THE EFFECT OF PROFIT WARNINGS ON STOCK RETURNS OF FIRMS LISTED

AT NAIROBI SECURITIES EXCHANGE

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DECLARATION

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

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DEDICATION

I dedicate this project to my parents for their love for Education and for laying a strong academic foundation for me and my siblings. I also dedicate this project to my wife Patricia and son Japheth for their understanding, encouragement and support towards my educational pursuits.

ABSTRACT

Profit warnings are voluntary disclosures made by firms indicating that their expected earnings will be lower than 25% in comparison to the previous year's earnings. Several reasons have been advanced as to why firms make such voluntary disclosures key among them being to avoid shareholder lawsuits and to minimize the overreaction that accompanies such warnings. The market reacts negatively to profit warnings because the market interprets such news as bad news. In this study, a sample of 13 firms that has issued profit warnings between 2010 and 2013 was analyzed using event study methodology where data was collected from Nairobi Securities Exchange for a period of 106 days (-90, +15). The event date was denoted as time zero (t=0) and a 31 day event window made up of 15 days prior to the event and 15 days after the profit warning announcement. Abnormal returns and Cumulative abnormal returns statistical significance was tested using the t-test.

The study found out that stock returns are negatively affected by profit warning announcements as evidenced with a decline in abnormal returns around the event announcement period. The decline especially one day after the profit warning announcement and on the second day (t=-3.4494, P=0.0048) and (t=-2.9995, P=0.0111) was found to be statistically significant at 5% level. The study also established that there was a slight improvement in the stock returns from day +4 where the stocks resumed their earlier pattern although the market took long to recover from the effects of the profit warning because by day +15, the cumulative abnormal returns were still negative meaning that investors continued to make losses. Based on this study, we conclude that profit warnings negatively affect stock returns for those firms listed at NSE.

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LIST OF ABBREVIATIONS

AR   -   Abnormal Returns

ATS   -   Automated Trading System

CAPM -   Capital Pricing Model

CBK   -   Central Bank of Kenya

CMA   –   Capital Markets Authority

DASS   -   Delivery and Settlement System

EBIT   -   Earnings before Interest and Tax

EPS   -   Earnings per Share

EMH   -   Efficient Market Hypothesis

EU   -   European Union

FISD   -   Financial Information Services Division

GDP   -   Gross Domestic Product

NSE   -   Nairobi Securities Exchange

SAR   -   Standardized Abnormal Returns

SCAR   -   Standardized Cumulative Abnormal Returns

UK   -   United Kingdom

US   -   United States

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Investors come to the market with different expectations. Some invest for short-term gains while others invest for long term gains. To achieve their goals, these investors evaluate their investment by calculating the benefits (returns) as well as the associated costs for the investment. Over time, company management in fulfilment of their agency duties communicate to stakeholders' information concerning the performance of the companies. However, this information was being given at the discretion of the management thus resulting into information asymmetry and inconsistencies especially where negative information is involved. To promote corporate governance, rules and regulations were published to supervise companies listed in NSE especially where negative information is involved (Capital Markets Authority, 2002). Of the many disclosures, profit warning is one such mechanism companies use to inform the public that the company is likely to make losses or report lower earnings than previous years. According to Kasznik & Lev (1995) the goal of issuing the warning is to reduce the expectation gap between the shareholders and other interested parties. Profit warning is based on the company's performance trend in a given year vis-à-vis the previous year's performance.

Following the developments of financial markets, advancement in technology and increased corporate governance, investors are increasingly becoming more sensitive especially where negative information is relayed to them. Previous studies done by other researchers indicate that stock reacts negatively to profit warning. Fama (1970) stipulates that in an efficient market, prices reflect the total information that relates to a share. It is also evident from previous studies that investors do not like receiving bad news and more so where it comes as a surprise. Our

interest in this study is to examine the extent to which profit warning affects stock returns of those companies which have issued profit warning. From the year 2013 to the first half of 2014, more than 10 companies listed in the NSE having issued profit warning. In Nairobi securities exchange, profit warnings issued are either qualitative or quantitative and therefore in our study we will focus on both types of warnings information to estimate its effect on stock returns. To ensure that these disclosures are made, Capital Markets Authority through legal notice no 60 of May 2002 (CMA, 2002 p.199) made issuing profit warning a mandatory disclosure that

> *"...an issuer is required to disclose all material information and make public announcement of: (iv) Any profit warning whether there is a material discrepancy (25% lower) between the projected earnings for the current financial year and the level of earnings in the previous financial year".*

1.1.1 Profit Warning

Profit warning is an announcement made by a public company in advance of its earnings announcement indicating that profits will fall short of previously expected levels. According to Elayan and Pukthuanthong (2009), the decline in earnings can be expressed in other terms like net profits, sales, earnings before interest and tax (EBIT) and earnings per share (EPS). 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 than in the other quarters. Previous researches also indicate that the timing of when the warnings are issued results into several implications because of shareholder reaction.

Previous studies indicate that firms issue profit warnings for different reasons. Skinner (1994) identified two reasons why companies tend to issue earnings-related warnings in the US stock markets; one is stockholders lawsuit and another is reputational costs while Kasznik & Lev (1995) indicated that profit warning also helps reduce the expectations gap that shareholders may be having and lower the market reaction in the stock price and avoid large stock price fluctuation.

Alves, Pope and Young (2009) in their research found out that profit warnings issued by firms is received as bad news not only within the country where the firm is listed but also by investors in comparable foreign non –announcing firms although, cross-border transfers vary according to firm, industry and country level characteristics.

Wang and Tumurkuu (2010), recommend that it is important for investors to pay attention to the nature of profit warning because, different profit warning result into different impact. They found out that during the event window, the average share price reaction was about -35% and therefore, reaction of such magnitude affects stock returns in a large extend.

In Kenya, profit warning is a mandatory disclosure for firms listed at NSE and firms which fail to issue profit warnings as per legal notice no 60 of May 2002 are likely to face sanctions as some firms have been punished before. For example, in 2012 CMC Motors was penalized by CMA for failing to comply with some corporate governance requirements as required by the CMA Act (CMA, 2014)

1.1.2 Stock Returns

According to Investopedia, a stock represents a share of ownership in a corporation/Company while returns can be described as the gains expected by an investor from investing in an asset. The goal of every investor is to obtain a fair return from their investment. These returns are measured in the form of dividends paid or capital gains/losses. In most cases, dividends are paid by firms at the end of the year and thus investors focus mainly on price movements of the stocks they hold to assess their returns.

Ross et al (2010) states that the return of stock traded in the financial markets is composed of two parts; The normal or expected returns which is dependent on the information that the shareholders have that bears on the stock and is based on the market understanding of the important factors that will influence the stock in the coming year and the return that is uncertain and risky. This risky portion comes from unexpected information revealed within the year among them being profit warning announcement.

The return of a stock will be expressed as:

$$\text{Return of stock} = \frac{\text{Dividends} + \text{Capital Gains}}{\text{Investment}} = \frac{\text{Div1} + \text{P1} - \text{P0}}{\text{P0}}$$

Where

Div1 = Dividends

P1 − P0 = Capital Gains

P0 = Price at the beginning of the period

P1 = Price at the end of the period

According to Olowoniyi and Ojenike (2012), stock returns are affected by a number of factors which are either micro or macro. From their research, they identified that issues of stock returns are the most important reason for business growth or failure. They identified a firms expected growth, size, inflation, stock return policies as well as legal regime as the determinants of stock returns. Although dividends rank highly as one of the measures of returns on stock, there has been numerous criticisms on the payment of dividends by firms as per Miller and Modigliani 1961 dividend irrelevance theory. Supporters of the bird in hand theory, signaling theory and agency theory believe that dividend payments increase shareholders wealth and value. The value of a firm is also expressed as a sum of all the future earnings less investment expenditures. Previous researches indicated that stock returns are negatively correlated with market based debt ratio especially in firms that do not rebalance their debt ratios following periods of fluctuations in stock prices.

Er and Vuran (2012) in their research found out that stock returns are influenced by stock performance, financial structure of a firm, activity and profitability ratios. The prevailing exchange rate, money supply and beta of the firm were also found to significantly affect stock returns. In this research, inflation and a reduction in economic activity negatively affects stock prices and hence returns.

According to CMA (2014), holders of stock have the opportunity to buy new stock to diversify their portfolio or dispose the stock that they are holding for capital gains. The trading rules are issued by NSE to ensure that no unfair trading occurs. NSE also oversees the firms listed at NSE to ensure that they are compliant with the capital markets requirements. Investors (current and

potential) can acquire or dispose their stock at NSE with the help of stock brokers or investment banks.

1.1.3   Profit Warning and Sock Returns

Profit warnings are voluntary disclosures of bad news by company management prior to the actual announcements. These warnings in most cases can be either qualitative or quantitative. EMH indicates that any new information is immediately incorporated in the prices of stocks and therefore, the prices of stocks will be correctly priced (Lindner et al, 2010). Signaling theory on the other hand indicates that profit warnings just like dividend signaling theory, sends information to the investors that future expected or anticipated dividends will be less and thus, Kiminda, Githinji and Riro (2014), indicate that this negative signal will lead to a decline in stock prices hence decline in returns.

Studies in behavioral finance have found out that investors overreact or underreact in the market especially where new information sets in contrary to the EMH thus causing a more than appropriate effect on security prices. In so doing, Hede (2012) states that investors overreact to bad news driving the stocks prices down disproportionately.

Maarten (2011) and Dons and Sletness (2013), both agree that profit warnings serve as bad news and thus investors react in a stronger way to bad news than to good news. However, Herrerias et al (2003) argues that although the returns are negative around the time of the announcement, there is a drift which is likely to occur after six months that will reverse the negative trend with some small positive returns.

Donker and Church (2010) in their research argue that negative stock returns following profit warning announcements can be reversed if companies issue detailed qualitative and quantitative information. They further argues that openness by firms that issues multiple successive profit warnings will be rewarded with a dampened market reaction on the share prices.

Tserendash and Xiaojing (2010) on the other hand argues that firms need to be more tactful when they are releasing profit warnings because the level of transparency and the content of the warning affect the security prices of the firm most negatively. They further argue that when firms think about the likely implications of non-disclosure, they would rather prefer to disclose than fail to. In this study, the conclusions reached at are consistent with the findings of other researches that indicate that profit warnings negatively affect stock returns.

1.1.4   Nairobi Securities Exchange

The origin of Nairobi Securities Exchange (NSE) can be traced to 1920's when Kenya was still a British colony. At that time, formal trading rules and regulations that governed stock broking activities were non-existent and trading was dominated by auctioneers, estate agents and lawyers. The market was formally constituted in 1954 following the establishment of a professional stock broking firm in 1951 by Francis Drummond and registered under the Societies Act. The market however was only open to resident European community until after Kenya's independence in 1963, though there was market slump due to the uncertainties surrounding the new political system and massive emigration of the European settlers.

According to NSE (2014), other significant milestones in the history of the NSE include the 1988 privatization of Kenya Commercial Bank through sale of a 20% government stake, February 18, 1994 when the 20-Share Index recorded a record high of 5030 points with a return of 179% , July 1994 where a computerized delivery and settlement system (DASS) was established and the licensing of 8 new brokers, 1996 privatization of Kenya Airways, Monday11 September 2006 when live trading on the automated trading systems was implemented, the use of Wide Area Network in 2008, the automation of trading in government bonds in 2009 as well as the admission of NSE as a member of Financial Information Services Division (FISD). Currently, there are 63 companies listed at NSE. These companies are grouped depending on the sector or industry in which the company is operating.

According to NSE (2014), NSE is licensed and regulated by the Capital Markets Authority (CMA) and therefore in exercise of its duties, Capital Markets Authority has made it a mandatory requirement for all companies listed at the NSE to inform the company announcement office of any material discrepancy in its earnings before a profit warning is issued as per legal notice no 60 of 2002. As of 30th June 2014, a total of 16 firms listed at NSE had issued profit warnings in line with the regulatory requirements'.

According to Kiminda, Githinji and Riro (2014), NSE comprises approximately 63 active listed companies trading over US $5 million with market capitalization of approximately US $15billion and trading in government bonds averaging US$ 60 Million on a daily basis. Trading at NSE is automated and is done through Automated Trading System (ATS) which is also linked to Central Bank of Kenya (CBK) and Central Depository System (CDS). This trading of stocks and other securities at NSE is regulated by the CDS Act 2000, CMA Act Cap 485A and the trading rules

and regulations issued by NSE which are approved by the CMA. Firms listed at NSE are required to disclose any material information for example, the issue of new shares, bonus issue, stock splits as well as any payment of extraordinary dividends to CMA. The fluctuations in the daily prices for any security in a single trading session is capped at 10% except during major corporate announcements with short selling and same day turn around transactions being prohibited (Kiminda, Githinji and Riro, 2014)

1.2 Research Problem

Security markets play a critical role in the growth and development of a country (Gichohi, 2013) and therefore the efficiency of the market is very important because current and prospective investors are keen to know if their stocks are correctly priced (Kioko, 2011). The efficiency of the securities market is measured by how fast and correctly securities reflect all (factual and predicted) information (Kiptoo, 2006).

Previous studies by Maarten (2011) and Dons and Sletness (2013) indicate that profit warning is considered as bad news by the market because it reveals the company's adverse future profitability and competitiveness. In the recent years, more companies have continued to issue profit warnings despite the negative impacts that it's believed to have on the company's stock returns. According to previous empirical studies, stock prices tend to fluctuate immediately after a negative information of earnings warning is disclosed by the company's management. This is more prevalent under efficient markets as per Efficient Market Hypothesis (EMH).

There are several studies that have been done in this area, however, most of these studies are mainly from the UK and US economies for example, Paulo, Peter and Young (2009), Tserendash and Xiaojing (2010) and Heesters (2011) with few studies from the Kenyan market or other developing markets. Previous studies, have also concentrated their research over the period when the warnings were issued but failed to extent the research to the time when actual results are released to find out if stock returns were significantly different from the period before and after the announcements. Further, researches done by other scholars on the relationship between profit warnings and stock returns at NSE have employed different methodologies to analyze data. For example, Aduda and Chemarum (2010) used trading activity ratio while Ngugi (2003) used microstructure theory while Leonard (2012) and Michael (2013) used event study. Time has also elapsed since most of the studies were done and therefore it would be important to conduct other researches. This study therefore seeks to answer the following research question: - what are the effects of profit warnings on stock returns at NSE?

1.3 Research Objective

To analyze the effect of profit warnings on stock returns of firms listed at Nairobi Securities Exchange.

1.4 Value of the Study

This study will help fill the existing gaps in researches already done. It will also document and make available literature that will be used by other scholars and researchers in assessing whether the findings are consistent with those in developing markets or not thus proving ground for further research.

Current investors will be interested in this study because any change in stock returns will affect the investors' returns. Because of this, investors who seek to maximize their returns will be interested to know how profit warnings issued by firms they have invested in will affect their investments and what decisions they need to make at such times. It will also help them to understand the ability of management in maximizing the shareholders wealth and value. Further, potential investors will be keen to know whether they can invest in such companies or not.

Stock dealers and brokers will be interested in this study as it will help them to understand the relationship between profit warnings and returns. Dealers will be able to know which stocks to buy and which ones to sell while brokers on the other hand will be able to know how to approach different buyers and sellers when they are buying and selling their stock.

Listed companies are subject to various regulatory requirements. The regulators will be interested with the level of compliance by these firms to the regulations. This study will help regulators' to understand the effect of the various regulatory requirements on stock returns which will help them whenever they need to make changes to such regulations or when enforcing compliance.

This study will also help firm managers who are contemplating issuing profit warnings in future to better understand how profit warning announcements affect stock returns and therefore plan well in advance on the nature of the profit warning to be issued as well as the timing of when such a warning is to be issued.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter we will examine what other researchers and scholars have done. This covers the theoretical framework, determinants of stock returns, empirical literature and a summary of the literature.

2.2 Theoretical Framework

2.2.1 Agency Theory

The agency theory traces its origin to 1972 when Stephen Ross presented a paper published in AER proceedings issue in May 1973 building on the theory of the firm. In 1976, Jensey and Meckling argued on the importance of separating the ownership of firms from control. According to Ross, agency relationship exists where two parties one called agent acts on behalf of the other "principal" in a particular domain of decision problems. In most cases, an agency problem arises where the agent acts in a manner inconsistent with the expectation of the principals. With this conflict of interest there was need to separate ownership of firms from control and this was consistent with the views of Adam Smith (1776).

There are several reasons why principal agent relationship exist. First, shareholders (principals) are at times too many and are geographically dispersed hence they may not be available to actively manage the firm. Secondly, these shareholders may not be possessing the necessary skills required to run the organization and thus the need to engage specialized personnel to run the companies. To minimize the agency problem, Jensey and Meckling (1976) indicate that firms must be willing to incur agency costs to monitor the agents. Bowny et al (n.d) define agency costs as the total cost of monitoring, bonding and residual loss.

The activities that firm agents engage in have a direct impact on a firms stock returns because it can either increase or decrease the returns that investors expect. When Investors engage agents, they expect that the agents will engage in activities that will maximize their wealth. In the quest to fulfil their agency duties, CMA legal notice no. 60 of 2002 requires agents to notify the shareholders and the market of any material changes in the firm that will affect the returns investors expect. For example, where there is a material decline in the firm's profits by about 25%, the firms agents are required to issue a profit warning as part of fulfilling their agency duties and also as a sign of good corporate governance.

2.2.2 Efficient Market Hypothesis

Efficient market hypothesis is a theory that has been studied extensively in finance and has received acceptance and criticism in equal measure. The term efficient means that today's stock prices incorporate all the information that is currently available to potential buyers and sellers. Efficient market hypothesis exists in three forms i.e. the strong, semi strong and weak form.

In the weak form of efficient market hypothesis, Fama (1998) believes that today's market prices of stocks incorporate all historical information about the stock and that analysis of past prices cannot give investors a competitive advantage. This argument is in agreement with the random walk hypothesis which states that stock prices are random and are not controlled by past trends. The concept of semi strong hypothesis is based on the argument that all published information is already included in the current stock prices

In the strong form of efficiency, current stock prices reflect all available information which could be known and that even insider and privileged information cannot be used by investors to make better than normal returns.

In the EMH, there is no relationship between profit warnings and stock returns because in an efficient market, all information is immediately incorporated in the stock prices and therefore there is no possibility that someone will make some unfair returns by beating the market because stocks are exchanged at their fair values (Lindner et al, 2010).

2.2.3 Signaling Effect Theory

According to Connelly et al (2011), Signaling theory is used to describe behavior between two parties who have access to different information. In this theory, the sender (firms) chooses how to relay some information to the recipients (stakeholders) and these recipients choose how to interpret the signals. From previous studies done, profit warnings serve as bad news to investors and therefore, when a company issues a profit warning, such warnings serve as signals to the market that, stock returns shall be lower in the coming days. However, Bhattacharya and Amy (2001) argues that a good firm can separate itself from a bad firm by issuing a costly signal and attracting scrutiny from the market and therefore we consider profit warning announcements as an example of such a costly signal.

According to Mungai (2011), signaling theory is beneficial if it is true because the market must be able to rely on this information and therefore a firm's management should first possess the information and prospects as well as have incentives to convey this information to the market.

In finance, signaling theory has been used in a number of studies. For example, Hobbs & Schneller (2012) used signaling theory to study dividend signaling and sustainability, Hoffer (2006) study on corporate signaling and with multiple signaling costs as well as Seaton and Walker (1996) research on signaling, disclosure and implications of financial structure for UK corporate R&D. This theory has been extensively used in studies on dividend payment by firms.

Signaling theory is based on the assumption that information is not available to all parties at the same time. In the same way dividends serve as a signal of better returns to the investors as per dividend signaling theory, profit warning come as a shock to some investors and therefore in response to the information, researches done by Heesters (2011), Dons and Sletness (2013) among others have found that profit warnings lead to negative returns.

2.3 Determinants of Stock Returns

2.3.1 Inflation

Inflation refers to the general rise in the price of goods and services. Fama (1981), Green and Bhai (2008) as well as Kamini (2013), in their studies found out that there is a negative relationship between stock returns and inflation. Crosby (2001) indicates that increases in price levels reduce the real level of the stock price index.

Although inflation negatively affects stock returns, Groenewold et al (2010) states that this should not be a puzzle because this is an outcome of interactions in the whole economy. They further argue that inflation in itself does not directly affect stock returns but does so through

output and that the interest-sensitivity of an investment strengthens the overall negative effect while the income-sensitivity of the demand for money considerable weakness it.

2.3.2 Interest Rates

Interest is the price charged by commercial banks on loans. Interest rates influence the behavior of both current and potential investors and it's the major cause of uncertainty for firms and thus a major area of concern to everyone including the regulators. Researches done by Green and Bhai (2008) and Kamini (2013) indicate that there is an inverse relationship between interest rates and stock returns. This is because when interest rates are high, there are few money in circulation due to low borrowing by both individuals and institutions and savings become attractive as well thus this affects that trading activities at the capital markets and vice versa (Aroni, 2011).

Uddin (2009) indicates that interest rates play a crucial role in the growth of any economy and as such, movements of interest rates have implication on monetary policies and risk management practices. His findings are consistent with those of other researchers that, there exists a negative relationship between interest rates and stock returns.

2.3.3 Economic Growth

Investopedia defines economic growth as the increase in the capacity of an economy to produce goods and services compared from one period to another. Economic growth is measured in terms of gross domestic product (GDP) and is usually associated with changes in technology, increased personal savings and labor participation (Ritter, 2005).

Yao, Jakob and Dzhumashev (2011) in their research indicate that there is a significantly positive relationship between stock returns and economic growth. It's also argued that investors prefer investing in those countries that have the largest potential growth. However, other researches done by Ritter (2005) and Wade (2013) indicate that although stock returns have a relationship with economic growth, there is no express consensus since this relationship is more prevalent during times of high output volatility.

2.4 Empirical Literature

According to Michael (2013), there is a steady decrease in stock returns up to the announcement day and a steady increase but at lower rate after the announcement depicting little increase in abnormal returns owing to absorption of the information into the stock prices with investors benefiting from the public information. The aim of this research was to find out the impact of profit warnings on stock value. In his research, a total of 13 firms that had issued profit warnings between 2005 and 2012 were selected. Quantitative data was collected and studied using events study model.

Augustine (2011), indicates that profit warnings results into abnormal returns which negatively revalues a firm. His study focused on the information content of profit warning announcements by studying 14 firms that had issued profit warnings between 2010 and 2012. This study used daily adjusted price for sample stocks over a period of 31 days which was analyzed using events study methodology and abnormal returns calculated using the market model.

According to Olowonyi (2012) stock returns are affected by the expected growth and size of a firm and that efforts aimed at improving the size of a firm and adjustments of firm's tangibility to a positive side is suggested to improve the financial situation of firms through stock return.

Tserendash and Xiaojing (2010) conducted a research on the relationship between profit warnings and stock returns in the EU market covering a sample of 87 firms that issued profit warnings between 2008 and 2010. In their research, they used event study methodology while CAPM was used to calculate normal returns. Tserendash and Xiaojing (2010) argues that the impact of profit warning on stock returns is bigger for qualitative type of warning than quantitative types. The goal of this study was to find out the impact of profit warnings on stock returns.

According to Church and Donker (2009), a greater degree of disclosure positively impacts the abnormal returns of firms with multiple successive profit warnings significantly. In their study, they of the view that firms can diminish negative influence of profit warning on shareholder returns by releasing a detailed information. The purpose of their study was to examine the influence of profit on shareholder returns and to investigate the information content that maximizes shareholders value.

Alves, Pope, and Young (2011) in their research indicate that the disclosure of negative earnings surprises by firms in one country affect investors' perceptions of comparable non-announcing firms in other countries because profit warnings are considered as bad news. However, markets respond positively for a large proportion of non-announcer. This study was based on a sample of

4,283 firms drawn from 29 European countries as well as 1,357 profit warning issued by firms in 20 countries. The results were analyzed using market adjusted returns.

Spohr (2014) in his research indicate that firms' stock prices respond differently to profit warnings depending on the riskiness of the firm and if the warning is more surprising to the market. Spohr in his study used a framework of surprise and risk to explain the response of profit warnings using a sample of 474 firms (356 positive warnings and 118 negative warnings) collected from Nasdaq OMX Nordic from 2005 to 2011. Events study method was used to study the response of market to profit warning while abnormal returns were computed using the market model.

According to Elayan and Pukthuanthong (2008), openness by firms while releasing information should be rewarded. The irony in this is that, studies indicate the market responds negatively around the announcement dates with the magnitude being around -17% over a 2 day announcement period. This research was conducted with an aim of establishing why firms voluntarily release earnings forecast in advance, how long such news lasts as well as the long term operating performance of both the stock and the warning firms.

Jackson and Madura (2003), indicate that foreign firms are punished when they issue profit warnings and that market participants with inside information capitalize on market inefficiencies. Their study focused on profit warnings and the pricing behavior of ADRs using a sample of 110 firms that had issued profit warnings from October, 1998 to September, 2001. This research used the event study methodology to analyze data.

Heesters (2011), in his research found out that the market reacts more negatively to qualitative profit warning announcements than quantitative announcements with negative cumulative abnormal returns of about -8.79% during the event window. The research findings in this study were consistent with those of Tserendash and Xiaojing (2010). This study focused on 117 firms listed in Euronext Amsterdam between 2001 and 2007. The aim of this research was to find out how the market reacts to the different types of profit warnings. Data collected was analyzed using event study methodology.

2.5 Summary of Literature Review

EMH is of the opinion that no relationship exists between profit warnings and stock returns because any new information is immediately incorporated in a firms stock. Signaling theory and the agency theory on the other hand both concur that there is a significant relationship between profit warnings and stock returns because when firms issue profit warnings, such warnings serve as a signal to the market that the firm may not be doing well and that the firms' future returns are likely to be affected. As a result of this, the market reacts leading to abnormal returns due to overreaction to the information.

From a further review of literature, it emerges that profit warning is not only an area that has generated a lot of interest not only to investors and management of firms but also to other stakeholders. Although profit warnings are voluntary disclosures, previous studies show that firms disclose such information for diverse reasons key among them is to avoid being punished by the shareholders through law suits and overreaction to the information. Over time, most

markets have seen an increase in the number of firms that continue to issue profit warnings despite studies revealing negative market reaction. To encourage disclosure, laws and regulations have been passed setting the criteria upon which firms can issue profit warnings. In Kenya, such regulations were issued by CMA which is the regulator of NSE. Firms which fail to issue profit warnings are likely to face sanctions from the regulators.

From the literature, most of the studies available on profit warnings are from the developed countries like US and UK with few studies from less developed markets like Kenya. Further, different studies used different methodologies to carry out their research hence the need to further carry out researches in this area and more so, in developing countries like Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In this chapter we discuss about the research methodology that was used in the study. This includes the research design, population of study, sample and sample design, data collection and analysis methods.

3.2 Research Design

This study used descriptive design using an event study methodology. Event study methodology is a method which used to measure the effect of an event on the price of a security. According to Craig MaCkinlay (1997), this methodology has many applications for example, in accounting and finance, event study has been used to study mergers and acquisitions, the issue of new debt as well as warnings announcements.

Events study methodology operates on the assumption that in an efficient market stock prices respond tonew information immediately (MaCkinlay, 2009). Moreover, many researches done in this area of profit warnings have used event study. For example, Michael (2013), Wang and Tumurkhuu (2010), Elayan and Pukthuanthong (2009), Jackson &Madura (2010) and Leonard (2012) all used event study methodology in their research. The use of event study method is that, the event has an immediate impact on the asset price which can be measured by observation of shorter time periods in comparison with the direct measure method which need longer time period observations.

3.3 Population of Study

The population used in this study was all the 63firms listed at NSE as at June 2014 (Appendix 1)

3.4 Sample and Sample Design

Our sample was made up of 13 listed firms that had issued profit warnings during the years 2010 to December 2013(Appendix 1)

3.5 Data Collection Methods

This study relied on secondary data collected from NSE daily market reports, corporate announcements as well as published data in the company's and NSE websites.

3.6 Data Analysis

In our research, we used quantitative methods to analyze the effect of profit warnings on stock returns. Information on daily closing stock prices was collected and used to calculate the effect of profit warnings on stock returns.

Through the event study methodology, we identified the event (profit warning), calendar date of the event (profit warning announcement date, t=0), events window (-15, +15days) and a medium period 90 days following the profit warning. The choice of a 90 day parameter estimation period was based on Bulkley & Herrerias (2005) and Michael (2013) where they indicated 90 days to be satisfactory in coming up with a benchmark for normal returns. Further, other researches have used a period longer than 90 days. For example, Kioko (2011), Wang &Tumurkhuu (2010) and Njagi (2010) used 100, 135 and 130 days respectively. According to Bowman (1983), it was

important to correctly identify the event date because, missing it leads to missing the observations of the impact of the event.

To fully measure the impact of an event, MaCkinlay (2009), indicates that normal and abnormal returns need to be calculated. Normal returns are returns that would be expected if the event does not occur while the abnormal returns are the actual ex post returns of the asset over the event window minus the normal returns over the event window. In this research our focus was to find out the effect of these warnings on stock returns. We used statistical methods to compute the abnormal returns (AR) after we analyzed the results to obtain the Cumulative Abnormal Returns (CAR).

The time line for the event was represented by

	Estimation period		Event period			Post-event period	
-90		-15		0	15		90
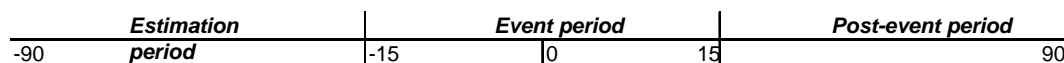
In our study, we used the NSE 20 share index as the benchmark for computing abnormal returns. The NSE 20 share index is a capital weighted price index for the top 20 most liquid listed firms. Abnormal returns was computed using the market model and t-tests conducted to test significance because several studies previously done Wang &Tumurkhuu (2010), Bulkley & Herrerias (2005) and Jackson & Madura (2003) on event study indicated that the market model was the most preferred and best tool. OLS estimator was used to obtain α and β.

In this study we computed abnormal returns as

$AR_{it} = R_{it} - (\alpha_{i} + \beta_{i}R_{mt})$

Where;

AR_{it} = Abnormal return of stock i at day t

R_{it} = Return of stock from day t

R_{mt} = market return for day t

α and β = constants

Cumulative abnormal returns was computed as

$$CAR_{iT} = \sum_{t=1}^{T} AR_{it}$$

Where:

CAR_{iT}– cumulative abnormal return on *i* share obtained in the event window *T*,

T – The event window

Standardized abnormal returns was also be computed as

$$SCAR_{iT} = \frac{CAR_{iT}}{S(CAR_{iT})}$$

Where S(CAR_{iT}) is the standard deviation of CARs adjusted for forecast error.

Student t-test statistic was used to measure the statistical significance of the ARs and CARs reported during the event day and the interval around the event date at a 5% significance level. T-test statistic assumes that sampling distribution is normally distributed.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter summarizes how the data was analyzed, results of the analysis as well as discussions.

4.2 The Estimation Model

In this study, we used event study methodology where the market model was used to compute the abnormal returns as shown by the model below.

$AR_{it} = R_{it} - E(R_{it})$

Where

$E(R_{it}) = -0.0155 + 0.8681R_{mt}$

Where α is -0.0155 and B is 0.8681. The daily closing stock prices and dividends paid by the firms during the period under study for each of the 13 firms under study as well as the NSE 20 share index was collected from Nairobi Securities Exchange for a period of 106 days. To obtain alpha (α) and beta (β) of the firms, a regression of the stock returns on the market returns (NSE 20 share index) during the estimation period from -90 days to -16 days was conducted. Alpha and beta of the firms was thereafter used to compute the estimated returns of the firms and thereafter the abnormal returns. Abnormal returns are computed by subtracting the estimated returns from the return of the market. Abnormal returns measures the daily average abnormal return of a warning stock while cumulative abnormal return records the cumulative value of all AR up to each day. In this study we used Excel to analyze the data and the results presented as

per the tables and figures below. T-test statistic was also used to estimate the significance levels of the results at 5%.

In this study, we used the mean abnormal returns and mean cumulative abnormal returns to test the effect of profit warning on stock returns. Previous studies conducted by Wang & Tumurkhuu (2010), Bulkley & Herrerias (2005), Jackson & Madura (2003), Asudi (2013), Kioko (2011) and Njagi (2010) all used the mean abnormal and mean cumulative abnormal returns. Wang and Tumurkhuu (2010) indicates that single event observations are not very useful and thus recommended the use of aggregated numbers to make overall conclusions. The aggregation is done through time and across securities. To achieve this, it's assumed that there is no overlap in the event windows of the firms under study with abnormal returns and cumulative abnormal returns being independent across securities.

The mean abnormal returns was obtained by averaging the abnormal returns for each of the firms for each the days during the event window while the mean cumulative abnormal returns (CAR) was obtained by summing the value of the mean abnormal returns(AR) up to each day. The mean standardized abnormal returns (SAR) was obtained by dividing the mean abnormal returns with the standard deviation of the mean abnormal returns while the standardized mean cumulative abnormal returns (SCAR) was obtained by dividing the mean cumulative returns with the standard deviation of the mean cumulative abnormal returns.

4.3 Summary Statistics of Abnormal Returns

In this study, we analyzed a sample of 13 firms that had issued profit warnings between 2010 and 2013 and the results presented as per the tables and figures below.

Table 4.1: Mean Abnormal Returns and Cumulative Abnormal Returns for all sampled firms.

Days	ARit	Standard Deviation of ARit	Standardized ARit	T test	P Values
-15	0.0666	0.0146	4.5713	0.7129	0.4895
-14	0.0726	0.0424	1.7112	0.7768	0.4523
-13	-0.1027	0.0524	-1.9614	-1.0984	0.2936
-12	-0.1322	0.0268	-4.9308	-1.4141	0.1828
-11	0.0535	0.0246	2.1717	0.5723	0.5777
-10	-0.1101	0.0308	-3.5708	-1.1779	0.2617
-9	-0.0718	0.0132	-5.4481	-0.7683	0.4572
-8	0.2329	0.0357	6.5229	2.4914**	0.0284
-7	-0.0052	0.0390	-0.1343	-0.0560	0.9562
-6	0.0637	0.0158	4.0177	0.6810	0.5088
-5	-0.0189	0.0164	-1.1484	-0.2018	0.8435
-4	-0.1174	0.0334	-3.5186	-1.2558	0.2331
-3	0.0467	0.0158	2.9591	0.4993	0.6266
-2	0.0456	0.0167	2.7277	0.4874	0.6348
-1	-0.0535	0.0126	-4.2367	-0.5717	0.5781
0	0.0010	0.0134	0.0725	0.0104	0.9919
1	-0.3225	0.0380	-8.4877	-3.4494**	0.0048

2	-0.2804	0.0343	-8.1817	-2.9995**	0.0111
3	0.0715	0.0129	5.5325	0.7651	0.4590
4	0.0248	0.0251	0.9893	0.2654	0.7952
5	0.0830	0.0247	3.3593	0.8880	0.3920
6	0.1606	0.0259	6.2078	1.7184	0.1114
7	0.0703	0.0238	2.9538	0.7522	0.4664
8	0.0117	0.0279	0.4203	0.1256	0.9021
9	-0.0510	0.0233	-2.1908	-0.5452	0.5956
10	-0.1183	0.0268	-4.4129	-1.2658	0.2296
11	0.0548	0.0147	3.7355	0.5865	0.5684
12	-0.1010	0.0216	-4.6653	-1.0804	0.3012
13	0.0346	0.0199	1.7384	0.3702	0.7177
14	0.0497	0.0191	2.5968	0.5319	0.6045
15	-0.0916	0.0250	-3.6620	-0.9803	0.3463

** Denotes statistical significance at 5% significance level

From table 4.1, we note that in 14 days out of the 31 day event window, there were negative abnormal returns. One day after the event date, profit warning firms registered abnormal returns that were statistically significant at 5% significance level (t=-3.4494, P= 0.0048) and on the third day at (t=-2.9995, P=0.0111).

Table 4.2: Mean Cumulative Abnormal Returns for all sampled firms.

Days	CARit	Standard Deviation of CARit	T-test	P Value
-15	0.0666	0.0146	4.5713	0.0006
-14	0.1393	0.0390	3.5696	0.0039
-13	0.0366	0.0735	0.4977	0.6277
-12	-0.0956	0.0781	-1.2249	0.2441
-11	-0.0421	0.0912	-0.4615	0.6527
-10	-0.1522	0.0999	-1.5240	0.1534
-9	-0.2240	0.1044	-2.1450	0.0531
-8	0.0089	0.1110	0.0798	0.9377
-7	0.0036	0.1309	0.0276	0.9784
-6	0.0673	0.1368	0.4920	0.6316
-5	0.0484	0.1335	0.3627	0.7231
-4	-0.0690	0.1300	-0.5308	0.6053
-3	-0.0223	0.1362	-0.1638	0.8726
-2	0.0233	0.1263	0.1841	0.8570
-1	-0.0302	0.1298	-0.2326	0.8200
0	-0.0292	0.1359	-0.2150	0.8334
1	-0.3517	0.1418	-2.4797**	0.0290
2	-0.6321	0.1628	-3.8822**	0.0022
3	-0.5605	0.1636	-3.4258**	0.0050
4	-0.5357	0.1636	-3.2754**	0.0066
5	-0.4527	0.1708	-2.6506**	0.0212
6	-0.2921	0.1638	-1.7831	0.0999
7	-0.2218	0.1636	-1.3552	0.2003
8	-0.2100	0.1569	-1.3383	0.2056

9	-0.2610	0.1557	-1.6762	0.1195
10	-0.3793	0.1523	-2.4902**	0.0284
11	-0.3245	0.1605	-2.0224**	0.0660
12	-0.4255	0.1605	-2.6509**	0.0211
13	-0.3909	0.1732	-2.2566**	0.0435
14	-0.3412	0.1766	-1.9324**	0.0773
15	-0.4328	0.1876	-2.3069**	0.0397

** Denotes statistical significance at 5% significance level

Figure 4.2 above shows the mean cumulative abnormal returns and from the table, it shows that in 23 days, there were high negative cumulative abnormal returns especially from a day after the profit warning announcement date to +15 at (t=-2.4797, P=0.0290), (t=-3.8822, 0.0022), (t=-3.4258, P=0.0050), (t= -3.2754, P=0.0066), (t=-2.6506, P=0.0212) and (t=-2.3069, P=0.0397) on the first, second, third, fourth, fifth and up to the fifteen day after the profit warning. The presence of negative cumulative abnormal returns from -1, +15 which are statistically significant indicate that the market takes long to recover from the effect of the profit warning announcements. From figure 4.2, we can conclude that the fluctuations in abnormal returns resume the initial pattern exhibited from days -15 to the event date after +3 days.

4.4 Analysis of Abnormal Returns

Abnormal returns were calculated based on the event window of -15 days to + 15 days i.e. for a period of 31 days. The figures below shows the results of the analysis. Figure 4.1 below shows the cumulative abnormal returns (CAR) over the event period. Negative abnormal returns are seen to be on the increase from the day after the warning announcement +1, +15. From the table,

it's evident that the market receives profit warnings as bad news and therefore high negative abnormal returns after the warning announcement which are statistically significant at 5% significance level where (t =-3.4494, P=0.0048) on day +1 and (t =-2.9995, 0.0111) on day +2 as exhibited in Table 4.1 above.

The presence of insider trading is also possible since on day -8, the market recorded some abnormal gains which are statistically significant at 5% significance level with a (t= 2.4914, P= 0.0284) and that some investors are likely to have taken advantage of this information to make some abnormal returns. The availability of negative abnormal returns before the announcement date indicates possible leakage of information before it was released and hence the negative reaction of the stocks.
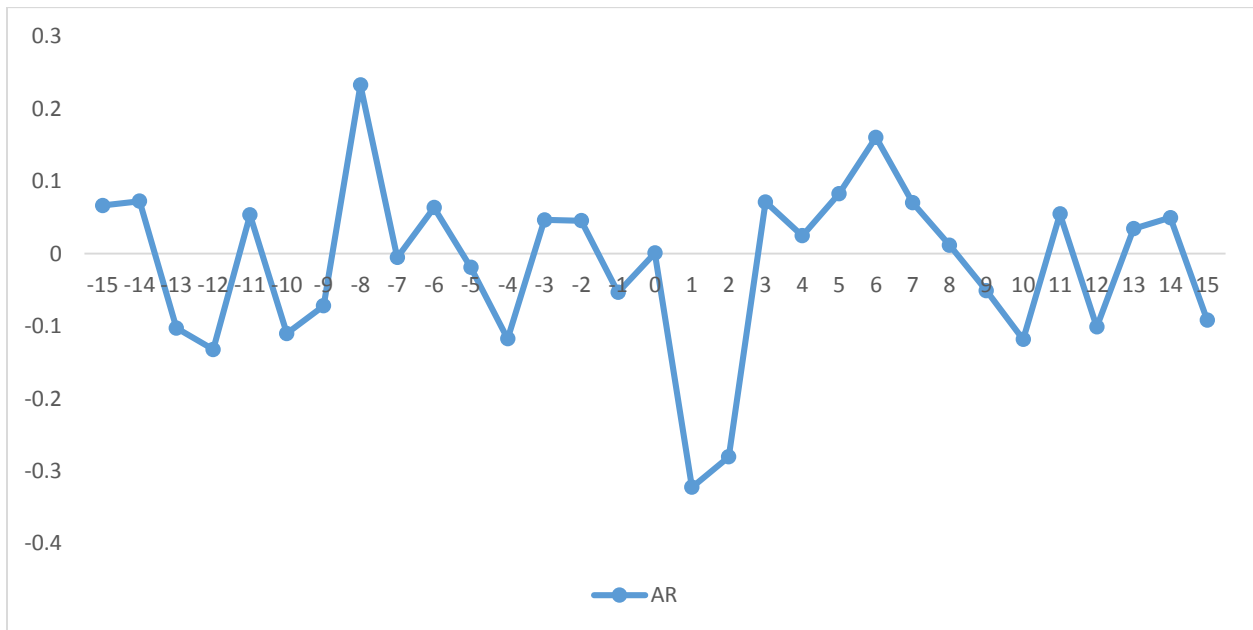
Figure 4.1: Graph of mean Abnormal Returns (AR) for all firms during the 31 day event window

From figure 4.1 above, we note that there is a sharp increase in negative abnormal returns from the event date to day +3. This sharp increase in AR is due to the overreaction of the market because of the unexpected news of a profit warning. From day t= +3, we notice a marked improvement in AR where it also resumes the initial pattern before the event date. This also confirms what other researchers had concluded that quantitative profit warnings are considered as bad news.
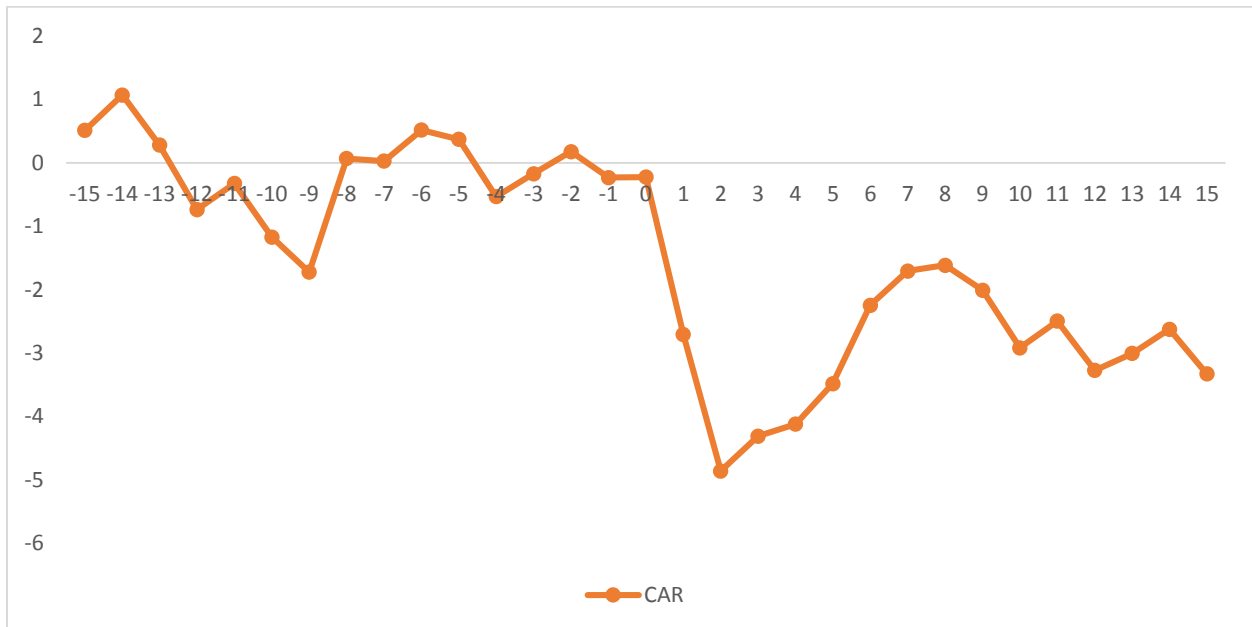
Figure 4.2: Cumulative Abnormal Returns for all the firms during the 31 day event window.

In figure 4.2 above shows the cumulative abnormal returns over the 31 day event window. In 22 out of the 31 day event window, firms that issued profit warnings registered high negative cumulative abnormal returns. On the first and second day following the profit warning, firms made cumulative abnormal returns that were statistically significant at 5%. The decline in returns

was so high that even by day +15, the cumulative abnormal returns were still negative. During this period, investors continued to make losses despite a slight improvement in the abnormal returns from day 3 to day 8 (+3, +8). The improvement in the returns is so small in that it cannot reverse the effects of the profit warnings so that by day +15, the effects of the profit warning announcement was still being felt.

4.5 Chapter Summary

In this study, we conclude that there are significant negative returns following a profit warning announcement at NSE. During the 31 day event period, there was a significant cumulative loss of up to -43%. The presence of negative abnormal returns indicates that NSE is inefficient since according to efficient market hypothesis, prices of stock immediately incorporate all information into the stock hence no abnormal returns.

We also conclude that it's very difficult for investors to make positive returns from firms that have issued profit warnings especially from a day after the profit warning as evidenced with the negative cumulative abnormal returns which lasted even beyond 2 weeks after the announcement. This demonstrates indeed that profit warnings are bad news to investors and indeed affects stock returns.

CHAPTER FIVE: SUMMARY AND CONCLUSIONS

5.1 Introduction

This chapter provides a summary of final findings, recommendations and conclusions into the study on the effect of profit warnings on stock returns for firms listed at Nairobi Securities exchange (NSE). In addition, we also provide some suggestions for future research.

5.2 Summary of Key Findings

This study was conducted with an aim of establishing the effect of profit warnings on stock returns for those firms listed at NSE using the event study methodology over an event period of 31 days (-15, +15) with an estimation period of 74 days (-90, +16). From the research, we noted that there were negative AR and CAR from a day before the profit warning announcement up to day (+15). This means that stock returns are negatively affected by profit warning announcements. We also established that the market takes long to recover from the effects of profit warning announcements as seen after the profit warning date and lasting even and up to day +15, where CAR was still negative.

The study also found that there are possibilities of insider trading as seen that on day -8 (table 4.1 above) there were positive cumulative abnormal returns that were statistically significant at 5% with a t-test of 2.4913729 implying that investors on this day made positive abnormal returns. There is also a sharp decline in abnormal returns from the event date to -1 confirming that the market receives profit warnings as a shock and thus the high negative cumulative abnormal returns around the event date.

5.3 Conclusions and Recommendations

From this study, we conclude that stock returns are negatively affected by profit warnings as evidenced by the highly negative cumulative returns that are statistically significant as shown in Table 4.2 at (t=-2.4797, P=0.0290), (t=-3.8822, 0.0022), (t=-3.4258, P=0.0050), (t= -3.2754, P=0.0066), (t=-2.6506, P=0.0212) and (t=-2.3069, P=0.0397) for the first, second, third, fourth, fifth and fifteen day shows that the market receives profit warnings announcements as bad news and thus the highly negative returns around the announcement date and therefore firms that are considering to be listed at NSE should be aware that profit warnings lead to negative abnormal returns as investors react negatively to such news.

We recommend that regulators need to be keener in enforcing compliance among firms so as to ensure adequate disclosure is done by firms because firms are likely to shy from making complete disclosures due to the fear that the market will react negatively if they were to provide a detailed profit warning announcement.

Secondly, we recommend that firms that have issued more than one profit warnings should reevaluate themselves so as to establish the factors affecting their performance because a profit warning can act as a pointer to a deeper problem within the firm of which action may need to be taken.

Finally, we recommend that potential investors as well as stock brokers and analysts need to pay attention to profit warnings issued by firms as this affects the returns that will be derived from

the firms issuing such warnings. This will help in minimizing the expected loss an investor is likely to suffer from investing in a firms stock.

5.4 Limitations of the Study

This study is limited to only those firms that are listed at Nairobi securities exchange and had issued profit warning during the period under study. The number of firms that had issued profit warning is smaller and thus higher the chances of bias setting in especially when sorting and eliminating firms with other news. Further, some firms issued more than one profit warning during the period under review and therefore there are possibilities of some confounding effects on the results of this study.

The unavailability of data from CMA, NSE and the company websites as to what actually motivated these companies to issue a profit warnings is also a limitation to the study as its difficult to conclusively and objectively determine such reasons because other than the regulatory requirements, there may be other reasons for such a move. Currently, there is no database that shows profit warning firms and thus one is forced to rely on information obtained from the media and company websites.

5.5 Recommendations for Further Research

We recommend that future research to focus on those firms which have issued profit warnings more than once as well as those issuing qualitative types of profit warnings to ascertain if the returns of those firms are significantly different during the subsequent warning or it's just at the same level as the first warning. The research can also focus on establishing whether firms issuing profit warnings more than once could be having corporate governance issues.

Future researches can also be conducted on those firms that issue profit warning announcements together with financial statements to ascertain the extent to which stock prices and returns are affected. Further, a research should also be conducted to find out if profit warnings affect stock returns of those firms which have been cross listed in other countries.

Finally, a research need to be conducted to test if the effects of profit warning announcements vary according to the size of the company and the sector in which the firm operates in.

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APPENDICES

Appendix 1 – List of Companies Listed at Nairobi Securities Exchange

AGRICULTURAL

1. Eaagads Ltd *
2. Kakuzi Ltd *
3. Kapchorua Tea Co. Ltd *
4. The Limuru Tea Co. Ltd
5. Rea Vipingo Plantations Ltd
6. Sasini Ltd *
7. Williamson Tea Kenya Ltd

AUTOMOBILES & ACCESSORIES

8. Car & General (K) Ltd
9. CMC Holdings Ltd *
10. Marshalls (E.A.) Ltd
11. Sameer Africa Ltd

BANKING

12. Barclays Bank of Kenya Ltd
13. CFC Stanbic of Kenya Holdings Ltd
14. Diamond Trust Bank Kenya Ltd
15. Equity Bank Ltd

16 Housing Finance Co. Kenya Ltd

17 I&M Holdings Ltd

18 Kenya Commercial Bank Ltd

19 National Bank of Kenya Ltd

20 NIC Bank Ltd

21 Standard Chartered Bank Kenya Ltd

22 The Co-operative Bank of Kenya Ltd

COMMERCIAL AND SERVICES

23 Express Kenya Ltd *

24 Hutchings Biemer Ltd

25 Kenya Airways Ltd *

26 Longhorn Kenya Ltd *

27 Nation Media Group Ltd

28 Scangroup Ltd

29 Standard Group Ltd

30 TPS Eastern Africa Ltd

31 Uchumi Supermarket Ltd

CONSTRUCTION & ALLIED

32 ARM Cement Ltd

33 Bamburi Cement Ltd

34 Crown Paints Kenya Ltd

35 E.A.Cables Ltd

36 E.A.Portland Cement Co. Ltd

ENERGY & PETROLEUM

37 KenGen Co. Ltd

38 KenolKobil Ltd   *

39   Kenya Power & Lighting Co Ltd

40   Kenya Power & Lighting Ltd 4% Pref 20.00

41   Kenya Power & Lighting Ltd 7% Pref 20.00

42   Total Kenya Ltd   *

43 Umeme Ltd

INSURANCE

44   British-American Investments Co.(Kenya) Ltd   *

45   CIC Insurance Group Ltd

46   Jubilee Holdings Ltd

47   Kenya Re Insurance Corporation Ltd

48   Liberty Kenya Holdings Ltd

49   Pan Africa Insurance Holdings Ltd

INVESTMENT

50   Centum Investment Co Ltd

51   Olympia Capital Holdings Ltd

52 Trans-Century Ltd *

MANUFACTURING & ALLIED

53 A. Baumann & Co Ltd

54 B.O.C Kenya Ltd

55 British American Tobacco Kenya Ltd

56 Carbacid Investments Ltd

57 East African Breweries Ltd *

58 Eveready East Africa Ltd *

59 Kenya Orchards Ltd

60 Mumias Sugar Co. Ltd *

61 Unga Group Ltd

TELECOMMUNICATION & TECHNOLOGY

62 Safaricom Ltd

GROWTH ENTERPRISE MARKET SEGMENT (GEMS)

63 Home Afrika Ltd *

* Companies that issued profit warnings.

Appendix 2. NSE 20 Share Index Constituent firms

1. Athi River Mining.

2. Bamburi Cement Ltd.

3. Barclays Bank of Kenya Ltd.

4. British American Tobacco Kenya Ltd.

5. CMC Holdings Ltd.

6. The Co-operative Bank of Kenya Ltd.

7. East African Breweries Ltd.

8. Equity Bank Ltd.

9. Express Ltd.

10. KenGen Ltd.

11. Kenya Oil Co Ltd.

12. Kenya Airways Ltd.

13. Kenya Commercial Bank Ltd.

14. Kenya Power & Lighting Ltd.

15. Mumias Sugar Co. Ltd.

16. Nation Media Group Ltd.

17. Rea Vipingo Ltd.

18. Safaricom Ltd.

19. Sasini Tea & Coffee Ltd.

20. Standard Chartered Bank Ltd.

Appendix 3: Abnormal Returns for all sampled firms

	COMPANY												
	Kapchorua	Kenya Airways	Eaagads	Kakuzi	Express	Eveready	Sasini	Longhorn	Mumias	Total	Kakuzi	EABL	British American
Day	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}
-15	0.0054	0.0106	-0.0018	0.0014	0.0100	0.0288	0.0315	-0.0003	-0.0185	-0.0172	-0.0005	-0.0054	0.0179
-14	0.0474	-0.0100	-0.0031	-0.0258	0.0474	-0.0891	-0.0339	0.0006	0.0018	0.0171	0.0901	0.0010	0.0328
-13	0.0017	-0.0025	-0.1671	-0.0034	0.0454	-0.0358	0.0061	-0.0157	-0.0046	0.0627	-0.0025	0.0140	0.0203
-12	0.0028	0.0085	-0.0420	-0.0005	-0.0154	0.0255	-0.0289	-0.0096	-0.0130	0.0023	-0.0756	-0.0012	0.0293
-11	0.0013	-0.0148	-0.0328	0.0170	0.0158	0.0027	-0.0076	-0.0031	-0.0030	0.0051	0.0790	0.0105	0.0078
-10	0.0389	0.0292	-0.0479	0.0006	-0.0439	0.0115	0.0205	-0.0265	-0.0005	0.0234	-0.0651	-0.0080	0.0020
-9	0.0056	-0.0180	-0.0116	0.0013	0.0067	-0.0056	-0.0276	-0.0351	0.0075	0.0054	-0.0008	0.0001	-0.0134
-8	-0.0425	0.0025	-0.0006	0.0009	0.0258	0.0743	-0.0025	0.0060	0.0214	-0.0235	0.0669	-0.0018	0.0794
-7	0.0434	0.0021	-0.0036	-0.0119	-0.0098	-0.0530	-0.0776	0.0069	0.0071	-0.0036	0.0036	0.0063	0.0930
-6	0.0336	-0.0176	-0.0050	0.0242	0.0027	-0.0003	0.0042	-0.0300	0.0114	-0.0096	0.0088	0.0017	0.0078
-5	-0.0173	0.0152	0.0024	-0.0074	0.0145	0.0197	0.0029	-0.0018	0.0197	-0.0338	-0.0269	0.0074	0.0003
-4	0.0705	-0.0066	-0.0168	-0.0150	-0.0204	0.0354	0.0075	-0.0028	-0.0372	-0.0213	-0.0265	-0.0035	-0.0750
-3	0.0012	0.0272	-0.0054	0.0029	0.0176	0.0150	0.0100	-0.0089	-0.0079	-0.0290	-0.0081	0.0003	0.0306
-2	-0.0023	0.0000	0.0310	0.0007	0.0045	0.0143	-0.0149	0.0155	0.0303	0.0238	-0.0011	0.0008	-0.0299
-1	-0.0076	0.0132	-0.0129	0.0018	-0.0005	-0.0149	0.0130	-0.0319	-0.0082	-0.0209	-0.0018	-0.0169	0.0034
0	0.0042	0.0041	-0.0117	0.0056	0.0008	-0.0271	-0.0054	-0.0273	0.0216	-0.0140	-0.0019	0.0070	0.0042
1	0.0060	-0.0007	-0.0059	0.0032	0.0235	-0.0411	-0.0018	-0.0275	-0.1315	-0.0548	-0.0031	-0.0397	-0.0285
2	-0.0064	-0.0228	-0.1003	0.0042	0.0003	-0.0359	-0.0004	-0.0853	0.0068	-0.0111	-0.0016	0.0118	-0.0450
3	-0.0161	-0.0093	-0.0020	-0.0223	0.0122	0.0163	0.0139	0.0016	0.0042	-0.0011	0.0175	0.0173	0.0166
4	-0.0042	-0.0147	-0.0101	0.0049	-0.0017	0.0152	-0.0109	-0.0118	0.0799	-0.0011	-0.0269	-0.0051	-0.0135
5	-0.0038	-0.0128	-0.0156	0.0025	0.0471	0.0282	0.0043	-0.0025	-0.0220	0.0635	0.0212	-0.0157	0.0085

	COMPANY												
	Kapchorua	Kenya Airways	Eaagads	Kakuzi	Express	Eveready	Sasini	Longhorn	Mumias	Total	Kakuzi	EABL	British American
	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}	AR_{it}
6	-0.0017	0.0109	0.0436	0.0012	-0.0037	-0.0019	-0.0106	0.0165	0.0031	0.0887	0.0007	-0.0042	0.0211
7	0.0011	0.0084	-0.0160	0.0368	-0.0574	0.0084	-0.0067	0.0043	0.0474	-0.0029	0.0009	-0.0028	0.0082
8	-0.0541	-0.0103	0.0368	-0.0013	-0.0221	0.0417	0.0036	-0.0113	-0.0390	0.0192	-0.0105	-0.0012	0.0372
9	0.0028	-0.0075	0.0292	-0.0298	-0.0127	0.0167	0.0120	-0.0367	-0.0640	-0.0078	-0.0007	-0.0062	-0.0053
10	-0.0874	0.0089	0.0064	-0.0021	0.0292	-0.0255	0.0001	-0.0178	0.0154	-0.0011	0.0003	-0.0079	-0.0116
11	-0.0049	0.0021	-0.0018	0.0014	0.0076	-0.0084	0.0142	-0.0215	0.0066	0.0418	0.0005	-0.0023	0.0204
12	0.0009	0.0043	-0.0018	0.0014	-0.0633	-0.0282	0.0012	-0.0193	0.0325	0.0036	-0.0010	-0.0154	0.0072
13	0.0405	0.0068	-0.0317	0.0193	0.0280	0.0022	-0.0196	0.0037	0.0078	0.0017	-0.0010	-0.0153	0.0321
14	0.0018	0.0001	0.0444	-0.0005	0.0203	0.0063	-0.0050	-0.0258	0.0059	0.0383	-0.0010	-0.0210	0.0119
15	0.0172	-0.0215	-0.0442	-0.0018	-0.0224	-0.0109	-0.0254	-0.0213	0.0048	0.0149	0.0564	-0.0212	-0.0242

Appendix 4: Cumulative Abnormal Returns for all sampled firms

	COMPANY												
	Kapchorua	Kenya Airways	Eaagads	Kakuzi	Express	Eveready	Sasini	Longhorn	Mumias	Total	Kakuzi	EABL	British American Investment
	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}
-15	0.0054	0.0106	-0.0018	0.0014	0.0100	0.0288	0.0315	-0.0003	-0.0185	-0.0172	-0.0005	-0.0054	0.0179
-14	0.0528	0.0005	-0.0049	-0.0244	0.0574	-0.0603	-0.0024	0.0003	-0.0168	-0.0002	0.0896	-0.0044	0.0507
-13	0.0545	-0.0019	-0.1720	-0.0278	0.1028	-0.0962	0.0037	-0.0155	-0.0213	0.0626	0.0871	0.0095	0.0710
-12	0.0574	0.0066	-0.2140	-0.0283	0.0874	-0.0707	-0.0252	-0.0250	-0.0344	0.0648	0.0115	0.0084	0.1003
-11	0.0587	-0.0082	-0.2468	-0.0113	0.1033	-0.0680	-0.0328	-0.0281	-0.0373	0.0699	0.0905	0.0189	0.1081
-10	0.0976	0.0210	-0.2948	-0.0107	0.0594	-0.0566	-0.0123	-0.0546	-0.0378	0.0934	0.0254	0.0109	0.1101
-9	0.1032	0.0030	-0.3064	-0.0095	0.0660	-0.0621	-0.0399	-0.0897	-0.0303	0.0987	0.0246	0.0110	0.0967
-8	0.0606	0.0055	-0.3070	-0.0086	0.0918	0.0122	-0.0424	-0.0837	-0.0089	0.0753	0.0916	0.0092	0.1761
-7	0.1040	0.0077	-0.3105	-0.0205	0.0820	-0.0408	-0.1200	-0.0768	-0.0018	0.0717	0.0952	0.0154	0.2691
-6	0.1377	-0.0099	-0.3155	0.0036	0.0848	-0.0411	-0.1158	-0.1068	0.0096	0.0620	0.1040	0.0172	0.2769
-5	0.1204	0.0053	-0.3131	-0.0038	0.0992	-0.0214	-0.1130	-0.1087	0.0293	0.0282	0.0770	0.0245	0.2772
-4	0.1909	-0.0013	-0.3299	-0.0187	0.0788	0.0140	-0.1055	-0.1115	-0.0079	0.0069	0.0506	0.0210	0.2022
-3	0.1921	0.0259	-0.3352	-0.0158	0.0964	0.0289	-0.0954	-0.1204	-0.0158	-0.0221	0.0425	0.0213	0.2327
-2	0.1898	0.0259	-0.3042	-0.0151	0.1009	0.0432	-0.1104	-0.1049	0.0145	0.0017	0.0414	0.0220	0.2028
-1	0.1822	0.0391	-0.3172	-0.0133	0.1004	0.0283	-0.0974	-0.1368	0.0063	-0.0191	0.0396	0.0051	0.2062
0	0.1864	0.0432	-0.3289	-0.0077	0.1012	0.0012	-0.1027	-0.1641	0.0279	-0.0331	0.0377	0.0121	0.2105
1	0.1924	0.0425	-0.3348	-0.0045	0.1247	-0.0399	-0.1046	-0.1916	-0.1036	-0.0880	0.0346	-0.0276	0.1819
2	0.1860	0.0197	-0.4351	-0.0003	0.1250	-0.0758	-0.1049	-0.2769	-0.0969	-0.0991	0.0330	-0.0158	0.1370
3	0.1699	0.0104	-0.4371	-0.0226	0.1372	-0.0595	-0.0910	-0.2753	-0.0927	-0.1002	0.0504	0.0015	0.1536

	COMPANY												
	Kapchorua	Kenya Airways	Eaagads	Kakuzi	Express	Eveready	Sasini	Longhorn	Mumias	Total	Kakuzi	EABL	British American Investment
	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}	CAR_{it}
4	0.1658	-0.0042	-0.4472	-0.0177	0.1355	-0.0442	-0.1019	-0.2871	-0.0128	-0.1012	0.0235	-0.0037	0.1401
5	0.1620	-0.0171	-0.4628	-0.0152	0.1826	-0.0160	-0.0976	-0.2896	-0.0348	-0.0377	0.0448	-0.0193	0.1485
6	0.1603	-0.0061	-0.4192	-0.0140	0.1790	-0.0180	-0.1082	-0.2731	-0.0317	0.0510	0.0454	-0.0235	0.1696
7	0.1614	0.0023	-0.4352	0.0229	0.1216	-0.0096	-0.1149	-0.2688	0.0157	0.0480	0.0463	-0.0263	0.1778
8	0.1072	-0.0080	-0.3983	0.0216	0.0995	0.0322	-0.1113	-0.2801	-0.0234	0.0672	0.0358	-0.0274	0.2150
9	0.1100	-0.0155	-0.3691	-0.0083	0.0869	0.0489	-0.0993	-0.3168	-0.0874	0.0594	0.0351	-0.0336	0.2097
10	0.0226	-0.0067	-0.3627	-0.0103	0.1161	0.0234	-0.0992	-0.3346	-0.0719	0.0583	0.0354	-0.0416	0.1981
11	0.0177	-0.0045	-0.3645	-0.0090	0.1237	0.0150	-0.0850	-0.3562	-0.0654	0.1001	0.0360	-0.0439	0.2185
12	0.0186	-0.0002	-0.3662	-0.0076	0.0603	-0.0132	-0.0838	-0.3754	-0.0329	0.1037	0.0349	-0.0592	0.2257
13	0.0591	0.0066	-0.3979	0.0118	0.0884	-0.0110	-0.1033	-0.3717	-0.0251	0.1055	0.0339	-0.0746	0.2578
14	0.0609	0.0067	-0.3535	0.0112	0.1087	-0.0047	-0.1083	-0.3975	-0.0191	0.1438	0.0329	-0.0956	0.2696
15	0.0781	-0.0148	-0.3977	0.0094	0.0863	-0.0156	-0.1337	-0.4188	-0.0143	0.1587	0.0894	-0.1167	0.2454