

**EFFECT OF SEMI-ANNUAL EARNING ANNOUNCEMENT ON SHARE PRICE  
PERFORMANCE OF FINANCIAL SERVICE FIRMS LISTED AT THE NAIROBI  
STOCK EXCHANGE**

**BY**

**DAVID MULLI NZUKI**

**MASTER OF SCIENCE (FINANCE AND ACCOUNTING)  
KCA UNIVERSITY**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR AWARD OF MSC COMMERCE-FINANCE AND  
ACCOUNTING IN THE SCHOOL OF GRADUATE STUDIES AND RESEARCH AT  
KCA UNIVERSITY**

**AUGUST, 2016**

## **DECLARATION**

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

Student Name: David Mulli Nzuki

Reg No.12/00718

Sign: \_\_\_\_\_

Date: 18<sup>th</sup> August, 2016

I do hereby confirm that I have examined the master's dissertation of David Mulli Nzuki

And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed

Sign: \_\_\_\_\_

Date: 18<sup>th</sup> August, 2016

Dr. Edward Owino

Dissertation Supervisor

## **ABSTRACT**

The Efficient market hypothesis EMH concept states that a market is efficient if security prices immediately and fully adjust to reflect all available information. One of the information that affects share price reaction is earning announcement. Thus the study analysed the effect of semi-annual earnings announcement on share price responsiveness of financial firms listed at NSE. This was specifically analysed through the following specific objectives: To determine the effect of pre-earning announcement on the share price performance of financial firms listed at NSE; to determine the effect of post earnings announcement on share price performance on financial services firms, to determine the effect of earning announcement date on financial services firms listed at NSE. The study adopted an event study methodology. The study target population comprised of 17 companies in both insurance and banking industry. Census sampling was used to select all the companies in insurance and banking industry. Data was collected through secondary sources from Capital Markets Authority and Nairobi Securities Exchange. Data was analysed by STATA through the use of t-tests with the results presented through graphs and tables. The study utilized a 15 day event window, i.e. 7 days before the event date and 7 days after the event date. The event date itself was represented by 0. The researcher used event study methodology to test the responsiveness of prices to earnings information releases for a sample of 13 companies in the 20-share index. Results indicate that there were significant abnormal average returns in day -7, and -4. The average abnormal returns in day -7 and -4 were negative (-0.64837 and -0.99533) whereas there were positive average abnormal returns after event day except for day 6. This indicates existence of average abnormal negative returns before the event day and positive average abnormal returns after the event day. However, results regarding CAARs indicated that there were no significant CAARs in the entire event window thus indicating that abnormal negative returns were cancelled by the abnormal positive returns. From the results it is recommended that companies should be compelled to release timely and accurate information to enable investors to make accurate decisions in both annual and semi-annual announcements.

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## **DEDICATION**

I dedicate this research paper to my mum, Agnes Kasivu and the entire family members who inspired me to thoroughly study and enjoy my being so as to soar to greater heights of success.

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## ACRONYMS AND ABBREVIATIONS

**ALTX** Alternate Exchange

**AR** Abnormal Return

**ATS** Automated Trading System

**CAAR** Cumulative Average Abnormal Return

**CDS** Central Depository System

**CEO** Chief Executive Officer

**CMA** Capital Market Authority

**EMH** Efficient Market Hypothesis

**NASI** Nairobi Stock Exchange All Share Index

**NSE** Nairobi Securities Exchange

**PEAD** Post Earnings Announcement Drift

## **OPERATIONAL DEFINITION OF TERMS**

**Abnormal returns** - the returns generated by a given security or portfolio over a period of time that is different from the expected return (Dey & Radhakrishna, 2008).

**Earnings announcement date** – this is the specific date that earnings for a quarter, half year or annual are released to the public (Aduda & Chemarum, 2010).

**Earnings announcement**- official public statement of a company's profitability for a specific time period, typically a quarter, half year or a year (Akbar& Baig, 2010).

**Event study** – a statistical method to assess the impact of an event (earnings announcement) on the value of a firm (share price) (Shaheen, 2006).

**Post announcement duration** - the days after the date that the company announces its earnings (seven days in this study) (Kakiya, Mugo, Onyuma, Owuor & Bosire, 2013).

**Pre-announcement duration** – the days prior to the date that the company announces its earnings (seven days in this study) (Mlonzi, Kruger & Nthoesane, 2011).

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the Study**

Finance literature has demonstrated that the stock market efficiency theory and the question of how stock prices react to new market information are essential areas of research. Based on the concept of efficient market hypothesis (EMH), an efficient market is one in which security prices adjust fully and immediately to reflect all obtainable information. The response of the stock market to information disclosure is massive, covering a broad range of information releases such as stock splits, macroeconomic policy changes, dividend announcements, and merger announcements. Researchers have given considerable attention to the effect of earnings information disclosure on security prices. According to Setiawan (2008), researchers have demonstrated a large consistency with the EMH that the content of earnings disclosures has value-relevant information and that stock markets respond promptly and efficiently to this information.

Earnings announcement is one of the significant corporate announcements that prompt the reaction of capital markets. It is assumed that efficient markets tend to reflect the effect of announcements once such announcements are made public. This is manifested through stock price movements. Earnings usually convey information about the prospects of the firms, and they are therefore keenly observed by analysts. The literature (e.g. Hussin et al, 2010) view earnings announcements as one of the media through which management tends to transmit information about the firm.

Additionally, the speed of transmission of information about earnings is viewed as an indicator of market efficiency. In a market with the strong form of efficiency, new information tends to be reflected in share prices instantaneously. This has the important role of ensuring that speculators do not earn any abnormal returns (Dahyaa & McConnell, 2003).

An important question in finance revolves around the value and relevance of dissemination of financial information (Booth, Kallunki, Sahlstro, & Tyynela, 2011). As such, several studies have been carried out on this important topic. Booth et al (2010) notes that some studies have attempted to evaluate the impact of earnings calls on share prices while others focused on their utility in forecasting future firm performance.

Timely announcement of earnings and other cash flows is thus an important ingredient of efficient and transparent corporate practice. The magnitude and timing of announcement related to earnings provide useful information to investors regarding the financial soundness of firms. There are many studies which point towards information content of earnings disclosure. For example Ball and Brown (2008) and Chari et al(2008) find that stock prices respond positively to announcements of increase in earnings and negatively to announcements of decrease in earnings for the U.S. firms(Khotari and Warner, 2006).

Several studies have been conducted on the efficient market hypothesis, with many of them focusing on the developed US and UK markets. Most of these studies seem to validate the efficient market hypothesis. On the other hand, studies in developing countries have yielded evidence that is contradictory to the efficient market hypothesis. This is especially true for studies carried out in sub Saharan Africa (Shaheen, 2006). Alford et al (2013) argued that studies conducted in different geographic locations aren't necessarily consistent due to varying information environments and accounting standards from one market to the next.

According to Olowe (2009) in a study carried out in Nigerian market where he established that the Nigerian stock exchange experiences poor flow of information and communication systems cast doubts on the ability of the market to pass higher efficiency hurdles. Osei (2002) posits that developed countries tend to be more effectively regulated, utilize hi-tech trading systems and generally have better financial management frameworks for listed firms. This is in contrast with developing countries, where markets are characterized by low liquidity of many counters, information asymmetry, weak regulatory frameworks, and low levels of technology utilization. Afego (2011) and Osei (2002) concluded that both Nigeria and Ghana's stock markets are not efficient in relation to adjusting to new information on earnings announcements. The aforementioned studies prove that different stock exchanges react different to earning announcement thus the need for such a study in many developing countries including Kenya.

### ***1.1.1 Share Price Performance***

Share price is defined as the price of a single unit of stock in a limited liability company. (Halsey 2000). Shares are traded in securities markets, and their prices are deemed indicative of the current financial and operational health of the firm as well as its future prospects. (Black, 2010). Since the market forces of demand and supply determine the share prices, high analysts' expectations of a firm's performance will drive up its demand holding the supply constant, this should lead to a rise of this stock's price. On the other hand, the demand for shares with weak prospects falls leading to a tumbling of the price of its shares.



This sometimes leads to tremendous or total losses by the shareholders. Lonie et al. (2006) posits that although both earnings and dividend announcements have an effect on share prices, the effect of earnings announcements is more tremendous.

### ***1.1.2 Earnings Announcements***

Earnings are the monetary gains accrued by the shareholders of a firm from its operations. Since they act as indicators of the firm's long term prospects and profitability, announcement of earnings tends to have an impact on share prices. Due to their importance in determining a firm's capitalization at the market, managers can have an incentive to manipulate earnings through creative accounting techniques so as to achieve a desired market reaction (Cheol 2012).

The literature is awash with past literature on the aspect of earnings announcements. According to Aharony and Swary (2007), management utilizes earnings announcements as a signaling too. Like dividends, the effect of earnings announcements will be reflected in share prices if there is any meaningful information in such announcements. Additionally, Black (2010) argues that earnings announcements are measures of value. Investors therefore act on the basis of the value they can add to their portfolio if they invest in a firm's stock.

Osei (2002) argues that company earnings are especially helpful in forecasting the future performance and market valuation of the firm. As such, the main role of earnings announcements is to provide information that has predictive power, and that can be used as a rationale for decision making by investors. Expectedly, Barker and Imam (2008) highlighted that holding all other factors constant, firms with high earnings are viewed more favourably in the market than their counterparts with lower earnings.

### ***1.1.3 Nairobi Securities Exchange***

The NSE started in 1954 as an association of registered stockbrokers (NSE 1997). This was necessitated by the desire to have a mechanism for the government to float treasury debt securities to the investing public. With time, the organization was charged with the responsibility of establishing a fully-fledged securities exchange (Muragu, 2004). The exchange achieved a major milestone in 2006 with the rollout of the automated trading system (ATS). This is an electronic system that seamlessly connects the trading floor with the CBK and the Central Depository System (CDS), thereby facilitating enhanced connectivity between all major players of the market. Additionally, the market has two indices, i.e. the NSE 20 share index and the NSE All Shares Index that track the performance of the 20 largest firms by Market cap and all firms listed in the market respectively (NSE, 2014).

## **1.2 Statement of the Problem**

The role of capital markets in the economic development of nations cannot be overemphasized. The Kenyan capital markets have been the subject of many studies in the literature that have outlined its advancement over the years (Booth et al, 2011). Muragu (2004) opines that interest in the Nairobi Securities Exchange can be attributed to the fact that this market is among the most dynamic and active markets in Sub Saharan Africa. Nevertheless, studies into the aspect of market response to earnings announcements have been scanty. This notwithstanding, several studies that have been conducted around the globe, and especially in developed markets, show mixed reaction of stock prices to earnings announcements.

Iqbal and Farooqi (2011) did a study on the effect on earnings announcement in emerging markets, with the study focusing on annually earning announcements. Udhaya (2014) did a study in India on the relationship between annual earnings announcement and share price performance at Bombay stock exchange. The study focused on annual earnings announcement dates. Das et al (2010) carried out a study on the effect of quarterly earnings on Indian stock exchange. The study focused on quarterly earnings announcement of all listed firms in Indian stock exchange. Mallikarjunappa & Dsouza (2015) in a study carried out in India tested the effect of quarterly earnings announcement on stock price reactions. The study focused on all firms in Indian stock exchange and was narrowed down to only the quarterly earnings.

Locally, Kipronoh (2014) did a study on the effect of earning announcement on stock price response with the study focusing on annually earning announcement of all firms listed at NSE. Rono (2013) also carried out a study on the effect of annual earnings announcement on volume reactions of firms at NSE. Kalama (2013) in a study carried out to establish the relationship between earning announcement and stock price reaction among 42 listed firms. The study focused on annual announcement earnings of different firms including financial services firms.

From the aforementioned studies it is evident that there existed limited studies that had focused on the effect of semi-annual earnings announcement on share price reactions, with most studies focusing on quarterly and annual earnings announcement. Thus this study focused on the effect of semi-annual earning announcement on share price performance of financial services firms listed at Nairobi stock exchange.

### **1.3. Research Objectives**

The objectives of the study included:-

#### ***1.3.1. The main Objective***

To establish the stock price responsiveness to semi-annual earnings announcements of financial firms quoted at the Nairobi Securities exchange.

#### ***1.3.2. Specific Objectives***

- i. To determine the effect of pre earning announcement on share prices performance of financial services firms listed at NSE.
- ii. To determine the effect of post earnings announcement on share prices performance of financial services listed at NSE
- iii. To determine the effect of earning announcement date on share prices performances of financial services listed at NSE.

### **1.4 Research Questions**

- i. Does pre earnings announcement affect the share prices performance of financial services listed at NSE?
- ii. Does post earnings announcement affect the share prices performance of financial services listed at NSE?
- iii. Does earning announcement date affect the share prices performance of financial services listed at NSE?

## **1.5 Justification of the Study**

The study of stock price adjustments to earnings announcements would be of significance to investors, regulators, policy makers, researchers and academicians. Portfolio managers and investors who are devoted to increasing their returns through diversification have a great interest in identifying and analysing positive net present value (NPV) opportunities to increase their wealth. They achieve this through timing information release dates, here they trade to obtain abnormal returns in their portfolios. Investment advisors and stockbrokers will find this research beneficial since it enables them to obtain reliable information and findings that would be key in their advice to their clients in deciding which stocks to buy and which to sell based on the stability of earnings.

Policy makers and regulators are concerned with the capital markets efficiency to ensure proper allocation of resources. Therefore this study stands to enable them formulate policies geared towards optimal utilization of resources in the economy. The price adjustments with relevance to earnings announcement will enable the companies to decide on whether to adopt an earnings policy or not in their valuation processes.

The empirical evidence obtained from evaluating the stock price reaction to earnings announcements will be of great significance to researches and academicians. The study would bring more insights on whether the theory of efficient market hypothesis is supported or contradicted. This will extend the literature that will be reviewed in future thus providing a basis of development of new theories.

## **1.6 Scope of the Study**

The present study analyzes earning announcement and changes of share prices among selected companies at the Nairobi Stock Exchange. The study covers five calendar years ranging from January 2010 to December 2014. The study was restricted to the semi-annual earnings announcement of all the 17 selected companies in the banking and insurance industry

## **1.7 Assumptions of the study**

The study had two key assumptions that are outlined below:

- i. Capital markets are efficient
- ii. Effects of events are reflected immediately in the stock price.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

In this chapter, literature which is related to and consistent with the objectives of the study is reviewed. Important theoretical and practical problems are brought out, relevant literature on the aspects pertaining to the market reaction on change of share prices for selected firms listed at the NSE have been reviewed as regards theories and models, theoretical framework, empirical literature and conceptual framework.

#### **2.2 Theoretical Review**

The following theories were used in the study, signaling theory and random walk theory. These theories are discussed below.

##### ***2.2.1 Signaling Theory***

The signalling theory indicates that the announcements of profitability and growth prospects can signal a great future for the firm and hence positively affect its share prices. This theory was hence applied in this study to explain how earnings announcement can influence share prices. The signalling theory disputes the strong form EMH, advancing that a firm's insiders have information that the market and external investors lack. The theory holds the assumption that there is information asymmetry since all parties do not have equal access to information at a given time. This assumption is in contrast to the dividends irrelevance theory by Modigliani and Miller (1961) that advances that all parties have identical information concerning dividends and the future of the firm.

However, reality shows that various investors differ in their views on the payment level of dividends in the future and the insecurity innate in those payments. Moreover, reality reveals that the managers' level of understanding of future prospects is higher than that of the public stockholders. Based on various observations, an increase in dividends is usually followed by an increase in the stock price whereas a fall leads to a decline in the stock price.

Corporations, based on Modigliani and Miller (1961), are hesitant to cut dividends. They therefore avoid raising dividends unless they expect better earnings in future. The two assert that a dividend increase that is above the expected one is an indication to investors that management of the firm is foreseeing better earnings in future. Accordingly, a reduction of dividend or a smaller increase than it was anticipated signals that the management's prediction is that of low earnings in future. Modigliani and Miller (1961), concluded therefore that the reactions of investors to dividend policy changes do not necessarily signal the investors' preference of dividends over retained earnings. Instead, they assert that changes in price as a result of dividends announcements basically show the presence of signalling content or significant information in earnings announcements.

### ***2.2.2 Random Walk Theory***

The random walk theory was applied in this study to explain the behavior of stock prices before, during and after earnings announcement. The random walk theory argues that the movement of share prices is unrelated and independent of one another. This occurs in an efficient market where the prevailing prices of securities represent impartial estimates of their intrinsic values. Based on this theory, the movement of prices is random hence, future prices are not predictable.



Wabwire, Owuor, Onyuma, & Njuguna (2013) observe that any price movement is caused by entry of new information, and since it's impossible for investors to predict the new information (whether good or bad), it is impossible to predict the movement of future prices. However the random walk theory and the technical analysis theory are at variance. The theory suggests that alteration in previous prices or changes in profits are useless in prediction of future prices thus, rendering technical analysis unnecessary.

Kendall (1953) conducted research on the performance of stock commodity prices and suggested that the stock prices follow a random walk. Malkiel (1999) constantly stated that the long term buy and hold strategy is the best and that individuals should not attempt to time markets. Further, he argued that both fundamental and technical analysis are merely a waste of time and are still unproven to outperform the market. Therefore, concluded that any attempts based on fundamental, technical, or any other analysis are futile. His data demonstrated that most mutual funds fail to beat benchmark averages like the S&P 500. As a follower of random walk, Malkiel believes that it is impossible to outperform the market without assuming additional risk.

### ***2.2.3 Efficient Market Hypothesis***

According to Lumby (2004) , a market is deemed efficient if prices of securities traded on it adjust immediately and fully in response to newly available information. This therefore implies that in efficient market, it is not possible for anyone to make an abnormal profit because arbitrage opportunities are easily fizzled out due to fast information transmission. According to Basu (2007), this hypothesis implies that fundamental analysis and technical analysis efforts are futile since market do not contain any undervalued stocks.

Most early work related to efficient capital markets were based on the random walk hypothesis which contended that changes in stock prices occurred randomly. This early work contained extensive empirical analysis without much theory behind it. Fama attempted to formalize the theory and organize the growing empirical evidence. He presented the efficient market theory in terms of a fair game model, contending that investors can be confident that a current market price fully reflects all available information about a security and the expected return based upon this price is consistent with its risk. In his original article he divided the overall EMH and the empirical tests into three sub-hypotheses depending on the information set involved: the weak form EMH, Semi-strong form EMH and the Strong form EMH(Adelegan, 2009).

The weak form EMH asserts that the current stock prices fully reflect all security information including , historical price sequences, rates of returns, trading volume data and any other market-generated information such as block trades and transactions by exchange specialists. From its assumption that current prices already reflects all past returns and any other security market information, it implies that past rates of returns and other historical market data should have no relationship with future stock prices. This contends that one should gain little or no value from using any trading rule that decides whether to buy or sell a security based on past rates of returns or any other past market data. The randomness of stock price adjustments thus seems to be supported by this form of market efficiency(Jordan et al., 2012).

The semi-strong form EMH asserts that security prices adjust rapidly to the release of all public information and thus current security prices fully reflect all public information. This hypothesis encompasses the weak form EMH since all market information considered by the weak form is public.

Public information also includes; dividends and earnings announcements, price earnings P/E ratios, stock splits, dividend yield D/P ratios, macro-economic news and political views. This theory therefore, implies that no group of investors should derive above average risk adjusted profits from their transactions because new public information is already reflected in security prices. Most empirical evidences are in support of this theory. Dolvin et al (2012) noted that in a semi-strong form efficient market the share price reflects all publicly information.

The strong form EMH contends that stock prices fully reflect all public and private information. This implies that no group of investors has monopolistic access to information relevant to the discovery of stock prices. Thus no one should be able to consistently derive above average risk-adjusted rates of returns. The strong form EMH extends the assumption of efficient markets in which prices adjusts rapidly to the release of new public information to assume a perfect market in which all information is cost free and available to everyone at the same time. The theory seems to be satisfactory in theoretical sense however; it has a lot of shortcomings in its practicability due to existence of insider trading (White et al, 2012).

There are however mixed evidence from various researchers about the 3 subsets of market efficiency. With regards to the weak form, Solnik (2003) conducted a study of European stock prices to investigate if prices followed random walks in which he used serial correlation coefficients where he found European markets to be efficient. However, the study was based on a preselected sample of most traded stocks which may have induce biases. The investigation could yield different results if the sample was more specific and representative. Jaffe & Westerfield (2004) found week-end effects for United Kingdom and Japan but not for Canada and Australia in foreign exchange market thus contradicting market efficiency.

Al-Loughani and Chappell (2003) did a study to investigate if the weak form of EMH is true or false on the FTSE 30 index for period June 1983-November 1999. The researchers found that the weak form of EMH was not true on the FTSE 30 index.

They noted that, during the sample period, there were no major economic policy changes towards financial markets which may have impacted the findings. Different results could have been possible if the sample was bigger and not characterised by heteroscedasticity as noted by the authors.

In the semi strong form of market efficiency, research again shows mixed results of advocating or contradicting the hypothesis. Basu (2001) investigated if investment performance can be attributed to the P/E ratio. The researchers' P/E hypothesis states that low P/E ratios will outperform high P/E ratio firms. Stocks are bias indicators and this bias behaviour is reflected in the P/E ratio. It was found that the P/E ratio was not fully reflected in the security prices and thus contradicting the semi strong EMH.

## **2.3 Empirical Review**

In this section, a review of literature on the effects of semi-annual earnings announcement on share price performance is presented.

### ***2.3.1 Pre-Earning Announcement date and Share Prices Performance***

Musyoki (2011) conducted a study in eleven financial companies listed in Nairobi Securities Exchange on share prices changes as a forecaster of accounting earnings. The findings of the study indicated positive change towards the accounting earnings in respect to the share price. In addition, the relation between accounting variables and the NSE information revealed mixed

outcomes, with some companies showing a strong positive correlation while others pointed out weak correlation. Results of studies by Kipronoh (2014) and Kakiya et al. (2013) however, revealed and pointed out that earnings disclosure had a considerable effect on stock returns.

A study by Robinson and Bangwayo-Skeete (2013) in Jamaica on reaction of stock market to announcements of dividend showed a considerable positive reaction of the market to dividend disclosure. This finding may suggest that at least the investors at the Jamaican market place some value on dividends that is way above their informational content, and a necessity for a better explanation of the function of dividends beyond that recommended by the information content and agency costs perspectives on corporate dividend policy.

This finding is similar to those of Hara and Nguyen (2005) and Gurgal (2003). Nevertheless statistically considerable market reaction to dividend announcements was absent in Trinidad and Tobago. This indicated that, consistent with the information content and agency costs perspectives, announcement of dividend availed new information that was insignificant to these investors; hence there was no price reaction to dividend announcements. Additionally, research by Aduda and Kimathi (2011) revealed that the association between the stock market prices and the dividend paid from the constant dividend model is uneven from one year to another and where there was a relationship it was insignificant.

Muthama and Mutothya (2013) in their study of the random walk hypothesis of stock prices on the Nairobi Stock Exchange suggest that random walk model cannot be a good description of successive price returns at the Nairobi stock exchange. This is similar to the earlier proof by Parkinson (1984) that random walk model is not applicable to the NSE. The findings differ with earlier evidence (Dickson and Muragu; 1984, Githiga; 2008) that demonstrated how the random walk model was a good depiction of successive price returns at the NSE.

A study carried out at the Nairobi Stock Exchange by Aduda and Chemarum (2010) focused on the consequence of stock splits for nine firms that had experienced stock splits between the years 2002 to 2008. The findings of that study were that the reaction of the Kenyan market to stock splits is positive as demonstrated by an overall rise in share volumes transacted around the stock split. Moreover, the study's findings revealed that trading activities experience a better increase after the stock split in comparison to that before the stock split. This outcome was in agreement with the signaling hypothesis. Based on the hypothesis, a firm's managers split their stock to serve as a way of communicating information to potential shareholders and investors. On the contrary, Gupta and Kumar (2007) established that stock splits did not affect the reaction of the market. Moreover, other studies such as those by Conroy et, al (1990) and Lamoureux and Poon (1987) revealed a decline in trading volumes following stock splits.

### ***2.3.2 Post-Earning Announcement Dates and Share Prices Performance***

Kruger, Mlonzi and Nthoesane (2011) study on all the companies listed on the JSE that announced annual earnings between 1 January and 31 December 2009 findings revealed that there is substantial negative share price reaction to earnings announcements on the JSE. The conclusion of the research was during a period of decline, the shareholders' wealth is eroded at the JSE however; the market's efficiency weakness enables investors and entrepreneurs to exploit the market for proceeds when the market performance is proper. Dey (2008) analysis on announcements of earnings showed that institutional investors do not obtain excess returns from trading pre or post the announcements. However, hours after the announcements Individual investors were seen to drastically earn weak positive surplus income.

The investors were also observed to suffer significant negative excess returns on the immediate day after the announcement.

Moranga et al (2015) in a study carried out at NSE to determine the speed of price adjustment and the pricing efficiency of the Nairobi Stock Exchange market after earnings announcements. The study targeted all the companies listed at the Nairobi Stock Exchange, utilizing a sample of 20 companies. Data consisted of the closing prices of the stocks on the day of announcement, and on the 1st, 3rd, 7th, 14th and 28th day before and after earnings announcements. The study found that excess returns were realized both before and after the day of announcement. Excess returns did not approach zero within the 28th day window, which means that it takes more than 28 days for excess returns to cease. Odhiambo (2013) carried out a study at NSE on the effect of dividend and earning announcement on share prices. The study was carried out among 10 selected companies that make dividend and earning announcement. The study results indicated that dividend and earning announcement does not have any effect on shareholder's value.

Aroni (2011), in his study on factors that affect stock prices for companies listed in the Nairobi Stock Exchange, demonstrated that exchange and interest rates correlate negatively with stock prices while inflation and money supply correlate positively with stock prices. Factor models are used to monitor the sensitivity of an asset return as a function of one or more factors. Further, the regression results revealed that the factors of exchange rate, inflation and interest rates were significant apart from money supply which even though it had correlation that was positive, the relationship was insignificant. This research was based on the firms listed at the NSE between January 2008 and December 2010.

Kisaka et al (2014) conducted a research on 32 companies listed continuously at the NSE from 1 January 2001 to 31st December 2005. This research was conducted on the reverse weekend anomaly at the Nairobi Securities Exchange in Kenya. Since the effects of the reverse weekend tend to be linked with stocks of large firms, the data set was divided into two subsamples for both big and small firms. The two sub-samples and full sample stock returns were regressed on a weekly basis for the daily stock returns. An examination was conducted on the magnitude, sign and significance of Monday returns in comparison to those of other days of the week. The Monday results were observed to be highly significant but their coefficient was not positive. Therefore, it was concluded that the NSE does not experience the reverse weekend anomaly. This finding is credited to the efficiency of the NSE which is increasing. The findings of this study are consistent with the findings of Leuthold (1998) but are contrary to those of Brusa, Liu and Schulman (2005).

### ***2.3.3 Earnings Announcement Date and Changes in Share Price***

Since the introduction of EMH, there has been thorough empirical examination throughout the world as to what degree markets conform to EMH and guarantee symmetric information to all participants in them. In financial statements, earnings are considered the premier information that constitutes critical indicators of present and future state of the organization. Research demonstrates that when earnings information is made available to the market participants, chances of it evoking a market response are higher. The empirical evidence point that there is a relation between security returns and accounting information and such a connection becomes evident during earnings announcement, which is the main focus of this study.



There is a high level of uncertainty surrounding earnings announcements, which form a significant event for the market since the content of its information in relation to the market participant's expectations increases volatility which keeps rising gradually, until the date of announcement and then falls to its typical level. Isakov and P'erignon (2001) argue that this uncertainty falls to its normal level within a shorter period in case the news is positive than if the news is negative. Information asymmetry among the participants in the market lessens after the earnings announcement meaning that the information content in them is new. It has also been observed that information levels in the market differ among investors, and that there is gradual disclosure of private information resulting in the stock market liquidity prior to the release of earnings. Cho (2007) observes that before earnings are officially revealed, investors tend to seek some private information. The market's information asymmetry gives a chance to the informed participants in the market to act based on their interest, causing the market to experience high volatility of the stock prices based on the anticipated content of the earnings release.

Trading practices and trading volume portray the information that speculators have at the stock market and assist in predicting the stock prices in the future, where there is some connection between the large increase in volume and a large change in price. Eilifsen et al (2001) observe that the anomalies evidenced in stock prices following income report release illustrates that income numbers reflect information. Stock returns vary more around the date of earnings announcement than during the non-announcement period, signifying presentation of new information. Moreover, according to Trueman et al (2003), price volatility declines after the announcement effect of uncertainty and decreased information asymmetry. Demand may increase in case of optimism in the period prior to the announcement thus resulting in stock price hype during that period.

However, rationalization in the period after the announcement lowers the price even further in a window of about ten days around the date of announcement and average abnormal returns remain economically large. Lamaont & Frazzini (2007) observes that financial and accounting reporting and the content of their information play a major role in the reaction of stock price where announcement about earnings increase triggers positive stock price reaction and vice versa. The correlation between trading volume and stock returns appear to be positive, but the fact that information is unevenly distributed as well as the idea that the attitude of investors during the preannouncement period is optimistic leads to an increase in stock price and trading volume based on the stock's past performance during announcement periods.

However, the impact of the size of the firm over this specific performance is significant where the stocks of firms that are relatively small display large, positive abnormal profits around the dates of earnings announcement due to asymmetry of information, and firms that are large do not show returns that have significant around these dates. This clearly implies more information inequality during periods before announcement as compared to periods after announcement, which is related more with smaller firms exposed to lesser market supervision and most of their personal information is revealed through their official confessions, (Vieru, 2002).

Setiawan (2008) in his research titled 'an analysis of market reaction to CEO turnover announcement: the case in Indonesia which sampled 59 firms from 1992 to 2003' showed that the reaction of the market to all CEO turnover announcements is positive. Furthermore, the evaluation of the effects of succession process demonstrated that the reaction of markets to routine change is positive, but there is no reaction to non-routine change.

When a company's insider becomes the next CEO the reaction of the market is positive unlike the mixed reactions of the market observed when an outsider becomes the next CEO.

Maina (2009) carried out a study on stock returns and trading activity around earnings announcement times at the NSE. This research yielded evidence of abnormal profits and abnormal trading in the days immediately after announcement of earnings. Likewise, Njuru (2007) evaluated the response of the market to dividend announcements. He observed sustained positive returns for days after an announcement of stock dividends at the NSE. Kiremu (2013) also analysed the change in share prices and trading volumes from 2006 to 2010 in response to annual earnings announcement by listed firms. Using an event study methodology, this research concluded that abnormal returns were persistent in stocks that had favourable announcements for up to 91 days.

Prakash (2013) did a study to study the relevance of event study or semi-strong informational efficiency of the Indian Stock Market. The study aimed to explore the speed and accuracy of incorporating corporate earnings and action into share prices. The data used for the study were basically secondary in nature, which was collected from the official websites of National Stock Exchange for the period from 1st April 2008 to 31st March 2010. The study was done on fifteen companies from the list of S&P CNX Nifty. The study results indicated that in an extended study of ASRV, reaction of market is not significant and market is not leaving any scope for investors to earn abnormal returns. The study also revealed that AAR is significant for 9 days out of which AAR is also found to be significant at announcement date showing that the market is able to capture the information quickly.

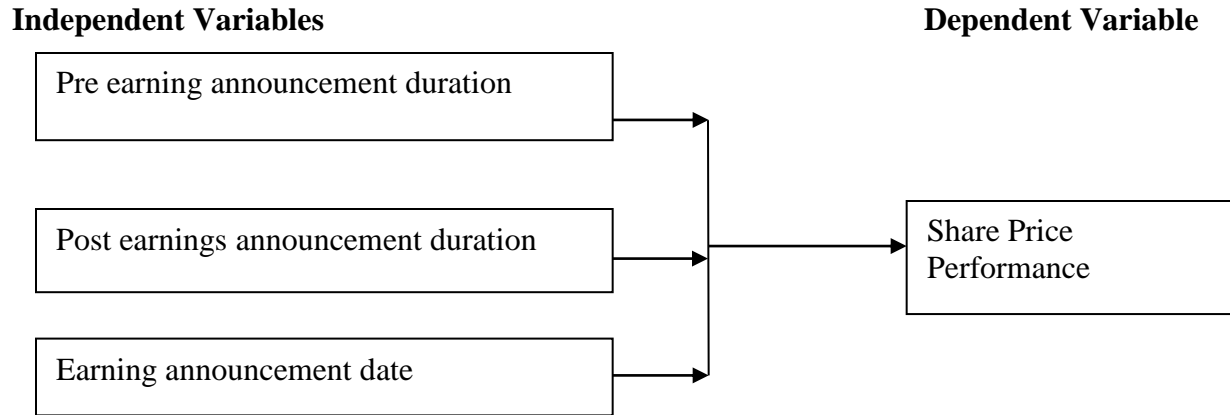
#### **2.3.4. Summary of Literature**

Empirical studies have generated varying opinions as to whether to agree or disagree with the efficient markets hypothesis, which dates back to many years. A review of literature established that there are studies that support the hypothesis and those that reject it. This differential can be attributed to many factors, key of which relate to the level of efficiency of a market, the growth of the economy in which a market is located, the level of sophistication of investors, and the number of listed firms. The local market, from the literature, is seen to be faced with challenges that are also common with other markets in emerging economies. Most of the most reviewed studies on informational efficiency of the emerging markets relied on the use of annual, monthly and weekly price data and have been conducted on either quarterly or annual earnings announcement. This study fills the gap by using half year results to investigate the effect of earning announcement on share price performance of financial service firms listed at NSE.

#### **2.4 Conceptual framework**

The conceptual model in Figure 2.1 shows two sets of variables, the independent variable and dependent variable. Earning announcement is taken as the independent while share price performance is taken as dependent variable. In this study, when any of the components of the independent variable changes, then a change in share price is anticipated.

**Figure 2.1: Conceptual Framework**



*Source: Author (2015)*

## 2.5 Operationalization of Variables

This section provides a description of the variables considered in the study and how they were measured. This is presented in Table 1.

**Table2.1: Operationalization of Variables**

Variable	Indicators	Level of measurement
Pre earning announcement	The period between day seven and day one before the half year results are announced	Scale
Post earnings announcement	The period between the first day and the seventh day after the half years results are announced	Scale
Earning announcement date	The day when the firm announces the half year results	Scale
Share Price Performance	The returns from the share price gains computed as a change from a day to the next day	Scale

*Source: Author (2015)*

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1. Introduction**

This chapter provides a description of the procedures and methods used in carrying out the study. The methodology will be guided by the study objectives that had been laid down in chapter one. It explains the location of study and describes the instruments for data collection and analysis. The rest of the chapter is outlined as follows; Research design, population, sample design, data collection and data analysis.

#### **3.2. Research Design**

The study utilized the event study methodology. According to Gilson and Black (1995), the event study methodology is a common statistical method to assess the impact of an event on the value of a firm. They additionally state that the basic idea in such studies is to find the abnormal return attributable to the event being studied by adjusting for the return that stems from the price fluctuation of the market as a whole.

The focal point of this study was the date of earnings announcement, and the analysis period was pivoted around this date. As such, the research considered a 15-day event window beginning from -7 day to +7. The day of earnings announcement was day zero, at the centre of the evaluation period.

### **3.3. Target Population**

The population for this study was the firms listed under the banking and insurance segments in the NSE that traded consistently over the 2010 to 2014 period. According to NSE (2015), there were 17 such firms. Listed firms were preferred because they are required by the Capital markets Authority (CMA) to publish their semi-yearly audited financial statements and thus this information is available at the NSE. A Census of all the firms in the Insurance and banking industry was undertaken. This was because the study population was small and therefore it was plausible to collect data from all its members.

### **3.4. Data Collection**

The event study was the earning announcements for the period from January 2010 to December 2014. For conducting the study, three sets of data were used. The first set of data consisted of half year earnings announced by the sample firms. This included the dates on which Board of Directors met and approved accounts of the firm at the end of the half year period for which earnings are announced. The second set of data consisted of daily closing prices of the sample of stocks at the National Stock Exchange for the period covered by this study. The third set is collection of share price index for the period of study. In the earnings report all the half year announcements for the study were considered, resulting in a 15 window period for the analysis as a whole.

### 3.5. Data Analysis

The data collected for this study was analyzed using the STATA statistical software. Non-parametric tests were used to test the regression model. This is because they are well-specified and more powerful at detecting a false null hypothesis of no abnormal returns.

#### 3.5.1 Empirical Model

The data collected for this study was analysed using the market model. Market model, according to MacKinlay (1997) is more widely used in empirical research and its assumptions are statistically and empirically reasonable. Thus the estimated model was specified as:

$$R_{it} = b_0 + b_i R_{mt} + \varepsilon_{it} \dots\dots\dots (i)$$

Where:

$R_{it}$  is the actual returns on stock  $i$  at time period  $t$ .

$R_{mt}$  is the returns in the market at time  $t$ .

$\varepsilon_{it}$  is the error term.

$B_i$  is the sensitivity of the returns to the market returns.

The normal return was calculated for each security for each day in the event window. For stock  $j$  and event day  $t$ , the normal return  $ER_{jt}$ , was calculated as:

$$ER_{jt} = \alpha_j + \beta_j R_{mt} \dots\dots\dots (ii)$$

Abnormal returns (AR) were estimated before, during and after the announcement time to test for market reaction to the earnings announcements. This was obtained as:

$$AR_{it} = R_{it} - ER_{jt} \dots\dots\dots (iii)$$



The abnormal return is the percentage change in share price below or above what would normally be expected to occur. The average of the firm's returns over the five years was computed for each firm. Average ARs were obtained across all the observations to improve the reliability of the analysis using the model:

$$AAR = \Sigma AR / m \dots\dots\dots (iv)$$

Where m is the number of firms in every category. The ARs was tested for statistical significance using the t-statistic:

$$tAR = AR_{it} / SD (AR_{it}) \dots\dots\dots (v)$$

Where SD (AR<sub>it</sub>) is the standard deviation of AR<sub>it</sub> calculated over the estimation window. To make generalizations and to draw an overall conclusion for the market response to earnings announcements, this study analysed the cumulative average abnormal returns (CAARs) for the event window, from the start of the event period t, -7 up to day t, + 7 as follows:

$$CAAR_t = \sum 1/N \Sigma AR_{it} \dots\dots\dots (vi)$$

The CAARs for each security were obtained by summing abnormal returns (ARs) over the event window. The total CAARs were summed up to obtain the cumulative mean abnormal returns and then test for statistical significance using a similar t-statistic to the one adopted for testing the statistical significance of abnormal returns. The new t-statistic was calculated as:

$$tCAAR = CAAR_t / (SD (AAR_t) \sqrt{d}) \dots\dots\dots (vii)$$

Where  $SD(AAR_t)$  is the standard deviation of  $AAR_t$  calculated over the event window while  $d$  is the number of days used in computing CAAR. The data collected for this study was analysed using STATA. It was used to generate market returns, abnormal returns and statistical values to test significance. Tables and graphical presentations were considered appropriate to present the data collected for ease of understanding and analysis.

## **CHAPTER FOUR**

### **DATA ANALYSIS , FINDINGS AND DISCUSSION**

#### **4.1 Introduction**

The chapter focuses on data analysis, presentation and findings with respect to the objectives and questions of the research as highlighted and explained in chapters 1 and 2. The main objective of the study was to establish the stock price responsiveness to semi-annual earnings announcements of financial firms as quoted at the Nairobi Securities exchange. The research involved collection of secondary data from the Nairobi Securities Exchange as well as the Capital Market Authority (CMA) database. The findings of the study are presented in this chapter.

#### **4.2 Firms Analyzed**

The study sought to analyze all the 17 financial services firms listed at the Nairobi Securities Exchange between 2010 and 2014 study period. Upon collecting the actual data, only 13 companies (76%) had declared profits and made announcements. The data analysis therefore focused on the 13 firms.

#### **4.3 Closing Daily Share Prices and Their Corresponding 20-share indices**

The share prices and the share index of the 13 firms involved in the study as obtained from reports from the NSE and the CMA were examined. The closing stock prices from the announcement date and from 7 days (-7) before and 7 days (+7) after was also recorded. Results in Table 4.1 indicate a sample of data from Barclays Bank Ltd in 2014.

It shows that before the event date (T-0) the share price were valued between Kshs 60 and 62.5 but increased gradually from T+1 to T+7 to between kshs 63 and 65 after declaration of the earnings. The results of the other 12 firms were analyzed and the trend was similar to the results in Table 4.1, as shown in Appendix 2.

**Table 4.1: Daily Share Prices and Corresponding Index of Barclays Bank Ltd.**

<b>Day (T)</b>	<b>Share Prices (Ksh.)</b>	<b>NSE 20-SHARE</b>
T-7	60.5	4856.15
T-5	60	4856.35
T-1	62.5	4922.99
T 0	62.5	4884.69
T+1	63	4885.71
T+5	64	4898.20
T+7	65	4902.30

*Source: Author (2016)*

#### **4.4 Descriptive Statistics**

The aim of this section is to present the descriptive statistics for each of the sampled stocks returns in the study. These include the central tendency and dispersion in terms of mean, minimum and maximum. These were calculated using STATA computer statistical package as indicated in Table 4.2. The mean for each of the 15 days window period for over 5 years was computed resulting in 75 observations per firm. From Table 4.2 the firms that reported the highest price for shares were Jubilee Insurance with a maximum price of Sh. 414, followed by Standard Bank with a price of Sh. 319 and DTB with a price of 247.

While the firm which registered the minimum price were Kenya Reinsurance with the price of Sh. 11.3, followed by Barclays Bank with Sh. 12.7 and Coop Bank with a price of Sh. 14.3.

The average share prices for the other firms are as indicated in Table 4.2. In terms of mean analysis, the firm with the highest mean price was Jubilee with Sh. 296.751, indicating that the investors would more willing to own the shares of this firm more than any other.

**Table 4.2: Descriptive Statistics for Sampled Stock Returns**

	N	Minimum	Maximum	Mean
	Statistic	Statistic	Statistic	Statistic
Barclays	75	12.7	17.15	15.925
CFC	75	82.5	130.0	111.256
DTB	75	89.0	247.0	165.68
Equity	75	22.75	45.75	35.31
HFK	75	20.75	46.75	32.75
KCB	75	17.75	54.5	38.125
Jubilee	75	162.0	414.0	296.751
Ke_Re	75	11.3	19.7	16.73
NBK	75	30.75	37.75	33.26
NIC	75	38.0	61.0	50.65
PAN	75	60.0	138.0	104.2
SBK	75	230.0	319.0	270.66
COOP	75	14.3	19.15	18.725

*Source: Research Data (2015)*

#### ***4.4.1 Analysis of Abnormal Returns and Cumulative Average Abnormal Returns***

An analysis of the Average Abnormal Returns (AARs) for the sampled firms is shown in Table 4.3. The AARs were used to generate Cumulative Average Abnormal Returns (CAARs) which were used to determine the market efficiency.

An efficient market implies that a trader cannot earn abnormal returns by trading on the basis of new information contained in earnings announcement. This means that the market quickly adjusts prices in anticipation of changes in earnings prior to announcement dates.

It can therefore be deduced that, there should exist no abnormal returns around disclosure dates since prices fully reflect all available information at T-0. The table also indicates that the mean AARs ranged from -0.64837 in day -7 to 1.394357 in day +2. There were significant average abnormal returns in day -7, and -4. The average abnormal returns in day -7 and -4 were negative (-0.64837 and -0.99533) whereas there were high positive average abnormal returns in day +2 (1.394357). This indicates existence of average abnormal negative returns before the event day and positive average abnormal returns two days after the event day.

However, results regarding CAARs indicated that there were no significant CAARs in the entire event window thus indicating that abnormal negative returns were cancelled by the abnormal positive returns. After the announcement date (event date), the cumulative average abnormal returns reduced up to day +4 (-0.0131) but then increased up to day +7 (0.96546). However, these CAARs were not significantly different from zero. These findings indicate that though the financial firms posted good news in their end of year results, this resulted to increased earnings from the shares but the earnings were cumulatively abnormal. This indicates a level of efficiency in the stock exchange.

**Table 4.3: Average Abnormal Returns and the Cumulative Average Abnormal Returns**

Day (T)	AAR	CAAR
-7	-0.6484	-0.64837
-6	-0.4872	-1.13554
-5	0.03004	-1.1055
-4	-0.9953	-2.10083
-3	0.37899	-1.72185
-2	-0.2509	-1.97277
-1	-0.215	-2.18774
0	-0.5351	-2.7228
1	0.59278	-2.13002
2	1.39436	-0.73567
3	0.38599	-0.34968
4	0.33656	-0.01312
5	0.78408	0.77096
6	-0.4028	0.368187
7	0.59728	0.965464

Figure 4.1 illustrates the trend of the AAR for the fifteen days under consideration. Overall the AAR increased over the event window, but had fluctuations. This meant that there were positive abnormal returns in some days which cancelled out the negative abnormal returns. However, after the announcement date (T-0), the abnormal returns shot up to the highest return over the entire event window. The highest was observed on day +2. However, this reduced in the other days but did not return to the level of returns that had been observed before the announcement date.

**Figure 4.3: AAR for the event window**

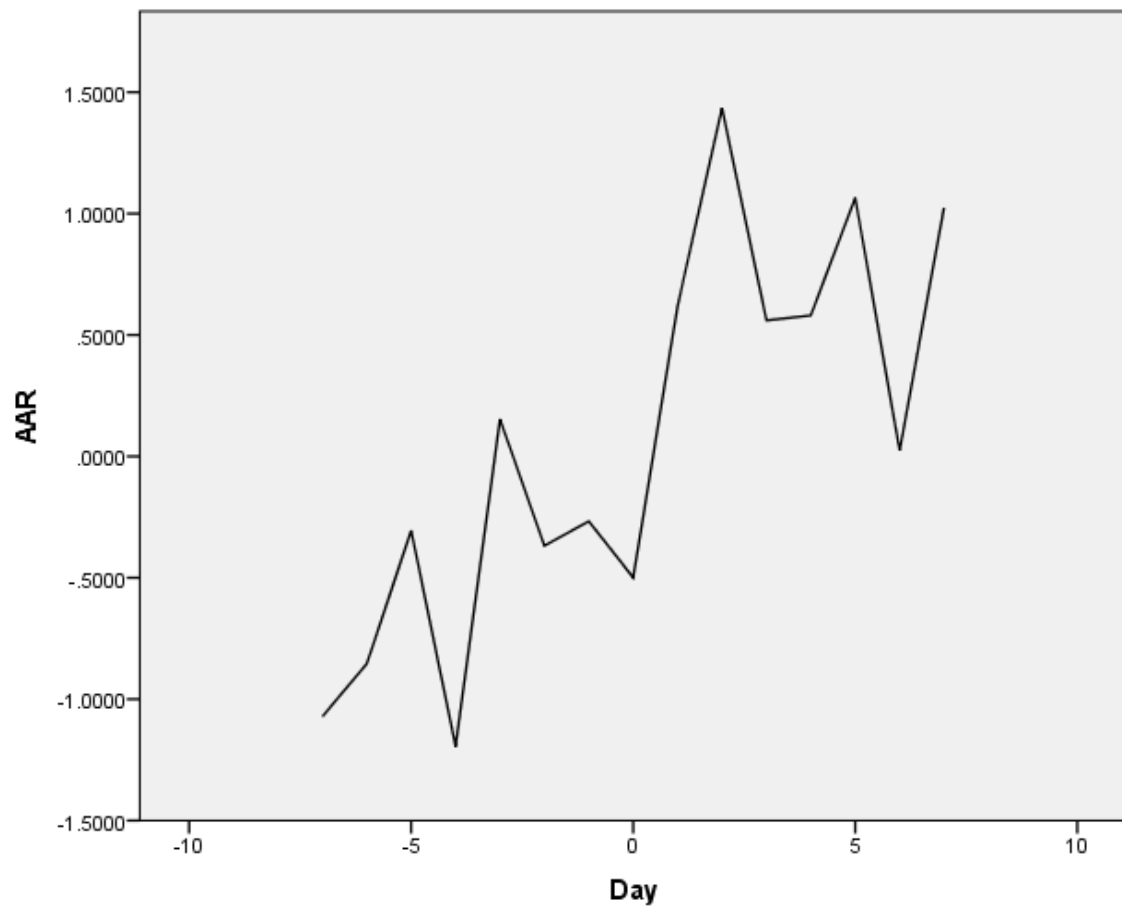


Figure 4.2 shows the results for CAAR and indicates that the CAAR for the event window reduced steadily up to the announcement date but improved steadily up to day +7.



**Figure 4.4: CAAR for the event window**

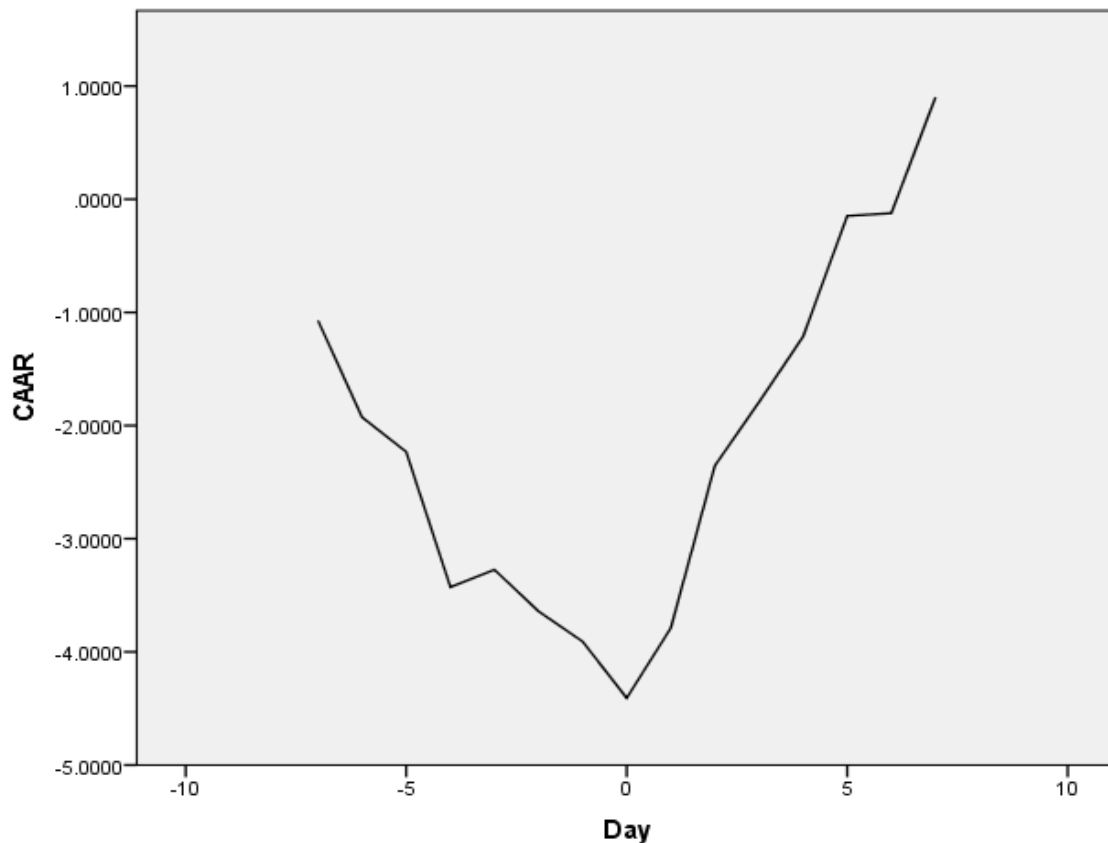


Table 4.4 shows Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR). The AAR and p-values are a summary derived from STATA statistical software output as shown in appendix 3. The test statistics were at 95% confidence level and any output less than p-value of 0.05 was considered significant. The CAAR statistics were computed as CAAR values divided by the standard deviation of the AAR multiplied by the square root of the number of days used to compute the CAAR, thus the formula  $CAAR = CAAR_t / (SD(AAR_t) \sqrt{d})$  was applied. The p-values associated with the CAAR were computed using t-statistics table at N-1 degrees of freedom on the CAAR statistics values and finding the minimum and maximum values where the statistics lies in the table. The output is as shown below:-

**Table 4.4: Average Abnormal Returns and Cumulative Abnormal Returns t-test**

Var	Day (T)	AAR	AAR t-statistics	p-value	CAAR	CAAR t-statistics	p-value
Var1	-7	-0.6484	-3.789	0.0013	-0.6484	-1.0058	0.3337
Var2	-6	-0.4872	-0.8275	0.2121	-1.1355	-1.2456	0.2369
Var3	-5	0.03004	0.0808	0.5315	-1.1055	-0.9901	0.3412
Var4	-4	-0.9953	-3.7291	0.014	-2.1008	-1.6294	0.1316
Var5	-3	0.37899	0.5396	0.7003	-1.7219	-1.1945	0.2559
Var6	-2	-0.2509	-0.4801	0.3199	-1.9728	-1.2493	0.2356
Var7	-1	-0.215	-0.3068	0.3821	-2.1877	-1.2827	0.2231
Var8	0	-0.5351	-0.6681	0.2584	-2.7228	-1.4933	0.1644
Var9	1	0.59278	0.975	0.8256	-2.13	-1.1014	0.2906
Var10	2	1.39436	0.8899	0.8045	-0.7357	-0.3609	0.7392
Var11	3	0.38599	0.5957	0.7188	-0.3497	-0.1636	0.8818
Var12	4	0.33656	0.3021	0.6161	-0.0131	-0.0059	0.9957
Var13	5	0.78408	1.0745	0.8481	0.77096	0.3317	0.976
Var14	6	-0.4028	-0.5201	0.3062	0.36819	0.1526	0.8897
Var15	7	0.59728	0.6781	0.7447	0.96546	0.3867	0.7206

The first column in Table 4.4 shows analysis that the event window was set to be 15 days; 7 days before and 7 days after the event date. The event date is represented by 0 which is the exact day when the Board of directors releases the semi-annual earning. This period was considered to enable the researcher to first determine the normal returns before calculating abnormal returns from the stocks.

The table shows a summary of statistics based on the classical test of hypotheses using one sample mean comparison test computed using the STATA statistical package and highlights all statistics of the stock returns. The average abnormal returns (AARs) column shows the behavior of the returns for pre-announcement date (-7), announcement date and post announcement period.

The pre-announcement figures were mostly negative, indicating that investors had already received news of the share price but there was no actual change of the prices of the shares. The next column presents values of the AARs for statistical significance using the t-statistic. The p-values associated with the AAR statistics show that the values were significant at day one (p-value=0.0013) and day 4 (p-value=0.014). The other pre-announcement p-values were non-significant.

From the Table, on the actual date of announcement (Var8), the AARs, were non-significant but, gained value showing the market response to the announcement of the stock prices. After the announcement, the AAR values became positive and the corresponding p-values were all positive though non-significant. The positive t value was a clear indication that an earnings announcement carries relevant information in determining stock prices. An observation was made that the AARs tend to be negative a few days before the announcement date and positive a few days after the announcement date, depending on whether the earnings are negative or positive. The positive and negative AARs around the announcement period imply that earnings disclosures are a factor in determining share prices. Resulting from the analysis, the study failed to reject the null hypothesis ( $H_{01}$ ) that 'Earnings announcements have no significant effect on share prices performance of financial services listed at NSE' and deduced that the inconsistent nature of AARs indicates that the earning disclosure is not the only factor and thus prices react to other factors as well.

In the next section, cumulative abnormal returns (CAARs) were presented as indicated in Table 4.4. The CAAR and the CAAR t-statistics were all negative for the firms in the preannouncement dates and post announcement dates (periods -7 to +4) and then became positive on the fifth day after the announcement (+5 to +7).

Negative CAARs as depicted by the sampled firms implied that the market may fail to integrate all the information and thus may lead to negative cumulative average abnormal returns depending on the efficiency of the market. However, none of these abnormal returns were significant (p-values were all greater than 0.05). The insignificant nature suggested that the earnings announcement has key information that the market uses to adjust stock prices. However, the insignificant nature indicates that the market absorbs the information efficiently. This implies that NSE was seen to be in general efficient in incorporating information into the prices of stocks as instances of average abnormal returns were very few while there were no significant CAARs. This further meant that though the Kenyan securities market reacts to information contained in earnings announcements, the stock prices tend to adjust prior to the declaration of the real announcement. These results confirm that the announcement dates are not necessarily eventful as such.

The key findings in the study are presented based on the stock price responsiveness to semi-annual earnings announcements of financial firms quoted at the Nairobi Securities exchange. The discussion centers on; the effect of pre earning announcement on share prices performance of financial services firms, the effect of post earnings announcement on share prices performance of financial services, and the effect of earning announcement dates on share prices performances of financial services listed at NSE.

#### **4.5 Effect of pre earnings announcement on share prices performance of financial firms**

The first objective sought to find out the effect of announcement in the pre-announcement period. The results showed that stock prices do react to the information announcements, especially a few days towards the event date (-7 and -4) where the firms had negative average abnormal

earnings. The reason for the reaction was attributed to the action from investors to dispose off their non-performing stocks and to acquire those stocks that would promise to pay higher earnings in future. These results are consistent with results obtained in earlier studies both locally and internationally.

Setiawan (2008) demonstrated that on the international front, the earnings announcements contain significant information to investors which are fully impounded in stock prices prior to or almost instantaneously at the time of announcement as long as announcement date has positive excess returns. Based on the evidence provided by the scholar, it was concluded that semi strong model of EMH is present in the stock market. Based on this evidence, the stock market portrays a performance that is both positive and significant on the second month after earnings announcement. According to the conclusion of Setiawan (2008), semi-annual earnings announcements contain important information for the market. Further, he suggested that there is no post earnings announcement drift observed over the next half year after the semi-annual announcement.

The random nature of price adjustments where there is a negative market reaction before announcement could portray the level of literacy in the markets which are characteristics of developing countries. The investors are poorly informed and with the low technological advancements in the sector they are likely to be biased in analyzing information. They tend to take time in responding to new information and do so at a future date. Gupta and Kumar (2007) gave a similar argument by concluding that huge transaction and trading costs and poor information dissemination create significant impediments to trading thereby preventing a correct and complete response to earnings announcements. It is therefore evident that investor ability to disseminate information and predict the markets is key in adjusting security prices.

Related results were registered by Mlambo (2003) who noted that in the region, prices of shares start to drift upwards or downwards even six months before the publishing of the semi-annual annual report. This view supports the possibility of early reactions to earnings announcements. By the time the annual report is published, only about 10- 15% price movement is expected. Musyoka (2011) observed that the presence of initial reactions in the local market leads to subsequent corrections which can go in a direction opposite to the initial response. He further argued that an initial over- or under-reaction will most probably be corrected over a long period of time after the semi-annual announcements. Finally, Rono (2013) noted that announcements contain germane information to investors which are fully impounded in the stock prices prior the announcement dates. Rono proved that NSE shows presence of semi-strong EMH.

#### **4.6 Effect of post earnings announcement on share prices performance of financial firms**

The second objective sought to find out the effect in the post-announcement period, the results from the analysis showed that stock prices starts rising once again beyond the event date. However, the rise was not significant though there were high AARs in day +2. However, this was the only post announcement date that showed high positive abnormal returns. However, the CAARs showed that these abnormal returns were cancelled out by the abnormal negative returns before the announcement date. This indicates that though prices were observed to adjust to the announcement, the adjustment was normal.

These results are consistent with Modigliani and Miller (1961) dividend signalling theory which indicates that, the stock markets are expected to be efficient where stock prices adjust rapidly to reflect the information available in the market. It implies that the market anticipates

earnings changes before they are actually declared and thus can be able to determine security prices.

It also implies that there should be no abnormal returns that should be earned during earnings announcement period since the prices already reflect all available information. From the table presented, it is evident that positive abnormal returns are obtained for those firms whose earnings are expected to rise and negative for those whose earnings are expected to decline. Therefore the perception of the market about the future prospects of firm's earnings seems to determine the abnormal returns.

#### **4.7 Effect of earnings announcement dates on share prices performance of financial firms**

The third objective was to establish the reaction on day zero which is the day when announcements are made and it was established that, there were no significant average abnormal earnings on the day of announcement ( $AAR = -0.5351$ ;  $p > 0.05$ ). This indicates that investors would not benefit from arbitrage as the prices of shares seem to reflect normal earnings. Hence only those investors that are in possession of the dividend promising stocks before the last date to trade will actually benefit from the annual announcements.

Similar results were posted by Dey and Radhakrishnan (2008) whose focus was on international front, the degree of cumulative abnormal returns is dominated by significant reactions half a month before the earnings release date and persistent downward drift of the cumulative abnormal returns. However, another half a month, approximately 15 days after the announcement, the Indonesian stock market did not suggest any efficient adjustment to earnings information for the sample firms within the study period. Likewise, Gupta and Kumar (2007) found out that prices drifted beyond the earnings announcement week which is inconsistent with the

efficient markets hypothesis (EMH) which states that the price reaction to new information must be instantaneous and unbiased.

Based on a research conducted by the scholars in the New Delhi on semi-annual earnings announcements, it was concluded that earnings information disclosures do contain relevant information which affects performance of firms on the stock market.



## **CHAPTER FIVE**

### **SUMMARY , CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This section presents a summary of the study findings, gives the conclusions of the study guided by the objectives of the study and finally the chapter finally presents recommendations.

#### **5.2 Summary of Findings**

The study sought to determine the effect of Semi-Annual Earnings Announcement on the Share Price Performance. A classical test of hypotheses using one sample mean comparison test was adopted in testing the research questions.

The first objective sought to find out the effect of announcement in the pre-announcement period. The results showed that stock prices do react to the information announcements, especially a few days towards the event date (-7 and -4) where the firms had negative average abnormal earnings. The reason for the reaction was attributed to the action from investors to dispose off their non-performing stocks and to acquire those stocks that would promise to pay higher earnings in future. These results are consistent with results obtained in earlier studies both locally and internationally.

The second objective sought to find out the effect in the post-announcement period, the results from the analysis showed that stock prices starts rising once again beyond the event date. However, the rise was not significant though there were high AARs in day +2. However, this was the only post announcement date that showed high positive abnormal returns. However, the CAARs showed that these abnormal returns were cancelled out by the abnormal negative returns before the announcement date. This indicates that though prices were observed to adjust to the announcement, the adjustment was normal.

The third objective was to establish the reaction on day zero which is the day when announcements are made and it was established that, there were no significant average abnormal earnings on the day of announcement ( $AAR = -0.5351$ ;  $p > 0.05$ ). This indicates that investors would not benefit from arbitrage as the prices of shares seem to reflect normal earnings. Hence only those investors that are in possession of the dividend promising stocks before the last date to trade will actually benefit from the annual announcements.

### **5.3 Conclusions**

The study concludes that cumulative average abnormal returns for financial services firms in the NSE are negative before and during the announcement date. The CAARs remain negative until day +5 when they become positive up to day +7. However, these CAARs are not significant. The insignificant CAARs suggest that earnings announcement do not provide valuable information that investors may not know hence leading to few adjustments to the price. This position is consistent with the theoretical literature that the announcement of information in the market has no significant effect on the performance of stocks specifically for financial services firms.

However there was no evidence of efficient market hypothesis where prices quickly and rapidly adjust to new information. Evidence show that prices drifts 5 days after earnings announcements and there seems to be abnormal price adjustments few days before and after announcements. This implies that knowledgeable investors can earn abnormal returns from investing in stocks of firms likely to increase their earnings. However the random nature of stock price behavior shows the possibility that one can also earn negative abnormal returns thus calling for proper policy framework to stabilize the stock exchange.

The findings show a small degree of price reaction for most firms takes place in the pre-announcement period. This leads to a conclusion that the insignificant cumulative abnormal returns recorded could be due to the efficiency of the market and the ability of investors to predict the companies of the firms that they have invested in. This implies that developing African markets are becoming efficient and investors are learning on how to use information to even predict future performance. This further indicates that the numerous institutional, infrastructural and regulatory weaknesses, including poor corporate governance practices which hindered access to information as observed by Mlambo (2003) have been generally dealt with and the market is moving towards efficiency.

#### **5.4 Recommendations to Policy and Practice**

Efficiency in the stock markets has enormous benefits cutting across all sectors of the economy. It is therefore imperative for every government to strive towards attaining sustainable levels of efficiency. From this study, various recommendations are made to policy makers to act as a key to determining a clear policy framework for the Kenyan stock market.

The first recommendation is that the Kenyan government through its regulatory bodies CMA and NSE should ensure that laws governing insider trading are adhered to by all participants in the stocks market. There is a need to effectively monitor and control the stock market in order to improve efficiency in terms of information release. The ease and equality of access to information will boost the investor confidence and encourage healthy competition which improves information efficiency in the stock markets.

The second recommendation is that companies should be compelled to release timely and accurate information to enable investors to make accurate decisions in both annual and semi-annual announcements. Regulators and policy makers therefore have to impose stringent penalties on those companies that do not release their statements on time to deter others from following suit. Delayed disclosure sends negative signals to the market therefore leading to investors making biased decisions. Timely disclosure will reduce unnecessary speculations. Accuracy in information releases enables the investors to make decisions based on real figures that are not manipulated to suit management needs and thus boosting their liquidity and confidence in the stock markets.

### **5.5 Limitations of the Study**

This study was confined to the use of secondary data which raises reliability issues of the data used. The data relied upon was obtained from Nairobi Securities Exchange and the Capital Markets Authority databases. Relying on the secondary data means that any error in the source will also be reflected in the research, that is, errors and assumptions not disclosed in the source documents will also reoccur in the research. The research was also conducted over a short period of time. Data collection had to be limited and verification of the collected data being nearly impossible, since the reliability of the data depended on the source.

The study was only limited to firms that are listed at the NSE and which were continuously listed throughout the study period of (2010 to 2014). The researcher also sampled only those firms whose earnings were disclosed consistently and whose information was published at the Capital Markets Authority. This may not have been adequate to draw inference to the general population as listed companies may not be an objective representative of all firms in Kenya.

The non-listed companies were left out due to the difficulty in obtaining the information even though they play a major role in determining the price adjustments. Furthermore only earnings announcements were considered in making conclusions though other factors like weekend effects and January effect may have an effect on stock prices.

## **5.6 Suggestions for Future Research**

The effect of earnings announcements has been extensively researched, however due to various technological and institutional changes no one study is ever conclusive. It is therefore imperative that more research needs to be done to provide more information to investors, traders, scholars and general public. This study only focused on 13 financial companies out of the targeted 17 companies and thus future research should be carried out to cover a larger sample that would enable wider generalizations to be made. To improve on this study, a similar study could be carried out to cover a longer period of time so as to obtain more reliable findings. The event window of 15 days can be increased further to more days.

This study was limited to a single market among the wider developing markets in African continent. To obtain comprehensive evidence that in making generalizations about all the developing countries, future studies are required to be carried out for other emerging markets in Africa to ascertain the extent to which these findings can be relied upon. Different countries in Africa have portrayed political maturity and have put in place proper institutional mechanisms like South Africa, thus a study in every economy would improve the reliability of the findings. Furthermore, due to the relatively smaller sample of 13 companies, further research should target at analyzing a much broader sample size that will provide a more comprehensive findings to be made.

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## APPENDIX 1

### Data Collection Form

**Firm Name:** \_\_\_\_\_

Date		2010	2011	2012	2013	2014
<b>-7</b>	Share price					
	Index					
<b>-6</b>	Share price					
	Index					
<b>-5</b>	Share price					
	Index					
<b>-4</b>	Share price					
	Index					
<b>-3</b>	Share price					
	Index					
<b>-2</b>	Share price					
	Index					
<b>-1</b>	Share price					
	Index					
<b>0</b>	Share price					
	Index					
<b>1</b>	Share price					
	Index					
<b>2</b>	Share price					
	Index					
<b>3</b>	Share price					
	Index					
<b>4</b>	Share price					
	Index					
<b>5</b>	Share price					
	Index					
<b>6</b>	Share price					
	Index					
<b>7</b>	Share price					
	Index					

## APPENDIX 2

### Share Price and Share Indexes of Listed Financial Firms at NSE

	Barclays bank ltd		CFC Stanbic holdings		DTB bank ltd	
Event	Share price	Share index	Share	Share	Share	Share
-7	60.5	4856.15	85	4885.71	89.5	4856.54
-6	63.5	4856.87	83.5	4884.69	94.5	4866.71
-5	60	4856.35	82.5	4922.99	94.5	4881.56
-4	63.5	4895.72	82.5	4925.86	94	4895.13
-3	62.5	4925.86	82.5	4885.04	94	4885.29
-2	61.5	4921.67	84.5	4834.02	96	4888.36
-1	62.5	4922.99	85	4856.35	95	4899.92
0	62.5	4884.69	85.5	4845.6	96.5	4925.58
1	63	4885.71	86	4856.15	97	4915.06
2	61.5	4856.15	88	4843.36	97	4902.62
3	62.6	4843.36	90	4825.52	97	4920.61
4	63.5	4825.52	91	4797.42	96	4939.49
5	64	4898.2	94	4790.38	97.5	4967.57
6	65	4901.21	90	4764.11	100	4945.33
7	65	4902.3	88.5	4787.94	109	4940.99

	<b>Equity bank ltd</b>		<b>Housing Finance Ltd</b>		<b>Jubilee holdings Ltd</b>	
<b>Event</b>	<b>Share price</b>	<b>Share index</b>	<b>Share</b>	<b>Share</b>	<b>Share</b>	<b>Share</b>
-7	23.25	4895.13	20.75	4882.73	164	4895.13
-6	23.25	4885.29	20.75	4896.77	164	4885.29
-5	23.25	4888.36	20.75	4910.6	169	4888.36
-4	23.5	4899.92	21.75	4913.61	169	4899.92
-3	23.75	4925.58	23.25	4870.96	166	4925.58
-2	23.75	4915.06	23.5	4889.99	174	4915.06
-1	24	4902.62	24.5	4902.3	174	4902.62
0	24	4920.61	24.75	4902.18	176	4920.61
1	25.25	4939.49	25.75	4898.29	182	4939.49
2	25.5	4967.57	26	4892.84	198	4967.57
3	26.75	4945.33	26.75	4876.01	184	4945.33
4	24.75	4940.99	26.25	4868.81	196	4940.99
5	25	4975.39	25.25	4885.71	193	4975.39
6	24.25	4978.2	24	4884.69	188	4978.2
7	24.5	4963.76	24.5	4922.99	190	4963.76

	<b>Kenya Commercial Bank</b>		<b>Kenya Re Insurance</b>		<b>National Bank of</b>	
<b>Event</b>	<b>Share price</b>	<b>Share index</b>	<b>Share</b>	<b>Share</b>	<b>Share</b>	<b>Share</b>
-7	17.95	4830.63	11.25	4888.36	39	4899.92
-6	17.95	4859.91	11.35	4899.92	38	4895.13
-5	18.1	4848.97	11.4	4895.13	38	4885.29
-4	18.3	4856.52	11.4	4885.29	38.25	4888.36
-3	18.8	4858.16	12.05	4888.36	38.5	4899.92
-2	19	4895.13	12.4	4899.92	39	4925.58
-1	19	4885.29	12.7	4925.58	14.5	4915.06
0	19	4888.36	12.8	4915.06	43.75	4902.62
1	18.7	4899.92	12.95	4902.62	43.25	4920.61
2	19	4925.58	13	4920.61	42.5	4939.49
3	19	4915.06	12.8	4939.49	43	4967.57
4	18.85	4902.62	12.75	4967.57	40.75	4945.33
5	19	4920.61	12.4	4945.33	39	4940.99
6	18.85	4939.49	12.3	4940.99	39	4975.39
7	18.7	4967.57	12.35	4975.39	39.5	4978.2

	<b>NIC Bank Limited</b>		<b>PAN AFRICA</b>		<b>STANDARD</b>	
<b>Event day</b>	<b>Share price</b>	<b>Share index</b>	<b>Share</b>	<b>Share</b>	<b>Share</b>	<b>Share</b>
-7	38	4940.99	67	4920.61	250	4891.87
-6	38	4975.39	68	4939.49	247	4895.13
-5	39.75	4978.2	64	4967.57	257	4885.29
-4	40	4963.76	0	4945.33	251	4888.36
-3	40	4962.06	64	4940.99	251	4899.92
-2	39.5	4946.24	68	4975.39	254	4925.58
-1	39.25	4942.87	0	4978.2	262	4915.06
0	42.25	4930.63	69.5	4963.76	281	4902.62
1	45.25	4959.91	70.1	4895.13	299	4920.61
2	45	4948.97	63.5	4885.29	299	4939.49
3	44	4956.52	61.5	4888.36	297	4967.57
4	44	4958.16	62	4899.92	291	4945.33
5	41	4956.78	60	4925.58	271	4940.99
6	40.75	4923.71	60	4915.06	271	4975.39
7	41.25	4904.66	61	4902.62	252	4978.2

	<b>CO-OPERATIVE BANK OF KENYA</b>	
Event day	Share price	Share index
-7	14.7	4831.8
-6	14.7	4843.9
-5	14.8	4870.43
-4	14.9	4883.9
-3	14.9	4828.34
-2	15	4856.15
-1	15.3	4960.99
0	16.15	5015.67
1	16.6	5060.53
2	16.5	5078.13
3	16.75	5091.3
4	16.75	5063.98
5	16	5092.16
6	15.85	5075.06
7	15.95	5023.12

## APPENDIX 3

### STATA Output: AAR and P-Values

```
_____ (R)
/_ / _/ / _/
_/ / _/ / _/ 12.0 Copyright 1985-2011 StataCorp LP
Statistics/Data Analysis      StataCorp
                              4905 Lakeway Drive
                              College Station, Texas 77845 USA
                              800-STATA-PC      http://www.stata.com
                              979-696-4600      stata@stata.com
                              979-696-4601 (fax)
```

Single-user Stata perpetual license:

Serial number: 30120539271

Licensed to: David Mulli

Student

Notes:

```
. Use "C:\Users\USER\Desktop\Davkca\stata 12\auto.dta"
```

(1978 Automobile Data)

```
. clear
```

```
. *(15 variables, 13 observations pasted into data editor)
```



```
. ttest var1 == 0
```

#### One-sample t test

```
-----  
Variable |  Obs    Mean  Std. Err.  Std. Dev.  [95% Conf. Interval]  
-----+-----  
var1 |   13  -.6483682  .1711178   .616974  -1.021202  -.2755345  
-----
```

```
mean = mean(var1)                                t = -3.7890
```

```
Ho: mean = 0                                degrees of freedom =    12
```

```
Ha: mean < 0          Ha: mean != 0          Ha: mean > 0
```

```
Pr(T < t) = 0.0013    Pr(|T| > |t|) = 0.0026    Pr(T > t) = 0.9987
```

```
.
```

```
. ttest var2 == 0
```

#### One-sample t test

```
-----  
Variable |  Obs    Mean  Std. Err.  Std. Dev.  [95% Conf. Interval]  
-----+-----  
var2 |   13  -.4871732  .5887476   2.12276  -1.769944  .7955976  
-----
```

```
mean = mean(var2)                                t = -0.8275
```

Ho: mean = 0                                      degrees of freedom =      12

Ha: mean < 0                      Ha: mean != 0                      Ha: mean > 0  
Pr(T < t) = 0.2121              Pr(|T| > |t|) = 0.4241              Pr(T > t) = 0.7879

. ttest var3 == 0

One-sample t test

-----						
Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
-----+-----						
var3	13	.0300403	.3718589	1.340756	-.7801707	.8402514
-----						

mean = mean(var3)                                      t = 0.0808

Ho: mean = 0                                      degrees of freedom =      12

Ha: mean < 0                      Ha: mean != 0                      Ha: mean > 0  
Pr(T < t) = 0.5315              Pr(|T| > |t|) = 0.9369              Pr(T > t) = 0.4685

. ttest var4 == 0

One-sample t test

-----					
Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
-----+-----					

var4 | 13 -.9953311 .2669127 .9623673 -1.576884 -.4137783

-----  
mean = mean(var4) t = -3.7291

Ho: mean = 0 degrees of freedom = 12

Ha: mean < 0 Ha: mean != 0 Ha: mean > 0

Pr(T < t) = 0.0014 Pr(|T| > |t|) = 0.0029 Pr(T > t) = 0.9986

. ttest var5 == 0

One-sample t test

-----  
Variable | Obs Mean Std. Err. Std. Dev. [95% Conf. Interval]

-----+-----  
var5 | 13 .3789867 .7022947 2.53216 -1.151182 1.909156  
-----

mean = mean(var5) t = 0.5396

Ho: mean = 0 degrees of freedom = 12

Ha: mean < 0 Ha: mean != 0 Ha: mean > 0

Pr(T < t) = 0.7003 Pr(|T| > |t|) = 0.5993 Pr(T > t) = 0.2997

. ttest var6 == 0

One-sample t test

```
-----
Variable |   Obs    Mean  Std. Err.  Std. Dev.  [95% Conf. Interval]
```

```
-----+-----
```

```
var6 |    13  -.2509286  .5227759  1.884895  -1.389959  .8881023
```

```
-----
```

```
mean = mean(var6)                                t = -0.4800
```

```
Ho: mean = 0                                degrees of freedom =    12
```

```
Ha: mean < 0          Ha: mean != 0          Ha: mean > 0
```

```
Pr(T < t) = 0.3199    Pr(|T| > |t|) = 0.6399    Pr(T > t) = 0.6801
```

```
. ttest var7 == 0
```

One-sample t test

```
-----
Variable |   Obs    Mean  Std. Err.  Std. Dev.  [95% Conf. Interval]
```

```
-----+-----
```

```
var7 |    13  -.2149663  .7006024  2.526058  -1.741448  1.311515
```

```
-----
```

```
mean = mean(var7)                                t = -0.3068
```

```
Ho: mean = 0                                degrees of freedom =    12
```

```
Ha: mean < 0          Ha: mean != 0          Ha: mean > 0
```

```
Pr(T < t) = 0.3821    Pr(|T| > |t|) = 0.7642    Pr(T > t) = 0.6179
```

```
. ttest var8 == 0
```

## One-sample t test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
var8	13	-.5350595	.8008401	2.88747	-2.27994	1.209821

```
mean = mean(var8)          t = -0.6681
```

$H_0$ : mean = 0                      degrees of freedom = 12

Ha: mean < 0                      Ha: mean != 0                      Ha: mean > 0

$$\Pr(T < t) = 0.2584 \quad \Pr(|T| > |t|) = 0.5167 \quad \Pr(T > t) = 0.7416$$

```
. ttest var9 == 0
```

### One-sample t test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
var9	13	.5927777	.6079688	2.192063	-.7318725	1.917428

```
mean = mean(var9)           t =  0.9750
```

$H_0$ : mean = 0                      degrees of freedom = 12

Ha: mean < 0	Ha: mean != 0	Ha: mean > 0
Pr(T < t) = 0.8256	Pr( T  >  t ) = 0.3488	Pr(T > t) = 0.1744

. ttest var10 == 0

One-sample t test

```
-----
Variable |   Obs    Mean   Std. Err.   Std. Dev.   [95% Conf. Interval]
-----+-----
var10 |    13   1.394357   1.566836   5.649306   -2.019485   4.808199
-----
```

```
mean = mean(var10)                                t =  0.8899
Ho: mean = 0                                     degrees of freedom =    12
```

Ha: mean < 0	Ha: mean != 0	Ha: mean > 0
Pr(T < t) = 0.8045	Pr( T  >  t ) = 0.3910	Pr(T > t) = 0.1955

. ttest var11 == 0

One-sample t test

```
-----
Variable |   Obs    Mean   Std. Err.   Std. Dev.   [95% Conf. Interval]
-----+-----
var11 |    13   .3859893   .6479275   2.336136   -1.025723   1.797702
-----
```

mean = mean(var11)

t = 0.5957

Ho: mean = 0

degrees of freedom = 12

Ha: mean < 0

Ha: mean != 0

Ha: mean > 0

Pr(T < t) = 0.7188

Pr(|T| > |t|) = 0.5624

Pr(T > t) = 0.2812

. ttest var12 == 0

One-sample t test

```
-----  
Variable |  Obs    Mean  Std. Err.  Std. Dev.  [95% Conf. Interval]  
-----+-----  
var12 |   13   .3365596  1.114132   4.01706  -2.090925   2.764044  
-----
```

mean = mean(var12)

t = 0.3021

Ho: mean = 0

degrees of freedom = 12

Ha: mean < 0

Ha: mean != 0

Ha: mean > 0

Pr(T < t) = 0.6161

Pr(|T| > |t|) = 0.7678

Pr(T > t) = 0.3839

. ttest var13 == 0

One-sample t test

```
-----  
Variable |  Obs    Mean  Std. Err.  Std. Dev.  [95% Conf. Interval]
```

```
-----+-----
var13 |   13   .7840756   .7296831   2.63091  -.8057673   2.373919
```

```
-----
mean = mean(var13)                                t =   1.0745
Ho: mean = 0                                     degrees of freedom =   12
```

```
Ha: mean < 0      Ha: mean != 0      Ha: mean > 0
Pr(T < t) = 0.8481  Pr(|T| > |t|) = 0.3037  Pr(T > t) = 0.1519
```

```
. ttest var14 == 0
```

One-sample t test

```
-----+-----
Variable |   Obs    Mean   Std. Err.   Std. Dev.   [95% Conf. Interval]
-----+-----
var14 |   13  -.4027725   .7744314   2.792252  -2.090114   1.284569
```

```
-----
mean = mean(var14)                                t =  -0.5201
Ho: mean = 0                                     degrees of freedom =   12
```

```
Ha: mean < 0      Ha: mean != 0      Ha: mean > 0
Pr(T < t) = 0.3062  Pr(|T| > |t|) = 0.6125  Pr(T > t) = 0.6938
```

```
. ttest var15 == 0
```



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