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Stock price reaction to earnings announcements: a comparative test of market efficiency between NSE securities exchange and JSE securities exchange

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STOCK PRICE REACTION TO EARNINGS ANNOUNCEMENTS

A Comparative Test of Market Efficiency between NSE securities exchange and JSE securities exchange





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SUPERVISOR: DR. THABANG MOKOALELI – MOKOTELI

DECLARATION

I, Hilda Chepchumba Rono declare that the research work reported in this thesis is wholly my own work, except for references indicated, and any help as I have acknowledged. This thesis has not, either in whole or in part, been submitted at any other University or College for degree purposes.

_____

Hilda Chepchumba Rono

Johannesburg

May 2013

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DEDICATION

To my husband Robert, daughters Maya and Mikayla

Above all, I give thanks to the Almighty God

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LIST OF ABBREVIATIONS, ACRONYMS AND SYMBOLS

ALTX	Alternate Exchange
AR	Abnormal Return
ATS	Automated Trading System
CAR	Cumulative Abnormal Return
CDS	Central Depository System
CMA	Capital Market Authority
DTI	Department of Trade and Industry
EMH	Efficient Market Hypothesis
ICB	Industry Classification Benchmark
IPO	Initial Public Offering
JSE	Johannesburg Securities Exchange
JET	Johannesburg Equities Trading
KSHS	Kenya Shillings
KCB	Kenya Commercial Bank
LSE	London Stock Exchange
MNC	Multinational Corporation
NASI	Nairobi Stock Exchange All Share Index
NSE	Nairobi Securities Exchange
PEAD	Post Earnings Announcement Drift
SENS	Securities Exchange News Service
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ABSTRACT

This study examined stock market reaction to annual earnings announcements using the most recent data from the Nairobi Securities Exchange (Kenya) and JSE Securities exchange (South Africa). The period of study is 1 January 2005, to 31 December, 2011. Using the event study methodology, the magnitude of market reaction to the earnings announcements for a sample of 261 listed firms on NSE and JSE is tested. Abnormal returns (ARs) were computed for each firm and tested how announcements impact a firms' share price. The results show positive and significant returns on the announcement month for JSE, whereas the returns for NSE are negative and significant on the second month after announcement. In our study, JSE and NSE observed mean CAR of (+1.64%) and (-1.8606) respectively, suggesting that earnings contain important information for the market. We find that there is no post earnings announcement drift observed over the next six months after the announcement. The results are consistent with the efficient market hypothesis, thus suggesting that the Johannesburg securities exchange and Nairobi securities exchange are informationally efficient to earnings announcements by the sample of listed firms. Furthermore, our results show NSE firms performed better than JSE firms during the economic boom and meltdown, whereas JSE firms observed a good performance during the economic recession compared to NSE firms.

Keywords: Efficient market hypothesis; earnings announcements; abnormal returns; event study; Kenya; South Africa

CHAPTER ONE

1.1 Introduction

This chapter provides an overview of the research proposal. It presents the research problem, the research questions and research objectives. Section 1.2 provides the context to the study. Section 1.3 presents the research problem in detail. Section 1.4 presents the objectives of the study. Section 1.5 presents the research questions and the significance of the study is presented in Section 1.6. The chapter summary concludes Chapter 1 of the proposal.

1.2 Context of Study

The research on how the market reacts to new information releases subsumes the elements of market efficiency or inefficiency. Market efficiency as defined by Fama (1970), states that a market is efficient if asset prices fully reflect the information available. "Fully reflecting" means that knowledge of the information does not allow anyone to profit from it, because prices already incorporate the information. Further, the information is impounded in the prices correctly and instantaneously as it becomes known (White, Sondhi, & Fried, 2012). Fama (1970) posits that there are three forms of market efficiency – the weak form, the semi-strong and the strong form.

A weak form efficient market is one in which the information is reflected in past prices and volume figures, hence cannot be used to beat the market (Jordan, Miller & Dolvin, 2012). This kind of efficiency is concerned with both the speed and accuracy of the market's reaction to information as it becomes available (Mabhunu, 2004). A research study conducted by Aga and Kocaman (2008) concluded that the Istanbul Stock Exchange exhibits the weak-form of efficiency and results obtained from time series shows the returns can only be described by mean. In a semi-strong form efficient market the share price reflects all publicly information (Jordan et al. 2012). Results of a study by Ahmed, Hussin and Ying (2010) to test the semi-strong form of efficiency on the Malaysian Stock Exchange provide some evidence of this form. Stock prices adjust in an efficient manner to dividends and earnings announcements. Finally, in a strong-form efficient the share price should reflect all public and private information (Jordan et al., 2012). Seyhun (1986) offers adequate evidence that insiders profit from trading on public information not known by the market and therefore are not incorporated into the share prices.

Research shows that earnings announcements are one form of news that the market reacts to. Earnings are defined as the amount of profit that a company generates during a given period of time usually quarterly or annually as reported in its financial statements. Earnings are important because they provide an indication of a company's potential growth, stock price appreciation and future dividend payments. Various research studies have been conducted in relation to earnings with varied findings. 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. (Cheol, 2012) reported that earnings provide a modest but not overwhelming amount of information to the market.

Given the importance of earnings, it is no surprise that company management has a vital interest in how they are reported and may decide to manage the earnings. Earnings management is defined as the manipulation of a company's financial earnings either directly or indirectly through accounting techniques. This occurs when a company is unable to meet investors' expectations or in periods of volatile earnings. Earnings management is primarily achieved by management's actions to achieve desired earnings levels thus stock returns prompt earnings management (Cheol, 2012).

One of the common ways in which companies manage earnings is by controlling the timing of receipts and expenditures, and by choosing among alternative methods of accounting (Cheol, Resnick & Sabherwal, 2012). Earnings studies by Rhee (2003) examined the effect of firm size on corporate earnings management and found that large and medium sized firms display more aggressive ways so as to avoid reporting earnings drops than small sized firms. A study by Mokoaleli-Mokoteli, Taffler and Agarwal (2009) examined the relationship between quality of corporate governance and earnings management. Results show that due to the introduction of code of corporate governance in 2002 (Sox Act 2002), it has created an increase in discretionary accruals as a measure to manage risk.

Earnings may also be viewed as an indicator of management's competence in running a profitable company and the ability to deliver value to shareholders. Therefore, market reaction to earnings releases is deemed to be an interesting topic for research. The market reacts more strongly to positive earnings than to negative earnings (Mlonzi, Kruger & Nthoesane, 2011).

The aim of this research is to investigate and make a comparative analysis of how the NSE and JSE react to both positive and negative earnings announcements. The analysis will also make it possible to assess the extent to which the two exchanges are informational efficient.

1.3 Problem Statement

Previous researches by Chambers and Penman (1984); Penman (1987); Chai and Tung (2002) and Anilowski, Feng and Skinner (2007) demonstrate that investors accrue positive returns during earnings management. Other research, Aga and Kocaman (2008) shows that the market reacts positively to good earnings announcements and negatively to bad earnings announcements. It further found that lower earnings results display positive cumulative abnormal return (CAR) thus moving the market values higher. A recent research conducted on this topic by Mlonzi et al. (2011) used a sample period of one year (January, 2009 to December, 2009) and only tested the sample firms listed on the alternate exchange (ALtX), whereas our study tests all sample firms listed on the JSE securities exchange irrespective of exchange listing. An earlier study on the Kenya stock market was by Maina (2009), which investigated the stock returns around the earnings announcements for quoted companies on the NSE securities exchange. The research period was for five (5) years (that is, from January 2002 to December 2006). Our study on the NSE extends the sample period up to 2011 that is not covered in the earlier research.

The problem is that there is no research that studies market reaction to earnings announcement on the NSE and JSE using the most recent data. By using the most recent data, it will be able to capture some of the trends that may influence on the efficiency of capital markets in African countries (Simons & Laryea, 2006). In addition, no research compares the magnitude of the reaction (in any direction) between any of these two stock exchanges. The crux of this research is not only to assess the reaction of the two exchanges to the new earnings announcements but to also compare how it reacts and the magnitude of its reaction. It is imperative that the results will also enable us to make conclusions about the extent to which these two markets are efficient.

1.4 Objectives of the Study

The objectives can be stated as follows:

- To investigate how the market responds to annual earnings announcements by the NSE and JSE securities exchanges

- To determine the level of market efficiency by the NSE and JSE exchanges
- To determine how differently the two stock markets react to earnings announcements
- To establish whether the two markets behave differently during bull and bear markets.

1.5 Research Questions

- How do the NSE and JSE react to companies' annual earnings announcements?
- What is the level of market efficiency displayed by each of the two exchanges?
- How differently does the Kenyan and the South African stock markets react to earnings announcements?
- How do the NSE and JSE exchanges react to earnings announcements during bull and bear markets?

1.6 Significance of the Study

This research aimed to extend evidence on how the stock market reacts to annual earnings announcements for a sample of listed firms on the Nairobi Securities Exchange and Johannesburg Securities Exchange. The study aimed to provide a comparison on market efficiency of the two exchanges. From the results of this study, we have provided valuable recommendations that can be of help.

The findings of this research is important to investors, portfolio managers, decision makers and other stock market players who use earnings announcements to measure their trading expectations. Particularly, it is vital to note that investor expectations of company earnings are reflected in stock price.

Lastly, evidence from analysing stock price reaction to earnings announcements in a developing and emerging market respectively casts more light on whether the theory of efficient markets is supported, or contradicted by the various empirical findings. Our findings are consistent with the efficient market hypothesis. This is mostly of significant interest to researchers (Afego, 2011).

1.7 Outline of the Study

The rest of the research will be structured as follows: Chapter 2 provides a general overview of the two exchanges the NSE and JSE and their overall sectors of the economy. Chapter 3

provides the literature review of the study with a thorough analysis on content of earnings information and the impact on stock price. The methodology data together with the models are discussed in Chapter 4, while the presentation and discussion of the results are reported in Chapter 5. Chapter 6 provides the discussion of the results and the conclusions together with recommendations for further study/ies.

Chapter Summary

This chapter offered the introductory part of the study, provided the context study, outlined the problem statement of the study, laid out the objectives of the study and finally set out the outline of the study. This introductory chapter provides the framework and sets out the organisation of how the rest of the chapters in the study is discussed and analysed; overview of the stock markets, literature review, methodology and lastly discussion of the results.

CHAPTER TWO

OVERVIEW OF THE STOCK MARKETS

2.1 Introduction

This chapter provides an overview of the two stock markets, the Nairobi Securities Exchange (NSE) and the Johannesburg Securities Exchange (JSE) under investigation in this study. Section 2.2 gives a brief history of the Nairobi Securities Exchange and the outline of the sectors of the economy together with market share of the listed companies. Section 2.3 provides an overview of the Johannesburg Securities Exchange together with a summary of the sectors and market share of the listed companies. Section 2.4 provides a chapter summary on the overview of the two stock markets.

2.2 An overview of the Nairobi Securities Exchange (NSE)

The Nairobi Securities Exchange is the only stock exchange operating in Kenya. It was established in the 1920's by the British as an informal market for dealing in shares and stocks, with no rules and regulations to oversee stock broking activities. The Kenyan stock market, then named the Nairobi Stock Exchange, was founded in 1954 as a voluntary association of brokers registered under the Societies Act. It was through the NSE that saw the first ever privatisation in the country of a 20% government stake in the Kenya Commercial Bank (KCB). Since 1994, there have been significant changes to the NSE in terms of structure, trading premises and its operations (NSE, 2012).

Trading is carried out via the Automated Trading System (ATS) which was commissioned in 2006 and it marked the significant step in the efforts to ease the speed of the execution of orders on a first come first serve basis thus enhancing market liquidity. The ATS system is linked to the Central Bank of Kenya (CBK) and the electronic Central Depository System (CDS) allowing trading of government bonds. The daily price movement for any security in a single trading session is not allowed to be more than 10% except during major corporate announcements (kestrelcapital.com). The ATS is customised in order to uphold the spirit of the Open Outcry Trading rules in an automated trading environment (NSE, 2012).

The NSE All Share Index (NASI) was introduced in 2008, as an alternative index, which is an overall indicator of market performance. The index incorporates all the traded shares of the day; therefore it provides the overall overview of the market value rather than the price movements of select stocks. The Nairobi Securities Exchange is licensed and regulated by the

Capital Markets Authority of Kenya (CMA-K). It has the mandate of providing a trading platform for listed securities and overseeing its member firms. It also approves public offers and listings of securities traded at the exchange (NSE, 2012).

The Nairobi Stock Exchange changed its name to the Nairobi Securities Exchange in July 2011 as a reflection of its strategic plan to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. It is also part of the East African Securities Exchanges Association comprising of the Dar-es-Salaam Stock Exchange and the Uganda Securities Exchange including the various cross-listing of various equities (NSE, 2012).

The exchange comprises of approximately 55 active listed companies with a daily trading volume of over US $5 million and a total market capitalisation of approximately US $15 billion. Apart from equities, government and corporate bonds are also traded on the exchange with an average of daily bond trading of US $60 million. Automated bond trading commenced in late 2009. Short selling and same day turn-around transactions are not permitted on the NSE. Almost all NSE listed companies are open to additional foreign investment, including multinational subsidiaries[1].

Table 1

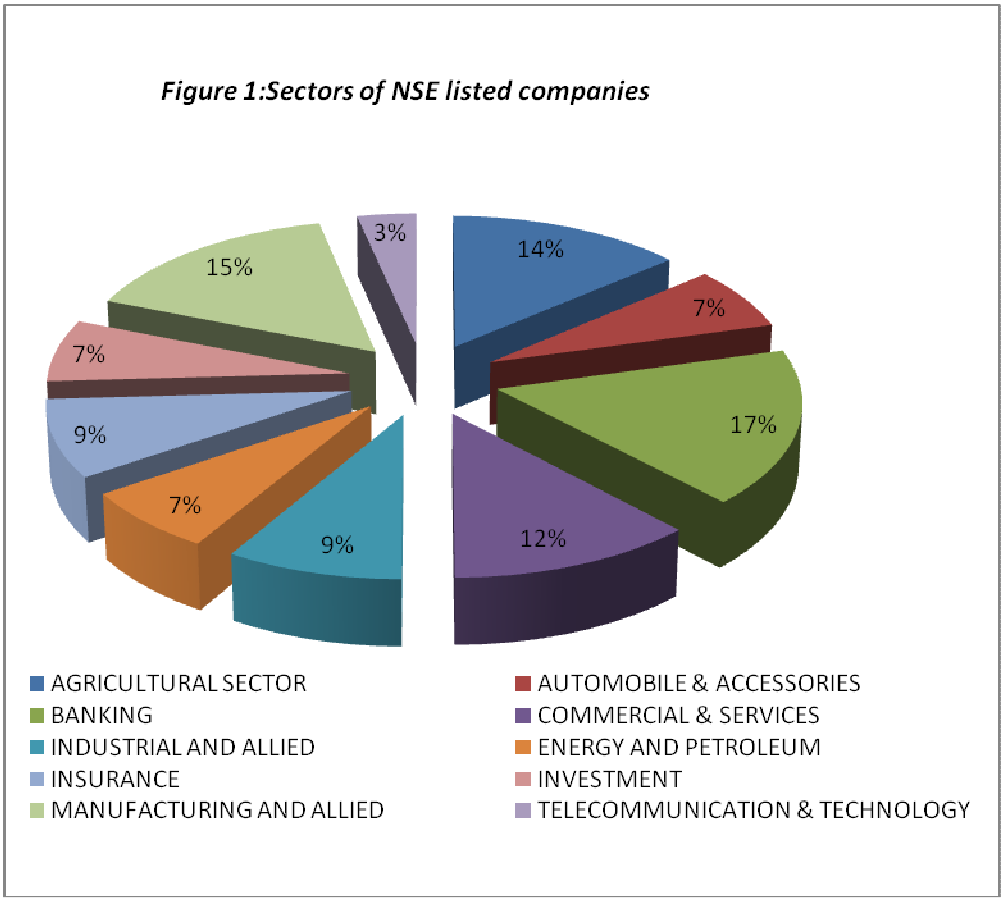
Basic Data - Nairobi Securities Exchange

Year	Listed Companies	Market Capitalisation th Kshs (000)	Total volume of shares traded	Equity Turnover (Kshs)
2011	58	952,150,059	5,722,036,800	77,796,279,185
2010	55	1,194,917,184	5,918,921,900	89,713,453,278
2009	55	761,983,851	3,159,558,527	38,152,734,018
2008	55	931,885,741	5,835,858,270	97,601,977,685
2007	53	802,039,996	1,924,262,247	88,650,556,648
2006	49	778,442,065	1,463,481,161	95,386,387,106
2005	46	782,494,844	776,971,725	36,562,616,982
		6,203,913,740	**24,801,090,630**	**523,864,004,902**

Source: NSE Handbook (2006, 2012)

[1] www.kestrelcapital.com

Table 1 shows that at the end of 2011, there were 58 companies listed on the Nairobi Securities Exchange comprising of 10 sectors of the country's economy. Figure 1 below indicates the sectors and their individual market shares of the listed companies[2].



Source: NSE Handbook (2006, 2012)

Figure 1 shows that the banking sector command the largest portion (17%) of the various sectors of the economy followed closely by the manufacturing and allied sector (15%). This is no surprise given the massive growth of the banking sector in Kenya in the last decade. The total number of banks in Kenya as at the end of 2011 stood at 44; 31 being locally owned and 13 foreign owned. The country's banking sector has seen a huge growth with bank branches rising from 534 as at the end of 2005 to more than 1000 at the end of 2011. This is due to the

[2] Unless otherwise indicated the information on the NSE was obtained from the NSE website: www.nse.co.ke [Accessed 13 August 2012] referenced as NSE, 2012.

reforms implemented by the government in the banking sector to make it internationally competitive[3].

2.3 An overview of the Johannesburg Securities Exchange (JSE)

The JSE is the only main stock exchange South Africa currently in operation although legislation allows for more than one stock exchange. Then Johannesburg Stock Exchange was founded in 1887 mainly to provide a facility through which investors could trade in shares after the discovery of the Witwatersrand gold fields and the subsequent formation of the mining and financial investment companies. The JSE is licensed under the Securities Services Act of (2004) and has been trading in financial products for nearly 120 years making it the oldest exchange in Africa (JSE, 2012).

In 1996, the JSE introduced the order driven, centralised, automated trading system known as the Johannesburg Equities Trading (JET) system to replace the open trading floor. Since then it has seen significant changes in its trading systems and operations. An example of such changes was the introduction of the STRATE electronic settlement system in 2002 which helped improve the market integrity thus winning both local and international investor confidence. Since then the JSE has had a zero failed trade record thereby improving market integrity immeasurably. The JET system was later replaced by the LSE's SETS System hosted by the LSE in London improving the international visibility of the JSE. It also launched the new free float indexing system in conjunction with the FTSE, namely the FTSE/JSE African Index Series to replace the then existing indices. This has enhanced the investability of the South African stocks by providing foreign investors with an indexing system with which they are familiar (JSE, 2012).

The JSE launched the SENS (Securities Exchange News Service – known then as Stock Exchange News Service) in 1997, a real time news service for the dissemination of company announcements and price sensitive information. This ensures early and wide distribution of all information that may have an effect on the prices of securities that trade on the exchange (JSE, 2012).

In 1999, the Insider Trading Act is introduced based on recommendations made by the King Task Group on Corporate Governance and included representatives from the JSE. A year

[3] www.softkenya.com

later the JSE successfully lists Satrix 40, which tracks the top 40 companies listed on the exchange's Main Board (JSE, 2012).

In 2003, the JSE launches the AtlX (alternate exchange), developed in partnership with the Department of Trade and Industry and as per the end of 2011, it had a total of 62 registered companies. A year later the JSE launched the Socially Responsible Investment (SRI) Index, which measures compliance by companies with triple bottom line criteria around the economic, environmental and social sustainability (JSE, 2012).

In July 2005, the JSE Limited demutualised and was incorporated as a public unlisted company and later in 2006 it listed on the Main Board of the exchange. The JSE has evolved over time and boasts with modern electronic trading, clearing and settlement systems with extensive surveillance capabilities. The South African Institute of Stockbrokers is tasked with training and setting standards for the qualification of stockbrokers. The JSE securities exchange is also a member of the World Federation of Exchanges (JSE, 2012).

Table 2

Basic Data - Johannesburg Securities Exchange

Year	Listed Companies	Market Capitalisation th ZAR (000)	Total volume of shares traded	Equity Turnover ZAR
2011	398	2,951,298,097	32,379,889,071	1,810,449,380,060
2010	377	4,175,968,458	39,552,239,627	2,627,887,371,326
2009	366	5,022,415,935	52,569,600,297	3,787,532,960,783
2008	357	4,021,743,614	63,096,830,428	4,184,554,024,377
2007	338	5,225,149,123	63,098,734,304	3,710,011,001,869
2006	284	6,080,821,976	57,442,440,396	3,825,302,234,740
2005	253	6,351,971,340	51,574,271,137	3,910,420,591,209
		33,829,368,543	**359,714,005,260**	**23,856,157,564,364**

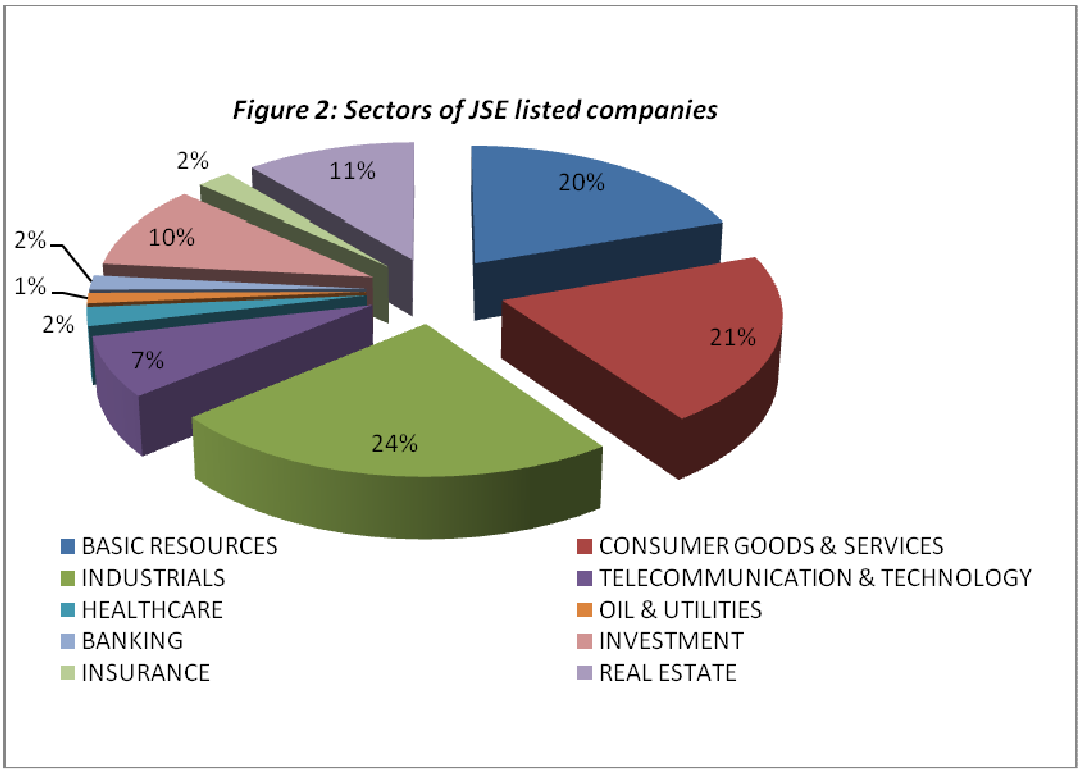
Source: McGregor BFA

Table 2 (above) shows that by end of 2011, there were 398 listed companies on the exchange comprising of 10 sectors of the country's economy. It also indicates that JSE exchange has the highest number of listed firms, therefore rendering it the largest stock market in this study.

The various sectors, from which these companies are drawn are depicted in Figure 2 (below), and show the bulk of stocks traded on this exchange belonging to companies of the

industrials sector comprising (24%), followed closely by the consumer goods and services sector with 21%. Most of these industrial companies have been listed for longer periods than many companies of the other sectors.

4



Source: McGregor BFA

Chapter Summary

Of the two markets, the JSE has been in operation for the longest period as its trading activities officially commenced in 1887, thus making the NSE the youngest. The NSE currently has 55 stocks that are actively trading making it the smallest stock exchange being investigated in this study. Both exchanges have undergone massive changes in terms of operations and infrastructure over the years to improve the trading activities. These stock markets cater to the strong financial position of the many companies in both Kenya and South Africa.

[4] Unless otherwise indicated the information on the JSE was obtained from the JSE website: www.jse.co.za [Accessed 13 August 2012] referenced as JSE, 2012.

As indicated in Table 1, the NSE has the smallest number of listed companies which accounted for its low market capitalisation. Also, the NSE has a substantially lower volume and value of traded shares compared to that of the JSE securities exchange. This is because the NSE has the smallest number of listed companies and could also be due to lower stock price levels and trading activities compared to the JSE, rendering it the least illiquid market of the two exchanges.

As illustrated in Table 2, the JSE securities exchange has a far greater volume of shares traded and market capitalisation, which indicates that it is the biggest and the most liquid stock market of the two. Due to its high degree of liquidity, the JSE securities exchange manifested a higher value of shares traded than the NSE. Also the share prices of the JSE securities exchange are generally higher compared to those of the NSE.

Another important aspect that can be observed is that the trading volumes in both the NSE and JSE securities exchange decreased in 2010 and 2011 by 3.3% and 18.1% respectively. This could be attributed to the worldwide financial crisis of 2008.

The JSE securities exchange has a much bigger sector of mining which is non-existent in the NSE; this is not a surprise as there are mineral deposits spread across South Africa. This is also confirmed by the big number of companies listed on the JSE securities exchange. The mining sector in Kenya is in the exploring stages and there are few companies that have ventured into the sector.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

This chapter presents an overview of the theory of market efficiency commonly referred to as the Efficient Market Hypothesis and its implications on the stock market. Theoretical explanations and the various researches that have been done are also presented, especially the research on market efficiency and earnings management. Section 3.2 presents the concept of Efficient Market Hypothesis and literature on market efficiency and its implications discussed in Section 3.3. Section 3.4 presents market reactions on earnings announcements. Section 3.5 presents an analysis on market reaction to stock splits. Section 3.6 explains market reaction to stock cross-listing and Section 3.7 presents earnings and dividends announcements. Section 3.8 offers an explanation of the market reaction to bonus issues announcement. Section 3.9 presents the post earnings announcement drift (PEAD) and finally, Section 4.0 provides the chapter summary.

3.2 The Efficient Market Hypothesis (EMH)

The core idea behind the EMH is that stock prices should fully reflect all new and available information in an unbiased manner to the market participants. Such markets delivers accurate signals for resource apportionment as market prices represent each security's basic worth, although deviations can occur. Price adjustments are only expected to arise from the release of new information (Mabhunu, 2004). Surprisingly, many empirical studies have been conducted to test the validity of the concept of efficient market hypothesis and varied results have been reported. One of the methods for testing this theory has been the observation of stock market reaction to company announcements (Mlonzi et al., 2011).

Market efficiency purports that stock prices display a random walk pattern which implies that current or past share prices are of no help in predicting future prices, so the fact that a share's price has risen (or fallen) does not mean that its next movement is likely to be up (or down). The efficient market hypothesis (EMH) states that investors cannot profit by trading on news reports and other public information, because the share prices adjust to information as soon as it is known.

A weak form efficient market is one in which the information is reflected in past prices and volume figures; hence it cannot be used to beat the market and make profit. Researchers

generally use only limited publicly available information on prices, such as financial statements, government reports, industry reports, analysis and trading volumes (Mabhunu, 2004).

A semi-strong form efficient market is a market where the share prices reflect all publicly available information. Event studies that examine how stock prices adjust to specific economic events have been used to directly semi-strong form efficiency. Events usually tested are stock splits, initial public offerings (IPO), corporate announcements (especially earnings and dividends announcements) and other unexpected economic and world events. Researchers have tested the significance of price to earnings (P/E) and other ratios, the effect of firm size and many other characteristics that can be derived from publicly available information (Mabhunu, 2004).

A strong form of the efficient market hypothesis holds that share prices already incorporate all relevant information, whether public or non-public (Cheol et al., 2012).Tests for the strong form are mainly centred on finding whether any group of investors, especially those who can have access to the information otherwise not publicly available, can consistently enjoy abnormal returns. Groups normally tested are company insiders, stock exchange experts, security analysts and professional asset managers (Mabhunu, 2004). In an efficient market information gathering and information based trading is not profitable as all the available information is already known by the market. This may leave investors with no incentive as to the gathering and analysing of information, for they begin to realise that market prices are an unbiased estimate of the shares' basic worth (Mabhunu, 2004).

Many of the results reported appear to conclude that financial markets generally follow the weak form of efficient market hypothesis. Such studies include a South African study by Mlonzi et al.) (2011), a Ghanaian study by Osei (2002), a Nigerian study by Afego (2011), a Kenyan study by Dickinson and Muragu (1994), a Turkish study by Aga and Kocaman (2008); and a Malaysian study by Ahmed et al. (2010). Finally, other studies suggest a strong form of efficient capital markets in the sense that no significant abnormal returns were observed. These studies include Malkiel (2005), Das, Pattanayak and Pathak (2008), Wang and Corbett (2012), Varamini and Kalash (2008), Laopodis (2009), Simpson, Emery and Moreno (2009); and Louhichi (2008). Weak form tests are the most numerous in terms of

both frequency and research target, and the results mainly support weak form efficiency (Mabhunu, 2004).

3.3 Implications of market efficiency

There are several implications associated with market efficiency. The efficient market hypothesis theory states that the market is efficient with respect to certain particular information if the information is not useful in earning a positive excess return. Firstly, even if all markets are efficient, then asset allocation remains a key element as it strongly influences an investor's overall risk return (Jordan et al., 2012).

Secondly, if markets are efficient, then security selection becomes less important as to whether overvalued or undervalued. In fact, if markets are efficient it would be a good idea to buy a large number of stocks with reduced costs whilst maintaining a passive diversified investment portfolio. Thirdly, if markets are efficient then little role exists for professional money managers, full service brokers and purchasing mutual funds, shares would be cost less that is no load fees (Jordan et al., 2012).

The EMH also had implications for the setting of accounting standards; no longer did such standards have to specifically protect the naïve investors. Sophisticated analysts and investors, who ensure that prices correctly and instantaneously reflect available information, protect the naïve investors. Any trading by such investors is made at fair prices (White et al., 2012).

Another implication is that if markets are efficient, then there is no need to time the market. Market timing involves moving money in and out of the market based on your expectations of future market trend. By trying to time the market on average may lead to underperforming the market. Lastly, historically most of the gains earned in the stock market have tended to occur over relatively short periods of time (Jordan et al., 2012). One implication of an efficient market is that no abnormal returns can be made from this information because current prices already reflect the information (Adelegan, 2009).

A study by Jegadeesh & Titman (2012) found that a similar pattern of returns is exhibited around the earnings announcements of past winners and losers. Significant positive returns over a 3 to 12 month holding period are generated by buying stocks that are doing well and sell the ones performing poorly.

Using the event study methodology, Sponholtz (2005) examined the kind of information contained in annual earnings announcements in the Danish stock market. Sponholtz found out that there were significant abnormal price reactions surrounding the announcements period. Contrary to the EMH, the abnormal price reactions persist several days after the announcement commonly known as post-earnings announcement drift (PEAD). Another recent study by Chordia & Shivakumar (2005), suggests that the profitable trading opportunities created by PEAD are inconsistent with the EMH.

The literature review now shifts to the market reaction to various corporate announcements particularly on earnings, dividends, stock splits, and cross-listing. All these have an impact on the stock price. One area that has received great attention is the impact that earnings announcements have on stock prices and the subsequent abnormal returns arising. The stock prices surrounding the announcement period tend to continually drift several days, weeks, even for months after the announcement and this phenomenon is commonly known as the post-earnings announcement drift. Mostly, the more the uncertainty as to the content and timing of the corporate information release, the higher the potential for the announcement to cause an adjustment in stock prices (Osei, 2002).

3.4 Market reaction around earnings announcements

The capital markets react to information released especially the surprising news announcements that can cause a huge impact on the price of a stock. One such event is earnings announcements; it provides very useful information to the shareholders, present investors as well as potential investors. Earnings announcements also contain information about past earnings and future earnings prospects. Researchers have shown that significant price changes do arise in expectation of the actual earnings. According to the EMH, stock prices should then respond instantly to surprising news, or the earnings 'surprise'. However, this may take days (or even longer) for the market price to adjust fully. In addition, some researchers have found that buying stock after positive earnings surprises is a profitable investment strategy (Jordan et al., 2012). Ball and Brown (1968) documented that the abnormal market performance occurred prior to the release of the earnings report. This suggests that although earnings are meaningful measures of a firm's financial performance, by the time they are published they are no longer news and have little or no impact on the market (White et al., 2012).

Many studies have been conducted on the impact earnings announcements on the stock market with varied results. For example, Cready and Gurun (2010) examined aggregate market reaction to earnings announcements and found some evidence that there is a negative relation between earnings news and market return. Ahmed et al. (2010) found that low earnings are associated with negative returns. Results of a study by Rhee (2003) suggest that earnings announcements provide useful information thereby resulting to increased trading volumes surrounding the event period.

3.5 Market reaction to stock splits

Another element of market reaction to information announcements is the reaction to stock splits. Stock split refers to where all current shareholders receive new shares in exchange for each old share that they own (Jordan et al., 2012). In recent times it is becoming a common phenomenon for companies to engage in stock splits.

A study of the NSE by Chemarum (2010) found that the Kenyan market reacts positively to stock splits, as shown by a general rise in volumes of shares traded around the stock split. This is consistent with the signaling hypothesis, which states that managers of companies split their stock to act as a means of passing information to stock holders and potential investors. Another study by Ikenberry, Rankine and Stice (1996), found evidence that the market underreacts to split announcements and this suggests splits realign prices to a lower trading range. Grinblatt, Masulis and Titman (1984) reported results indicating stock prices react positively to stock dividends and stock split announcements.

A study by Asquith, Healy and Palepu (1989) examined whether stock splits convey important information about earnings. The results show that firms split their stocks after a significant increase in earnings therefore leading investors to increase their expectations that the past earnings increases are permanent. The evidence also suggests that the market's reaction to split announcements cannot be attributed to expectations of either future earnings improvement or near term cash dividend increases.

3.6 Market reaction to stock cross-listing

Cross-listing is a common phenomenon among the multinational corporations (MNCs) and it refers to a firm having its equity shares listed in addition to its home exchange on one or more foreign stock exchanges (Cheol et al., 2012). International cross-listing is pursued by firms as a measure to save on costs and mitigate barriers to international capital flows.

Studying the stock price movements around announcement dates enhances the assessment of the market's reaction to cross-listing (Liu, 2007). There have been various studies in this field. A study by Roosenboom & Van Dijk (2009) examined how markets reacted to cross-listings across different markets. They found evidence consistent with value creation associated with higher announcements returns especially on the London Stock Exchange. Miller (1999) assessed the stock price effect of international dual listings and the findings suggest that stock price reaction is related to choice of exchange, geographical location (emerging or developed markets). A study by Karolyi (1998) examined the various reasons why companies list their shares abroad and the evidence shows that share prices reacts favourable to cross-border listings in the first month after listing and post-listing trading volume increases on average, and, for many issues, home-market trading volume increases also. Finally, a study by Adelegan (2009) assessed the impact of regional cross-listing specifically the Sub-Saharan Africa on stock prices. The study found that there are positive abnormal returns are gained around the date of regional cross-listings of the stocks. The positive announcement period effect, together with the normal post cross-listing performance shows that regional cross-listing increases firm value.

3.7 Earnings and dividends announcements

Dividend announcement is an alternative signalling mechanism that also informs investors about the future profitability of their investments in a firm (Osei, 2002). Several researches have been done to examine the reaction of stock prices to dividend announcements and also to examine the adjustment of stock prices in response to both earnings and dividend releases. (Patell and Wolfson (1984) examined the effects of news releases of earnings and dividend announcements on mean, variance and serial correlation in consecutive price changes. The results show dividends announcements bring much less activity than earnings do. Kane, Lee and Marcus (1985) assessed abnormal stock returns surrounding earnings and dividend announcements in order to determine whether investors evaluate the two announcements in relation to each other. Evidence suggests a statistically significant interaction effect. A study by Ahmed et al. (2010) provides evidence that the effect of dividends announcements is much stronger than for earnings announcements. Finally, a study by Adelegan (2009) examined whether the Nigerian stock market reacts efficiently to dividend announcements in terms of price changes and the findings suggested that dividend policy matters therefore share prices do react to dividend announcements.

3.8 Post earnings announcements drift

The post earnings announcement drift (PEAD) was first documented by Ball and Brown (1968) and defined it as the tendency for stock prices to continue to move in the direction of the earnings surprise up to a year even after the earnings announcement. That is, if a firm's announced earnings exceed (or fall below) the market expectation, the subsequent abnormal returns to its stocks are usually above (below) normal returns for months. The EMH holds that stock prices adjust instantaneously to new information. Empirical evidence, however, suggests that price changes persist for some time after the initial announcement (White et al., 2012).

This predictability of stock returns after earnings announcements has attracted extensive researches from Bernard and Thomas (1989), Livnat and Mendenhall (2006); and Ball, Sadka and Sadka (2009). They also conclude that the drift is significantly larger when using the analysts' forecasts, and that those investors who view the drift as a violation of market efficiency and hope to exploit it should also use the earnings surprise signal, or combination of signals that maximise the drift. Cready and Gurun (2010) found that the market returns continue to persist for some time beyond the announcement period leaving room for profitable trading activities. This finding is consistent with the post earnings announcement drift (PEAD) phenomenon, which relates to the tendency for stock prices to continually drift after the earnings announcements.

Another study by Lew, Skerratt, Strong & Walker (1996) examined whether there is presence of PEAD on the London stock exchange. Overall, they found evidence of significant drift for the earnings announcement for small firms but not for the announcement of large firms.

3.9 Market reaction around bonus issue announcements

Another news event that the stock market reacts to is the bonus issues by firms. Bonus share issues are made to existing shareholders in proportion to their holdings and at zero subscription prices. Thus they have no direct cash flow implications for the value of the firm and hence the price of its shares. Bonus issue announcements are associated with good news and, as with the earnings and dividends announcements, the larger portion of the announcement effect has been anticipated before the actual announcement month (Ariff & Finn, 1989). Various researches have been undertaken to understand the market reaction around the bonus issues: Mishra (2005) suggested that there are significant positive abnormal

returns for a five-day period prior to bonus announcement in line with evidence from developed stock markets even though the bonus issue is known in advance and therefore releases are already known. The results provide stronger evidence of semi-strong market efficiency of the Indian stock market. In another study by Travlos, Trigeorgis and Vafeas (2001) evidence suggests that significant positive abnormal returns exist around the announcement in line with evidence from developed stock markets. Results of a study by Barnes and Ma (2010) show that higher bonus issue ratio (number of bonus shares in the issue/number of existing shares) usually attract positive returns and lower bonus issue ratio attract negative returns.

Chapter Summary

This chapter dealt with the literature review part of the study with discussions of how the market reacts to various corporate announcements under the subsections; market reaction to earnings announcements, market reaction to stock splits, market reaction to stock cross-listing, earnings and dividends announcements, and market reaction to bonus issues announcement and lastly the post earnings announcement drift. The market reaction to earnings announcement forms the basis of our main objective of the research and sets out the tone for the rest of the chapters of the study; methodology, presentation of the data and descriptive and the conclusions and recommendations of the study.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This section provides an overview of the research methodology employed in this study. Section 4.2 describes the nature of data required and the sources of the data for the study. It also describes the sampling method and criteria for the sample selection. Section 4.3 outlines the research design providing a description of event study methodology used to test the behaviour of stock returns and market efficiency. It also provides the various researches that have utilised this methodology. Section 4.4 outlines how the constructions of returns are dealt with describing the benchmark returns generating the model employed. Section 4.5 explains the empirical approach taken for this study and the model for the statistical test for the average abnormal returns used. The models used to measure returns around the event period are also presented.

4.2 Data and data sources

The data used in this research is mainly annual earnings data and share price data. For the JSE, the earnings and share price data are both sourced from *Bloomberg* and *McGregor BFA* databases, while for the NSE the data is sourced from their database and their official handbooks. The earnings announcement dates for both the NSE and JSE firms were obtained from *Bloomberg* and a total of 1682 earnings announcements collected. Firms with insufficient data were deleted from analysis. The market capitalisation which serves as a proxy for firm size is obtained from the NSE database and from *McGregor BFA* for the JSE listed firms. Where necessary, some data is also obtained from companies' annual reports, company websites and official business press releases. The sample period for this research is 1 January, 2005 to 31 December, 2011 and includes monthly stock price data relating to 261 shares listed on the NSE and JSE securities exchange. The sample period is considered sufficient for any annual earnings announcement effects to be detected and analysed. The inclusion of the two exchanges was motivated by the fact that there are two different stock markets; JSE is an emerging market whereas NSE is a developing market. Also JSE is much bigger compared to the NSE.

To be included in the sample, (i) the shares of the announcing firms should have been listed on the NSE and JSE stock exchanges and actively traded over the sample period of 1 January,

2005 to 31 December, 2011; (ii) there should have been a public earnings announcement for the firms selected; (iii) a firm should have earnings and price data over the sample period and; (iv) in order to minimise the impact of dividend announcements, only firms which had earnings and dividends in the same direction will be selected due to the fact that most firms announce both at the same time (Afego, 2011).

4.3 Research Design

The standard event-study methodology is employed in this study to determine how the JSE and NSE react to firms' full year earnings announcement. Event methodology is viewed as a powerful tool in efficient market hypothesis research and many researchers (e.g., Fama, Fisher, Jensen and Roll (1969); Aga and Kocaman (2008); Lonie, Abeyratna, Power and Sinclair (1996); Gajewski and Quéré (2001); Cox and Weirich (2002); Lyroudi, Dasilas and Varnas (2006); Laidroo (2008); and Dey and Radhakrishna (2008) have successfully utilised the event study methodology to determine how share prices react to new information releases in the market. Mushidzi and Ward (2004) emphasises that event methodology is often used to determine whether there is a statistical difference between actual stock returns and expected returns surrounding an event.

Binder (1998) provides a framework for conducting an event study, in instances when the event date is known and unknown. Practical experience and opinion of most authors suggest that in most cases, if the date is known when information will reach the market, therefore, the popularity of methodologies that assume known event dates have gained prominence over the other. In extant studies, for instance Jegadeesh and Karceski (2009) and Mokoaleli-Mokoteli et al. (2009) successfully implemented the known event date methodology. These two renowned studies now act as a reference to most current studies that assumes a known event date. In this study, the event dates for earnings announcements on both the JSE and NSE are well known and documented. For this reason, we adopt the methodology discussed by Binder (1998) and implemented by Jegadeesh and Karceski (2009) and Mokoaleli-Mokoteli et al. (2009).

The market reaction to earnings announcements is often determined over a short term and over a medium term or long term periods. As in Ball and Kothari (1991), the short-term period uses daily data where the event window is -10 days before and +10 days after the announcement date and day 0 is the event date. The 10 days before the announcement date

helps to determine if the news leaked into the market before the announcement date. The medium term analysis investigates market reaction about six months after the earnings announcement date. The medium term analysis enables researchers to determine if there is post earnings announcement drift on the JSE and NSE capital markets. The long term analysis is often used to test the market reaction over a period longer than a year. This research adopts the medium term period using monthly share data for analysis purposes.

Confounding events such as bonus issues, stock splits, rights issues, management changes (hiring or dismissal of key management staff), restructuring (either operational or financial), mergers and acquisitions were excluded from the study. Lists were obtained from both JSE and NSE on firms that have had stock splits during the research period and are then deleted. Also we ensured that the firms under our study had both their earnings and dividend announcements made on the same date. This is to ensure that the price movement is solely due to the earnings announcements (Mlonzi et al., 2011).

4.3.1 Calculation of company returns

The monthly stock prices of each of the 261 firms were used to obtain monthly stock returns over the period January 2005 to December 2011.The firms' monthly return is calculated as follows:

$$R_{it} = [(P_{t+1} - P_t)/P_t]*100\% \quad (1)$$

Where, R_{it} is the actual return on share *i* on month *t*, $P_t$is the price of share *i* on month *t* and $P_{t+1}$is the price of share *i* on month$t+1$.

The expected return is estimated using the size reference portfolios benchmark calculated as follows:

$$E(R_{p,j}) = R_{it} - AR_{it} \quad (2)$$

Where, R_{it} is the actual return on share *i* on month *t* and AR_{it} is the abnormal return for each security on month *t*.

4.3.2 Construction of benchmark portfolios returns

The reference portfolio approach is used to generate the benchmark (expected return), where sample firms are ranked on the basis of industry and size. To create industry reference portfolios, industry classification benchmark codes (ICB) are obtained from the JSE

securities exchange and NSE databases respectively. These codes are then utilised to classify all stocks from the NSE and JSE securities exchange into industries following the 10-broad industry classification benchmark (ICB) approach. There are four industry portfolios on the NSE and seven industry portfolios on the JSE respectively. Oil and gas, telecommunications and technology, and utilities were excluded from the analysis for the NSE due to the small number of listed trading firms.

For the NSE, within each industry the firms are classified into halves based on firm size. Thus a total of eight reference portfolios grouped by industry and size are formed. As for the JSE securities exchange, 21 reference portfolios are formed after each industry ranking by splitting the firms into thirds based on industry and size.

In June of each year, we rank all NSE and JSE firms in our population on the basis of firm size to form portfolios based on these rankings. Our reference portfolios are formed on the basis of industry and firm size in June of each year, starting in June 2005 and ending in June 2011, and monthly returns are calculated for the next 12 months after the portfolios formation.

The equally weighted portfolio return is calculated for each portfolio as the arithmetic return of all securities in the particular industry and size in the year of portfolio formation. We calculate firm size measured by market capitalisation as price per share multiplied by the number of shares outstanding in June of each year for all sample firms.

4.3.3 Calculating abnormal return and return metric

The empirical strategy in this study is rooted in the event study approaches to market efficiencies originally developed by Fama et al. (1969) for examination of the impact of stock split announcement on stock price. Our basic assumption is that earnings announcements provide information inputs into the stock prices which will be reflected in the significant abnormal returns during and after the announcement period. We define abnormal returns of N event firms for H holding period in the same way as Mokoaleli-Mokoteli et al. (2009) and Jegadeesh and Karceski (2009). Specifically, the abnormal return is calculated as follows:

$$AR_i(t,H) = \prod_{j=t}^{t+H-1}(1+R_{i,j}) - \prod_{j=t}^{t+H-1}(1+E(R_{p,j})) \qquad (3)$$

Where, $R_{i,j}$ denotes the return of stock i in month t computed as percentage change in price of stock i from month $t-1$ to month t. In the same way, $E(R_{p,j})$ denotes the expected benchmark portfolio return in month t. Determination of the benchmark portfolio is discussed above (section 4.4). For every event period abnormal returns computed in equation (2) above are cumulated together for each sample firm. In essence, for *t*=0 a cross-sectional series of abnormal returns will be obtained same for *t*=1 up to *t*=6 in literature, this is commonly referred to as cumulative abnormal returns (CARs) (Bartholdy, Olson & Peare, 2007; Binder, 1998). Specifically, we compute CAR as:

$$\mathrm{CAR}_t = \sum_{i=1}^{N}[\mathrm{AR}_i(t,H)] \qquad (4)$$

Where: CAR_t is the cumulative abnormal return at holding period t, N is the total number of sample firms, AR_i is the individual company abnormal return as computed in equation (2) and H is the total number of holding periods. Almost all event studies call for cumulating of the abnormal returns over the number of periods. This may be in order to capture the impact of an event on share prices, or to accommodate uncertainty over the exact date of the event (Strong, 1992).

It is common in most event studies at this point to test a null hypothesis of H_0: $\mathrm{CAR}_t = 0$ that cumulative abnormal returns is not significantly different from zero against the alternative hypothesis H_1: $\mathrm{CAR}_t \neq 0$ that the cumulative abnormal return (CAR) is significantly different from zero. However, Jegadeesh and Karceski (2009) cautions of serial correlation and heteroskedasticity in the abnormal returns hence biasedness in the conventional t-statistical tests (Mokoaleli-Mokoteli et al., 2009). In fact, Binder (1998) argues that frequently, abnormal returns are cross-sectionally correlated, have switching volatilities, are not identically and independely distributed over time and often exibit higher variance in the event periods. However, in the absence of evidence of cross-sectional correlation we simply run the conventional t-statistic test based on the argument by Binder (1998) that in large samples, especially, where sample is random the bias will average to zero. The conventional t-statistic is computed by:

$$t = \frac{\mathrm{CAR}_t(H)}{Standard\ error} \qquad (5)$$

Where,

$$Standard\ Error = \sqrt{\frac{\frac{1}{N-1}\sum_{i=1}^{N}[\mathrm{AR}_i(t,H) - \mathrm{CAR}_t(H)]^2}{N}}$$

From the hypothesis testing, we predict that new information contained in earnings announcement will not be quickly reflected in the share prices, thus allowing for statistically significant abnormal returns to be generated on the basis of trading on earnings information disclosures (Afego, 2011).

Chapter Summary

This chapter dealt with the methodology part of the study with discussions of the subsections under it; Introduction, data and its sources, research design, construction of the returns accompanied with the empirical approach. The next chapter present the results.

CHAPTER FIVE

PRESENTATION OF DATA AND DESCRIPTIVE STATISTICS

5.1 Introduction

This chapter provides and discusses the characteristics and performance of the study; Section 5.2 presents the data and the descriptive statistics of the study. Section 5.3 presents the firms' performance subsequent to earnings announcements. Section 5.4 presents performance of the firm subsequent to earnings announcements based on different economic conditions.

5.2 Data and Descriptive statistics

The data used in this research is mainly annual earnings data, share price data and market capitalisation. Our sample covers the earnings and their announcement dates, and share data from 1 January, 2005 to 31 December, 2011 for both the NSE and JSE securities exchanges. There were a total of 456 stocks. To be included in the analysis, each stock must have its monthly share price information available, market capitalisation and earnings together with announcement dates. After carefully screening the data, 177 stocks for the JSE and 18 stocks for the NSE respectively were eliminated due to lack of sufficient data points. The final sample consists of 261; 221 stocks for the JSE and 40 stocks for NSE for the analysis.

First, we present descriptive statistics for each of the stock returns in our sample and the statistical analysis undertaken to test the research hypothesis. The mean, median and standard deviation were calculated for each of the total 261 stocks over the seven year period for both the NSE and JSE securities exchange and are reported in Table 3.

Table 3: Characteristics of JSE and NSE firms

This table provides the characteristics of both the JSE and NSE sample of firms in our analysis for the research period under our investigation, 1 January, 2005 to 31 December, 2011. Panel 1 relates to the JSE securities exchange and Panel 2 relates to the NSE. Column 1 provides the variables; market capitalisation, industries and earnings, and columns 3-10 show the mean, median and standard deviation. There are 177 stocks for the JSE and 18 stocks for the NSE respectively in this analysis.

Panel 1 JSE firms
n =221

Year	Market Cap (R millions)			Industry			Earnings (R millions)		
	Mean	Median	Std Dev	Mean	Median	Std Dev	Mean	Median	Std Dev
2005	9 441.34	1 087.98	24 353.96	5.45	4.50	2.91	606.95	57.82	1 633.14
2006	12 107.57	1 329.95	32 051.91	5.34	4.00	2.91	868.71	107.99	2 370.91
2007	13 889.69	1 818.23	37 859.46	5.33	4.00	2.90	903.65	122.15	2 427.78
2008	10 530.55	1 170.98	29 735.76	5.35	4.00	2.90	938.61	113.72	3 096.67
2009	13 840.33	1 444.50	38 805.72	5.35	4.00	2.90	975.46	86.98	3 657.11
2010	16 372.27	1 673.03	43 648.64	5.35	4.00	2.89	1 072.47	104.74	3 505.35
2011	17 103.17	1 616.12	47 632.26	4.00	4.00	2.89	778.86	65.65	2 507.79

Panel 2 NSE firms
N = 40

Year	Market Cap (Kshs millions)			Industry			Earnings (Kshs millions)		
	Mean	Median	Std Dev	Mean	Median	Std Dev	Mean	Median	Std Dev
2005	19 735.88	2 270.81	69 016.03	5.64	4.00	2.42	832.89	195.12	1 354.89
2006	15 398.50	4 956.00	26 618.79	5.64	4.00	2.42	816.06	232.25	1 411.03
2007	13 229.05	3 245.97	26 068.45	5.58	4.00	2.39	986.41	379.29	1 509.84
2008	13 451.90	3 393.86	28 282.90	5.67	4.00	2.42	1 064.09	282.11	1 708.17
2009	19 416.48	4 451.96	49 205.28	5.75	4.00	2.45	984.40	245.28	2 025.60
2010	17 187.96	5 159.15	29 768.36	5.75	4.00	2.45	1 767.07	844.30	2 465.03
2011	13 361.71	2 719.47	27 661.88	5.75	4.00	2.45	2 737.21	1 933.00	2 903.15

From our results, it can be observed that the NSE has the highest mean in terms of market capitalisation in the first six years, whereas JSE has the highest mean only in the last year under our investigation. Panel 1 represents JSE; in 2005 the mean is 9,441.34, and increased for two years. In 2008 mean is 10,530.55 and increased significantly in the next two years and by 2011 the mean is 17,103.17, while the median is 1,616.12. The standard deviation in

2005 is 24,353.96 and increased in the subsequent years and by 2011 it is 47,632.26. From the industry results it shows that JSE recorded lower means throughout the seven years. The mean in 2005 is 5.45 with a slight drop for the remaining years closing with a mean 4.00 in 2011. The median and standard deviation were constant at 4.00 and ~2.90 respectively for all the seven years. The other characteristic under our analysis is the earnings, which recorded a mean of 606.95 in 2005 with constant increase to 1,072.47 in 2010. There was a major decrease observed in 2011 of mean 778.86. The drop in Earnings in 2011 may be due to the global economic recession driven by high costs of production due to ever increasing global oil prices at the time. The standard deviation is 1,633.14 in 2005 and maintained a steady increase through 2009 to 2010 with a drop to 2,507.79 at the end of 2011. Although, under their respective currencies JSE still remains with the highest market capitalisation and this finding is no surprise given that JSE has the highest number of listed firms and recorded the largest market capitalisation in Africa and is ranked in the top 20 over the world.

Panel 2 relates to the NSE. The panel indicates that in terms of market capitalisation, NSE has a mean of 19 735.88 in 2005 with decreases in the subsequent three years up to 2008. There was an increase in 2009 with a mean of 19,416.48 but again saw a drop in 2010 closing at 13,361.71 in 2011. The median is 2,270.81 in 2005 and increased to a median of 4,956.00 in 2006, but in the next two years there is a decrease with improvement being observed from 2009 to 2010. The standard deviation in 2005 is 69,016.03 with major drops thereafter by more than half the value in 2005. There was an improvement in the standard deviation in 2009 with a mean of 49,205.28 but declined again closing at 27,661.88 in 2011. The NSE recorded the highest mean under the industry analysis; in 2005 the mean is 5.64 increasing in the subsequent years closing at 5.75 at the end of the year under investigation. The median in 2005 is 4.00 and remained constant throughout the seven years. The standard deviation is 2.42 in the first year remaining the same thereafter for the rest of the years. In terms of earnings, NSE's mean in 2005 is 832.89 and grew steadily throughout the years with a mean of 2,737.21 at the end of 2011.

Overall, NSE has the highest mean, median in terms of market capitalisation, industry and earnings, whereas JSE recorded the highest standard deviation for both industry and earnings in their respective currencies.

5.3 Performance of firms subsequent to earnings announcement

The aim of this research is to investigate the performance of the JSE and NSE firms subsequent to the announcement of the firms' earnings. In theory, a stock market is informationally efficient with relation to earnings announcements if no one can beat the market and gain by trading on the basis of the information contained in the firm's earnings announcements. Firstly, this means that the market will quickly anticipate earnings changes before they are announced. Secondly, since earnings information is fully reflected into the prices, therefore no ARs should exist around the earnings announcement date (Afego, 2011).

Table 4 - Firm's performance over six month period subsequent to earnings announcement

Panel 1: JSE firms performance				
Event months	% Mean CAR	% Median CAR	T-stats	P-value
0	1.6354	0.2828	3.5829	0.0004
1	-0.2016	-0.4240	-0.5328	0.5942
2	0.0393	-0.6319	0.0957	0.9238
3	-0.0254	-0.5254	-0.0712	0.9432
4	0.1196	-0.2189	0.3143	0.7533
5	0.1860	0.0016	0.4514	0.6518
6	-0.4392	-0.8119	-1.3185	0.1876
Panel 2: NSE firms performance				
Event months	% Mean CAR	% Median CAR	T-stats	P-value
0	1.5500	0.0600	1.3700	0.1700
1	0.8209	0.5035	0.7907	0.4304
2	-1.8606	-2.5289	-2.1609	0.0324
3	0.7252	0.1752	1.0234	0.3079
4	0.0060	-0.5869	0.0055	0.9956
5	-0.7534	-0.9714	-0.9385	0.3496
6	-0.7122	-0.5924	-0.8473	0.3982

This table provides the cumulative abnormal returns (CARs) for earnings announcements between 1 January, 2005 and 31 December, 2011. Panel 1 relates to the JSE, and Panel 2 to

the NSE. Column 1 provides the event period, where month 0 is the month of earnings announcement and columns 2-4 are the mean CAR, median and t-statistics. The total number of firms examined over the six -month event period is 261 for both exchanges.

Table 4 panel 1 above summarises the performance of cumulative abnormal returns (CARs) subsequent to earnings announcements. Panel 1 presents CARs for JSE firms and shows that the returns on the month of earnings announcement are positive and significant at 1% level, thus allowing investors to make profit only in the month of announcement denoted as M0. The t-statistic is +3.58, mean of +1.64 and median=0.28. In the subsequent six months, the mean returns are either positive or negative but not significant at any statistical level. These results show investors would make a profit on the month of earnings announcements only and there is no post earnings drift observed.

Table 4, Panel 2 indicates the CAR for NSE firms is varied, with the cumulative abnormal returns moving in both directions. On the month of earnings announcement, mean CAR is positive (mean=1.55, median=0.06) but not significant at any statistical level. Two months after the earnings announcement, the mean CAR is negative (mean=-1.86, median=-2.53) and significant at 5% level. In the subsequent four months the results are either positive or negative but not significant. Overall, as with the JSE, there is no post earnings drift observed. Initially, the market reacts positively in the month of announcement perhaps due to speculation but thereafter starts to adjust in the following month after announcement.

In our case, the JSE observed positive and significant returns on the month of announcement suggesting that it is efficient, whereas NSE experienced negative and significant returns month 2 after announcement. The results evidently show that the greatest magnitude of share price reaction takes place around the announcement month thus an indication earnings announcements does not contain new information. The fact that our results for JSE shows that the market reaction to annual earnings announcement is only significant in the month of announcement corroborates the findings of Ball and Brown (1968) suggesting that abnormal performance occurs prior to the release of the earnings results. White et al., (2012) states that although earnings are meaningful measures of a firms' financial performance, by the time they are published they are no longer news and have little or no impact on the market.

Figure 3: Graphical plot of Mean CARs around earnings announcement period

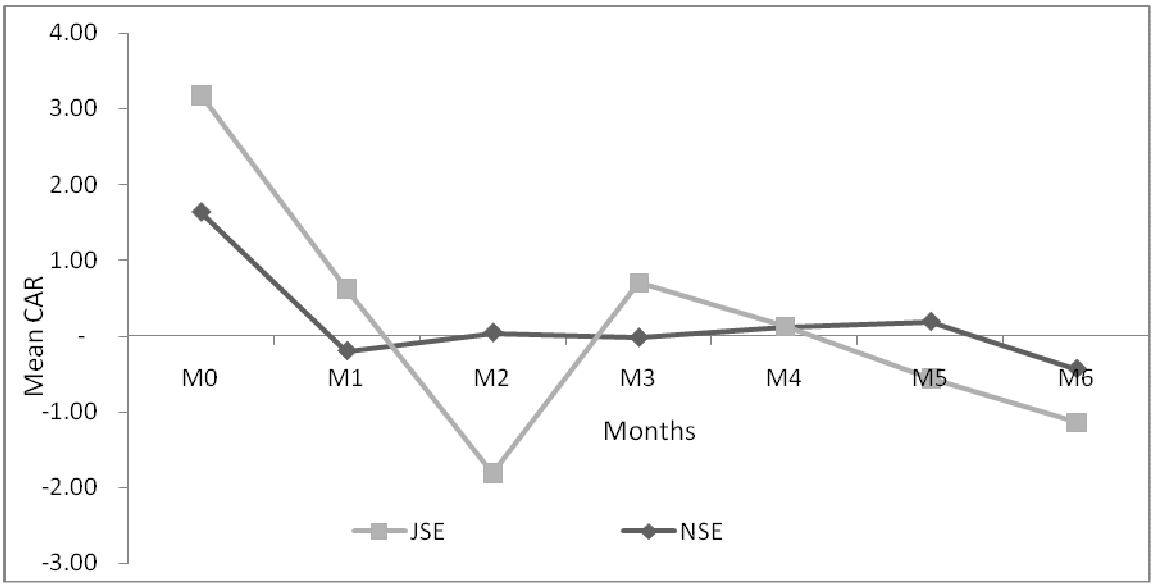


Figure 3 above graphically shows the performance of both the JSE and NSE firms around the earnings announcement. On the month of announcement the JSE has significantly higher and positive returns, while the NSE experiences positive but insignificant returns. In the first month after the earnings announcement the JSE still has positive returns but not significant, whereas the NSE experiences a drop to negative returns. On the second month after the announcement the JSE returns had a steep drop to a significant negative, while the NSE returns stabilises to zero from negative returns the month before. On the third month after the announcement the JSE returns improved significantly to positive and NSE remains the same. Four months after the announcement, the JSE and NSE returns were generally flat, slightly positive but non-significant. In the fifth month after the announcement the JSE returns suffers again a slight drop to negative, while the NSE returns improved slightly to a positive but non-significant. On the sixth month after the announcement, both the JSE and NSE returns experiences a drop to negative but significantly for the JSE compared to the NSE.

As defined by Fama (1970), a market is said to be efficient if the share prices fully and instantaneously reflects all the available information. One implication of an efficient market is that no abnormal returns can be gained by trading on this information because current prices already reflect the information (Adelegan, 2009). We can conclude that from Figure 3 JSE and NSE are efficient terms of stock price reaction to annual earnings announcements by the sample of listed firms.

5.4 Performance of firms subsequent to earnings announcement and the effect of market condition

Table 5

JSE firms' performance and the effect of market condition				
Event months	% Mean CAR	% Median CAR	T-stats	P-value
Panel 1: Economic boom				
0	2.7799	0.3412	3.3662	0.0008
1	-0.4173	-0.6491	-0.6179	0.5370
2	0.5269	-0.1941	0.7015	0.4833
3	0.3978	-0.7377	0.5738	0.5664
4	0.6217	-0.1081	0.9264	0.3547
5	1.2352	-0.4043	1.4917	0.1365
6	-0.4270	-0.6830	-0.7762	0.4380
Panel 2: Economic meltdown				
0	1.0945	0.0883	1.2643	0.2068
1	0.0583	-0.5537	0.0896	0.9287
2	-0.2093	-1.0164	-0.2660	0.7904
3	-0.5500	-0.9553	-0.8294	0.4074
4	-0.3260	-0.1937	-0.4294	0.6679
5	0.0880	0.6500	0.1234	0.9018
6	-1.0728	-1.2847	-1.7473	0.0813
Panel 3: Economic recession				
0	0.9208	0.4918	1.3919	0.1647
1	-0.2185	-0.1547	-0.3446	0.7306
2	-0.2477	-0.8544	-0.4294	0.6679
3	0.0218	-0.1320	0.0471	0.9625
4	0.0062	-0.2871	0.0116	0.9908
5	-0.8512	-0.0376	-1.5593	0.1197
6	0.1558	-0.6999	0.2734	0.7847
NSE firms' performance and the effect of market condition				
Event months	% Mean CAR	% Median CAR	T-stats	P-value
Panel A: Economic boom				
0	2.8359	0.0952	0.8637	0.3953
1	2.6525	0.6395	0.7322	0.4703
2	-1.8611	-2.9168	-1.1470	0.2614
3	-0.5541	-1.3570	-0.4747	0.6388
4	3.7816	2.1600	1.4141	0.1688
5	-1.3137	-1.0909	-1.2372	0.2267
6	-1.0015	-1.0617	0.5147	0.6110
Panel B: Economic meltdown				
0	2.1165	-0.1026	1.3806	0.1736

1	0.6654	-0.4285	0.4408	0.6612
2	-1.0490	-1.7267	-0.6934	0.4913
3	1.6620	1.6847	1.2394	0.2210
4	-2.8597	-1.2697	-1.6086	0.1140
5	-1.1927	-2.3378	-0.6667	0.5080
6	-0.3249	0.4954	-0.2284	0.8203
Panel C: Economic recession				
0	0.5175	0.1543	0.3039	0.7622
1	0.1327	0.7202	0.1096	0.9131
2	-2.5174	-3.2848	-1.8865	0.0639
3	0.5355	0.1270	0.5076	0.6135
4	0.6478	-0.1735	0.4230	0.6738
5	-0.1487	-0.3430	-0.1499	0.8813
6	-0.8970	-1.1723	-0.7173	0.4759

This table provides the mean CARs for firms' performance subsequent to earnings announcement and the effect of each of the economic conditions. Panel 1-3 relates to JSE, and Panel A- C relates to NSE. Column 1 provides the event period, where month 0 is the month of earnings announcement and column 2-4 are the mean CAR, median CAR and t-statistics. The following are represented as follows; Economic boom (2005-2007), economic meltdown (2008-2009) and economic recession (2010-2011).

The third objective of this study is to assess how the market reacts to earnings announcements under different economic conditions. The table shows the results of the JSE and NSE under the different conditions; economic boom, economic meltdown and the recession. Panel 1 summarises the abnormal return performance relating to the economic conditions for JSE. The mean abnormal return in the month of announcement during the economic boom is +2.78% (t=3.37). In the first month after announcement it drops to a negative -0.42% but improves from the second month after announcement and does not change significantly in the subsequent months. By month 6, mean CAR is -0.43%, while the median is -0.68%. Panel 2 presents results for JSE during the economic meltdown. It indicates the mean CAR in the month of announcement is +1.09% (t=1.26) and dropped to 0.06% a month later after announcement and does not change significantly in the subsequent months. By month 6, mean CAR is -1.07%, whereas the median is -1.28%. Lastly, Panel 3 provides results for JSE during the economic recession. In the month of announcement, the mean CAR is +0.92% (t=1.39) and the median is 0.49%. Thereafter, there are no significant

changes for the rest of the months and in month 6 the mean CAR is +0.16% (*t*=0.27), while median is -0.70%.

Panel A presents the results for NSE during the economic boom, the mean CAR is +2.84% (*t*=0.86) in the month of announcement. In the first month after announcement, the mean CAR dropped to +2.65% and for the rest of the months except in month 3 where the mean CAR is +3.78% (*t*=1.41). By month 6, the mean CAR is -1.00% while the median is -1.06%. Panel B provides the results during the economic meltdown, in the first month of announcement the mean CAR is +2.12% while the median is -0.10. The third month after announcement the mean CAR increased to +1.66% and did not change significantly thereafter. The mean CAR is -0.32% (t=-0.23) by the last month after announcement. Finally, Panel C presents results for NSE during the economic recession, in the month of announcement the mean CAR is +0.52% and median is -0.10%. The mean CAR for the rest of the announcement months did not change significantly and by month 6 mean CAR is -0.90% (*t*=-0.72).

Overall, the results show NSE observed significant mean CARs during the economic boom and the meltdown, while JSE observed higher mean and median CARs only during the economic recession and meltdown respectively. The low mean CARs experienced by NSE during the economic recession may be due to the global recession, while the negative mean CAR -1.00% observed in month 6 (which is December) during the economic boom can be attributed to the country's December 2007 general elections which had an impact on the stock market. JSE was largely affected by the economic meltdown as shown by the low mean CARs it recorded compared to the NSE in the same period. These results can further be explained by figure 4 below using company returns.

Figure 4: JSE and NSE performance under the different economic conditions

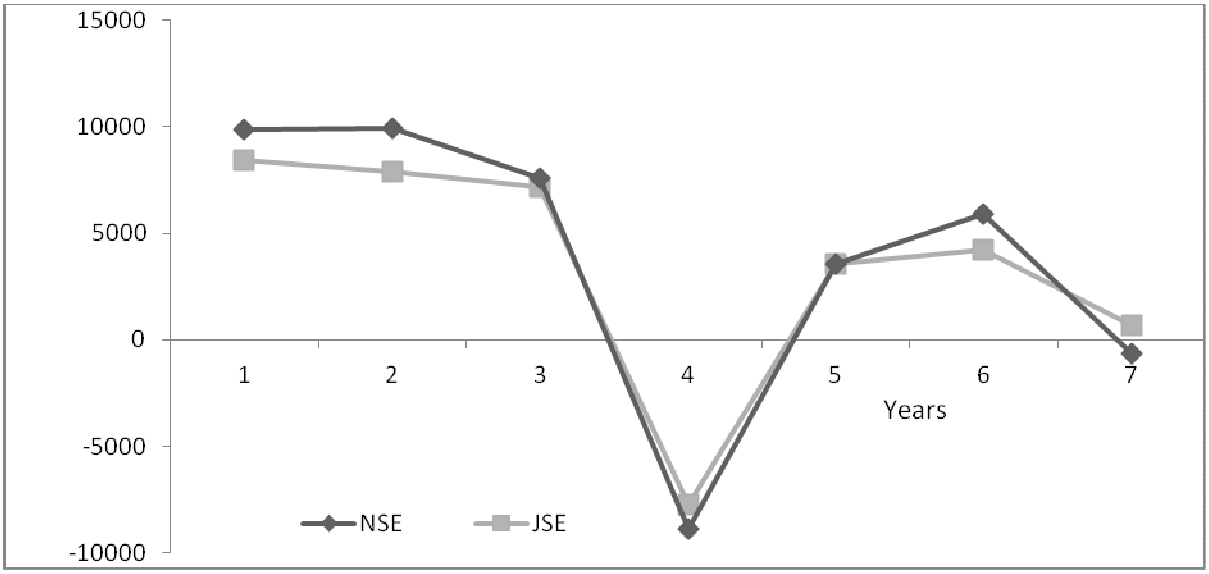


Figure 4 above shows that JSE and NSE experienced high returns during the economic boom although they are lower for JSE. It can further be observed that the stock markets were in a bear market during the economic meltdown as shown by the steep downward drop in returns. Also both stock markets were in a bull market during the economic boom and part of the meltdown. Thereafter during the economic recession the market started to improve but again had a slight drop in 2011. Having observed that performance for JSE and NSE were generally poor on average during the economic meltdown, this suggests that earnings announcements were not good.

Chapter Summary

This chapter dealt with the presentation of data and descriptive statistics with discussions of the subsections under it; data and descriptive statistics, characteristics of JSE and NSE firms, performance of JSE and NSE firms subsequent to earnings announcement and lastly, the firms' performance subsequent to earnings announcement and the effect of the different market conditions. The next chapter presents discussion of the results, concludes and provides recommendations of the study.

CHAPTER SIX

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter discusses the results and provides conclusion and recommendations of the study. Section 6.2 presents and discusses the results of the study. Section 6.3 provides the conclusions of the study and the recommendations are contained in Section 6.4.

6.2 Discussion of results

The results show that cumulative abnormal returns for JSE are positive and significant on the month of earnings announcement with the rest of the months being non-significant, whereas NSE recorded negative and significant abnormal returns in the second month of announcement and insignificant for the rest of the months. The significant CARs suggest that earnings announcement provide valuable information which the market uses to adjust share prices. Therefore, the earnings announcement month for JSE is the only month that investors would make a profit. In theory, a stock market is informationally efficient with respect to earnings releases if no one can earn abnormal returns by trading on the basis of the information contained in firms' earnings news (Afego, 2011). No abnormal price reactions should continue beyond the announcement period. The releasing of financial results may be viewed as a norm and no new information to the market thus the market tend to adjust and correctly reflect the information immediately into the share price. This is substantiated by White et al., (2012) that although earnings are meaningful measures of a firms' financial performance, by the time they are published they are no longer news and have little or no impact on the market. Mabhunu (2004) suggests that price changes should be as a result from release of new information only.

However, the findings of efficiency of the JSE from observing the significant and positive returns on the month of announcement and thereafter no post earnings announcement drift may be attributed to the massive capital investments, which were made over the past decade in an attempt to bring this market to being internationally competitive and create modern electronic infrastructures for trading. NSE only recorded a significant and negative abnormal return on the second month of announcement as the market underreacted to the earnings announcements first then stabilising thereafter. The results are in line also with the study by

Sponholtz (2005) of the Danish stock market, with evidence suggesting that there are significant abnormal price reactions surrounding the announcement date.

The results also show there was no post earnings announcement drift observed in both JSE and NSE, therefore the market was able to adjust instantaneously without bias to earnings announcements by sample firms in our study. The results we obtain corroborates with the findings of a study by Chordia & Shivakumar (2005) that suggests that profitable trading opportunities created by post earnings announcement drift contradicts with EMH. Ball & Brown (1968) documented that the abnormal market performance occurred subsequent to the release of the earnings report. Our results are similar to other firms' transactions, for example Grinbalt et al., (1984) that stock prices react positively to dividends and stock split announcements.

Further results show that performance of JSE firms during the economic boom and the economic meltdown observed lower mean CARs albeit insignificant mean CARs for NSE firms during the same economic conditions. On the whole, our results suggest that the share price reactions to earnings announcements are unsystematic under the different economic conditions. The results are consistent with the efficient market hypothesis (EMH), as there are no continual observations of significant abnormal returns thereafter.

6.3 Conclusion

This study was undertaken to achieve the following objectives; to investigate how the market responds to annual earnings announcements by the NSE and JSE securities exchanges; to determine the level of market efficiency by the NSE and JSE exchanges and to establish whether the two markets behave differently during bull and bear markets.

To achieve the above mentioned it was assumed that the cumulative abnormal returns arising from earnings announcement are significantly different from zero. This is because new information contained in earnings announcements is quickly reflected in the share price thus allowing for statistically significant abnormal returns to be generated on the basis of trading on the month of announcement only. We find evidence of efficient adjustment of stock prices to information contained in earnings announcement for the sample of firms in our study.

This study examined the magnitude of market reaction to annual earnings announcements on the JSE and NSE. We find evidence of efficient adjustment of stock prices to information

releases in earnings announcements for the sample of firms, as prices did not continue to drift six months after the announcement date. Also the study found that earnings announcements during the different economic conditions varied, with the recession experiencing negative drops in earnings for both the JSE and NSE suggesting that the earnings were generally not good.

The study also intended to contribute to the vast literature on market reaction to earnings announcements by the JSE and NSE stock markets. This was to test on the market efficiency of the two exchanges with results showing that the JSE and NSE are efficient in terms of new information releases to the market except that NSE underreacted first after the earnings announcements. There was no post earnings announcement drift observed after the announcement for both exchanges. This suggests that the stock markets do respond adequately to information inflow.

Overall, the results from our study suggests that stock prices changes in the NSE and JSE securities exchange with respect to earnings announcements, are not random but follow a pattern which makes it possible for positive abnormal returns to be gained by trading only on the month of earnings announcement for JSE and not for NSE as it observed significant and negative abnormal returns only on the second month after announcement.

6.4 Recommendations

There are several recommendations that can be drawn for our study. The main aim of the EMH concerns with whether stock prices fully reflect all available information in the market. This research examined the behaviour of stock prices on two major stock exchanges in the Africa region, the NSE and the JSE so as to determine the nature and magnitude of stock market reaction to firms' annual earnings announcements. The conventional t-statistic tests was applied to the closing monthly price series of 261 selected stocks for both the NSE and JSE securities exchange over the period January 2005 to December 2011 for the purpose of determining how the stock markets react.

The evidence presented in this study brings to face a number of interesting issues which indicates that a lot needs to be done; particularly by regulators and policy makers, to address the challenges facing the stock markets, especially the Nairobi securities exchange.

Firstly, we recommend that the regulatory authorities should intensify efforts to ensure compliance to insider trading laws by market participants. The authorities need to strengthen their capacity to effectively monitor activities in the market, and to effectively deal with offenders.

Also, large institutional and foreign investors should be attracted and encouraged to participate on both the stock markets especially the Nairobi securities exchange which has a small number of listed companies. This will improve the overall liquidity position of these markets under study.

The NSE should implement a system to disseminate the earnings announcements such as the SENS for the JSE. Currently, the exchange issues only corporate actions on events such as share splits, bonus issues, dividend announcements, etc.

The regulators of the stock exchanges (NSE and JSE) should ensure timeliness in releasing public information such as those on earnings. Firms delay and take up to one year to release their financial results or even announce results for two financial years together. This will improve market efficiency and foster public and investor confidence.

Most of the studies in market efficiency, including this one have focused on using statistical tests to examine returns and results are used to make conclusions. Our results should be interpreted with caution since the study relatively dealt with two different markets in the sense of development; an emerging and developing. Results from Table 3 indicates that the NSE has the highest standard deviation indicating high fluctuation among individual announcement events and firms compared overall to that of the JSE. This may be good grounds in the recommendation that further work analysing the amount of earnings and analysing announcements company by company may be more informative.

Additionally, this study is limited in scope to two different markets, emerging and developing, future work may be carried out for other emerging and developing markets in the Africa region to ascertain the extent to which the findings are generalisable. Lastly, share price reaction to interim, half yearly and quarterly earnings announcements offers potentially interesting areas for future research in the emerging and developing markets.

APPENDICES

A-1: SAMPLE POPULATION OF THE JSE LISTED COMPANIES

1	Oando plc	61	Iliad Africa Ltd	121	African & Over Ent Ltd	181	Pinnacle Point Group Ltd
2	Sacoil Holdings Ltd	62	Imperial Holdings Ltd	122	African Media Ent Ltd	182	Premium Properties Ltd
3	Sasol Limited	63	Invicta Holdings Ltd	123	Cashbuild Ltd	183	PSG Group Ltd
4	Anglo American Plat Ltd	64	Jasco Electron Hldgs Ltd	124	Caxton CTP Publish Print	184	Purple Capital Ltd
5	Kumba Iron Ore Ltd	65	KAP International Hldgs	125	City Lodge Hotels Ltd	185	Putprop Ltd
6	ArcelorMittal SA Limited	66	Labat Africa Ltd	126	Comair Limited	186	Redefine Properties Ltd
7	Anglogold Ashanti Ltd	67	Masonite Africa Ltd	127	Cullinan Holdings Ltd	187	Resilient Prop Inc Fund
8	Gold Fields Ltd	68	Metrofile Holdings Ltd	128	Don Group Ltd	188	Sable Holdings Ltd
9	African Rainbow Min Ltd	69	Micromega Holdings Ltd	129	Famous Brands Ltd	189	Sabvest Ltd
10	Exxaro Resources Ltd	70	Mobile Industries Ltd	130	JD Group Ltd	190	Sanlam Limited
11	Harmony GM Co Ltd	71	Morvest Business Grp Ltd	131	Kagiso Media Ltd	191	Santam Limited
12	Sappi Ltd	72	Murray & Roberts Hldgs	132	Lewis Group Ltd	192	Sasfin Holdings Ltd
13	Uranium One Inc	73	Nampak Ltd	133	Massmart Holdings Ltd	193	Sekunjalo Inv Ltd
14	Northam Platinum Ltd	74	Onelogix Group Ltd	134	Money Web Holdings Ltd	194	Standard Bank Group Ltd
15	Evraz Highveld Steel & Van	75	Primeserv Group Ltd	135	Mr Price Group Ltd	195	Stratcorp Ltd
16	Merafe Resources Ltd	76	PSV Holdings Ltd	136	Naspers Ltd -N-	196	Sycom Property Fund
17	African Oxygen Limited	77	Remgro Ltd	137	Nictus Ltd	197	Tradehold Ltd
18	AECI Limited	78	Reunert Ltd	138	Phumelela Game Leisure	198	Trematon Capital Inv Ltd
19	Simmer & Jack Mines	79	Santova Logistics Ltd	139	Pik n Pay Holdings Ltd	199	Vukile Property Fund Ltd
20	Wesizwe Platinum Ltd	80	Sanyati Holdings Ltd	140	Pik n Pay Stores Ltd	200	Zeder Inv Ltd
21	Omnia Holdings Ltd	81	Stella Vista Tech Ltd	141	Rex Trueform Cloth Co Ltd	201	Zurich Insurance Co SA
22	Sentula Mining Ltd	82	Super Group Ltd	142	Shoprite Holdings Ltd	202	Adaptit Holdings Limited
23	Mvelaphanda	83	The Bidvest Ltd	143	Spur Corporation Ltd	203	Alliance Mining Corp Ltd
24	Petmin Ltd	84	Transpaco Ltd	144	Sun International Ltd	204	Business Connexion Grp Ltd
25	DRD Gold Ltd	85	Trencor Ltd	145	The Foschini Group Limited	205	Compu Clearing Outs Ltd
26	Witwatersrand Cons Gold	86	Value Group Ltd	146	The Spar Group Ltd	206	Convergenet Holdings Ltd
27	York Timber Holdings Ltd	87	WG Wearne Ltd	147	Truworths Int Ltd	207	Datacentrix Holdings Ltd
28	ZCI Limited	88	Wilson Bayly Hlm-Ovc Ltd	148	Tsogo Sun Holdings Ltd	208	Datatec Ltd
29	Buildmax Ltd	89	Winhold Ltd	149	Verimark Holdings Ltd	209	EOH Holdings Ltd
30	Trans Hex Group Ltd	90	Workforce Holdings Ltd	150	Woolworths Holdings Ltd	210	Faritec Holdings Ltd
31	Randgold & Expl Co Ltd	91	Zaptronix Ltd	151	ABSA Group Ltd	211	Foneworx Holdings Ltd
32	Delta EMD Ltd	92	Afgri Limited	152	Acucap Properties Ltd	212	ISA Holdings Limited
33	Miranda Mineral Hldgs Ltd	93	AH-Vest Limited	153	Adrenna Property Grp Ltd	213	Mustek Ltd
34	Wescoal Holdings Ltd	94	Amalgamated App Hldgs Ltd	154	African Bank Inv Ltd	214	Pinnacle Tech Hldgs Ltd
35	Goliath Gold Mining Ltd	95	Astral Foods Ltd	155	African Dawn Capital Ltd	215	Securedata Holdings Ltd
36	Chrometco Ltd	96	AVI Ltd	156	Bonatla Property Hldgs	216	Silverbridge Holdings
37	Bauba Platinum Limited	97	Awethu Breweries Ltd	157	Brimstone Inv Corp Ltd	217	Square One Solutions Grp
38	Spanjaard Limited	98	Beige Holdings Limited	158	Cadiz Hldgs Ltd	218	Allied Technologies Ltd
39	Thabex Limited	99	Bioscience Brands Ltd	159	Cape Empowerment Limited	219	MTN Group Ltd
40	Adcorp Holdings Limited	100	Crookes Brothers Ltd	160	Capitec Bank Hldgs Ltd	220	Telkom SA Ltd
41	AG Industries Limited	101	Distell Group Ltd	161	Clientele Ltd	221	Vodacom Group Ltd
42	Allied Electronics Corp	102	Dorbyl Ltd	162	Conduit Capital Ltd		
43	Amalgamated Elec Corp Ltd	103	Illovo Sugar Ltd	163	Coronation Fund Mngrs Ltd		
44	Argent Industrial Ltd	104	Nu-World Hldgs Ltd	164	Discovery Holdings Ltd		
45	Astrapak Limited	105	Oceana Group Ltd	165	Firstrand Ltd		
46	Aveng Group Limited	106	Rainbow Chicken Ltd	166	Growthpoint Prop Ltd		
47	Barloworld Ltd	107	SABMiller plc	167	Hosken Cons Inv Ltd		
48	Basil Read Holdings Ltd	108	Seardel Inv Corp Ltd	168	Hospitality Prop Fund		
49	Bell Equipment Ltd	109	Sovereign Food Inv Ltd	169	Hyprop Inv Ltd		
50	Bowler Metcalf Ltd	110	Steinhoff Int Hldgs Ltd	170	Ingenuity Property Inv		
51	Cargo Carriers Ltd	111	Tiger Brands Ltd	171	John Daniel Holdings Ltd		
52	Ceramic Industries Ltd	112	Tongaat Hulett Ltd	172	JSE Ltd		
53	Control Instruments Grp	113	Aspen Pharmacare Hldgs Ltd	173	M Cubed Hldgs Ltd		
54	Digicore Holdings Limited	114	Cipla Medpro SA Ltd	174	MMI Holdings Limited		
55	Distr and Warehousing	115	Life Healthc Grp Hldgs Ltd	175	Nedbank Group Ltd		
56	ELB Group Ltd	116	Litha Healthcare Grp Ltd	176	New Corpcapital Ltd		
57	Esorfranki Limited	117	Mediclinic Internat Ltd	177	Octodec Invest Ltd		
58	Group Five Ltd	118	Netcare Limited	178	Old Mutual plc		
59	Howden Africa Hldgs Ltd	119	Nutritional Holdings Ltd	179	Orion Real Estate Ltd		
60	Hudaco Industries Ltd	120	ADvTECH Ltd	180	Peregrine Holdings Limited		

A-2: SAMPLE POPULATION OF THE NSE LISTED COMPANIES

1	Bamburi Cement Ltd
2	E.A.Portland Cement Ltd
3	B.O.C Kenya Ltd
4	Athi River Mining
5	Carbacid Investments Ltd
6	Crown Berger Ltd
7	Eveready EA Ltd
8	East African Breweries Ltd
9	British American Tobacco Kenya Ltd
10	Mumias Sugar Co. Ltd.
11	Sameer Africa Ltd
12	Williamson Tea Kenya Ltd
13	Unga Group Ltd
14	Rea Vipingo Plantations Ltd
15	Kakuzi
16	Kapchorua Tea Co. Ltd
17	Car & General (K) Ltd
18	Marshalls (E.A.) Ltd
19	Limuru Tea Co. Ltd
20	Eagaads
21	Kenya Orchards Ltd
22	Kenya Airways Ltd
23	Tourism Promotion Services Ltd (Serena)
24	Total Kenya Ltd
25	Standard Newspapers Group
26	Scangroup
27	Express Kenya Ltd
28	Barclays Bank Ltd
29	Standard Chartered Bank Ltd
30	Cooperative Bank of Kenya
31	C.F.C Bank Ltd
32	NIC Bank Ltd
33	Diamond Trust Bank Kenya Ltd
34	National Bank of Kenya Ltd
35	Kenya Re-Insurance
36	Jubilee Insurance Co. Ltd
37	Housing Finance Co Ltd
38	Pan Africa Insurance Ltd
39	City Trust Ltd
40	Olympia Capital Holdings ltd

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STOCK PRICE REACTION TO EARNINGS ANNOUNCEMENTS

A Comparative Test of Market Efficiency between NSE securities exchange and JSE securities exchange





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DECLARATION

I, Hilda Chepchumba Rono declare that the research work reported in this thesis is wholly my own work, except for references indicated, and any help as I have acknowledged. This thesis has not, either in whole or in part, been submitted at any other University or College for degree purposes.

_____

Hilda Chepchumba Rono

Johannesburg

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DEDICATION

To my husband Robert, daughters Maya and Mikayla

Above all, I give thanks to the Almighty God

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LIST OF ABBREVIATIONS, ACRONYMS AND SYMBOLS

ALTX	Alternate Exchange
AR	Abnormal Return
ATS	Automated Trading System
CAR	Cumulative Abnormal Return
CDS	Central Depository System
CMA	Capital Market Authority
DTI	Department of Trade and Industry
EMH	Efficient Market Hypothesis
ICB	Industry Classification Benchmark
IPO	Initial Public Offering
JSE	Johannesburg Securities Exchange
JET	Johannesburg Equities Trading
KSHS	Kenya Shillings
KCB	Kenya Commercial Bank
LSE	London Stock Exchange
MNC	Multinational Corporation
NASI	Nairobi Stock Exchange All Share Index
NSE	Nairobi Securities Exchange
PEAD	Post Earnings Announcement Drift
SENS	Securities Exchange News Service
SRI	Socially Responsible Investment

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ABSTRACT

This study examined stock market reaction to annual earnings announcements using the most recent data from the Nairobi Securities Exchange (Kenya) and JSE Securities exchange (South Africa). The period of study is 1 January 2005, to 31 December, 2011. Using the event study methodology, the magnitude of market reaction to the earnings announcements for a sample of 261 listed firms on NSE and JSE is tested. Abnormal returns (ARs) were computed for each firm and tested how announcements impact a firms' share price. The results show positive and significant returns on the announcement month for JSE, whereas the returns for NSE are negative and significant on the second month after announcement. In our study, JSE and NSE observed mean CAR of (+1.64%) and (-1.8606) respectively, suggesting that earnings contain important information for the market. We find that there is no post earnings announcement drift observed over the next six months after the announcement. The results are consistent with the efficient market hypothesis, thus suggesting that the Johannesburg securities exchange and Nairobi securities exchange are informationally efficient to earnings announcements by the sample of listed firms. Furthermore, our results show NSE firms performed better than JSE firms during the economic boom and meltdown, whereas JSE firms observed a good performance during the economic recession compared to NSE firms.

Keywords: Efficient market hypothesis; earnings announcements; abnormal returns; event study; Kenya; South Africa

CHAPTER ONE

1.1 Introduction

This chapter provides an overview of the research proposal. It presents the research problem, the research questions and research objectives. Section 1.2 provides the context to the study. Section 1.3 presents the research problem in detail. Section 1.4 presents the objectives of the study. Section 1.5 presents the research questions and the significance of the study is presented in Section 1.6. The chapter summary concludes Chapter 1 of the proposal.

1.2 Context of Study

The research on how the market reacts to new information releases subsumes the elements of market efficiency or inefficiency. Market efficiency as defined by Fama (1970), states that a market is efficient if asset prices fully reflect the information available. "Fully reflecting" means that knowledge of the information does not allow anyone to profit from it, because prices already incorporate the information. Further, the information is impounded in the prices correctly and instantaneously as it becomes known (White, Sondhi, & Fried, 2012). Fama (1970) posits that there are three forms of market efficiency – the weak form, the semi-strong and the strong form.

A weak form efficient market is one in which the information is reflected in past prices and volume figures, hence cannot be used to beat the market (Jordan, Miller & Dolvin, 2012). This kind of efficiency is concerned with both the speed and accuracy of the market's reaction to information as it becomes available (Mabhunu, 2004). A research study conducted by Aga and Kocaman (2008) concluded that the Istanbul Stock Exchange exhibits the weak-form of efficiency and results obtained from time series shows the returns can only be described by mean. In a semi-strong form efficient market the share price reflects all publicly information (Jordan et al. 2012). Results of a study by Ahmed, Hussin and Ying (2010) to test the semi-strong form of efficiency on the Malaysian Stock Exchange provide some evidence of this form. Stock prices adjust in an efficient manner to dividends and earnings announcements. Finally, in a strong-form efficient the share price should reflect all public and private information (Jordan et al., 2012). Seyhun (1986) offers adequate evidence that insiders profit from trading on public information not known by the market and therefore are not incorporated into the share prices.

Research shows that earnings announcements are one form of news that the market reacts to. Earnings are defined as the amount of profit that a company generates during a given period of time usually quarterly or annually as reported in its financial statements. Earnings are important because they provide an indication of a company's potential growth, stock price appreciation and future dividend payments. Various research studies have been conducted in relation to earnings with varied findings. 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. (Cheol, 2012) reported that earnings provide a modest but not overwhelming amount of information to the market.

Given the importance of earnings, it is no surprise that company management has a vital interest in how they are reported and may decide to manage the earnings. Earnings management is defined as the manipulation of a company's financial earnings either directly or indirectly through accounting techniques. This occurs when a company is unable to meet investors' expectations or in periods of volatile earnings. Earnings management is primarily achieved by management's actions to achieve desired earnings levels thus stock returns prompt earnings management (Cheol, 2012).

One of the common ways in which companies manage earnings is by controlling the timing of receipts and expenditures, and by choosing among alternative methods of accounting (Cheol, Resnick & Sabherwal, 2012). Earnings studies by Rhee (2003) examined the effect of firm size on corporate earnings management and found that large and medium sized firms display more aggressive ways so as to avoid reporting earnings drops than small sized firms. A study by Mokoaleli-Mokoteli, Taffler and Agarwal (2009) examined the relationship between quality of corporate governance and earnings management. Results show that due to the introduction of code of corporate governance in 2002 (Sox Act 2002), it has created an increase in discretionary accruals as a measure to manage risk.

Earnings may also be viewed as an indicator of management's competence in running a profitable company and the ability to deliver value to shareholders. Therefore, market reaction to earnings releases is deemed to be an interesting topic for research. The market reacts more strongly to positive earnings than to negative earnings (Mlonzi, Kruger & Nthoesane, 2011).

The aim of this research is to investigate and make a comparative analysis of how the NSE and JSE react to both positive and negative earnings announcements. The analysis will also make it possible to assess the extent to which the two exchanges are informational efficient.

1.3 Problem Statement

Previous researches by Chambers and Penman (1984); Penman (1987); Chai and Tung (2002) and Anilowski, Feng and Skinner (2007) demonstrate that investors accrue positive returns during earnings management. Other research, Aga and Kocaman (2008) shows that the market reacts positively to good earnings announcements and negatively to bad earnings announcements. It further found that lower earnings results display positive cumulative abnormal return (CAR) thus moving the market values higher. A recent research conducted on this topic by Mlonzi et al. (2011) used a sample period of one year (January, 2009 to December, 2009) and only tested the sample firms listed on the alternate exchange (ALtX), whereas our study tests all sample firms listed on the JSE securities exchange irrespective of exchange listing. An earlier study on the Kenya stock market was by Maina (2009), which investigated the stock returns around the earnings announcements for quoted companies on the NSE securities exchange. The research period was for five (5) years (that is, from January 2002 to December 2006). Our study on the NSE extends the sample period up to 2011 that is not covered in the earlier research.

The problem is that there is no research that studies market reaction to earnings announcement on the NSE and JSE using the most recent data. By using the most recent data, it will be able to capture some of the trends that may influence on the efficiency of capital markets in African countries (Simons & Laryea, 2006). In addition, no research compares the magnitude of the reaction (in any direction) between any of these two stock exchanges. The crux of this research is not only to assess the reaction of the two exchanges to the new earnings announcements but to also compare how it reacts and the magnitude of its reaction. It is imperative that the results will also enable us to make conclusions about the extent to which these two markets are efficient.

1.4 Objectives of the Study

The objectives can be stated as follows:

- To investigate how the market responds to annual earnings announcements by the NSE and JSE securities exchanges

- To determine the level of market efficiency by the NSE and JSE exchanges
- To determine how differently the two stock markets react to earnings announcements
- To establish whether the two markets behave differently during bull and bear markets.

1.5 Research Questions

- How do the NSE and JSE react to companies' annual earnings announcements?
- What is the level of market efficiency displayed by each of the two exchanges?
- How differently does the Kenyan and the South African stock markets react to earnings announcements?
- How do the NSE and JSE exchanges react to earnings announcements during bull and bear markets?

1.6 Significance of the Study

This research aimed to extend evidence on how the stock market reacts to annual earnings announcements for a sample of listed firms on the Nairobi Securities Exchange and Johannesburg Securities Exchange. The study aimed to provide a comparison on market efficiency of the two exchanges. From the results of this study, we have provided valuable recommendations that can be of help.

The findings of this research is important to investors, portfolio managers, decision makers and other stock market players who use earnings announcements to measure their trading expectations. Particularly, it is vital to note that investor expectations of company earnings are reflected in stock price.

Lastly, evidence from analysing stock price reaction to earnings announcements in a developing and emerging market respectively casts more light on whether the theory of efficient markets is supported, or contradicted by the various empirical findings. Our findings are consistent with the efficient market hypothesis. This is mostly of significant interest to researchers (Afego, 2011).

1.7 Outline of the Study

The rest of the research will be structured as follows: Chapter 2 provides a general overview of the two exchanges the NSE and JSE and their overall sectors of the economy. Chapter 3

provides the literature review of the study with a thorough analysis on content of earnings information and the impact on stock price. The methodology data together with the models are discussed in Chapter 4, while the presentation and discussion of the results are reported in Chapter 5. Chapter 6 provides the discussion of the results and the conclusions together with recommendations for further study/ies.

Chapter Summary

This chapter offered the introductory part of the study, provided the context study, outlined the problem statement of the study, laid out the objectives of the study and finally set out the outline of the study. This introductory chapter provides the framework and sets out the organisation of how the rest of the chapters in the study is discussed and analysed; overview of the stock markets, literature review, methodology and lastly discussion of the results.

CHAPTER TWO

OVERVIEW OF THE STOCK MARKETS

2.1 Introduction

This chapter provides an overview of the two stock markets, the Nairobi Securities Exchange (NSE) and the Johannesburg Securities Exchange (JSE) under investigation in this study. Section 2.2 gives a brief history of the Nairobi Securities Exchange and the outline of the sectors of the economy together with market share of the listed companies. Section 2.3 provides an overview of the Johannesburg Securities Exchange together with a summary of the sectors and market share of the listed companies. Section 2.4 provides a chapter summary on the overview of the two stock markets.

2.2 An overview of the Nairobi Securities Exchange (NSE)

The Nairobi Securities Exchange is the only stock exchange operating in Kenya. It was established in the 1920's by the British as an informal market for dealing in shares and stocks, with no rules and regulations to oversee stock broking activities. The Kenyan stock market, then named the Nairobi Stock Exchange, was founded in 1954 as a voluntary association of brokers registered under the Societies Act. It was through the NSE that saw the first ever privatisation in the country of a 20% government stake in the Kenya Commercial Bank (KCB). Since 1994, there have been significant changes to the NSE in terms of structure, trading premises and its operations (NSE, 2012).

Trading is carried out via the Automated Trading System (ATS) which was commissioned in 2006 and it marked the significant step in the efforts to ease the speed of the execution of orders on a first come first serve basis thus enhancing market liquidity. The ATS system is linked to the Central Bank of Kenya (CBK) and the electronic Central Depository System (CDS) allowing trading of government bonds. The daily price movement for any security in a single trading session is not allowed to be more than 10% except during major corporate announcements (kestrelcapital.com). The ATS is customised in order to uphold the spirit of the Open Outcry Trading rules in an automated trading environment (NSE, 2012).

The NSE All Share Index (NASI) was introduced in 2008, as an alternative index, which is an overall indicator of market performance. The index incorporates all the traded shares of the day; therefore it provides the overall overview of the market value rather than the price movements of select stocks. The Nairobi Securities Exchange is licensed and regulated by the

Capital Markets Authority of Kenya (CMA-K). It has the mandate of providing a trading platform for listed securities and overseeing its member firms. It also approves public offers and listings of securities traded at the exchange (NSE, 2012).

The Nairobi Stock Exchange changed its name to the Nairobi Securities Exchange in July 2011 as a reflection of its strategic plan to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. It is also part of the East African Securities Exchanges Association comprising of the Dar-es-Salaam Stock Exchange and the Uganda Securities Exchange including the various cross-listing of various equities (NSE, 2012).

The exchange comprises of approximately 55 active listed companies with a daily trading volume of over US $5 million and a total market capitalisation of approximately US $15 billion. Apart from equities, government and corporate bonds are also traded on the exchange with an average of daily bond trading of US $60 million. Automated bond trading commenced in late 2009. Short selling and same day turn-around transactions are not permitted on the NSE. Almost all NSE listed companies are open to additional foreign investment, including multinational subsidiaries[1].

Table 1

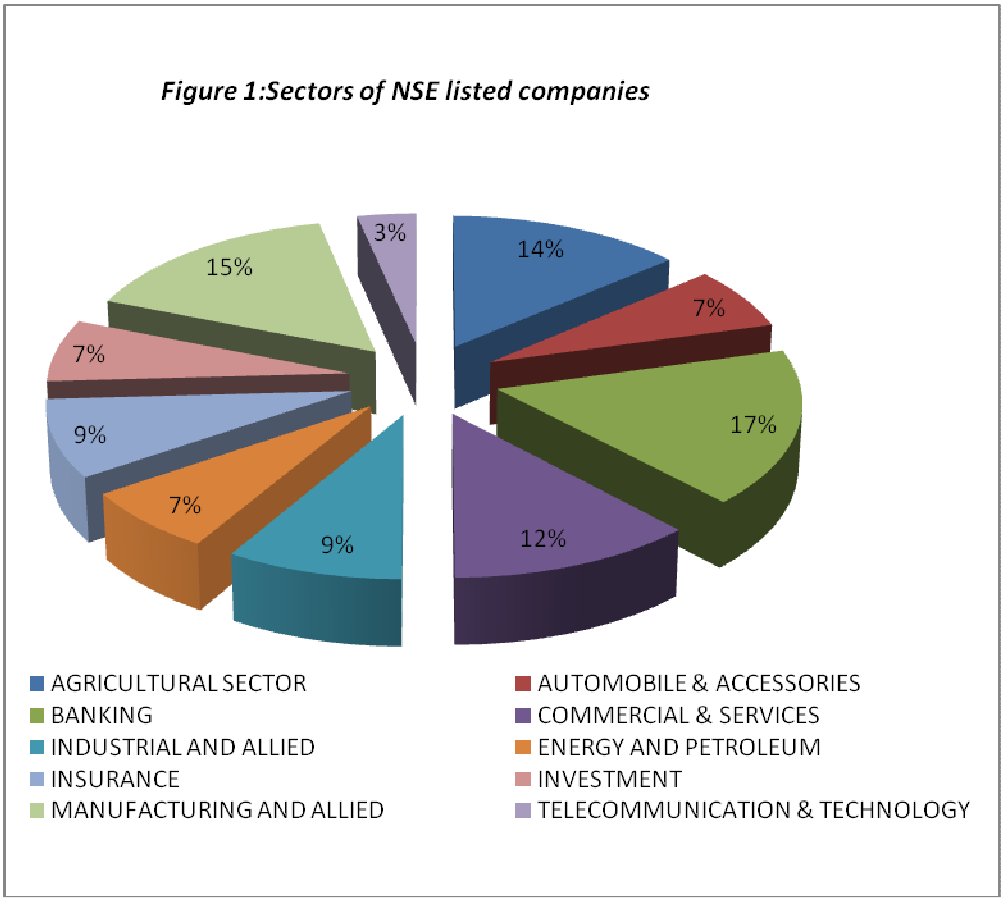
Basic Data - Nairobi Securities Exchange

Year	Listed Companies	Market Capitalisation th Kshs (000)	Total volume of shares traded	Equity Turnover (Kshs)
2011	58	952,150,059	5,722,036,800	77,796,279,185
2010	55	1,194,917,184	5,918,921,900	89,713,453,278
2009	55	761,983,851	3,159,558,527	38,152,734,018
2008	55	931,885,741	5,835,858,270	97,601,977,685
2007	53	802,039,996	1,924,262,247	88,650,556,648
2006	49	778,442,065	1,463,481,161	95,386,387,106
2005	46	782,494,844	776,971,725	36,562,616,982
		6,203,913,740	**24,801,090,630**	**523,864,004,902**

Source: NSE Handbook (2006, 2012)

[1] www.kestrelcapital.com

Table 1 shows that at the end of 2011, there were 58 companies listed on the Nairobi Securities Exchange comprising of 10 sectors of the country's economy. Figure 1 below indicates the sectors and their individual market shares of the listed companies[2].



Source: NSE Handbook (2006, 2012)

Figure 1 shows that the banking sector command the largest portion (17%) of the various sectors of the economy followed closely by the manufacturing and allied sector (15%). This is no surprise given the massive growth of the banking sector in Kenya in the last decade. The total number of banks in Kenya as at the end of 2011 stood at 44; 31 being locally owned and 13 foreign owned. The country's banking sector has seen a huge growth with bank branches rising from 534 as at the end of 2005 to more than 1000 at the end of 2011. This is due to the

[2] Unless otherwise indicated the information on the NSE was obtained from the NSE website: www.nse.co.ke [Accessed 13 August 2012] referenced as NSE, 2012.

reforms implemented by the government in the banking sector to make it internationally competitive[3].

2.3 An overview of the Johannesburg Securities Exchange (JSE)

The JSE is the only main stock exchange South Africa currently in operation although legislation allows for more than one stock exchange. Then Johannesburg Stock Exchange was founded in 1887 mainly to provide a facility through which investors could trade in shares after the discovery of the Witwatersrand gold fields and the subsequent formation of the mining and financial investment companies. The JSE is licensed under the Securities Services Act of (2004) and has been trading in financial products for nearly 120 years making it the oldest exchange in Africa (JSE, 2012).

In 1996, the JSE introduced the order driven, centralised, automated trading system known as the Johannesburg Equities Trading (JET) system to replace the open trading floor. Since then it has seen significant changes in its trading systems and operations. An example of such changes was the introduction of the STRATE electronic settlement system in 2002 which helped improve the market integrity thus winning both local and international investor confidence. Since then the JSE has had a zero failed trade record thereby improving market integrity immeasurably. The JET system was later replaced by the LSE's SETS System hosted by the LSE in London improving the international visibility of the JSE. It also launched the new free float indexing system in conjunction with the FTSE, namely the FTSE/JSE African Index Series to replace the then existing indices. This has enhanced the investability of the South African stocks by providing foreign investors with an indexing system with which they are familiar (JSE, 2012).

The JSE launched the SENS (Securities Exchange News Service – known then as Stock Exchange News Service) in 1997, a real time news service for the dissemination of company announcements and price sensitive information. This ensures early and wide distribution of all information that may have an effect on the prices of securities that trade on the exchange (JSE, 2012).

In 1999, the Insider Trading Act is introduced based on recommendations made by the King Task Group on Corporate Governance and included representatives from the JSE. A year

[3] www.softkenya.com

later the JSE successfully lists Satrix 40, which tracks the top 40 companies listed on the exchange's Main Board (JSE, 2012).

In 2003, the JSE launches the AtlX (alternate exchange), developed in partnership with the Department of Trade and Industry and as per the end of 2011, it had a total of 62 registered companies. A year later the JSE launched the Socially Responsible Investment (SRI) Index, which measures compliance by companies with triple bottom line criteria around the economic, environmental and social sustainability (JSE, 2012).

In July 2005, the JSE Limited demutualised and was incorporated as a public unlisted company and later in 2006 it listed on the Main Board of the exchange. The JSE has evolved over time and boasts with modern electronic trading, clearing and settlement systems with extensive surveillance capabilities. The South African Institute of Stockbrokers is tasked with training and setting standards for the qualification of stockbrokers. The JSE securities exchange is also a member of the World Federation of Exchanges (JSE, 2012).

Table 2

Basic Data - Johannesburg Securities Exchange

Year	Listed Companies	Market Capitalisation th ZAR (000)	Total volume of shares traded	Equity Turnover ZAR
2011	398	2,951,298,097	32,379,889,071	1,810,449,380,060
2010	377	4,175,968,458	39,552,239,627	2,627,887,371,326
2009	366	5,022,415,935	52,569,600,297	3,787,532,960,783
2008	357	4,021,743,614	63,096,830,428	4,184,554,024,377
2007	338	5,225,149,123	63,098,734,304	3,710,011,001,869
2006	284	6,080,821,976	57,442,440,396	3,825,302,234,740
2005	253	6,351,971,340	51,574,271,137	3,910,420,591,209
		33,829,368,543	**359,714,005,260**	**23,856,157,564,364**

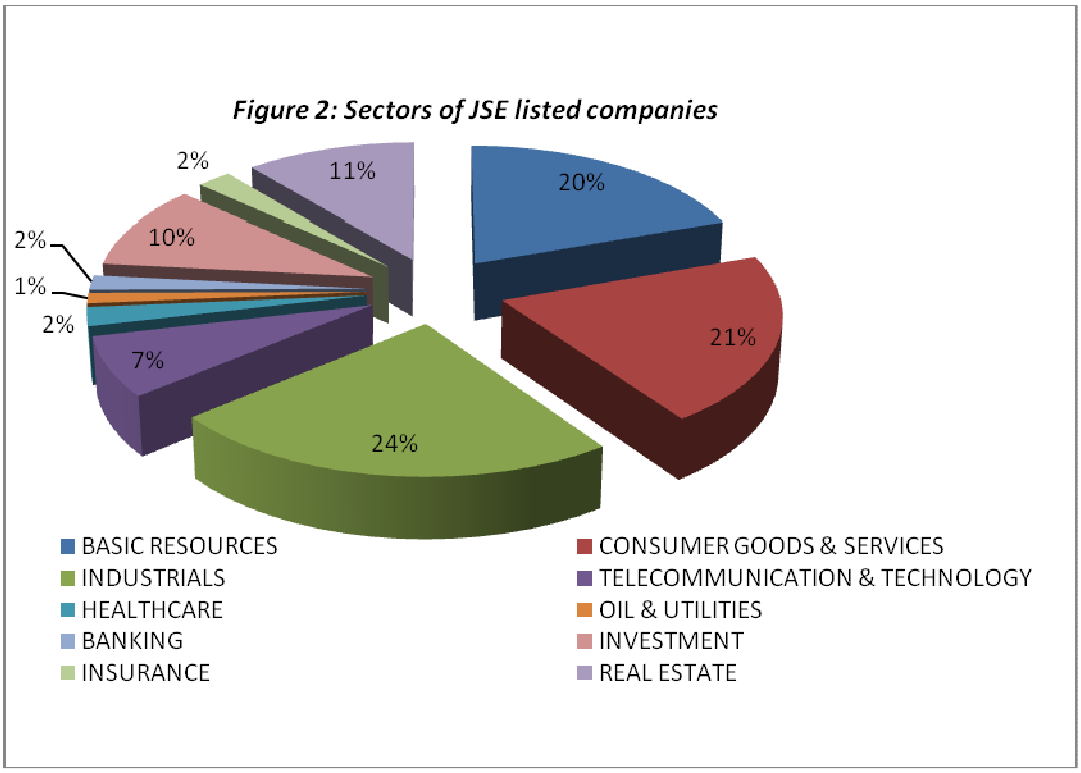
Source: McGregor BFA

Table 2 (above) shows that by end of 2011, there were 398 listed companies on the exchange comprising of 10 sectors of the country's economy. It also indicates that JSE exchange has the highest number of listed firms, therefore rendering it the largest stock market in this study.

The various sectors, from which these companies are drawn are depicted in Figure 2 (below), and show the bulk of stocks traded on this exchange belonging to companies of the

industrials sector comprising (24%), followed closely by the consumer goods and services sector with 21%. Most of these industrial companies have been listed for longer periods than many companies of the other sectors.

4



Source: McGregor BFA

Chapter Summary

Of the two markets, the JSE has been in operation for the longest period as its trading activities officially commenced in 1887, thus making the NSE the youngest. The NSE currently has 55 stocks that are actively trading making it the smallest stock exchange being investigated in this study. Both exchanges have undergone massive changes in terms of operations and infrastructure over the years to improve the trading activities. These stock markets cater to the strong financial position of the many companies in both Kenya and South Africa.

[4] Unless otherwise indicated the information on the JSE was obtained from the JSE website: www.jse.co.za [Accessed 13 August 2012] referenced as JSE, 2012.

As indicated in Table 1, the NSE has the smallest number of listed companies which accounted for its low market capitalisation. Also, the NSE has a substantially lower volume and value of traded shares compared to that of the JSE securities exchange. This is because the NSE has the smallest number of listed companies and could also be due to lower stock price levels and trading activities compared to the JSE, rendering it the least illiquid market of the two exchanges.

As illustrated in Table 2, the JSE securities exchange has a far greater volume of shares traded and market capitalisation, which indicates that it is the biggest and the most liquid stock market of the two. Due to its high degree of liquidity, the JSE securities exchange manifested a higher value of shares traded than the NSE. Also the share prices of the JSE securities exchange are generally higher compared to those of the NSE.

Another important aspect that can be observed is that the trading volumes in both the NSE and JSE securities exchange decreased in 2010 and 2011 by 3.3% and 18.1% respectively. This could be attributed to the worldwide financial crisis of 2008.

The JSE securities exchange has a much bigger sector of mining which is non-existent in the NSE; this is not a surprise as there are mineral deposits spread across South Africa. This is also confirmed by the big number of companies listed on the JSE securities exchange. The mining sector in Kenya is in the exploring stages and there are few companies that have ventured into the sector.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

This chapter presents an overview of the theory of market efficiency commonly referred to as the Efficient Market Hypothesis and its implications on the stock market. Theoretical explanations and the various researches that have been done are also presented, especially the research on market efficiency and earnings management. Section 3.2 presents the concept of Efficient Market Hypothesis and literature on market efficiency and its implications discussed in Section 3.3. Section 3.4 presents market reactions on earnings announcements. Section 3.5 presents an analysis on market reaction to stock splits. Section 3.6 explains market reaction to stock cross-listing and Section 3.7 presents earnings and dividends announcements. Section 3.8 offers an explanation of the market reaction to bonus issues announcement. Section 3.9 presents the post earnings announcement drift (PEAD) and finally, Section 4.0 provides the chapter summary.

3.2 The Efficient Market Hypothesis (EMH)

The core idea behind the EMH is that stock prices should fully reflect all new and available information in an unbiased manner to the market participants. Such markets delivers accurate signals for resource apportionment as market prices represent each security's basic worth, although deviations can occur. Price adjustments are only expected to arise from the release of new information (Mabhunu, 2004). Surprisingly, many empirical studies have been conducted to test the validity of the concept of efficient market hypothesis and varied results have been reported. One of the methods for testing this theory has been the observation of stock market reaction to company announcements (Mlonzi et al., 2011).

Market efficiency purports that stock prices display a random walk pattern which implies that current or past share prices are of no help in predicting future prices, so the fact that a share's price has risen (or fallen) does not mean that its next movement is likely to be up (or down). The efficient market hypothesis (EMH) states that investors cannot profit by trading on news reports and other public information, because the share prices adjust to information as soon as it is known.

A weak form efficient market is one in which the information is reflected in past prices and volume figures; hence it cannot be used to beat the market and make profit. Researchers

generally use only limited publicly available information on prices, such as financial statements, government reports, industry reports, analysis and trading volumes (Mabhunu, 2004).

A semi-strong form efficient market is a market where the share prices reflect all publicly available information. Event studies that examine how stock prices adjust to specific economic events have been used to directly semi-strong form efficiency. Events usually tested are stock splits, initial public offerings (IPO), corporate announcements (especially earnings and dividends announcements) and other unexpected economic and world events. Researchers have tested the significance of price to earnings (P/E) and other ratios, the effect of firm size and many other characteristics that can be derived from publicly available information (Mabhunu, 2004).

A strong form of the efficient market hypothesis holds that share prices already incorporate all relevant information, whether public or non-public (Cheol et al., 2012).Tests for the strong form are mainly centred on finding whether any group of investors, especially those who can have access to the information otherwise not publicly available, can consistently enjoy abnormal returns. Groups normally tested are company insiders, stock exchange experts, security analysts and professional asset managers (Mabhunu, 2004). In an efficient market information gathering and information based trading is not profitable as all the available information is already known by the market. This may leave investors with no incentive as to the gathering and analysing of information, for they begin to realise that market prices are an unbiased estimate of the shares' basic worth (Mabhunu, 2004).

Many of the results reported appear to conclude that financial markets generally follow the weak form of efficient market hypothesis. Such studies include a South African study by Mlonzi et al.) (2011), a Ghanaian study by Osei (2002), a Nigerian study by Afego (2011), a Kenyan study by Dickinson and Muragu (1994), a Turkish study by Aga and Kocaman (2008); and a Malaysian study by Ahmed et al. (2010). Finally, other studies suggest a strong form of efficient capital markets in the sense that no significant abnormal returns were observed. These studies include Malkiel (2005), Das, Pattanayak and Pathak (2008), Wang and Corbett (2012), Varamini and Kalash (2008), Laopodis (2009), Simpson, Emery and Moreno (2009); and Louhichi (2008). Weak form tests are the most numerous in terms of

both frequency and research target, and the results mainly support weak form efficiency (Mabhunu, 2004).

3.3 Implications of market efficiency

There are several implications associated with market efficiency. The efficient market hypothesis theory states that the market is efficient with respect to certain particular information if the information is not useful in earning a positive excess return. Firstly, even if all markets are efficient, then asset allocation remains a key element as it strongly influences an investor's overall risk return (Jordan et al., 2012).

Secondly, if markets are efficient, then security selection becomes less important as to whether overvalued or undervalued. In fact, if markets are efficient it would be a good idea to buy a large number of stocks with reduced costs whilst maintaining a passive diversified investment portfolio. Thirdly, if markets are efficient then little role exists for professional money managers, full service brokers and purchasing mutual funds, shares would be cost less that is no load fees (Jordan et al., 2012).

The EMH also had implications for the setting of accounting standards; no longer did such standards have to specifically protect the naïve investors. Sophisticated analysts and investors, who ensure that prices correctly and instantaneously reflect available information, protect the naïve investors. Any trading by such investors is made at fair prices (White et al., 2012).

Another implication is that if markets are efficient, then there is no need to time the market. Market timing involves moving money in and out of the market based on your expectations of future market trend. By trying to time the market on average may lead to underperforming the market. Lastly, historically most of the gains earned in the stock market have tended to occur over relatively short periods of time (Jordan et al., 2012). One implication of an efficient market is that no abnormal returns can be made from this information because current prices already reflect the information (Adelegan, 2009).

A study by Jegadeesh & Titman (2012) found that a similar pattern of returns is exhibited around the earnings announcements of past winners and losers. Significant positive returns over a 3 to 12 month holding period are generated by buying stocks that are doing well and sell the ones performing poorly.

Using the event study methodology, Sponholtz (2005) examined the kind of information contained in annual earnings announcements in the Danish stock market. Sponholtz found out that there were significant abnormal price reactions surrounding the announcements period. Contrary to the EMH, the abnormal price reactions persist several days after the announcement commonly known as post-earnings announcement drift (PEAD). Another recent study by Chordia & Shivakumar (2005), suggests that the profitable trading opportunities created by PEAD are inconsistent with the EMH.

The literature review now shifts to the market reaction to various corporate announcements particularly on earnings, dividends, stock splits, and cross-listing. All these have an impact on the stock price. One area that has received great attention is the impact that earnings announcements have on stock prices and the subsequent abnormal returns arising. The stock prices surrounding the announcement period tend to continually drift several days, weeks, even for months after the announcement and this phenomenon is commonly known as the post-earnings announcement drift. Mostly, the more the uncertainty as to the content and timing of the corporate information release, the higher the potential for the announcement to cause an adjustment in stock prices (Osei, 2002).

3.4 Market reaction around earnings announcements

The capital markets react to information released especially the surprising news announcements that can cause a huge impact on the price of a stock. One such event is earnings announcements; it provides very useful information to the shareholders, present investors as well as potential investors. Earnings announcements also contain information about past earnings and future earnings prospects. Researchers have shown that significant price changes do arise in expectation of the actual earnings. According to the EMH, stock prices should then respond instantly to surprising news, or the earnings 'surprise'. However, this may take days (or even longer) for the market price to adjust fully. In addition, some researchers have found that buying stock after positive earnings surprises is a profitable investment strategy (Jordan et al., 2012). Ball and Brown (1968) documented that the abnormal market performance occurred prior to the release of the earnings report. This suggests that although earnings are meaningful measures of a firm's financial performance, by the time they are published they are no longer news and have little or no impact on the market (White et al., 2012).

Many studies have been conducted on the impact earnings announcements on the stock market with varied results. For example, Cready and Gurun (2010) examined aggregate market reaction to earnings announcements and found some evidence that there is a negative relation between earnings news and market return. Ahmed et al. (2010) found that low earnings are associated with negative returns. Results of a study by Rhee (2003) suggest that earnings announcements provide useful information thereby resulting to increased trading volumes surrounding the event period.

3.5 Market reaction to stock splits

Another element of market reaction to information announcements is the reaction to stock splits. Stock split refers to where all current shareholders receive new shares in exchange for each old share that they own (Jordan et al., 2012). In recent times it is becoming a common phenomenon for companies to engage in stock splits.

A study of the NSE by Chemarum (2010) found that the Kenyan market reacts positively to stock splits, as shown by a general rise in volumes of shares traded around the stock split. This is consistent with the signaling hypothesis, which states that managers of companies split their stock to act as a means of passing information to stock holders and potential investors. Another study by Ikenberry, Rankine and Stice (1996), found evidence that the market underreacts to split announcements and this suggests splits realign prices to a lower trading range. Grinblatt, Masulis and Titman (1984) reported results indicating stock prices react positively to stock dividends and stock split announcements.

A study by Asquith, Healy and Palepu (1989) examined whether stock splits convey important information about earnings. The results show that firms split their stocks after a significant increase in earnings therefore leading investors to increase their expectations that the past earnings increases are permanent. The evidence also suggests that the market's reaction to split announcements cannot be attributed to expectations of either future earnings improvement or near term cash dividend increases.

3.6 Market reaction to stock cross-listing

Cross-listing is a common phenomenon among the multinational corporations (MNCs) and it refers to a firm having its equity shares listed in addition to its home exchange on one or more foreign stock exchanges (Cheol et al., 2012). International cross-listing is pursued by firms as a measure to save on costs and mitigate barriers to international capital flows.

Studying the stock price movements around announcement dates enhances the assessment of the market's reaction to cross-listing (Liu, 2007). There have been various studies in this field. A study by Roosenboom & Van Dijk (2009) examined how markets reacted to cross-listings across different markets. They found evidence consistent with value creation associated with higher announcements returns especially on the London Stock Exchange. Miller (1999) assessed the stock price effect of international dual listings and the findings suggest that stock price reaction is related to choice of exchange, geographical location (emerging or developed markets). A study by Karolyi (1998) examined the various reasons why companies list their shares abroad and the evidence shows that share prices reacts favourable to cross-border listings in the first month after listing and post-listing trading volume increases on average, and, for many issues, home-market trading volume increases also. Finally, a study by Adelegan (2009) assessed the impact of regional cross-listing specifically the Sub-Saharan Africa on stock prices. The study found that there are positive abnormal returns are gained around the date of regional cross-listings of the stocks. The positive announcement period effect, together with the normal post cross-listing performance shows that regional cross-listing increases firm value.

3.7 Earnings and dividends announcements

Dividend announcement is an alternative signalling mechanism that also informs investors about the future profitability of their investments in a firm (Osei, 2002). Several researches have been done to examine the reaction of stock prices to dividend announcements and also to examine the adjustment of stock prices in response to both earnings and dividend releases. (Patell and Wolfson (1984) examined the effects of news releases of earnings and dividend announcements on mean, variance and serial correlation in consecutive price changes. The results show dividends announcements bring much less activity than earnings do. Kane, Lee and Marcus (1985) assessed abnormal stock returns surrounding earnings and dividend announcements in order to determine whether investors evaluate the two announcements in relation to each other. Evidence suggests a statistically significant interaction effect. A study by Ahmed et al. (2010) provides evidence that the effect of dividends announcements is much stronger than for earnings announcements. Finally, a study by Adelegan (2009) examined whether the Nigerian stock market reacts efficiently to dividend announcements in terms of price changes and the findings suggested that dividend policy matters therefore share prices do react to dividend announcements.

3.8 Post earnings announcements drift

The post earnings announcement drift (PEAD) was first documented by Ball and Brown (1968) and defined it as the tendency for stock prices to continue to move in the direction of the earnings surprise up to a year even after the earnings announcement. That is, if a firm's announced earnings exceed (or fall below) the market expectation, the subsequent abnormal returns to its stocks are usually above (below) normal returns for months. The EMH holds that stock prices adjust instantaneously to new information. Empirical evidence, however, suggests that price changes persist for some time after the initial announcement (White et al., 2012).

This predictability of stock returns after earnings announcements has attracted extensive researches from Bernard and Thomas (1989), Livnat and Mendenhall (2006); and Ball, Sadka and Sadka (2009). They also conclude that the drift is significantly larger when using the analysts' forecasts, and that those investors who view the drift as a violation of market efficiency and hope to exploit it should also use the earnings surprise signal, or combination of signals that maximise the drift. Cready and Gurun (2010) found that the market returns continue to persist for some time beyond the announcement period leaving room for profitable trading activities. This finding is consistent with the post earnings announcement drift (PEAD) phenomenon, which relates to the tendency for stock prices to continually drift after the earnings announcements.

Another study by Lew, Skerratt, Strong & Walker (1996) examined whether there is presence of PEAD on the London stock exchange. Overall, they found evidence of significant drift for the earnings announcement for small firms but not for the announcement of large firms.

3.9 Market reaction around bonus issue announcements

Another news event that the stock market reacts to is the bonus issues by firms. Bonus share issues are made to existing shareholders in proportion to their holdings and at zero subscription prices. Thus they have no direct cash flow implications for the value of the firm and hence the price of its shares. Bonus issue announcements are associated with good news and, as with the earnings and dividends announcements, the larger portion of the announcement effect has been anticipated before the actual announcement month (Ariff & Finn, 1989). Various researches have been undertaken to understand the market reaction around the bonus issues: Mishra (2005) suggested that there are significant positive abnormal

returns for a five-day period prior to bonus announcement in line with evidence from developed stock markets even though the bonus issue is known in advance and therefore releases are already known. The results provide stronger evidence of semi-strong market efficiency of the Indian stock market. In another study by Travlos, Trigeorgis and Vafeas (2001) evidence suggests that significant positive abnormal returns exist around the announcement in line with evidence from developed stock markets. Results of a study by Barnes and Ma (2010) show that higher bonus issue ratio (number of bonus shares in the issue/number of existing shares) usually attract positive returns and lower bonus issue ratio attract negative returns.

Chapter Summary

This chapter dealt with the literature review part of the study with discussions of how the market reacts to various corporate announcements under the subsections; market reaction to earnings announcements, market reaction to stock splits, market reaction to stock cross-listing, earnings and dividends announcements, and market reaction to bonus issues announcement and lastly the post earnings announcement drift. The market reaction to earnings announcement forms the basis of our main objective of the research and sets out the tone for the rest of the chapters of the study; methodology, presentation of the data and descriptive and the conclusions and recommendations of the study.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This section provides an overview of the research methodology employed in this study. Section 4.2 describes the nature of data required and the sources of the data for the study. It also describes the sampling method and criteria for the sample selection. Section 4.3 outlines the research design providing a description of event study methodology used to test the behaviour of stock returns and market efficiency. It also provides the various researches that have utilised this methodology. Section 4.4 outlines how the constructions of returns are dealt with describing the benchmark returns generating the model employed. Section 4.5 explains the empirical approach taken for this study and the model for the statistical test for the average abnormal returns used. The models used to measure returns around the event period are also presented.

4.2 Data and data sources

The data used in this research is mainly annual earnings data and share price data. For the JSE, the earnings and share price data are both sourced from *Bloomberg* and *McGregor BFA* databases, while for the NSE the data is sourced from their database and their official handbooks. The earnings announcement dates for both the NSE and JSE firms were obtained from *Bloomberg* and a total of 1682 earnings announcements collected. Firms with insufficient data were deleted from analysis. The market capitalisation which serves as a proxy for firm size is obtained from the NSE database and from *McGregor BFA* for the JSE listed firms. Where necessary, some data is also obtained from companies' annual reports, company websites and official business press releases. The sample period for this research is 1 January, 2005 to 31 December, 2011 and includes monthly stock price data relating to 261 shares listed on the NSE and JSE securities exchange. The sample period is considered sufficient for any annual earnings announcement effects to be detected and analysed. The inclusion of the two exchanges was motivated by the fact that there are two different stock markets; JSE is an emerging market whereas NSE is a developing market. Also JSE is much bigger compared to the NSE.

To be included in the sample, (i) the shares of the announcing firms should have been listed on the NSE and JSE stock exchanges and actively traded over the sample period of 1 January,

2005 to 31 December, 2011; (ii) there should have been a public earnings announcement for the firms selected; (iii) a firm should have earnings and price data over the sample period and; (iv) in order to minimise the impact of dividend announcements, only firms which had earnings and dividends in the same direction will be selected due to the fact that most firms announce both at the same time (Afego, 2011).

4.3 Research Design

The standard event-study methodology is employed in this study to determine how the JSE and NSE react to firms' full year earnings announcement. Event methodology is viewed as a powerful tool in efficient market hypothesis research and many researchers (e.g., Fama, Fisher, Jensen and Roll (1969); Aga and Kocaman (2008); Lonie, Abeyratna, Power and Sinclair (1996); Gajewski and Quéré (2001); Cox and Weirich (2002); Lyroudi, Dasilas and Varnas (2006); Laidroo (2008); and Dey and Radhakrishna (2008) have successfully utilised the event study methodology to determine how share prices react to new information releases in the market. Mushidzi and Ward (2004) emphasises that event methodology is often used to determine whether there is a statistical difference between actual stock returns and expected returns surrounding an event.

Binder (1998) provides a framework for conducting an event study, in instances when the event date is known and unknown. Practical experience and opinion of most authors suggest that in most cases, if the date is known when information will reach the market, therefore, the popularity of methodologies that assume known event dates have gained prominence over the other. In extant studies, for instance Jegadeesh and Karceski (2009) and Mokoaleli-Mokoteli et al. (2009) successfully implemented the known event date methodology. These two renowned studies now act as a reference to most current studies that assumes a known event date. In this study, the event dates for earnings announcements on both the JSE and NSE are well known and documented. For this reason, we adopt the methodology discussed by Binder (1998) and implemented by Jegadeesh and Karceski (2009) and Mokoaleli-Mokoteli et al. (2009).

The market reaction to earnings announcements is often determined over a short term and over a medium term or long term periods. As in Ball and Kothari (1991), the short-term period uses daily data where the event window is -10 days before and +10 days after the announcement date and day 0 is the event date. The 10 days before the announcement date

helps to determine if the news leaked into the market before the announcement date. The medium term analysis investigates market reaction about six months after the earnings announcement date. The medium term analysis enables researchers to determine if there is post earnings announcement drift on the JSE and NSE capital markets. The long term analysis is often used to test the market reaction over a period longer than a year. This research adopts the medium term period using monthly share data for analysis purposes.

Confounding events such as bonus issues, stock splits, rights issues, management changes (hiring or dismissal of key management staff), restructuring (either operational or financial), mergers and acquisitions were excluded from the study. Lists were obtained from both JSE and NSE on firms that have had stock splits during the research period and are then deleted. Also we ensured that the firms under our study had both their earnings and dividend announcements made on the same date. This is to ensure that the price movement is solely due to the earnings announcements (Mlonzi et al., 2011).

4.3.1 Calculation of company returns

The monthly stock prices of each of the 261 firms were used to obtain monthly stock returns over the period January 2005 to December 2011.The firms' monthly return is calculated as follows:

$$R_{it} = [(P_{t+1} - P_t)/P_t]*100\% \quad (1)$$

Where, R_{it} is the actual return on share *i* on month *t*, $P_t$is the price of share *i* on month *t* and $P_{t+1}$is the price of share *i* on month$t+1$.

The expected return is estimated using the size reference portfolios benchmark calculated as follows:

$$E(R_{p,j}) = R_{it} - AR_{it} \quad (2)$$

Where, R_{it} is the actual return on share *i* on month *t* and AR_{it} is the abnormal return for each security on month *t*.

4.3.2 Construction of benchmark portfolios returns

The reference portfolio approach is used to generate the benchmark (expected return), where sample firms are ranked on the basis of industry and size. To create industry reference portfolios, industry classification benchmark codes (ICB) are obtained from the JSE

securities exchange and NSE databases respectively. These codes are then utilised to classify all stocks from the NSE and JSE securities exchange into industries following the 10-broad industry classification benchmark (ICB) approach. There are four industry portfolios on the NSE and seven industry portfolios on the JSE respectively. Oil and gas, telecommunications and technology, and utilities were excluded from the analysis for the NSE due to the small number of listed trading firms.

For the NSE, within each industry the firms are classified into halves based on firm size. Thus a total of eight reference portfolios grouped by industry and size are formed. As for the JSE securities exchange, 21 reference portfolios are formed after each industry ranking by splitting the firms into thirds based on industry and size.

In June of each year, we rank all NSE and JSE firms in our population on the basis of firm size to form portfolios based on these rankings. Our reference portfolios are formed on the basis of industry and firm size in June of each year, starting in June 2005 and ending in June 2011, and monthly returns are calculated for the next 12 months after the portfolios formation.

The equally weighted portfolio return is calculated for each portfolio as the arithmetic return of all securities in the particular industry and size in the year of portfolio formation. We calculate firm size measured by market capitalisation as price per share multiplied by the number of shares outstanding in June of each year for all sample firms.

4.3.3 Calculating abnormal return and return metric

The empirical strategy in this study is rooted in the event study approaches to market efficiencies originally developed by Fama et al. (1969) for examination of the impact of stock split announcement on stock price. Our basic assumption is that earnings announcements provide information inputs into the stock prices which will be reflected in the significant abnormal returns during and after the announcement period. We define abnormal returns of N event firms for H holding period in the same way as Mokoaleli-Mokoteli et al. (2009) and Jegadeesh and Karceski (2009). Specifically, the abnormal return is calculated as follows:

$$AR_i(t,H) = \prod_{j=t}^{t+H-1}(1+R_{i,j}) - \prod_{j=t}^{t+H-1}(1+E(R_{p,j})) \qquad (3)$$

Where, $R_{i,j}$ denotes the return of stock i in month t computed as percentage change in price of stock i from month $t-1$ to month t. In the same way, $E(R_{p,j})$ denotes the expected benchmark portfolio return in month t. Determination of the benchmark portfolio is discussed above (section 4.4). For every event period abnormal returns computed in equation (2) above are cumulated together for each sample firm. In essence, for *t*=0 a cross-sectional series of abnormal returns will be obtained same for *t*=1 up to *t*=6 in literature, this is commonly referred to as cumulative abnormal returns (CARs) (Bartholdy, Olson & Peare, 2007; Binder, 1998). Specifically, we compute CAR as:

$$\mathrm{CAR}_t = \sum_{i=1}^{N}[\mathrm{AR}_i(t,H)] \qquad (4)$$

Where: CAR_t is the cumulative abnormal return at holding period t, N is the total number of sample firms, AR_i is the individual company abnormal return as computed in equation (2) and H is the total number of holding periods. Almost all event studies call for cumulating of the abnormal returns over the number of periods. This may be in order to capture the impact of an event on share prices, or to accommodate uncertainty over the exact date of the event (Strong, 1992).

It is common in most event studies at this point to test a null hypothesis of H_0: $\mathrm{CAR}_t = 0$ that cumulative abnormal returns is not significantly different from zero against the alternative hypothesis H_1: $\mathrm{CAR}_t \neq 0$ that the cumulative abnormal return (CAR) is significantly different from zero. However, Jegadeesh and Karceski (2009) cautions of serial correlation and heteroskedasticity in the abnormal returns hence biasedness in the conventional t-statistical tests (Mokoaleli-Mokoteli et al., 2009). In fact, Binder (1998) argues that frequently, abnormal returns are cross-sectionally correlated, have switching volatilities, are not identically and independely distributed over time and often exibit higher variance in the event periods. However, in the absence of evidence of cross-sectional correlation we simply run the conventional t-statistic test based on the argument by Binder (1998) that in large samples, especially, where sample is random the bias will average to zero. The conventional t-statistic is computed by:

$$t = \frac{\mathrm{CAR}_t(H)}{Standard\ error} \qquad (5)$$

Where,

$$Standard\ Error = \sqrt{\frac{\frac{1}{N-1}\sum_{i=1}^{N}[\mathrm{AR}_i(t,H) - \mathrm{CAR}_t(H)]^2}{N}}$$

From the hypothesis testing, we predict that new information contained in earnings announcement will not be quickly reflected in the share prices, thus allowing for statistically significant abnormal returns to be generated on the basis of trading on earnings information disclosures (Afego, 2011).

Chapter Summary

This chapter dealt with the methodology part of the study with discussions of the subsections under it; Introduction, data and its sources, research design, construction of the returns accompanied with the empirical approach. The next chapter present the results.

CHAPTER FIVE

PRESENTATION OF DATA AND DESCRIPTIVE STATISTICS

5.1 Introduction

This chapter provides and discusses the characteristics and performance of the study; Section 5.2 presents the data and the descriptive statistics of the study. Section 5.3 presents the firms' performance subsequent to earnings announcements. Section 5.4 presents performance of the firm subsequent to earnings announcements based on different economic conditions.

5.2 Data and Descriptive statistics

The data used in this research is mainly annual earnings data, share price data and market capitalisation. Our sample covers the earnings and their announcement dates, and share data from 1 January, 2005 to 31 December, 2011 for both the NSE and JSE securities exchanges. There were a total of 456 stocks. To be included in the analysis, each stock must have its monthly share price information available, market capitalisation and earnings together with announcement dates. After carefully screening the data, 177 stocks for the JSE and 18 stocks for the NSE respectively were eliminated due to lack of sufficient data points. The final sample consists of 261; 221 stocks for the JSE and 40 stocks for NSE for the analysis.

First, we present descriptive statistics for each of the stock returns in our sample and the statistical analysis undertaken to test the research hypothesis. The mean, median and standard deviation were calculated for each of the total 261 stocks over the seven year period for both the NSE and JSE securities exchange and are reported in Table 3.

Table 3: Characteristics of JSE and NSE firms

This table provides the characteristics of both the JSE and NSE sample of firms in our analysis for the research period under our investigation, 1 January, 2005 to 31 December, 2011. Panel 1 relates to the JSE securities exchange and Panel 2 relates to the NSE. Column 1 provides the variables; market capitalisation, industries and earnings, and columns 3-10 show the mean, median and standard deviation. There are 177 stocks for the JSE and 18 stocks for the NSE respectively in this analysis.

Panel 1 JSE firms
n =221

Year	Market Cap (R millions)			Industry			Earnings (R millions)		
	Mean	Median	Std Dev	Mean	Median	Std Dev	Mean	Median	Std Dev
2005	9 441.34	1 087.98	24 353.96	5.45	4.50	2.91	606.95	57.82	1 633.14
2006	12 107.57	1 329.95	32 051.91	5.34	4.00	2.91	868.71	107.99	2 370.91
2007	13 889.69	1 818.23	37 859.46	5.33	4.00	2.90	903.65	122.15	2 427.78
2008	10 530.55	1 170.98	29 735.76	5.35	4.00	2.90	938.61	113.72	3 096.67
2009	13 840.33	1 444.50	38 805.72	5.35	4.00	2.90	975.46	86.98	3 657.11
2010	16 372.27	1 673.03	43 648.64	5.35	4.00	2.89	1 072.47	104.74	3 505.35
2011	17 103.17	1 616.12	47 632.26	4.00	4.00	2.89	778.86	65.65	2 507.79

Panel 2 NSE firms
N = 40

Year	Market Cap (Kshs millions)			Industry			Earnings (Kshs millions)		
	Mean	Median	Std Dev	Mean	Median	Std Dev	Mean	Median	Std Dev
2005	19 735.88	2 270.81	69 016.03	5.64	4.00	2.42	832.89	195.12	1 354.89
2006	15 398.50	4 956.00	26 618.79	5.64	4.00	2.42	816.06	232.25	1 411.03
2007	13 229.05	3 245.97	26 068.45	5.58	4.00	2.39	986.41	379.29	1 509.84
2008	13 451.90	3 393.86	28 282.90	5.67	4.00	2.42	1 064.09	282.11	1 708.17
2009	19 416.48	4 451.96	49 205.28	5.75	4.00	2.45	984.40	245.28	2 025.60
2010	17 187.96	5 159.15	29 768.36	5.75	4.00	2.45	1 767.07	844.30	2 465.03
2011	13 361.71	2 719.47	27 661.88	5.75	4.00	2.45	2 737.21	1 933.00	2 903.15

From our results, it can be observed that the NSE has the highest mean in terms of market capitalisation in the first six years, whereas JSE has the highest mean only in the last year under our investigation. Panel 1 represents JSE; in 2005 the mean is 9,441.34, and increased for two years. In 2008 mean is 10,530.55 and increased significantly in the next two years and by 2011 the mean is 17,103.17, while the median is 1,616.12. The standard deviation in

2005 is 24,353.96 and increased in the subsequent years and by 2011 it is 47,632.26. From the industry results it shows that JSE recorded lower means throughout the seven years. The mean in 2005 is 5.45 with a slight drop for the remaining years closing with a mean 4.00 in 2011. The median and standard deviation were constant at 4.00 and ~2.90 respectively for all the seven years. The other characteristic under our analysis is the earnings, which recorded a mean of 606.95 in 2005 with constant increase to 1,072.47 in 2010. There was a major decrease observed in 2011 of mean 778.86. The drop in Earnings in 2011 may be due to the global economic recession driven by high costs of production due to ever increasing global oil prices at the time. The standard deviation is 1,633.14 in 2005 and maintained a steady increase through 2009 to 2010 with a drop to 2,507.79 at the end of 2011. Although, under their respective currencies JSE still remains with the highest market capitalisation and this finding is no surprise given that JSE has the highest number of listed firms and recorded the largest market capitalisation in Africa and is ranked in the top 20 over the world.

Panel 2 relates to the NSE. The panel indicates that in terms of market capitalisation, NSE has a mean of 19 735.88 in 2005 with decreases in the subsequent three years up to 2008. There was an increase in 2009 with a mean of 19,416.48 but again saw a drop in 2010 closing at 13,361.71 in 2011. The median is 2,270.81 in 2005 and increased to a median of 4,956.00 in 2006, but in the next two years there is a decrease with improvement being observed from 2009 to 2010. The standard deviation in 2005 is 69,016.03 with major drops thereafter by more than half the value in 2005. There was an improvement in the standard deviation in 2009 with a mean of 49,205.28 but declined again closing at 27,661.88 in 2011. The NSE recorded the highest mean under the industry analysis; in 2005 the mean is 5.64 increasing in the subsequent years closing at 5.75 at the end of the year under investigation. The median in 2005 is 4.00 and remained constant throughout the seven years. The standard deviation is 2.42 in the first year remaining the same thereafter for the rest of the years. In terms of earnings, NSE's mean in 2005 is 832.89 and grew steadily throughout the years with a mean of 2,737.21 at the end of 2011.

Overall, NSE has the highest mean, median in terms of market capitalisation, industry and earnings, whereas JSE recorded the highest standard deviation for both industry and earnings in their respective currencies.

5.3 Performance of firms subsequent to earnings announcement

The aim of this research is to investigate the performance of the JSE and NSE firms subsequent to the announcement of the firms' earnings. In theory, a stock market is informationally efficient with relation to earnings announcements if no one can beat the market and gain by trading on the basis of the information contained in the firm's earnings announcements. Firstly, this means that the market will quickly anticipate earnings changes before they are announced. Secondly, since earnings information is fully reflected into the prices, therefore no ARs should exist around the earnings announcement date (Afego, 2011).

Table 4 - Firm's performance over six month period subsequent to earnings announcement

Panel 1: JSE firms performance				
Event months	% Mean CAR	% Median CAR	T-stats	P-value
0	1.6354	0.2828	3.5829	0.0004
1	-0.2016	-0.4240	-0.5328	0.5942
2	0.0393	-0.6319	0.0957	0.9238
3	-0.0254	-0.5254	-0.0712	0.9432
4	0.1196	-0.2189	0.3143	0.7533
5	0.1860	0.0016	0.4514	0.6518
6	-0.4392	-0.8119	-1.3185	0.1876
Panel 2: NSE firms performance				
Event months	% Mean CAR	% Median CAR	T-stats	P-value
0	1.5500	0.0600	1.3700	0.1700
1	0.8209	0.5035	0.7907	0.4304
2	-1.8606	-2.5289	-2.1609	0.0324
3	0.7252	0.1752	1.0234	0.3079
4	0.0060	-0.5869	0.0055	0.9956
5	-0.7534	-0.9714	-0.9385	0.3496
6	-0.7122	-0.5924	-0.8473	0.3982

This table provides the cumulative abnormal returns (CARs) for earnings announcements between 1 January, 2005 and 31 December, 2011. Panel 1 relates to the JSE, and Panel 2 to

the NSE. Column 1 provides the event period, where month 0 is the month of earnings announcement and columns 2-4 are the mean CAR, median and t-statistics. The total number of firms examined over the six -month event period is 261 for both exchanges.

Table 4 panel 1 above summarises the performance of cumulative abnormal returns (CARs) subsequent to earnings announcements. Panel 1 presents CARs for JSE firms and shows that the returns on the month of earnings announcement are positive and significant at 1% level, thus allowing investors to make profit only in the month of announcement denoted as M0. The t-statistic is +3.58, mean of +1.64 and median=0.28. In the subsequent six months, the mean returns are either positive or negative but not significant at any statistical level. These results show investors would make a profit on the month of earnings announcements only and there is no post earnings drift observed.

Table 4, Panel 2 indicates the CAR for NSE firms is varied, with the cumulative abnormal returns moving in both directions. On the month of earnings announcement, mean CAR is positive (mean=1.55, median=0.06) but not significant at any statistical level. Two months after the earnings announcement, the mean CAR is negative (mean=-1.86, median=-2.53) and significant at 5% level. In the subsequent four months the results are either positive or negative but not significant. Overall, as with the JSE, there is no post earnings drift observed. Initially, the market reacts positively in the month of announcement perhaps due to speculation but thereafter starts to adjust in the following month after announcement.

In our case, the JSE observed positive and significant returns on the month of announcement suggesting that it is efficient, whereas NSE experienced negative and significant returns month 2 after announcement. The results evidently show that the greatest magnitude of share price reaction takes place around the announcement month thus an indication earnings announcements does not contain new information. The fact that our results for JSE shows that the market reaction to annual earnings announcement is only significant in the month of announcement corroborates the findings of Ball and Brown (1968) suggesting that abnormal performance occurs prior to the release of the earnings results. White et al., (2012) states that although earnings are meaningful measures of a firms' financial performance, by the time they are published they are no longer news and have little or no impact on the market.

Figure 3: Graphical plot of Mean CARs around earnings announcement period

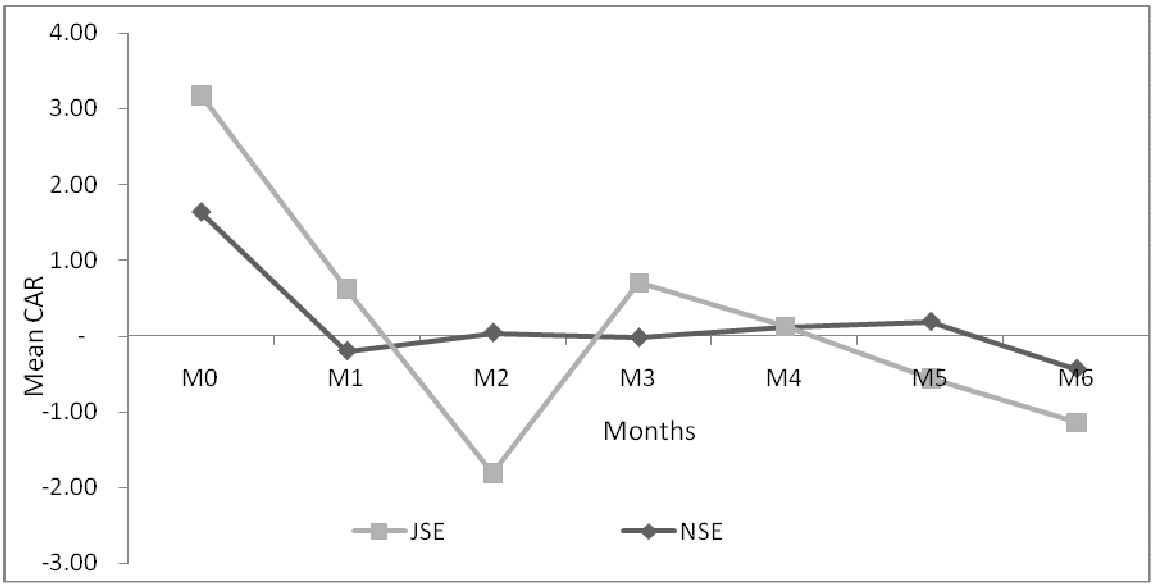


Figure 3 above graphically shows the performance of both the JSE and NSE firms around the earnings announcement. On the month of announcement the JSE has significantly higher and positive returns, while the NSE experiences positive but insignificant returns. In the first month after the earnings announcement the JSE still has positive returns but not significant, whereas the NSE experiences a drop to negative returns. On the second month after the announcement the JSE returns had a steep drop to a significant negative, while the NSE returns stabilises to zero from negative returns the month before. On the third month after the announcement the JSE returns improved significantly to positive and NSE remains the same. Four months after the announcement, the JSE and NSE returns were generally flat, slightly positive but non-significant. In the fifth month after the announcement the JSE returns suffers again a slight drop to negative, while the NSE returns improved slightly to a positive but non-significant. On the sixth month after the announcement, both the JSE and NSE returns experiences a drop to negative but significantly for the JSE compared to the NSE.

As defined by Fama (1970), a market is said to be efficient if the share prices fully and instantaneously reflects all the available information. One implication of an efficient market is that no abnormal returns can be gained by trading on this information because current prices already reflect the information (Adelegan, 2009). We can conclude that from Figure 3 JSE and NSE are efficient terms of stock price reaction to annual earnings announcements by the sample of listed firms.

5.4 Performance of firms subsequent to earnings announcement and the effect of market condition

Table 5

JSE firms' performance and the effect of market condition				
Event months	% Mean CAR	% Median CAR	T-stats	P-value
Panel 1: Economic boom				
0	2.7799	0.3412	3.3662	0.0008
1	-0.4173	-0.6491	-0.6179	0.5370
2	0.5269	-0.1941	0.7015	0.4833
3	0.3978	-0.7377	0.5738	0.5664
4	0.6217	-0.1081	0.9264	0.3547
5	1.2352	-0.4043	1.4917	0.1365
6	-0.4270	-0.6830	-0.7762	0.4380
Panel 2: Economic meltdown				
0	1.0945	0.0883	1.2643	0.2068
1	0.0583	-0.5537	0.0896	0.9287
2	-0.2093	-1.0164	-0.2660	0.7904
3	-0.5500	-0.9553	-0.8294	0.4074
4	-0.3260	-0.1937	-0.4294	0.6679
5	0.0880	0.6500	0.1234	0.9018
6	-1.0728	-1.2847	-1.7473	0.0813
Panel 3: Economic recession				
0	0.9208	0.4918	1.3919	0.1647
1	-0.2185	-0.1547	-0.3446	0.7306
2	-0.2477	-0.8544	-0.4294	0.6679
3	0.0218	-0.1320	0.0471	0.9625
4	0.0062	-0.2871	0.0116	0.9908
5	-0.8512	-0.0376	-1.5593	0.1197
6	0.1558	-0.6999	0.2734	0.7847
NSE firms' performance and the effect of market condition				
Event months	% Mean CAR	% Median CAR	T-stats	P-value
Panel A: Economic boom				
0	2.8359	0.0952	0.8637	0.3953
1	2.6525	0.6395	0.7322	0.4703
2	-1.8611	-2.9168	-1.1470	0.2614
3	-0.5541	-1.3570	-0.4747	0.6388
4	3.7816	2.1600	1.4141	0.1688
5	-1.3137	-1.0909	-1.2372	0.2267
6	-1.0015	-1.0617	0.5147	0.6110
Panel B: Economic meltdown				
0	2.1165	-0.1026	1.3806	0.1736

1	0.6654	-0.4285	0.4408	0.6612
2	-1.0490	-1.7267	-0.6934	0.4913
3	1.6620	1.6847	1.2394	0.2210
4	-2.8597	-1.2697	-1.6086	0.1140
5	-1.1927	-2.3378	-0.6667	0.5080
6	-0.3249	0.4954	-0.2284	0.8203
Panel C: Economic recession				
0	0.5175	0.1543	0.3039	0.7622
1	0.1327	0.7202	0.1096	0.9131
2	-2.5174	-3.2848	-1.8865	0.0639
3	0.5355	0.1270	0.5076	0.6135
4	0.6478	-0.1735	0.4230	0.6738
5	-0.1487	-0.3430	-0.1499	0.8813
6	-0.8970	-1.1723	-0.7173	0.4759

This table provides the mean CARs for firms' performance subsequent to earnings announcement and the effect of each of the economic conditions. Panel 1-3 relates to JSE, and Panel A- C relates to NSE. Column 1 provides the event period, where month 0 is the month of earnings announcement and column 2-4 are the mean CAR, median CAR and t-statistics. The following are represented as follows; Economic boom (2005-2007), economic meltdown (2008-2009) and economic recession (2010-2011).

The third objective of this study is to assess how the market reacts to earnings announcements under different economic conditions. The table shows the results of the JSE and NSE under the different conditions; economic boom, economic meltdown and the recession. Panel 1 summarises the abnormal return performance relating to the economic conditions for JSE. The mean abnormal return in the month of announcement during the economic boom is +2.78% (t=3.37). In the first month after announcement it drops to a negative -0.42% but improves from the second month after announcement and does not change significantly in the subsequent months. By month 6, mean CAR is -0.43%, while the median is -0.68%. Panel 2 presents results for JSE during the economic meltdown. It indicates the mean CAR in the month of announcement is +1.09% (t=1.26) and dropped to 0.06% a month later after announcement and does not change significantly in the subsequent months. By month 6, mean CAR is -1.07%, whereas the median is -1.28%. Lastly, Panel 3 provides results for JSE during the economic recession. In the month of announcement, the mean CAR is +0.92% (t=1.39) and the median is 0.49%. Thereafter, there are no significant

changes for the rest of the months and in month 6 the mean CAR is +0.16% (*t*=0.27), while median is -0.70%.

Panel A presents the results for NSE during the economic boom, the mean CAR is +2.84% (*t*=0.86) in the month of announcement. In the first month after announcement, the mean CAR dropped to +2.65% and for the rest of the months except in month 3 where the mean CAR is +3.78% (*t*=1.41). By month 6, the mean CAR is -1.00% while the median is -1.06%. Panel B provides the results during the economic meltdown, in the first month of announcement the mean CAR is +2.12% while the median is -0.10. The third month after announcement the mean CAR increased to +1.66% and did not change significantly thereafter. The mean CAR is -0.32% (t=-0.23) by the last month after announcement. Finally, Panel C presents results for NSE during the economic recession, in the month of announcement the mean CAR is +0.52% and median is -0.10%. The mean CAR for the rest of the announcement months did not change significantly and by month 6 mean CAR is -0.90% (*t*=-0.72).

Overall, the results show NSE observed significant mean CARs during the economic boom and the meltdown, while JSE observed higher mean and median CARs only during the economic recession and meltdown respectively. The low mean CARs experienced by NSE during the economic recession may be due to the global recession, while the negative mean CAR -1.00% observed in month 6 (which is December) during the economic boom can be attributed to the country's December 2007 general elections which had an impact on the stock market. JSE was largely affected by the economic meltdown as shown by the low mean CARs it recorded compared to the NSE in the same period. These results can further be explained by figure 4 below using company returns.

Figure 4: JSE and NSE performance under the different economic conditions

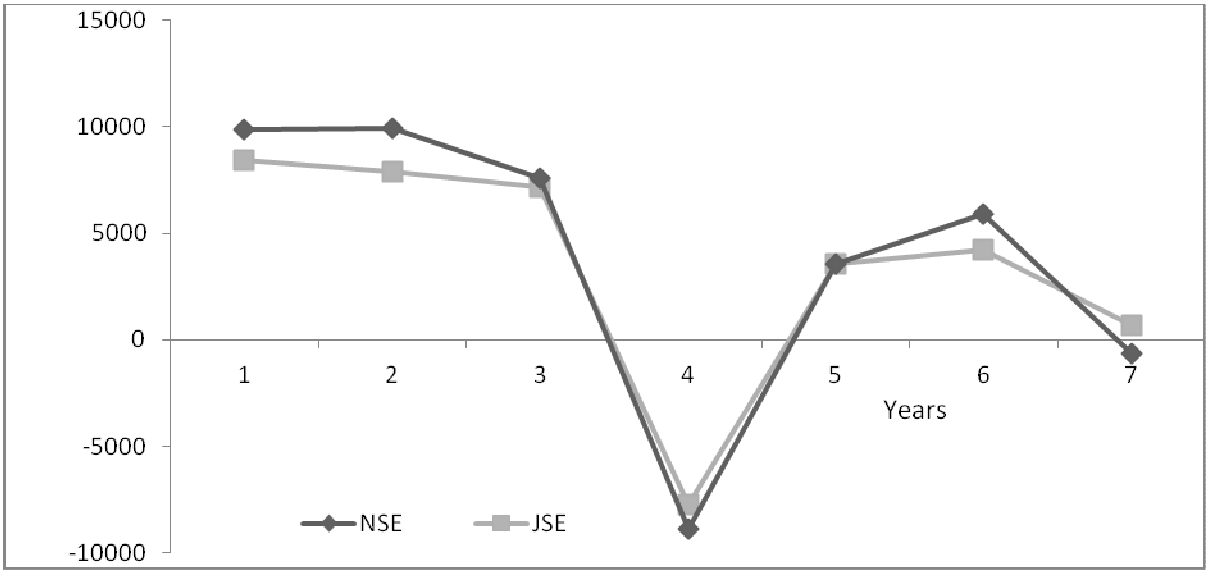


Figure 4 above shows that JSE and NSE experienced high returns during the economic boom although they are lower for JSE. It can further be observed that the stock markets were in a bear market during the economic meltdown as shown by the steep downward drop in returns. Also both stock markets were in a bull market during the economic boom and part of the meltdown. Thereafter during the economic recession the market started to improve but again had a slight drop in 2011. Having observed that performance for JSE and NSE were generally poor on average during the economic meltdown, this suggests that earnings announcements were not good.

Chapter Summary

This chapter dealt with the presentation of data and descriptive statistics with discussions of the subsections under it; data and descriptive statistics, characteristics of JSE and NSE firms, performance of JSE and NSE firms subsequent to earnings announcement and lastly, the firms' performance subsequent to earnings announcement and the effect of the different market conditions. The next chapter presents discussion of the results, concludes and provides recommendations of the study.

CHAPTER SIX

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter discusses the results and provides conclusion and recommendations of the study. Section 6.2 presents and discusses the results of the study. Section 6.3 provides the conclusions of the study and the recommendations are contained in Section 6.4.

6.2 Discussion of results

The results show that cumulative abnormal returns for JSE are positive and significant on the month of earnings announcement with the rest of the months being non-significant, whereas NSE recorded negative and significant abnormal returns in the second month of announcement and insignificant for the rest of the months. The significant CARs suggest that earnings announcement provide valuable information which the market uses to adjust share prices. Therefore, the earnings announcement month for JSE is the only month that investors would make a profit. In theory, a stock market is informationally efficient with respect to earnings releases if no one can earn abnormal returns by trading on the basis of the information contained in firms' earnings news (Afego, 2011). No abnormal price reactions should continue beyond the announcement period. The releasing of financial results may be viewed as a norm and no new information to the market thus the market tend to adjust and correctly reflect the information immediately into the share price. This is substantiated by White et al., (2012) that although earnings are meaningful measures of a firms' financial performance, by the time they are published they are no longer news and have little or no impact on the market. Mabhunu (2004) suggests that price changes should be as a result from release of new information only.

However, the findings of efficiency of the JSE from observing the significant and positive returns on the month of announcement and thereafter no post earnings announcement drift may be attributed to the massive capital investments, which were made over the past decade in an attempt to bring this market to being internationally competitive and create modern electronic infrastructures for trading. NSE only recorded a significant and negative abnormal return on the second month of announcement as the market underreacted to the earnings announcements first then stabilising thereafter. The results are in line also with the study by

Sponholtz (2005) of the Danish stock market, with evidence suggesting that there are significant abnormal price reactions surrounding the announcement date.

The results also show there was no post earnings announcement drift observed in both JSE and NSE, therefore the market was able to adjust instantaneously without bias to earnings announcements by sample firms in our study. The results we obtain corroborates with the findings of a study by Chordia & Shivakumar (2005) that suggests that profitable trading opportunities created by post earnings announcement drift contradicts with EMH. Ball & Brown (1968) documented that the abnormal market performance occurred subsequent to the release of the earnings report. Our results are similar to other firms' transactions, for example Grinbalt et al., (1984) that stock prices react positively to dividends and stock split announcements.

Further results show that performance of JSE firms during the economic boom and the economic meltdown observed lower mean CARs albeit insignificant mean CARs for NSE firms during the same economic conditions. On the whole, our results suggest that the share price reactions to earnings announcements are unsystematic under the different economic conditions. The results are consistent with the efficient market hypothesis (EMH), as there are no continual observations of significant abnormal returns thereafter.

6.3 Conclusion

This study was undertaken to achieve the following objectives; to investigate how the market responds to annual earnings announcements by the NSE and JSE securities exchanges; to determine the level of market efficiency by the NSE and JSE exchanges and to establish whether the two markets behave differently during bull and bear markets.

To achieve the above mentioned it was assumed that the cumulative abnormal returns arising from earnings announcement are significantly different from zero. This is because new information contained in earnings announcements is quickly reflected in the share price thus allowing for statistically significant abnormal returns to be generated on the basis of trading on the month of announcement only. We find evidence of efficient adjustment of stock prices to information contained in earnings announcement for the sample of firms in our study.

This study examined the magnitude of market reaction to annual earnings announcements on the JSE and NSE. We find evidence of efficient adjustment of stock prices to information

releases in earnings announcements for the sample of firms, as prices did not continue to drift six months after the announcement date. Also the study found that earnings announcements during the different economic conditions varied, with the recession experiencing negative drops in earnings for both the JSE and NSE suggesting that the earnings were generally not good.

The study also intended to contribute to the vast literature on market reaction to earnings announcements by the JSE and NSE stock markets. This was to test on the market efficiency of the two exchanges with results showing that the JSE and NSE are efficient in terms of new information releases to the market except that NSE underreacted first after the earnings announcements. There was no post earnings announcement drift observed after the announcement for both exchanges. This suggests that the stock markets do respond adequately to information inflow.

Overall, the results from our study suggests that stock prices changes in the NSE and JSE securities exchange with respect to earnings announcements, are not random but follow a pattern which makes it possible for positive abnormal returns to be gained by trading only on the month of earnings announcement for JSE and not for NSE as it observed significant and negative abnormal returns only on the second month after announcement.

6.4 Recommendations

There are several recommendations that can be drawn for our study. The main aim of the EMH concerns with whether stock prices fully reflect all available information in the market. This research examined the behaviour of stock prices on two major stock exchanges in the Africa region, the NSE and the JSE so as to determine the nature and magnitude of stock market reaction to firms' annual earnings announcements. The conventional t-statistic tests was applied to the closing monthly price series of 261 selected stocks for both the NSE and JSE securities exchange over the period January 2005 to December 2011 for the purpose of determining how the stock markets react.

The evidence presented in this study brings to face a number of interesting issues which indicates that a lot needs to be done; particularly by regulators and policy makers, to address the challenges facing the stock markets, especially the Nairobi securities exchange.

Firstly, we recommend that the regulatory authorities should intensify efforts to ensure compliance to insider trading laws by market participants. The authorities need to strengthen their capacity to effectively monitor activities in the market, and to effectively deal with offenders.

Also, large institutional and foreign investors should be attracted and encouraged to participate on both the stock markets especially the Nairobi securities exchange which has a small number of listed companies. This will improve the overall liquidity position of these markets under study.

The NSE should implement a system to disseminate the earnings announcements such as the SENS for the JSE. Currently, the exchange issues only corporate actions on events such as share splits, bonus issues, dividend announcements, etc.

The regulators of the stock exchanges (NSE and JSE) should ensure timeliness in releasing public information such as those on earnings. Firms delay and take up to one year to release their financial results or even announce results for two financial years together. This will improve market efficiency and foster public and investor confidence.

Most of the studies in market efficiency, including this one have focused on using statistical tests to examine returns and results are used to make conclusions. Our results should be interpreted with caution since the study relatively dealt with two different markets in the sense of development; an emerging and developing. Results from Table 3 indicates that the NSE has the highest standard deviation indicating high fluctuation among individual announcement events and firms compared overall to that of the JSE. This may be good grounds in the recommendation that further work analysing the amount of earnings and analysing announcements company by company may be more informative.

Additionally, this study is limited in scope to two different markets, emerging and developing, future work may be carried out for other emerging and developing markets in the Africa region to ascertain the extent to which the findings are generalisable. Lastly, share price reaction to interim, half yearly and quarterly earnings announcements offers potentially interesting areas for future research in the emerging and developing markets.

APPENDICES

A-1: SAMPLE POPULATION OF THE JSE LISTED COMPANIES

1	Oando plc	61	Iliad Africa Ltd	121	African & Over Ent Ltd	181	Pinnacle Point Group Ltd
2	Sacoil Holdings Ltd	62	Imperial Holdings Ltd	122	African Media Ent Ltd	182	Premium Properties Ltd
3	Sasol Limited	63	Invicta Holdings Ltd	123	Cashbuild Ltd	183	PSG Group Ltd
4	Anglo American Plat Ltd	64	Jasco Electron Hldgs Ltd	124	Caxton CTP Publish Print	184	Purple Capital Ltd
5	Kumba Iron Ore Ltd	65	KAP International Hldgs	125	City Lodge Hotels Ltd	185	Putprop Ltd
6	ArcelorMittal SA Limited	66	Labat Africa Ltd	126	Comair Limited	186	Redefine Properties Ltd
7	Anglogold Ashanti Ltd	67	Masonite Africa Ltd	127	Cullinan Holdings Ltd	187	Resilient Prop Inc Fund
8	Gold Fields Ltd	68	Metrofile Holdings Ltd	128	Don Group Ltd	188	Sable Holdings Ltd
9	African Rainbow Min Ltd	69	Micromega Holdings Ltd	129	Famous Brands Ltd	189	Sabvest Ltd
10	Exxaro Resources Ltd	70	Mobile Industries Ltd	130	JD Group Ltd	190	Sanlam Limited
11	Harmony GM Co Ltd	71	Morvest Business Grp Ltd	131	Kagiso Media Ltd	191	Santam Limited
12	Sappi Ltd	72	Murray & Roberts Hldgs	132	Lewis Group Ltd	192	Sasfin Holdings Ltd
13	Uranium One Inc	73	Nampak Ltd	133	Massmart Holdings Ltd	193	Sekunjalo Inv Ltd
14	Northam Platinum Ltd	74	Onelogix Group Ltd	134	Money Web Holdings Ltd	194	Standard Bank Group Ltd
15	Evraz Highveld Steel & Van	75	Primeserv Group Ltd	135	Mr Price Group Ltd	195	Stratcorp Ltd
16	Merafe Resources Ltd	76	PSV Holdings Ltd	136	Naspers Ltd -N-	196	Sycom Property Fund
17	African Oxygen Limited	77	Remgro Ltd	137	Nictus Ltd	197	Tradehold Ltd
18	AECI Limited	78	Reunert Ltd	138	Phumelela Game Leisure	198	Trematon Capital Inv Ltd
19	Simmer & Jack Mines	79	Santova Logistics Ltd	139	Pik n Pay Holdings Ltd	199	Vukile Property Fund Ltd
20	Wesizwe Platinum Ltd	80	Sanyati Holdings Ltd	140	Pik n Pay Stores Ltd	200	Zeder Inv Ltd
21	Omnia Holdings Ltd	81	Stella Vista Tech Ltd	141	Rex Trueform Cloth Co Ltd	201	Zurich Insurance Co SA
22	Sentula Mining Ltd	82	Super Group Ltd	142	Shoprite Holdings Ltd	202	Adaptit Holdings Limited
23	Mvelaphanda	83	The Bidvest Ltd	143	Spur Corporation Ltd	203	Alliance Mining Corp Ltd
24	Petmin Ltd	84	Transpaco Ltd	144	Sun International Ltd	204	Business Connexion Grp Ltd
25	DRD Gold Ltd	85	Trencor Ltd	145	The Foschini Group Limited	205	Compu Clearing Outs Ltd
26	Witwatersrand Cons Gold	86	Value Group Ltd	146	The Spar Group Ltd	206	Convergenet Holdings Ltd
27	York Timber Holdings Ltd	87	WG Wearne Ltd	147	Truworths Int Ltd	207	Datacentrix Holdings Ltd
28	ZCI Limited	88	Wilson Bayly Hlm-Ovc Ltd	148	Tsogo Sun Holdings Ltd	208	Datatec Ltd
29	Buildmax Ltd	89	Winhold Ltd	149	Verimark Holdings Ltd	209	EOH Holdings Ltd
30	Trans Hex Group Ltd	90	Workforce Holdings Ltd	150	Woolworths Holdings Ltd	210	Faritec Holdings Ltd
31	Randgold & Expl Co Ltd	91	Zaptronix Ltd	151	ABSA Group Ltd	211	Foneworx Holdings Ltd
32	Delta EMD Ltd	92	Afgri Limited	152	Acucap Properties Ltd	212	ISA Holdings Limited
33	Miranda Mineral Hldgs Ltd	93	AH-Vest Limited	153	Adrenna Property Grp Ltd	213	Mustek Ltd
34	Wescoal Holdings Ltd	94	Amalgamated App Hldgs Ltd	154	African Bank Inv Ltd	214	Pinnacle Tech Hldgs Ltd
35	Goliath Gold Mining Ltd	95	Astral Foods Ltd	155	African Dawn Capital Ltd	215	Securedata Holdings Ltd
36	Chrometco Ltd	96	AVI Ltd	156	Bonatla Property Hldgs	216	Silverbridge Holdings
37	Bauba Platinum Limited	97	Awethu Breweries Ltd	157	Brimstone Inv Corp Ltd	217	Square One Solutions Grp
38	Spanjaard Limited	98	Beige Holdings Limited	158	Cadiz Hldgs Ltd	218	Allied Technologies Ltd
39	Thabex Limited	99	Bioscience Brands Ltd	159	Cape Empowerment Limited	219	MTN Group Ltd
40	Adcorp Holdings Limited	100	Crookes Brothers Ltd	160	Capitec Bank Hldgs Ltd	220	Telkom SA Ltd
41	AG Industries Limited	101	Distell Group Ltd	161	Clientele Ltd	221	Vodacom Group Ltd
42	Allied Electronics Corp	102	Dorbyl Ltd	162	Conduit Capital Ltd		
43	Amalgamated Elec Corp Ltd	103	Illovo Sugar Ltd	163	Coronation Fund Mngrs Ltd		
44	Argent Industrial Ltd	104	Nu-World Hldgs Ltd	164	Discovery Holdings Ltd		
45	Astrapak Limited	105	Oceana Group Ltd	165	Firstrand Ltd		
46	Aveng Group Limited	106	Rainbow Chicken Ltd	166	Growthpoint Prop Ltd		
47	Barloworld Ltd	107	SABMiller plc	167	Hosken Cons Inv Ltd		
48	Basil Read Holdings Ltd	108	Seardel Inv Corp Ltd	168	Hospitality Prop Fund		
49	Bell Equipment Ltd	109	Sovereign Food Inv Ltd	169	Hyprop Inv Ltd		
50	Bowler Metcalf Ltd	110	Steinhoff Int Hldgs Ltd	170	Ingenuity Property Inv		
51	Cargo Carriers Ltd	111	Tiger Brands Ltd	171	John Daniel Holdings Ltd		
52	Ceramic Industries Ltd	112	Tongaat Hulett Ltd	172	JSE Ltd		
53	Control Instruments Grp	113	Aspen Pharmacare Hldgs Ltd	173	M Cubed Hldgs Ltd		
54	Digicore Holdings Limited	114	Cipla Medpro SA Ltd	174	MMI Holdings Limited		
55	Distr and Warehousing	115	Life Healthc Grp Hldgs Ltd	175	Nedbank Group Ltd		
56	ELB Group Ltd	116	Litha Healthcare Grp Ltd	176	New Corpcapital Ltd		
57	Esorfranki Limited	117	Mediclinic Internat Ltd	177	Octodec Invest Ltd		
58	Group Five Ltd	118	Netcare Limited	178	Old Mutual plc		
59	Howden Africa Hldgs Ltd	119	Nutritional Holdings Ltd	179	Orion Real Estate Ltd		
60	Hudaco Industries Ltd	120	ADvTECH Ltd	180	Peregrine Holdings Limited		

A-2: SAMPLE POPULATION OF THE NSE LISTED COMPANIES

1	Bamburi Cement Ltd
2	E.A.Portland Cement Ltd
3	B.O.C Kenya Ltd
4	Athi River Mining
5	Carbacid Investments Ltd
6	Crown Berger Ltd
7	Eveready EA Ltd
8	East African Breweries Ltd
9	British American Tobacco Kenya Ltd
10	Mumias Sugar Co. Ltd.
11	Sameer Africa Ltd
12	Williamson Tea Kenya Ltd
13	Unga Group Ltd
14	Rea Vipingo Plantations Ltd
15	Kakuzi
16	Kapchorua Tea Co. Ltd
17	Car & General (K) Ltd
18	Marshalls (E.A.) Ltd
19	Limuru Tea Co. Ltd
20	Eagaads
21	Kenya Orchards Ltd
22	Kenya Airways Ltd
23	Tourism Promotion Services Ltd (Serena)
24	Total Kenya Ltd
25	Standard Newspapers Group
26	Scangroup
27	Express Kenya Ltd
28	Barclays Bank Ltd
29	Standard Chartered Bank Ltd
30	Cooperative Bank of Kenya
31	C.F.C Bank Ltd
32	NIC Bank Ltd
33	Diamond Trust Bank Kenya Ltd
34	National Bank of Kenya Ltd
35	Kenya Re-Insurance
36	Jubilee Insurance Co. Ltd
37	Housing Finance Co Ltd
38	Pan Africa Insurance Ltd
39	City Trust Ltd
40	Olympia Capital Holdings ltd

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