

**THE RELATIONSHIP BETWEEN PRICE EARNING RATIO AND STOCK  
RETURN OF FIRMS LISTED AT THE NAIROBI SECURITIES  
EXCHANGE**

BY:

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## DECLARATION

This research project is my original work and has not been submitted for examination in any other university.

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

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## **DEDICATION**

I dedicate this research project to my Mum, Dad and siblings for their constant encouragement, faith in me and support all through this project.

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## **ABBREVIATIONS**

ATS	Automated Trading System
CAPM	Capital Asset Pricing Model
CBK	Central Bank of Kenya
CDSC	Central Depository Settlement Corporation
EPS	Earning Per Share
EMH	Efficient Market hypothesis
MTBV	Market to Book Value
NSE	Nairobi Securities Exchange
P/B	Price Book Value
P/E	Price Earnings ratio



## **ABSTRACT**

Economists as well as investors have examined anomalies on the stock exchange around the world for decades. There are enough empirical studies that show that both practical people and investment analysts use the Price Earnings ratio as a variable to make their investment decisions. These studies analyze whether a security is overvalued or undervalued. This anomaly is called the price earnings effect. This study sought to establish whether there is a relationship between the P/E ratio and stock returns at the Nairobi Securities Exchange.

The P/E ratio of the listed stocks in the Nairobi Securities Exchange was computed annually from 2008-2013. The companies yearly return was calculated for the same period. To examine if there existed a Price Earning effect, the share return was compared to the Price Earnings ratio to determine if there was a significant difference in return.

After careful analysis of the results and conducting a t-test at a significant level of 95% with a 5% risk level, the share return proved to be statistically insignificant to the Price Earnings Ratio showing that the ratio did not influence the share return at the Kenyan securities market. This result answers the research question and verifies that a price earnings effect did not exist on the Nairobi Securities Exchange during the period 2008-2013 and that it was in fact not possible to make an abnormal return using the PE ratio as the only investment strategy. The study recommended that since the data used the reported Earnings per share in the company financial statements, normalized EPS should be used as it excludes extraordinary and one off earnings items.

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the Study

Investors are majorly concerned about stock price movements because this directly affects their wealth in the form of capital gain. They constantly and keenly review the stock market and the company performance. Different approaches have been developed to invest money in securities of value and growth companies. Among these approaches is the Dividend payout ratio, Market to Book value ratio and Price Earnings ratio.

Analysts and investors over the years have used the Price Earnings ratio for stock selection. Economists, researchers and investors have continued to examine anomalies on the stock exchange for decades hence they believe that it is possible to earn abnormal returns from the market. With an investment strategy based merely on purchasing stocks based on their price per earnings ratio it has been established to be possible to beat the market. This is called the price earnings effect. The question whether PE ratio has positive or negative effects on stock return has been controversial and discussed in the literature of corporate finance and financial management research (Fama and French , 1992) Kothari et al. (1995) Mc Williams (1966) and Breen (1968). Various theorists have different ideas on this area.

The objective of this study is to examine the predictability of the stock performance and return using the P/E ratio based on historical relationships between P/E ratio and subsequent stock return. The target population comprised of the listed companies in the

NSE. The study did a comparative analysis of the P/E effect on the various stock returns across the different segments of the companies listed in the NSE with the objective of identifying if stock prices in the various sectors had similar or different reaction to the P/E ratio. The data was collected from the company financial statements (secondary data) from year 2008-2013 so as to obtain information on company earnings and dividends paid. Data from the NSE for the period was also used. The data analysis involved computation of earnings per share, obtaining market share prices, computation of price earnings ratios and share returns. The study used a descriptive, causal research design with the aim of establishing the relationship between the P/E ratio and the share return.

#### **1.1.1. Price Earnings Ratio**

There are several measures to determine the valuation of a security. Most often, the measures are determined by comparing the security's price to different fundamentals such as earnings and dividends. One of the most applied stock valuation measures is the Price Earnings Ratio, which compare the price of the security to the company's earnings. The price/earnings ratio (P/E ratio) provides a comparison of the current market price of a stock and that stock's earnings per share. It is determined by dividing the current share price by the reported attributable earnings over the prior twelve months. This is the historical or reported P/E ratio. Prospective or Forward P/E ratio is the current share price divided by the anticipated earnings over the next twelve months. The earnings per share are the company's entire net profit, or earnings, divided by the number of shares in issue. The P/E ratio is simple to calculate and probably the most consistent red flag to excessive optimism and over-investment. It also serves, regularly, as a marker of business problems

and opportunities. One simple way to understand P/E is that it gives the number of years the company will need to generate enough value to cover the cost the stock at the current market price (assuming no growth in earnings). The P/E ratio also reflects the market's expectation regarding the future performance of the stock. Higher price-earnings ratio indicates higher expectations for the company. Using the P/E ratio, we can compare the relative earning power of the companies regardless of their size or stock price. A stock with a P/E higher than its peers may be overpriced. A company with a high P/E is one where the market anticipates rapid growth and is willing to pay a price for the shares beyond what is justified by historical earnings. A company with a low P/E is one which is out of favour, or which is at the bottom of an industry cycle, and in which the market sees little excitement.

Existing literature has examined the determinants of P/E ratio by using different proxies for risk, growth, discount rate and dividend payout mostly in developed countries (White, 2000; Shamsuddin and Hiller, 2004 and Dudney et al., 2008), However, relatively fewer studies have done an investigation on the factors affecting P/E ratio in developing countries (Ramcharran 2002; Kumar and Warne 2009 and Azam 2010). In addition to firm-specific factors, some studies have incorporated sectorial, year and size effects (Anderson and Brooks, 2006; and Kumar and Warne, 2009). However, in the context of Kenya, no study has evaluated firm-specific determinants of price earnings ratio, while controlling for the firm size, year and sector effects.

Overall P/E ratios vary across sectors because of diverse growth prospects, typically sectors having companies with mature, stable and moderate growth potential have low P/E ratios compared to the sectors having relatively young and fast growing companies (Anderson and Brooks 2006). However, the P/E ratio as it is commonly used is the result of network of influences, similar to the way in which a company's share price is influenced not only by idiosyncratic factors particular to that company, but also by movement in prices on markets as a whole, and the sector in which the company operates. Four main influences on a company's P/E ratio have been identified: The year - the average market P/E varies year by year, as the overall level of investor confidence changes; The sector in which the company operates; The size of the company - there is a close positive relationship between a company's market capitalization and the P/E accorded; Idiosyncratic effects. Companies examined in the same year, operating in the same sector and of similar size nevertheless have different P/E's. Idiosyncratic effects, that do not affect any other company account for this.

### **1.1.2. Stock Return**

This is the gain or loss of a security in a particular period. The return consists of the income (dividends) and the capital gains relative on an investment. Capital gain is the profit that results when the price of a security rises above its purchase price and the security is sold (realized gain). If the security continues to be held, the gain is unrealized. A capital loss would occur when the opposite takes place. Forces of demand and supply determine the prices of securities at a particular time. If a particular security is available in abundant supply, it will sell at a lower price than usual. Similarly, if there are more

buyers than sellers the price will have a tendency to rise. But demand and/or supply of securities is dependent on company factors, industry factors, micro and macro-economic conditions as well as general economic outlook.

### **1.1.3. Relationship Between Price Earnings Ratio and Stock Return**

Any share price is built on expectations of a company's future performance. Some of these expectations will be based on fundamentals such as the company's recent performance, its new product lines, and the prospects for its sector. The rest will reflect prevailing moods, fashions and sentiment. By relating share prices to actual profits, the P/E ratio highlights the connection between the price and recent company performance. If prices get higher and profits get higher, the ratio stays the same. The ratio only moves as price and profits become disconnected.

For this reason, when the ratio is higher or lower than normal we know that recent profit levels are no longer the main factor in pricing. This might be because change is afoot - investors expect a much better or worse performance next year - or because sentiment is now the dominant factor. Either situation is news worthy. There have been a large number of literatures during the past years on price earnings and stock return. The existing literatures propose different theories to how the P/E ratio may affect the performance of a company and also the factors that may influence it.

Graham (1934) was the first to introduce the concept of the P/E ratio as a measure of performance of the stock market and the application of the P/E ratio was based on the

idea that earnings are related to value. Basu (1977) identified P/E ratio as predictor of subsequent performance and in particular high P/E firms underperformed and low P/E firms outperformed. The study done by Basu (1977) also state that P/E ratio, due to exaggerated investor expectations, may be indicator of future investment performance and he also validated Nicholson's results which state that low companies having low P/E ratios on average subsequently yield higher returns than high P/E companies.

Gonedes and Dopuch (1974) declared that price models are conceptually inferior to return models under the presence of under-developed theories of valuation. The CAPM developed by Sharpe (1964), Lintner (1965) and Mossin (1966) has been the most widely accepted among the many models developed to explain the relationship between expected returns and risk. According to the CAPM, the market can only compensates the investors for bearing systematic risk or common risk, which is measured by the asset's beta. The beta measures the contribution of the risky asset to the riskiness of the entire efficient portfolio. The relationship between the expected return and risk can be expressed in CAPM model.

#### **1.1.4. Firms Listed at the Nairobi Securities Exchange**

Securities market is a public market (a loose network of economic transactions not a physical facility or discrete entity) for the trading of company securities and derivatives at an agreed price; these are securities listed on a stock exchange as well as those only traded privately (Hamilton, 1922). Stock market is one of the most important sources for companies to raise money as it allows business to be traded publicly, or raise additional

capital for expansion by selling shares of ownership of the company in a public market. Participants in the stock market range from small individual stock investors to large hedge fund traders, who can be based anywhere (Jaswani, 2008).

In Kenya dealing in shares and stocks started in the 1920's when the country was still under the British colony. It was an informal market with no rules and regulations where trading took place on a gentleman's agreement. Stock broking was a sideline business conducted by accountants, auctioneers, estate agents and lawyers who met to exchange prices over a cup of coffee.

Nairobi Securities Exchange formerly known as Nairobi Stock Exchange is a securities exchange located in Nairobi, Kenya's capital city. It was founded in 1954 as a voluntary association of brokers under the Societies Act. Until after the attainment of independence in 1963, the business of dealing in shares was confined to the resident European community. NSE's strategic plan is to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. The number of listed companies in the NSE is sixty one as at 31<sup>st</sup> December 2013. It is divided into the segments of: the Main Investments Market Segment (MIMS); Alternative Investments Market Segment (AIMS) and most recently the introduction of the (GEMS) Growth Enterprise Market Segment. The various sectors are Agricultural sector, Automobiles & Accessories, Banking, Commercial and Services sector, Construction and Allied, Energy and Petroleum, Insurance, Investment, Manufacturing & Allied, Telecommunication and Technology and the Growth and



Enterprise Market Segment. There is the Fixed Income Securities Market Segment (FISMS) and the upcoming Futures and Options Market Segment (FOMS).

Subsequently the industry has seen an increase in the number of stockbrokers, introduction of investment banks, establishment of custodial institutions and the number of listed companies has increased. An Automated Trading System (ATS) is now in place where trading is live, trading hours have increased and there is timely information for investors to access. Monitoring of stocks performance saw the introduction of the NSE 20 share index which was reviewed in 2007 due to increase in the number of listed companies to ensure a true representation of market performance was availed to investors. In 2008 an NSE All Share Index (NASI) was introduced as an alternative index which is an overall indicator of market performance as it includes all the listed companies in the exchange.

With these developments in the exchange, increased information accessibility and transparency as well as evident growth in terms of capital gains there has been an overwhelming interest in investing in the market at the local and foreign level. These investors are therefore continuously looking for a guide to better investing and making great returns from the market. Evidence from the NSE indicates that NSE statistics such as the NSE 20 share index, NASI and market capitalization have continued to grow with increased local institutional and foreign investment participation. Investors care a lot about price movements and trends and are therefore privy to changes in the indexes over the years as it is a direct effect to their wealth. In light of this investors and professional

advisors have determined that the stock market has great returns and with careful analysis be it technical, fundamental or psychological it is possible to beat the market. They believe that the stock market is not efficient. Fundamental analysis is most commonly used where investors estimate the intrinsic value of a stock and buy undervalued stocks now and sell overvalued stocks. The relationship between the stock prices and their earnings is one of the analyses done by investors as a guide to making an investment. This relationship is called the Price Earning (P/E) ratio and its one of the most widely used key performance indicators of the stock market.

This research study is concerned with Kenyan companies listed in the NSE covering five year period from (2008-2013). The study aims to investigate and test the effectiveness of P/E ratios in determining share prices in the Kenyan context with specific reference to NSE.

## **1.2. Research Problem**

The P/E ratio has been described as the manner in which investors collectively capitalize profits (Peavy & Goodman, 1985). It therefore represents a market consensus of the value of the earnings of the company, an industry or the aggregate market. The relations between PE ratio and share return have attracted much attention of researchers and academics. A large body of academic work has demonstrated the effect and has attempted to decide whether it is a real or a proxy for other factors. The first study demonstrating the P/E effect was by Nicholson (1960) who concluded that ‘the purchaser of common stocks may logically seek the greater productivity represented by stocks with low rather

than high price earnings ratios'. Basu (1975) and (1977) generally confirmed these results. Ball (1968), conceded the apparent existence of the P/E effect considered possible explanations for this anomaly including systematic experimental error, transaction and processing costs and a failure of Sharpe's two parameter CAPM model.

Empirical results show that markets generally react when financial information is available to investors (Aduda & Chemarum, 2010). They note that there is always a change in the market on announcement of financial information and the only difference is the path such change or reaction takes. Sometimes the reaction is positive which is indicated by a significant increase in the value of shares or in the volume of shares traded; while at other times it is negative, indicated by a reduction in the value and volume of shares traded. Sifunjo (1999) studied the causal relationship between exchange rate and stock prices at NSE between November 1993 and May 1999 and found a unidirectional causality from exchange rate to stock prices. Ndungu (2004) did an empirical investigation on the size effect at the Nairobi Stock Exchange where it was established that the size of the firm greatly affected the performance of its share performance at NSE. Atiti (2005) did an empirical analysis of momentum in prices at the Nairobi Stock Exchange. Mukoba (2007) studied corporate governance reforms and performance of companies listed at the NSE.

This study seeks to evaluate the effect of another financial indicator, the PE ratio on stock returns using more recent data from 2008-2013 from the NSE. Previous studies on the relationship between PE and stock markets have examined the relationship between stock

and PE ratios mainly for the developed economies with very little studies being done on the developing economies. These results cannot be generalized to the Kenyan market because of differences in stock market activity, varying economic growth levels, diverse political environments among others. Also the NSE has undergone several changes such as the introduction of the CDSC and ATS and demutualization of the company and these changes contribute to share return calculations hence creating a gap for this study. It is therefore evident that limited literature is available on the performance of stocks based on their PE ratios at the Nairobi Securities Exchange (NSE).

This study therefore sought to fill this research gap by answering the following question:  
What is the relationship between the P/E ratio and share returns of a company?

### **1.3. Research Objective**

To establish the relationship between the P/E ratio and stock returns at the NSE.

### **1.4. Value of the Study**

This study would be important to stock market players who include investors both current and potential, portfolio managers and all interested parties in the stock exchange who use price earnings effect to measure their trading expectations. It will help investment analysts in understanding the behavior of the stock market and inform their investment strategies. They would use the finding of this study to determine the best investment strategies in the NSE. Results of this study can be used by securities analysts and investors for their investing strategy.

Contribute to existing knowledge and studies on the P/E ratio effect to stock market prices. Studies are limited on the effect in the Nairobi Securities Exchange. It will be a source of reference for future research studies. Evidence obtained from this study will cast more light on the support of the theory that markets are efficient.

For managerial purposes as the companies can predict the expected return and confidence by investors in their company. They can then factor this while making strategic decisions for the company.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter contains a review of the related literature on the studies on price earnings effect on stock performance. The chapter looks at the theoretical overview, determinants of share prices, empirical studies and a summary of the literature review.

#### **2.2 Theoretical Review**

##### **2.2.1 Efficient Market Hypothesis**

Efficient Market Hypothesis states that at any point in time asset prices should fully reflect all available information (Damodaran, 2002). Since the prices reflect all available information, investors cannot expect to make abnormal profits. Abnormal profits are the excess return of a portfolio given the return of a market portfolio. The logic that markets are efficient is clearly stated on the premise and assumptions that: There is a large number of profit-maximizing participants who analyze and value securities independently from each other; New information regarding securities comes to the market in a random fashion and the announcement is generally independent and profit-maximizing investors adjust security prices rapidly to reflect the effect of new information.

In 1970 Eugene Fama presented an article where he divided the efficient market into three forms: Weak-form EMH which states that the current stock prices fully reflect all security market information. This hypothesis also implies that past yield and other historical market information like price and volume should have no relationship to future

rates of return. Semi-strong-form EMH assumes that security prices adjust rapidly to the release of all public information. In another word, all public information (includes all non-market information) has been reflected into the prices of securities. The reasoning behind this hypothesis is that the numerous profit-maximizing investors will quickly assert to the arbitrage opportunities every time the new public information released. Therefore, one invests based on any important new information after its publicity should not expect abnormal returns considered trading cost and tax. Strong-form EMH asserts that security prices already fully reflect all information from public to private sources. This also means that no any group or individual have any monopolistic access to information that might affect to stock price and no group or individual should be able to consistently earn above-average risk-adjusted rates of return.

However, it is the semi-strong form of EMH that has formed the basis for most empirical research. The EMH has provided the theoretical basis for much of the financial market research during the seventies and the eighties. In the past, most of the evidence seems to have been consistent with the EMH. Prices were seen to follow a random walk model and the predictable variations in equity returns, if any, were found to be statistically insignificant.

While most of the studies in the seventies focused on predicting prices from past prices, studies in the eighties also looked at the possibility of forecasting based on variables such as dividend yield (e.g. Fama & French [1988]), P/E ratios (e.g. Campbell and Shiller [1988]), and term structure variables (e.g. Harvey [1991]). Studies in the nineties looked at inadequacies of current asset pricing models.

The maintained hypothesis of EMH also stimulated a plethora of studies that looked at among other things the reaction of the stock market to the announcement of various events such as earnings (e.g. Ball & Brown [1968]), stock splits (e.g. Fama, Fisher (1988)). The usefulness or relevance of the information was judged based on the market activity associated with a particular event. In general, the typical results from event studies showed that security prices seemed to adjust to new information within a day of the event announcement, an inference that is consistent with the EMH. Even though there is considerable evidence regarding the existence of efficient markets, one has to bear in mind that there are no universally accepted definitions of crucial terms such as abnormal returns, economic value, and even the null hypothesis of market efficiency. To this list of caveats, one could add the limitations of econometric procedures on which the empirical tests are based.

The accumulating evidence suggests that stock prices can be predicted with a fair degree of reliability. Two competing explanations have been offered for such behavior. Proponents of EMH (e.g. Fama and French [1995]) maintain that such predictability results from time-varying equilibrium expected returns generated by rational pricing in an efficient market that compensates for the level of risk undertaken.

### **2.2.2 Random Walk Hypothesis**

The Efficient Market Hypothesis is consistent with the Random Walk Hypothesis. The hypothesis states that for the stock prices rises and falls do not depend on any given data. In this case there is no chance to earn any abnormal profit and the best investment



strategy would be holding the market portfolio, Shleifer A. (2000). It is impossible to earn a profit from trading, because you cannot predict the change in the prices – the market is precisely responding to the new information. This means that if the reality of the market is that the prices follow the Random Walk, then trying any other trading strategies, which rely on some sort of historical sequence to predict the stock market movements in the future is a waste of time. However, according to E. Fama, 1965, the faster the analyst can identify situations with differences between the prices and their intrinsic value the longer he will do better than the investor just using a buy and hold strategy. Following this, the more sophisticated analysts exist in the market, the more efficient the market is and it is more likely to follow the Random Walk. Such assumption throws the fundamental analysis, which depends on analyzing the quality of management, economy or industry factors, out of the picture.

### **2.2.3 Behavioral Finance**

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

Behavioral finance ideas started emerging in the early 1990s opposing the Efficient Market Hypothesis with research based on the judgment and decision makes process of the participants of the financial markets. Thaler (1993) called behavioral finance as “simply open-minded finance”. What makes behavioral finance theory different from the classical finance is that it is not only based only on mathematical calculus, but it applies all other social sciences as psychology, sociology, anthropology, political science or, since recently, neuroscience. The main ideas of this discipline were inspired by the breakthrough studies by psychologists Kahneman and Tversky (1974) on human biases and cognitive errors, which later developed to what is called a prospect theory.

Using simple decision tasks, Kahneman and Tversky are able to demonstrate consistent decision inconsistencies by manipulating the decision frame. While expected utility theory would predict that individuals would evaluate alternatives in terms of the impact on these alternatives on their final wealth position, it is often found that individuals tend to violate expected utility theory predictions by evaluating the situation in terms of gains and losses relative to some reference point. The usefulness and validity of Kahneman and Tversky's propositions have been established by several replications and extensions for situations involving uncertainty by researchers in the fields of accounting, economics, finance, and psychology Thaler (2001) show that expected utility theory’s explanation of risk aversion is not plausible by providing examples of how the theory can be wrong and misleading. They call for a better model of describing choice under uncertainty. It is now widely agreed that the failure of expected utility theory is due to the failure to recognize the psychological principles governing decision tasks.

The literature on cognitive psychology provides a promising framework for analyzing investors' behavior in the stock market. By dropping the stringent assumption of rationality in conventional models, it might be possible to explain some of the persistent anomalous findings. For example, the observation of overreaction is consistent with the finding that subjects, in general, tend to overreact to new information (and ignore base rates). Also, agents often allow their decision to be guided by irrelevant points of reference, a phenomenon discussed under "anchoring and adjustment".

#### **2.2.4 Theories on Market Anomalies**

The EMH became controversial especially after the detection of certain anomalies in the capital markets. Some of the main anomalies that have been identified are: The January Effect: Where evidence has been documented of higher mean returns in January as compared to other months; The Weekend Effect (or Monday Effect): French (1980) analyzes daily returns of stocks for the period 1953-1977 and finds that there is a tendency for returns to be negative on Mondays whereas they are positive on the other days of the week; Other Seasonal Effects: Holiday and turn of the month effects have been well documented over time and across countries; Small Firm Effect: Banz (1986) published one of the earliest articles on the 'small-firm effect' which is also known as the 'size-effect'. His analysis of the 1936-1975 period's reveals that excess returns would have been earned by holding stocks of low capitalization companies; P/E Ratio Effect: Sanjoy Basu (1977) shows that stocks of companies with low P/E ratios earned a premium for investors during the period 1957-1971. An investor who held the low P/E ratio portfolio earned higher returns than an investor who held the entire sample of stocks. These results also contradict the EMH. Campbell and Shiller (1988b) show P/E

ratios have reliable forecast power. Fama and French (1995) find that market and size factors in earnings help explain market and size factors in returns; Over/Under Reaction of Stock Prices to Earnings Announcements: There is substantial documented evidence on both over and under-reaction to earnings announcements. These phenomena have been rightly referred to as anomalies because they cannot be explained within the existing paradigm of EMH. It clearly suggests that information alone is not moving the prices.

## **2.3 Determinants of Share Return**

### **2.3.1 Company Factors**

Company news and performance affect the share price directly through the signaling effect. Some company-specific factors that can affect the share price include news releases on earnings and profits, and future estimated earnings, announcement of dividends, share bonuses and splits, introduction of a new product or a product recall, securing a new large contract, employee layoffs, anticipated takeover or merger, a change of management, accounting errors or scandals, corporate governance mechanisms. According to the signaling theory, financial information acts as a means of passing information from managers to stockholders. The signaling model of stock splits showed that stock splits served as costly signals of managers' private information because trading costs increased as stock prices decreased. They built up the hypothesis from Fama et al. (1969), who suggested that by announcing splits, a company could reduce any information asymmetries that might have existed between stockholders and management.

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.

### **2.3.2 Macro-Economic Factors**

Exchange Rates-There are reasons to believe that exchange rates might have a positive correlation to stock prices. For example at the micro level, Jorion (1990) shows that a currency appreciation might decrease stock prices by reducing firms profits not only for multinational and export oriented firms but also for domestic firms and this in turn affects stock prices. According to Hussain and Liew (2004), from the traditional point of view, the appreciation (depreciation) of a local currency has two major implications. First increase (decrease) indebtedness in terms of foreign denomination currency, in other words companies in local country have to pay more (less) for the foreign denominated debt and

ultimately companies cash flow deteriorates (improves). Second increase (decrease) in production costs, especially in those developing economies which production relies heavily on imported raw materials. The consequences are two fold; loss (gain) in price competitiveness and the company's revenues.

Interest rates - where they are regulated by the government (monetary policy) are used to stimulate or stabilize the economy. If a company borrows money to expand and improve its business, higher interest rates will affect the cost of its debt. This can reduce company profits and the dividends it pays shareholders. As a result, its share price may drop. And, in times of higher interest rates, investments that pay interest tend to be more attractive to investors than stocks. In theory, the interest rates and the stock price have a negative correlation (Hamrita& Abdelkader, 2011). This is because a rise in the interest rate reduces the present value of future dividend's income, which should depress stock prices. Conversely, low interest rates result in a lower opportunity cost of borrowing. Lower interest rates stimulate investments and economic activities, which would cause prices to rise.

Inflation rates- The rate of inflation where if high means higher consumer prices which often slows sales and reduces profits. Higher prices will also often lead to higher interest rates. These changes will tend to bring down stock prices. Fama (1981) argues that expected inflation is negatively correlated with anticipated real activity, which in turn is positively related to returns on the stock market. Therefore, stock market returns should

be negatively correlated with expected inflation, which is often proxied by the short-term interest rate.

### **2.3.3 Economic Outlook**

Investor sentiment or confidence can cause the market to go up or down, which can cause stock prices to rise or fall. The general direction that the stock market takes can affect the value of a stock. This is characteristic of the NSE where during the bull market there is a strong stock market where stock prices are rising and investor confidence is growing. It's often tied to economic recovery or an economic boom, as well as investor optimism. During the bear market stock prices are falling and investor confidence is fading. It often happens when an economy is in recession and unemployment is high and political instability.

Economic outlook- where if it looks like the economy is going to expand stock prices may rise as investors may buy more stocks thinking they will see future profits and higher stock prices. If the economic outlook is uncertain, investors may reduce their buying or start selling. The rate of inflation where if high means higher consumer prices which often slows sales and reduces profits. Higher prices will also often lead to higher interest rates. These changes will tend to bring down stock prices

The economic and political shocks locally and around the world can affect both the economy and stock prices. For example, a rise in energy costs can lead to lower sales, lower profits and lower stock prices. An act of terrorism can also lead to a downturn in

economic activity and a fall in stock prices. Changes in economic policy where if a new government comes into power and decides to make new policies. Sometimes these changes can be seen as good for business, and sometimes not. They may lead to changes in inflation and interest rates, which in turn may affect stock prices.

## **2.4 Empirical Studies**

Since Nicholson (1960) opened the first argument and showed that low P/E ratio companies yield higher returns, which is evidence against EMH. The finding led to numerous other studies about a bias of P/E ratio toward abnormal returns, and directly or indirectly led to the booming of style investment strategy. This section will go through numerous empirical studies on P/E ratio and show the evolving of academic study on P/E ratio and P/E ratio family factors.

Basu (1977) determined that stocks with low P/E (price-to-earnings) ratios tend to have higher average returns than stocks with high P/E ratios. These stocks with low P/E ratios are considered today as value stocks, thus the data showed value as having greater returns than growth. However, at the time of publication, there was no talk about value or growth: that didn't become popular until the early 1990's. However, Lakonishok, Shleifer, and Vishny (1994) argued against the efficient market hypothesis and attributed the increased returns of value to both agency costs and some underlying investor behaviors. There have been multiple spin-offs of these first two trailblazing studies, but there is still no consensus on the underlying risk factor or factors that attribute to the increased returns of value investment strategies.



Chan, Hamao and Lakonishok (1991) described differences in expected returns on the Japanese stock market between 1971 and 1988. They based their study on four variables: P/E, market capitalization, P/B and P/CF. The choice of predictor variables was motivated by the fact that these variables were shown most applicable on the US stock market and the practice of fundamental security analysts. A theoretical justification for these variables was, as the authors put it: “out of the scope of this paper” (Chan et al.1991). The size effect was, as earlier studies conclude, dependent on the specific model and time period. Earnings yield did not seem to be related to stock returns in their study, but their research showed a clear relationship between expected stock returns and the P/B multiple and cash flow yield, where the companies with the lowest P/Bs posted the highest returns. They also concluded that their variables are more or less correlated; low P/B companies tend to have low P/CF.

Fama and French (1992) made a study on the US stock market between 1963 and 1990. They used the efficient market hypothesis (EMH) to explain the higher returns of value strategies. This hypothesis states that increased return should reflect increased risk. They described the relations between, market , market capitalization, P/E, leverage and P/B with average returns. Their conclusion was, firstly that does not seem to explain average returns, hence rejecting the Sharpe-Lintner-Black model (that there is a positive relationship between and average stock returns), secondly the combination of size and P/B absorbs the role of leverage and P/E when describing average returns. Their final and main conclusion was that market capitalization and the P/B multiple best describe average stock-returns, where P/B is the most powerful explanatory variable of the two.

Empirical studies concentrating on individual African markets, Dickinson and Muragu (1994), through serial correlation analysis and runs test, have provided results for the NSE that do not contradict the weak-form efficiency; Olowe (1999), examining the Nigerian stock market through serial correlation test, has reached the same conclusion. On the other hand, Bundoo (2000), applying the same technique as Olowe (1999), has shown significant positive first-order auto-correlation in returns, implying weak-form inefficiency for the stock exchange of Mauritius.

Magnusson and Wydick (2002), using three successively stronger tests of random walk, have shown that equity markets in Ghana and Zimbabwe, not passing any of the tests, are not weak-form efficient; Botswana passed only the first test, namely the partial autocorrelation function test, implying that future price changes were uncorrelated with past price changes but the variance of past prices could be used to predict future volatility. The results obtained from implementing a test of evolving efficiency over the period 1990-2001 by Jefferis and Smith (2005) illustrate that the JSE was weak-form efficient during the period Egypt, Morocco and Nigeria became efficient towards the end, Mauritius showed a slow tendency towards efficiency whereas Kenya and Zimbabwe displayed no tendency at all.

## **2.5 Summary of Literature Review**

This Chapter has discussed the literature related to the relationship between the P/E ratio and share prices and other factors influencing these variables. The literature review reveals that earlier research studies advocated for an efficient market where prices at all

times reflected the available information both private and public. There have been various critics of this school of thought and arguments from various scholars arose indicating that the markets were inefficient with various anomalies such as price earning effect, weekend effect, January effect, size of the firm being noted and thoroughly documented. Based on the argument of these anomalies existing, the chapter looks at the various factors that determine stock prices. One of those factors recognized is the P/E ratio.

The chapter looks at the studies documented in support of or criticizing the effect of P/E ratio on stock return. The literature reveals that there is a strong relationship between the PE ratio and stock prices. Studies done by Basu (1977), Fama and French (1992), Chan, Hamao and Lakonishok (1991) have supported this relationship. This is because the ratio is affected by various company and industry factors, information that is available to both current and potential investors. The ratio is also a direct indicator of investor confidence in the company as it is derived from the company profitability.

Empirical evidence on this study from African equity markets is not as abundant as for other emerging markets and therefore this study attempts to analyze whether PE ratios have an effect on stock performance in the Kenyan equity markets.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter provided an overview of the research methodology used in the study. It was structured into; Research design, Study Population, Data collection, Data analysis, Data Validity and Reliability and Ethical considerations.

#### **3.2 Research Design**

A research design is a plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problems. This study took on a descriptive, causal research design. Gay and Airasian (2003) note that causal research designs are used to determine the causal relationship between one variable and another; in this case the cause effect relationship between P/E ratio and stock returns.

#### **3.3 Population and Sample of the Study**

The target population of the study was the Nairobi Securities Exchange which formed the Unit of analysis. The sample consisted of 54 listed companies in the NSE as at 31st December 2013. The listed companies as at that date are provided in appendix 1.

#### **3.4 Data Collection**

The study used secondary data sources available at the NSE offices and company annual reports. The stock trading prices for the companies were obtained from the NSE database and offices for the period 01<sup>st</sup> January 2008 to 31<sup>st</sup> December 2013. The Earnings per

share and dividend paid by the company data for the same period was collected from the company annual reports. To make the data collection process easier a data collection form was formulated and used shown in appendix II.

### **3.5 Data Analysis**

The dependent/response variable in this study was the stock return while the PE ratio was the independent/explanatory variable. Computation of P/E ratios for each year was done by taking the EPS obtained from the company annual reports for the year and dividing by the share price. This share price was taken as the average share price for the year i.e. the price at the beginning of the year plus the price at the end of the year divided by two. The stock return was computed by taking the closing price at the end of the year less the initial price at the beginning of the year, the figure obtained was added to the dividend paid by the company during the year, and the figure obtained divided by the initial stock price. Another explanatory variable, a macro- economic factor was included to evaluate if these factors have an effect on the stock return. Specifically interest rate was used to represent the macro- economic factors. The commercial banks annual weighted average lending rate was taken as the applicable rate. This data was obtained from the Central Bank of Kenya.

Regression analysis was used to determine the relationship between the dependent and independent variable (s) while the magnitude of change in share returns for the companies was analysed. A multiple regression was used incorporating the dependent

variable and independent variables (P/E ratio and interest rates) to determine the correlation between the variables. The model used was;

$$Y = S_0 + S_1 X_1 + S_2 X_2 + v_i$$

Where: Y= the stock return for the year

X1= P/E Ratio for the year

X2= Interest rate (macro-economic factor)

S<sub>0</sub> - Intercept of the regression line.

S<sub>1</sub> - Slope of the regression line; incremental change in share price per unit change in the PE ratio.

S<sub>2</sub> - Incremental change in share price per unit change in macro-economic factor (interest rates).

v<sub>i</sub> = Error term

The unknown parameters in the model i.e. the intercept (S<sub>0</sub>) and the slope (S<sub>1</sub>) (S<sub>2</sub>) are the estimates of the population parameters and were estimated using the ordinary least squares method. To evaluate the data and regression result within the testing period and

its meaningfulness the study conducted a statistical test. The test is often conducted using p-values or t-values. For the purpose of this study the t-values were used.

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSION

#### 4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research objectives and methodology. It contains the descriptive statistics, correlation analysis, regression analysis and the discussion of the research findings.

#### 4.2 Descriptive Statistics

Table 4.2.1 Share Returns

	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Mean</b>	-25.96	-1.5	43.67	-25.13	25.33	44.43
<b>Median</b>	-30.77	-4.31	46.46	-30.94	11.61	34.96
<b>Standard Deviation</b>	21.115	32.5	40.70	24.25	40.30	46.34
<b>Maximum</b>	39.47	166.09	150.39	59.19	154.67	175
<b>Minimum</b>	-58.94	-42.69	-35.17	-65.27	-43.17	-28.87

The data used in this research is mainly annual earnings per share data, dividend per share and the share price. Our sample covers the Price Earning ratio and share return data from 1 January, 2008 to 31 December, 2013 for the companies listed at the Nairobi Securities exchanges. There were a total of 61 companies listed as at 31<sup>st</sup> December 2013. To be included in the analysis, each stock must have its yearly share price information available, earnings per share and dividend per share. After carefully screening the data, seven securities were eliminated due to lack of sufficient data points. The final sample consists of 54 securities for the analysis.



Data collected on the share returns, PE ratio and interest rates is shown in appendix III, IV and V.

### 4.3 Correlation Analysis

To determine the relationship between the independent variable PE ratio and the dependent variable share return the Correlation coefficient (r) was computed giving the below results in table 4.3.1.

Table 4.3.1 Correlation results between the PE ratio and the share return;

	Y1	Y2	Y3	Y4	Y5	Y6
X1	-	-	-	1	-	1
X2	-	-	1	-	-	1
X3	-	-	-	-	-	1
X4	-	-	1	1	-	1
X5	-	1	1	1	1	1
X6	-	1	1	-	-	1
X7	-	1	1	-	-	1
X8	-	1	1	1	-	1
X9	-	1	1	-	1	1

### 4.4 Regression Analysis

Table 4.4.1 Analysis of Variance (ANOVA)

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
2008	1	22.9720801	22.97208013	0.045937	0.831280582
2009	1	2200.309376	2200.309	2.057408	0.158537
2010	1	1471.997	1471.997	0.862897	0.357997615
2011	1	710.8587	710.8587	1.220512	0.275265075
2012	1	1175.424	1175.424	0.824094	0.368931
2013	1	247.0648	247.0648	0.114818	0.736335

Table 4.4.2 Coefficients

		<b>Coefficients</b>	<b>t Stat</b>	<b>P-value</b>
2008	Intercept	-22.56681042	-4.310918721	9.0171E-05
	15.65	-0.0775012	-0.214329172	0.83128058
2009	Intercept	7.885751981	1.055614	0.296907
	10.24	-0.732526348	-1.43437	0.158537
2010	Intercept	34.49473406	4.334082	8.38E-05
	7.69	0.413069426	0.928922	0.357998
2011	Intercept	-21.0597	-4.87034	1.48E-05
	22.82	-0.40384	-1.10477	0.275265
2012	Intercept	22.00891741	3.493666	0.001099
	8.7	0.391932583	0.907796	0.368931
2013	Intercept	52.00237777	5.927843	4.31E-07
	12.14	-0.182035241	-0.33885	0.736335

#### 4.5 Summary and Interpretation of Findings

The study established that there was no relationship between the PE ratio and share return. From tables 4.2.1 to 4.3.10 it shows that in year 2008 the companies in all the listed segments had high PE ratios, the share returns were however greatly negative. All through year 2009, 2010, 2011 and 2012 the companies had declining PE ratios. The companies reported high and stable PE ratios in the year 2013. The share returns were negative in year 2009 but the NSE improved in 2010. Year 2011 saw the share returns decline with the market returns being majorly negative. Year 2013 saw a revival of the market with companies having positive earnings, many paying dividends from these earnings and the share returns were positive. Major capital gains were realized in this year.

Results from the regression between portfolio stock return and PE Ratio revealed that in the six years under study the correlation coefficient is majorly negative or insignificant.

Year 2010 showed a significant positive correlation between the share return and PE ratio. However further analysis of results from the regression between portfolio stock return and interest rate as shown in table 4.3.1. showed that the two variables were positively correlated indicating that there was a probability that macro-economic indicators such as interest rates was a great determinant of share returns. This sheds light and goes on to support the theories that there are other factors affecting the stock market.

Also the significance test carried out confirmed this result that there exists no significant relationship between the company P/E ratio and stock return.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents the summary of key data findings and discussions, conclusions drawn, limitations of the study, policy recommendations and suggestions for further research. The conclusions and recommendations drawn were on comparing the relationship between the PE ratio and share returns of stocks for companies listed at the Nairobi Securities Exchange (NSE), Kenya.

#### **5.2 Summary of Findings and Discussions**

In Kenya, investing in stocks using fundamental analysis has been a common investment strategy followed by investors. Stocks with low PE ratio are perceived as having cheaper current price hence expected to generate higher return in subsequent period. Using stocks which are listed in the Nairobi Securities Exchange with observation period 2008-2013, findings show that there is no significant relationship between the PE ratio and share return.

When the study results are processed further using regression analysis to determine whether PE Ratio is a significant factor to predict stock returns in the future, the results are inconsistent in the years under study. This finding implies that PE ratio alone is not useful in estimating stock returns which suggests that investors can not earn systematically above average return by investing stocks by only considering their PE

Ratio. This signifies that there are other factors to be considered while investing in the NSE.

### **5.3 Conclusions**

From the data analyzed the conclusion is that there was not enough evidence to support the use of the P/E ratio as the only relevant variable to explain the performance of stocks. This finding suggests that investors cannot systematically achieve superior returns by investing in low PE stocks in the NSE. Bodie, Kane & Marcus (2008) states that riskier firms will have higher required rate of return hence their PE Ratio will be lower. In other words, stocks with low PE Ratio is not necessary a good bargain since their PE Ratio could be lower simply because they are riskier firm and hence investors demand higher required rate of return. Low PE Ratio stock does not necessarily mean that its current price is cheap or undervalued hence does not necessarily generate higher return in the subsequent period.

Investors need to carefully examine the driver or fundamental factors affecting PE Ratio of particular companies that they want to invest in instead of just following common investing strategy by investing in low PE Ratio stocks. Before deciding whether particular stock is over or undervalued, investors need to examine differences between firms that may affect the PE Ratio. Results of this study also entail investors to consider other fundamental factors of companies instead of just looking at their PE Ratios.

#### **5.4 Limitations of the Study**

The study period used was for 2008-2013. This may not be a true representation of the actual result. This is due to political climate which was unstable in the year 2008 following the country general elections in year 2007. Also the year 2012 was an election year and there was a lot of uncertainty due to the expected change in government. This is a great determinant of share return in terms of investor confidence.

This research used data for Earnings per share (EPS) as reported in the company's audited financial statement. This is subject to manipulation and is affected by company policies which are easily changed by management of the company. It also does not take into account the company's financial leverage position and these are factors investors need to be aware of.

After analyzing the results it became apparent that most of the assumptions and limitations had a positive effect on the share return. Financial institutions, besides investing earn money from facilitating transactions between sellers and buyers so-called brokerage or transaction fees. Excluding such percentage fees from the share return resulted in an enhanced annual performance, when in fact it should in reality be a little percentage lower.

The results indicated that the market is not as efficient as it theoretically ought to be. In theory, stock prices follow a random path and are therefore impossible to predict with historic data. An efficient market assumes that the costs of obtaining information are

zero; however, these results might just prove that markets in reality are inefficient due to the fact that gathering and assessing information is actually quite costly.

Companies have different policies on dividend payment. Some companies had an earnings retainment policy which is ploughed back to the company minimizing the level of debt. The study noted that some companies had not paid dividends in a period of as long as six years, while others had a consistent dividend paying mechanism. This meant that while computing share returns some companies as much as they had great potential for growth their returns were low as no dividend figure was included.

## **5.5 Recommendations**

### **5.5.1 Policy Recommendations**

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 Nairobi securities exchange. The study recommends that the regulatory authorities should intensify efforts to ensure compliance to insider trading laws by market participants. The authorities need to look at regulating the industry cost of doing business so that the fees charged are in line with fees in the developing nations.

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 and has great potential for expansion. This will improve the overall liquidity position of the market.

Additionally, this study is limited in scope to the Kenyan market; 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.

### **5.5.2 Suggestions for Further Research**

This study set to establish if there is a relationship between the company PE ratio and its share return. The study further recommends that studies be conducted in Kenya on variables affecting the share return. Various variables could be considered since the NSE is a developing market and fundamental analysis may not be best applied. Political environment could be considered in evaluating what affects the securities market. This research could be extended in term of period of analyses when the country had less political interference.

For further research, the usage of normalized EPS (exclude extraordinary items from earnings) or estimate EPS instead of reported EPS could be explored. The ratio should not be used in isolation. Other company factors such as corporate governance, financial leverage should also be considered while making an investment decision. Decomposition of PE Ratio into a fundamental component and a mispriced component can be carried out to gain deeper understanding and more useful investment tools for investment strategy.



Further research might try to limit some of the restrictions and assumptions this study is based upon. Restructuring the portfolio more often would provide more observations, and thereby reducing the variance, and instead of assuming normally distributed returns one could conduct a test of normality to find out.

The cost of obtaining and availability of information to investors should be considered. Results indicated that the market is not as efficient as it theoretically ought to be. Thomson Reuters's whole business strategy for example evolved around the principal of selling information other companies might find valuable. Banks as well as funds pay large sums of money for applications such as instant news-feeds and access to enormous historic databases.

Consideration of whether the company is a value or growth stock should be considered. This means the dividend and retainment policy of the company will be considered and investors can look out for future growth prospects while making the investment decisions.

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## APPENDICES

### Appendix I: List of companies listed at the Nairobi Securities Exchange as at 31<sup>st</sup>

December 2013

#	<b>Banking</b>	#	<b>Agricultural</b>
1	Barclays Bank of Kenya Ltd	29	Eaagads Ltd Ord 1.25
2	CFC Stanbic of Kenya Holdings Ltd	30	Kakuzi Ltd Ord.5.00
3	Diamond Trust Bank Kenya Ltd	31	Kapchorua Tea Co. Ltd Ord Ord 5.00
4	Equity Bank Ltd	32	The Limuru Tea Co. Ltd Ord 20.00
5	Housing Finance Co.Kenya Ltd	33	Rea Vipingo Plantations Ltd Ord 5.00
6	Kenya Commercial Bank Ltd	34	Williamson Tea Kenya Ltd
7	National Bank of Kenya Ltd	36	<b>Manufacturing &amp; Allied</b>
8	NIC Bank Ltd		B.O.C Kenya Ltd Ord 5.00
9	Standard Chartered Bank Kenya Ltd	37	British American Tobacco Kenya Ltd
10	The Co-operative Bank of Kenya Ltd	38	Carbacid Investments Ltd
	<b>Insurance</b>	39	East African Breweries Ltd
11	British-American Investments Co.(Kenya) Ltd	40	Eveready East Africa Ltd
12	CIC Insurance Group Ltd	41	Mumias Sugar Co. Ltd
13	Jubilee Holdings Ltd	42	Unga Group Ltd
14	Kenya Re Insurance Corporation Ltd	43	<b>Automobiles &amp; Accessories</b>
15	Liberty Kenya Holdings Ltd		Car & General (K) Ltd
16	Pan Africa Insurance Holdings Ltd	44	Marshalls (E.A.) Ltd
17	<b>Construction and Allied</b>	45	Sameer Africa Ltd
	ARM Cement Ltd	46	<b>Telecommunication &amp; Technology</b>
18	Bamburi Cement Ltd		Safaricom Ltd
19	Crown Paints Kenya Ltd	47	<b>Commercial &amp; Services</b>
20	E.A.Cables Ltd		Express Kenya Ltd Ord 5.00
21	E.A.Portland Cement Co. Ltd	48	Kenya Airways Ltd Ord
22	<b>Energy and Petroleum</b>	49	Longhorn Kenya Ltd Ord
	KenGen Co. Ltd Ord. 2.50	50	Nation Media Group Ltd
23	KenolKobil Ltd Ord 0.05	51	Scangroup Ltd Ord
24	Kenya Power & Lighting Co Ltd Ord	52	Standard Group Ltd Ord
25	Total Kenya Ltd Ord 5.00	53	TPS Eastern Africa Ltd Ord
	<b>Investment</b>	54	Uchumi Supermarket Ltd
26	Centum Investment Co Ltd Ord 0.50		
27	Olympia Capital Holdings Ltd Ord 5.00		
28	Trans-Century Ltd Ord 0.50		

## Appendix II; Data Collection Form

Company Name		2008	2009	2010	2011	2012	2013
Year							
EPS							
Market price at the Beginning of the year							
Market price at the end of the year							
Dividend Paid	Interim						
	Final						
Interest rate for the Year							



### Appendix III: PE ratios of companies for the period 2008-2013

Table 4.2.1.1 PE ratio for the Banking Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Barclays Bank of Kenya	15.65	10.24	7.69	22.82	8.7	12.14
CFC Stanbic of Kenya	23.90	19.65	14.69	6.68	4.24	5.01
Diamond Trust Bank Kenya	16.57	10.49	8.30	8.69	5.73	7.59
Equity Bank	16.67	12.59	13.86	5.88	5.90	8.70
Housing Finance Co. Kenya	24.56	17.65	16.06	4.59	4.80	5.70
Kenya Commercial Bank	11.8	11.28	7.79	4.35	5.84	8.61
National Bank of Kenya	6.93	5.33	5.37	3.67	6.62	9.25
NIC Bank	22.81	11.36	10	4.33	6.34	8.74
Standard Chartered Bank of Kenya	14.11	9.79	13.89	8.3	8.83	9.89
The Co-operative Bank of Kenya Ltd	10.5	8.8	12.1	6.4	7.1	8.05

Table 4.2.1.2 PE ratio for the Insurance Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
British-American Investments Co.	-	-	-	(5.03)	4.50	10.46
CIC Insurance Group Ltd	-	-	-	-	5.55	8.96
Jubilee Holdings Ltd	7.76	5.66	4.95	4.42	4.54	6.62
Kenya Re Insurance Corporation Ltd	5.17	5.28	4.30	2.29	2.67	3.61
Liberty Kenya Holdings	-	-	-	3.55	3.89	6.53
Pan Africa Insurance Holdings Ltd	15.83	18	7.84	5.67	7.30	4.57

Table 4.2.1.3 PE ratio for the Construction and Allied Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
ARM Cement Ltd	17.81	17.03	16.86	13.6	17.69	25.36
Bamburi Cement Ltd	18.79	8.52	13.34	8.65	15.21	20.31
Crown Paints Kenya	20.75	6.87	9.34	2.71	7.07	8.32
E.A.Cables Ltd	11.49	13.85	17.90	8.48	5.67	12.63
E.A.Portland Cement	-	3.3	-25.32	31	-5.33	2.74

Table 4.2.1.4 PE ratio for the Energy and Petroleum Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
KenGen Co. Ltd	9.13	15.45	11.44	14.32	6.70	5.64
KenolKobil Ltd	8.41	5.68	7.69	4.47	-3.17	24.87
Kenya Power & Lighting Co Ltd	6.1	3.39	6.67	6.16	7.33	7
Total Kenya Ltd	7.96	10.67	5.48	-36.14	-11.99	12.37

Table 4.2.1.5 PE ratio for the Investment Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Centum Investment	15.83	18	7.84	5.67	7.30	7.03
Olympia Capital Holdings	-	-	-	5.75	3.64	26.67
Trans-Century	-	-	-	21	14	28

Table 4.2.1.6 PE ratio for the Agricultural Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Eaagads Ltd	9.88	24.45	-	24.45	9.88	0
Kakuzi Ltd	2.49	1.84	5.1	2.48	3.72	9.93
Kapchorua Tea	-4.20	3.81	4.1	2.41	6.07	2.72
The Limuru Tea	21.62	13.57	4.81	9.93	5.07	
Rea Vipingo Plantations	6.07	4.47	15.95	1.89	2.68	3.27
Sasini	2	2.59	3.05	6.1	0	
Williamson Tea Kenya	-5.16	3.75	2.21	-3.96	2.36	2.44

Table 4.2.1.7 PE ratio for the Manufacturing & Allied Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
B.O.C Kenya Ltd	15.59	19.03	32.49	12.96	9.84	10.38
British American Tobacco Kenya	7.7	12	15.3	7.9	15.1	16
Carbacid Investments Ltd	9.31	13.65	17.24	10.29	10.91	3.71
East African Breweries	20.83	17.34	19.94	20.73	16.87	32.84
Eveready East Africa	41.18	23.70	73.17	3.9	8.81	11.82
Mumias Sugar Co. Ltd	16.01	5.70	12.5	5.66	4.64	-2.98
Unga Group Ltd	3.75	6.45	6.76	2.8	4.49	2.83

Table 4.2.1.8 PE ratio for the Automobiles & Accessories Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Car & General (K) Ltd	5.16	4.44	4.11	4.01	3.39	2.8
CMC Holdings Ltd	11.94	10.80	18.63	-39.08	67.2	75
Marshalls (E.A.) Ltd	-1.60	-2.94	-0.79	1.12	-1.05	
Sameer Africa Ltd	11.07	8.81	37.34	12.63	6.09	3.58

Table 4.2.1.9 PE ratio for the Telecommunications and Technology Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Safaricom Ltd	10.39	11.39	14.66	11.55	10.14	23.86

Table 4.2.1.10 PE ratio for the Commercial & Services Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Express Kenya Ltd	-10.65	18.91	-9.83	-0.6	9.51	0
Kenya Airways Ltd	6.20	-2.23	13.61	4.21	3.88	-2.02
Longhorn Kenya Ltd	-	-	-	-	-48.71	8.39
Nation Media Group Ltd	7.92	15.04	17.06	18.28	13.89	22.48
Scangroup Ltd	14.94	14.09	28.87	16.27	31	18.24
Standard Group	12.80	10.57	12.04	12.59	9.70	10.79
TPS Eastern Africa	24.95	12.51	19.66	13.24	12.01	13.91
Uchumi Supermarket	-	56.75	3.02	7.75	15.4	

## Appendix IV: Share Returns for companies for the period 2008-2013

Table 4.2.1.11 Share returns for the Banking Segment

Company Name	2008	2009	2010	2011	2012	2013
Barclays Bank of Kenya	-29.05	-5.941	49.34	13.28	25.94	16.56
CFC Stanbic of Kenya	-51.78	-23.73	58.14	-47.71	6.83	103.79
Diamond Trust Bank Kenya	-24.02	0.07	95.14	-34.14	29.89	64.49
Equity Bank	2.27	-16.19	91.99	-34.95	52.44	35.79
Housing Finance Co. Kenya	-52.86	0	51.11	-48.68	29.62	115.21
Kenya Commercial Bank	-10.91	-3.16	4.55	-15.95	88.39	62.81
National Bank of Kenya	-1.71	-10.86	0.9	-48.7	-13.83	67.61
NIC Bank	-29.03	-32.45	46.46	-46.74	63.54	56.41
Standard Chartered Bank of Kenya	-9.09	8.25	74.04	-33.98	53.73	34.96
The Co-operative Bank of Kenya Ltd	12.63	-13.68	116.76	-31.58	5.16	43.14

Table 4.2.1.12 Share returns for the Insurance Segment

Company Name	2008	2009	2010	2011	2012	2013
British-American Investments Co.	-	-	-	-	11.61	161.02
CIC Insurance Group Ltd	-	-	-	-	-	71.43
Jubilee Holdings Ltd	-37.01	-1.24	61.97	-17.69	16.13	64
Kenya Re Insurance Corporation	39.47	-4.31	-2.56	-33.48	52.06	48.6
Liberty Kenya Holdings	-	-	-	-		137.78
Pan Africa Insurance Holdings Ltd	-37.69	-24.19	52.22	-65.27	108.43	134.78

Table 4.2.1.13 Share returns for the Construction and Allied Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
ARM Cement Ltd	-1.34	22.28	66.44	-12	42.41	103.6
Bamburi Cement Ltd	-15.31	4.34	25.32	-27.81	56.40	19.19
Crown Paints Kenya	-49.01	2.02	55.21	-39.58	113.42	80.59
E.A.Cables Ltd	-35.12	-20.56	-14.82	-30.15	20.38	51.71
E.A.Portland Cement	-42.14	0.37	-	-29.38	-30.36	78.85

Table 4.2.1.14 Share returns for the Energy and Petroleum Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
KenGen Co. Ltd	-35.77	-15.19	35.66	-47.35	11.24	60.8
KenolKobil Ltd	-35.15	-19.32	110.40	9.50	36.18	-24.72
Kenya Power & Lighting Co Ltd	-35.48	8.82	50.02	-25.00	0.29	-17.25
Total Kenya Ltd	2.22	-3.91	1.01	-49.14	-5.09	85.51

Table 4.2.1.15 Share returns for the Investment Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Centum Investment	-31.19	-40.79	104.44	-41.94	-8.52	175
Olympia Capital Holdings	-29.9	-34	-6.92	-45.38	7.7	33.82
Trans-Century	-	-	-	-	-2.3	24.04

Table 4.2.1.16 Share returns for the Agricultural Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Eaagads Ltd	-20	-42.69	15	-30.5	-21.64	-5
Kakuzi Ltd	-36.55	55.68	150.39	-4.87	1.74	-20.26
Kapchorua Tea	-23.89	30.15	23.55	33.75	0.4	12.29
The Limuru Tea	-	-	0.82	14.17	30.6	18.02
Rea Vipingo Plantations	-31.24	-14.29	52.56	-15.72	49.44	46.67
Sasini	-58.94	-5.26	80	6.74	-5.32	24.69
Williamson Tea Kenya	-35.56	166.09	28.36	59.19	-26.4	28.5

Table 4.2.1.17 Share returns for the Manufacturing & Allied Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
B.O.C Kenya Ltd	4.25	-2	-5.73	-19.01	4.55	30.85
British American Tobacco Kenya	-0.22	47.14	61.52	2.41	113.62	29.21
Carbacid Investments Ltd	-	-17.52	40.78	-29.64	36.9	53.69
East African Breweries	-9.49	6.29	44.66	-10.01	59.16	11.51
Eveready East Africa	-55.98	-17.14	3.45	-45	24.24	8
Mumias Sugar Co. Ltd	-51.67	7.41	47.45	-40.21	0.94	-22.68
Unga Group Ltd	-11.97	-30.52	21.69	-11.36	53.33	43.68

Table 4.2.1.18 Share returns for the Automobiles & Accessories Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Car & General (K) Ltd	-21.63	-18.93	36.57	-48.79	7.91	28.33
Marshalls (E.A.) Ltd	-30.77	-19.44	-35.17	-11.35	13.6	-15.49
Sameer Africa Ltd	-46.28	8.33	54	-40.26	0	33.74

Table 4.2.1.19 Share returns for the Telecommunications and Technology Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Safaricom Ltd	0	29.17	7.69	-32.98	76.95	123.2

Table 4.2.1.20 Share returns for the Commercial & Services Segment

<b>Company Name</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Express Kenya Ltd	-46.94	-38.08	-3.11	-50	-10.26	11.43
Kenya Airways Ltd	-50.41	28.95	31.47	-51.63	-43.17	17.70
Longhorn Kenya Ltd	-	-	--	-	-	35.78
Nation Media Group Ltd	-51.77	-14.83	48.31	-8.08	65.71	44
Scangroup Ltd	-10.59	0	143.92	-31.38	66.51	-28.87
Standard Group	-10.35	28.33	21.05	-43.96	-13	21.84
TPS Eastern Africa	-31.33	-12.74	56.11	-17.21	-19.02	21.41
Uchumi Supermarket	-	-	-	-46.9	154.67	1.83

**Appendix V: Interest rate data for companies for the period 2008-2013**

<b>Year</b>	<b>Average Lending Rate %</b>
2008	14.02
2009	14.8
2010	14.36
2011	15.05
2012	19.65
2013	17.31

Source; Central Bank of Kenya; Commercial Banks Weighted Average Lending