EFFECT OF STOCK PRICES TO ANNOUNCEMENTS OF COMPANY OF THE YEAR AWARDS (COYA): A CASE OF COMPANIES LISTED IN THE NAIROBI STOCK EXCHANGE

Presented
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D61/P /7195/03

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT OF THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.

NOVEMBER 2008

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DECLARATION

This is my original proposal work and has not been presented to any other college, institution or university.

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Signed: 17/11/2008

This research proposal has been presented for presentation with my approval as the university supervisor:

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By:

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Signed: 19-11-08

DEDICATION

I dedicate this project to my loving Mum Teresa Wambui Ndirangu, Sisters Jacqueline Wangui Ndirangu, and Faith Nyambura Ndirangu whose moral support propelled me throughout this research process. I will forever be grateful to them.

I also wish to extend my gratitude to my colleagues Kibet and Leshore for their encouragement.

Above all I wish to thank the Almighty God for seeing me through it all.

ABSTRACT

The main objective of this study is to establish whether or not COYA announcements have information content.

The study aimed at establishing whether or not COYA announcements have any effect on share prices for companies listed in the Nairobi stock Exchange (see Appendix 4) and therefore it is an event study. This design is valuable for detailed analysis. Young, (1960) and Kothari, (1990) concur that an event study often provides focused and valuable insights to a phenomena that may be vaguely known and less understood.

The results for this study have also shown that when a listed company participates in the COYA, the cumulative adjusted abnormal returns are affected depending on whether the company won or not. Holding other factors constant, the results indicate that a company that wins an award has positive cumulative adjusted returns as opposed to a company that lost. However, the study could have been affected by other anomalies such as the Weekend and Monday effects. In addition, the information shows that the number of companies participating each year varies. This means that it would be difficult for any meaningful conclusion to be drawn from this study. That is long-term trend performance on individual participating cannot be drawn from this study.

ACKNOWLEDGEMENT

I wish to acknowledge and thank my supervisor, Mr. Lishenga and my moderator Mr. Nganga, for their constructive criticism consistent guidance, constructive feedback and helpful advice that gave me energy and confidence to work hard on this project.

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CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The behaviour of security prices has been a central area of research over the years. Investors are keen on this behaviour as it provides them with information which enables them to make decisions on which shares to buy, hold or sell in order to maximize their profits (Fama, 1970). Security traders use this information for speculative purposes. The degree of speculation depends on how efficient the market is. Most individuals who buy and sell securities do so under the assumption that the securities they are buying are worth more than the price they are paying, while the securities they are selling are worth less than the selling price. But if markets are efficient and current prices fully reflect all information, then buying and selling of securities in an attempt to outperform the market will effectively be a game of chance rather than skill.

An efficient market is defined as a market where there are large number of rational profit maximisers actively competing with each trying to predict future market values of individual securities and where important current information is almost freely available to all participants (Sharpe, 2001). In an efficient market, competition among the many intelligent participants leads to a situation where at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which as of now, the market expects to take place in the future. In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value.

A generation ago, the efficient market hypothesis was widely accepted by academic financial economists; for example in the influential survey article, "Efficient Capital Markets" by Fama (1970) it was generally believed that securities markets were extremely efficient in reflecting information about individual stocks and about the stock market as a whole. The accepted view was that when there was new information, the news spread very quickly and was incorporated into the prices of securities immediately. Thus, neither technical analysis, which is the study of past stock prices in an attempt to predict future prices, nor even

fundamental analysis, which is the analysis of financial information such as company earnings, asset values, etc., to help investors select "undervalued" stocks, would enable an investor to achieve returns greater than those that could be obtained by holding a randomly selected portfolio of individual stocks with comparable risk.

The efficient market hypothesis is associated with the idea of a "random walk," which is a term loosely used in the finance literature to characterize a price series where all subsequent price changes represent random departures from previous prices. The logic of the random walk idea is that if the flow of information is unimpeded and information is immediately reflected in stock prices, then tomorrow's price change will reflect only tomorrow's news and will be independent of the price changes today. However, news is by definition unpredictable and, thus, resulting price changes must be unpredictable and random. As a result, prices fully reflect all known information, and even uninformed investors buying a diversified portfolio at the prices given by the market will obtain a rate of return as generous as that achieved by the experts.

In Finance the Efficient Market Hypothesis (EMH) was originally proposed in a PhD Thesis by Fama (1970), who believed that investors made well informed and intelligent decisions. Markets were considered to be efficient and rational in determining financial prices. At any given time, individual stocks were regarded to be priced at the correct level based on all known information. This was supposed to be ensured by the ready availability of ample information and by the vast number of rational investors keenly following each stock. Prices moved with the influx of new information. Free markets could only be inefficient if investors ignored price sensitive data. Whoever used this data could make large profits and the market would readjust becoming efficient once again.

Economists (e.g. Fama, 1970 and Sharpe 2001), often define three levels of market efficiency, which are distinguished by the degree of information reflected in security prices. In the first level, prices reflect the information contained in the record of past prices. This is called the weak form of efficiency. If markets are efficient in the weak sense, then it is impossible to make superior profits by studying past returns. Prices will follow a random walk. The second level of efficiency requires that prices reflect not just past prices but all

other published information such as you might get from reading the financial press. This is known as the semi strong form of market efficiency. If markets are efficient in this sense, then prices will adjust immediately to public information such as announcements of earnings, dividends (Brennan (1970) and Ramaswang (1980)), company awards and possible takeovers or mergers. Finally, there is the strong form of efficiency which reflects all the information that can be acquired by painstaking analysis of the company and the economy. In such a market we would observe both lucky and unlucky investors but we wouldn't find any superior investment managers who can consistently beat the market Sharpe (2001).

In reality markets are neither perfectly efficient nor completely inefficient. All markets are efficient to a certain extent, some more so than others. Rather than being an issue of black and white, Market efficiency is more a matter of shades of Grey. There have been scores of studies that have documented long term historical anomalies in the stock market that seem to contradict the efficient market hypothesis. While the existence of these anomalies is well accepted, the question of whether investors can exploit them to earn superior returns in the future is subject to debate. Investors evaluating anomalies should keep in mind that they have existed historically, there is no guarantee they will persist in the future. If they do persist, transaction and hidden costs may prevent out performance in the future.

1.2 Company Awards

Hitherto, most of the Kenyan business management practices were based on foreign (mostly Western) business theories, practices, models, concepts and case studies. These foreign business practices have evolved through the years to the current levels due to drastic and turbulent changes in the business operating environment. Business Management Practice Award Programmes and events have encouraged enterprises to continuously evaluate their management styles against appropriately developed benchmarks. In light of these, Kenya Institute of Management (KIM) recognized the need to develop Best Management Practice exercise in Kenya. The Company of the Year Award is one way through which this can be achieved.

The Company of the Year Awards (COYA) is an annual programme that seeks to identify and publicly recognize companies that demonstrate excellence and integrity in their management practices. The first COYA assessment was held in 2000. COYA is born out of the assumption, now proved true, that a lot of Managers in Kenya are working very hard, under very difficult circumstances, to create goods and services that we need to consume and to keep Kenyans in employment yet, these efforts go largely unrecognized. In fact, the only time that attention is paid to our companies is when things go wrong. COYA's main objectives are to provide a framework for assessing management practices, develop local case studies and successful business models for the development of future managers, improve management practices through benchmarking and provide positive publicity for the participants.

Using a management practice assessment tool developed by a team of KIM management consultants, COYA enables you to identify your key strengths and areas that require improvement in various management categories. This information is summarized in a report, which is presented to the management for action. During the COYA Gala Night, the most impressive companies receive awards for excellence for each management category, with the top overall company being declared the "Company of the Year"

A company award is basically a form of recognition that is given to a company that demonstrates excellence and integrity in its management practices e.g. financial management, supply chain management, Environmental management, quality management among others. Sometimes these awards are given to various individuals who are nominated by their companies e.g. CEO of the year, Manager of the year etc. These awards seek individuals who have excelled in their respective fields.

The following are the various categories that are assessed under COYA: Corporate Planning, Marketing, Human Resource Management, Information Management, Quality Management, Finance, Supply chain Management, Innovation and Creativity, Corporate Citizenship and Environment.

These company awards usually enhance a company's corporate image because the recognition received from the media either through the newspapers, television or radio goes a long way in improving the company's business as a whole in terms of increased sales which translate to increased profits and in the long run increased shareholder's wealth as seen by increase in share prices at the stock market.

In Kenya there are various types of company awards some of these include; FIRE Awards by Institute of Certified Public Accountants, NGOYA Awards (NGO of the Year Award) by NGO Coordination Board, East Africa's Most Respected Company by Price Waterhouse Coopers, PRSK Awards by Public Relations Society of Kenya, Warrior Awards by Marketing Society of Kenya, Cleaner Production Awards by Kenya National Cleaner Production Centre and COYA (Company of the Year Award) by Kenya Institute of Management among others.

1.3 Statement of the Problem

In the levels of market efficiency described above there is the semi strong form of market efficiency which states that all past and publicly available information are fully reflected in the stock prices. This information includes various announcements of dividends, earnings, stock splits, mergers & takeovers and company awards.

Various studies by Brennan, (1970) and Ramaswang (1980) have shown that these announcements usually have positive impacts on the share prices. In this study the researcher seeks to establish whether announcements of company awards have any impact on share prices. The main emphasis will be on the COYA awards. These awards were established in the year 2000 hence there is availability of data to establish a relevant trend and effect on the share prices if any.

Ondigo (1995), examined information content of 18 "blue chip" companies quoted in the Nairobi Stock Exchange in the period 1990-1994. The study revealed that the annual reports and accounts of the sample firms do not have information content which is statistically significant. Hence it is futile for the investor to spend a lot of time and effort in analyzing both the annual report and accounts. The contents of that annual report and accounts are

already captured through more timely media which includes interim reports, dividends, bonuses and individual company releases. As far as the semi-strong model of the EMH is concerned, the study does not provide any evidence and the result of the study was inconclusive.

Onyango (2004) in his study covered 16 companies out of a population of 48 listed companies at the NSE, covering the period 1998-2003. The study concluded that the earnings announcements contain relevant information to which are fully impounded in stock prices prior to or almost instantaneously at the time of announcement. The year 2003 was an outlier that evidences the existence of momentum in stock returns. Secondary evidence resulting from the study is that NSE shows presence of semi strong model of EMH. He suggested further research on information content to support this conclusion.

Mbugua (2004) in his research examined the impact of stock dividend size on stock returns on 24 companies which issued stock dividend/stock split (bonus). Results indicate that the stock dividend announcements have an impact on stock return. The results also indicted that the size of stock dividends have an effect on stock returns.

Ogwagwa (2006) studied the operations improvement initiatives & operational performance of companies that participate in the COYA. However, he failed to give an indication of how the share prices react to such announcements. Hence the need to investigate the effect of COYA announcements on the share prices for companies listed at the NSE.

1.4 Objectives of the Study

The main objective of this study is to establish whether or not COYA announcements have information content.

1.5 Hypothesis

H_o: The researcher hypothesises that abnormal returns associated with COYA announcements do not differ significantly from zero

H_a: The researcher hypothesises that abnormal returns associated with COYA announcements differ significantly from zero.

1.6 Significance of the Study

The study will benefit a number of interest groups as follows:

1. Investors will be able to strategise by ensuring that they invest in companies that display healthy management practices that yield high returns.
2. For academicians it will create a foundation upon which related studies or in-depth analysis can be undertaken.
3. Stockbrokers will also benefit in that they will be able to gather relevant information about the companies listed and thus be better placed to give sound and reliable advice to their clients.
4. For various companies this study will form a basic tool upon which they can adopt the healthy management practices as displayed by the award winning companies. This will enable them to bench mark and enhance their competitiveness.

CHAPTER TWO

LITERTURE REVIEW

2.1 Theoretical studies

This study analyzes the price effects of COYA on share prices of firms whose stock is traded on the Nairobi Stock Exchange (NSE). It also tests empirically some of the hypothesis that have been advanced, by prior literature, to explain the abnormal price reaction to COYA announcements. Major announcements like dividends, stock splits, awards, mergers and acquisitions have an effect on the share prices of a company. For instance DeBont (1985) and Thaler (1987) present documented evidence on both over and under reaction to earnings announcements that is consistent with stock prices overreacting to current changes in earnings. Studies of U.S. stock splits, including Grinblatt, et al (1984), Lamoureux and Poon (1987), McNichols and Dravid (1990), Maloney and Mulherin (1992) and Ikenberry et al (1996), report evidence of significant positive abnormal returns around the split announcement day. The signalling theory of dividend policy predicts that dividend changes convey information about the future performance of the company.

Up to the end of the 1950s there were very few theoretical or empirical studies of securities markets, until Cootner (1964) collected a selection of papers from a wide variety of sources. The literature was dispersed across journals in statistics, operations research, mathematics and economics. The concept of market efficiency had been anticipated at the beginning of the century by Bachelier (1900) in his dissertation to Sorbonne for his PhD in mathematics. In his paper he recognizes that "past, present and even discounted future events are reflected in market price, but often show no apparent relation to price changes". This recognition of the informational efficiency of the market leads Bachelier to continue, in his opening paragraphs, that, "if the market, in effect, does not predict its fluctuations, it does assess them as being more or less likely, and this likelihood can be evaluated mathematically." This gave rise to Albert Eistein's subsequent derivation of the Eistein-Wiener process of Brownian motion and other analytical results that were rediscovered by finance academicians in the second half of the century. Bachelier's contribution was overlooked until Paul Samuelson circulated it to the economic in the late 1950s and then it was subsequently published in English by Cootner (1964). Bachelier had concluded that commodity prices fluctuate randomly and later, studies

by Cowles (1937) were to show that US stock prices and other economic series also share these characteristics. Researchers largely overlooked these studies until the late 1950s.

There was, in addition disturbing evidence about the difficulty of beating the equity market. Alfred Cowles III, founder of the Cowles commission and benefactor of the Econometric Society, published in the launch issue of Econometrica a painstaking analysis of many thousands of stock selections made by investment professionals. Cowles (1937) found that there was no discernable evidence of any ability to outguess the market. Subsequently, Cowles (1944) provided corroborative results for a large number of forecasts over a much longer sample period. By the 1940s, there was therefore scattered evidence in favour of the weak and strong form efficiency of the market, though these terms were not yet in use.

2.2 The Random walk model

The problem of the optimal search procedure for finding a drunk left in the middle of a field was discussed early in the century by Pearson (1905). If the drunk can be expected to stagger in a totally unpredictable and random fashion, he is likely to end up closer to where he had been left than to any other point. In finance, this analogy has been applied to a series whose successive returns are serially independent. In the early 1950s researchers were, for the first time, able to use electronic computers to study the behaviour of lengthy price series. The assumption of economists was that one could "analyze an economic time series by extracting from it a long term movement or trend, for a separate study and then scrutinizing the residual portion for short term oscillatory movements and random fluctuations" (Kendall, 1953).

When Kendall remained 22 UK stock commodity price series, he concluded that "in a series of prices which are observed at fairly close intervals the random changes from one term to the next are so large as to swamp any systematic effect which may be present. The data behaves almost like wandering series. This empirical observation came to be labelled "the random walk model". If the prices wander randomly, then this poses a major challenge to market analysts who try to predict the future path of security prices. Drawing on Kendall's work and earlier research by Cowles (1937) demonstrated that a time series generated from a sequence of random numbers was indistinguishable from a record of US stock prices, the raw material used by market technicians to predict future price levels. Indeed, he wrote, "the

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main reason for this paper is to call to the attention of financial analyst's empirical results that seem to have been ignored in the past, for whatever reason, and to point out some methodological implications of these results for the study of securities."

Despite the emerging evidence on the randomness of stock prices changes, there were occasional instances of anomalous price behaviour, where certain series appeared to follow predictable paths. This includes a subset of the stock and commodity price series examined by Cowles (1937) and Kendall (1953).

2.3 Return series

In 1960, however, there was a realization that autocorrelation could be induced into return series as a result of using time-averaged security prices. Banz R. (1981) discovered this. Once returns series are based on end of period prices, returns appear to fluctuate randomly. The problem of time averaging identified by Working is the first research on thin trading and precursor to studies of market microstructure. The mid 1960s was turning point in research on the random character of stock prices. In 1964, Cootner published his collection of papers on that topic, while Fama's (1970) doctoral dissertation was reproduced, in its entirety, in the journal of business. He concludes that "it seems safe to say that this paper has presented strong and voluminous evidence in favour of the random walk hypothesis."

Fama in 1970 in his paper "Efficient Capital Markets" coined the term Efficient Market Hypothesis and made it operational with the foundation epithet that in efficient markets, "prices fully reflect all available information". He argued that in an active market of large numbers of intelligent investors, stocks will be appropriately priced and reflect all available information. In these circumstances, no information of analysis can be expected to result in the out-performance of an appropriate benchmark. Because of the wide availability of public information, it is nearly impossible for an individual to beat the market consistently.

Professor Burton Mikiel of Priceton popularized the notion of the random walk implication in his bestseller "A Random Walk Down Wall Street". He suggested that throwing darts at the newspaper stock listings is as good a way as any to pick stocks and is likely to be as professional as most investment managers. Mikiel suggests in the latter part of his work how

those who insist on trying to beat the market might attempt to do so, but he indicates that they are unlikely to be successful.

With a better understanding of price formation in competitive markets, the random walk model came to be seen as a set of observations that can be consistent with the efficient markets hypothesis. The switch of emphasis began with observations such as that of Sameulson (1965), whose "proof that properly anticipated prices fluctuate randomly" began with the observation that "in competitive market there is a buyer for every seller. If one could be sure that a price would rise, it would have already risen". Sameulson asserted that "arguments like this are used to deduce that competitive prices must display price changes that perform a random walk with no predictable bias".

Samuelson explains that "we would expect people in the market place, in pursuit of avid and intelligent self interest, to take account of those elements of future events that in a probability sense may be discerned to be casting their shadows before them". By presenting his proof in a general form, Samuelson added rigor to the notion of a well-functioning market. It is not clear to us whether these results ought to be seen as obvious or surprising, nor was it clear to Samuelson who wrote that "the theorem is so general that I must confess to having oscillated over the years in my own mind between regarding it as trivially obvious (and almost trivially vacuous) and regarding it as remarkably sweeping. Such perhaps is characteristic of basic results."

2.4 Theory and evidence of market efficiency

Building on Samuelson's microeconomic approach, together with a taxonomy suggested by Roberts (1967), Fama (1970) assembled a comprehensive review of the theory and evidence of market efficiency. Fama (1970) summarizes the early random walk literature, his own contributions and other studies of the information contained in the historical sequence of prices, and concludes that "the results are strongly in support" of the weak form of market efficiency. He then reviews a number of semi strong and strong form tests, and concludes that "in short, the evidence in support of the efficient markets model is extensive, and (somewhat uniquely in economics) contradictory evidence in sparse". He concedes, however,

that "much remains to be done", and indeed, Fama (1991) subsequently returned to the fray what a reinterpretation of the efficient markets hypothesis in the light of subsequent research. Since the first event studies, numerous papers have demonstrated that early identification of new information can provide substantial profits.

The basic idea underlying market efficiency is that competition will drive all information into the price quickly. This idea got its start at least in part due to Ball and Brown's 1968 paper looking at earnings announcements. The authors found out that the market forecasts 80% of the news before the announcements and the 3rd and 6th month's returns after the announcements were approximately zero. Insiders who trade on the basis of privileged information can therefore make excess returns, violating the strong form of the efficient markets hypothesis. Even the earliest studies by Cowles (1933, 1944), however, make it clear that investment professionals do not beat the market.

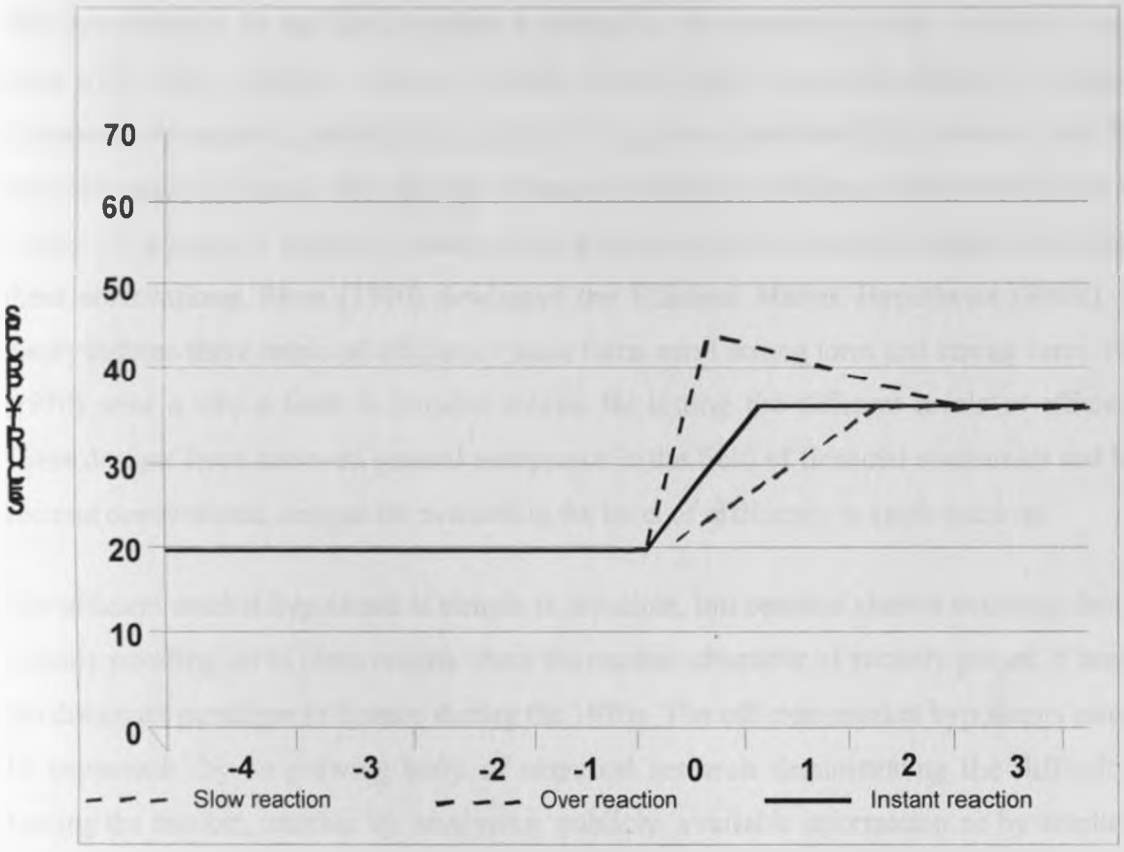
While there was evidence on the performance of security analysts, until the 1960s there was a gap in knowledge about the returns achieved by professional portfolio managers. With the development of the capital asset pricing (CAPM) model by Treynor (1961) and Sharpe (1964) it became clear that the CAPM could provide a benchmark for performance analysis. The first such study was Treynor's (1965) article in the Havard Business Review on the performance of mutual funds, closely followed by Sharpe's (1960) rival article. The most frequently cited article on fund manager's performance was the detailed analysis of 115 mutual funds over the period between 1955 and 1964 undertaken by Jensen (1968). On a risk-adjusted basis, he finds that any advantage that the portfolio managers might have is consumed by fees and expenses. Even if investment management fees are added back to performance measures, and returns are measured gross of management expenses (i.e. assuming research and their expenses were obtained free) Jensen, concludes that "on average the funds apparently were not quite successful enough in their trading activities to recoup even their brokerage expenses". Fama (1991) summarizes a number of subsequent studies of mutual funds and institutional portfolio manager's performances. Though some mutual funds have achieved minor abnormal gross returns before expenses, pension funds have underperformed passive benchmarks on a risk-adjusted basis.

2.5 Market efficiency

Market efficiency denotes how new information is quickly and widely disseminated, thereby allowing security prices to adjust rapidly and reflect their investment values. The information that determines the form of efficiency is detailed below:

Form	Information reflected in the securities
Weak	Past security information and prices
Semi strong	All publicly available information
Strong	All information- public and private

Sharpe (2001) states that a market is efficient with respect to a particular set of information if it is impossible to make abnormal profits (other than by chance) by using this set of information to formulate buying and selling decision. This study is done in an emerging market where the weak and semi strong form of efficiency are relevant. The information effect occurs from an announcement leading to any of the following situations depending on the market efficiency:



SOURCE **: Extracted from W. Sharpe; Investment; 2001; Prentice Hall India**
Chart 1

This study focuses on the semi-strong efficiency form of the efficient market hypothesis. Testing for the semi-strong efficiency of the market, the speed of adjustment of share prices to an information generating event is usually examined.

A key testable implication of all the three forms of the EMH is that investors, trading on respective information set, should be unable to realize average excess returns above the normal rate (Fama, 1970). For the weak form applied to the stock market, the information set includes the past history of stock prices as well as companies general characteristics and seasonal (timing) effects. Seasonal effects should not have a persistent impact if markets are efficient; empirical anomalies such as weekend. January and holiday effects fall under this category.

The primary role of the stock market is allocation of ownership of the economic capital stock. The ideal market is one in which prices provide accurate signals for resource allocation. A market in which prices always fully reflect available information is said to be informationally efficient. The concept of market efficiency had been anticipated by the turn of the 20th century in empirical observations accumulated by classical scholars. Building on these observations, Fama (1970) developed the Efficient Market Hypothesis (EMH). The theory defines three levels of efficiency weak form, semi strong form and strong form. Fama (1970) went a step a head to propose studies for testing the different levels of efficiency. These designs have achieved general acceptance in the field of financial economics and have become conventional designs for evaluating the level of efficiency in stock markets.

The efficient market hypothesis is simple in principle, but remains elusive evolving from an initially puzzling set of observations about the random character of security prices. It became the dominant paradigm in finance during the 1970s. The efficient market hypothesis came to be supported by a growing body of empirical research demonstrating the difficulty of beating the market, whether by analyzing publicly available information or by employing professional investment advisors.

2.6 Market inefficiencies

It is important to note that the efficient markets hypothesis does not rule out small abnormal returns, before fees and expenses. Analysts could therefore still have an incentive to acquire and act on valuable information, though investors would expect to receive no more than an average net return. Grossman and Stiglitz (1980) formalize the idea, showing that a sensible model of equilibrium must leave some incentive for security analysis.

To make sense, the concept of market efficiency admits the possibility of minor market inefficiencies. The evidence accumulated during the 1960s and 1970s appeared to be broadly consistent with this view. While it was clear that markets cannot be completely efficient in the strong form, there was striking support for the weak and semi-strong forms and even for versions of strong form efficiency that focus on the performance of professional investment managers.

Testing for market efficiency, however, is difficult. There are a number of documented studies that indicate anomalous behaviour which appears, at first sight, to be inconsistent with market efficiency. Ball (1978) points out that such evidence may equally well be interpreted as indicative of shortcomings in our models of expected returns. Indeed, (Fama (1997) takes issue with the view that apparent anomalies require new behaviourally based theories of the stock market. Rather, they are indicative of a need to continue the search for better models of asset pricing.

The last two decades have witnessed an onslaught against the efficient market hypothesis. Yet as Roll (1994) observes, it is remarkably hard to profit from even the most extreme violations of market efficiency. Stock market anomalies are only too often chance events that do not persist into the future. The importance of the efficient markets hypothesis is demonstrated by the fact that apparently profitable investment opportunities are still referred to as "anomalies". The efficient markets model continues to provide a framework that is widely used by financial economists.

Fama (1970, 1991) has done a lot of work on the concept of efficient capital markets. Fama defines three types of efficiency, namely weak form efficiency, semi strong efficiency and strong form efficiency. In a weak form efficient market, no investor can earn excess returns by developing trading rules based on historical prices or returns information. Information in past prices or returns is not useful or relevant in achieving excess returns. Semi-strong form efficiency implies that no investor can earn excess returns from trading rules based on any public information. Public information include dividends announcements, share split announcements, changes in Chief Executive Officer (CEO) among others. Strong-form efficiency means that no investor can earn excess returns using any information.

2.7 Testing of market efficiencies

The research design adopted in this area of study is the event studies, which examine the effect of an event. Event studies measure the impact of specific events on the value of firm. An event is a change, development, announcement that may produce a relatively large change in the price of the asset over some period.

Event studies have been applied in many fields like accounting, finance and research, event studies have been applied to a variety of firm specific and economy wide events which include mergers and acquisition, earnings announcements, issues of new debt or equity, and announcements of macro-economic variables such as trade deficit. Applications in other field are also abundant. For example event studies are used in the field of law and economics to measure the impact of the value of a firm of a change in the regulatory environment (Schwert, 1981) and in legal liability cases event studies are used to assess damages (Mitchell and Netter, 1984). The principal research in this area is event studies and portfolio studies. Because portfolio studies have so far not been investigated conclusively (Fama, 1991), the researcher proposes to use event study methodology.

The theory behind efficient market hypothesis is that a capital market is considered efficient with respect to an information item if the prices of securities fully reflect the return implications of the information. The prices of stocks is set in an auction market where forces of demand and supply are in operation therefore the prices are as close to the economic concept of a 'perfect market', the price of the publicly traded stocks should reflect the reaction of the financial market to the introduction of new information. Therefore no attempt is made to manipulate the price.

2.8 Effects of Announcements on Stock Prices

2.8.1 Earnings Announcements

There is substantial documented evidence on both over and under reaction to earnings announcements. DeBont and Thaler (1985, 1987) present evidence that is consistent with stock prices overreacting to current changes in earnings. They report positive (negative) estimated abnormal stock returns for portfolios that previously generated inferior (superior) stock price and earning performance. This could be construed as the prior period stock price behaviour overreacting to earnings development (Benard, 1993). Benard (1993) provides evidence that is consistent with the initial reaction being too small, and being completed over a period of at least six months. Thus, the evidence suggests that information is not impounded in prices instantaneously as the Efficient Market Hypothesis (EMH) would predict.

Other anomalies that have been cited in the past include data snooping, value line enigma, distressed securities market and the weather. The three levels of EMH are not independent of one another. For the market to be efficient in the semi-strong sense it must also be efficient in the weak sense, because if price movements follow a predictable path which the perceptive observer can exploit profitably, the implication is that the price has reacted slowly to published information. Likewise, for the market to be efficient in the strong sense it must also be efficient at the two lower levels, otherwise the price would not capture all relevant information. If capital markets are sufficiently competitive, then simple microeconomics indicates that investors cannot expect to achieve superior profits for their investment strategies.

2.8.2 Stock Splits

Since Fama etal (1969) published their seminal paper on stock splits, a large body of research has investigated this particular corporate decision. The interest in stock splits is motivated by the fact that this event is not directly related to changes in the operating or financial structure of the firm and, therefore, should cause no change in stock price other than the adjustment warranted by the split factor. There is ample evidence, however, that stock splits in the U.S. and other markets are associated with significant positive excess returns around the announcement as well as the ex-day of the split [e.g., Grinblatt etal, (1984), Lamoureux and Poon (1987), Ikenberry etal (1996)]. Several explanations have been advanced to explain the excess market reaction around the stock split days. For example, Lakonishok and Lev (1987) and McNichols and Dravid (1990), among others, suggest that firms split their stock in order to adjust the stock price back to an "optimal" trading range. Grinblatt etal, (1984), Brennan and Copeland (1988), and McNichols and Dravid (1990) show that stock splits are used to signal firm optimism about future prospects. Finally, the hypothesis of increased liquidity following stock splits has been met mostly with contrary evidence [Copeland (1979), Lakonishik and Lev (1987), Conroy etal (1990) and Easly etal, (2001)].

This study analyzes the price effects of stock splits undertaken by firms whose stock is traded in the Stock Exchange. It also tests empirically some of the hypotheses that have been advanced, by prior literature, to explain the abnormal price reaction to stock splits. The

institutional characteristics of the Greek stock market provide a useful experimental context to study stock splits. For example, brokerage fees and other public trading costs, including listing fees, are costs neutral to stock splits, implying limited signalling value. There are no specialists or market makers to affect the price formation as in the U.S., thus, ruling out any related microstructure-based explanations for the ex-day price reaction. The absence of capital gains taxes also eliminates the "tax option" explanation of Lamoureux and Poon (1987). The small size of round lots also makes it unlikely that stock splits are motivated by the goal of achieving an optimal balance between institutional and retail investor clientele. Finally, listing and trading of new shares occurs with a delay without the benefit of a when-issued market. This restricts the available supply of shares and can affect prices around the ex-day.

In contrast to U.S. stock splits, we find no evidence of positive price reaction on the stock split announcement day. We find, however, positive significant price reaction on the ex-day, which corroborates similar findings for U.S. stock splits. Also, as a test of the price pressure hypothesis we report evidence regarding the stock price reaction at the time the new shares are listed and start trading on the ASE. In contrast to the price pressure hypothesis, but in line with the market efficiency hypothesis, we do not find significant stock price reaction on the listing day. Further empirical tests produce several interesting findings. First, the split factor is positively related to the pre-split price of the stock, providing support to the trading range hypothesis. Second, marketability as measured by both the market-adjusted turnover ratio and the liquidity ratio declines in the post-split period. There is no evidence that split factors or market price reaction reflects the firms' private expectations about future earnings. However, splitting stocks experience earnings improvement in the years prior to the stock split.

Studies of U.S. stock splits, including Grinblatt, etal (1984), Lamoureux and Poon (1987), McNichols and Dravid (1990), Maloney and Mulherin (1992) and Ikenberry etal (1996) report evidence of significant positive abnormal returns around the split announcement day. The positive stock price reaction on the announcement day follows a significant positive price run-up in the months preceding the stock split decision (Grinblatt etal (1984)). This price run-up is followed by a persistent upward price drift, which Ikenberry etal (1996)

attribute to investor under reaction at the announcement time. There is also evidence of significant positive abnormal price reaction around the ex-day (Eades etal (1984), Grinblatt etal, (1984), Lamoureux and Poon (1987) and Maloney and Mulherin (1992). The significant reaction on the ex-day is puzzling because capital market efficiency rules out further revaluation around the ex-day given the high certainty about the execution of the stock split. Lamoureux and Poon (1987) attribute the positive market reaction to price pressure induced by an expansion of the investor clientele of the splitting stocks which generates additional positive revaluation around the ex-day. Maloney and Mulherin (1992) provide evidence that the ex-day positive price reaction is due to a temporary order imbalance caused by a surge of buy orders as new investors are attracted to the splitting stock. Significant positive abnormal returns around the announcement and ex-day have been also reported from markets outside the U.S. Some examples include: Kryzanowski and Hao (1991) for Canadian stocks; Biger and Page (1992) for stock splits on the Johannesburg Stock Exchange; Wu and Chan (1997) for Hong Kong stocks; and Niini (2000) for Finnish and Swedish stocks.

Researchers have attempted to explain the market's positive reaction to stock splits on the basis of valuation effects generated by changes in liquidity and trading costs, the adjustment of price to an optimal trading range and signalling. The liquidity-improvement hypothesis is based on the proposition that lower-priced stocks draw more investors and generate greater trading volume, thus enhancing marketability and reducing the bid-ask spread. The overall evidence does not appear to support the liquidity improvement hypothesis. Copeland (1979) finds a widening of the bid-ask spread as percent of price following stock splits. Similar results regarding the bid ask spread in the post-split period are also reported by Conroy etal (1990), Schultz (2000) and Easley etal (2001). Consistent with these results, Lakonishok and Lev (1987), Lamoureux and Poon (1987) and Conroy etal (1990) find a decrease or no change in the trading volume of splitting stocks.

Conventionally, the trading range hypothesis suggests that adjusting the price back to its "optimal trading range" can induce a positive revaluation effect. The main argument behind this hypothesis is that small investors have a preference for low-price stocks in order to trade in round lots and thus, minimize their trading costs. In contrast, large investors prefer high-price stocks since the trading cost per dollar falls as the price moves higher, thus, leaving the

optimal trading range effect open to empirical validation. Also, in relation to the same hypothesis, firms may use a split to achieve an optimal balance of investor clientele resulting in a better valuation of their stock. Several studies (Lakonishok and Lev (1987), Ikenberry etal (1996) and Rozeff (1998)) find that stock prices increase faster for firms that later split their stock than their matches and the price gap disappears after the split (Lakonishok and Lev (1987)). Conroy etal (1990), McNichols and Dravid (1990) and Rozeff (1998) find that split factors are positively related to pre-split prices or price deviations from normal levels. Results based on the modelling of trades in Easley etal (2001) also provide mild support to the trading range hypothesis.

Stock splits can be also informative to the market in two ways. First, they can be used to signal the firm's private information about future prospects. Second, they can help attract the interest of more analysts and investors and thus lead to a positive revaluation of the stock. Stock splits can have signalling value because they have costly consequences, including execution costs, higher listing fees, and greater trading costs associated with price drops (Brennan and Copeland (1988)). Therefore, only firms with positive private information can afford to signal through a stock split. Firms can also split their stock to attract market attention (Grinblatt etal (1984) and Brennan and Hughes (1991)). Only firms that believe to be undervalued or expect to perform well have the incentive to attract attention and cause a revaluation of their fundamentals. Both these information-based theories have received supportive evidence in the U.S. For example, Lakonishok and Lev (1987) find that compared to their peers, splitting firms have strong pre-split earnings performance that is not reversed after the split. In addition, McNichols and Dravid (1990) report that unanticipated earnings per share (EPS) increase after the split; split factors are positively related to favorable post-split earnings surprises; and announcement excess returns increase with the split factor.

2.8.3 Dividend Announcement

The signalling theory of dividend policy predicts that dividend changes convey information about the future performance of the company. In their seminal work, Miller and Modigliani (1961) acknowledged that dividend changes influence stock prices and attributed this phenomenon to the information content of dividends. The idea was formalized by Bhattacharya (1979), Miller and Rock (1985), and John and Williams (1985), among others.

Signalling models have two key empirical implications. First, they suggest that dividend changes should be followed by price changes in the same direction. If dividend increases are meant to convey "good news" and dividend decreases to convey "bad news", a rational market should take the new information into account and adjust the valuation of the company. Second, the models predict a positive relation between dividend changes and the subsequent operating performance of the firm.

Most of the empirical literature has focused on the first prediction. Examining the short-run share price performance provides substantial support for the dividend-signalling hypothesis. Numerous empirical studies report a positive stock price reaction upon dividend increases and a negative, stronger reaction upon dividend decreases. The pattern seems to be quite robust. It was documented not only in the US by Charest (1978), Aharony and Swary (1980), Healy and Palepu (1988), Bulan etal (2004)), but also in the UK by Lonie et al Abeyratna (1996), Gunasekarage and Power (2002), In Germany by Sahling (1981), Amihud and Murgia (1997), Gerke etal, (1997), In Japan (Conroy et al (2000), Swiss (Knight (1991), Belgium (Beer (1993).

The long-run market reaction to the dividend announcement is less conclusive. Usually studies with US-data report a positive stock price performance after dividend increases (Charest (1978), Grullon etal (2002), Michaely etal (1995). However, outside US the picture is less clear. Gunasekarage and Power (2002) show that UK-companies that announce a reduction in dividends outperform their dividend decreasing counterparts. Similar pattern is uncovered by Gwilym etal, (2004). Using a sample of UK firms, they found that the stock price performance of non-increasers is superior to the price return of dividend increasers. Studies that analyze the evolution of earnings offer mixed evidence. The current view in the literature is that dividend changes convey information mainly about past and current earnings. Overall, the results provide only limited support for the notion that dividend increases indicate future earnings (Benartzi etal, (1997), Nissim and Ziv (2001). Instead, it seems that dividend changes are rather related to the risk the company faces. Venkatesh (1998) reports a decline in the overall volatility of returns when firms initiate dividend payments, and Dyl and Weigand (1998) report decreasing volatility of earnings after dividend initiations. Grullon etal (2002) found that firms that increased dividends

experienced a significant decline in their systematic risk, measured by the Fama-French three factor model.

2.8.4 Response Level to Equity Rights Issue

The empirical evidence involving rights issues in the U.S. is generally negative. For example, Scholes (1972), who investigates the period 1926-1966, finds that stock prices generally increase before the rights issue, fall during the month of the issue, but remain unchanged after the issue. Smith (1977) reports a negative but insignificant average abnormal return during the month of a rights offering. White and Lusztig (1980), Hansen (1988), Eckbo and Masulis (1992), and Bae and Jo (1999) document a negative reaction to announcements of rights offers. Several studies in the U.K. offer mixed results. For example, Marsh (1979) reports a positive price effect at the time of rights offers during 1962-1975, a high-growth period. By contrast, Wolfe etal (1999) report a significant negative price reaction to the announcement dates.

Asquith and Mulins (1986) have argued to the market response to news of seasoned equity offerings differs substantially across countries according to issuing methods. In countries with developed capital markets and large ownership dispersions such as USA, the stock price reaction is negative for general cash offers and less negative for rights issues.

2.9 COYA Awards

COYA is an annual exercise that objectively seeks to identify and publicly recognize companies and managers that demonstrate excellence and integrity in their management practices. Using a management practice assessment tool developed by a team of Kenya Institute of Management (KIM) management consultants, COYA enables one to identify his/her key strengths and areas that require improvement in various management categories. During the COYA Awards Gala Night, the most impressive companies receive awards for excellence for each management category, with the top overall company being declared the "Company of the Year". The management categories awarded are Corporate Planning, Marketing, Human Resources, Information, Quality, Creativity & Innovation, Corporate Citizenship, Supplies, Financial and Environmental Management. Other awards include

Chief Executive of the Year, Manager of the Year, SME of the Year, Parastatal of the Year, Supplies Manager of the Year, Youth Manager of the Year, among others.

The first COYA assessment was held in 2000. COYA is born out of the assumption, now proved true, that a lot of managers in Kenya are working very hard, under very difficult circumstances, to create goods and services that we need to consume and to keep Kenyans in employment yet, these efforts go largely unrecognized. In fact, the only time that attention is paid to our companies is when things go wrong. COYA's main objectives are to provide a framework for assessing management practices, develop local case studies and successful business models for the development of future managers, improve management practices through benchmarking and provide positive publicity for the participants.

Also, most of the Kenyan business management practices were based on foreign (mostly Western) business theories, practices, models, concepts and case studies. These foreign business practices have evolved through the years to the current levels due to drastic and turbulent changes in the business operating environment. Business Management Practice Award Programmes and events have encouraged enterprises to continuously evaluate their management styles against appropriately developed benchmarks. In light of these, KIM recognized the need to develop Best Management Practice exercise in Kenya. The Company of the Year Award is one way through which this can be achieved.

A company award is basically a form of recognition that is given to a company that demonstrates excellence and integrity in its management practices e.g. financial management, supply chain management, Environmental management, quality management among others. Sometimes these awards are given to various individuals who are nominated by their companies e.g. CEO of the year, Manager of the year etc. These awards seek individuals who have excelled in their respective fields. These company awards usually enhance a company's corporate image because the recognition received from the media either through the newspapers, television or radio goes a long way in improving the company's business as a whole in terms of increased sales which translate to increased

profits and in the long run increased shareholder's wealth as seen by increase in share prices at the stock market.

2.10 Relationship between variables

Event studies are cross-sectional in nature examining relationship between variables in a single group. Event studies have two variables (cause and effect), dependent and independent variable. The independent variable is the event that introduces information into the market e.g announcements of COYA Awards. The dependent variable is the daily change in stock prices. The independent variable is active because it is only available for a specified period of time during the study. This allows the researcher to use the dependent variable as a measure of the effect of the independent variables, thus it is possible to infer that the event is responsible for the difference in changes in stock prices.

The independent variable is operationalized by specifying the date when the information of the announcement first becomes available to the market. It is also important to establish the relevant period over which the event is expected to impact on stocks returns i.e the event window. During the rest of the period outside the event window, the event is not expected to have any influence of the stock returns. The dependent variable is operationalized as the day changes in the prices of stock. The change is measured as a percentage, the difference of the opening price and the closing price as a fraction of the opening price.

2.11 Event studies

An event study measures the impact of a specific event on the value of firm. An Event is some change, development or announcement that may produce a relatively large change in the price of the asset over some period. Event studies have been applied in many fields. In accounting and finance research. They have also been applied to a variety of firm specific and economy wide events which include mergers and acquisitions, earnings announcements, issues of new debt or equity, and announcements of macro-economic variables such as trade deficit. Applications in other fields are also abundant. For example event studies are used in the field of law and economics to measure the impact of the value to a firm of a change in the regulatory environment (Schewert, 1981) and in legal liability cases, event studies are used to assess damages (Mitchell and Neter, 1984). The principal researches in this area are event

studies and portfolio studies. Because portfolio studies have so far not been investigated conclusively (Fama, 1991) the researcher proposes to use event study methodology.

The theory behind efficient market hypothesis is that a capital market is considered efficient with respect to an information item if the prices of securities fully reflect the return implications of the information. The price of stocks is set in an auction market where forces of demand and supply are in operation. Therefore the prices are close to the economic concept of a "perfect market". The price of the publicly traded stocks should reflect the reaction of the financial market to the introduction of new information. Therefore no attempt is made to manipulate the price.

Event studies are cross-sectional in nature examining the relationship between variables in a single group. Event study has two variables namely (cause and effect) dependent and independent variables. The independent variable is the event that introduces information into the market, for example, announcement of dividends. The dependent variable is the daily change in stock prices. The independent variable is active because it is only available for a specified period of time during the study. This allows the researcher to use the dependent variable as a measure of the effect of the independent variables thus it is possible to infer that the event is responsible for the difference in changes in stock prices.

The independent variable is operationalized by specifying the date when the information of the dividend first becomes available to the market. It is also important to establish the relevant period over which the event is expected to impact on stocks returns, that is, event window. During the rest of the period outside the event window, the event is not expected to have any influence on the stock returns. The dependent variable is operationalized as the day to day changes in the prices of stock. The change is measured as a percentage, the difference of the opening price and the closing price as a fraction of the opening price.

Under normal circumstances stock prices are subject to some degree of normal fluctuations when the effect is absent. This is achieved by selecting a clean period of time when the event is known to have been absent and collecting the stocks returns over this period, the estimation window. The normal return can be estimated using several models: Market model,

Capital Asset pricing Model (CAPM), Arbitrage Pricing Model (APT) and Modified Market Model (MMM). The dependent variable, stock price can possibly take actual stock return observed during the periods covered by the event window, when the effects of the announcements are known to be present. Actual returns are expressed as:

$$Rjt = \frac{Pit + Dit}{Pjt-1} - 1 \times 100$$

Pjt is the share price of firm j in period t. Djt is the cash dividend paid on the share of firm j in the period t, Pjt-1 is the share price of firm j in the period t-1.

2.12 Studies in Kenya

Ondigo (1995), examined information content of 18 "blue chip" companies quoted in the exchange in the period 1990-1994. The study revealed that the annual reports and accounts of the sample firms do not have information content which is statistically significant. Unfortunate to the investor who spends time and effort analyzing the annual report and accounts because they have no information content. The contents of that annual report and accounts are already captured through more timely media which include interim reports, dividends bonuses and individual company releases. As far as the semi-strong model of the EMH is concerned, the study does not provide any evidence and the result of the study was inconclusive.

Onyango (2004) in his study covered 16 companies out of a population of 48 listed companies at the NSE, covering the period 1998-2003. The study concluded that the earnings announcements contain relevant information to which are fully impounded in stock prices prior to or almost instantaneously at the time of announcement. The year 2003 was an outlier that evidences the existence of momentum in stock returns. Secondary evidence resulting from the study is that NSE shows presence of semi strong model of EMH. He suggested further research on information content to support this conclusion.

Mbugua (2004) in his research examined the impact of stock dividend size on stock returns on 24 companies which issued stock dividend/stock split (bonus). Results indicate that the

stock dividend announcements have an impact on stock return. The results also indicted that the size of stock dividends have an effect on stock returns.

2.13 Conclusion

It is apparent that EMH/EMT has been extensively researched on. Studies have however, examined the developed world. Much of the academics literature has tended to concentrate of the developed world while largely ignoring the developing countries. This study extends the research on stock market efficiency to one of the neglected markets in Sub-Saharan Africa with particular interest in COYA awards announcements.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

The chapter outlines the research design and methodology to be followed in conducting this study. It describes the entire process that the researcher would use to obtain the sample from the population, as well as the data collection methods, and data analysis.

3.2 Research Design

The study aimed at establishing whether or not COYA announcements have any effect on share prices for companies listed in the Nairobi stock Exchange (see Appendix 4) and therefore it is an event study. This design is valuable for detailed analysis. Young, (1960) and Kothari, (1990) concur that an event study often provides focused and valuable insights to a phenomena that may be vaguely known and less understood.

3.3 Population of the study

The population of interest in this study consisted of all companies that have participated in the COYA since 2000 to 2005 and are listed the Nairobi Stock Exchange (see Appendix 1 and 2). This implies that the researcher was carried out as a census survey.

3.4 Data Collection Method

This study was facilitated by the use of secondary data from the following sources:

a) Share prices of common stock from the Nairobi stock exchange
b) Data relating to COYA from the Kenya Institute of Management website.

3.5 Data Analysis

The event study used the method of different inferential statistics to compare the scores on the two values of the dependent variables. The study tried to examine the differences between the stock returns conditional on the event and the expected returns unconditional on the event day. In addition, the study analysed data for both the COYA winners and losers. After the estimation model is determined and both estimated and actual return is obtained for each stock within the sample, the difference between the two returns is computed for each event day. Benchmark-adjusted returns are calculated as the raw return on a stock minus the

benchmark return over the first day of trading. Accordingly, the benchmark-adjusted initial return (or abnormal initial return) on a share denoted as AIRi, is defined as follows:

$$ARjt = Rjt - E(Rjt)$$

$$= (P_{i1} - P_{io})/ P_{io} - (P_{m1} - P_{mo})/ P_{mo}$$

Where:

ARjt - is the unexpected or abnormal returns attributable to the effect of the event on the stock

P_{i1} -Denotes the closing price at the day of the COYA Award,

P_{i0} -Is the opening price,

P_{m1} -Denotes the closing price of the benchmark index on the first trading day, and;

P_{m0} -Is the previous day's closing price of the benchmark index.

The individual daily abnormal returns for the individual firms were examined to determine whether the event produces returns that are different from the returns that would be expected. Cumulative effect may be present and observable therefore cumulative abnormal returns (CARs) are computed by summing daily abnormal returns. The

$$CART = \Sigma ARt \text{ from time } t = +5 \text{ to } t = -5$$

The above window period has been chosen because it eliminates the risk of other announcement being made in the window period of a period of more than five days.

Averaging the individual share responses for all the company included in the sample may draw an overall inference about the market. The individual daily abnormal firms are averaged as mean abnormal returns (MAR), which are examined to determine whether on average the event of the dividend announcement produces returns that are different from returns that would be expected. Also, because a cumulative effect may be present and observable, mean cumulative abnormal returns (MCARs) are calculated by summing daily MAR's across time.

$$MARt = 1/N\Sigma ARjt \quad \text{from time } t=1 \text{ to } t = N$$

$$MCARt = \Sigma MAR\, t \quad \text{from time } t = -5 \text{ to } t = 5$$

For all the performance measure (AR, CAR, MAR or MCAR) a t-statistic was computed and compared to its assumed distribution under the null hypothesis that average abnormal performance over the event window is not equal to zero.

The null hypothesis is rejected or accepted if the t-statistics exceed a critical value, typically corresponding 5% level of confidence. Test of market efficiency is a test of speed of market reactions to news ,the null hypothesis can be rejected for accepted based on the distribution of CAR and MCAR in the event window. For a capital market to be efficient in the semi strong from the value of CAR or MCAR should be equal to zero before the event, rise to a positive number just after the event and remain relatively constant. In an inefficient market, the value of CAR and MCAR will continue rising for several days after the event.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The study sets out to find out the price effects of COYA announcements on share prices of firms whose stock is traded on the Nairobi Stock Exchange (NSE). It also tests empirically some of the hypothesis that has been advanced, by prior literature, to explain the abnormal price reaction to COYA announcements.

4.2 Techniques

To obtain the daily returns during the eight-year period, the closing daily (end of the trading day) share prices have been used for each company. The analysis of the initial price has used the raw data, i.e. returns, which have not taken, into account of what a normal return or expected return might be.

4.3 Results

4.31 Performance of the market

The overall average return and standard deviation for the entire sample have been calculated. This has been compared with the performance of the share price index, which is derived from the daily performance of NSE–20 share indexes constituent companies (appendix 8). The index has been used as the bench mark, which is commonly used as a performance indicator. A stock index usually measures changes that have occurred in a given stock exchange in relation to either the prices, quantities, or the value of the stock quoted in the stock exchange.

The market summary results prior to the COYA announcements have lower means than after the COYA announcements. This is particularly true with companies that have won the awards. During the same period, the market returns also show varied means. In addition, it was found out that the movement of the share prices had a significant relationship with the movement of the index with a Pearson Correlation of between 5% and 10% for most of the market variables (see appendix 4).

4.32 Performance of Companies

Tables in appendix 3 show individual relationship of the companies' share prices and the share price index during their 5 pre-COYA announcement and 5 and post-COYA announcement. The tables show overall relationships of share prices of the 15 companies and the share price index returns. The results show a correlation of 0.01 (10%) that there is a close relationship between the movement and of the share prices and the index.

Individual company's Pearson correlations were also computed for each of the years. For instance in 2000 two listed companies (TPS Serena and Kenol) participated in COYA in which TPS Serena won an award on Human Resource Management. TPS Serena shows the lowest mean price of -0.12516 prior to COYA announcement compared to Post-COYA results which showed the highest mean share price index of 0.0266. On the other hand, Kenol had negative returns after the announcement of the award of -0.00604 on the announcement date compared with the market that had positive returns (see appendix 3).

In 2001, four listed companies participated in the COYA out of which two companies namely Mumias Sugar Company and Mabati Rolling Mills won the award (see appendix 1). Individual company's Pearson correlations were computed for each of the years. The results show that Pearson correlation for each of the companies ranges from .05% and .01% (see appendix 5). In addition, both companies that won the award have positive cumulative adjusted returns compared to the companies that lost the award. They all have negative post-COYA award have cumulative adjusted returns (see appendix 3).

In 2001, four listed companies participated in COYA out of which two companies namely Mumias Sugar Company and Mabati Rolling Mills won the award. Individual company's Pearson correlations were computed for each of the years. The results show that Pearson correlation for each of the companies ranges from .05% and .01% (see appendix 5). In addition, both companies that won the award have positive cumulative adjusted returns compared to the companies that lost the award. They all have negative post-COYA award have cumulative adjusted returns (see appendix 3).

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In 2002, three listed companies (BOC Gases, BAT and Mumias Sugar Company Ltd.) participated in COYA out of which only BAT won the award as the overall winner in corporate planning (see appendix 1). Individual company's Pearson correlations were computed for and the results show that Pearson correlation for each of the companies ranges from .05% and .01% (see appendix 5). Interestingly, BAT cumulative adjusted returns remained unchanged during the period under study though the market had negative cumulative adjusted returns. However, BOC Gases and Mumias Sugar who lost the awards, have negative cumulative adjusted returns (see appendix 3).

As in the case of 2000, results for 2004 show also that only two listed companies namely BAT and Mumias Sugar Co. Ltd. participated in COYA (see appendix 1). Both companies won the awards and the results indicate that their post-COYA announcement cumulative adjusted returns are positive compared to their pre-COYA announcement cumulative adjusted returns which were negative (see appendix 3). Individual company's Pearson correlations were computed for each of the years. The results show that Pearson correlation for each of the companies ranges from .05% and .01% (see appendix 5).

In 2005, the highest number of listed companies participated in COYA (see appendix 1). In total there were eight companies that participated ranging from banking to manufacturing to service industries out of which three companies namely Barclays of Kenya, Mumias Sugar Company and Mabati Rolling Mills won individual awards. Individual company's Pearson correlations were computed for each of the years. The results show that Pearson correlation for each of the companies ranges from .05% and .01% (see appendix 5). In addition, both companies that won the award have positive cumulative adjusted returns compared to the companies that lost the award. They all have negative post-COYA award have cumulative adjusted returns (see appendix 3).

In comparison to 2005, 2006 had seven listed companies participating in COYA out of which two companies namely BOC Gases and Standard Chartered Bank of Kenya lost the award. The results in appendix three shows that these companies have negative returns adjusted cumulative returns compared to companies that won individual awards (see appendix 3).

Graphical representation in appendix 4 confirms this. Individual company's Pearson correlations were computed for each of the years. The results show that Pearson correlation for each of the companies ranges from .05% and .01% (see appendix 5).

The participants in 2007 remained at seven when compared to those of 2007. In 2001, four listed companies participated in COYA out of which two companies namely Mumias Sugar Company and Mabati Rolling Mills won the award. Individual company's Pearson correlations were computed for each of the years. The results show that Pearson correlation for each of the companies ranges from .05% and .01% (see appendix 5). In addition, both companies that won the award have positive cumulative adjusted returns compared to the companies that lost the award. They all have negative post-COYA award have cumulative adjusted returns (see appendix 3).

4.33 Interpretations

An increase in the index implies an improvement in the market activities in terms of price, traded volume or both. The index reflects what investors think of the prospect of the economy as a whole or sector of the economy. Research evidence shows that there is a strong relationship between the general economic conditions and the way the stock market performs (Reilley, 1979, and 1994). Apart from the investor's expectations about the firm's profitability, this relationship is also due to the various economic series and indicators.

These indicators includes money supply (changes of which have been shown to greatly influence stock price), inflation exchange rates and interest rates. ECK (1967) in his "Review of the German stock market" found out that the performance of the stock market has an impact and is also impacted upon by other variables of the economy, such as inflation, interest rates, unemployment rates, money supply and exchange rates. The above findings are consistent with other studies carried out in other market across the world. One observation made from the 15 companies studied is that there is a general impact on the cumulative adjusted abnormal returns by the announcement of COYA. The results show that they are consistent with documented evidence on both over and under reaction to material announcements such as DeBont and Thaler (1985, 1987) who presented evidence on stock

prices overreacting to current changes in earnings. They report positive (negative) estimated abnormal stock returns for portfolios that previously generated inferior (superior) stock price and earning performance. This could be construed as the prior period stock price behaviour overreacting to earnings development (Benard, 1993). Benard (1993) provides evidence that is consistent with the initial reaction being too small, and being completed over a period of at least six months. Thus, the evidence suggests that information is not impounded in prices instantaneously as the Efficient Market Hypothesis (EMH) would predict.

CHAPTER FIVE
CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

5.1 Conclusions

Major company announcement such as stock splits, dividend payment, exit of a company CEO, issuance an Initial public offering and rights issue have all been found to a have a signalling effect on the companies' share price performance. In most part literature has found out that investors perceive positive announcement to mean that the company is ensuring a continuous achievement of investment objectives. In light of these the results for this study have also shown that when a listed company participates in COYA, the cumulative adjusted abnormal returns are affected depending on whether the company won or not. Holding other factors constant, the results indicate that a company that wins an award has positive cumulative adjusted returns as opposed to a company that lost.

A company award is basically a form of recognition that is given to a company that demonstrates excellence and integrity in its management practices. These awards seek individuals who have excelled in their respective fields. These company awards usually enhance a company's corporate image because the recognition received from the media either through the newspapers, television or radio goes a long way in improving the company's business as a whole in terms of increased sales which translate to increased profits and in the long run increased shareholder's wealth as seen by increase in share prices at the stock market. This means that investors perceive awards as forms of good company performance.

5.2 Limitations of the Study

5.21 Effects of other anomalies

COYA announcement ceremony is always done every first Friday of July each year. The study considered a ten-day window. That is, five days before and five days after the award. The results could therefore be affected by other anomalies such as the Weekend and Monday effects.

5.22 Inconsistent company participation

While collecting data for this project from the KIM, the information shows that the number of companies participating each year varies. This means that it would be difficult for any meaningful conclusion to be drawn from this study. That is long-term trend performance on individual participating cannot be drawn from this study.

5.3 Recommendations

The study covered all listed companies that participated in COYA since 2000 to 2007 regardless of the segment in which they fall. It is recommended that the study be carried out by categorising the companies by nature of their operations as well as their market segments in which they fall in the market. A further study is recommended to determine why there most of the participating companies are not listed at the NSE. An average of 30 companies participate each year in the COYA award competition This would shed more light on why also most listed companies do not participate in Award.

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APPENDIX 1: COYA Participating and Listed Companies at the NSE

	COMPANY	WON OR NOT?
2000		
1.	Serena Hotel	YES
2.	Kenol/ Kobil Kenya Ltd	NO
2001		
1.	Mumias Sugar Company	YES
2.	Kenol/ Kobil Kenya Ltd	NO
3.	Bamburi Cement	NO
4.	Mabati Rolling Mills	YES
5.	Serena Hotels	NO
2002		
1.	BOC Kenya Ltd.	NO
2.	British America Tobacco Ltd	NO
3.	Mumias Sugar Company Ltd	YES
2003		
1.	Barclays Bank of Kenya Ltd	NO
2.	British America Tobacco Ltd	YES
3.	Kenya Airways	NO
4.	Mabati Rolling Mills	YES
2004		
1.	British America Tobacco Ltd	YES
2.	Mumias Sugar Company	YES
2005		
1.	Barclays Bank of Kenya Ltd	YES
2.	BOC Kenya Ltd.	NO
3.	East African Portland Cement Company Ltd	NO
4.	Kenya Commercial Bank Ltd	NO
5.	Mabati Rolling Mills	YES
6.	Mumias Sugar Company Ltd	YES
7.	Sarova Hotels Ltd	NO
8.	Unilever Kenya Ltd	NO
2006		
1.	Barclays Bank of Kenya Ltd	YES
2.	BOC Kenya Ltd.	YES
3.	East African Portland Cement Company Ltd	YES
4.	Equity Bank Ltd	YES
5.	Kenya Commercial Bank Ltd	YES
6.	Mumias Sugar Company Ltd	YES
7.	Standard Chartered Bank of Kenya Ltd	NO
2007		
1.	Acess Kenya Ltd	YES
2.	BOC Kenya Ltd.	YES
3.	East African Cables	NO
4.	ICDC INVESTMENT Co. Ltd	NO
6.	Mabati Rolling Mills	YES
5.	Mumias Sugar Company Ltd	YES

6.	Nation Media Group	YES

APPENDIX 2: Companies listed at the NSE

MAIN INVESTMENTS MARKET SEGMENT (MIMS)

Agriculture

1. Unilever Tea (K) Ltd.
2. Rea Vipingo Ltd.
3. Sasini Tea & Coffee Ltd.
4. Kakuzi Ltd.

Commercial and Services

1. Access Kenya Group
2. Marshalls E.A. Ltd.
3. Car & General Ltd.
4. Hutchings Biemer Ltd.
5. Kenya Airways Ltd.
6. CMC Holdings Ltd.
7. Nation Media Group Ltd.
8. TPS (Serena) Ltd.
9. ScanGroup Ltd.
10. Standard Group Ltd.

Finance and Investment

1. Barclays Bank of Kenya Ltd.
2. CFC Bank Ltd.
3. Housing Finance Company of Kenya Ltd.
4. ICDC Investment Company Ltd.
5. Kenya Commercial Bank Ltd.
6. National Bank of Kenya Ltd.
7. Pan Africa Insurance Holdings Co. Ltd
8. Diamond Trust Bank of Kenya Ltd.
9. Jubilee Insurance Co. Ltd
10. Standard Chartered Bank Ltd.
11. National Industrial Credit Bank Ltd.
12. Equity Bank Ltd.

13. Kenya Re

Industrial and Allied

1. Athi River Mining Ltd.
2. BOC Kenya Ltd.
3. British American Tobacco Kenya Ltd.
4. Carbacid Investments Ltd.
5. Olympia Capital Holdings Ltd.
6. E.A. Cables Ltd.
7. E.A. Breweries Ltd.
8. Sameer Africa Ltd.
9. Kenya Oil Ltd.
10. Mumias Sugar Company Ltd.
11. Unga Group Ltd.
12. Bamburi Cement Ltd.
13. Crown berger (K) Ltd.
14. E.A Portland Cement Co. Ltd.
15. Kenya Power & Lighting Co. Ltd.
16. Total Kenya Ltd.
17. Eveready East Africa Ltd.
18. Kengen Ltd.

Alternative Investments Markets Segment (AIMS)

1. A. Baumann and Company Ltd.
2. Citytrust Ltd.
3. Eaagads Ltd
4. Express Kenya Ltd.
5. Kapchorua Tea Co. Ltd.
6. Kenya Orchards
7. Williamson Tea Kenya Ltd
8. Limuru Tea Co. Ltd.

APPENDIX 3: Computation of Cumulative Abnormal Returns (COYA winners and Losers)

SERENA	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
	1	16.00					1470.31					
	2	17.00	16.00	1.06250	0.06062	0.06062	1451.59	1470.31	0.9873	-0.0127	0.0734	0.0734
	3	16.50	17.00	0.97059	-0.02985	0.03077	1420.45	1451.59	0.9785	-0.0215	-0.0084	0.0650
	4	17.00	16.50	1.03030	0.02985	0.06062	1418.86	1420.45	0.9989	-0.0011	0.0310	0.0959
	5	15.00	17.00	0.88235	-0.12516	-0.06454	1396.70	1418.86	0.9844	-0.0156	-0.1095	-0.0136
	6	16.00	15.00	1.06667	0.06454	0.00000	1344.26	1396.70	0.9625	-0.0375	0.1021	0.0885
	7	18.00	16.00	1.12500	0.11778	0.11778	1354.59	1344.26	1.0077	0.0077	0.1101	0.1986
	8	18.00	18.00	1.00000	0.00000	0.11778	1364.54	1354.59	1.0073	0.0073	-0.0073	0.1912
	9	18.50	18.00	1.02778	0.02740	0.14518	1382.77	1364.54	1.0134	0.0134	0.0140	0.2053
	10	19.00	18.50	1.02703	0.02667	0.17185	1365.44	1382.77	0.9875	-0.0125	0.0392	0.2445
	11	19.50	19.00	1.02632	0.02598	0.19783	1343.51	1365.44	0.9839	-0.0161	0.0420	0.2865
KENOL	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
	1	81.50					1470.31					
	2	82.00	81.50	1.00613	0.00000	0.00000	1451.59	1470.31	0.9873	-0.0127	0.0127	0.0127
	3	82.50	82.00	1.00610	0.00608	0.00608	1420.45	1451.59	0.9785	-0.0215	0.0275	0.0403
	4	83.00	82.00	1.01220	0.01212	0.01820	1418.86	1420.45	0.9989	-0.0011	0.0132	0.0535
	5	82.00	82.00	1.00000	0.00000	0.01820	1396.70	1418.86	0.9844	-0.0156	0.0156	0.0691
	6	**83.00**	82.00	1.01220	0.01212	0.03032	1344.26	1396.70	0.9625	-0.0375	0.0497	0.1188
	7	82.50	**83.00**	0.99398	-0.00604	0.02428	1354.59	1344.26	1.0077	0.0077	-0.0137	0.1051
	8	82.50	82.50	1.00000	0.00000	0.02428	1364.54	1354.59	1.0073	0.0073	-0.0073	0.0977
	9	82.50	82.50	1.00000	0.00000	0.02428	1382.77	1364.54	1.0134	0.0134	-0.0134	0.0844
	10	82.50	82.50	1.00000	0.00000	0.02428	1365.44	1382.77	0.9875	-0.0125	0.0125	0.0969
	11	82.00	82.50	0.99394	-0.00608	0.01820	1343.51	1365.44	0.9839	-0.0161	0.0100	0.1069
SERENA	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
	1	17.00					2202.87					
	2	17.10	12.00	1.42500	0.00000	0.00000	2299.87	2202.87	1.0440	0.0440	-0.0440	-0.0440
	3	17.10	12.00	1.42500	0.35417	0.35417	2213.57	2299.87	0.9625	-0.0375	0.3917	0.3477
	4	17.10	17.50	0.97714	-0.02312	0.33105	2213.57	2213.57	1.0000	0.0000	-0.0231	0.3245
	5	16.90	15.55	1.08682	0.08325	0.41430	2197.00	2213.57	0.9925	-0.0075	0.0907	0.4153
	6	**17.00**	15.55	1.09325	0.08915	0.50346	2130.00	2197.00	0.9695	-0.0305	0.1196	0.5349
	7	16.70	15.55	1.07395	0.07135	0.57480	2164.44	2130.00	1.0162	0.0162	0.0552	0.5901
	8	16.80	15.55	1.08039	0.07732	0.65212	2106.59	2164.44	0.9733	-0.0267	0.1040	0.6942
	9	17.00	15.55	1.09325	0.08915	0.74127	2099.91	2106.59	0.9968	-0.0032	0.0923	0.7865
	10	17.00	15.55	1.09325	0.08915	0.83043	2075.08	2099.91	0.9882	-0.0118	0.1010	0.8875

	11	16.85	15.55	1.08360	
BAMBURI	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	25.750			
	2	26.500	25.750	1.02913	
	3	29.000	26.500	1.09434	
	4	27.500	29.000	0.94828	
	5	28.500	27.500	1.03636	
	6	**28.500**	28.500	1.00000	
	7	28.250	**28.500**	0.99123	
	8	22.000	28.250	0.77876	
	9	27.750	22.000	1.26136	
	10	28.250	27.750	1.01802	
	11	27.000	28.250	0.95575	
KENOL	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	74.00			
	2	73.00	74.00	0.98649	
	3	73.50	73.00	1.00685	
	4	73.50	73.50	1.00000	
	5	72.50	73.50	0.98639	
	6	**73.50**	72.50	1.01379	
	7	72.00	**73.50**	0.97959	
	8	72.50	72.00	1.00694	
	9	74.50	72.50	1.02759	
	10	72.00	74.50	0.96644	
	11	72.00	72.00	1.00000	
MUMIAS	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	6.00			
	2	6.00	6.00	1.00000	
	3	6.00	6.00	1.00000	
	4	6.10	6.00	1.01667	
	5	6.15	6.10	1.00820	
	6	**6.25**	6.15	1.01626	
	7	6.25	**6.25**	1.00000	
	8	6.30	6.25	1.00800	
	9	6.40	6.30	1.01587	
	10	6.45	6.40	1.00781	

0.08029	0.91072	2048.38	2075.08	0.9871	-0.0129	0.0932	0.980

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		2202.87					
0.00000	0.00000	2299.87	2202.87	1.0440	0.0440	-0.0440	-0.044
0.09015	0.09015	2213.57	2299.87	0.9625	-0.0375	0.1277	0.083
-0.05311	0.03704	2213.57	2213.57	1.0000	0.0000	-0.0531	0.030
0.03572	0.07276	2197.00	2213.57	0.9925	-0.0075	0.0432	0.073
0.00000	0.07276	2130.00	2197.00	0.9695	-0.0305	0.0305	0.104
-0.00881	0.06395	2164.44	2130.00	1.0162	0.0162	-0.0250	0.079
-0.25005	-0.18610	2106.59	2164.44	0.9733	-0.0267	-0.2233	-0.144
0.23219	0.04609	2099.91	2106.59	0.9968	-0.0032	0.2354	0.091
0.01786	0.06395	2075.08	2099.91	0.9882	-0.0118	0.0297	0.121
-0.04526	0.01869	2048.38	2075.08	0.9871	-0.0129	-0.0324	0.088

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		2202.87					
0.00000	0.00000	2299.87	2202.87	1.0440	0.0440	-0.0440	-0.044
0.00683	0.00683	2213.57	2299.87	0.9625	-0.0375	0.0443	0.000
0.00000	0.00683	2213.57	2213.57	1.0000	0.0000	0.0000	0.000
-0.01370	-0.00687	2197.00	2213.57	0.9925	-0.0075	-0.0062	-0.005
0.01370	0.00683	2130.00	2197.00	0.9695	-0.0305	0.0442	0.038
-0.02062	-0.01379	2164.44	2130.00	1.0162	0.0162	-0.0368	0.001
0.00692	-0.00687	2106.59	2164.44	0.9733	-0.0267	0.0336	0.035
0.02721	0.02034	2099.91	2106.59	0.9968	-0.0032	0.0304	0.065
-0.03413	-0.01379	2075.08	2099.91	0.9882	-0.0118	-0.0223	0.043
0.00000	-0.01379	2048.38	2075.08	0.9871	-0.0129	0.0129	0.056

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		2202.87					
0.00000	0.00000	2299.87	2202.87	1.0440	0.0440	-0.0440	-0.044
0.00000	0.00000	2213.57	2299.87	0.9625	-0.0375	0.0375	-0.006
0.01653	0.01653	2213.57	2213.57	1.0000	0.0000	0.0165	0.010
0.00816	0.02469	2197.00	2213.57	0.9925	-0.0075	0.0156	0.025
0.01613	0.04082	2130.00	2197.00	0.9695	-0.0305	0.0466	0.072
0.00000	0.04082	2164.44	2130.00	1.0162	0.0162	-0.0162	0.056
0.00797	0.04879	2106.59	2164.44	0.9733	-0.0267	0.0347	0.090
0.01575	0.06454	2099.91	2106.59	0.9968	-0.0032	0.0189	0.109
0.00778	0.07232	2075.08	2099.91	0.9882	-0.0118	0.0196	0.129

	11	6.50	6.45	1.00775	

BOC	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	27.00			
	2	27.00	27.00	1.00000	
	3	27.00	27.00	1.00000	
	4	26.50	27.00	0.98148	
	5	26.50	26.50	1.00000	
	6	**26.50**	26.50	1.00000	
	7	25.50	**26.50**	0.96226	
	8	25.50	25.50	1.00000	
	9	25.50	25.50	1.00000	
	10	25.50	25.50	1.00000	
	11	25.75	25.50	1.00980	

BAT	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	45.25			
	2	46.25	45.25	1.02210	
	3	46.25	46.25	1.00000	
	4	46.75	46.25	1.01081	
	5	46.00	46.75	0.98396	
	6	**46.25**	46.00	1.00543	
	7	46.25	**46.25**	1.00000	
	8	46.50	46.25	1.00541	
	9	46.50	46.50	1.00000	
	10	46.50	46.50	1.00000	
	11	46.50	46.50	1.00000	

MUMIAS	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	2.00			
	2	2.75	2.00	1.37500	
	3	2.40	2.75	0.87273	
	4	2.30	2.40	0.95833	
	5	2.25	2.30	0.97826	
	6	**2.25**	2.25	1.00000	
	7	2.80	**2.25**	1.24444	
	8	2.50	2.80	0.89286	
	9	2.20	2.50	0.88000	

0.00772	0.08004	2048.38	2075.08	0.9871	-0.0129	0.0206	0.1499

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		3273.16					
0.00000	0.00000	3387.48	3273.16	1.0349	0.0349	-0.0349	-0.0349
0.00000	0.00000	3349.11	3387.48	0.9887	-0.0113	0.0113	-0.0236
-0.01869	-0.01869	3340.00	3349.11	0.9973	-0.0027	-0.0160	-0.0396
0.00000	-0.01869	3373.47	3340.00	1.0100	0.0100	-0.0100	-0.0496
0.00000	-0.01869	3373.47	3373.47	1.0000	0.0000	0.0000	-0.0496
-0.03847	-0.05716	3362.23	3373.47	0.9967	-0.0033	-0.0351	-0.0847
0.00000	-0.05716	3329.74	3362.23	0.9903	-0.0097	0.0097	-0.0751
0.00000	-0.05716	3277.69	3329.74	0.9844	-0.0156	0.0156	-0.0594
0.00000	-0.05716	3289.38	3277.69	1.0036	0.0036	-0.0036	-0.0630
0.00976	-0.04740	3289.38	3289.38	1.0000	0.0000	0.0098	-0.0532

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		3273.16					
0.00000	0.00000	3387.48	3273.16	1.0349	0.0349	-0.0349	-0.0349
0.00000	0.00000	3349.11	3387.48	0.9887	-0.0113	0.0113	-0.0236
0.01075	0.01075	3340.00	3349.11	0.9973	-0.0027	0.0135	-0.0101
-0.01617	-0.00542	3373.47	3340.00	1.0100	0.0100	-0.0262	-0.0363
0.00542	0.00000	3373.47	3373.47	1.0000	0.0000	0.0054	-0.0309
0.00000	0.00000	3362.23	3373.47	0.9967	-0.0033	0.0033	-0.0276
0.00539	0.00539	3329.74	3362.23	0.9903	-0.0097	0.0151	-0.0125
0.00000	0.00539	3277.69	3329.74	0.9844	-0.0156	0.0156	0.0031
0.00000	0.00539	3289.38	3277.69	1.0036	0.0036	-0.0036	-0.0004
0.00000	0.00539	3289.38	3289.38	1.0000	0.0000	0.0000	-0.0004

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		3273.16					
0.00000	0.00000	3387.48	3273.16	1.0349	0.0349	-0.0349	-0.0349
-0.13613	-0.13613	3349.11	3387.48	0.9887	-0.0113	-0.1248	-0.1597
-0.04256	-0.17869	3340.00	3349.11	0.9973	-0.0027	-0.0398	-0.1996
-0.02198	-0.20067	3373.47	3340.00	1.0100	0.0100	-0.0320	-0.2316
0.00000	-0.20067	3373.47	3373.47	1.0000	0.0000	0.0000	-0.2316
0.21869	0.01802	3362.23	3373.47	0.9967	-0.0033	0.2220	-0.0095
-0.11333	-0.09531	3329.74	3362.23	0.9903	-0.0097	-0.1037	-0.1132
-0.12783	-0.22314	3277.69	3329.74	0.9844	-0.0156	-0.1122	-0.2254

	10	2.80	2.20	1.27273
	11	2.80	2.80	1.00000

BAT	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=
	1	98.00			
	2	99.00	98.00	1.01020	
	3	99.50	99.00	1.00505	
	4	99.00	99.50	0.99497	
	5	99.00	99.00	1.00000	
	6	**100.00**	99.00	1.01010	
	7	100.00	**100.00**	1.00000	
	8	100.00	100.00	1.00000	
	9	100.00	100.00	1.00000	
	10	100.00	100.00	1.00000	
	11	100.00	100.00	1.00000	

BBK	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=
	1	127.00			
	2	126.50	127.00	0.99606	
	3	126.55	126.50	1.00040	
	4	126.50	126.55	0.99960	
	5	126.50	126.50	1.00000	
	6	**126.00**	126.50	0.99605	
	7	129.00	**126.00**	1.02381	
	8	129.00	129.00	1.00000	
	9	128.00	129.00	0.99225	
	10	128.00	128.00	1.00000	
	11	128.00	128.00	1.00000	

KQ	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=
	1	6.00			
	2	6.50	6.00	1.08333	
	3	7.00	6.50	1.07692	
	4	6.50	7.00	0.92857	
	5	6.00	6.50	0.92308	
	6	**6.50**	6.00	1.08333	

0.24116	0.01802	3289.38	3277.69	1.0036	0.0036	0.2376	0.0122
0.00000	0.01802	3289.38	3289.38	1.0000	0.0000	0.0000	0.0122

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4196.48					
0.00000	0.00000	4167.14	4196.48	0.9930	-0.0070	0.0070	0.0070
0.00504	0.00504	4131.78	4167.14	0.9915	-0.0085	0.0135	0.0205
-0.00504	0.00000	4088.26	4131.78	0.9895	-0.0105	0.0055	0.0260
0.00000	0.00000	4069.29	4088.26	0.9954	-0.0046	0.0046	0.0307
0.01005	0.01005	4045.13	4069.29	0.9941	-0.0059	0.0160	0.0466
0.00000	0.01005	3916.55	4045.13	0.9682	-0.0318	0.0318	0.0784
0.00000	0.01005	3916.25	3916.55	0.9999	-0.0001	0.0001	0.0785
0.00000	0.01005	4005.35	3916.25	1.0228	0.0228	-0.0228	0.0557
0.00000	0.01005	4115.90	4005.35	1.0276	0.0276	-0.0276	0.0281
0.00000	0.01005	4056.65	4115.90	0.9856	-0.0144	0.0144	0.0425

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4196.48					
0.00000	0.00000	4167.14	4196.48	0.9930	-0.0070	0.0070	0.0070
0.00040	0.00040	4131.78	4167.14	0.9915	-0.0085	0.0089	0.0159
-0.00040	0.00000	4088.26	4131.78	0.9895	-0.0105	0.0101	0.0260
0.00000	0.00000	4069.29	4088.26	0.9954	-0.0046	0.0046	0.0307
-0.00396	-0.00396	4045.13	4069.29	0.9941	-0.0059	0.0020	0.0326
0.02353	0.01957	3916.55	4045.13	0.9682	-0.0318	0.0553	0.0879
0.00000	0.01957	3916.25	3916.55	0.9999	-0.0001	0.0001	0.0880
-0.00778	0.01179	4005.35	3916.25	1.0228	0.0228	-0.0305	0.0575
0.00000	0.01179	4115.90	4005.35	1.0276	0.0276	-0.0276	0.0299
0.00000	0.01179	4056.65	4115.90	0.9856	-0.0144	0.0144	0.0443

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4196.48					
0.00000	0.00000	4167.14	4196.48	0.9930	-0.0070	0.0070	0.0070
0.07411	0.07411	4131.78	4167.14	0.9915	-0.0085	0.0826	0.0896
-0.07411	0.00000	4088.26	4131.78	0.9895	-0.0105	-0.0636	0.0260
-0.08004	-0.08004	4069.29	4088.26	0.9954	-0.0046	-0.0754	-0.0494
0.08004	0.00000	4045.13	4069.29	0.9941	-0.0059	0.0860	0.0366

	7	6.00	**6.50**	0.92308
	8	6.50	6.00	1.08333
	9	6.45	6.50	0.99231
	10	6.50	6.45	1.00775
	11	6.50	6.50	1.00000

MUMIAS	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	10.00			
	2	12.00	10.00	1.20000	
	3	11.00	12.00	0.91667	
	4	10.20	11.00	0.92727	
	5	11.00	10.20	1.07843	
	6	**9.00**	11.00	0.81818	
	7	11.00	**9.00**	1.22222	
	8	12.00	11.00	1.09091	
	9	11.00	12.00	0.91667	
	10	10.00	11.00	0.90909	
	11	11.00	10.00	1.10000	

BAT	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	198.50			
	2	199.00	198.50	1.00252	
	3	200.00	199.00	1.00503	
	4	201.75	200.00	1.00875	
	5	201.00	201.75	0.99628	
	6	**205.00**	201.00	1.01990	
	7	210.00	**205.00**	1.02439	
	8	211.00	210.00	1.00476	
	9	213.00	211.00	1.00948	
	10	214.00	213.00	1.00469	
	11	214.40	214.00	1.00187	

BBK	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	246.00			
	2	250.00	246.00	1.01626	
	3	248.50	250.00	0.99400	
	4	250.00	248.50	1.00604	
	5	251.00	250.00	1.00400	
	6	**246.00**	251.00	0.98008	

-0.08004	-0.08004	3916.55	4045.13	0.9682	-0.0318	-0.0483	-0.0117
0.08004	0.00000	3916.25	3916.55	0.9999	-0.0001	0.0801	0.0685
-0.00772	-0.00772	4005.35	3916.25	1.0228	0.0228	-0.0305	0.0380
0.00772	0.00000	4115.90	4005.35	1.0276	0.0276	-0.0199	0.0181
0.00000	0.00000	4056.65	4115.90	0.9856	-0.0144	0.0144	0.0325

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4196.48					
0.00000	0.00000	4167.14	4196.48	0.9930	-0.0070	0.0070	0.0070
-0.08701	-0.08701	4131.78	4167.14	0.9915	-0.0085	-0.0785	-0.0715
-0.07551	-0.16252	4088.26	4131.78	0.9895	-0.0105	-0.0650	-0.1365
0.07551	-0.08701	4069.29	4088.26	0.9954	-0.0046	0.0801	-0.0564
-0.20067	-0.28768	4045.13	4069.29	0.9941	-0.0059	-0.1947	-0.2511
0.20067	-0.08701	3916.55	4045.13	0.9682	-0.0318	0.2325	-0.0186
0.08701	0.00000	3916.25	3916.55	0.9999	-0.0001	0.0871	0.0685
-0.08701	-0.08701	4005.35	3916.25	1.0228	0.0228	-0.1098	-0.0413
-0.09531	-0.18232	4115.90	4005.35	1.0276	0.0276	-0.1229	-0.1642
0.09531	-0.08701	4056.65	4115.90	0.9856	-0.0144	0.1097	-0.0545

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4100.00					
0.00000	0.00000	4210.00	4100.00	1.0268	0.0268	-0.0268	-0.0268
0.00501	0.00501	4211.00	4210.00	1.0002	0.0002	0.0048	-0.0221
0.00871	0.01372	4209.00	4211.00	0.9995	-0.0005	0.0092	-0.0129
-0.00372	0.01000	4208.00	4209.00	0.9998	-0.0002	-0.0035	-0.0164
0.01971	0.02971	4214.00	4208.00	1.0014	0.0014	0.0183	0.0019
0.02410	0.05380	4213.00	4214.00	0.9998	-0.0002	0.0243	0.0263
0.00475	0.05855	4199.00	4213.00	0.9967	-0.0033	0.0081	0.0343
0.00943	0.06799	4204.00	4199.00	1.0012	0.0012	0.0082	0.0426
0.00468	0.07267	4215.00	4204.00	1.0026	0.0026	0.0021	0.0446
0.00187	0.07454	4216.00	4215.00	1.0002	0.0002	0.0016	0.0463

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4100.00					
0.00000	0.00000	4210.00	4100.00	1.0268	0.0268	-0.0268	-0.0268
-0.00602	-0.00602	4211.00	4210.00	1.0002	0.0002	-0.0063	-0.0331
0.00602	0.00000	4209.00	4211.00	0.9995	-0.0005	0.0065	-0.0266
0.00399	0.00399	4208.00	4209.00	0.9998	-0.0002	0.0042	-0.0224
-0.02012	-0.01613	4214.00	4208.00	1.0014	0.0014	-0.0215	-0.0439

	7	248.00	**246.00**	1.00813
	8	249.00	248.00	1.00403
	9	249.50	249.00	1.00201
	10	250.00	249.50	1.00200
	11	250.50	250.00	1.00200

BOC	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	139.00			
	2	140.00	139.00	1.00719	
	3	141.50	140.00	1.01071	
	4	141.00	141.50	0.99647	
	5	142.00	141.00	1.00709	
	6	**142.00**	142.00	1.00000	
	7	141.00	**142.00**	0.99296	
	8	141.00	141.00	1.00000	
	9	140.50	141.00	0.99645	
	10	140.00	140.50	0.99644	
	11	139.00	140.00	0.99286	

EAPC	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	102.00			
	2	103.00	102.00	1.00980	
	3	14.50	103.00	0.14078	
	4	104.00	14.50	7.17241	
	5	105.00	104.00	1.00962	
	6	**68.00**	105.00	0.64762	
	7	68.50	**68.00**	1.00735	
	8	68.00	68.50	0.99270	
	9	69.00	68.00	1.01471	
	10	68.50	69.00	0.99275	
	11	67.00	68.50	0.97810	

KCB	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1
	1	70.00			
	2	71.50	70.00	1.02143	
	3	71.00	71.50	0.99301	
	4	70.50	71.00	0.99296	
	5	70.00	70.50	0.99291	

0.00810	-0.00803	4213.00	4214.00	0.9998	-0.0002	0.0083	-0.0356
0.00402	-0.00401	4199.00	4213.00	0.9967	-0.0033	0.0073	-0.0282
0.00201	-0.00200	4204.00	4199.00	1.0012	0.0012	0.0008	-0.0274
0.00200	0.00000	4215.00	4204.00	1.0026	0.0026	-0.0006	-0.0280
0.00200	0.00200	4216.00	4215.00	1.0002	0.0002	0.0018	-0.0263

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4220.52					
0.00000	0.00000	4451.41	4220.52	1.0547	0.0547	-0.0547	-0.0547
0.01066	0.01066	4383.83	4451.41	0.9848	-0.0152	0.0258	-0.0289
-0.00354	0.00712	4365.9	4383.83	0.9959	-0.0041	0.0006	-0.0283
0.00707	0.01418	4280.96	4365.9	0.9805	-0.0195	0.0265	-0.0018
0.00000	0.01418	4216.79	4280.96	0.9850	-0.0150	0.0150	0.0132
-0.00707	0.00712	4285.23	4216.79	1.0162	0.0162	-0.0233	-0.0101
0.00000	0.00712	4218.1	4285.23	0.9843	-0.0157	0.0157	0.0056
-0.00355	0.00357	4263.59	4218.1	1.0108	0.0108	-0.0143	-0.0088
-0.00357	0.00000	4278.18	4263.59	1.0034	0.0034	-0.0070	-0.0158
-0.00717	-0.00717	4246.44	4278.18	0.9926	-0.0074	0.0003	-0.0155

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4220.52					
0.00000	0.00000	4451.41	4220.52	1.0547	0.0547	-0.0547	-0.0547
-1.96058	-1.96058	4383.83	4451.41	0.9848	-0.0152	-1.9454	-2.0001
1.97024	0.00966	4365.9	4383.83	0.9959	-0.0041	1.9743	-0.0258
0.00957	0.01923	4280.96	4365.9	0.9805	-0.0195	0.0290	0.0033
-0.43445	-0.41522	4216.79	4280.96	0.9850	-0.0150	-0.4195	-0.4162
0.00733	-0.40790	4285.23	4216.79	1.0162	0.0162	-0.0089	-0.4251
-0.00733	-0.41522	4218.1	4285.23	0.9843	-0.0157	0.0083	-0.4168
0.01460	-0.40062	4263.59	4218.1	1.0108	0.0108	0.0038	-0.4130
-0.00727	-0.40790	4278.18	4263.59	1.0034	0.0034	-0.0107	-0.4237
-0.02214	-0.43004	4246.44	4278.18	0.9926	-0.0074	-0.0147	-0.4384

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4220.52					
0.00000	0.00000	4451.41	4220.52	1.0547	0.0547	-0.0547	-0.0547
-0.00702	-0.00702	4383.83	4451.41	0.9848	-0.0152	0.0082	-0.0465
-0.00707	-0.01408	4365.9	4383.83	0.9959	-0.0041	-0.0030	-0.0495
-0.00712	-0.02120	4280.96	4365.9	0.9805	-0.0195	0.0123	-0.0372

	6	**69.00**	70.00	0.98571
	7	68.00	**69.00**	0.98551
	8	6.50	68.00	0.09559
	9	67.00	6.50	10.30769
	10	67.50	67.00	1.00746
	11	68.00	67.50	1.00741

MRM	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t
	1	28.00			
	2	28.00	28.00	1.00000	
	3	28.50	28.00	1.01786	
	4	29.00	28.50	1.01754	
	5	29.50	29.00	1.01724	
	6	**30.00**	29.50	1.01695	
	7	30.50	**30.00**	1.01667	
	8	31.00	30.50	1.01639	
	9	32.00	31.00	1.03226	
	10	32.50	32.00	1.01563	
	11	33.00	32.50	1.01538	

MSC	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t
	1	23.00			
	2	24.00	23.00	1.04348	
	3	24.50	24.00	1.02083	
	4	25.00	24.50	1.02041	
	5	26.50	25.00	1.06000	
	6	**23.00**	26.50	0.86792	
	7	24.00	**23.00**	1.04348	
	8	25.00	24.00	1.04167	
	9	25.50	25.00	1.02000	
	10	25.50	25.50	1.00000	
	11	26.00	25.50	1.01961	

SAROVA	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t
	1	34.500			
	2	35.000	34.500	1.01449	
	3	35.500	35.000	1.01429	
	4	36.000	35.500	1.01408	

-0.01439	-0.03559	4216.79	4280.96	0.9850	-0.0150	0.0006	-0.0366
-0.01460	-0.05019	4285.23	4216.79	1.0162	0.0162	-0.0308	-0.0674
-2.34771	-2.39790	4218.1	4285.23	0.9843	-0.0157	-2.3320	-2.3995
2.33289	-0.06500	4263.59	4218.1	1.0108	0.0108	2.3221	-0.0773
0.00743	-0.05757	4278.18	4263.59	1.0034	0.0034	0.0040	-0.0733
0.00738	-0.05019	4246.44	4278.18	0.9926	-0.0074	0.0148	-0.0585

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4220.52					
0.00000	0.00000	4451.41	4220.52	1.0547	0.0547	-0.0547	-0.0547
0.01770	0.01770	4383.83	4451.41	0.9848	-0.0152	0.0329	-0.0218
0.01739	0.03509	4365.9	4383.83	0.9959	-0.0041	0.0215	-0.0003
0.01709	0.05219	4280.96	4365.9	0.9805	-0.0195	0.0365	0.0362
0.01681	0.06899	4216.79	4280.96	0.9850	-0.0150	0.0318	0.0680
0.01653	0.08552	4285.23	4216.79	1.0162	0.0162	0.0003	0.0683
0.01626	0.10178	4218.1	4285.23	0.9843	-0.0157	0.0319	0.1002
0.03175	0.13353	4263.59	4218.1	1.0108	0.0108	0.0210	0.1212
0.01550	0.14904	4278.18	4263.59	1.0034	0.0034	0.0121	0.1333
0.01527	0.16430	4246.44	4278.18	0.9926	-0.0074	0.0227	0.1560

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4220.52					
0.00000	0.00000	4451.41	4220.52	1.0547	0.0547	-0.0547	-0.0547
0.02062	0.02062	4383.83	4451.41	0.9848	-0.0152	0.0358	-0.0189
0.02020	0.04082	4365.9	4383.83	0.9959	-0.0041	0.0243	0.0054
0.05827	0.09909	4280.96	4365.9	0.9805	-0.0195	0.0777	0.0831
-0.14165	-0.04256	4216.79	4280.96	0.9850	-0.0150	-0.1267	-0.0435
0.04256	0.00000	4285.23	4216.79	1.0162	0.0162	0.0263	-0.0172
0.04082	0.04082	4218.1	4285.23	0.9843	-0.0157	0.0565	0.0393
0.01980	0.06062	4263.59	4218.1	1.0108	0.0108	0.0090	0.0483
0.00000	0.06062	4278.18	4263.59	1.0034	0.0034	-0.0034	0.0449
0.01942	0.08004	4246.44	4278.18	0.9926	-0.0074	0.0268	0.0717

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4220.52					
0.00000	0.00000	4451.41	4220.52	1.0547	0.0547	-0.0547	-0.0547
0.01418	0.01418	4383.83	4451.41	0.9848	-0.0152	0.0294	-0.0253
0.01399	0.02817	4365.9	4383.83	0.9959	-0.0041	0.0181	-0.0073

	5	36.500	36.000	1.01389	
	6	**36.000**	36.500	0.98630	
	7	36.000	**36.000**	1.00000	
	8	35.500	36.000	0.98611	
	9	35.500	35.500	1.00000	
	10	35.000	35.500	0.98592	
	11	33.000	35.000	0.94286	
UNILEVER	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=
	1	114.00			
	2	114.50	114.00	1.00439	
	3	115.00	114.50	1.00437	
	4	115.50	115.00	1.00435	
	5	115.00	115.50	0.99567	
	6	**115.00**	115.00	1.00000	
	7	115.00	**115.00**	1.00000	
	8	113.00	115.00	0.98261	
	9	113.30	113.00	1.00265	
	10	112.00	113.30	0.98853	
	11	11.00	112.00	0.09821	
BBK	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=
	1	257.50			
	2	258.00	257.50	1.00194	
	3	29.50	258.00	0.11434	
	4	259.00	29.50	8.77966	
	5	260.00	259.00	1.00386	
	6	**256.00**	260.00	0.98462	
	7	26.00	**256.00**	0.10156	
	8	270.00	26.00	10.38462	
	9	271.00	270.00	1.00370	
	10	270.50	271.00	0.99815	
	11	272.00	270.50	1.00555	
BOC	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=
	1	157.00			
	2	158.50	157.00	1.00955	
	3	159.00	158.50	1.00315	

0.01379	0.04196	4280.96	4365.9	0.9805	-0.0195	0.0332	0.0260
-0.01379	0.02817	4216.79	4280.96	0.9850	-0.0150	0.0012	0.0272
0.00000	0.02817	4285.23	4216.79	1.0162	0.0162	-0.0162	0.0110
-0.01399	0.01418	4218.1	4285.23	0.9843	-0.0157	0.0017	0.0126
0.00000	0.01418	4263.59	4218.1	1.0108	0.0108	-0.0108	0.0018
-0.01418	0.00000	4278.18	4263.59	1.0034	0.0034	-0.0176	-0.0158
-0.05884	-0.05884	4246.44	4278.18	0.9926	-0.0074	-0.0514	-0.0672

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4220.52					
0.00000	0.00000	4451.41	4220.52	1.0547	0.0547	-0.0547	-0.0547
0.00436	0.00436	4383.83	4451.41	0.9848	-0.0152	0.0195	-0.0352
0.00434	0.00870	4365.9	4383.83	0.9959	-0.0041	0.0084	-0.0267
-0.00434	0.00436	4280.96	4365.9	0.9805	-0.0195	0.0151	-0.0116
0.00000	0.00436	4216.79	4280.96	0.9850	-0.0150	0.0150	0.0034
0.00000	0.00436	4285.23	4216.79	1.0162	0.0162	-0.0162	-0.0129
-0.01754	-0.01319	4218.1	4285.23	0.9843	-0.0157	-0.0019	-0.0147
0.00265	-0.01054	4263.59	4218.1	1.0108	0.0108	-0.0081	0.0229
-0.01154	-0.02208	4278.18	4263.59	1.0034	0.0034	-0.0150	-0.0378
-2.32060	-2.34268	4246.44	4278.18	0.9926	-0.0074	-2.3132	-2.3510

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4481.70					
0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233
-2.16857	-2.16857	4839.24	4585.94	1.0552	0.0552	-2.2238	-2.2471
2.17244	0.00387	4728.12	4839.24	0.9770	-0.0230	2.1954	-0.0517
0.00385	0.00772	4843.23	4728.12	1.0243	0.0243	-0.0205	-0.0722
-0.01550	-0.00778	4889.68	4843.23	1.0096	0.0096	-0.0251	-0.0972
-2.28708	-2.29486	4857.58	4889.68	0.9934	-0.0066	-2.2805	-2.3778
2.34033	0.04546	4910.60	4857.58	1.0109	0.0109	2.3294	-0.0484
0.00370	0.04916	5177.90	4910.60	1.0544	0.0544	-0.0507	-0.0991
-0.00185	0.04731	5555.23	5177.90	1.0729	0.0729	-0.0747	-0.1738
0.00553	0.05284	5608.25	5555.23	1.0095	0.0095	-0.0040	-0.1778

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4481.70					
0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233
0.00315	0.00315	4839.24	4585.94	1.0552	0.0552	-0.0521	-0.0753

	4	159.00	159.00	1.00000
	5	160.00	159.00	1.00629
	6	**160.00**	160.00	1.00000
	7	159.50	**160.00**	0.99688
	8	159.00	159.50	0.99687
	9	158.00	159.00	0.99371
	10	156.00	158.00	0.98734
	11	155.00	156.00	0.99359

EAPC	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t
	1	112.00			
	2	115.00	112.00	1.02679	
	3	118.00	115.00	1.02609	
	4	119.00	118.00	1.00847	
	5	121.00	119.00	1.01681	
	6	**120.00**	121.00	0.99174	
	7	129.00	**120.00**	1.07500	
	8	132.00	129.00	1.02326	
	9	133.00	132.00	1.00758	
	10	133.50	133.00	1.00376	
	11	134.00	133.50	1.00375	

EQUITY	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t
	1	117.00			
	2	119.00	117.00	1.01709	
	3	122.00	119.00	1.02521	
	4	121.00	122.00	0.99180	
	5	121.50	121.00	1.00413	
	6	**120.50**	121.50	0.99177	
	7	123.00	**120.50**	1.02075	
	8	122.00	123.00	0.99187	
	9	124.00	122.00	1.01639	
	10	125.00	124.00	1.00806	
	11	125.50	125.00	1.00400	

KCB	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t
	1	153.00			
	2	152.00	153.00	0.99346	

0.00000	0.00315	4728.12	4839.24	0.9770	-0.0230	0.0230	-0.0524
0.00627	0.00942	4843.23	4728.12	1.0243	0.0243	-0.0181	-0.0705
0.00000	0.00942	4889.68	4843.23	1.0096	0.0096	-0.0096	-0.0800
-0.00313	0.00629	4857.58	4889.68	0.9934	-0.0066	0.0034	-0.0766
-0.00314	0.00315	4910.60	4857.58	1.0109	0.0109	-0.0141	-0.0907
-0.00631	-0.00316	5177.90	4910.60	1.0544	0.0544	-0.0607	-0.1514
-0.01274	-0.01590	5555.23	5177.90	1.0729	0.0729	-0.0856	-0.2370
-0.00643	-0.02233	5608.25	5555.23	1.0095	0.0095	-0.0160	-0.2530

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4481.70					
0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233
0.02575	0.02575	4839.24	4585.94	1.0552	0.0552	-0.0295	-0.0527
0.00844	0.03419	4728.12	4839.24	0.9770	-0.0230	0.0314	-0.0213
0.01667	0.05086	4843.23	4728.12	1.0243	0.0243	-0.0077	-0.0290
-0.00830	0.04256	4889.68	4843.23	1.0096	0.0096	-0.0179	-0.0469
0.07232	0.11488	4857.58	4889.68	0.9934	-0.0066	0.0789	0.0320
0.02299	0.13787	4910.60	4857.58	1.0109	0.0109	0.0121	0.0441
0.00755	0.14542	5177.90	4910.60	1.0544	0.0544	-0.0469	-0.0028
0.00375	0.14917	5555.23	5177.90	1.0729	0.0729	-0.0691	-0.0720
0.00374	0.15291	5608.25	5555.23	1.0095	0.0095	-0.0058	-0.0778

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4481.70					
0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233
0.02490	0.02490	4839.24	4585.94	1.0552	0.0552	-0.0303	-0.0536
-0.00823	0.01667	4728.12	4839.24	0.9770	-0.0230	0.0147	-0.0389
0.00412	0.02079	4843.23	4728.12	1.0243	0.0243	-0.0202	-0.0591
-0.00826	0.01253	4889.68	4843.23	1.0096	0.0096	-0.0179	-0.0769
0.02053	0.03306	4857.58	4889.68	0.9934	-0.0066	0.0271	-0.0498
-0.00816	0.02490	4910.60	4857.58	1.0109	0.0109	-0.0191	-0.0689
0.01626	0.04116	5177.90	4910.60	1.0544	0.0544	-0.0382	-0.1071
0.00803	0.04919	5555.23	5177.90	1.0729	0.0729	-0.0648	-0.1719
0.00399	0.05318	5608.25	5555.23	1.0095	0.0095	-0.0056	-0.1775

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4481.70					
0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233

3	154.50	152.00	1.01645	0.01631	0.01631	4839.24	4585.94	1.0552	0.0552	-0.0389	-0.0622
4	155.00	154.50	1.00324	0.00323	0.01954	4728.12	4839.24	0.9770	-0.0230	0.0262	-0.0360
5	154.00	155.00	0.99355	-0.00647	0.01307	4843.23	4728.12	1.0243	0.0243	-0.0308	-0.0668
6	**150.00**	154.00	0.97403	-0.02632	-0.01325	4889.68	4843.23	1.0096	0.0096	-0.0359	-0.1027
7	165.00	**150.00**	1.10000	0.09531	0.08206	4857.58	4889.68	0.9934	-0.0066	0.1019	-0.0008
8	167.00	165.00	1.01212	0.01205	0.09411	4910.60	4857.58	1.0109	0.0109	0.0011	0.0003
9	167.50	167.00	1.00299	0.00299	0.09710	5177.90	4910.60	1.0544	0.0544	-0.0514	-0.0511
10	169.00	167.50	1.00896	0.00892	0.10602	5555.23	5177.90	1.0729	0.0729	-0.0640	-0.1151
11	170.00	169.00	1.00592	0.00590	0.11192	5608.25	5555.23	1.0095	0.0095	-0.0036	-0.1188

MSC	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
	1	55.00					4481.70					
	2	55.25	55.00	1.00455	0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233
	3	55.00	55.25	0.99548	-0.00454	-0.00454	4839.24	4585.94	1.0552	0.0552	-0.0598	-0.0830
	4	56.00	55.00	1.01818	0.01802	0.01348	4728.12	4839.24	0.9770	-0.0230	0.0410	-0.0420
	5	57.25	56.00	1.02232	0.02208	0.03556	4843.23	4728.12	1.0243	0.0243	-0.0023	-0.0443
	6	**59.00**	57.25	1.03057	0.03011	0.06567	4889.68	4843.23	1.0096	0.0096	0.0205	-0.0238
	7	59.50	**59.00**	1.00847	0.00844	0.07411	4857.58	4889.68	0.9934	-0.0066	0.0150	-0.0088
	8	62.00	59.50	1.04202	0.04116	0.11527	4910.60	4857.58	1.0109	0.0109	0.0302	0.0214
	9	64.00	62.00	1.03226	0.03175	0.14701	5177.90	4910.60	1.0544	0.0544	-0.0227	-0.0012
	10	64.50	64.00	1.00781	0.00778	0.15480	5555.23	5177.90	1.0729	0.0729	-0.0651	-0.0663
	11	66.00	64.50	1.02326	0.02299	0.17779	5608.25	5555.23	1.0095	0.0095	0.0134	-0.0529

SCBK	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
	1	139.50					4481.70					
	2	140.00	139.50	1.00358	0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233
	3	140.00	140.00	1.00000	0.00000	0.00000	4839.24	4585.94	1.0552	0.0552	-0.0552	-0.0785
	4	141.00	140.00	1.00714	0.00712	0.00712	4728.12	4839.24	0.9770	-0.0230	0.0301	-0.0484
	5	142.00	141.00	1.00709	0.00707	0.01418	4843.23	4728.12	1.0243	0.0243	-0.0173	-0.0657
	6	**143.00**	142.00	1.00704	0.00702	0.02120	4889.68	4843.23	1.0096	0.0096	-0.0026	-0.0683
	7	145.00	**143.00**	1.01399	0.01389	0.03509	4857.58	4889.68	0.9934	-0.0066	0.0205	-0.0478
	8	150.00	145.00	1.03448	0.03390	0.06899	4910.60	4857.58	1.0109	0.0109	0.0230	-0.0248
	9	152.00	150.00	1.01333	0.01325	0.08224	5177.90	4910.60	1.0544	0.0544	-0.0412	-0.0660
	10	152.00	152.00	1.00000	0.00000	0.08224	5555.23	5177.90	1.0729	0.0729	-0.0729	-0.1389
	11	153.00	152.00	1.00658	0.00656	0.08880	5608.25	5555.23	1.0095	0.0095	-0.0030	-0.1419

ACCESS K	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,1=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
	1	10.00					4481.70					

	2	10.50	10.00	1.05000
	3	11.00	10.50	1.04762
	4	12.50	11.00	1.13636
	5	13.40	12.50	1.07200
	6	**13.50**	13.40	1.00746
	7	14.00	**13.50**	1.03704
	8	15.00	14.00	1.07143
	9	15.50	15.00	1.03333
	10	16.00	15.50	1.03226
	11	16.00	16.00	1.00000

BOC	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t
	1	28.50			
	2	29.00	28.50	1.01754	
	3	28.00	29.00	0.96552	
	4	30.00	28.00	1.07143	
	5	32.00	30.00	1.06667	
	6	**35.00**	32.00	1.09375	
	7	36.00	**35.00**	1.02857	
	8	37.00	36.00	1.02778	
	9	37.50	37.00	1.01351	
	10	37.00	37.50	0.98667	
	11	39.00	37.00	1.05405	

EAC	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t
	1	44.40			
	2	45.00	44.40	1.01351	
	3	47.00	45.00	1.04444	
	4	48.50	47.00	1.03191	
	5	48.00	48.50	0.98969	
	6	**49.00**	48.00	1.02083	
	7	49.50	**49.00**	1.01020	
	8	52.00	49.50	1.05051	
	9	52.50	52.00	1.00962	
	10	55.00	52.50	1.04762	
	11	56.00	55.00	1.01818	

ICDCI	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t

0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233
0.04652	0.04652	4839.24	4585.94	1.0552	0.0552	-0.0087	-0.0320
0.12783	0.17435	4728.12	4839.24	0.9770	-0.0230	0.1508	0.1188
0.06953	0.24388	4843.23	4728.12	1.0243	0.0243	0.0452	0.1640
0.00743	0.25131	4889.68	4843.23	1.0096	0.0096	-0.0022	0.1618
0.03637	0.28768	4857.58	4889.68	0.9934	-0.0066	0.0429	0.2048
0.06899	0.35667	4910.60	4857.58	1.0109	0.0109	0.0581	0.2629
0.03279	0.38946	5177.90	4910.60	1.0544	0.0544	-0.0216	0.2412
0.03175	0.42121	5555.23	5177.90	1.0729	0.0729	-0.0411	0.2001
0.00000	0.42121	5608.25	5555.23	1.0095	0.0095	-0.0095	0.1905

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4481.70					
0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233
-0.03509	-0.03509	4839.24	4585.94	1.0552	0.0552	-0.0903	-0.1136
0.06899	0.03390	4728.12	4839.24	0.9770	-0.0230	0.0920	-0.0216
0.06454	0.09844	4843.23	4728.12	1.0243	0.0243	0.0402	0.0186
0.08961	0.18805	4889.68	4843.23	1.0096	0.0096	0.0800	0.0986
0.02817	0.21622	4857.58	4889.68	0.9934	-0.0066	0.0347	0.1333
0.02740	0.24362	4910.60	4857.58	1.0109	0.0109	0.0165	0.1498
0.01342	0.25705	5177.90	4910.60	1.0544	0.0544	-0.0410	0.1088
-0.01342	0.24362	5555.23	5177.90	1.0729	0.0729	-0.0863	0.0225
0.05264	0.29627	5608.25	5555.23	1.0095	0.0095	0.0431	0.0656

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4545.00					
0.00000	0.00000	4560.00	4545.00	1.0033	0.0033	-0.0033	-0.0033
0.04349	0.04349	4300.00	4560.00	0.9430	-0.0570	0.1005	0.0972
0.03142	0.07490	4500.00	4300.00	1.0465	0.0465	-0.0151	0.0821
-0.01036	0.06454	4600.00	4500.00	1.0222	0.0222	-0.0326	0.0495
0.02062	0.08516	4750.00	4600.00	1.0326	0.0326	-0.0120	0.0375
0.01015	0.09531	4857.58	4750.00	1.0226	0.0226	-0.0125	0.0250
0.04927	0.14458	4900.00	4857.58	1.0087	0.0087	0.0405	0.0656
0.00957	0.15415	5970.00	4900.00	1.2184	0.2184	-0.2088	-0.1432
0.04652	0.20067	4972.00	5970.00	0.8328	-0.1672	0.2137	0.0705
0.01802	0.21869	4912.00	4972.00	0.9879	-0.0121	0.0301	0.1006

=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm

Xi

	1	10.50		
	2	12.00	10.50	1.14286
	3	11.00	12.00	0.91667
	4	13.00	11.00	1.18182
	5	14.00	13.00	1.07692
	6	12.00	14.00	0.85714
	7	11.00	12.00	0.91667
	8	10.00	11.00	0.90909
	9	12.45	10.00	1.24500
	10	13.00	12.45	1.04418
	11	15.00	13.00	1.15385

MRM	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t
	1	26.00			
	2	29.00	26.00	1.11538	
	3	29.00	29.00	1.00000	
	4	30.00	29.00	1.03448	
	5	32.00	30.00	1.06667	
	6	**34.00**	32.00	1.06250	
	7	35.00	**34.00**	1.02941	
	8	34.00	35.00	0.97143	
	9	35.60	34.00	1.04706	
	10	43.00	35.60	1.20787	
	11	41.00	43.00	0.95349	

MSC	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t
	1	30.00			
	2	29.50	30.00	0.98333	
	3	29.00	29.50	0.98305	
	4	30.00	29.00	1.03448	
	5	25.50	30.00	0.85000	
	6	**26.00**	25.50	1.01961	
	7	29.50	**26.00**	1.13462	
	8	27.00	29.50	0.91525	
	9	28.00	27.00	1.03704	
	10	29.50	28.00	1.05357	
	11	28.00	29.50	0.94915	

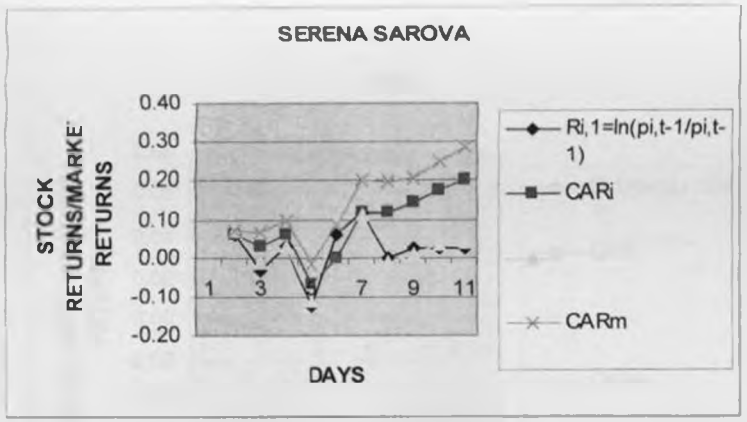
		4481.70					
0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233
-0.08701	-0.08701	4839.24	4585.94	1.0552	0.0552	-0.1422	-0.1655
0.16705	0.08004	4728.12	4839.24	0.9770	-0.0230	0.1900	0.0245
0.07411	0.15415	4843.23	4728.12	1.0243	0.0243	0.0498	0.0743
-0.15415	0.00000	4889.68	4843.23	1.0096	0.0096	-0.1637	-0.0895
-0.08701	-0.08701	4857.58	4889.68	0.9934	-0.0066	-0.0804	-0.1699
-0.09531	-0.18232	4910.60	4857.58	1.0109	0.0109	-0.1062	-0.2761
0.21914	0.03681	5177.90	4910.60	1.0544	0.0544	0.1647	-0.1114
0.04323	0.08004	5555.23	5177.90	1.0729	0.0729	-0.0296	-0.1411
0.14310	0.22314	5608.25	5555.23	1.0095	0.0095	0.1336	-0.0075

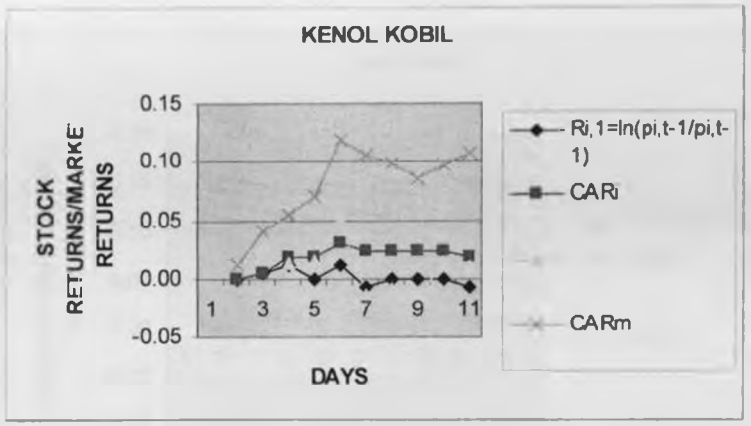
=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		4481.70					
0.00000	0.00000	4585.94	4481.70	1.0233	0.0233	-0.0233	-0.0233
0.00000	0.00000	4839.24	4585.94	1.0552	0.0552	-0.0552	-0.0785
0.03390	0.03390	4728.12	4839.24	0.9770	-0.0230	0.0569	-0.0216
0.06454	0.09844	4843.23	4728.12	1.0243	0.0243	0.0402	0.0186
0.06062	0.15906	4889.68	4843.23	1.0096	0.0096	0.0510	0.0696
0.02899	0.18805	4857.58	4889.68	0.9934	-0.0066	0.0356	0.1051
-0.02899	0.15906	4910.60	4857.58	1.0109	0.0109	-0.0399	0.0652
0.04599	0.20505	5177.90	4910.60	1.0544	0.0544	-0.0084	0.0568
0.18885	0.39390	5555.23	5177.90	1.0729	0.0729	0.1160	0.1728
-0.04763	0.34628	5608.25	5555.23	1.0095	0.0095	-0.0572	0.1156

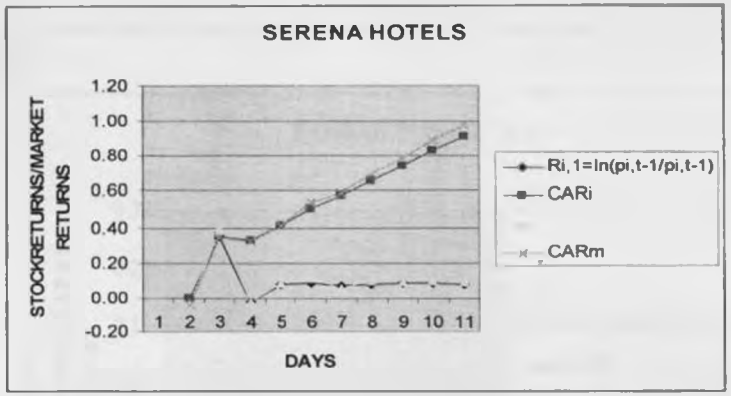
=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
		3273.16					
0.00000	0.00000	3387.48	4481.70	0.7558	-0.2442	0.2442	0.2442
-0.01709	-0.01709	3349.11	4585.94	0.7303	-0.2697	0.2526	0.4968
0.03390	0.01681	3350	4839.24	0.6923	-0.3077	0.3416	0.8384
-0.16252	-0.14571	3373.47	4728.12	0.7135	-0.2865	0.1240	0.9624
0.01942	-0.12629	3373.47	4843.23	0.6965	-0.3035	0.3229	1.2853
0.12629	0.00000	3362.23	4889.68	0.6876	-0.3124	0.4387	1.7240
-0.08855	-0.08855	3329.74	4857.58	0.6855	-0.3145	0.2260	1.9499
0.03637	-0.05219	3277.69	4910.60	0.6675	-0.3325	0.3689	2.3188
0.05219	0.00000	3289.38	5177.90	0.6353	-0.3647	0.4169	2.7357
-0.05219	-0.05219	3289.38	5555.23	0.5921	-0.4079	0.3557	3.0914

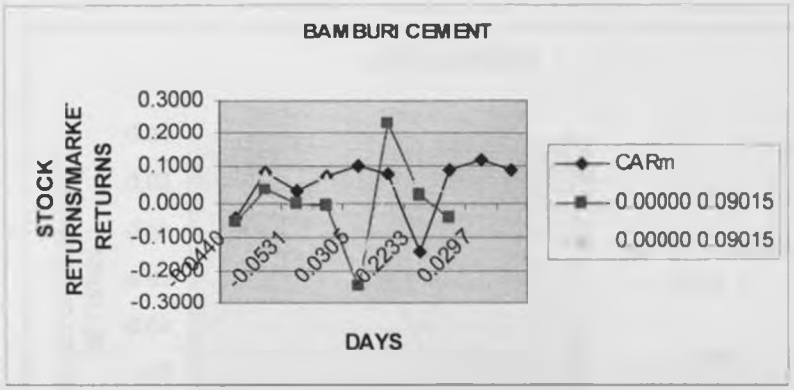
NMG	Time	end of week price	pi,t-1	pi,t-1/pi,t-1	Ri,t=ln(pi,t-1/pi,t-1)	CARi	NSE index					CARm
	1	248.00					4338.42					
	2	249.00	248.00	1.00403	0.00000	0.00000	4338.42	4338.42	1.0000	0.0000	0.0000	0.0000
	3	250.00	249.00	1.00402	0.00401	0.00401	4339.47	4338.42	1.0002	0.0002	0.0038	0.0038
	4	252.00	250.00	1.00800	0.00797	0.01198	4189.66	4339.47	0.9655	-0.0345	0.0425	0.0463
	5	254.00	252.00	1.00794	0.00791	0.01988	4272.43	4189.66	1.0198	0.0198	-0.0119	0.0344
	6	**257.00**	254.00	1.01181	0.01174	0.03162	4260.49	4272.43	0.9972	-0.0028	0.0145	0.0489
	7	259.00	**257.00**	1.00778	0.00775	0.03938	4339.47	4260.49	1.0185	0.0185	-0.0108	0.0382
	8	260.00	259.00	1.00386	0.00385	0.04323	4339.47	4339.47	1.0000	0.0000	0.0039	0.0420
	9	261.00	260.00	1.00385	0.00384	0.04707	4271.72	4339.47	0.9844	-0.0156	0.0195	0.0615
	10	262.00	261.00	1.00383	0.00382	0.05089	4272.60	4271.72	1.0002	0.0002	0.0036	0.0651
	11	263.00	262.00	1.00382	0.00381	0.05470	4300.00	4272.60	1.0064	0.0064	-0.0026	0.0625

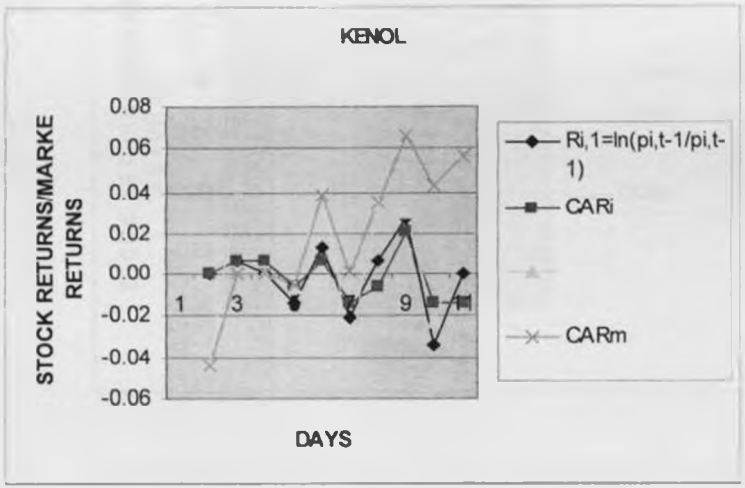
APPENDIX 4: Graphical presentation of Cumulative Abnormal Returns (COVA winners and Losers)

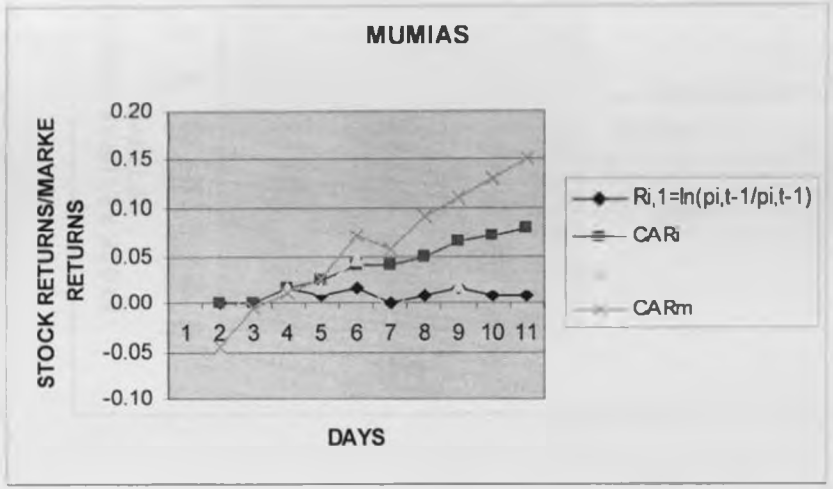


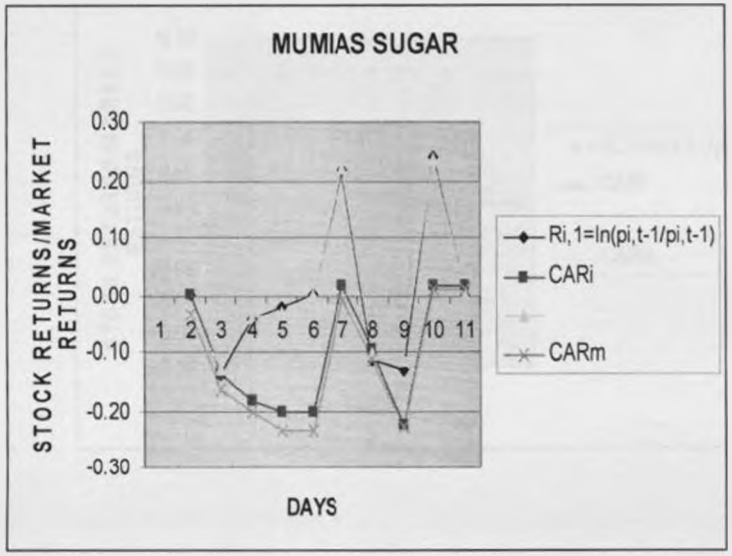


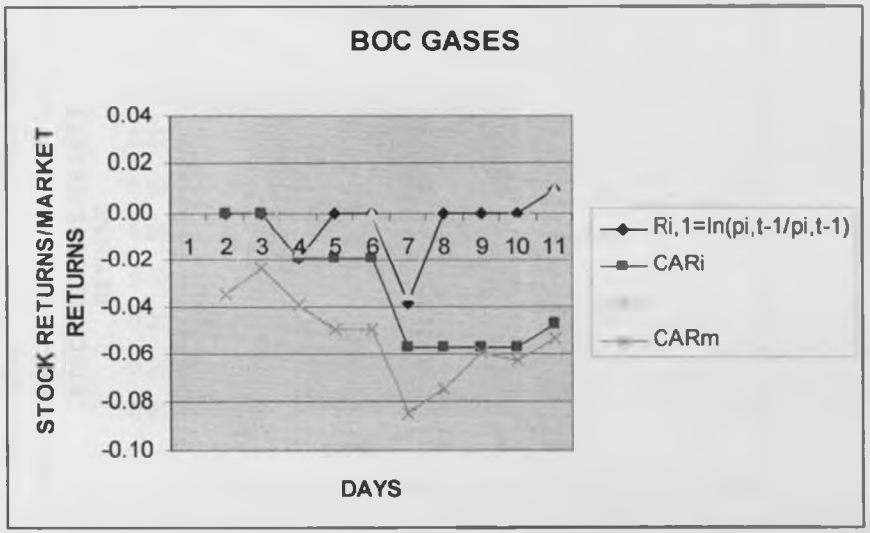


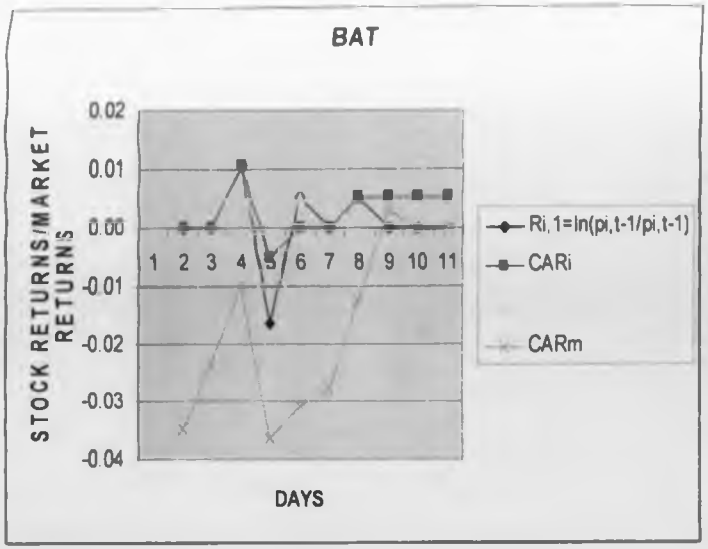


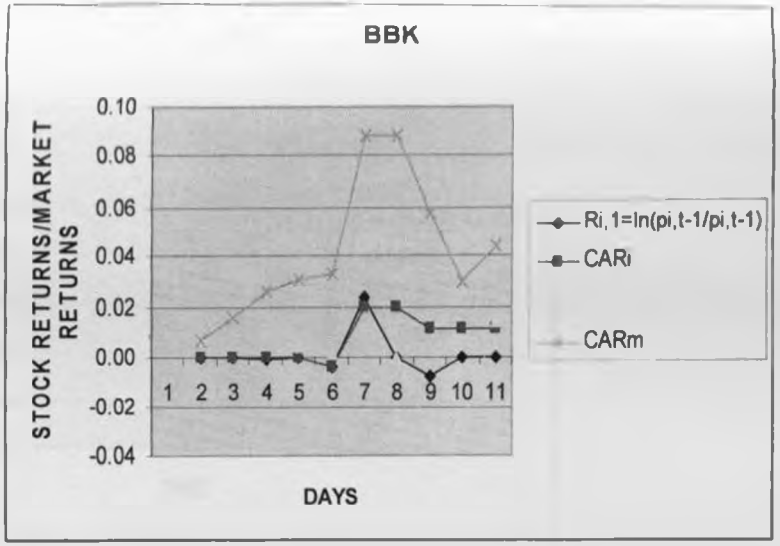

KENOL
STOCK RETURNS/MARKE RETURNS
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
1
3
9
DAYS
Ri,1=ln(pi,t-1/pi,t-1)
CARi
CARm

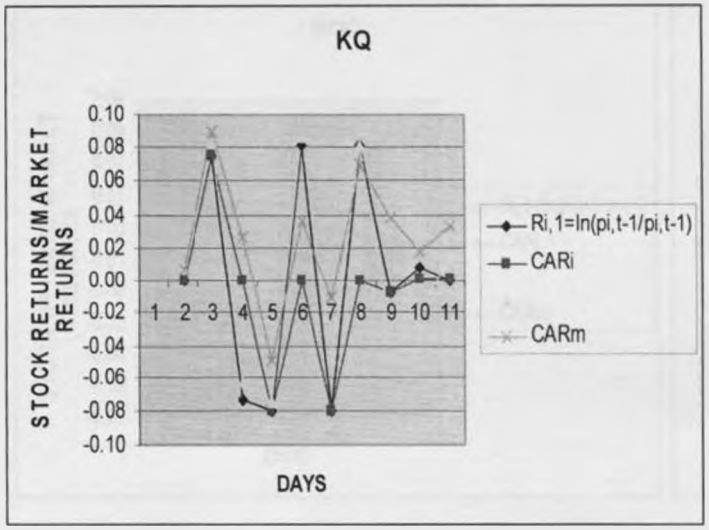

MUMIAS
STOCK RETURNS/MARKE RETURNS
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri,1=ln(pi,t-1/pi,t-1)
CARi
CARm

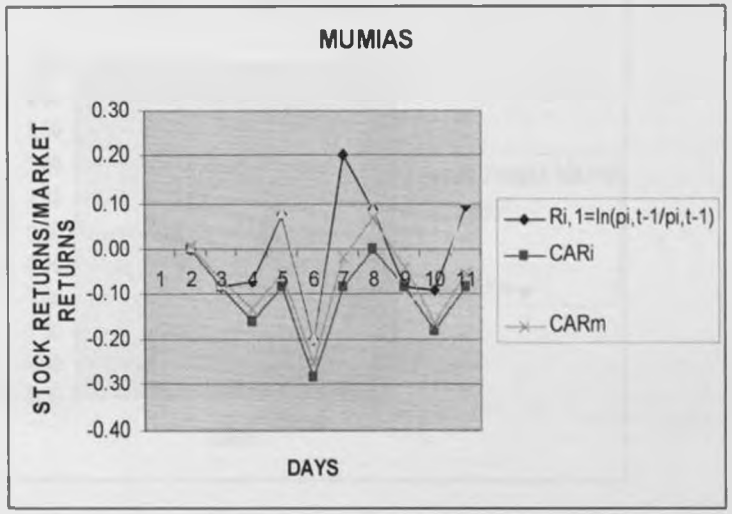

MUMIAS SUGAR
STOCK RETURNS/MARKET RETURNS
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri,1=ln(pi,t-1/pi,t-1)
CARi
CARm

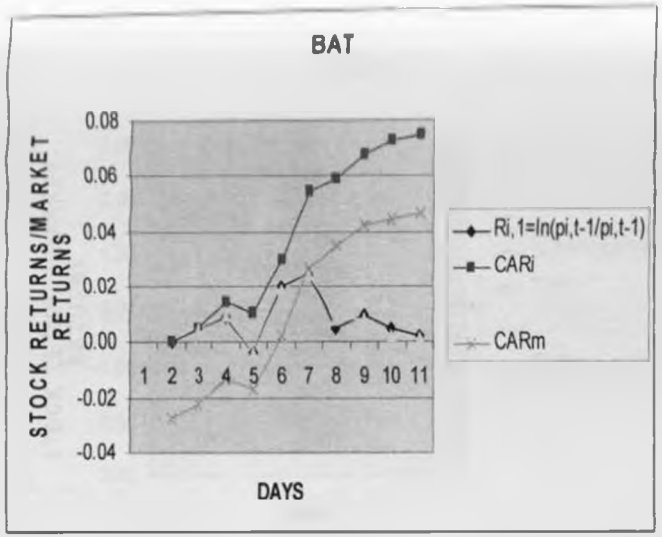

BOC GASES
STOCK RETURNS/MARKET RETURNS
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri,1=ln(pi,t-1/pi,t-1)
CARi
CARm

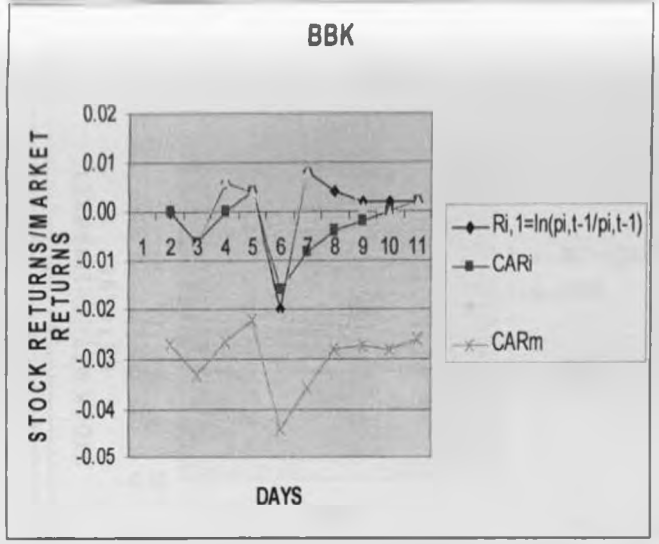

BAT
STOCK RETURNS/MARKET RETURNS
0.02
0.01
0.00
-0.01
-0.02
-0.03
-0.04
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

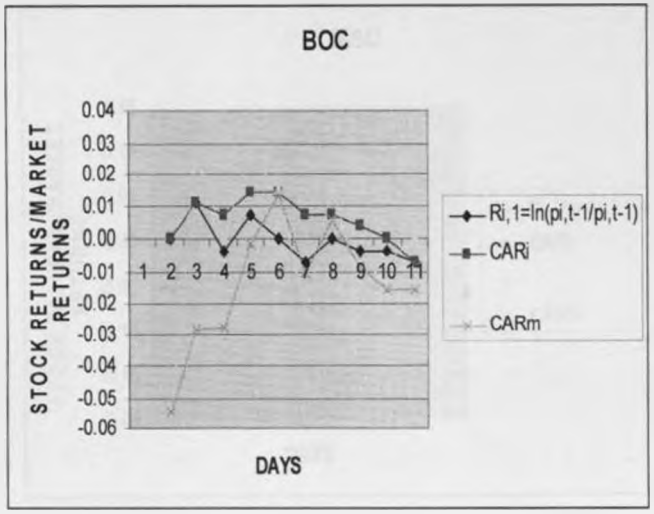

BBK
STOCK RETURNS/MARKET RETURNS
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

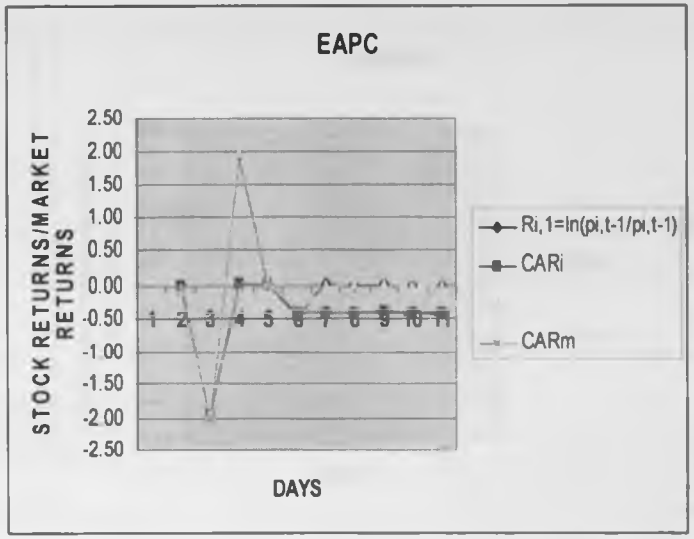

KQ
STOCK RETURNS/MARKET RETURNS
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

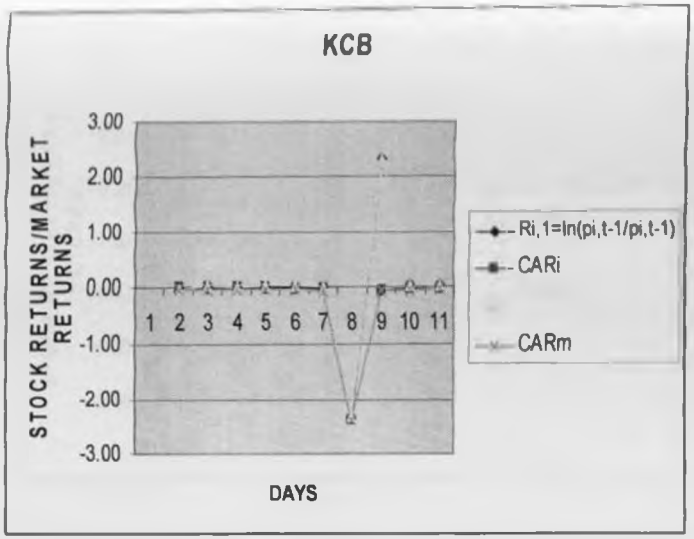

MUMIAS
STOCK RETURNS/MARKET RETURNS
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

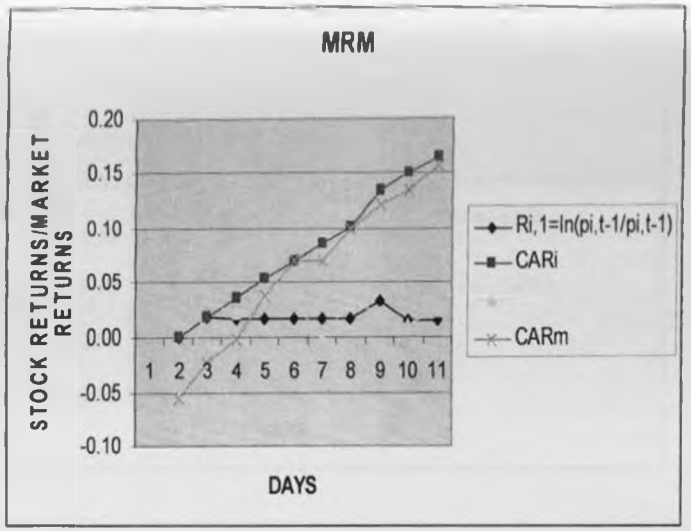

BAT
STOCK RETURNS/MARKET RETURNS
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

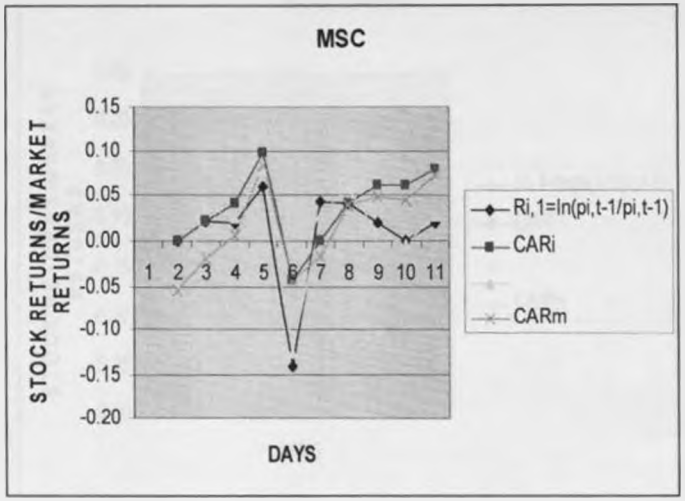

BBK
STOCK RETURNS/MARKET RETURNS
0.02
0.01
0.00
-0.01
-0.02
-0.03
-0.04
-0.05
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

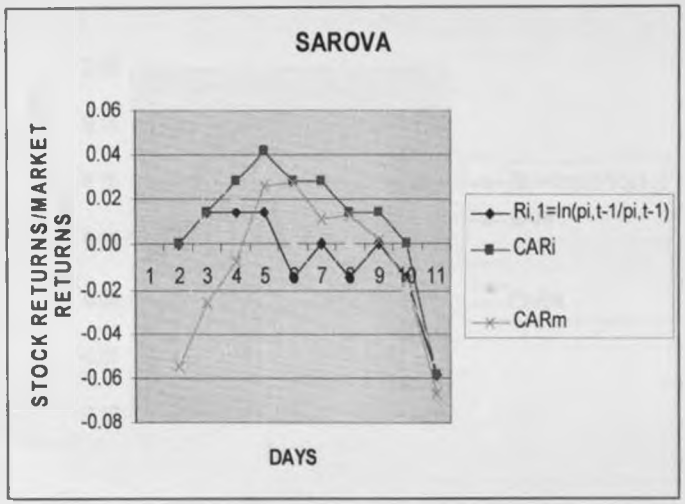

BOC
STOCK RETURNS/MARKET RETURNS
0.04
0.03
0.02
0.01
0.00
-0.01
-0.02
-0.03
-0.04
-0.05
-0.06
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

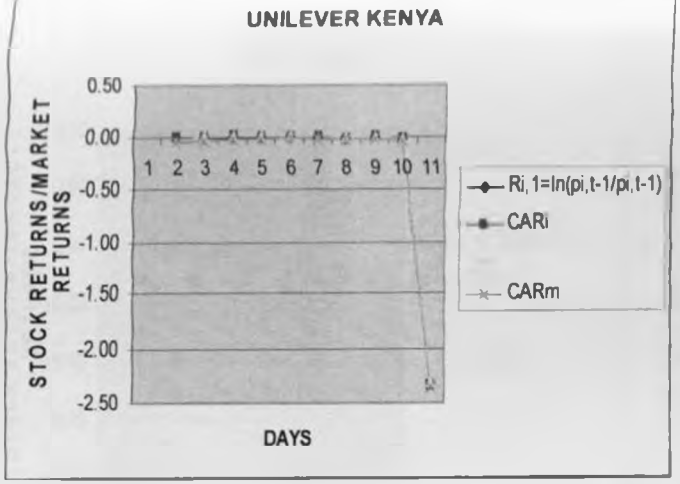

EAPC
STOCK RETURNS/MARKET RETURNS
2.50
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

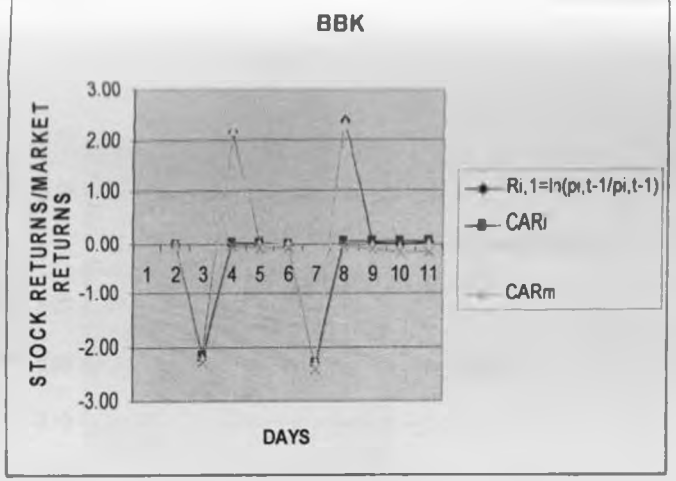

KCB
STOCK RETURNS/MARKET RETURNS
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri,1=ln(pi,t-1/pi,t-1)
CARi
CARm

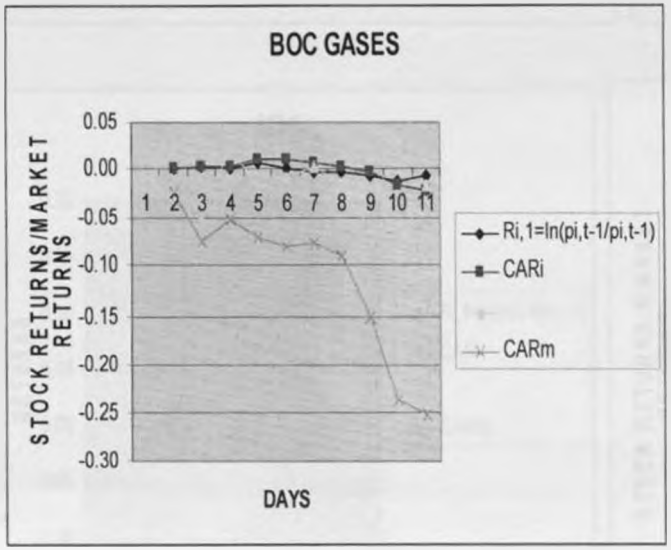

MRM
STOCK RETURNS/MARKET RETURNS
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri,1=ln(pi,t-1/pi,t-1)
CARi
CARm

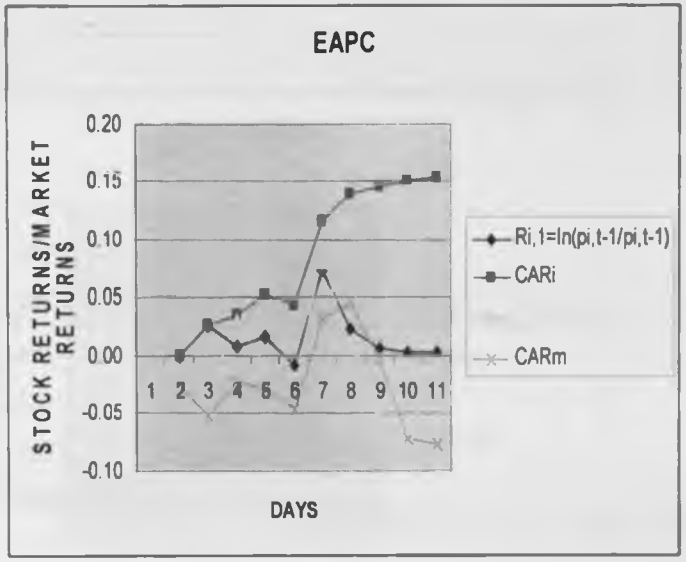

MSC
STOCK RETURNS/MARKET RETURNS
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
-0.20
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri,1=ln(pi,t-1/pi,t-1)
CARi
CARm

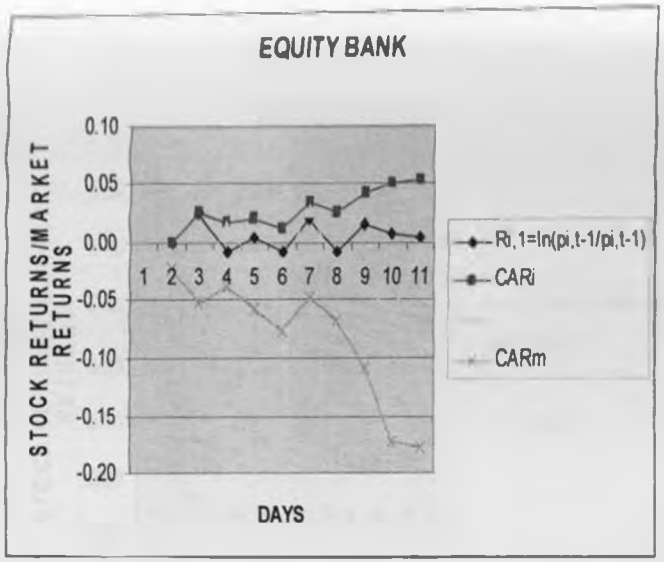

SAROVA
STOCK RETURNS/MARKET RETURNS
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri,1=ln(pi,t-1/pi,t-1)
CARi
CARm

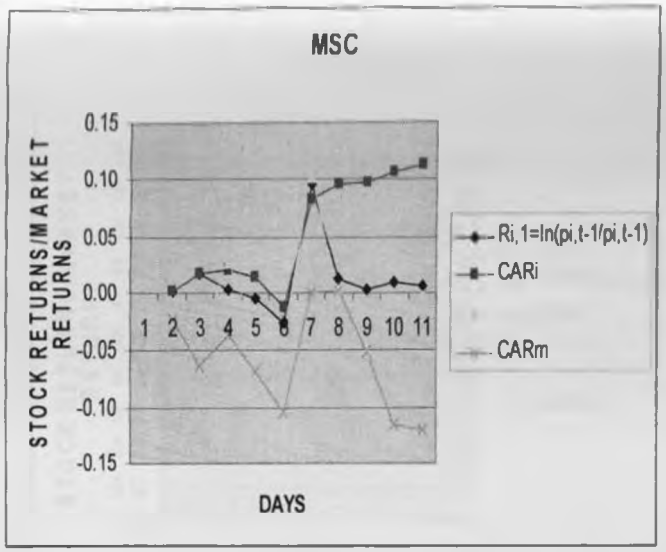

UNILEVER KENYA
STOCK RETURNS/MARKET RETURNS
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

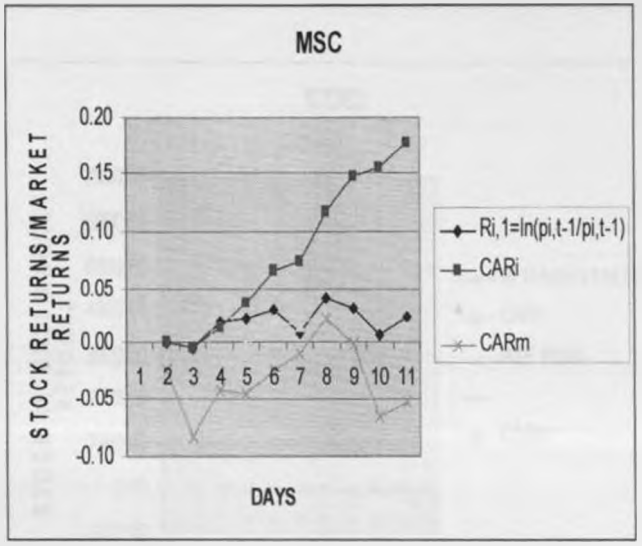

BBK
STOCK RETURNS/MARKET RETURNS
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

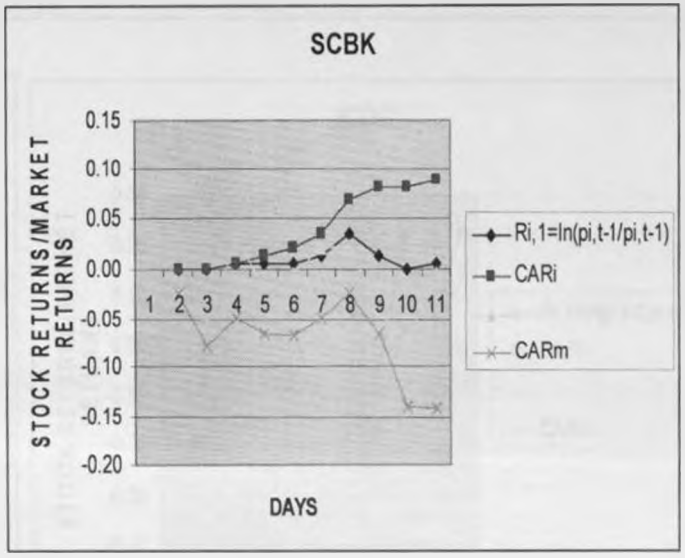

BOC GASES
STOCK RETURNS/MARKET RETURNS
0.05
0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

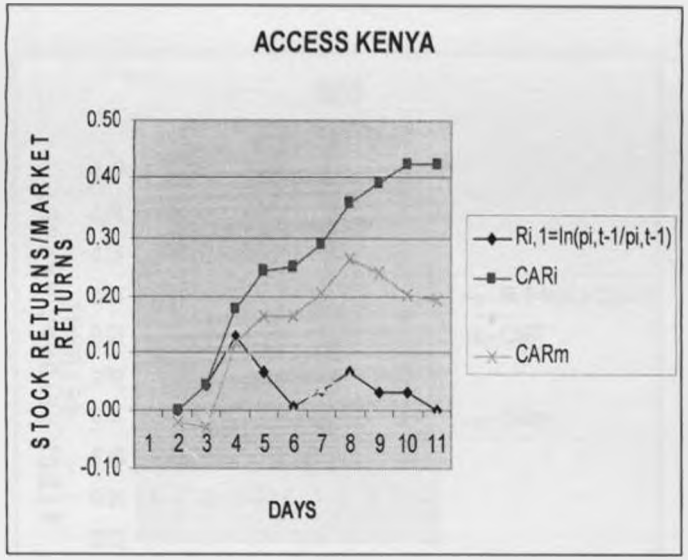

EAPC
STOCK RETURNS/MARKET RETURNS
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

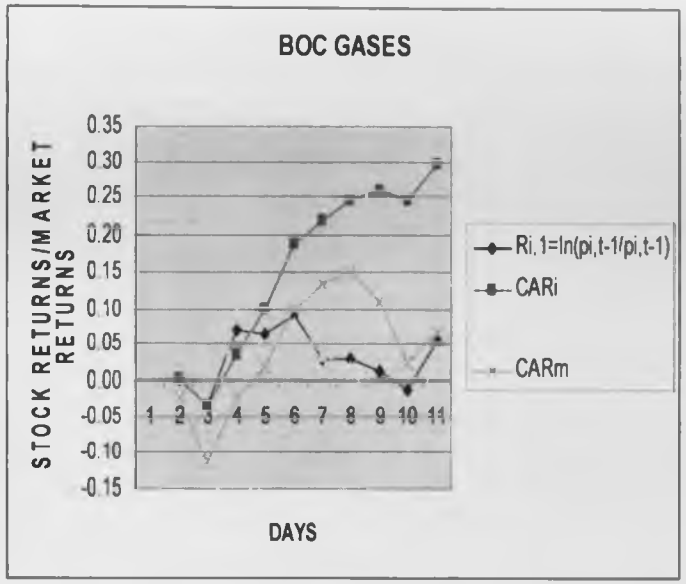

EQUITY BANK
STOCK RETURNS/MARKET RETURNS
0.10
0.05
0.00
-0.05
-0.10
-0.15
-0.20
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

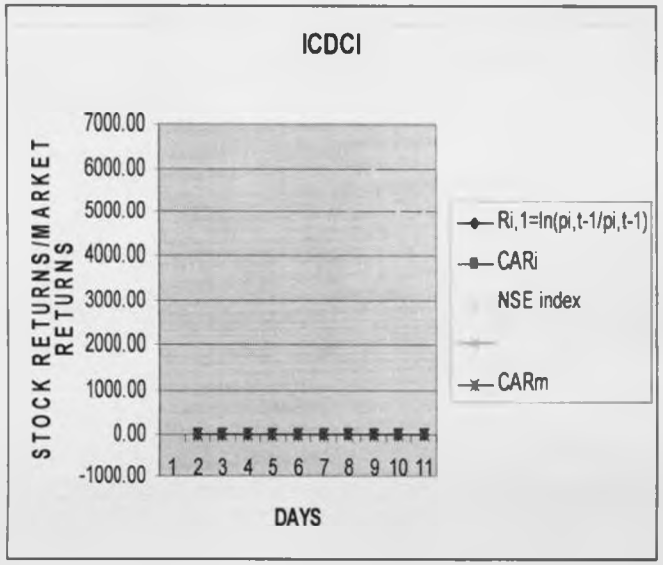

MSC
STOCK RETURNS/MARKET RETURNS
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

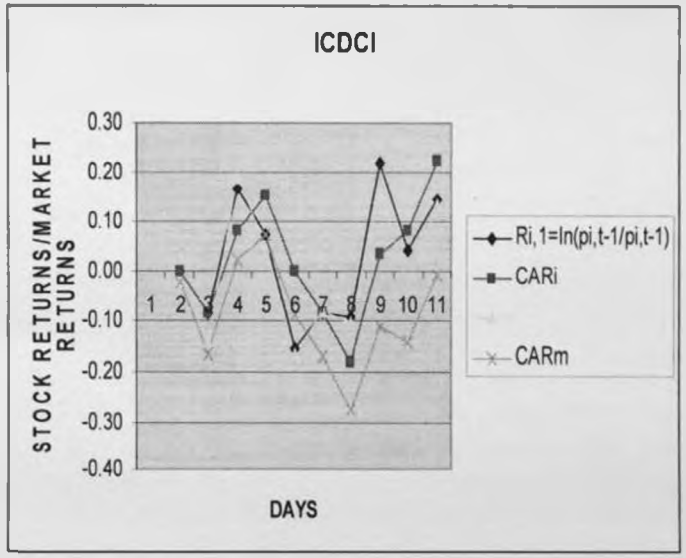

MSC
STOCK RETURNS/MARKET RETURNS
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

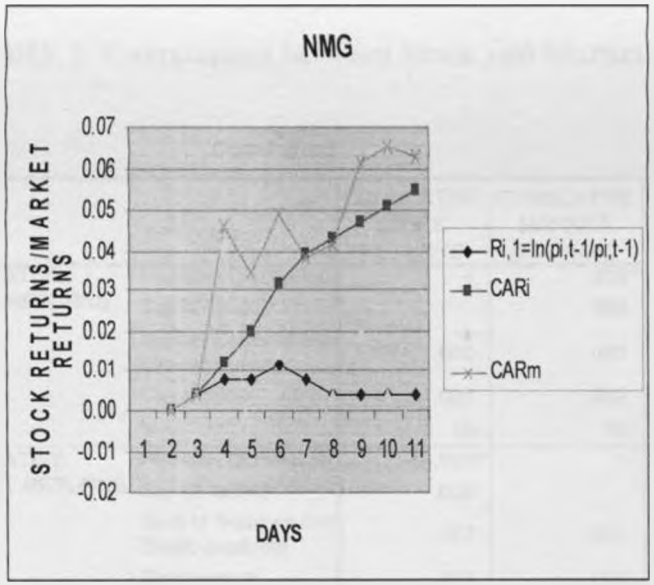

SCBK
STOCK RETURNS/MARKET RETURNS
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
-0.20
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm


ACCESS KENYA
STOCK RETURNS/MARKET RETURNS
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm


BOC GASES
STOCK RETURNS/MARKET RETURNS
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm


ICDCI
STOCK RETURNS/MARKET RETURNS
7000.00
6000.00
5000.00
4000.00
3000.00
2000.00
1000.00
0.00
-1000.00
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
NSE index
CARm


ICDCI
STOCK RETURNS/MARKET RETURNS
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm


NMG
STOCK RETURNS/MARKET RETURNS
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
-0.01
-0.02
1 2 3 4 5 6 7 8 9 10 11
DAYS
Ri, 1=ln(pi,t-1/pi,t-1)
CARi
CARm

APPENDIX 5: Correlations between Stock and Market Returns (COYA Winners and Losers)

SERENA

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.968**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.060	.067
	Covariance	.007	.007
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.968**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.067	.081
	Covariance	.007	.009
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

KENOL

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.911**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.001	.003
	Covariance	.000	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.911**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.003	.010
	Covariance	.000	.001
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

SERENA

BAMBURI

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.662	.746
	Covariance	.074	.083
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.746	.841
	Covariance	.083	.093
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

MUMIAS

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.079
	Sig. (2-tailed)		.828
	Sum of Squares and Cross-products	.001	.000
	Covariance	.000	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.079	1
	Sig. (2-tailed)	.828	
	Sum of Squares and Cross-products	.000	.010
	Covariance	.000	.001
	N	10	10

BAT

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.907**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.058	.054
	Covariance	.006	.006
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.907**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.054	.061
	Covariance	.006	.007
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

BOC GASES

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.885**
	Sig. (2-tailed)		.001
	Sum of Squares and Cross-products	.005	.004
	Covariance	001	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	885**	1
	Sig. (2-tailed)	.001	
	Sum of Squares and Cross-products	.004	.003
	Covariance	.000	.000
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

MUMIAS SUGAR

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.801**
	Sig. (2-tailed)		.005
	Sum of Squares and Cross-products	.000	.001
	Covariance	.000	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.801**	1
	Sig. (2-tailed)	.005	
	Sum of Squares and Cross-products	.001	.002
	Covariance	.000	.000
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

BAT

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.696*
	Sig. (2-tailed)		.025
	Sum of Squares and Cross-products	.000	.001
	Covariance	.000	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.696*	1
	Sig. (2-tailed)	.025	
	Sum of Squares and Cross-products	.001	.005
	Covariance	.000	.001
	N	10	10

*. Correlation is significant at the 0.05 level (2-tailed).

KENYA AIRWAYS

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.994**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.095	.096
	Covariance	.011	.011
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.994**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.096	.098
	Covariance	.011	.011
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

BBK

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.859**
	Sig. (2-tailed)		.001
	Sum of Squares and Cross-products	.001	.002
	Covariance	.000	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.859**	1
	Sig. (2-tailed)	.001	
	Sum of Squares and Cross-products	.002	.007
	Covariance	.000	.001
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

MUMIAS SUGAR

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.881**
	Sig. (2-tailed)		.001
	Sum of Squares and Cross-products	.017	.014
	Covariance	.002	.002
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.881**	1
	Sig. (2-tailed)	.001	
	Sum of Squares and Cross-products	.014	.014
	Covariance	.002	.002
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

BAT

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.999**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.008	.008
	Covariance	.001	.001
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.999**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.008	.008
	Covariance	.001	.001
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.974**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.066	.069
	Covariance	.007	.008
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.974**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.069	.075
	Covariance	.008	.008
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

BBK

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.979**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.000	.000
	Covariance	.000	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.979**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.000	.000
	Covariance	.000	.000
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

BOC

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.444
	Sig. (2-tailed)		.199
	Sum of Squares and Cross-products	.000	.001
	Covariance	.000	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.444	1
	Sig. (2-tailed)	.199	
	Sum of Squares and Cross-products	.001	.003
	Covariance	.000	.000
	N	10	10

KENYA COMMERCIAL BANK

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	5.036	4.990
	Covariance	.560	.554
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	4.990	4.946
	Covariance	.554	.550
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

EAST AFRICAN PORTLAND CEMENT

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	2.924	2.935
	Covariance	.325	.326
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	2.935	2.948
	Covariance	.326	.328
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

MABATI ROLLING MILLS

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.985**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.028	.035
	Covariance	.003	.004
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.985**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.035	.044
	Covariance	.004	.005
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

MUMIAS SUGAR

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.934**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.016	.017
	Covariance	.002	.002
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.934**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.017	.021
	Covariance	.002	.002
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

UNILEVER KENYA

SAROVA

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.839**
	Sig. (2-tailed)		.002
	Sum of Squares and Cross-products	.007	.007
	Covariance	.001	.001
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.839**	1
	Sig. (2-tailed)	.002	
	Sum of Squares and Cross-products	.007	.009
	Covariance	.001	.001
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

BARCLAYS BANK OF KENYA

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	4.931	4.903
	Covariance	.548	.545
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	4.903	4.877
	Covariance	.545	.542
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

EAST AFRICAN PORTLAND CEMENT

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.888**
	Sig. (2-tailed)		.001
	Sum of Squares and Cross-products	.001	.007
	Covariance	.000	.001
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.888**	1
	Sig. (2-tailed)	.001	
	Sum of Squares and Cross-products	.007	.054
	Covariance	.001	.006
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

KENYA COMMERCIAL BANK

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.997**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	8.160	8.015
	Covariance	.907	.891
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.997**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	8.015	7.913
	Covariance	.891	.879
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

EQUITY BANK

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	-.871**
	Sig. (2-tailed)		.001
	Sum of Squares and Cross-products	.003	-.007
	Covariance	.000	-.001
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	-.871**	1
	Sig. (2-tailed)	.001	
	Sum of Squares and Cross-products	-.007	.026
	Covariance	-.001	.003
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

MUMIAS SUGAR

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	-.069
	Sig. (2-tailed)		.850
	Sum of Squares and Cross-products	.022	-.001
	Covariance	.002	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	-.069	1
	Sig. (2-tailed)	.850	
	Sum of Squares and Cross-products	-.001	.017
	Covariance	.000	.002
	N	10	10

STANDARD CHARTERED BANK OF KENYA

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	-.547
	Sig. (2-tailed)		.101
	Sum of Squares and Cross-products	.012	-.007
	Covariance	.001	-.001
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	-.547	1
	Sig. (2-tailed)	.101	
	Sum of Squares and Cross-products	-.007	.015
	Covariance	-.001	.002
	N	10	10

BOC GASES

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.204
	Sig. (2-tailed)		.572
	Sum of Squares and Cross-products	.041	.004
	Covariance	.005	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.204	1
	Sig. (2-tailed)	.572	
	Sum of Squares and Cross-products	.004	.009
	Covariance	.000	.001
	N	10	10

ACCESS KENYA

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.920**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.200	.125
	Covariance	.022	.014
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.920**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.125	.093
	Covariance	.014	.010
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

EAST AFRICAN PORTLAND CEMENT

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Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.832**
	Sig. (2-tailed)		.003
	Sum of Squares and Cross-products	.129	.074
	Covariance	.014	.008
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.832**	1
	Sig. (2-tailed)	.003	
	Sum of Squares and Cross-products	.074	.062
	Covariance	.008	.007
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

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Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.826**
	Sig. (2-tailed)		.003
	Sum of Squares and Cross-products	.131	.095
	Covariance	.015	.011
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.826**	1
	Sig. (2-tailed)	.003	
	Sum of Squares and Cross-products	.095	.101
	Covariance	.011	.011
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

MUMIAS SUGAR COMPANY LTD

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.032
	Sig. (2-tailed)		.930
	Sum of Squares and Cross-products	.044	.001
	Covariance	.005	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.032	1
	Sig. (2-tailed)	.930	
	Sum of Squares and Cross-products	.001	.046
	Covariance	.000	.005
	N	10	10

MABATI ROLLING MILLS

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.942**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.163	.086
	Covariance	.018	.010
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.942**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.086	.051
	Covariance	.010	.006
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

NATION MEDIA GROUP

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	-.049
	Sig. (2-tailed)		.894
	Sum of Squares and Cross-products	.029	-.024
	Covariance	.003	-.003
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	-.049	1
	Sig. (2-tailed)	.894	
	Sum of Squares and Cross-products	-.024	8.297
	Covariance	-.003	.922
	N	10	10

Correlations

		CUMULATIVE STOCK RETURNS	CUMULATIVE MARKET RETURNS
CUMULATIVE STOCK RETURNS	Pearson Correlation	1	.867**
	Sig. (2-tailed)		.001
	Sum of Squares and Cross-products	.004	.004
	Covariance	.000	.000
	N	10	10
CUMULATIVE MARKET RETURNS	Pearson Correlation	.867**	1
	Sig. (2-tailed)	.001	
	Sum of Squares and Cross-products	.004	.005
	Covariance	.000	.001
	N	10	10

**. Correlation is significant at the 0.01 level (2-tailed).