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Do Earnings Announcement Have an Effect on the Level of Efficiency of The Nairobi Securities Exchange?

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Abstract

Capital markets are normally considered to be efficient when prices reflect all the available information. However, there are instances when this information takes several weeks to be incorporated into share prices. This leads to investors' making uninformed investment strategies on whether to hold or dispose shares thus unable to maximize returns. The study determined stock returns of firms listed in NSE and further determined the level of efficiency of NSE. An empirical evidence of anomalies for the study was obtained from 31 companies listed at the Nairobi Securities Exchange, which traded and announced their earnings in 2007. A data collection sheet was used to collect secondary data on market indices, daily closing share prices and traded volumes for a period of 15 days before and after earnings announcement. Daily market adjusted abnormal and cumulative abnormal returns were computed and a further t-test at 5% level of significance done to determine the effect of earnings announcement on stock returns and results interpreted. Earnings announcement had a significant effect on stock returns when CAR was evaluated indicating market inefficiency but AR was not significant for individual companies. From the findings of the study, it was concluded that the Nairobi Securities Exchange is not semi-strong form efficient. Therefore, the Capital Markets Authority should eliminate the factors causing market inefficiencies, in order to boost-to-boost investors' confidence.

Key words: Efficient Market Hypothesis, Abnormal Returns, Cumulative Abnormal Returns, and Nairobi Securities Exchange

1.0: INTRODUCTION

Capital markets are reported to be efficient when stock prices fully reflect all known information about the firms. Stock prices react and often continue to move in the same direction after a firm has made earnings announcement. A short term drift occurs when stock price movement related to the earnings announcement continue long after the announcement date as observed by Rendleman et al (1987).According to Jaffe et al. (2002), there are three kinds of reaction in share price to new information in efficient and inefficient markets. The efficient market response is that prices instantaneously adjust to and fully reflect new information. Secondly, there could be a delayed response; the prices adjust slowly to the new information. Lastly, there can be an overreaction; the prices over adjust to the new information and thus a bubble in price sequence. Efficient Market Hypothesis (EMH) advocates that prices should immediately adjust to reflect new information off loaded in the market. If prices continue to move more than investors would normally expect in a positive (negative) direction after an initial positive (negative) reaction to earnings announcement news Borjesson (2007). This is termed as an under reaction or momentum effect. Borjesson denotes that if the stock prices move in a positive (negative) direction more than investors would normally expect after an initial negative (positive) reaction to the earnings announcement news, this is termed as an overreaction or reversal. There are instances where business dailies have reported an abnormal reaction in a firm's share price on announcement of company's earnings. Investors who keenly observe the market will earn positive rates of returns on shares because of arbitrage opportunities. This makes the stock market inefficient, which is contrary to the efficient market hypothesis.

1.1 Statement of the Problem

Efficient market hypothesis dictates that in ideal situations, the market is efficient and share prices reflect all information including the surprise earnings announcements made by firms. In practice, there are cases where share prices have partially reflected the earnings information on the earnings announcement date. Investors find themselves in a state of dilemma on whether to hold the stocks and benefit from the long-run returns, or to trade the stocks by either buying or selling them depending on the nature of information released to the public. There being little conclusive empirical evidence done for the Kenyan stock market, that is, companies listed on Nairobi Securities Exchange (NSE), this study is an attempt to close the existing gaps by providing further insights on the best investment strategies to be adopted by investors.

1.2 Objectives

1. To determine the effect of earnings announcement on stock returns

2. To determine the level of efficiency of the Nairobi Securities Exchange

1.3 Hypothesis

Ho_1. There is no significant effect of earnings announcement on stock returns of listed firms.
Ho_2. Nairobi Stock Exchange is efficient at the semi- strong form.

2.0: LITERATURE REVIEW

The concept of efficient market hypothesis states that the financial markets are efficient when they provide information explicitly. This makes it impossible to exceed the overall market with the already known information. The only way that an investor can possibly obtain higher returns from such a market is by purchasing riskier investments. Firms on the other hand, should expect the present value of securities that they sell. The information or news in the efficient market hypothesis is defined as anything that may affect prices, which is transcendent in the present and thus appears in the future randomly. It can also be concluded that the stocks are always traded at their fair value on stock exchanges. Hence, it is impossible for the investors to purchase an undervalued stock or sell the stocks at inflated prices in such circumstances.

2.1 Efficiency

2.1.1 Types of Efficiency

Onyuma (2007) states that financial markets have some aspects of efficiency. Operational efficiency exists when participants supplying and demanding funds are able to carry out transactions cheaply and competitively. Secondly, allocative efficiency is where security prices should equalize the risk-adjusted rates of return. Lastly, informational efficiency exists when information is readily and equally available to all market participants

2.1,2 Degrees of Efficiency

There are three classifications of the efficient market hypothesis (EMH) as identified by Jaffe et al. (2002), which are aimed at reflecting the degree of efficiency that can be applied to markets. **Strong Efficiency form**, which asserts that all information in a market, whether public or private, is incorporated in a stock price. Private information includes secrete business relations, financial statement which is yet to be released or profits earned by fund managers among others. An investor can consistently earn abnormal returns over a reasonable period due to access to such information. **Semi-Strong Efficiency** occurs if prices reflect all information that is public. This information relates to companies' earnings, dividend, stock split announcements, new product development, financing difficulties and accounting changes among others. **Weak Efficiency** postulates that security prices contain market information that includes historical prices and trading volume data and should have no value in predicting future price changes.. This type of EMH contends that all past price information of a stock are reflected in today's stock price. Therefore, technical analysis cannot be used to predict future prices and beat a market.

2.2 Earnings Announcement and Market Efficiency

In an efficient market, no investor will outperform the market in the long run. Mishkin (2003) acknowledges that not everyone in a financial market is well informed or rational. If markets were efficient, stock prices will reflect all publicly available information, implying if a positive earnings announcement is made, it will not, on average, raise the price of the stock because the information is already captured in the current stock price. Ball and Brown (1968) and Fama et al (1969), that favorable earnings announcement do not cause a rise in share price. Therefore, share prices should be consistent to a random walk. Fama (1965) tested the random walk on stock prices, to examine whether (1) stock market records changes in stock prices systematically related to past changes to predict share prices and (2), publicly available information other than past stock prices could be used to predict the changes. Results from both tests indicate that the market is efficient since stock prices cannot be predicted, thus do follow a random walk.

Bodie *etal* 2001 suggests that stock prices may overreact to news announcement and that pricing errors are corrected only slowly. Thus, when a firm announces a large decline in earnings, its share price may overshoot and afterwards, an initial large decline, to a normal level over a period of several weeks: this out-rightly contradicts the EMH principle. Due to market overreaction to changes in share price, the stock market appears to display an excessive volatility. This excessive volatility can be interpreted that once earnings announcement has been made, as investors either buy, sell or hold their stock in order to maximize their returns or minimize the expected losses. There are scholars like Fama (1965), Ball and Brown (1968) who do support efficient market hypothesis while others like Werner and Thaler (1987), Sloan (1996) have identified gaps in EMH, which are referred to as market anomalies, meaning that EMH is not always, generally, practical in financial markets.

2.4 Related Studies on Post Earnings Effect on Stock Returns

Uddin (2003) studied the dividend effect on shareholder's value in Dhaka Stock Market. The author obtained the sample from companies which announced their dividend between October 2001 and September 2002. Market Adjusted Abnormal Return (MAAR) and Cumulative Abnormal Return (CAR) were used to study the impact of dividend announcement on shareholders' value. It was discovered that stocks portfolio increased shortly before dividend announcement but the value was not sustained in ex-dividend period. However, the lost value can be partially compensated by dividend yield. From this

study, CARs were negative, suggesting that dividend announcements do not carry information about the future earnings and cash flows of the companies.

Borjesson (2007) did a study to investigate the post earnings announcement effect on Swedish stocks, to establish whether the EMH holds in the short term (60 days) after earnings announcement. The study covers the period between 1997 and 2007. Investigations were done on the changes in trading volume in relation to earnings announcement effect. The metrics used were initial abnormal return (IAR) and initial abnormal trading volume (IAV) to observe the earnings announcement effect rather than the commonly used earnings related metric of SUE. Two different models were used to estimate abnormal returns, both a Fama- French 3-factor model and an extended trend connecting 4-factor model adding another to account for long-term trends. Post-earnings announcement effect (Momentum) was found for abnormal volume metric, which suggests that the market is not efficient. Nevertheless, a long position in the highest quintile of IAV combined with a short position in the lowest quintile earned a significant abnormal return of ranging from 4.72% to 8.16% per year depending on the normal return model used and holding period. When the sample was restricted to large cap stocks, the strategy was less profitable but still earned abnormal returns of 3.55% for a 60-day holding period. This led to a conclusion that transaction costs should not be preventing investors from exploiting this anomaly.

Kaniel et al. (2007) studied the behavior of individual and institutional investors around earnings announcement on NYSE stocks between January 2000 and December 2003. They obtained their daily abnormal net individual trading series by computing an imbalance measure: subtracting the value of shares by individuals from the value of shares bought and dividing by the average daily dollar volume from CRSP in the calendar year. It was realized that individual buying or selling prior to announcement is associated with significant positive or negative abnormal returns in three months following the event, with most abnormal returns generated by stocks that experience extreme earning surprise. The authors maintained that naïve investors would trade in the opposite direction and therefore slowing down adjustment of prices to the information. The study did not observe the strategies of specific individuals and institutions and hence unable to definitively answer the question whether trading by individuals after the event is naïve or rather it is part of profit taking strategy.

2.5 Studies on Efficiency of Nairobi Securities Exchange

Olouch (2002) looked at the timing effect of earnings announcement on stock returns of companies listed at the NSE. The study examined whether there is any systematic relationship between the timing of earnings announcement in respect to the kind of earnings news, whether it is good or bad for the period, for the period between 1999 and 2001. Moving average model was used to estimate earnings and announcement dates for each year and a market model was used. Cumulative residual returns of late reporting and early reporting firms were compared using F-test and Man Whitney U- test. The study found that there was no systematic relationship between reporting time and earnings news and that delay in reporting does not have any significant effect on stock return of companies listed at NSE.

Atiti (2002) did a study to determine the presence of momentum at NSE and the possibility of generating abnormal profits based on this anomaly. The author examined whether momentum strategy employed on zero-cost portfolios for 3, 6, 9 and 12 months with a holding period for 6 years, generates abnormal return, that is, from December 1997 to December 2003. t- Test was done to test the hypothesis. Results showed that NSE experiences price continuation. Stocks experiencing a decline in price continue to depreciate in price for a period not more than 12 months and vice versa. The study showed that holding stock for 6, 9, and 12 months indicate that momentum profits are present at NSE. However, returns on portfolios held for 3 months had insignificant results. Thus, it is not possible to beat the NSE market by investing in stocks whose price have shown an appreciation in short term and divesting from stocks whose price depreciate in short term.

Rioba (2003) determined the predictability of ordinary stock return for selected securities listed on NSE using recursive least square regression for the period between January 1995 and December 2002. The study was based on a sample of 10 companies identified using stratified sampling and monthly closing prices for the selected securities were used to obtain dividend yield and earning price ratio, which were exogenous variable in the model. Other independent variables in the model were monthly treasury bonds, monthly inflation rate, monthly percentage change in broad money supply and monthly percentage change in export earnings from coffee and tea. The study indicated that there was no significant difference between actual and forecast values generated by the regression model. It was concluded that the predictability evidence of ordinary shares in NSE is weak and not conclusive. The study also examined the macroeconomic variables that influence stock returns as compared to this study, which is considering microeconomic variables that influence changes in share prices of firms.

Mokua (2003) established whether NSE exhibits the weekend effect on securities traded therein. The study had 43 equity stocks tested for equality or difference between the sample mean returns. Monday and Friday mean returns were computed and then tested for variation using independent sample tests and regression method. The results for the study showed NSE means stocks are equal over the days of the week over a period of 5 years,

from 1st April 1996 to 31st March 2001. Thus, there was no significant difference on returns at NSE hence no weekend effect was detected.

2.6 Conceptual Framework

Earnings announcement may contain either positive or negative earnings information or news which lead to an increase or decrease in share price of firm's stock and returns. Many investors tend to either buy or sell stocks of firms, which make such announcements or similar companies in the same industry. The movement in share prices is brought about by either normal market reaction or abnormal market reaction that further leads to increased returns, above the expected market return. Keen investors are able to outdo the market from the abnormal returns observed proving inefficiencies in the market.

3.0 METHODOLOGY

A cross-sectional research design was adopted because it examines the stock return behavior for a sample of firms experiencing a common type of event, that is earnings announcement, at time t=0 being the date of announcement, despite the event taking place at different points in the calendar time. The event-study was used examine the effect of post earnings announcement on stock returns. It described the technique of empirical finance that enabled the researcher to assess the impact of earnings announcement on stock returns and helps isolate that part of change in a variable that is attributable to happening of an event. The target population for this study was all the 54 companies listed in Nairobi Securities Exchange in the year 2007. Year 2007 was selected since it was the best year in the Kenyan Market where most counters recorded an increase in their profitability. From the target population, data was available for 31 firms. Due to the small size, all these firms were included in the study, thus no sampling procedure was done.

Secondary data collected from NSE library, NSE database and NSE websites. A data collection sheet was used to capture information on companies that announced their earnings during the period; date of announcement, market index and daily closing share prices and traded volumes over an event window of 15 days prior and after the announcement with the day of announcement being day zero. A 5-day moving average was computed on stock returns and the results plotted on moving average graph in order to determine effect of earnings announcement on stock return trends. This was computed as follows:

$(X_1+X_2+X_3+X_4+X_5) / 5$..…… … . (1)

Where X is daily stock return, this value was written on the middle day, that is, 3rd day. Similar values were obtained by adding the preceding value after the fifth value and subtracting the first value and obtaining the average. t-test was conducted on the daily traded volumes over the event window to determine whether there is a significant difference of trading volumes on earnings announcement.

On the effect of earnings announcement on stocks return, daily market adjusted abnormal return (AR) and daily cumulative abnormal return (CAR) were computed. AR is the relative daily percentage price change compared to change in average market price as shown below.

$AR_{it} = R_{it} - R_{mt}$ ..... (2)

Where;

AR_{it} is market adjusted abnormal return for security *i* over time *t*

R_{it} is the return at time *t* on security *i*, calculated as:- $(P_{it}-P_{it-1})/P_{it-1,} *100$ …….. (3)

where P_{it} is the market closing price of stock *i* on day *t*. P_{it-1} is the market closing price of stock *i* on day *t-1* Equation (3) was used to determine stock returns of sampled firms listed at the NSE.

R_{mt} is the time *t* return on NSE 20 Share Index calculated as $(I_t -I_{t-1})/I_{t-1}$. *100 ……. (4)

Where I_t is market index on day *t* (today). I_{t-1} is market index on day *t-1* (yesterday).

An average market adjusted abnormal return was estimated as follows:-

$$(MAAR_t) = \sum^{n} \frac{AR_{it}}{N} \text{ ……..……...} \quad (5)$$

Where, N is the number of firms being examined, each firm is analyzed separately.

Equation 5 is estimated to determine whether on the average, the earnings announcement is associated with change in stock returns.

Secondly, cumulative abnormal returns (CAR), which measures investors' total return over a period starting from 15 day prior to and 15 days after earning announcement, was measured as below:-

$$CAR_t = \sum_{t=1}^{t=j} AR_t \text{ ……... (6)}$$

Where j denotes day -15 through to a day +15

AR_t = Is the market adjusted abnormal return for each security over time *t*.

The mean cumulative abnormal return ($MCAR_t$) was computed for all securities across time. It was then standardized and t-test done to evaluate whether it was equal to zero around the event announcement.

t-Test was conducted at 95% confidence level to find if there is significant AR, CAR and MAAR after earnings announcement.

Eventually, from the results obtained using equation (6) above, an inference was made to determine the level of market efficiency.

Table 3.1 Data Analysis Table

Difference to be tested	Definition	Null hypothesis and t-test
Abnormal Return (AR)	Rit –Rmt	H_0=AR=0
Cumulative Abnormal Return (CAR)	Sum of AR over event window	H_0=CAR=0
Average Market adjusted Abnormal Return (MAAR)	Mean of AR over the Event window	H_0=MAAR=0
Average Cumulative Abnormal Return (MCAR)	Mean of CAR over the Event window	H_0=MCAR=0

4.0 Results And Discussions

The null hypothesis stated that earnings announcement does not significantly affect stock returns; indicating that the population mean before and after earnings announcement be should equal; i.e. Ho: $U_1=U_2$. The hypothesized mean difference is equal to zero and the alternative hypothesis is H_1: $U_1 \neq U_2$. The tables of findings for all companies returns were presented in Tables 4.1, 4.2, 4.3 and 4.4.

Table 4.1 Abnormal returns (AR) for all companies

			one sample test		95% confidence level		
			test value = 0				
AR	**t stat**	**df**	**t-critical**	**Mean Difference**	**mean 1**	**mean 2**	**P-value**
ARM	-0.2490	24	2.0639	0.1980	0.1203	0.5163	0.8054
BAT	0.6023	27	2.05183	-0.5697	0.57768	-0.56181	0.55203
BARCLAYS BANK	-0.4903	22	2.0739	0.3313	-0.3062	0.3564	0.6288
BAMBURI	-0.6597	22	2.0739	0.2956	0.3059	0.8971	0.5163
CAR & GENERAL	0.7032	26	2.0555	-0.5037	0.0283	-0.9790	0.4882
CFC BANK	-0.4008	27	2.0518	0.2811	-0.5088	0.0534	0.6917
CROWN BERGER	-0.8028	27	2.0518	0.7225	0.2729	1.7179	0.4291
DIAMOND TRUSTBANK	-0.8167	26	2.0555	0.6024	-0.3749	0.8299	0.4215
EA CABLES	0.2774	26	2.0555	-0.2784	-0.0625	-0.6193	0.7837
EABL	-0.0730	20	2.0860	0.0368	0.1798	0.2533	0.9425
EA PORTLAND	0.8944	14	2.1448	-3.0481	-0.4554	-6.5516	0.3862
EAAGAD	-0.8672	13	2.1604	3.2410	-7.8536	-1.3715	0.4015
EQUITY BANK	0.4255	24	2.0639	-0.3257	1.5982	0.9468	0.6743
EXPRESS K	0.4233	26	2.0555	-0.5885	0.5049	-0.6722	0.6755
CENTUM	-0.4050	23	2.0687	0.2357	-0.5915	-0.1201	0.6892
JUBILEE INS	0.4078	18	2.1009	-0.3566	0.0189	-0.6943	0.6882
KPLC	0.0974	26	2.0555	-0.0683	-0.4398	-0.5764	0.9231
KAPCHORUA	-0.1546	27	2.0518	0.0500	-0.2598	-0.1598	0.8783
KCB	0.5452	23	2.0687	-0.4891	-0.4731	-1.4513	0.5908

KENGEN	0.2982	27	2.0518	-0.2370	0.3087	-0.1652	0.7679
KENYA AIRWAYS	-0.3533	27	2.0518	0.2887	-0.3784	0.1989	0.7266
KENYA OIL	-1.4494	25	2.0595	0.7770	-0.6335	0.9204	0.1597
MARSHALLS	0.5299	25	2.0595	-0.4868	1.6552	0.6817	0.6008
MUMIAS	0.4198	18	2.1009	-0.4923	1.5011	0.5165	0.6796
NATION MEDIA	-1.1694	24	2.0639	0.9228	-0.8538	0.9918	0.2537
NIC BANK	-0.2448	27	2.0518	0.2130	-0.2888	0.1373	0.8084
PAN AFRICAN	-0.2317	22	2.0739	0.1709	-0.3708	-0.0289	0.8189
STAN CHART	-1.0336	27	2.0518	0.8204	-0.9025	0.7382	0.3105
TPS SERENA	0.6028	25	2.0595	-0.3512	0.3076	-0.3947	0.5521
SCAN GROUP	-0.1188	26	2.0555	0.1115	0.6403	0.8634	0.9064
UNILEVER TEA	1.5284	26	2.0555	0.9811	0.3939	-1.5684	0.1385

Source: Data Analysis, 2011

Table 4.2 Summary of Cumulative Abnormal returns (CAR) for all companies

			one sample test		95% confidence level		
			test value = 0				
CAR	**t stat**	**df**	**t-critical**	**Mean Difference**	**mean 1**	**mean 2**	**P-value**
ARM	-8.8216	26	2.0555	5.4206	1.2551	12.0964	0.0000
BAT	12.4824	24	2.06390	-7.8980	5.75398	-10.04209	0.00000
BARCLAYS BANK	-5.6681	21	2.0796	3.1406	-1.2491	5.0321	0.0000
BAMBURI	-5.1929	22	2.0739	3.0986	3.0524	9.2495	0.0000
CAR & GENERAL	2.6241	18	2.1009	-2.3668	-2.3718	-7.1054	0.0172
CFC BANK	1.2451	25	2.0595	-0.8423	1.6579	-0.0268	0.2247
CROWN BERGER	-2.7256	24	2.0639	3.3323	0.7784	7.4430	0.0118
DIAMOND TRUST BANK	-12.4545	27	2.0518	6.1976	-1.8411	10.5541	0.0000
EA CABLES	3.7278	26	2.0555	-3.7495	-3.5186	-11.0176	0.0009
EABL	-2.2318	24	2.0639	0.7634	0.9260	2.4529	0.0352
EA PORTLAND	0.3111	14	2.1448	-1.0419	-3.7598	-5.8435	0.7603
EAAGAD	-5.1687	14	2.1448	37.9381	-78.6798	-2.8036	0.0001
EQUITY	0.9842	22	2.0739	-1.1459	8.6863	6.3945	0.3357
EXPRESS K	4.4117	27	2.0518	-5.5835	2.5682	-8.5987	0.0001
CENTUM	3.9743	26	2.0555	-2.1596	-0.9271	-5.2462	0.0005
JUBILEE INS	4.0325	27	2.0518	-2.7544	1.4593	-4.0495	0.0004
KPLC	2.6128	24	2.0639	-1.6946	-2.6228	-6.0120	0.0153
KAPCHORUA	-3.8749	27	2.0518	1.2050	-2.9527	-0.5427	0.0006
KCB BANK	0.4755	27	2.0518	-0.4315	-5.2960	-6.1589	0.6383
KENGEN	1.1241	26	2.0555	-0.6919	3.3136	1.9299	0.2712
KENYA AIRWAYS	-3.6181	27	2.0518	2.4511	-5.0613	-0.1592	0.0012
KENYA OIL	-7.6146	17	2.1098	6.5789	-3.7793	9.3786	0.0000

MARSHALLS	7.1898	16	2.1199	-7.9118	26.6087	10.7851	0.0000
MUMIAS	-0.3746	16	2.1199	0.5148	3.0832	4.1128	0.7129
NATION MEDIA	-6.9005	20	2.0860	5.3681	1.1155	11.8516	0.0000
NIC BANK	-1.4711	27	2.0518	1.1521	0.4581	2.7623	0.1528
PAN AFRICAN	0.0525	26	2.0555	-0.0394	-7.2273	-7.3062	0.9585
STAN CHART	-5.2594	26	2.0555	4.9609	-1.2649	8.6568	0.0000
TPS SERENA	7.9210	18	2.1009	-6.8354	5.0946	-8.5761	0.0000
SCAN GROUP	-10.2361	24	2.0639	7.5077	-0.9566	14.0588	0.0000
UNILEVER TEA	9.8177	24	2.0639	8.8518	4.0510	-13.6525	0.0000

Source: Data Analysis, 2011

Table 4.3: Summary of Individual Company's return (R_{it}) for all companies

			one sample test		95% confidence level		
			test value = 0				
R_{it}	**t stat**	**df**	**t-critical**	**Mean Difference**	**mean 1**	**mean 2**	**P-value**
ARM	-1.2223	22	2.0739	1.0854	-0.9832	1.1877	0.2345
BAT	0.9582	27	2.05183	-0.9133	0.57845	-1.24809	0.34648
BARCLAYS BANK	0.0797	20	2.0860	-0.0576	-0.2057	-0.3208	0.9373
BAMBURI	-0.0803	22	2.0739	0.0353	0.1007	0.1714	0.9368
CAR & GENERAL	0.6881	27	2.0518	-0.4808	-0.0616	-1.0232	0.4973
CFC BANK	-1.0489	26	2.0555	0.6857	-1.1458	0.2256	0.3039
CROWN BERGER	-0.9198	27	2.0518	0.8152	0.0536	1.6841	0.3658
DIAMOND TRUST BANK	-0.2726	25	2.0595	0.1941	-0.2463	0.1419	0.7874
EA CABLES	0.5146	26	2.0555	-0.5284	-0.1851	-1.2420	0.6112
EABL	-0.0898	20	2.0860	0.0426	0.3178	0.4030	0.9293
EA PORTLAND	1.0328	14	2.1448	-3.4720	-0.0294	-6.9733	0.3192
EAAGAD	-1.0062	13	2.1604	3.7384	-8.8931	-1.4163	0.3327
EQUITY BANK	0.7613	23	2.0687	-0.6037	1.4063	0.1989	0.4542
EXPRESS K	0.1323	25	2.0595	-0.1839	-0.1321	-0.4999	0.8958
CENTUM	-0.2846	24	2.0639	0.1847	-0.6342	-0.2649	0.7784
JUBILEE INS	0.4487	18	2.1009	-0.3781	0.0080	-0.7482	0.6590
KPLC	0.6168	26	2.0555	-0.4532	-0.3885	-1.2950	0.5428
KAPCHORUA	-0.4646	27	2.0518	0.1535	-0.4782	-0.1713	0.6459
KCB BANK	0.7023	26	2.0555	-0.6169	-1.2974	-2.5313	0.4887
KENGEN	0.9485	27	2.0518	-0.7577	0.5991	-0.9164	0.3513
KENYA AIRWAYS	-0.4483	27	2.0518	0.3631	-0.4037	0.3225	0.6575
KENYA OIL	-1.4105	25	2.0595	0.7675	-0.7235	0.8116	0.1707
MARSHALLS EA	0.4447	24	2.0639	-0.3974	1.6578	0.8631	0.6605
MUMIAS	0.4077	18	2.1009	-0.4864	1.6391	0.6663	0.6883
NATION MEDIA	-2.0977	25	2.0595	1.9453	-2.0503	1.8403	0.0462

NIC BANK	0.0988	27	2.0518	-0.0893	-0.4302	-0.6088	0.9220
PAN AFRICAN	-1.3282	19	2.0930	0.8901	-1.1704	0.6098	0.1999
STAN CHART	-0.7437	27	2.0518	0.6611	-1.6417	-0.3194	0.4635
TPS SERENA	-0.9656	27	2.0518	0.5896	-0.5603	0.6188	0.3428
SCAN GROUP	-1.1877	24	2.0639	1.1340	-0.5562	1.7118	0.2466
UNILEVER TEA	1.1822	21	2.0796	0.7787	-0.1369	-1.6942	0.2504

Source: Data Analysis, 2011

Table 4.4: Summary of Market returns (R_{mt}) for all companies

			one sample test		95% confidence level		
			test value = 0				
R_{mt}	**t stat**	**df**	**t-critical**	**Mean Difference**	**mean 1**	**mean 2**	**P-value**
ARM	-3.0057	27	2.0518	0.8875	-1.1035	0.6715	0.0057
BAT	1.7763	27	2.05183	-0.3435	0.00077	-0.68628	0.08696
BARCLAYS BANK	2.0080	27	2.0518	-0.3888	0.1005	-0.6772	0.0547
BAMBURI	1.2544	27	2.0518	-0.2603	-0.2052	-0.7257	0.2204
CAR & GENERAL	-0.1593	24	2.0639	0.0228	-0.0899	-0.0442	0.8748
CFC BANK	-1.2466	18	2.1009	0.4046	-0.6370	0.1723	0.2285
CROWN BERGER	-0.5729	26	2.0555	0.0928	-0.2194	-0.0338	0.5717
DIAMOND TRUST BANK	2.1426	27	2.0518	-0.4083	0.1286	-0.6880	0.0413
EA CABLES	1.2058	27	2.0518	-0.2500	-0.1226	-0.6227	0.2384
EABL	-0.0416	27	2.0518	0.0059	0.1380	0.1497	0.9671
EA PORTLAND	1.8914	26	2.0555	-0.4239	0.4260	-0.4218	0.0698
EAAGAD	-1.0923	19	2.0930	0.4974	-1.0395	-0.0447	0.2884
EQUITY BANK	1.3482	27	2.0518	-0.2779	-0.1920	-0.7478	0.1888
EXPRESS K	-1.2466	18	2.1009	0.4046	-0.6370	0.1723	0.2285
CENTUM	0.2351	24	2.0639	-0.0511	-0.0427	-0.1448	0.8161
JUBILEE INS	0.1553	27	2.0518	-0.0215	-0.0109	-0.0538	0.8777
KPLC	1.9136	27	2.0518	-0.3849	0.0513	-0.7186	0.0663
KAPCHORUA	-0.9037	17	2.1098	0.1035	-0.2184	-0.0114	0.3788
KCB BANK	0.5250	26	2.0555	-0.1278	-0.8243	-1.0799	0.6040
KENGEN	3.3959	27	2.0518	-0.5211	0.2910	-0.7512	0.0021
KENYA AIRWAYS	-0.8927	24	2.0639	0.0956	-0.0676	0.1236	0.3809
KENYA OIL	0.3082	24	2.0639	-0.0482	-0.0123	-0.1088	0.7606
MARSHALLS EA	-0.6190	22	2.0739	0.0875	0.0064	0.1813	0.5423
MUMIAS	-0.1034	28	2.0484	0.0141	0.1215	0.1497	0.9184
NATION MEDIA	-3.2203	27	2.0518	0.9530	-1.0576	0.8484	0.0033
NIC BANK	1.4824	28	2.0484	-0.3195	-0.1070	-0.7461	0.1494
PAN AFRICAN	-2.8617	26	2.0555	0.7810	-0.9233	0.6387	0.0082

STAN CHART	0.9341	28	2.0484	-0.2462	-0.5652	-1.0576	0.3583
TPS SERENA	-3.4221	27	2.0518	0.9067	-0.7999	1.0136	0.0020
SCAN GROUP	-3.2203	27	2.0518	0.9530	-1.0576	0.8484	0.0033
UNILEVER	-0.5125	22	2.0739	-0.2083	-0.4243	-0.0077	0.6134

Source: Data Analysis, 2011

ARM returns

The findings in Table 4.1 indicated that AR ranged between 0.1203 and 0.5163 while for CAR (in Table 4.2), it ranged between 1.2551 and 12.0964. The computed AR_t was -0.249 and it lies within the acceptance region and thus was not significant while CAR_t was -8.8216 and it lies outside the acceptance region. The CAR was significant with a mean difference of 5.4206 and thus not equal to the hypothesized mean of zero, which is confirmed by the calculated P-value of 0.00 being lesser than $\alpha = 0.05$. The individual stock return R_{it} of ARM (in table 4.3), was -1.222 which falls within the acceptance region while in Table 4.4, the computed market returns R_{mt} was-3.0057 lies outside the acceptance region. The R_{it} was not significant and the mean difference of 1.0854. R_{mt} was significant with a mean difference of 0.8875 and thus not equal to the hypothesized mean of zero. The AR showed that the market is efficient while CAR gave conflicting information that the market is not semi-strong efficient.Since CAR was significant as per returns around event announcement while AR was not significant, then market related factors could be responsible for the inefficiency and not company specific factors.

BAT returns

The AR in Table4.1 ranged between -0.5618 and 0.5777 while for CAR,(in Table 4.2) it ranged between -10.042 and 5.754. The computed AR_t was 0.6023 and it lies within the acceptance region while CAR_t was 12.482 and it lies outside the acceptance region. The CAR was significant with a mean difference of -7.898. AR was not significant and the mean difference of -0.5697 could be due to chance, thus AR can be said to be equal to zero. The individual stock return R_{it} of BAT in Table 4.3, the computed R_{it} was 0.9582 which falls within the acceptance region, also the computed market returns R_{mt} as per Table 4.4 was 1.7763 lies within the acceptance region. The R_{it} was not significant and the mean difference of -0.9133 could be due to chance, thus it can be said it was equal to zero. R_{mt} was not significant with a mean difference of -0.3335. From the analysis, it may be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. Since CAR was significant on the event announcement but AR was not, technical factors could be responsible for the inefficiency observed, besides the market related factors.

Barclays Bank returns

The findings were that AR (Table 4.1) ranged between -0.3062 and 0.3564 while for CAR(Table 4.2) it ranged between -1.2491 and 5.0321. The computed AR_t was -0.4903 and it lies within the acceptance region while CAR_t was -5.6681 indicating it lied outside the acceptance region. The CAR was significant with a mean difference of 3.1406. AR was not significant and this is confirmed by the calculated P-value of 0.6288 being greater than $\alpha = 0.05$. In Table 4.3, he individual stock return R_{it} of Barclays Bank, the computed R_{it} was 0.0797 which falls within the acceptance region, also the computed market returns R_{mt} in Table 4.4 was 2.0080 lies within the acceptance region. The R_{it} was not significant and the mean difference was -0.0576 while R_{mt} was also not significant with a mean difference of -0.3888. The AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. CAR was statistically significant on the event announcement while AR was efficient.

Bamburi returns

The AR in Table 4.1 ranged between 0.3059 and 0.8971 while for CAR(Table 4.2) ranged between -3.0524 and 9.2495. The computed AR_t was -0.6597 and it lies within the acceptance region while CAR_t was -5.1929 and it lies outside the acceptance region. The CAR was significant with a mean difference of 3.0986 and this was confirmed by the calculated P-value of 0.00 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference was 0.2956. The individual stock return R_{it} of Bamburi, the computed R_{it} in Table 4.3 was .0.0803 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4)was 1.2544 lies within the acceptance region. The R_{it} was not significant and the mean difference of 0.0353 and R_{mt} was not significant with a mean difference of -0.2603. Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient.

Car and General returns

From the analysis in Table 4.1, AR ranged between 0.0283 and -0.9790 while for CAR(Table 4.2) ranged between -2.3718 and -7.1054. The computed AR_t was 0.7032 and it lies within the acceptance region while CAR_t was 2.6241 and it lies outside the acceptance region. The CAR was significant with a mean difference of -2.3718 and this was confirmed by the calculated P-value of 0.0172 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference was -0.5073. The individual stock return R_{it} of Car and General (Table 4.3), was 0.6881 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was -0.1593 lies within the acceptance region. The R_{it} was not significant and the mean difference was -0.4808 and R_{mt} was not significant with a mean difference was 0.0228. AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The CAR was statistically significant on stock returns while AR was not.

CFC Bank returns

From Table 4.1, the AR ranged between -0.5088 and 0.0534 while for CAR (Table 4.2) it ranged between -1.6579 and -0.0268. The computed AR_t was -0.4008 and it lies within the acceptance region while CAR_t was 1.2451 which also lies within the acceptance region. The CAR and AR were not significant with mean differences of -0.8423 and -0.5088 respectively, and this was confirmed by the calculated P-value of 0.2247 and 0.6917 respectively, being greater than $\alpha = 0.05$.The individual stock return R_{it} (Table 4.3) of CFC Bank, the computed R_{it} was -1.0489 and the the computed market returns R_{mt} (Table 4.4) was -1.2466 lies within the acceptance region. This implies that both were not significant and this could mean that the AR showed that the market is efficient. Also, CAR gave similar information that the market is efficient. Both AR and CAR were not significant on earnings announcement of CFC Bank shares, therefore, it implies that the market is semi-strong efficient.

Crown Berger returns

The AR(Table 4.1) ranged between 0.2729 and 1.7179 while for CAR(Table 4.2) it ranged between 0.7784 and 7.4430. The computed AR_t was -0.8028 and it lies within the acceptance region while CAR_t was -2.7256 and it lies outside the acceptance region. The CAR was significant with a mean difference of 3.3323 and this was confirmed by the calculated P-value of 0.0118 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference was 0.7225. The individual stock return R_{it} (Table 4.3) of Crown Berger, the computed R_{it} was .0.9198 while the computed market returns R_{mt} (Table 4.4)was -0.5729: these falls within the acceptance region. These two were not significant. It can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The AR was statistically insignificant on event announcement while CAR was significant.

Diamond Trust Bank returns

From the analysis in Table 4.1, the AR ranged between -0.3749 and 0.8299 while for CAR(Table 4.2) ranged between -1.8411 and 10.5541. The computed AR_t was -0.8167 and it lies within the acceptance region while CAR_t was -12.455 and it lies outside the acceptance region. The CAR was significant with a mean difference of 6.1976. AR was not significant and the mean difference of 0.6024. The individual stock return R_{it} of Diamond Trust Bank (Table 4.3), the computed R_{it} was -0.2726 which falls within the acceptance region while the computed market returns R_{mt} (Table 4.4) was -2.1426 lies outside the acceptance region. In an efficient market, the AR and CAR needs to be zero, thus nonzero abnormal returns after an event are inconsistent with efficiency and imply a profit trading rule (ignoring trading costs).Thus, the AR showed that the market is efficient while CAR gave conflicting information that the market is not semi-strong efficient. The CAR was statistically significant on event announcement while AR was not.

EA Cables returns

The analysi indicated that AR (Table 4.1) ranged between -0.0625 and -0.6193 while for CAR (Table 4.2) it ranged between -3.5186 and -11.0176. The computed AR_t was 0.2774 while CAR_t was 3.7278 and both lie outside the acceptance region. The CAR was significant with a mean difference of -3.7495 while AR was not significant and the mean difference was -0.2784.The individual stock return R_{it} of EA Cables (Table 4.3), was 0.5146 and the computed market returns R_{mt} (Table 4.4) was 1.2058 and both lie within the acceptance region. The R_{it} and R_{mt} were not significant and their mean differences were -0.5284 and -0.2500 respectively. Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The AR was not statistically significant on earnings announcement while CAR was significant.

EABL returns

The findings were that AR(Table 4.1) ranged between 0.1798 and 0.2533 while for CAR(Table 4.2) it ranged between -0.9260 and 2.4529. The computed AR_t was -0.0730 and it lies within the acceptance region while CAR_t was -2.2318 and it lies outside the acceptance region. The CAR was significant with a mean difference of 0.7634 while AR was not significant and the mean difference of 0.0368. The individual stock return R_{it} of EABL (Table 4.3), was .0.0898 and the computed market returns R_{mt} (Table 4.4) was -0.0416 and both lie within the acceptance region. Both were not significant and their mean differences were 0.0426 and 0.0059 respectively. The AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The CAR was statistically significant on event announcement while AR was not.

E. A. Portland returns

The AR (Table 4.1) ranged between -0.4554 and -6.5516 while for CAR (Table 4.2) it ranged between -1.0419 and -3.7598. The computed AR_t was 0.8944 and it lies within the acceptance region while CAR_t was 0.3111 which also lies within the acceptance region. Both the CAR and AR were not significant. The individual stock return R_{it} of E. A. Portland (Table 4.3) was 1.0328 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was 1.8914 lies within the acceptance region. Both the R_{it} and R_{mt} were not significant.Thus it can be concluded that the AR showed that the market is efficient. Also, CAR gave similar information that the market is efficient. Both AR and CAR were not significant on earnings announcement of E. A. Portland shares, therefore, it implies that the market is semi-strong efficient.

Eaagad returns

The findings were that AR (Table 4.1) ranged between7.8536 and -1.3715 while for CAR (Table 4.2) ranged between -78.9260 and -2.8036. The computed AR_t was -0.8672 and it lies within the acceptance region while CAR_t was -5.1687 and it lies outside the acceptance region. The CAR was significant while AR was significant.The individual stock return R_{it} of Eaagad (Table 4.3), was .1.0062 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was -0.9202 lies within the acceptance region. The R_{it} was not significant and the mean difference of 3.7384 could be due to chance, thus it can be said it was equal to zero. R_{mt} was not significant with a mean difference of 0.4974 could be due to chance, thus it can be said it was equal to zero.Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. Therefore, technical factors could be responsible for the inefficiency, besides the market related factors.

Equity Bank returns

The findings indicated that AR (Table 4.1) ranged between 1.5988 and 0.9468 while for CAR (Table 4.2) ranged between -8.6863 and 6.3945. The computed AR_t was 0.4255 and it lies within the acceptance region while CAR_t was 0.9842 which also lies within the acceptance region. Both the CAR and AR were not significant with a mean difference of -1.1459 and -0.3257 respectively.The individual stock return R_{it} of Equity Bank (Table 4.3), was 0.7613 which falls within the acceptance region. The computed market returns R_{mt} (Table 4.4) was 1.3482 lies within the acceptance region. The R_{it} and R_{mt} were not significant and the mean difference of -0.6037 and -0.2779 respectively. Thus it can be concluded that both the AR and CAR showed that the market is efficient. The AR and CAR were not significant as per returns around earnings announcement of Equity Bank shares. Thus, the market is semi-strong efficient.

Express Kenya returns

The findings indicated that AR (Table 4.1) ranged between 0.5049 and -0.6722 while for CAR (Table 4.2) it ranged between 2.5682 and -8.5987. The computed AR_t was 0.4233 and it lies within the acceptance region while CAR_t was 4.4117 and it lies outside the acceptance region. The CAR was significant with a mean difference of -5.5835 and thus not equal to the hypothesized mean of zero, which is confirmed by the calculated P-value of 0.0001 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of -0.5885. The individual stock return R_{it} of Express Kenya (Table 4.3), was 1.1323 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was 1.2466 lies within the acceptance region. Both the R_{it} and R_{mt} were not significant and the mean difference was -0.1839 and 0.4046 respectively and this could be due to chance.Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The CAR was statistically significant as per returns around event announcement while AR was efficient. Thus market related factors could be responsible for the inefficiency, besides the technical factors.

ICDC- Centum Investment returns

The findings were that AR (Table 4.1) ranged between -0.5915 and -0.1201 while for CAR (Table 4.2) ranged between -0.9271 and -5.2462. The computed AR_t was -0.4050 and it lies within the acceptance region while CAR_t was 3.9743 and it lies outside the acceptance region. The CAR was significant with a mean difference of -2.1596. AR was not significant and the mean difference of 0.2357 could be due to chance. The individual stock return R_{it} of Centum Investment (Table 4.3), was -0.2846 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was 0.2351 lies within the acceptance region. Both the R_{it} and R_{mt} were not significant and the mean difference was 0.1847 and 0.0511 resepectively. Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The CAR was statistically significant as per returns around event announcement while AR was efficient. Thus technical factors could be responsible for the inefficiency, besides the market related factors.

Jubilee Insurance Co returns

From the findings, AR (Table 4.1) ranged between 0.0189 and -0.6943 while for CAR (Table 4.2), it ranged between 1.4593 and -4.0495. The computed AR_t was 0.4078 and it lies within the acceptance region while CAR_t was 4.0325 and it lies outside the acceptance region. The CAR was significant with a mean difference of -2.7544, which is confirmed by the calculated P-value of 0.0004 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of -0.3566 and this could be due to chance. The individual stock return R_{it} of Jubilee Insurance Co (Table 4.3), was 0.4487 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was 0.1553 lies within the acceptance region. Thus, both R_{it} and R_{mt} were not significant and their mean differences were -0.3781 and -0.0215 respectively, which could be due to chance.AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The CAR was statistically significant on earnings announcement of Jubilee Insurance Co. shares while AR was not.Thus technical factors could be responsible for inefficiency, besides the market related factors.

KPLC returns

The findings were that AR (Table 4.1) ranged between -0.4398 and -0.5764 while for CAR it ranged between -2.6228 and -2.6228. The computed AR_t was 0.0974 and it lies within the acceptance region while CAR_t was -6.0120 and it lies outside the acceptance region. The CAR was significant with a mean difference of -1.6946, which is confirmed by the calculated P-value of 0.0153 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of -0.0683. The individual stock return R_{it} of KPLC (Table 4.3), was .0.3885 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was -1.2950 lies within the acceptance region. From the analysis, R_{it} and R_{mt} were not significant and the mean difference was -0.4532 and -0.3849 respectively. Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient.

Kapchorua Tea Co. returns

AR (Table 4.1) ranged between -0.2598 and -0.1598 implying it was not significant while for CAR (Table 4.2), ranged between -2.9527 and -0.5427. The computed AR_t was- 0.1546 and it lies within the acceptance region while CAR_t was -3.8749 and it lies outside the acceptance region. The CAR was significant with a mean difference of 1.2050, which is confirmed by the calculated P-value of 0.0006 being lesser than $\alpha = 0.05$. The individual stock return R_{it} of Kapchorua Tea Co. (Table 4.3),was .0.4646 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.3) was -0.9037 lies within the acceptance region. Both the R_{it} and R_{mt} were not significant and the mean differences were 0.1535 and 0.1035 respectively which could be due to chance. Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The CAR was statistically significant as per returns around event announcement while AR was efficient.

KCB Bank returns

From the Analysis, AR (Table 4.1) ranged between -1.4513 and -0.4731 while for CAR (Table 4.2), it ranged between -6.1589 and -5.296. The computed AR_t was 0.5452 and it lies within the acceptance region while CAR_t was 0.4755 which also lies within the acceptance region. Both the AR and CAR were not significant with a mean difference of -0.4891 and -0.4315 respectively. This is confirmed by the calculated P-value of 0.5908 and 0.6383 for AR and CAR respectively, being greater than $\alpha = 0.05$. The individual stock return R_{it} of KCB Bank (Table 4.3), was 0.7023 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was 0.5250 lies within the acceptance region. The R_{it} and R_{mt} were not significant and the mean differences were -0.6169 and -0.1278 respectively which could be due to chance.Thus it can be concluded that the AR and CAR showed that the market is efficient. Thus, the market is semi-strong efficient.

KenGen returns
The AR (Table 4.1) ranged between -0.1652 and 0.3087 while for CAR (Table 4.2), it ranged between 3.3136 and 1.9299. The computed AR_t was 0.2982 and it lies within the acceptance region while CAR_t was 1.1241 which also lies within the acceptance region. Both the AR and CAR were not significant with a mean difference of -0.237 and -0.6919 respectively. This was confirmed by the calculated P-value of 0.7679 and 0.2713 being greater than $\alpha = 0.05$. The individual stock return R_{it} of KenGen (Table 4.3),was 0.9485 which falls within the acceptance region, the computed market returns R_{mt} (Table 4.4) was 3.3959 and lies outside the acceptance region. The R_{it} was not significant and the mean difference of -0.7577 could be due to chance. R_{mt} was significant with a mean difference of -0.5211 thus not equal to the hypothesized mean of zero. Thus it can be concluded that both the AR and CAR showed that the market is efficient. The AR and CAR were not significant as per returns around earnings announcement of KenGen shares. Thus, the market is semi-strong efficient.

Kenya Airways returns
The findings indicated that AR (Table 4.1) ranged between -0.3784 and 0.1989 while for CAR (Table 4.2), it ranged between -5.0613 and -0.1592. The computed AR_t was -0.3533 and it lies within the acceptance region while CAR_t was -3.8749 and it lies outside the acceptance region. The CAR was significant with a mean difference of 2.4511, which is confirmed by the calculated P-value of 0.0012 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of 0.2887 could be due to chance.The individual stock return R_{it} of Kenya Airways (Table 4.3), was .0.4483 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was -0.8927 lies within the acceptance region. This implies that the stock returns were not significant. R_{mt} was not significant with a mean difference of 0.0956 could be due to chance, thus it can be said it was equal to zero.Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The CAR was statistically significant as per returns around event announcement while AR was efficient. Thus market related factors could be responsible for the inefficiency, besides the technical factors.

Kenya Oil returns
The findings were that AR (Table 4.1) ranged between -0.6335 and 0.9204 while for CAR (Table 4.2), it ranged between -3.7793 and 9.3786. The computed AR_t was -1.4494 and it lies within the acceptance region while CAR_t was -7.6146 and it lies outside the acceptance region. The CAR was significant with a mean difference of 6.5789 and thus not equal to the hypothesized mean of zero, which is confirmed by the calculated P-value of 0.0000 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of 0.777 could be due to chance, thus AR can be said to be equal to zero. This is confirmed by the calculated P-value of 0.1597 being greater than $\alpha = 0.05$.The individual stock return R_{it} of Kenya Oil (Table 4.3), was .1.4105 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was 0.3082 lies within the acceptance region. The R_{it} and R_{mt} were not significant and the mean difference of 0.7675 and .0482 respectively which could be due to chance. Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The CAR was statistically significant on earnings announcement of Kenya Oil shares while AR was not.Thus technical factors could be responsible for inefficiency, besides the market related factors.

Marshalls EA returns
The findings were that AR (Table 4.1) ranged between 1.6552 and 0.6817 while for CAR (Table 4.2), it ranged between 26.6087 and 10.7851. The computed AR_t was 0.5299 and it lies within the acceptance region while CAR_t was 7.1898 and it lies outside the acceptance region. The CAR was significant with a mean difference of -7.9118 and thus not equal to the hypothesized mean of zero, which is confirmed by the calculated P-value of 0.0000 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of -0.4868 could be due to chance. The individual stock return R_{it} of Marshalls EA (Table 4.3), was 0.4447 which falls within the acceptance region, also the computed market returns R_{mt} (Table 4.4) was -0.619 lies within the acceptance region. The R_{it} and R_{mt} were not significant and the mean difference was -0.3974 and 0.0875 respectively which could be due to chance. Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The CAR was statistically significant on earnings announcement of Marshalls EA. shares while AR was not.Thus technical factors could be responsible for inefficiency, besides the market related factors.

Mumias Sugar Co. returns
The findings were that AR (Table 4.1) ranged between 1.5011 and 0.5165 while for CAR (Table 4.2), it ranged between 3.0832 and 4.1128. The computed AR_t was 0.4198 and it lies within the acceptance region while CAR_t

was -0.3746 which also lies within the acceptance region. The AR and CAR were not significant with a mean difference of -0.4923 and 0.5148 respectively, which is confirmed by the calculated P-value of 0.6796 and 0.7129 respectively being greater than $\alpha = 0.05$. The individual stock return R_{it} of Mumias Sugar Co. (Table 4.3), was 0.4077 which falls within the acceptance region, and the computed market returns R_{mt} (Table 4.4) was -0.1034 lies within the acceptance region. The R_{it} was not significant and the mean difference of -0.4864 could be due to chance, thus it can be said it was equal to zero. R_{mt} was not significant with a mean difference of 0.0141 could be due to chance, thus it can be said it was equal to zero. Thus it can be concluded that the AR and CAR showed that the market is efficient. Thus, the market is semi-strong efficient.

Nation media group returns

From the analysis, the findings were that AR (Table 4.1) ranged between -0.8538 and 0.9918 while for CAR (Table 4.2) it ranged between 1.1155 and 11.8516. The computed AR_t was -1.1694 and it lies within the acceptance region while CAR_t was -6.9005 and it lies outside the acceptance region. The CAR was significant with a mean difference of 5.3681 and thus not equal to the hypothesized mean of zero, which is confirmed by the calculated P-value of 0.00 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of 0.9228 could be due to chance. The individual stock return R_{it} of Nation media group (Table 4.3), was -2.0977 which falls outside the acceptance region while the computed market returns R_{mt} (Table 4.3)was -3.0057 which also lies outside the acceptance region. Both the R_{it} and R_{mt} were significant and the mean differences were 1.9453 and -1.0576 thus not equal to the hypothesized mean of zero. Thus it can be concluded that the AR showed that the market is efficient while CAR gave conflicting information that the market is not semi-strong efficient. The CAR was statistically significant as per returns around event announcement while AR was efficient.Thus the market related and company specific factors could be responsible for the inefficiency.

NIC Bank returns

The findings were that AR (Table 4.1) ranged between -0.2888 and 0.1373 while for CAR (Table 4.2), it ranged between 0.4581 and 2.7623. The computed AR_t was -0.2448 and it lies within the acceptance region while CAR_t was -1.4711 which also lies within the acceptance region. The AR and CAR were not significant with a mean difference of 0.2130 and 1.1521respectively and thus can be said to be equal to the hypothesized mean of zero, which is confirmed by the calculated P-value of 0.8084 and 0.1528 respectively being greater than $\alpha = 0.05$. The individual stock return R_{it} of NIC Bank (Table 4.3), was 0.0988 which falls within the acceptance region, and the computed market returns R_{mt} (Table 4.4) was 1.4824 lies within the acceptance region. The R_{it} and R_{mt} was not significant and the mean difference of -0.0893 and -0.3195 could be due to chance, thus it can be said it was equal to zero. Thus it can be concluded that both the AR and CAR showed that the market is efficient. The AR and CAR were not significant as per returns around earnings announcement of NIC Bank shares. Thus, the market is semi-strong efficient.

Pan African Insurance returns

From the analysis, AR (Table 4.1) and CAR (Table 4.2) were both within the acceptance region. AR ranged between -0.3708 and -0.0289 while for CAR it ranged between -7.2273 and -7.3062. The computed AR_t was -0.2317 while CAR_t was 0.0525. The AR and CAR were not significant with mean difference s of 0.8189 and -0.0394 respectively, which is confirmed by the calculated P-values of 0.8189 and 0.9585 being greater than $\alpha = 0.05$.The individual stock return R_{it} of Pan African Insurance (Table 4.3), was -1.3282 while the computed market returns R_{mt} (Table 4.4) was-2.8617. The R_{it} was not significant and the mean difference of 0.8901 could be due to chance, thus it can be said it was equal to zero. R_{mt} was significant with a mean difference of 0.7810 and thus not equal to the hypothesized mean of zero. From the analysis, it can be deducted that the market is semi-strong efficient.

Standard Chartered Bank returns

The findings were that AR (Table 4.1) ranged between -0.9025 and 0.7382 while for CAR (Table 4.2), it ranged between -1.2649 and 8.6568. The computed AR_t was -1.0336 and it lies within the acceptance region while CAR_t was -5.2594 and it lies outside the acceptance region. The CAR was significant with a mean difference of 4.9606, which is confirmed by the calculated P-value of 0.0000 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of 0.8204 could be due to chance. The individual stock return R_{it} of Standard Chartered Bank (Table 4.3), was _0.7437 and the computed market returns R_{mt} (Table 4.4) was 0.9341. The R_{it} was not significant and the mean difference of 0.6611. R_{mt} was not significant with a mean difference of -0.2462 could be due to chance, thus it can be said it was equal to zero. Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient.

The CAR was statistically significant as per returns around event announcement while AR was efficient.Thus the market related and technical factors could be responsible for the inefficiency.

TPS Serena returns

AR (Table 4.1) ranged between 0.3076 and -0.3947 while for CAR (Table 4.2), it ranged between 5.0946 and -8.5761. The computed AR_t was 0.6028 while CAR_t was 7.9210. The CAR was significant with a mean difference of -6.8354 and this is confirmed by the calculated P-value of 0.00 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of -0.3512. The individual stock return R_{it} of TPS Serena (Table 4.3), was -0.9656 while the computed market returns R_{mt} (Table 4.4)was -3.4221. The R_{it} was not significant and the mean difference of 0.5896. R_{mt} was significant with a mean difference of 0.9067. AR showed that the market is efficient while CAR gave conflicting information that the market is not semi-strong efficient. The CAR was statistically significant as per returns around event announcement while AR was efficient.

Scan Group returns

From Table 4.1, AR ranged between 0.6403 and 0.8634 while for CAR (Table 4.2), it ranged between -0.9566 and 14.0588. The computed AR_t was -0.1188 and it lies within the acceptance region while CAR_t was -10.2361 and it lies outside the acceptance region. The CAR was significant with a mean difference of 7.5077, which is confirmed by the calculated P-value of 0.00 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of 0.115. This is confirmed by the calculated P-value of 0.9064 being greater than $\alpha = 0.05$.The individual stock return R_{it} of Scan Group (Table 4.3), was -1.1877 which falls within the acceptance region while the computed market returns R_{mt} (Table 4.4) was-3.2203 lies outside the acceptance region. The R_{it} was not significant and the mean difference of 1.1340. R_{mt} was significant with a mean difference of 0.9530. Thus it can be concluded that the AR showed that the market is efficient while CAR gave conflicting information that the market is not semi-strong efficient.

Unilever Tea returns

The findings were that AR (Table 4.1) ranged between -1.5684 and 0.3939 while for CAR (Table 4.2), it ranged between -13.6525 and 4.0510. The computed AR_t was 1.5284 and it lies within the acceptance region while CAR_t was 9.8177 and it lies outside the acceptance region. The CAR was significant with a mean difference of 8.8518 which is confirmed by the calculated P-value of 0.0000 being lesser than $\alpha = 0.05$. AR was not significant and the mean difference of 0.9811 could be due to chance. The individual stock return R_{it} of Unilever Tea (Table 4.3), was 1.1822 and the computed market returns R_{mt} (Table 4.4)was -0.5125. Both the R_{it} and R_{mt} were not significant and the mean differences were 0.7787 and -0.0077 respectively. Thus it can be concluded that the AR showed that the market is efficient while CAR showed conflicting information that the market is not semi-strong efficient. The CAR was statistically significant as per returns around event announcement while AR was efficient. Thus market related factors could be responsible for the inefficiency, besides the technical factors.

Table 4.5: MAAR & MCAR- All Companies in the study Combined

			one sample test		95% confidence level		
			test value = 0				
	t stat	df	t-critical	Mean Difference	Mean 1	Mean 2	P-value
MAAR	-0.0814	27	2.0518	-0.1877	-0.2045	-0.1708	0.9357
MCAR	-4.7888	22	2.0739	-0.5166	-1.6660	0.6328	0.0001

From the findings, MAAR ranged between -0.2045 and -0.1708 while for MCAR it ranged between -1.666 and 0.6328. The computed MAAR was -0.0814 and it lies within the acceptance region while MCAR was -4.7888 and it lies outside the acceptance region. The MCAR was significant with a mean difference of -0.5166 and thus not equal to the hypothesized mean of zero, which is confirmed by the calculated P-value of 0.0001 being lesser than $\alpha = 0.05$. MAAR was not significant and the mean difference of -0.1877 could be due to chance, thus MAAR can be said to be equal to zero. This is confirmed by the calculated P-value of 0.9357 being greater than $\alpha = 0.05$. This could imply that MAAR surrounding earnings announcement of the combined companies under study was not significant but MCAR was significant. The market was not efficient on earnings announcement with regard to returns of all the companies in the study when aggregated. The market was therefore not in the semi-strong form efficiency, which is also reflected by the returns of individual companies in the study. The

inefficiencies experienced could be due factors such as insider information, market strategies and analysts reports affecting individual companies.

5.1 Summary of the Findings

When examining the effect event announcement on stock return, findings by Atogo (2009) on stock splits announcement, indicated that firms AR and CAR gave conflicting information on the efficiency of the market. AR was not significant indicating an efficient market while CAR was significant indicating that the market is not semi-strong efficient. Similar results were obtained when the effect of earnings announcement on stock return was examined. The AR gave conflicting information to the CAR, thus it was concluded that the market is not in the semi strong form of efficiency.

The analysis indicate that out of the 31 companies studied, all companies with the expection of East African Cables had their AR returns within the acceptance region. All the counters including East African Cable had Abnormal returns that were not statistically significant. In respect to CAR, 22 counters were outside the acceptance region and thus statistically significant while 9 counters were within the acceptance region indicating that they were not statisically significant. The individual stock returns (R_{it}), for all the 31 firms were within the acceptance region indicating that they were not statistically significant. According to the analysis, the market returns(R_{mt}), all stocks returns except 3 lied within the acceptance region and thus were not significant.

5.2 Conclusion

From the findings, AR and CAR gave conflicting information for 74% of the sample population. AR was not significant on earnings announcement indicating that the market is efficient while CAR was significant indicating inefficiencies in the market. In respect to AR, the stock of East African Cable was not within the acceptance region and this might imply there was volatility in respect to that stock though it was not significant.The MAAR surrounding earnings announcement of the combined companies under study was not significant but MCAR was significant. It can therefore concluded that the Nairobi Securities Exchange is not efficient in the semi strong form.

5.3 Recommendations

Investors should monitor the behavior of stocks they trade in, and try to maximize their returns, though this cannot be done with certainty on all stocks because stocks reflect a random walk movement in prices.

Investors should not invest in stocks whose prices appreciate or divest in stocks whose price depreciate in the short term because they will ultimately not maximize their returns by paying a lot of commission to the brokers. Rather they should aim at buying and holding their securities for a long period.

5.4 Areas for further research

Research should be done to determine the possibility of the existence of insider trading as one of the anomalies experienced at the NSE.

There is need for research to be done on the investment strategies adopted by individual and institutional investors on event announcement so as to better understand the behavior of the two classes of investors.

Studies on the effect of other events announcement on traded volumes should be done to ascertain with clarity the effect of events announcement on traded volumes.

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