

**AN EMPIRICAL INVESTIGATION OF THE INFORMATION
CONTENT OF PROFIT WARNINGS ANNOUNCEMENTS
FOR COMPANIES QUOTED AT THE NSE**

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Declaration

This management project is my original work and has not been presented for a degree in any other university

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This management project has been submitted for examination with my approval as University Supervisor

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Dedication

I dedicate this project to my Mother, Elizabeth for her passionate love for Education and to my loving family, my wife Damaris, my daughters Faith and Winnie and my son Mark for their understanding, encouragement and support towards my educational pursuits.

Abstract

There are several theories that have been advanced to explain why companies issue profit warning announcements. A major reason advanced as motivation for issuing of profit warnings is the avoidance of shareholder lawsuits over failure by management to provide timely negative information. Other reasons include need to comply with regulatory requirements besides being used as a strategy by management to affect the overall market reaction to earnings news based on the assumed informational value.

A mandated disclosure requirement was issued by the Capital Markets Authority (CMA) through legal notice no 60 of May 2002 stipulating that, an issuer shall disclose all material information and make a public announcement of any profit warning, where there is a material discrepancy between the projected earnings for the current financial year and the level of earnings in the previous financial year.

This paper examined the information content of profit warning announcements at the Nairobi Stock Exchange. This was achieved by studying fourteen companies that had issued profit warning between the periods 2002 to 2010. The study made use of the stock returns and market returns data to determine whether profit warning announcement elicit any reaction in the Kenyan stock market. The study made use of daily adjusted prices for sample stocks for the event window of 31 days, consisting of 15 days before and 15 days after the profit warning announcement. The event study methodology was employed in the determination of the effects of the profit warning announcement. Abnormal returns were calculated by use of the market model and t-tests are conducted to test the significance.

The study found out that the Kenyan Stock market reacts negatively to profit warning announcements as shown by a general decline in mean abnormal returns around the profit warning announcement period. This is consistent with the hypothesis that profit warnings have information content which is associated with a negative revaluation of the firm. The study equally found out that there are negative abnormal returns that are statistically significant at 5% level, around the profit warning announcement date. There is therefore evidence of investor reaction before and after the profit warning announcement.

Keywords: *Profit warnings; Market efficiency; Anomalies*

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Abbreviations

CMA	Capital Markets Authority
NSE	Nairobi Stock Exchange
CAPM	Capital Asset Pricing Model
APT	Arbitrage Pricing Theory
ASEA	African Stock Exchanges Association
CDSC	Central Depository and Settlement Corporation
EMH	Efficient Markets Hypothesis

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

Fama (1970) supported the view that financial markets are “informationally efficient” and that the prices of the financial assets traded such as stocks, bonds, derivatives, in a market, reflect and incorporate all the available, known and relevant information. In this respect, these prices are unbiased and reflect the aggregate beliefs of all investors about future prospects of firms, market sectors and the market as a whole. He further asserts that market conditions are generally already well understood by investors and analysts.

However, a number of studies have raised questions about the degree of prevailing market efficiency and have pointed to some markets inefficiencies base on observations such as Shiller (1981) on auto correlations, Banz (1981) on the small firm effect , Rozeff and Kinney (1976) on calendar effects, (Saunders (1993) on weather. Others are behavioural considerations by La Porta, Lakonishok, Shliefer, and Vishny 1997 who argue that the predictability of stock returns reflects the psychological factors, social movements, noise trading, and fashions or "fads" of irrational investors in a speculative market. Evidence from stock markets in developing countries however is mixed. Dickson and Muragu (1994) found evidence consistent with the EMH in their study of the NSE while Barnes (1986) study of the Kuala Lumpur stock exchange provided only limited support of the weak form of the EMH. Seyhun (1986, 1998) provides sufficient evidence that insiders profit from trading on information not already incorporated into prices. Hence the strong form does not hold in a world with an uneven playing field.

Conventional wisdom suggests that market participants, particularly shareholders and stock analysts, do not like to receive bad news, more especially when it comes as a surprise. Perhaps this explains why an increasing number of companies are choosing to make corporate disclosures voluntarily. Some of these disclosures are made in form of profit warning statements. Bulkley, Harris and Herreiras (2002) define profit warnings as discretionary disclosure of bad news by companies prior to earnings announcements. They may take the form of a specific revised earnings forecast or

may be a qualitative statement that simply states, or implies, that earnings will be significantly less than current brokers' expectations. Kasznik and Lev 1995 observed that the overall share price response to negative earnings surprise was more negative for firms issuing a profit warning than those who did not issue warning. Approximately half of all companies whose earnings announcements are going to be "bad news" warn in advance (Kasznik and Lev 1995). However, given that these profit warning announcements merely serve to foretell official report of lower earnings, one might question why firms bother to issue the warning at all.

Libby and Tan (1999) argue that investors punish companies for not warning them, lose confidence in management that does not communicate, and that companies who do not communicate news in a timely way could be exposed to legal action. However Shin (2001) develops a model of information transmission and obtains the result that companies will not warn. Clearly then there are forces working for and against issuing profit warnings so we should not be surprised that only a subset of firms warns.

These arguments suggest that, in the long run, the market should value profit warning firms for their openness. Nevertheless, Kaznik and Lev (1995) show that warning firms have higher negative stock market reactions than non-warning firms given that both groups have the same level of earnings surprise. This finding has been interpreted as a market penalty for openness. Tucker (2007) argues that transparency in disclosure is penalized because announcing firms tend to have more bad news than non-warning firms.

Datta and Dhillon (1993) observed that unexpected declines in firm earnings elicits a negative and significant stock price reaction. They found earnings surprise would affect the bond price. The positive earnings surprise will generate excess return for bondholders. They further observed that market valuations decline by about 2%, on average, in response to unexpected earnings declines. While a warning does not represent a report of recent quarterly earnings, it does provide information that may alter the expected cash flows of a firm.

When management becomes aware that the company probably will not meet the expectations it previously communicated, the company typically issues a profit

warning via press release or conference call with analysts well before announcing the earnings. Earnings estimates considerably influence stock prices because they help investors evaluate a stock's potential.

The Nairobi stock exchange regulations and rules number G.05 (1) f as derived from the Capital Markets Authority (CMA) legal notice no 60 of May 2002 stipulates that, an issuer shall disclose all material information and make a public announcement of any profit warning, where there is a material discrepancy between the projected earnings for the current financial year and the level of earnings in the previous financial year. The expression “material discrepancy” in relation to projected earnings for a financial year means that such earnings are at least 25% lower than the level of earnings in the previous financial year. Further, unless otherwise stated, all public announcements which an issuer is required to make under these Regulations shall be made within twenty four hours of the happening of the event.

Profit warnings conform closely to the model of a noisy public signal about a specific and imminent realization, the earnings announcement. They are also a pure information event, and not a decision that has direct material consequences for the firm. Although there are other examples of pure information events, for example stock splits and exchange listings, they do not share the advantage that they are news about an imminent realization (Bulkley, Harris and Herreiras (2002). After twenty years of market efficiency literature published in 1970, Fama (1991) proposed to change the categories of market efficiency, as follow:

- i.) Using tests for return predictability instead of weak-form tests, which are only concerned with forecast power of past returns, i.e., how well do past returns predict future returns?
- ii.) Using event studies instead of semi-strong-form tests of the adjustment of prices to public announcements, i.e., how quickly do prices reflect public information announcements? and
- iii.) Using test for private information instead of strong-form tests of whether specific investors have information on market prices or not, i.e., do any investors have private information that is not fully reflected in market prices?

Out of these three categories of market efficiency tests, the paper seeks to focus exclusively on the semi-strong form of market efficiency, using Profit warnings announcements as an event in the context of the Nairobi stock exchange, because this form deals with the immediate market reaction to the announcement event. In this study, abnormal performance following profit warnings is tested by use of event studies.

In regard to the organisation of subsequent parts of the Study, Chapter two presents a brief review of previous studies regarding market efficiency and profit warning announcements. Chapter three outlines the methodology employed and describes the data used in this study. Chapter four presents the empirical results on response of securities returns to profit warning announcements. Finally, Chapter five contains summary, conclusions and recommendations of the study.

1.1.1 An overview of the Nairobi stock Exchange (NSE)

The NSE began in the early 1920s and is the principal securities exchange in Kenya todate. Like many other emerging markets, the NSE suffers from the lack of liquidity in the market. Foreign investment on the Nairobi Stock Exchange and foreign ownership of companies is by application. Foreign investment in the local subsidiaries of foreign-controlled companies is banned so as to encourage input into Kenyan companies.

The Kenyan government has made several reforms aimed at attracting foreign investment via the Nairobi Stock Exchange. The Exchange was opened to foreign investors for the first time in January 1995, but with a maximum limit of 20% shareholding for institutions and 2,5% for individuals. The ceiling on foreign investment has recently been increased to 40% for institutions and 5% for individuals, but fewer than 20 of the 58 listed companies were available to foreigners.

Since 1995 the Kenyan government has opened trade in the NSE and gilts to foreign portfolio investors; removed exchange controls; and introduced a favourable tax regime with non residents paying a 10% withholding tax on dividends (locals 5%) but no capital gains, stamp duty or value added tax.

Trading takes place on Mondays through Fridays between 9.30 am and 3.00 pm . In 1991, the NSE was registered under the Companies Act and phased out the "Call Over" trading system in favour of the floor-based "Open Outcry System". Computerization has also been enhanced with installation of Automated Trading System. A wide area network enables broker undertake transaction from their offices without necessarily having to go to the floor of the NSE.

In 2002, the Central Depository and Settlement Corporation (CDSC) was established. The CDSC is the legal entity that owns the automated clearing, settlement, depository and registry system (CDS). The Nairobi stock exchange regulations and rules set out the operational and procedural rules for the purpose of ensuring orderliness, efficiency of the market in the initial admission of securities to the Official list of the Exchange, the listing of additional shares, and the continuing listing obligations in compliance with the Capital Markets Act and the regulations and guidelines issued thereunder. Two indices are popularly used to measure performance. The NSE 20 share index has been used since 1964 and measure performance of 20 blue chip companies (see appendix 2) with strong fundamentals and which have consistently returned positive financial results.

In 2008, the Nairobi stock exchange all share index (NASI) was introduced as an alternative index. Its measures are on overall indicator of market performance. The index incorporates all traded shares in the day and therefore its focus is on overall market capitalization rather than the price movement of selected counters.

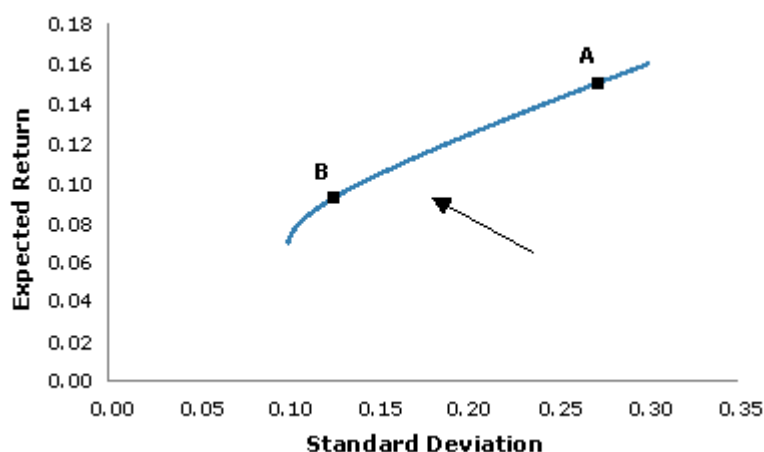
A third index is the AIG 27 share index that compares price movements of 27 companies identified as relatively stable. The operation of the index compares to the NSE 20 share index. However, whereas the AIG is defined by the AIG company (a financial services company and part of AIG group), the 20 share index is from the NSE itself. As at 30th September 2010, the NSE had 55 listed companies classified into three segments (See appendix 1)

1.1.2 Stock returns

1.1.2.1 Markowitz Portfolio Selection

Early studies on stock price behavior started with Markowitz (1952, 1959). The Markowitz model is a single-period model, where an investor forms a portfolio at the beginning of the period. The investor's objective is to maximize the portfolio's expected return, subject to an acceptable level of risk (or minimize risk, subject to an acceptable expected return). The assumption of a single time period, coupled with assumptions about the investor's attitude toward risk, allows risk to be measured by the variance (or standard deviation) of the portfolio's return. Thus, as indicated by the arrow in Figure 1, the investor is trying to go as far northwest as possible.

Figure 1



As securities are added to a portfolio, the expected return and standard deviation change in very specific ways, based on the way in which the added securities co-vary with the other securities in the portfolio. The best that an investor can do (i.e., the furthest northwest a portfolio can be) is bounded by a curve that is the upper half of a hyperbola, as shown in Figure 1. This curve is known as the efficient frontier. According to the Markowitz model, investors select portfolios along this curve, according to their tolerance for risk. An investor who can live with a lot of risk might choose portfolio A, while a more risk-averse investor would be more likely to choose portfolio B. One of the major insights of the Markowitz model is that it is a security's expected return, coupled with how it co-varies with other securities, that determines how it is added to investor portfolios.

1.1.2.2 Capital asset pricing model (CAPM)

Building on the Markowitz framework, Sharpe (1964), Lintner (1965) and Mossin (1966) independently developed what has come to be known as the Capital Asset Pricing Model (CAPM). This model assumes that investors use the logic of Markowitz in forming portfolios. It further assumes that there is an asset (the risk-free asset) that has a certain return. With a risk-free asset, the efficient frontier in Figure 1 is no longer the best that investors can do. The straight line in Figure 2, which has the **risk-free rate** as its intercept and is tangent to the efficient frontier, is now the northwest boundary of the investment opportunity set. Investors choose portfolios along this line (the capital market line), which shows combinations of the risk-free asset and the risky portfolio M. In order for markets to be in equilibrium (quantity supplied equals quantity demanded), the portfolio M must be the market portfolio of all risky assets. So, all investors combine the market portfolio and the risk-free asset, and the only risk that investors are paid for bearing is the risk associated with the market portfolio. This leads to the CAPM equation:

CAPM

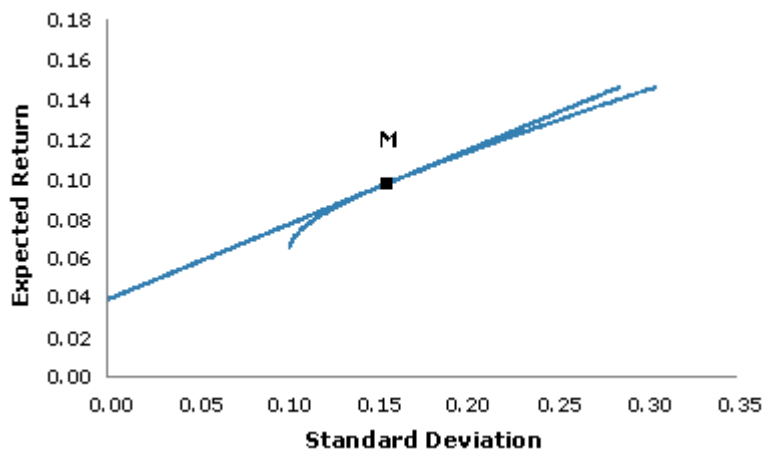
$$E(R_j) = R_f + \beta_j [E(R_m) - R_f]$$

where $E(R_j)$ and $E(R_m)$ are the expected returns to asset j and the market portfolio, respectively,

R_f is the risk free rate, and β_j is the **beta coefficient** for asset j. β_j measures the tendency of asset j to co-vary with the market portfolio. It represents the part of the asset's risk that cannot be diversified away, and this is the risk that investors are compensated for bearing.

The CAPM equation says that the expected return of any risky asset is a linear function of its tendency to co-vary with the market portfolio. So, if the CAPM is an accurate description of the way assets are priced, this positive linear relation should be observed when average portfolio returns are compared to portfolio betas. Further, when beta is included as an explanatory variable, no other variable should be able to explain cross-sectional differences in average returns. Beta should be all that matters in a CAPM world.

Figure 2 . **Capital market line**



1.1.2.3 Arbitrage Pricing theory (APT)

While the CAPM is a simple model that is based on sound reasoning, some of the assumptions that underlie the model are unrealistic. Some extensions of the basic CAPM were proposed that relaxed one or more of these assumptions (e.g., Black, 1972). Instead of simply extending an existing theory, Ross (1976a, 1976b) addresses this concern by developing a completely different model: the Arbitrage Pricing Theory (APT). Unlike the CAPM, which is a model of financial market equilibrium, the APT starts with the premise that arbitrage opportunities should not be present in efficient financial markets. This assumption is much less restrictive than those required to derive the CAPM. The APT starts by assuming that there are n factors which cause asset returns to systematically deviate from their expected values. The theory does not specify how large the number n is, nor does it identify the factors. It simply assumes that these n factors cause returns to vary together. There may be other, firm-specific reasons for returns to differ from their expected values, but these firm-specific deviations are not related across stocks. Since the firm-specific deviations are not related to one another, all return variation not related to the n common factors can be diversified away. Based on these assumptions, Ross shows that, in order to prevent arbitrage, an asset's expected return must be a linear function of its sensitivity to the n common factors:

APT

$$E(R_j) = R_f + \beta_{j1} \lambda_1 + \beta_{j2} \lambda_2 + \dots + \beta_{jn} \lambda_n$$

$E(R_j)$ and R_f are defined as before. Each β_{jk} coefficient represents the sensitivity of asset j to risk factor k , and λ_k represents the risk premium for factor k . As with the

CAPM, we have an expression for expected return that is a linear function of the asset's sensitivity to systematic risk. Under the assumptions of APT, there are n sources of systematic risk, where there is only one in a CAPM world.

1.1.2.4 Contradictions to the predictions of CAPM

Several studies have contradicted the predictions of the CAPM. Basu (1977) showed that stocks with high earnings/price ratios (or low P/E ratios) earned significantly higher returns than stocks with low earnings/price ratios.

Banz (1981) uncovered the firm size effect, another apparent contradiction of the CAPM by showing that the stocks of firms with low market capitalizations have higher average returns than large capitalised stocks.

DeBondt and Thaler (1985) identify "losers" as stocks that have had poor returns over the past three to five years. "Winners" are those stocks that had high returns over a similar period. The main result of DeBondt and Thaler (1985) was the long term reversal effect after observing that losers have much higher average returns than winners over the next three to five years.

Rosenberg, Reid and Lanstein (1985) provide yet another piece of evidence against the CAPM, the Book to market equity by showing that stocks with high ratios of book value of common equity to market value of common equity (BtM) have significantly higher returns than stocks with low BtM.

Bhandari (1988) finds that firms with high leverage (high debt/equity ratios) have higher average returns than firms with low leverage for the 1948-1979 period. This result persists after size and beta are included as explanatory variables. High leverage increases the riskiness of a firm's equity, but this increased risk should be reflected in a higher beta coefficient.

Jegadeesh (1990) found that stock returns tend to exhibit short-term momentum; stocks that have done well over the previous few months continue to have high returns over the next month. In contrast, stocks that have had low returns in recent months tend to continue the poor performance for another month, describing it as the momentum effect. In the momentum studies, short-term winners outperform short-term losers.

1.2 Problem statement

Capital market, being a vital institution, facilitates economic development. It is true that so many parties are interested in knowing the efficiency of the capital market. The small and medium investors can be motivated to save and invest in the capital market only if their securities in the market are appropriately priced. The information content of events and its dissemination determine the efficiency of the capital market. How quickly and correctly security prices reflect these information show the extent of efficiency of the capital market. In the developed countries, many research studies have been conducted to test the efficiency of the capital market with respect to information content of events. In Kenya, very few studies have been conducted to test the efficiency of the capital market with respect to profit warning announcements. This study is an attempt to investigate the efficiency of the Nairobi stock market with respect to information content of profit warning announcements, not actual earnings announcement or forecasts earnings.

While many studies have assessed earnings announcements, (Brown (1978), Watts (1978), and Rendleman, Jones, and Latané (1982), there is very little research focused on profit warnings, perhaps because warnings were seldom issued until the late 1990s. Yet many capital markets regulators require publicly quoted companies to issue profit warnings when there is any information in their knowledge but outside the public domain which may impact on their company valuation. Typically, investors and analysts do not like negative earnings surprises and they discount firms that are not transparent about potential negative earnings. By not being candid about their future earnings, firms may tarnish their reputation with analysts and investors (King, Pownall, and Waymire 1990; Skinner 1994; Frankel, McNicols, and Wilson 1995). In studying the stock returns following profit warning announcements, the study seeks to understand whether capital markets penalize transparency depicted by those companies that issue the warning.

The signal conveyed in a profit warning is uncertain because the market may have anticipated the information from other news disseminated about a firm, an industry, or the general economy. Moreover, investors must determine what a profit warning implies about cash flows beyond the period of immediate concern.

Prior studies on earnings forecasts are particularly relevant, because they offer inferences about the market's interpretation of earnings-related information. Libby and Tan (1999) examine analysts' reactions to forecasts of adverse earnings in an attempt to reconcile negative forecast revisions with apparently conflicting anecdotal evidence that suggests more positive responses to firms that issue warnings. They find that analysts revise future earnings projections to incorporate earnings warnings. This implies that the warnings provide valuable information that was not already processed by analysts. Easterwood and Nutt (1999) find that analysts underreact to negative earnings information by analyzing the forecast reaction to positive vs. negative information. They find evidence of systematic optimism; that is, forecasts underreact to negative information but overreact to positive information.

While the impact of earnings-related information on firm value has been explored, many questions remain. Several related studies have assessed the relationship between earnings information and stock prices, including Brous (1992), Lys and Sohn (1990), and Datta and Dhillon (1993). The effect of earnings announcements on stock prices has been documented by Brown (1978), Watts (1978), and Rendleman, Jones, and Latané (1982), among others.

Notably, there has been growing empirical research on information effects and market efficiency at the NSE. These include test for under reaction to stock dividend announcements,(Njuru 2007); Stock market behavior around national elections (Miya 2007); Turn of the month and January effects on stock prices (Kamau 2003); An empirical study on the weekend effect on the stocks (Mokua 2003); Information content of dividends announcements by companies quoted at the NSE (Kiptoo 2006); An empirical study of stock market seasonalities at the NSE (King'ori 1995) . Onyangoh (2004) found significant relationship between actual earnings announcement and share prices movement at the NSE. These studies indicate that there is certain degree of market efficiency at the NSE sufficient to carry out studies on various types of corporate actions and events.

This study is an attempt to contribute to the body of empirical research focused on information content in profit warning announcements. Prior research on profit warnings at the NSE is hardly available. The question as to whether there are any

profit warning announcements issued by companies listed at the NSE, the nature of the profit warnings, whether the announcements have any surprise information relevant to share prices are central to this study. The study seeks to investigate investor reaction to profit warnings announcements at the NSE by use of event study methodology on share price responses around the period of announcements.

1.3 Objective of the study

The objective of the study is to establish the existence of information content in profit warning announcements at the NSE.

1.4 Significance of the study

Investors will be interested in the study because movements of stock prices affect their wealth. Information is therefore necessary in making investment decisions at the NSE that maximize their returns. The information in the study will also assist shareholders in evaluating management's ability to maximize their returns.

Corporate managers have discretions over timing of information releases besides being responsible for development of corporate disclosure policies. Corporate managers will gain information that will act as input in decisions making as well as insights into timings of announcements, information content of the announcements and as an input in understanding how to maximize shareholders wealth and minimize the agency problem.

The study is equally important to investment manager, analysts and advisors. Most investors have the intention of beating the market by buying the undervalued securities and selling them when prices appreciate. Fund managers will use the information generated by the study in determining investment decision that maximize shareholders wealth.

The study is significant to academicians in assessing whether the relationship observed elsewhere in the developed markets are consistent with those in developing markets. It will provide insights into information asymmetry as well as offer ground for further research work.

Regulatory agencies such as the NSE and the CMA may use the study to aid in review of the existing regulations on corporate announcements and regulations as they are directly charged with the responsibility of formulating rules and regulations of the financial markets.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This study draws basis from several research areas. First, it examines theoretical foundations on the Efficient Market Hypothesis (EMH), the random walk theory, Keynesian theory and the concept of behavioral finance. Literature that documents earlier empirical studies on profit warning announcements is also discussed. Research work on Insider trades around profit warnings is also reviewed. Finally prior empirical research focusing on related area of earning announcements and anomalies at the NSE are reviewed. Major conclusions from the literature review, identification of the research gaps and a summary of how the study differs from the reviewed studies is made.

2.2 Efficient market hypothesis (EMH)

2.2.1 Conceptual foundation

Despite its popularity in academic circles and its heavy influence on modern investment theory, the Efficient Markets Hypothesis (EMH) is not a view deeply embraced by many investors actually participating in the financial markets. The origins of efficient markets hypothesis dates back to 1965 when Samuelson (1965) published his proof that properly anticipated prices fluctuate randomly. The term “efficient market” was first introduced into economics literature by Fama et al. (1970). Eugene Fama (1970) study also known as the efficient market theory asserts that financial markets are “informationally efficient” or that prices on traded assets eg stocks, bonds or property, already reflect all known information. The efficient market hypothesis (EMH) supports that the prices of the financial assets traded such as stocks, bonds, derivatives, in a market, reflect and incorporate all the available, known and relevant information. In this respect, these prices are unbiased and reflect the aggregate beliefs of all investors about future prospects of firms, market sectors and the market as a whole. Accordingly, it’s thus impossible to consistently outperform the market through expert stock selection or market timing by using any information that the market already knows except through luck, and that the only way an investor can possibly obtain higher returns is by purchasing riskier investments. According to EMH stocks always trade at their fair value on stock exchanges, making it impossible for investors to either purchase undervalued stocks

or sell stocks for inflated prices. Information or news in EMH is defined as anything that may affect prices that is unknowable in the present and thus appears randomly in the future.

Market efficiency means security prices adjust rapidly and correctly to the arrival of new information and thus current security prices reflect all the information about the security, and there is no reason to believe that the current price is too low or too high. In an efficient market, information is widely and cheaply available to investors and that all relevant and attainable information is already reflected in the security prices. It is pointless to search for undervalued stocks or to try to predict trends in the market through either fundamental or technical analysis.

The advocates of EMH argue that although inefficiencies may exist, they are relatively small and not common. While EMH does not require individual investors to behave fully rationally, it does imply that any overreactions or under-reactions displayed by investors will cancel out and offset each other, so that the net effect on the market will not provide scope for systematic exploitation of such behaviors. Fama classified the market efficiency into three forms of market efficiency on the basis of the information:

2.2.1.1 The weak form

Stock price fully reflects historical information of past prices and returns.

Market prices reflect all historical price information and are only changed due to a "random walk", i.e. new information reaching the market. The information subset is merely historical price or return sequences. Consequently, the price of a financial asset on any given day can be predicted by the previous day's price plus the expected return of the asset and an unpredictable random factor. Hence, technical analysis is of no use. Any analysis based on previously known facts cannot yield abnormal returns, since market prices already reflect all historical information available (Fama 1970, 1991).

2.2.1.2 The semi strong form

The semi-strong level of market efficiency states that the price of a financial asset, in addition to all the historical prices, also reflects all available public information (Fama 1970, 1991).

Public information consists of a combination of macro and company specific data. In the semi-strong market, prices of financial assets already reflect all available information. Hence fundamental analysis is of no use. The only way to achieve abnormal returns is to use so-called inside information (Arnold, 2005).

2.2.1.3 The strong form

Stock prices fully reflect all information including public and private ones, known to any market participant. All information is reflected in market prices – including inside information. In this case, no investor can have an information advantage. Since the strong level of market efficiency reflects all information, no information asymmetry exists. Thus, not even inside information can be used to achieve abnormal returns (Arnold, 2005).

2.2.2 Evidence against EMH

The EMH became controversial especially after the detection of certain anomalies in the capital markets. Some of the main anomalies that have been identified are as follows:

2.2.2.1 January effect

Rozeff and Kinney (1976) were the first to document evidence of higher mean returns in January as compared to other months. Using NYSE stocks for the period 1904-1974, they find that the average return for the month of January was 3.48 percent as compared to only .42 percent for the other months.

2.2.2.2 The weekend effect (or Monday effect)

French (1980) analyzes daily returns of stocks for the period 1953-1977 and finds that there is a tendency for returns to be negative on Mondays whereas they are positive on the other days of the week. He notes that these negative returns are "caused only by the weekend effect and not by a general closed-market effect". A trading strategy, which would be profitable in this case, would be to buy stocks on Monday and sell them on Friday

2.2.2.3 Other seasonal effect

Holiday and turn of the month effects have been well documented over time and across countries. Lakonishok and Smidt (1988) show that US stock returns are

significantly higher at the turn of the month, defined as the last and first three trading days of the month. Ariel (1987) shows that returns tend to be higher on the last day of the month. Cadsby and Ratner (1992) find similar turn of month effects in some countries and not in others. Ziemba (1991) finds evidence of a turn of month effect for Japan when turn of month is defined as the last five and first two trading days of the month. Hensel and Ziemba (1996) and Kunkel and Compton (1998) show how abnormal returns can be earned by exploiting this anomaly. Lakonishok and Smidt (1988), Ariel (1990), and Cadsby and Ratner (1992) all provide evidence to show that returns are, on average, higher the day before a holiday, than on other trading days. The latter paper shows this for countries other than the U.S. Brockman and Michayluk (1998) describe the pre-holiday effect as one of the oldest and most consistent of all seasonal regularities.

2.2.2.4 Small size effect

Banz (1981) published one of the earliest articles on the 'small-firm effect' which is also known as the 'size-effect'. His analysis of the 1936-1975 periods reveals that excess returns would have been earned by holding stocks of low capitalization companies. Supporting evidence is provided by Reinganum (1981) who reports that the risk adjusted annual return of small firms were greater than 20 percent. If the market were efficient, one would expect the prices of stocks of these companies to go up to a level where the risk adjusted returns to future investors would be normal. But this did not happen.

2.2.2.5 Price Earnings ratio effect

Sanjoy Basu (1977) shows that stocks of companies with low P/E ratios earned a premium for investors during the period 1957-1971. An investor who held the low P/E ratio portfolio earned higher returns than an investor who held the entire sample of stocks. These results also contradict the EMH. Campbell and Shiller (1988b) show P/E ratios have reliable forecast power. Fama and French (1995) find that market and size factors in earnings help explain market and size factors in returns. Dechow, Hutton, Meulbroek and Sloan (2001) document that short-sellers position themselves in stocks of firms with low earnings to price ratios since they are known to have lower future returns.

2.2.2.6 Over/under reaction of stock prices to earnings announcements

There is substantial documented evidence on both over and under-reaction to earnings announcements. DeBondt 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 behavior overreacting to earnings developments (Bernard, 1993). Such interpretation has been challenged by Zarowin (1989) but is supported by DeBondt and Thaler (1990). Bernard (1993) provides evidence that is consistent with the initial reaction being too small, and being completed over a period of at least six months. Ou and Penman (1989) also argue that the market underutilizes financial statement information. Bernard (1993) further notes that such anomalies are not due to research design flaws, inappropriate adjustment for risk, or transaction costs. Thus, the evidence suggests that information is not impounded in prices instantaneously as the EMH would predict.

2.2.2.7 The distressed security market

While the academic literature largely suggests that stocks in the distressed securities market are efficiently priced (e.g. Ma and Weed 1986 , Weinstein 1987 , Fridson and Cherry 1990 , Blume, Keim and Patel 1991 , Cornell and Green 1991 , Eberhart and Sweeney 1992 , Altman and Eberhart 1994 , Buell 1992) the popular press has frequently conjectured that the stock pricing may be inefficient during the bankruptcy period. Investors have always sought superior returns in the securities market and vulture investors have attracted a substantial amount of risk-oriented money by offering the possibility of high returns by exploiting the apparent pricing inefficiencies or anomalies in the market for distressed securities.

2.2.2.8 The weather

Few would argue that sunshine puts people in a good mood. People in good moods make more optimistic choices and judgments. Saunders (1993) shows that the New York Stock Exchange index tends to be negative when it is cloudy.

2.2.2.9 Volatility Tests, Fads, Noise Trading

The greatest stir in academic circles has been created by the results of volatility tests. These tests are designed to test for rationality of market behavior by examining the

volatility of share prices relative to the volatility of the fundamental variables that affect share prices. The first two studies applying these tests were by Shiller (1981) and LeRoy and Porter (1981). Shiller tests a model in which stock prices are the present discounted value of future dividends. LeRoy and Porter use a similar analysis for the bond market.

These studies reveal significant volatility in both the stock and bond markets. Fluctuations in actual prices greater than those implied by changes in the fundamental variables affecting the prices are inferred by Shiller as being the result of fads or waves of optimistic or pessimistic market psychology. Schwert (1989) tests for a relation between stock return volatility and economic activity. He finds increased volatility in financial asset returns during recessions which might suggest that operating leverage increases during recessions. He also finds increased volatility in periods where the proportion of new debt issues to new equity issues is larger than a firm's existing capital structure. This may be interpreted as evidence of financial leverage affecting volatility.

However neither of these factors plays a dominant role in explaining the time-varying volatility of the stock market. The volatility tests of Shiller spawned a series of articles. The results of excess volatility in the stock market have been confirmed by Cochrane (1991), West (1988), Campbell and Shiller (1987), Mankiw, Romer, and Shapiro (1985). The tests have been criticized, largely on methodological grounds, by Ackert and Smith (1993), Marsh and Merton (1986), Kleidon (1986) and Flavin (1983).

The empirical evidence provided by volatility tests suggests that movements in stock prices cannot be attributed merely to the rational expectations of investors, but also involve an irrational component. The irrational behavior has been emphasized by Shleifer and Summers (1990) in their exposition of noise trading.

Shleifer and Summers (1990) posit that there are two types of investors in the market: (a) rational speculators or arbitrageurs who trade on the basis of information and (b) noise traders who trade on the basis of imperfect information. Since noise traders act on imperfect information, they will cause prices to deviate from their equilibrium values. It is generally understood that arbitrageurs play the crucial role of stabilizing

prices. While arbitrageurs dilute such shifts in prices, they do not eliminate them completely. Shleifer and Summers assert that the assumption of perfect arbitrage made under EMH is not realistic. They observe that arbitrage is limited by two types of risk: (a) fundamental risk and (b) unpredictability of future resale price. Given limited arbitrage, they argue that securities prices do not merely respond to information but also to "changes in expectations or sentiments that are not fully justified by information." Shleifer and Summers, 23.

An observation of investors' trading strategies (such as trend chasing) in the market provides evidence for decision making being guided by "noise" rather than by the rational evaluation of information. Further support is provided by professional financial analysts spending considerable resources in trying to predict both the changes in fundamentals and also possible changes in sentiment of other investors. "Tracking these possible indicators of demand makes no sense if prices responded only to fundamental news and not to investor demand. They make perfect sense, in contrast, in a world where investor sentiment moves prices and so predicting changes in this sentiment pays." Shleifer and Summers, 26

Black (1986) also argues that noise traders play a useful role in promoting transactions (and thus, influencing prices) as informed traders like to trade with noise traders who provide liquidity. So long as risk is rewarded and there is limited arbitrage, it is unlikely that market forces would eliminate noise traders and maintain efficient prices.

2.3 Keynesian theory

The EMH and John Maynard Keynes' (1936) philosophy represent two extreme views of the stock market. EMH is built on the assumptions of investor rationality. This image is in stark contrast to Keynes' philosophy in which he pictures the stock market as a "casino" guided by "animal spirit". He argues that investors are guided by short-run speculative motives. They are not interested in assessing the present value of future dividends and holding an investment for a significant period, but rather in estimating the short-run price movements. In the EMH, investors have a long-term perspective and return on investment is determined by a rational calculation based on changes in the long-run income flows. However, in the Keynesian analysis, investors have shorter horizons and returns represent changes in short-run price fluctuations. As

Crotty (1990) notes in his comparison of Keynes, Tobin, and Minsky, stockholders are increasingly concerned with short-term gains and thus have very short-term planning horizons. If we regard the rational decision making process of the EMH as one that is guided by a complete knowledge of factors governing the decision, it is immediately seen that the EMH is flawed. It fails to provide a realistic framework for the formation of expectations. It is difficult to argue for investor decision making being rational under EMH, given the uncertainty factor. To make a rational decision would involve knowledge of future income flows and also the appropriate discount factor, both of which are unknowable. Like Keynes, many people would agree that few, if any, have sufficient knowledge to make it possible to forecast investment yields.

Thus, in the real world, the investor is not faced with risk (as in EMH analysis), but rather uncertainty, a factor that is given a central role by Keynes. He argues that the future is uncertain and can never be determined. He is also clear in emphasizing that uncertainty is different from probability. The difference can be illustrated with Keynes' own example. There is risk in the game of roulette where there is a known set of possible outcomes. The risk is that the player does not know which will eventuate, but it is possible to calculate the probability of each outcome occurring. There is, however, uncertainty in knowing the prospect of a future world war. While possible, there is no basis on which to form any calculable probability.

Without objective evidence on which to base their expectation of prices, it becomes intuitively appealing that individuals would base their opinions on other members of their group, an idea emphasized by Keynes. In his analogy of the stock market as a "beauty contest", Keynes notes that the goal of the investor is often to pick the girl that others would consider prettiest rather than choosing the one he/she thinks is prettiest. Keynes proposes that individuals tend to conform to the behavior of the majority or the average. What is irrational at the individual level, becomes conventional and realistic in Keynesian analysis. Thus the stock market can be subject to waves of optimistic or pessimistic sentiment when no solid basis exists for such sentiment, and movements in stock prices are caused largely by changes in the perception of ignorant speculators. He also observes that, while on the one hand, decision making is individualistic; a significant degree of order and coherence is infused by the institutional and social structures.

Capital markets have evolved as highly 'liquid institutions' wherein individual investors can transact at will. Given that transactions occur in an uncertain environment, it is legitimate to hypothesize an element of speculation (gambling spirit) in trading. It is evident that many investors do not buy stocks for "keeps" but rather to resell them in the very near future in the hope of making a gain. Will such investors be guided primarily by changes in fundamental values? Probably not. Anecdotal evidence abounds with day trading as a prime example. While one cannot conclude that the market consists merely of speculators, it is plausible that they may form a substantial group, even with the enormous growth of institutional investors. And, if we agree with that, we will have to concede the debate to Keynes. Keynes' provocative observations such as "casino", "animal spirits", musical chair", "beauty contest", "mass psychology of ignorant speculators", made in the thirties seem to fit in very well with the stock market behavior.

2.4 Random walk theory

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. But news is by definition unpredictable and, thus, resulting price changes must be unpredictable and random. As a result, prices fully reflect all known information, and even uninformed investors buying a diversified portfolio at the tableau of prices given by the market will obtain a rate of return as generous as that achieved by the experts (Malkiel, 1981).

The Weak Form of efficiency, popularly known as Random Walk Theory, is the category in which the current stock prices reflect all the information that is contained in the historical sequence of prices. The most important notion of the theory is that an investor can only get increased returns by taking on more risk (keeping interest rates fixed; increased interest would result in a higher expected rate of return). The study further found that random walks in stock market prices present important challenges

to both the chartist and proponent of fundamental analysis. Elroy Dimson and Massoud Mussavian (1998), in their study narrated that the efficient markets hypothesis is simple in principle but remains elusive. It is hard to profit from even the most extreme violations of market efficiency. Considerable academic research has been conducted on the effectiveness of technical analysis of the stock and futures markets. Proponents of the random walk theory (Samuelson, 1965; and Fama, 1965, 1970, 1995) believe that price fluctuations occur randomly; therefore, it is futile for technical analysts to try to predict the future based on previous price action.

Several empirical studies have tried to establish the efficacy of technical analysis by answering two basic questions: (a) Does the random walk model capture the reality of stock market price fluctuations? and (b) Can technical trading rules or charting techniques consistently generate better than chance predictions of stock prices? Earlier studies by Alexander (1961), Fama and Blume (1966), Levy (1967), Jensen (1967), and Jensen and Bennington (1970) show that technical analysis is essentially useless. More recent studies by Sweeney (1988) and Brock et al. (1992) suggest that these pronouncements on the futility of technical analysis might have been premature and not entirely accurate. Sweeney (1988) extends the Fama and Blume (1966) study and concludes that the filter rules used by Fama and Blume could be used to generate a profit; however, this profit is sensitive to transactions costs and the bid-ask spread. Brock et al. (1992) employ data from the Dow Jones Industrial Average from the first day of trading in 1897 to the last day of trading in 1986, a collection of 90 years of daily data. They test two of the simplest and most commonly used technical trading rules and conclude that these trading rules did provide strong support for technical strategies, especially for buy signals. More recent work by Lo and MacKinlay (1999) finds that short-run serial correlations are not zero and that the existence of “too many” successive moves in the same direction enable them to reject the hypothesis that stock prices behave as random walks. There does seem to be some momentum in short-run stock prices. Moreover, Lo, Mamaysky and Wang (2000) also find, through the use of sophisticated nonparametric statistical techniques that can recognize patterns, some of the stock-price signals used by “technical analysts” such as “head and shoulders” formations and “double bottoms”, may actually have some modest predictive power

2.5 Fama and French three –factor model

The Fama and French (1993) three factor asset pricing model was developed as a result of increasing empirical evidence that the Capital Asset Pricing Model performed poorly in explaining realised returns. Fama and French (1993) extend the FF (1992a) study by using a time-series regression approach. The analysis was extended to both stocks and bonds. Monthly returns on stocks and bonds were regressed on five factors: returns on a market portfolio, a portfolio for size and a portfolio for the book-to-market equity effect, a term premium and a default premium. For stocks, the first three factors were found to be significant and for bonds, the last two factors. As a result, Fama and French (1993) construct a three-factor asset pricing model for stocks that includes the conventional market (beta) factor and two additional risk factors related to size and book to market equity. They find that this expanded model captures much of the cross section of average returns amongst US stocks.

The model says that the expected return on a portfolio in excess of the risk free rate is explained by the sensitivity of its return to three factors: (i) the excess return on a broad market portfolio, (ii) the difference between the return on a portfolio of small stocks and the return on a portfolio of large stocks (SMB) and (iii) the difference between the return on a portfolio of high-book-to-market stocks and the return on a portfolio of low-book-to- market stocks (HML).

The model is as follows:

$$(R_{pt}) = R_f + \beta_p [(R_{mt}) - R_f] + s_p (\text{SMB}) + h_p (\text{HML}) + \varepsilon_{pt} \quad (4)$$

where: (R_{pt}) is the weighted return on portfolio p in period t.

R_f is the risk-free rate;

β_p is the coefficient loading for the excess return of the market portfolio over the risk-free rate;

s_p is the coefficient loading for the excess average return of portfolios with small equity class over portfolios of big equity class.

h_p is the coefficient loading for the excess average returns of portfolios with high book-to-market equity class over those with low book-to-market equity class.

ε_{pt} is the error term for portfolio p at time t.

2.6 Concept of Behavioral Finance (Models of Human behavior)

In a market consisting of human beings, it seems logical that explanations rooted in human and social psychology would hold great promise in advancing our understanding of stock market behavior. More recent research has attempted to explain the persistence of anomalies by adopting a psychological perspective. Evidence in the psychology literature reveals that individuals have limited information processing capabilities, exhibit systematic bias in processing information, are prone to making mistakes, and often tend to rely on the opinion of others.

The damaging attacks on the assumption of human rationality have been spearheaded by Kahneman and Tversky (1986) in their path breaking article on prospect theory. The findings of Kahneman and Tversky have brought into question expected utility theory which has been used descriptively and predictively in the finance and economics literature. They argue that when faced with the complex task of assigning probabilities to uncertain outcomes, individuals often tend to use cognitive heuristics. While useful in reducing the task to a manageable proportion, these heuristics often lead to systematic biases.

Using simple decision tasks, Kahneman and Tversky are able to demonstrate consistent decision inconsistencies by manipulating the decision frame. While expected utility theory would predict that individuals would evaluate alternatives in terms of the impact on these alternatives on their final wealth position, it is often found that individuals tend to violate expected utility theory predictions by evaluating the situation in terms of gains and losses relative to some reference point. The usefulness and validity of Kahneman and Tversky's propositions have been established by several replications and extensions for situations involving uncertainty by researchers in the fields of accounting, economics, finance, and psychology.

Rabin and Thaler (2001) show that expected utility theory's explanation of risk aversion is not plausible by providing examples of how the theory can be wrong and misleading. They call for a better model of describing choice under uncertainty. It is now widely agreed that the failure of expected utility theory is due to the failure to recognize the psychological principles governing decision tasks.

The literature on cognitive psychology provides a promising framework for analyzing investors' behavior in the stock market. By dropping the stringent assumption of rationality in conventional models, it might be possible to explain some of the persistent anomalous findings. For example, the observation of overreaction is consistent with the finding that subjects, in general, tend to overreact to new information (and ignore base rates). Also, agents often allow their decision to be guided by irrelevant points of reference, a phenomenon discussed under "anchoring and adjustment". Shiller (1984) proposes an alternate model of stock prices that recognizes the influence of social psychology. He attributes the movements in stock prices to social movements. Since there is no objective evidence on which to base their predictions of stock prices, it is suggested that the final opinion of individual investors may largely reflect the opinion of a larger group. Thus, excessive volatility in the stock market is often caused by social "fads" which may have very little rational or logical explanation. Shiller (1991, ch.23) also investigates investor behavior during the October 1987 crash by surveying individual investors, institutional investors and stockbrokers. The survey results indicate that most investors traded because of price changes rather than due to news about fundamentals.

There appear to have been no major economic developments at that time that triggered the crash. He concludes that it would be wrong to interpret the crash as being due to a change in public opinion about some fundamental economic factor. Seyhun (1990) shows that the 1987 crash was a surprise to corporate insiders. Research into investor behavior in the securities markets is rapidly expanding with very surprising results, again, results that are often counter to the notion of rational behavior. Hirshleifer and Shumway (2001) find that sunshine is strongly correlated with daily stock returns. Using a unique data set of two years of investor behavior for almost the entire set of investors from Finland, Grinblatt and Keloharju (2001) find that distance, language, and culture influence stock trades. Huberman and Regev (2001) provide an example of how and not when information is released can cause stock price reactions. They study the stock price effect of news about a firm developing a cure for cancer. Although the information had been published a few months earlier in multiple media outlets, the stock price more than quadrupled the day after receiving public attention in the New York Times. Although there was no new

information presented, the form in which it was presented caused a permanent price rise.

The efficient market view of prices representing rational valuation of fundamental factors has also been challenged by Summers (1986), who views the market to be highly inefficient. He proposes that pricing should comprise a random walk plus a fad variable.

2.7 The stock price overreaction effect

The stock market overreaction hypothesis states that a stock price usually reverses itself after the stock experiences a sharp increase or decrease in price. If this hypothesis holds, then profitable investment strategies can be constructed to take advantage of the overreaction effect. Therefore, a further understanding of the overreaction effect has important implications not only for academics and practitioners, but also for the investing public. Previous studies on stock market overreaction have generated two important implications. First, the existence of the overreaction phenomenon is against the widely accepted market efficiency theory. Second, the studies question if investors can establish practical and profitable investment strategies to take advantage of the overreaction effect.

The semi-strong form market efficiency theory states that stock prices quickly reflect all publicly available information, implying that no overreaction effect should exist. Empirical finance literature (e.g., Fama, 1970 and 1991) documents strong evidence in support of the semi-strong market efficiency hypothesis. On the other hand, several studies (e.g., Conrad and Kaul, 1988 and Lo and MacKinley, 1988.) find significant empirical results inconsistent with the efficient market hypothesis. Finance researchers generally consider the latter phenomena as market efficiency anomalies rather than outright rejections of the efficient market hypothesis.

2.8 Stock momentum

Stock momentum is the perceived strength behind a price movement. Momentum investors seek to take advantage of upward or downward trends in stock prices or earnings. They believe that these stocks will continue to head in the same direction because of the momentum that is already behind them. The idea relies on the belief that there are a large number of investors in the market who will buy whatever stock is already hot. Momentum investors do not necessarily believe that momentum stocks

will do well in the long run, but they do think that in the short run people will continue to buy them as they have in the immediate past. This therefore involves market timing which is very risky. Han and Grinblatt, (2001) observed a psychological bias, which they called the disposition effect in which investors had a tendency to hold on to losing stocks and sell winners. What happens is that the stock price for a company may go down because of some bad news about the company. But many investors don't want to sell their stock at a loss, so they hold on, hoping the price will rise later. But if too many people hold on to their stocks, that means the stock price does not accurately reflect the bad news about the company.

Evidence that stock returns exhibit momentum (Jegadeesh and Titman, 1993) has attracted considerable attention. It is an anomaly that is proving robust (Rouwenhorst, 1998), and one that is particularly difficult to rationalize using conventional asset-pricing models. Jegadeesh and Titman (2001) reject the hypothesis of Conrad and Kaul (1998) that momentum is a consequence of cross-section differences in expected returns and Fama and French (1996) conclude that their three-factor model cannot explain momentum. This difficulty in explaining momentum as a failure to properly control for risk has led to the suggestion that momentum is observed because the market's reaction to news is drawn out over time, rather than immediate as expected in an efficient market. However no clear verdict on the underreaction hypothesis has emerged from the event study literature, in part because of reservations about the methodology that is employed in many studies.

Jegadeesh and Titman (1993) attribute this effect to the fact that investors underreact to the release of firm-specific information, a cognitive bias. Shefrin (2000) argue that heuristic-driven bias causes intermediate-term momentum but long-term overreaction.

2.9 Empirical studies

2.9.1 Profit warnings

According to Elayan (2009), Profit warnings are defined as earnings forecasts made by management that warns of an expected earnings shortfall in relation to a relevant standard. Management profit warnings may be released at any time prior to the announcement of actual earnings report. The earnings shortfalls may be in terms of

net profits, sales, earnings before interest and taxes (EBIT), and earnings per share (EPS), etc.

Previous research has shown that the timing of management disclosures affect the revision of subsequent analyst forecasts. Baginski and Hassell (1990) show that analysts follow management forecasts more closely in the fourth quarter. These issues suggest that the differential timing of profit warnings have several implications for shareholder reaction.

In their investigation of management's discretionary disclosure before a large earnings disappointment, Kasznik and Lev (1995) reported that the likelihood of warning increased with firm size, the presence of an earlier forecast and membership in the high technology industry. Warnings were also found to be associated with permanent earnings decreases. Helbok and Walker's (2003) findings in the less litigious UK environment where firms reported less frequently indicated that profit warnings are value-relevant events with firms experiencing an average 20% decline in share price in response to them. They also found profit warnings to signal a permanent earnings decline. Firms did not appear to be reprimanded for their honesty when issuing profit warnings where Tucker (2005) found that while in the short-term, their returns were more negative relative to firms with no warnings, their long run returns were more positive. In terms of long-term consequences, Bulkley, Harris and Herreiras (2002) also found strong reversal one to two years after the warning, mainly in small firms.

Jackson and Madura (2003) reported a strong negative reaction, starting five days before the announcement with the reaction complete within five days after the warning. While there was no overreaction to the announcement, small firms reacted more negatively in the announcement and post-announcement periods while in the pre-announcement period, more negative reactions were observed in large firms. Collett (2004) studied the accounting detail provided in profit warnings, in particular information on sales growth and operating margin changes and found only 35% and 42% of firms issuing warnings and upgrades respective provided quantitative information.

Insider trading activity around profit warnings has not yet been studied though similarities exist with studies around financial distress (Seyhun and Bradley, 1997), breaks in earnings trends (Ke, Huddart and Petroni, 2003) and around management earnings forecasts (Noe, 1999; Cheng and Lo, 2006). Seyhun and Bradley (1997) reported insider selling beginning five years before a bankruptcy filing, escalating to the announcement month. Top executives were responsible for more intense selling with insiders buying after prices have fallen and selling before they fall. According to Noe (1999), managers are opportunistic in timing their trades to increase personal gains given they are aware of the intention to trade and the obligation to release information. He reported that managers sell more after the release of good news and buy more after bad news releases. Cheng and Lo (2006) provide additional evidence that when managers intend to buy, they increase the number of bad news forecasts while delaying good news to decrease share price. However, they were unable to show that managers increase good news forecasts or avoid bad news forecasts when selling, possibly due to the risk of litigation.

Prior literature has explored why firms preannounce. Lang and Lundholm (2000) conducted research that examined whether voluntary disclosures represented an attempt to reduce information asymmetry between management, shareholders and analysts. A reduction in information asymmetry lowers the opportunity for investors to profit from informed trading and therefore reduces the costs to investors of acquiring private information (Diamond, 1985; King et al., 1990). Moreover, a reduction in information asymmetry increases liquidity in the company's stock and reduces the cost of capital (Diamond and Verrecchia, 1991). Firms warn in order to reduce earnings surprises. Typically, investors and analysts do not like negative earnings surprises and they discount firms that are not transparent about potential negative earnings. King, et al; (1990); Skinner (1994) and Frankel et al;(1995) observed that by not being candid about their future earning, firms may tarnish their reputation with analysts and investors.

One motivation for pre-announcing earnings is to preempt litigation. Skinner (1994) argues that announcing bad news early can mitigate litigation costs by reducing the number of potential plaintiffs who could claim that they bought shares at a time when management had held negative undisclosed information. Consistent with this

argument, Skinner (1994) documents that unlike firms with good news, firms with bad news are more likely to voluntarily disclose earnings-related information prior to the formal earnings announcement. Further, Kasznik and Lev (1995) find that firms in high-litigation industries have a higher probability of warning before large earnings surprises. A second motivation for pre-announcing earnings is to affect the overall market reaction to earnings news.

Conversely, Skinner (1994, 1997) suggests that management voluntarily issues earnings estimates with negative implications in an attempt to avoid shareholder lawsuits that may be brought upon management for its failure to release material information in a timely manner. On the other hand, Damodaran (1988, 1989), Mendenhall and Nichols (1988), and Chen and Mohan (1994) report that management releases profit warnings by timing the releases of bad news hence minimize negative market reaction. These arguments suggest that, in the long run, the market should value profit warning firms for their openness. Nevertheless, Kaznik and Lev (1995) show that warning firms have higher negative stock market reactions than non-warning firms given that both groups have the same level of earnings surprise. Kaznik and Lev (1995)'s finding is counterintuitive. Tucker (2007) argues warning firms are penalised because announcing firms tend to have more bad news than non-warning firms.

Bulkley, Harris and Herreiras (2002) noted that profit warnings are the discretionary disclosure of bad news by companies prior to earnings announcements. They may take the form of a specific revised earnings forecast (quantitative warnings) or may be a qualitative statement that simply states, or implies, that earnings will be significantly less than current brokers' expectations. Approximately half of all companies whose earnings announcements are going to be "bad news" warn in advance (Kasznik and Lev 1995).

2.9.2 Insider trades around profit warnings

Numerous studies have investigated insider trading activity around corporate announcements including equity offerings (Gombola, Lee and Liu, 1997; Ching, Firth and Rui, 2006), bankruptcy (Seyhun and Bradley, 1997) and takeovers (Seyhun, 1990). They show that insiders are aware of these events well in advance of their

announcements, in some cases up to years beforehand. Seyhun and Bradley (1997) report the occurrence of insider selling commencing five years before the bankruptcy filing that continues up to the announcement month. Insiders also sell before a fall in price and buy after prices had fallen. According to Ke, Huddart and Petroni (2003), they trade on specific information about future accounting disclosures up to two years prior. In particular, insider selling increased three to nine quarters before a break in a string of consecutive quarterly earnings increases. In their examination of the association between insider trading and voluntary disclosures, Cheng and Lo (2006) reported that insiders withheld good news and increased the number of bad news disclosures when they purchase shares but they did not attempt to increase prices when they sold their shares. This is possibly due to litigation concerns associated with sales.

The joint signal of insider trading and the voluntary release of a profit warning may convey insiders' private information to the market, at the least cost in an efficient signalling equilibrium (John and Mishra, 1990). Net trading by insiders contributes to the overall information content of the corporate announcement. With insiders having under diversified holdings in their own firms, their net trading activity may provide a signal of private information which includes, in addition to information about the future prospects of the firm, the amount of effort individual insiders intend to invest. This is particularly interesting in the event of a profit warning because Donaldson and Weigand (2006) found that in firms that filed for voluntary bankruptcy, insiders had fewer incentives to maximise shareholder wealth compared to firms experiencing involuntary bankruptcy. As a result, the former were net sellers while latter were net buyers in their own firms.

There is limited research on profit warning announcements at the NSE. However, Dulacha, Hancock and Izan (2006) in their study on corporate voluntary disclosures at the NSE finds that in all years (1992-2001), listed companies make voluntarily information disclosure in their annual reports. However there are related studies on market efficiency at the NSE. Muragu (1994) provides evidence consistent with the market efficiency on the Nairobi Stock Exchange. He observed a low serial correlation of stock prices consistent with weak form efficiency. Kiiro (2006) empirical investigation into market efficiency and the effects of cash dividend

announcements on share of companies listed on the NSE reveal that cumulative market adjusted returns to be significant for ten days before and ten days after the announcement for dividend paying firms .This indicates that share prices are indeed responsive to cash dividends announcements

2.9.3 Information asymmetry and information content

Verrecchia (1982), Copeland and Galai (1983), Kyle (1985) describe information asymmetry as the difference between the information known to informed traders (i.e., those with access to private information) that is not known to market-makers and uninformed traders . It is a situation in which one party in a transaction has more or superior information compared to another. Potentially, this could be a harmful situation because one party can take advantage of the other party's lack of knowledge. Information Asymmetry can lead to two main problems:

1. Adverse selection- immoral behavior that takes advantage of asymmetric information *before* a transaction.
2. Moral Hazard- immoral behavior that takes advantage of asymmetric information *after* a transaction.

If management owns “private” information, it will result in information asymmetry which in turn breeds moral hazards and adverse selection (Barnea et al. 1985). Healy and Palepu (2001) pointed out that, through financial report and information disclosure, companies can lower information asymmetry and agency conflicts between management and external investors.

Corporate disclosures aim at reducing the expectation gap between investors, at decreasing the advantage from which informed investors benefit, and consequently at reducing information asymmetry in the stock market. This argument is based on the pioneering work of Akerlof (1970) applied to the “lemon market”. In economics literature, Spence (1971) was the first to develop the signaling theory by considering the case of “labor market”. In Financial markets, the signaling theory suggests that the increase of publicly available information would reduce the production of private information (adverse selection costs) and hence decrease information asymmetry between market participants. Empirical studies have found that both mandated and voluntary disclosures are likely to signal material information to the market. They consequently exhibit lower information asymmetry among informed and uninformed

investors (Diamond and Verrecchia, 1991; Healy et al., 1999; and Leuz and Verrecchia, 2000). The information content of public disclosures could be observed through stock market reactions and trading volume changes around the date of announcement. Beaver (1968), Balland Brown (1968), Morse (1981), and Bamber and Cheon (1995) argue that earnings announcements accompanied by high trading volumes and abnormal returns around the announcement window convey more information to investors than announcements which generate low trading volumes and insignificant stock returns. Stock market reactions represent an average on investors' belief about the firm value and trading volumes indicate investors' behavior on firm shares. Both measures aim at estimating public announcements information content and information asymmetry. Trading volume is also considered as a measure of stock market liquidity given that it captures the willingness of some investors who hold firm shares to sell, and the willingness of others to buy (Bamber, 1987).

Several studies have analyzed the relationship between non-mandated disclosures and information asymmetry by examining news releases information content. Dye (2001) argues that managers wishing to inform investors about future cash flows benefit from early stock market price reactions. Skinner (1994) suggests that voluntary disclosures of bad news, i.e. profit warnings, make smooth reactions of stock market returns; which would avoid deceiving Shareholders at the formal earning announcement. When firms do not warn their investors about their performance they incur sceptic investors' beliefs about firm performance. Frankel et al. (2003) examine the information content of conference calls used voluntarily by managers to communicate with investors. They find that this kind of voluntary disclosure practice provides information to the market over and above the information released in the press calls. Moreover, they find that trading volumes and trade size increase at the time of announcement.

It is well recognized that the quality of corporate disclosure influences to a great extent the quality of investment decisions. Elliott and Jacobson (1994) analyze the costs and benefits of corporate disclosures. The potential benefits of more disclosures include lower cost of capital (Diamond and Verrecchia 1991), agency cost reduction (Leftwich et al. 1981) and improved share price (Gelb and Zarowin 2002; Lang and Lundholm 2000). When the information disclosure of an economic entity is adequate;

it helps the investors and creditors in their search for investment opportunities, to pour capital into the most productive of companies. This in turn promotes optimum allocation of resources; consequently, aside from enhancing corporate value, information disclosure benefits also improves the development of the economy as a whole. Lang and Lundholm (2000) examined disclosure activity around equity offerings and its relationship to stock prices. They found that firms that maintain a consistent level of disclosure experience price increases prior to the offering. Ho and Wong (2001) also pointed out that increasing the disclosure within the annual report may reduce information asymmetry, improve management performance, save costs in terms of the investor's privately produced information, and enhance corporate image. It satisfies the needs of the information users and achieves the goal of lowering the company's investment costs.

Krinsky and Lee (1996) investigate the behavior of the components of the bid-ask spread around earnings announcements. They find that adverse selection costs increase significantly in the pre-and post-earnings announcement periods, a fact that they interpret as evidence of increased information asymmetry. Bamber (1986, 1987) has found empirical results consistent with the positive relationship between volume and the level of earnings surprise induced by annual and quarterly earnings announcement, while Krassas (2006) confirmed empirically the same relationship by using profit warnings instead of annual/quarterly earnings announcements.

Kasznik and Lev (1995) and Skinner (1994) investigate why firms choose to issue profit warnings before a bad earnings outcome. Skinner argues that managers may issue warnings to deter shareholder litigation and because they believe the market punishes managers who appear to delay bad news. Kasznik and Lev (1995) report that approximately half the firms that have a large negative earnings surprise issue a profit warning. They interviewed managers and report that one reason managers gave for not issuing profit warnings before bad earnings outcomes was that they believed that the market overreacts to profit warnings.

2.9.4 Conclusions

Profit warning is one form of corporate disclosure and the above arguments suggest that, in the long run, the market should value profit warning firms for their openness. Nevertheless, Kaznik and Lev (1995) show that warning firms have higher negative stock market reactions than non-warning firms given that both groups have the same level of earnings surprise. Kaznik and Lev (1995)'s finding is counterintuitive. Tucker (2007) argues that firms are penalized for their transparency when they make disclosures because announcing firms tend to have more bad news than non-warning firms.

Two main reasons are advanced as motivation for issuing of profit warnings. Skinner (1994, 1997), Kasznik and Lev (1995) and Baginski, Hassell and Kimbrough (2002) report that avoidance of shareholder lawsuits over failure to provide timely negative information encourages management's increased use of warning strategies. Jennings (1984), Waymire (1984, 1986), and Libby and Tan (1999) report that analysts revise their forecasts immediately after management provides an earnings forecast warning, suggesting informational value arising from profit warning announcements. Consequently the management of market reaction by timing information releases around market closures is equally important as it determines magnitude of the negative market revaluation (Jackson and Madura (2003).

The timing of profit warning announcements is an important consideration by management. (Damodaran (1989), Mendenhall and Nichols (1988) and Chen and Mohan (1994). If management potentially wishes to reduce the negative market response to profit warnings then it is conceivable that the announcements will be made at a time when market response is delayed. The expectation under this reasoning is that announcements made after Friday 4 p.m. will generate a different response than announcements made at Tuesday 10 a.m. during a trading week.

Whereas review of prior literature indicates sufficient research conclusions that unexpected declines in firm earnings elicit a negative and significant stock price reaction, there is no consensus on whether these effects are temporary or permanent. For example Datta and Dhillon (1993) determine that market valuations decline by about 2%, on average, in response to unexpected earnings declines. Bremer and

Sweeney (1991) document that large stock price reactions are often followed by abnormal price reversals in subsequent days. Therefore, if there is a large negative response to a profit warning, some investors will resort to arbitrage and still profit from the market, resulting in a share price reversal contrary to efficient market hypothesis expectations.

Most of these studies cover markets in developed countries. There is a lack of empirical evidence on extent of the negative market reaction to profit warning announcements in emerging equity markets generally and particularly at the NSE. Earlier studies at the NSE point to the existence of some degree of market efficiency. This study builds on this foundation by seeking empirical evidence on extend of market reaction to profit warning announcements by companies listed at the NSE

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

In this section research design, population and sample sizes are defined. It also contains a description on data collection as well as data analysis.

3.2 Research design

An analytical study will be conducted in which quantitative data will be collected and analyzed across the sampled companies by use of event study methodology.

The test for share price response will be accomplished with an ordinary event study, which is useful when measuring the effect of an economic event. Event studies have been used since the 1930's with increased sophistication and modification of the methodology over the years. Dolley (1933) examined the effects of stock splits to stock prices. Event studies have been used in a large variety of studies including mergers and acquisitions, earnings announcements, debt or equity issues, corporate re-organisations, investment decisions and corporate social responsibility (MacKinlay 1997). Campbell et. al. (1997) gives their structure to an event study; the structure is organized in steps. This paper will follow the steps suggested by Campbell et. al. (1997).

3.3 Population

The NSE has three market segments namely Main investments market, alternative investments market and fixed securities market. The population of the study will constitute all listed companies at the NSE that issued profit warning announcements during the period of the study which is 8 years from 2002 to 2010. The period is considered adequately long enough to capture any incidences of profit warning. The mandatory disclosure rules on profit warning announcements by the Capital Markets Authority were put in place in 2002.

3.4 Sample

A sample is selected that consists of well-publicized profit warning announcements. To ensure that the market was well aware of the information, we include only profit warnings that were publicly announced and published in the media and notices issued to the NSE and Capital Markets Authority. To narrow the focus on share price responses to profit warnings, announcements mentioning several events are excluded.

Additionally, announcements that provide actual quarter earnings along with a warning about future earnings are eliminated, as the current earnings report could bias the market response. Secondly, we eliminate announcements that include information such as dividend announcements, as the market reaction could not then be fully ascribed to the earnings warnings. Firms are also excluded for insufficient data or the presence of confounding events such as acquisition announcements, stock splits, or dividend changes within a two-day window of the earnings announcement. Repeated warnings are excluded from the sample because overlapping multi-month returns mean that their inclusion would result in a double counting of returns from some firms and hence biased statistical inference. The sample will comprise all firms that have issued profit warning between the years 2002 through to 2010

3.5 Data collection

This study relies on secondary data available at the NSE daily market report, Press websites (Nation media, standard Media) and stock brokers research departments. The data to be collected include corporate announcements in form of Profit Warnings, company details, the date of the warning, industry in which the company belonged and the primary reason given for the warning as well as daily observed average prices for the periods 2002 through to 2010. This data will be collected from published financial statements of listed companies, Nairobi stock exchange website (www.nse.co.ke), capital markets authority website (www.cma.or.ke) as well as Libraries and websites of the mainstream media houses in Kenya (www.nationmedia.com, www.standardmedia.com) daily business reports.

Secondary data available at the NSE database on daily prices and corporate announcements, as well as published data in the internet and print media will be used. Stratified and convenient sampling will be used to determine size and nature of sample to be included in the study. Data is analyzed using event study methodology based on Campbell et. al. (1997) structure to an event study.

3.6 Data analysis

Descriptive statistics in form of mean, regression analysis and T- statistic test at 5 % significance level will be used to analyze data collected on daily share prices. This statistical analysis will be carried out using Ms –Excel, Ms- Access and SPSS software programmes by manipulating data on stock prices at the NSE. Abnormal

announcement returns are computed over several windows ranging in length from one to fifteen days.. Standard event study procedures are used to calculate the abnormal stock returns. The abnormal return in any given period is the market model residual, which is the difference between the stock’s actual return and the predicted return based on the market return for that period. To determine the individual stock price betas in the estimation model, an estimation period of 100 trading days is used, ending 15 days before the event date. Hence the market adjusted abnormal returns are calculated on 100-day computed betas for each firm.

Statistically significant abnormal returns at announcement accumulated over the entire event window, would support the study on abnormal returns and hence their effect on firm valuation.

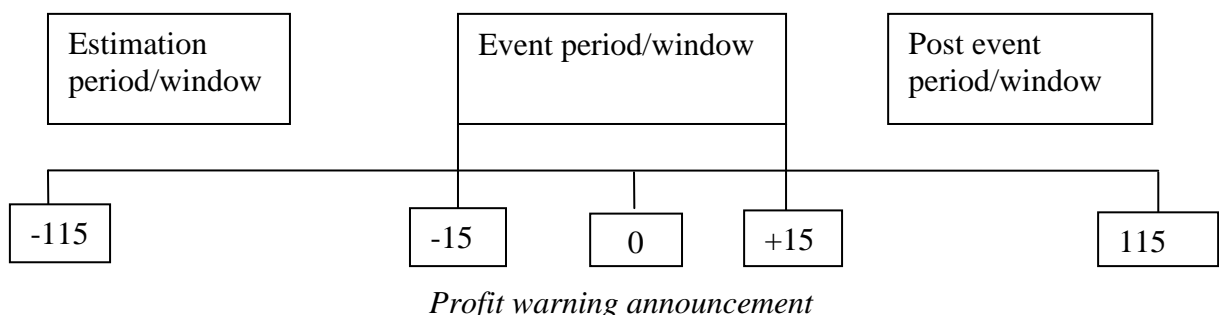
3.6.1 Event date specification

The profit warning date is assigned day 0 if it happens on a trading day. If announces are done on a non trading day, the next available trading day is assigned day 0.

We estimate firm value changes by estimating daily cumulative abnormal returns (CARs). Cumulative abnormal returns are the sum of abnormal returns in a given time period. Abnormal returns are defined as the difference between actual and predicted returns surrounding a corporate event expressed as:

$$\text{Abnormal returns} = \text{Actual returns} - \text{Expected returns}$$

The event period is taken to be 15 days before announcement to 15 days after announcement of profit warning. Abnormal returns are measured for the announcement period (day -15 to day +15), Measure of abnormal returns is constructed on each day over the event window relative to’’ normal’’ control period (estimation window) covering the 100 days. The figure below illustrates the event study approach, depicting the event window of 31 days (-15,+15) and the estimation window is 100 days (-115,-16) and event date day 0.



Measuring daily market adjusted abnormal returns

Daily return data is used to estimate abnormal share performance in a 31 day event window around announcement date ($t=0$). This period is considered adequate to allow:

- i.) Examination of extent of any market reaction to leakage of information beforehand
- ii.) To assess how quickly the stocks of the NSE absorb information and adjust to price
- iii.) Any correction in over (under) reaction to information.

3.6.2 Normal and abnormal returns

To analyze the event's impact one needs a measure of the abnormal return. These models are based on Sharpe (1964) market model as modified by MacKinlay (1997). The actual return of the security over the event window minus the normal return over the same period gives a possible abnormal return. The normal returns are the expected return for the security if the event does not occur. Abnormal return can be expressed as;

$$AR_{it} = R_{it} - E[R_{it} | \Phi]_t$$

Equation 1.1

Where AR_{it} is the abnormal return, R_{it} is the actual return, $E(R_{it})$ is the normal returns and Φ is the information set reflected in the security for time period t .

Two models can be used when estimating the normal return for a given security, i.e. when no event occurs. The constant-mean-return model defined as;

$$R_{it} = \mu_i + \varepsilon_{it}$$

Where R_{it} is the period t return on security i , μ_i is the mean return for asset i , and ε_{it} represents the zero mean disturbance term (Campbell et al. 1997).

The other model is referred to as the capital asset pricing model (CAPM). From Brealey et al. (2004) the CAPM explains the relationship between risk and return, where the expected risk premium on a security should equal its beta value times the market risk premium. The CAPM model can be expressed as;

$$r = r_f + \beta(r_m - r_f)$$

Where r is the expected return and r_f is the risk free rate. Market risk premium is expressed through.

$$(r_m - r_f)$$

This study will use the capital asset pricing model when estimating normal returns.

3.6.3 Estimation procedures

During the estimation procedure one needs to estimate the alpha and beta parameters of the model. This have to be done for the period prior to the event window referred to as the estimation window in above. In order to estimate alpha and beta the percentage change for both the market index (NSE index) and the stock price has to be calculated. Stock price change is calculated as,

$$\Delta \text{Price} = \frac{P_1 - P_0}{P_0} * 100$$

NSE index change is calculated in the following way;

$$\Delta \text{NSE}_t = \frac{\text{NSE}_t - \text{NSE}_0}{\text{NSE}_0} \times 100$$

When estimating the parameters event window is excluded since this can influence the parameters of the market model.

1.1.1 Testing procedures

When the parameters for the normal return model are estimated, abnormal returns can be calculated from equation 1.1 above. Given the abnormal returns for the event window, one needs to cumulate these observations. Cumulative abnormal returns is calculated in the following way,

$$CAR_i = \sum_0^t AR_i$$

Cumulative abnormal returns will be tested for with a t-test. The formula for the t-test will be borrowed and slightly modified from Campbell et. al. (1997). The standard deviation for the event window is calculated with the following formula,

$$\sigma_i = \sqrt{\sum_0^t \left(\frac{AR_i - \overline{AR}_i}{n-1} \right)^2}$$

where, σ_i = Standard deviation for the event window $1-n$.

AR_i = Is the abnormal return for stock i .

\overline{AR}_i Is the average abnormal returns for stock i .

Once the standard deviation is calculated, the t-test is achieved by dividing the cumulative abnormal returns for the event window by the standard deviation . This is expressed through the following formula,

$$t_i = \frac{CAR_i}{\sigma_i}$$

CHAPTER FOUR

4.0 Results

4.1 Summary statistics of Abnormal Returns

Average Abnormal returns are presented in Table 1, for the entire sample of firms during the 31-event day window. Two of the 31-event day window Abnormal Returns are statistically significant at the .05 level. These are the Abnormal Returns one day before the announcement ($t=-2.74$, $p=0.0191$) and the day of announcement ($t=-3.92$, $p=0.0015$).

Table 1 Daily Mean abnormal Returns by event day for all sampled firms

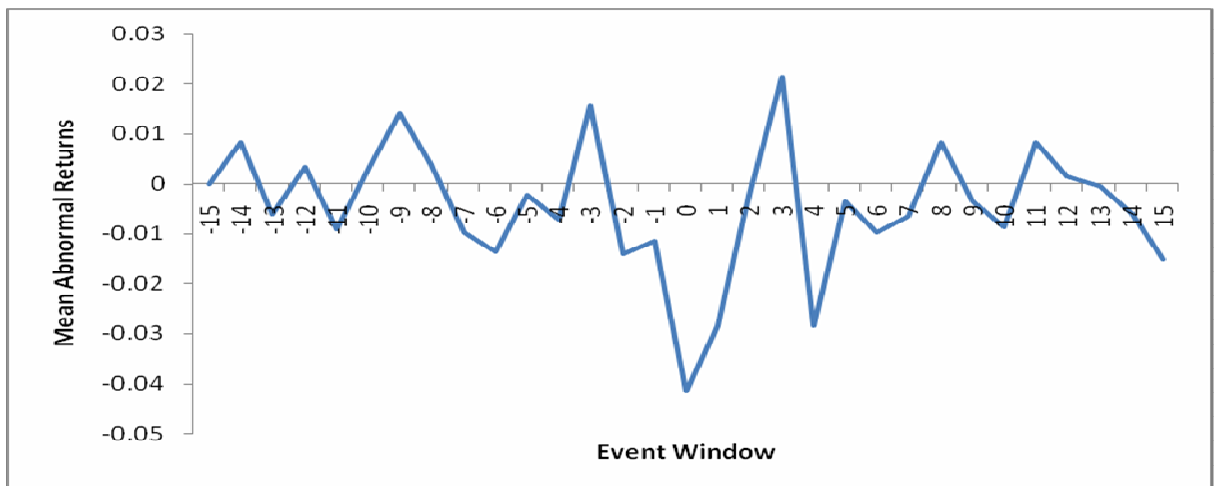
Day	N	Mean	Std Dev	t Value	P Value
-15	12	-0.0001	0.0251	-0.02	0.9872
-14	14	0.0083	0.0230	1.36	0.1984
-13	13	-0.0061	0.0298	-0.74	0.4754
-12	10	0.0033	0.0141	0.74	0.4787
-11	7	-0.0091	0.0315	-0.77	0.4713
-10	11	0.0029	0.0334	0.28	0.7831
-9	12	0.0140	0.0334	1.46	0.1735
-8	12	0.0039	0.0351	0.38	0.7110
-7	14	-0.0098	0.0238	-1.54	0.1468
-6	14	-0.0135	0.0256	-1.98	0.0693
-5	10	-0.0023	0.0284	-0.25	0.8068
-4	7	-0.0071	0.0177	-1.06	0.3290
-3	9	0.0156	0.0315	1.48	0.1769
-2	11	-0.0140	0.0266	-1.74	0.1126
-1	12	-0.0114	0.0144	-2.74*	0.0191
0	15	-0.0415	0.0410	-3.92*	0.0015
1	12	-0.0283	0.0527	-1.86	0.0901
2	9	-0.0022	0.0314	-0.21	0.8377
3	7	0.0214	0.0294	1.92	0.1032
4	9	-0.0283	0.0567	-1.50	0.1731
5	12	-0.0034	0.0309	-0.38	0.7094
6	11	-0.0098	0.0311	-1.04	0.3212
7	14	-0.0066	0.0230	-1.08	0.2985
8	12	0.0084	0.0232	1.26	0.2348
9	10	-0.0035	0.0148	-0.76	0.4689
10	7	-0.0087	0.0157	-1.46	0.1939
11	9	0.0083	0.0340	0.73	0.4848
12	12	0.0014	0.0126	0.38	0.7080
13	11	-0.0006	0.0178	-0.10	0.9188
14	12	-0.0059	0.0280	-0.73	0.4806
15	13	-0.0152	0.0351	-1.56	0.1441

*Statistically significant at 5% significance level.

The result in figure1 below shows fluctuations in abnormal returns during the entire 31-event day window. The figure below shows that after the announcement day, (+1,

+15), the average abnormal returns resume their previous pattern exhibited before the announcement. Abnormal returns are lowest a day before announcement, the day of the announcement and one day after announcement implying negative market response before and after the profit warnings announcement.

Figure 1: Graph of Mean Abnormal Returns by Event Day for all Firms during the 31-event day window



4.2 Cumulative Abnormal Returns

The result in table 2 shows the cumulative abnormal returns during the 31-event day window. The cumulative abnormal returns are significant on four days during the 31-event day window. They are significant two days before the announcement ($t=-3.09$, $p=0.0115$), one day before announcement ($t=-2.77$, $p=0.0183$), the day of announcement ($t=-4.19$, $p=0.0009$) and one day after the announcement ($t=-2.24$, $p=0.0468$).

The abnormal returns cumulate into downward drift in stock prices of -1.7% over the fifteen days before the announcement (-15,-1) and -1.9% fifteen days after the announcement (+1, +15).

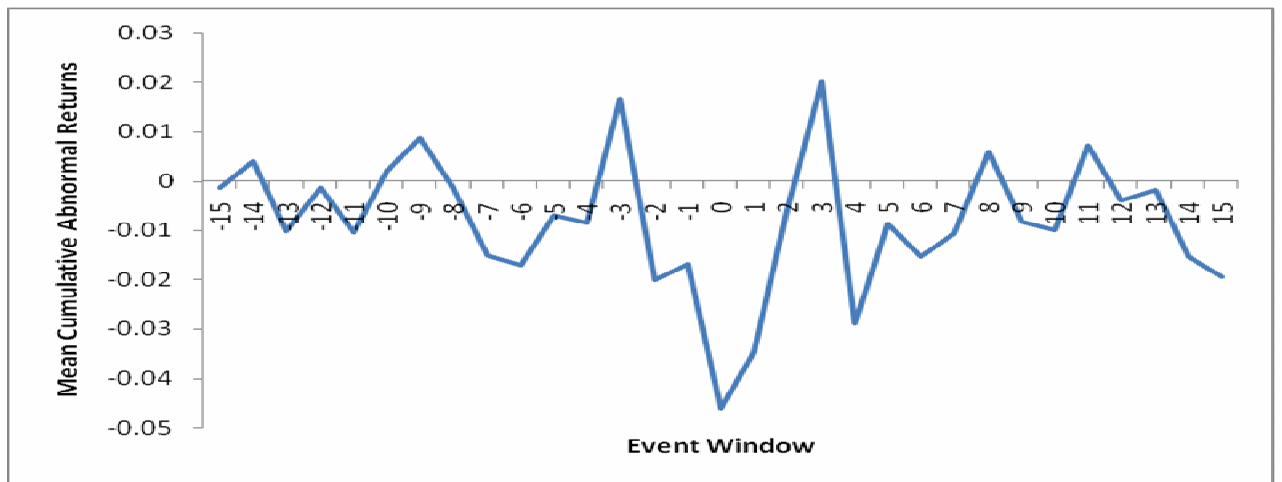
Table 1 Daily Mean Cumulative Abnormal Returns by event day for all sampled firms

Day	N	Mean	Std Dev	t Value	P Value
-15	12	-0.0013	0.0228	-0.19	0.8513
-14	14	0.0039	0.0200	0.73	0.4771
-13	13	-0.0102	0.0401	-0.91	0.3792
-12	10	-0.0014	0.0266	-0.16	0.8728
-11	7	-0.0104	0.0273	-1.01	0.3521
-10	11	0.0021	0.0447	0.15	0.8814
-9	12	0.0087	0.0380	0.79	0.4457
-8	12	-0.0015	0.0451	-0.12	0.9095
-7	14	-0.0151	0.0372	-1.52	0.1530
-6	14	-0.0170	0.0304	-2.09	0.0567
-5	10	-0.0069	0.0383	-0.57	0.5808
-4	7	-0.0084	0.0138	-1.60	0.1605
-3	9	0.0166	0.0335	1.48	0.1763
-2	11	-0.0200	0.0215	-3.09*	0.0115
-1	12	-0.0168	0.0210	-2.77*	0.0183
0	15	-0.0461	0.0426	-4.19*	0.0009
1	12	-0.0348	0.0538	-2.24*	0.0468
2	9	-0.0059	0.0415	-0.43	0.6818
3	7	0.0201	0.0340	1.57	0.1682
4	9	-0.0290	0.0555	-1.57	0.1556
5	12	-0.0088	0.0393	-0.77	0.4548
6	11	-0.0153	0.0299	-1.69	0.1213
7	14	-0.0106	0.0267	-1.49	0.1611
8	12	0.0060	0.0298	0.69	0.5018
9	10	-0.0082	0.0262	-0.99	0.3475
10	7	-0.0099	0.0113	-2.32	0.0592
11	9	0.0071	0.0318	0.67	0.5219
12	12	-0.0040	0.0213	-0.64	0.5328
13	11	-0.0018	0.0201	-0.29	0.7774
14	12	-0.0153	0.0355	-1.49	0.1648
15	13	-0.0194	0.0327	-2.14	0.0534

*Statistically significant at 5% significance level.

Figure 2 shows the graphical pattern of cumulative abnormal returns. The cumulative abnormal returns depict similar behavior to the abnormal returns shown in figure 1. They are lowest one day before the announcement, the day of announcement and one day after the announcement. The cumulative abnormal returns tend to resumes their normal pattern two days after the announcement date consistent with the stock market overreaction hypothesis which states that a stock price usually reverses itself after the stock experiences a sharp increase or decrease in price.

Figure 2 Graph of Mean Cumulative Abnormal Returns during the 31-event day window



CHAPTER FIVE

5.0 Summary, Conclusions and Recommendations

This chapter summaries results of key findings, makes conclusions and recommendations from the study.

5.1 Summary of key findings

This study sought to investigate investor reaction to profit warnings announcements at the NSE by use of event study methodology on share price responses around the period of announcements. The study finds that negative abnormal returns that are statistically significant at 5% level, two days before profit warning announcements, a day before announcement, on the day of the announcement and one day after announcement. There is therefore evidence of investor reaction before and after the profit warning announcement.

5.2 Conclusions

Table 2 indicates that the sample of profit warning announcements has a mean two-day cumulative abnormal return of -0.0461 ($t=-4.19$, $p=0.0009$) which is significantly different from zero at the 5 % level. These results confirm the hypothesis that profit warnings have information content which is associated with a negative revaluation of the firm.

5.3 Recommendations

This study finds that there is informational value in profit warning announcements evident on the days immediately before and after the event date. Corporate managers may use profit warning announcement strategically to manage the extend of market revaluation of their firms by timing the release of the announcement and for planning other corporate events and decisions that are likely to be affected by profit warning announcements.

It's further recommended that CMA opens up market data especially when required for academic research purposes and that its research department capture in their industry statistics report all corporate events, including profit warning, to aid in research that will give better insights on the Financial market.

5.4 Limitations of the study

This study relied heavily on only profit warning announcement published in the media and business websites. Others were gathered from individual firm websites. It was not possible to access copies of original letters of notification of profit warning by firms, that are by law required to be issued to both the capital Markets Authority and the Nairobi Stock exchange as they were said to be highly confidential and filed in the respective confidential files at the CMA and whose access was said to be highly restricted. Furthermore CMA had failed to capture profit warning announcements as a corporate event in its industry statistics report just like other corporate announcements. It was therefore not possible to confirm that all firms that issued profit warning announcements were covered in this study.

Resource limitations would also not allow individual visit to all listed firms to confirm directly, the existence of profit warning announcements events and individual reasons that may have motivated issuance of the profit warning announcements.

Some companies issued more than one profit warning announcements during the period of the study. This is likely to have some confounding effects on the results of the study.

5.5 Suggestions for further research

In this study it is observed that there are statistically significant abnormal returns at 5% level two days before the announcement date. Further studies need to be conducted to establish the existence of insider trading days before profit warning announcements.

There is also need to study further and establish extend to which the negative market response is temporary or permanent.

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Appendices

Appendix 1 NSE Market Segments, Sectors and Listed Firms

Main Investment Market Segment

Agriculture

1. Rea Vipingo Ltd. Ord.5.00
2. Sasini Tea & Coffee Ltd. Ord.1.00
3. Kakuzi Ltd. Ord.5.00

Commercial and Services

4. Access Kenya Group Ord. 1.00
5. Marshalls E.A. Ltd. Ord. 5.00
6. Car & General Ltd. Ord. 5.00
7. Hutchings Biemer Ltd. Suspended
8. Kenya Airways Ltd. Ord. 5.00
9. CMC Holdings Ltd. Ord. 0.50
10. Uchumi Supermarkets Ltd. Suspended
11. Nation Media Group Ltd. Ord. 2.50
12. TPS (Serena) Ltd. Ord. 5.00
13. ScanGroup Ltd. Ord. 1.00
14. Standard Group Ltd. Ord. 5.00
15. Safaricom Ltd Ord. 0.50

Finance and Investment

16. Barclays Bank of Kenya Ltd. Ord. 2.00
17. CFC Stanbic Bank Ltd. Ord. 5.00
18. Housing Finance Ltd. Ord. 5.00
19. Centum Investment Ltd. Ord. 0.50
20. Kenya Commercial Bank Ltd. Ord. 1.00
21. National Bank of Kenya Ltd. Ord. 5.00
22. Pan Africa Insurance Holdings Co. Ltd Ord. 5.00
23. Diamond Trust Bank of Kenya Ltd. Ord. 4.00

24. Jubilee Insurance Co. Ltd Ord. 5.00
25. Standard Chartered Bank Ltd. Ord. 5.00
26. NIC Bank Ltd. Ord. 5.00
27. Equity Bank Ltd. Ord. 0.50
28. Olympia Capital Holdings Ltd Ord. 5.00
29. The Co-operative Bank of Kenya Ltd. Ord. 1.00
30. Kenya Re-Insurance Ltd. Ord. 2.50

Industrial and Allied

31. Athi River Mining Ord 5.00
32. B.O.C Kenya Ltd Ord 5.00
33. Bamburi Cement Ltd Ord 5.00
34. British American Tobacco Kenya Ltd Ord 10.00
35. Carbacid Investments Ltd Ord 5.00
36. Crown Berger Ltd Ord 5.00
37. E.A.Cables Ltd Ord 0.50
38. E.A.Portland Cement Ltd Ord 5.00
39. East African Breweries Ltd Ord 2.00
40. Eveready East Africa Ltd Ord.1.00
41. Kenya Oil Co Ltd Ord 0.50
42. Kenya Power & Lighting Ltd Ord 20.00
43. KenGen Ltd. Ord. 2.50
44. Mumias Sugar Co. Ltd Ord 2.00
45. Sameer Africa Ltd Ord 5.00
46. Total Kenya Ltd Ord 5.00
47. Unga Group Ltd Ord 5.00

Alternative Investments Market

48. A.Baumann & Co.Ltd Ord 5.00
49. City Trust Ltd Ord 5.00
50. Eaagads Ltd Ord 1.25
51. Express Ltd Ord 5.00
52. Williamson Tea Kenya Ltd Ord 5.00

53. Kapchorua Tea Co. Ltd Ord Ord 5.00
54. Kenya Orchards Ltd Ord 5.00
55. Limuru Tea Co. Ltd Ord 20.00

Fixed Income Securities Market Segment

Preference Shares

1. Kenya Power & Lighting Ltd 4% Pref 20.00
2. Kenya Power & Lighting Ltd 7% Pref 20.00

Appendix 2 NSE 20 Share Index Constituent firms

1. Athi River Mining Ord 5.00
2. Bamburi Cement Ltd Ord 5.00
3. Barclays Bank of Kenya Ltd. Ord. 2.00
4. British American Tobacco Kenya Ltd Ord 10.00
5. CMC Holdings Ltd. Ord. 0.50
6. The Co-operative Bank of Kenya Ltd. Ord. 1.00
7. East African Breweries Ltd Ord 2.00
8. Equity Bank Ltd. Ord. 0.50
9. Express Ltd Ord 5.00
10. KenGen Ltd. Ord. 2.50
11. Kenya Oil Co Ltd Ord 0.50
12. Kenya Airways Ltd. Ord. 5.00
13. Kenya Commercial Bank Ltd. Ord. 1.00
14. Kenya Power & Lighting Ltd Ord 20.00
15. Mumias Sugar Co. Ltd Ord 2.00
16. Nation Media Group Ltd. Ord. 2.50
17. Rea Vipingo Ltd. Ord.5.00
18. Safaricom Ltd Ord. 0.50
19. Sasini Tea & Coffee Ltd. Ord.1.00
20. Standard Chartered Bank Ltd. Ord. 5.00

Appendix 3: Abnormal Returns by Event Day for all sampled firms

Day	COMPANY													
	ACCESS	BOC	CENTUM	CFC	CMC	EA CABLES	EA PORTLAND	EVEREADY	KENYA AIRWAYS	KENOL	REA VIPINGO	SAMEER	UCHUMI	UNGA
	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
-15	0.0022	0.0019	-.0233	.	0.0048	.	.0027	0.0063	0.0111	-.0213	-.0512	0.0492	0.0256	-.0040
-14	-.0008	-.0042	0.0037	-.0041	0.0290	0.0130	.	0.0178	-.0063	0.0523	0.0519	-.0197	-.0065	0.0101
-13	0.0024	-.0095	0.0163	0.0021	0.0270	0.0049	.	-.0102	0.0103	-.0802	-.0395	0.0217	-.0352	0.0109
-12	-.0039	.	.	-.0053	0.0390	0.0018	.	0.0054	-.0064	-.0099	-.0020	0.0087	.	.
-11	.	.	.	-.0037	.	-.0053	.0025	-.0412	.	.	.	0.0150	.	.
-10	.	-.0065	-.0307	-.0040	.	0.0044	.0022	-.0040	.	.	.	-.0103	0.0958	0.0030
-9	-.0039	-.0072	0.0024	.	0.0024	.	.0025	-.0030	-.0217	0.0505	0.0435	0.0107	0.0976	-.0003
-8	-.0164	-.0089	0.0403	.	-.0136	.	.0024	0.0115	0.0038	-.0171	-.0023	0.0081	0.0927	-.0495
-7	-.0071	-.0016	-.0515	0.0077	.	-.0045	.0028	-.0158	-.0052	-.0526	-.0068	-.0054	0.0421	-.0285
-6	-.0072	-.0017	-.0330	-.0250	-.0570	0.0041	.	0.0163	0.0280	0.0068	-.0035	-.0108	-.0379	-.0118
-5	-.0394	.	.	-.0362	0.0617	-.0060	.	0.0048	0.0128	0.0030	-.0144	-.0138	.	.
-4	.	.	.	-.0088	.	-.0046	.0022	-.0268	.	.	.	0.0098	.	.
-3	.	0.0618	0.0169	.	.	0.0654	.0026	0.0121	.	.	.	0.0114	-.0297	-.0074
-2	.	-.0613	0.0228	.	-.0273	.	.0022	-.0267	-.0186	0.0021	-.0067	0.0149	-.0535	0.0029
-1	-.0444	-.0008	0.0015	.	-.0017	.	.0026	0.0008	-.0319	-.0134	-.0007	-.0159	-.0106	-.0170
0	-.0078	-.0026	-.0600	-.0476	-.0231	-.1158	.0023	-.0107	-.0727	-.0019	-.0832	-.0213	-.1063	-.0455
1	-.0079	0.0005	-.0606	0.0094	-.0525	0.0251	.	-.1602	-.0165	-.0107	0.0103	-.0820	.	0.0059
2	-.0365	.	.	-.0147	-.0011	0.0179	.	0.0191	0.0145	-.0410	0.0028	.	.	.
3	.	.	.	0.0307	.	0.0204	.0026	0.0399	.	.	.	0.0107	.	.
4	.	.	-.0219	.	.	-.0367	.0023	0.0284	.	.	.	-.0232	-.1066	-.0975
5	-.0338	-.0011	0.0117	.	0.0113	.	.0023	-.0039	0.0111	-.0606	-.0064	-.0260	-.0091	0.0680
6	-.0085	-.0586	0.0374	.	0.0046	.	.0024	0.0001	-.0026	0.0226	0.0017	-.0571	-.0449	.
7	-.0046	-.0033	0.0079	.	0.0016	0.0040	.0024	0.0351	-.0050	-.0475	0.0261	-.0098	-.0326	-.0312

	COMPANY													
	ACCESS	BOC	CENTUM	CFC	CMC	EA CABLES	EA PORTLAND	EVEREADY	KENYA AIRWAYS	KENOL	REA VIPINGO	SAMEER	UCHUMI	UNGA
	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit	ARit
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
8	0.0031	-.0076	.	0.0592	0.0157	-.0021	.	0.0159	0.0118	-.0219	-.0016	0.0423	-.0173	0.0036
9	0.0032	.	.	-.0126	-.0072	-.0195	.	0.0067	0.0119	0.0131	-.0083	-.0296	.	.
10	.	.	.	-.0073	.	-.0243	.0025	-.0170	.	.	.	0.0038	.	.
11	.	0.0046	.	0.0042	.	0.0006	.0027	-.0237	.	.	.	0.0133	.	0.0888
12	0.0069	-.0064	0.0284	.	0.0030	.	.0027	0.0081	-.0046	-.0032	-.0100	0.0199	-.0129	-.0097
13	-.0008	-.0005	0.0089	.	-.0096	.	.0026	0.0109	0.0170	-.0292	.	0.0242	-.0327	0.0082
14	-.0081	-.0008	0.0280	0.0041	0.0174	-.0304	.0025	.	.	0.0121	-.0589	0.0102	.	-.0522
15	0.0222	0.0024	0.0307	-.0235	-.0061	.	.	0.0166	-.0341	-.0279	-.0081	-.0352	-.1041	0.0035

Appendix 4: Cumulative Abnormal Returns by Event day for all sampled firms

Day	COMPANY													
	ACCESS	BOC	CENTUM	CFC	CMC	EA CABLES	EA PORTLAND	EVEREADY	KENYA AIRWAYS	KENOL	REA VIPINGO	SAMEER	UCHUMI	UNGA
	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
-15	0.0022	0.0019	-.0233	.	0.0048	.	-.0027	0.0063	0.0111	-.0213	-.0512	0.0355	0.0256	-.0040
-14	0.0014	-.0023	-.0196	-.0041	0.0338	0.0130	.	0.0241	0.0048	0.0311	0.0007	-.0266	0.0191	0.0061
-13	0.0046	-.0076	-.0070	-.0021	0.0317	0.0178	.	-.0039	0.0214	-.1014	-.0907	0.0079	-.0097	0.0069
-12	-.0017	.	.	-.0095	0.0438	0.0148	.	0.0117	0.0047	-.0311	-.0532	-.0050	.	.
-11	.	.	.	-.0079	.	0.0077	-.0052	-.0349	.	.	.	0.0012	.	.
-10	.	-.0046	-.0540	-.0081	.	0.0174	-.0049	0.0023	.	.	.	-.0240	0.1213	-.0010
-9	-.0017	-.0053	-.0209	.	0.0071	.	-.0053	0.0033	-.0106	0.0293	-.0077	-.0030	0.1231	-.0043
-8	-.0142	-.0070	0.0170	.	-.0089	.	-.0051	0.0178	0.0150	-.0384	-.0535	-.0056	0.1183	-.0535
-7	-.0049	0.0003	-.0747	0.0036	.	0.0084	-.0055	-.0095	0.0059	-.0739	-.0580	-.0192	0.0677	-.0325
-6	-.0050	0.0002	-.0562	-.0292	-.0522	0.0171	.	0.0225	0.0391	-.0145	-.0547	-.0245	-.0123	-.0158
-5	-.0372	.	.	-.0403	0.0665	0.0070	.	0.0111	0.0239	-.0183	-.0656	-.0275	.	.
-4	.	.	.	-.0130	.	0.0084	-.0049	-.0206	.	.	.	-.0040	.	.
-3	.	0.0637	-.0064	.	.	0.0784	-.0054	0.0184	.	.	.	-.0023	-.0041	-.0114

	COMPANY													
	ACCESS	BOC	CENTUM	CFC	CMC	EA CABLES	EA PORTLAND	EVEREADY	KENYA AIRWAYS	KENOL	REA VIPINGO	SAMEER	UCHUMI	UNGA
	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit	CARit
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
-2	.	-.0594	-.0005	.	-.0225	.	-.0049	-.0204	-.0075	-.0191	-.0579	0.0012	-.0279	-.0011
-1	-.0422	0.0011	-.0218	.	0.0030	.	-.0053	0.0070	-.0208	-.0346	-.0519	-.0297	0.0150	-.0210
0	-.0056	-.0007	-.0833	-.0518	-.0183	-.1028	-.0050	-.0045	-.0616	-.0232	-.1344	-.0351	-.0807	-.0495
1	-.0057	0.0024	-.0839	0.0053	-.0478	0.0381	.	-.1540	-.0054	-.0320	-.0409	-.0958	.	0.0019
2	-.0343	.	.	-.0188	0.0037	0.0309	.	0.0254	0.0256	-.0622	-.0484	.	.	.
3	.	.	.	0.0265	.	0.0334	-.0054	0.0461	.	.	.	-.0030	.	.
4	.	.	-.0451	.	.	-.0237	-.0050	0.0347	.	.	.	-.0370	-.0811	-.1015
5	-.0316	0.0008	-.0116	.	0.0161	.	-.0050	0.0024	0.0222	-.0818	-.0576	-.0397	0.0164	0.0640
6	-.0064	-.0567	0.0141	.	0.0094	.	-.0051	0.0064	0.0085	0.0014	-.0495	-.0708	-.0193	.
7	-.0024	-.0014	-.0154	.	0.0064	0.0170	-.0052	0.0414	0.0061	-.0688	-.0251	-.0236	-.0071	-.0352
8	0.0053	-.0057	.	0.0550	0.0205	0.0108	.	0.0222	0.0229	-.0431	-.0528	0.0286	0.0082	-.0004
9	0.0054	.	.	-.0167	-.0025	-.0065	.	0.0130	0.0230	-.0081	-.0595	-.0434	.	.
10	.	.	.	-.0115	.	-.0114	-.0052	-.0108	.	.	.	-.0100	.	.
11	.	0.0065	.	0.0001	.	0.0136	-.0054	-.0175	.	.	.	-.0004	.	0.0848
12	0.0091	-.0045	0.0052	.	0.0078	.	-.0054	0.0144	0.0065	-.0245	-.0612	0.0061	0.0127	-.0137
13	0.0014	0.0014	-.0144	.	-.0048	.	-.0054	0.0172	0.0281	-.0505	.	0.0105	-.0071	0.0042
14	-.0059	0.0011	0.0047	-.0001	0.0221	-.0174	-.0052	.	.	-.0092	-.1101	-.0035	.	-.0562
15	0.0244	0.0043	0.0075	-.0277	-.0014	.	.	0.0229	-.0230	-.0491	-.0593	-.0490	-.0785	-.0005