 4, 2010. Thus this study concludes from these findings and discussions above that the Nairobi Securities Exchange is generally efficient in the semi-strong form with respect to the 2010 referendum results announcement.

5.4 Limitations to the study

The major limitation that I experienced included that of solely attributing the observed share price index behaviour to the referendum results. In reality, there are many factors that cause share price movement besides the event selected for investigation. In addition, as reported by MacKinlay (1997), it is not easy to fix the event date with absolute accuracy. This is due to the fact that, though the referendum event took place on 4th August 2010, the market may have known of the results of the referendum vote way in advance of the vote result announcement. Such that the announcement was only a confirmation of the markets held knowledge. This limitation may be justified by the fact that the market began trading on the anticipated Yes vote win over referendum many days before the actual win result was announced. This may explain the observed exponential per cent growth in the market share index days before the event date. Besides, there may be other factors that may have greatly influenced the observed general performance at the Nairobi Securities Exchange. Critical of these, that this paper did not consider, is the role of opinion poll results on their pollster

findings, firm specific announcements, sector wide announcements and general economic outlook during the event window.

5.5 Recommendations and Suggestions for Further Study

The results and conclusions drawn from this study are useful to all stakeholders aforementioned in section 1.6 above. Specifically, based on these findings and conclusions above, notwithstanding the inherent limitations observed, this study recommends that the general public be appreciative of non-economic factors such as politics as they too do influence the behaviour of securities listed securities exchanges and should factor in such events in their analysis of trading strategies. In addition, investors should be keen on the implications of political decisions on the prospects of securities that they currently hold or wish to hold in the short term and in the long term. This knowledge, as this study has shown, can guide investors in shaping their trading strategies. It is therefore invaluable to fund and asset management companies as well as other entities that are keen on performing an environmental scan with the view of assessing the implication of political events on their operations and performance. Finally, while this study has contributed to the identified gap of knowledge discussed in section 1.4 above, it reveals an opportunity for other interested researchers to undertake an event study relating the general effect of referendum votes on performance of the Nairobi Securities Exchange with a reject result in 2005 against an approval result of 2010 over comparable event and estimation window periods.

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APPENDICES

Appendix I

POLL RESULT ANNOUNCEMENTS

INTERIM INDEPENDENT ELECTORAL COMMISSION 2010 FINAL REFERENDUM RESULTS											
CONSTITUTION OF KENYA REFERENDUM VOTE											
Constituency	VOTES							% of the Valid votes		% of the Votes cast	
	Valid	Rejected	Invalid	Not Cast	Total no of Registered	Valid Cast	Valid Votes	Turn Out	% of YES	% of NO	% of Valid
210	4,082,588	18,633	3,510,342	12,616,627	9106285	6887652	00	72.18	68.55	31.45	64.51

Source: Extracted from website of the "Interim Independent Electoral Commission 2010 Final Referendum Results" www.iehc.or.ke

Appendix 2 DAILY MARKET INDEX DURING ESTIMATION PERIOD

Date	Market Index	Trade Day	% Abnormal Daily Return	Market Index	Trade Day	% Abnormal Daily Return	Date	Market Index	Trade Day	% Abnormal Daily Return	Date	Market Index	Trade Day	% Abnormal Daily Return	
11/05/2009	2,879.96	251	0.23%	1,158.42	183	0.23%	17/11/2009	1,141.66	173	0.07%	19/02/2010	1,551.99	51	0.00%	
11/05/2009	2,879.96	251	0.23%	1,158.42	183	0.23%	18/11/2009	1,112.80	170	-0.93%	20/02/2010	1,562.47	54	0.24%	
11/05/2009	2,879.96	251	0.23%	1,158.42	183	0.23%	19/11/2009	1,111.94	119	-0.15%	21/02/2010	1,556.21	53	0.94%	
14/05/2009	2,816.16	250	-0.11%	1,208/2009	1,234.11	184	-0.88%	20/11/2009	1,132.62	118	0.00%	22/02/2010	1,548.11	52	1.04%
15/05/2009	2,841.41	249	0.47%	1,160/2009	1,232.42	183	-0.06%	23/11/2009	1,156.55	117	0.76%	25/02/2010	1,627.80	55	-0.15%
18/05/2009	2,846.86	248	-0.19%	1,150/2009	1,219.42	182	-0.40%	24/11/2009	1,154.71	116	0.06%	26/02/2010	1,629.61	56	0.00%
19/05/2009	2,855.82	247	0.37%	1,200/2009	1,182.71	181	-1.27%	25/11/2009	1,188.71	115	1.00%	01/03/2010	1,621.06	49	0.23%
20/05/2009	2,868.74	246	0.45%	1,170/2009	1,179.81	180	-0.15%	26/11/2009	1,191.81	114	0.15%	02/03/2010	1,617.11	48	1.07%
21/05/2009	2,877.56	245	0.31%	1,240/2009	1,153.14	179	-0.84%	27/11/2009	1,197.84	113	0.18%	03/03/2010	1,668.53	47	0.25%
22/05/2009	2,883.07	244	0.19%	1,130/2009	1,131.87	178	1.16%	30/11/2009	1,189.55	112	-0.26%	04/03/2010	1,675.94	46	0.23%
25/05/2009	2,884.80	243	0.06%	1,130/2009	1,098.92	177	0.45%	01/12/2009	1,176.45	111	-0.41%	05/03/2010	1,706.80	45	0.84%
26/05/2009	2,871.42	242	-0.47%	1,130/2009	1,097.07	176	0.25%	02/12/2009	1,174.22	110	-0.07%	08/03/2010	1,749.11	44	0.97%
27/05/2009	2,858.42	241	-0.45%	1,100/2009	1,101.68	175	0.34%	07/12/2009	1,170.51	109	-0.12%	09/03/2010	1,810.74	43	1.27%
28/05/2009	2,849.43	240	-0.32%	1,100/2009	1,126.04	174	0.75%	08/12/2009	1,184.55	108	0.44%	10/03/2010	1,900.12	42	1.29%
29/05/2009	2,852.57	239	0.11%	1,100/2009	1,175.71	173	1.56%	09/12/2009	1,186.94	107	0.09%	11/03/2010	1,964.86	41	1.61%
31/05/2009	2,860.17	238	0.27%	1,100/2009	1,188.87	172	0.41%	08/12/2009	1,197.04	106	0.19%	12/03/2010	1,915.13	40	1.17%
01/06/2009	2,890.79	237	1.05%	04/09/2009	1,185.98	171	0.09%	09/12/2009	1,192.86	105	0.07%	15/03/2010	1,961.10	39	1.13%
04/06/2009	2,914.77	236	1.16%	07/09/2009	1,184.12	170	-0.19%	10/12/2009	1,181.76	104	-0.15%	16/03/2010	1,996.45	38	0.86%
05/06/2009	2,912.10	235	-0.09%	08/09/2009	1,126.61	169	-1.97%	11/12/2009	1,157.22	103	-0.54%	17/03/2010	1,986.19	37	-0.14%
08/06/2009	2,927.41	234	0.52%	09/09/2009	1,131.14	168	0.40%	14/12/2009	1,147.41	102	-0.15%	18/03/2010	1,908.17	36	1.45%
09/06/2009	2,945.95	233	0.61%	10/09/2009	1,202.11	167	0.77%	15/12/2009	1,164.14	101	0.19%	19/03/2010	1,954.40	35	1.96%
10/06/2009	2,951.14	232	0.26%	11/09/2009	1,298.15	166	0.19%	16/12/2009	1,174.73	100	0.11%	22/03/2010	1,990.22	34	0.90%
11/06/2009	2,959.47	231	0.21%	14/09/2009	1,091.04	165	-0.10%	17/12/2009	1,186.76	99	0.18%	23/03/2010	1,910.56	33	0.51%
12/06/2009	2,996.59	230	1.24%	15/09/2009	1,088.18	164	-0.16%	18/12/2009	1,194.60	98	0.25%	24/03/2010	1,917.81	32	0.18%
15/06/2009	1,010.17	229	0.45%	16/09/2009	1,085.00	163	-0.27%	21/12/2009	1,184.21	97	-0.11%	25/03/2010	1,967.87	31	0.62%
16/06/2009	1,051.94	228	1.40%	17/09/2009	1,084.42	162	0.01%	22/12/2009	1,199.78	96	0.49%	26/03/2010	1,995.16	30	0.10%
17/06/2009	1,087.74	227	1.19%	18/09/2009	1,045.78	161	-0.61%	23/12/2009	1,189.59	95	0.37%	29/03/2010	1,929.71	29	-0.61%
18/06/2009	1,202.18	226	1.07%	22/09/2009	1,037.87	160	-0.26%	24/12/2009	1,209.67	94	0.61%	30/03/2010	1,957.83	28	0.69%
19/06/2009	1,229.67	225	2.16%	21/09/2009	1,040.10	159	0.07%	28/12/2009	1,212.51	93	0.09%	31/03/2010	1,972.93	27	0.38%
22/06/2009	1,345.62	224	1.97%	24/09/2009	1,040.69	158	0.07%	29/12/2009	1,235.89	92	0.72%	01/04/2010	1,980.01	26	-0.03%
23/06/2009	1,377.17	223	0.71%	25/09/2009	1,046.54	157	0.18%	30/12/2009	1,232.80	91	-0.10%	06/04/2010	1,961.91	25	0.25%
24/06/2009	1,339.61	222	-1.55%	28/09/2009	1,031.01	156	-0.76%	31/12/2009	1,247.84	90	0.45%	07/04/2010	1,959.15	24	-0.07%
25/06/2009	1,346.43	221	0.21%	29/09/2009	1,015.72	155	-0.24%	04/01/2010	1,261.17	89	0.42%	08/04/2010	1,962.91	23	0.07%
26/06/2009	1,346.41	220	0.00%	30/09/2009	1,005.41	154	-0.14%	05/01/2010	1,254.26	88	-0.21%	09/04/2010	1,987.40	22	0.13%
29/06/2009	1,378.00	219	0.96%	01/10/2009	1,027.11	153	0.56%	06/01/2010	1,256.51	87	0.18%	12/04/2010	1,974.02	21	0.16%
30/06/2009	1,354.56	218	-0.50%	02/10/2009	1,017.00	152	-0.49%	07/01/2010	1,282.98	86	0.49%	13/04/2010	1,980.17	20	-0.14%
01/07/2009	1,394.54	217	0.00%	05/10/2009	1,021.49	151	-0.51%	08/01/2010	1,301.58	85	0.64%	14/04/2010	1,971.88	19	0.54%
02/07/2009	1,417.66	216	1.68%	06/10/2009	1,020.62	150	-0.04%	11/01/2010	1,369.59	84	1.17%	15/04/2010	1,999.44	18	0.63%
03/07/2009	1,381.20	215	-0.90%	07/10/2009	1,046.81	149	-1.19%	12/01/2010	1,344.54	83	-0.19%	16/04/2010	1,911.48	17	0.39%
06/07/2009	1,360.71	214	-0.81%	08/10/2009	1,087.20	148	0.01%	13/01/2010	1,370.17	82	0.79%	19/04/2010	1,995.54	16	-0.39%
07/07/2009	1,359.92	213	-0.02%	09/10/2009	1,081.88	147	-0.13%	14/01/2010	1,426.41	81	1.64%	20/04/2010	1,929.86	15	0.15%
08/07/2009	1,380.68	212	-0.88%	12/10/2009	1,061.01	146	-0.76%	15/01/2010	1,491.18	80	1.86%	21/04/2010	1,948.99	14	0.97%
09/07/2009	1,311.14	211	-0.54%	13/10/2009	1,076.80	145	0.53%	18/01/2010	1,545.82	79	1.54%	22/04/2010	1,981.43	13	0.80%
10/07/2009	1,296.21	210	-0.50%	14/10/2009	1,069.15	144	-0.16%	19/01/2010	1,610.60	78	1.79%	23/04/2010	1,936.01	12	1.06%
11/07/2009	1,286.56	209	-0.80%	15/10/2009	1,001.21	143	-1.07%	20/01/2010	1,619.99	77	0.01%	26/04/2010	1,978.11	11	1.27%
14/07/2009	1,270.19	208	-1.21%	16/10/2009	1,031.79	142	1.01%	21/01/2010	1,628.53	76	0.32%	27/04/2010	1,989.85	10	0.27%
15/07/2009	1,220.90	207	-0.87%	19/10/2009	1,047.43	141	0.15%	22/01/2010	1,628.68	75	0.00%	28/04/2010	1,980.80	9	-0.21%
16/07/2009	1,258.75	206	1.10%	21/10/2009	1,031.10	140	-0.19%	23/01/2010	1,607.45	74	-0.59%	29/04/2010	1,970.87	8	-0.29%
17/07/2009	1,281.01	205	0.74%	22/10/2009	1,049.99	139	0.67%	26/01/2010	1,607.14	73	-0.01%	30/04/2010	1,931.24	7	0.89%
20/07/2009	1,302.77	204	0.66%	23/10/2009	1,044.44	138	-0.18%	27/01/2010	1,598.81	72	-0.37%	01/05/2010	1,917.18	6	-0.18%
21/07/2009	1,301.40	203	-0.04%	26/10/2009	1,067.23	137	0.47%	28/01/2010	1,572.18	71	-0.74%	04/05/2010	1,910.54	5	-0.03%
22/07/2009	1,310.14	202	0.37%	27/10/2009	1,087.22	136	-0.46%	29/01/2010	1,565.18	70	-0.70%	05/05/2010	1,943.57	4	0.90%
23/07/2009	1,317.82	201	0.22%	28/10/2009	1,047.87	135	-0.15%	01/02/2010	1,578.27	69	0.39%	06/05/2010	1,920.74	3	0.44%
24/07/2009	1,308.46	200	-0.18%	29/10/2009	1,066.61	134	0.59%	02/02/2010	1,577.15	68	-0.06%	07/05/2010	1,927.61	2	0.16%
27/07/2009	1,295.47	199	-0.19%	30/10/2009	1,083.41	133	0.57%	03/02/2010	1,581.56	67	0.18%	10/05/2010	1,937.35	1	0.95%
28/07/2009	1,266.97	198	-0.87%	01/11/2009	1,082.92	132	-0.07%	04/02/2010	1,564.74	66	-0.07%				
29/07/2009	1,247.79	197	-0.75%	03/11/2009	1,081.07	131	-0.06%	05/02/2010	1,599.40	65	0.42%				
30/07/2009	1,248.09	196	0.10%	04/11/2009	1,076.44	130	-0.15%	08/02/2010	1,598.77	64	-0.17%				
01/08/2009	1,223.10	195	-0.81%	05/11/2009	1,077.11	129	0.02%	09/02/2010	1,604.91	63	0.18%				
03/08/2009	1,247.08	194	-0.74%	06/11/2009	1,089.44	128	0.40%	10/02/2010	1,604.74	62	-0.01%				
04/08/2009	1,224.53	193	-0.67%	09/11/2009	1,082.86	127	-0.29%	11/02/2010	1,591.02	61	-0.88%				
05/08/2009	1,224.53	192	-0.16%	10/11/2009	1,094.11	126	0.38%	12/02/2010	1,606.46	60	0.43%				
08/08/2009	1,217.20	191	-0.40%	11/11/2009	1,114.53	125	0.65%	15/02/2010	1,600.47	59	-0.17%				
09/08/2009	1,257.28	190	0.62%	12/11/2009	1,111.43	124	0.54%	16/02/2010	1,572.92	58	-0.81%				
10/08/2009	1,259.44	189	0.06%	13/11/2009	1,136.89	123	0.19%	17/02/2010	1,525.92	57	-1.22%				
11/08/2009	1,261.76	188	0.07%	16/11/2009	1,142.80	122	0.17%	18/02/2010	1,536.72	56	0.49%				

Appendix 3 DAILY MARKET INDEX DURING TEST PERIOD

Date	Market Index	Trade Date	% Abnormal Daily Return	Date	Market Index	Trade Date	% Abnormal Daily Return
11/05/2010	4,226.63	-60	-0.25%	05/08/2010	4,667.47	1	1.66%
12/05/2010	4,241.79	-59	0.36%	06/08/2010	4,674.31	2	0.15%
13/05/2010	4,251.20	-58	0.22%	09/08/2010	4,655.36	3	-0.17%
14/05/2010	4,288.84	-57	0.89%	10/08/2010	4,626.41	4	-0.86%
17/05/2010	4,285.61	-56	-0.08%	11/08/2010	4,554.24	5	-1.56%
18/05/2010	4,299.50	-55	0.32%	12/08/2010	4,544.52	6	-0.21%
19/05/2010	4,305.85	-54	0.15%	13/08/2010	4,495.27	7	-1.08%
20/05/2010	4,306.30	-53	0.01%	16/08/2010	4,532.46	8	0.83%
21/05/2010	4,314.90	-52	0.20%	17/08/2010	4,574.54	9	0.93%
24/05/2010	4,319.66	-51	0.11%	18/08/2010	4,604.77	10	0.66%
25/05/2010	4,320.06	-50	0.01%	19/08/2010	4,603.26	11	-0.03%
26/05/2010	4,262.24	-49	-1.34%	20/08/2010	4,597.07	12	-0.13%
27/05/2010	4,203.40	-48	-1.38%	23/08/2010	4,588.61	13	-0.18%
28/05/2010	4,221.11	-47	0.42%	24/08/2010	4,564.83	14	-0.52%
31/05/2010	4,241.81	-46	0.49%	25/08/2010	4,541.70	15	-0.51%
02/06/2010	4,212.22	-45	-0.70%	26/08/2010	4,509.56	16	-0.71%
03/06/2010	4,234.29	-44	0.52%	30/08/2010	4,476.19	17	-0.74%
04/06/2010	4,242.10	-43	0.18%	31/08/2010	4,454.59	18	-0.48%
07/06/2010	4,249.44	-42	0.17%	01/09/2010	4,446.68	19	-0.18%
08/06/2010	4,257.58	-41	0.19%	02/09/2010	4,466.96	20	0.46%
09/06/2010	4,247.09	-40	-0.25%	03/09/2010	4,437.69	21	-0.66%
10/06/2010	4,263.06	-39	0.38%	06/09/2010	4,427.77	22	-0.22%
11/06/2010	4,272.72	-38	0.23%	07/09/2010	4,424.72	23	-0.07%
14/06/2010	4,298.84	-37	0.61%	08/09/2010	4,442.60	24	0.40%
15/06/2010	4,315.31	-36	0.38%	09/09/2010	4,457.47	25	0.33%
16/06/2010	4,337.63	-35	0.52%	10/09/2010	4,486.28	26	0.65%
17/06/2010	4,327.40	-34	-0.24%	13/09/2010	4,503.86	27	0.39%
18/06/2010	4,312.44	-33	-0.35%	14/09/2010	4,545.86	28	0.93%
21/06/2010	4,284.62	-32	-0.65%	15/09/2010	4,547.37	29	0.03%
22/06/2010	4,272.97	-31	-0.27%	16/09/2010	4,541.25	30	-0.13%
23/06/2010	4,277.64	-30	0.11%	17/09/2010	4,549.87	31	0.19%
24/06/2010	4,309.51	-29	0.75%	20/09/2010	4,583.01	32	0.73%
25/06/2010	4,296.61	-28	-0.30%	21/09/2010	4,579.93	33	-0.07%
28/06/2010	4,318.80	-27	0.52%	22/09/2010	4,613.75	34	0.74%
29/06/2010	4,339.52	-26	0.48%	23/09/2010	4,601.81	35	-0.26%
30/06/2010	4,339.28	-25	-0.01%	24/09/2010	4,581.72	36	-0.44%
01/07/2010	4,313.01	-24	-0.61%	27/09/2010	4,589.83	37	0.18%
02/07/2010	4,324.63	-23	0.27%	28/09/2010	4,605.11	38	0.33%
05/07/2010	4,323.85	-22	-0.02%	29/09/2010	4,643.70	39	0.84%
06/07/2010	4,309.41	-21	-0.33%	30/09/2010	4,629.80	40	-0.30%
07/07/2010	4,304.38	-20	-0.12%	01/10/2010	4,636.18	41	0.14%
08/07/2010	4,321.39	-19	0.40%	04/10/2010	4,623.81	42	-0.27%
09/07/2010	4,308.35	-18	-0.30%	05/10/2010	4,623.19	43	-0.01%
12/07/2010	4,322.99	-17	0.34%	06/10/2010	4,638.18	44	0.32%
13/07/2010	4,310.81	-16	-0.28%	07/10/2010	4,626.19	45	-0.26%
14/07/2010	4,329.95	-15	0.44%	08/10/2010	4,620.21	46	-0.13%
15/07/2010	4,344.84	-14	0.34%	11/10/2010	4,611.37	47	-0.19%
16/07/2010	4,372.53	-13	0.64%	12/10/2010	4,642.28	48	0.67%
19/07/2010	4,332.52	-12	-0.92%	13/10/2010	4,612.57	49	-0.64%
20/07/2010	4,345.30	-11	0.29%	14/10/2010	4,608.36	50	-0.09%
21/07/2010	4,329.95	-10	-0.35%	15/10/2010	4,625.96	51	0.38%
22/07/2010	4,345.86	-9	0.37%	18/10/2010	4,629.26	52	0.07%
23/07/2010	4,329.92	-8	-0.37%	19/10/2010	4,648.20	53	0.41%
26/07/2010	4,326.01	-7	-0.09%	21/10/2010	4,664.03	54	0.34%
27/07/2010	4,325.20	-6	-0.02%	22/10/2010	4,678.10	55	0.30%
28/07/2010	4,338.25	-5	0.30%	25/10/2010	4,666.21	56	-0.25%
29/07/2010	4,398.32	-4	1.38%	26/10/2010	4,701.15	57	0.75%
30/07/2010	4,438.58	-3	0.92%	27/10/2010	4,649.52	58	-1.10%
02/08/2010	4,494.78	-2	1.27%	28/10/2010	4,640.42	59	-0.20%
03/08/2010	4,591.04	-1	2.14%	29/10/2010	4,659.56	60	0.41%

Appendix 4

LIST OF COMPANIES TRANSACTING DURING TEST PERIOD

FIRM NAME	FIRM NAME
AGRICULTURAL SECTOR	The Co-operative Bank of Kenya Ltd Ord 1.00
Kakuzi Ord.5.00	
Rea Vipingo Plantations Ltd	INDUSTRIAL AND ALLIED
Sasini Ltd Ord 1.00	Athi River Mining Ord 5.00
	B.O.C Kenya Ltd Ord 5.00
COMMERCIAL AND SERVICES	Bamburi Cement Ltd Ord 5.00
AccessKenya Group Ltd Ord. 1.00	British American Tobacco Kenya Ltd Ord 10.00
Car & General (K) Ltd Ord 5.00	Carbacid Investments Ltd Ord 5.00
CMC Holdings Ltd Ord 0.50	Crown Berger Ltd Ord 5.00
Kenya Airways Ltd Ord 5.00	E.A.Cables Ltd Ord 0.50
Marshalls (E.A.) Ltd Ord 5.00	E.A.Portland Cement Ltd Ord 5.00
Nation Media Group Ord. 2.50	East African Breweries Ltd Ord 2.00
Safaricom Ltd Ord 0.05	Eveready East Africa Ltd Ord.1.00
Scangroup Ltd Ord 1.00	KenGen Ltd Ord. 2.50
Standard Group Ltd Ord 5.00	KenolKobil Ltd Ord 0.50
TPS Eastern Africa (Serena) Ltd Ord 1.00	Kenya Power & Lighting Co Ltd Ord 20.00
	Mumias Sugar Co. Ltd Ord 2.00
FINANCE AND INVESTMENT	Sameer Africa Ltd Ord 5.00
Barclays Bank Ltd Ord 2.00	Total Kenya Ltd Ord 5.00
Centum Investment Co Ltd Ord 0.50	Unga Group Ltd Ord 5.00
CFC Stanbic Holdings Ltd ord.5.00	
Diamond Trust Bank Kenya Ltd Ord 4.00	ALTERNATIVE INVESTMENT MARKET SEGMENT
Equity Bank Ltd Ord 0.50	City Trust Ltd Ord 5.00
Housing Finance Co Ltd Ord 5.00	Eaagads Ltd Ord 1.25
Jubilee Holdings Ltd Ord 5.00	Express Ltd Ord 5.00
Kenya Commercial Bank Ltd Ord 1.00	Williamson Tea Kenya Ltd Ord 5.00
Kenya Re-Insurance Corporation Ltd Ord 2.50	Kapchorua Tea Co. Ltd Ord Ord 5.00
National Bank of Kenya Ltd Ord 5.00	Kenya Orchards Ltd Ord 5.00
NIC Bank Ltd Ord 5.00	Limuru Tea Co. Ltd Ord 20.00
Olympia Capital Holdings Ltd Ord 5.00	FIXED INCOME SECURITIES MARKET SEGMENT-PREFERENCE SHARES
Pan Africa Insurance Holdings Ltd Ord 5.00	Kenya Power & Lighting Ltd 4% Pref 20.00
Standard Chartered Bank Ltd Ord 5.00	Kenya Power & Lighting Ltd 7% Pref 20.00