THE EFFECT OF EARNINGS YIELD ON THE STOCK RETURNS OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

This research project is my original work and it has not been presented and submitted to any in university or college for examination.

Signed…… **Date……..**

01/12/2020

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This research project has been submitted for examination with the authority and approval as the university supervisor.

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DEDICATION

I dedicate this project to my lovely wife Martha and our children Jade, Joy and Leo for their love, support and encouragement.

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ABBREVIATIONS

CAPM	-	Capital Asset Pricing Model
EMH	-	Efficient Market Hypothesis
NSE	-	Nairobi Securities Exchange
NSE 20	-	Nairobi Securities Exchange 20 share Index
NASI	-	Nairobi All Share Index

ABSTRACT

The use of valuation ratios as determinants of stock returns is widely being acknowledged. Seminal works present evidence of a return advantage on stocks with high earnings yield, book to market and dividend yield ratios. The objective of the study was to asses the the effect of the earnings yield ratio on the stock returns of companies listed at Nairobi Securities Exchange. It also aimed at reviewing the increasing body of theoretical and empirical studies that have endeavored to examine the range of magnitude and effects of predictability of stock returns using financial ratios. The study employed a causal research design. The target population was all the 65 firms listed at the NSE, the sample was represented by thirty firms listed at the Nairobi Security Exchange which had already listed at 2016 and was still listed at the end of 2019 and had issued dividends for at least three years of the study period. Secondary sources of data were employed. The unit period of analysis was annual, and data was collected for the period from 2016 to 2019. The period comprised of four years. The study applied correlation analysis and multiple linear regression equation with the technique of estimation being Ordinary Least Squares (OLS) so as to establish the the predictability of stock returns using financial ratios. The study findings were that only firm size is significantly correlated at the 5% significance level to stock returns. It has a negative association with stock returns. Further findings were that the model consisting of valuation ratios and the control variable, firm size, in unison influence stock returns and they can be utilized to significantly predict stock returns. Final findings were that only dividend yield and firms size had a statistically significant relationship with stock returns. Dividend yield has a significant positive effect on the stock returns while firm size has a significant negative effect. The study conclusion is that the Nairobi Securities Exchange is weak form efficient. Recommendations are that the Capital Markets Authority (CMA) can establish that the NSE is weak form efficient and focus on establishing the semi strong and strong form market efficiency. Further recommendations are that individual and institutional, and fund managers should focus making their investment decisions based on firm fundamentals and current public information because it has already been established that the NSE is weak form efficient. It is also recommended that firms trading in the NSE should strive to improve their fundamentals in order to enhance their market values because past information is already incorporated in the share prices.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Use of valuation ratios as determinants of stock returns is widely being acknowledged. Seminal works present evidence of a return advantage on stocks having high earnings yield, dividend yield, and price earnings ratios (Shanken & Kothari, 1997). Company's stock price is considered to be undervalued and would generate higher returns if equity book value exceeds market value. A higher book value indicates that company would fetch more if it's liquidated compared to the current market assessment. Lastly, in as much as investors are attracted to stocks that pay high dividends; a compromise little is retained to grow the company. A high-profit payout jeopardises the returns an investor receives through capital appreciation (Brealey, Myers & Allen, 2006).

The research was established on the "efficient market hypothesis", "the random walk theory" and the "capital asset pricing model". Roberts (1967) and Fama (1970) established the hypothesis of efficient markets. The hypothesis argues that it is impossible to make abnormal returns because share prices depict available and relevant info. An efficient market has many profit-seekers engaging in active competition and trying to predict stock prices with freely available and accessible information (Fama, 1965). It follows the random walk theory, which argues stock costs move in a haphazard manner and it is difficult to use historical price patterns to predict forthcoming costs. The capital asset pricing model provides a theoretic outline for pricing of risky resources (Bollerslev, Engle & Wooldridge, 1988). It introduces a risk premium to woo non-risk takers to take risk by determining the appropriate return they would require to reimburse for the additional risk taken.

Different markets however exhibit mixed evidences with the reason being the status of the stock market as indicated by Konjin, Kraussl & Lucas (2011). Aono & Iwaisako (2011) make a comparison of the estimation ability of the valuation ratios on the US and Japan stock exchanges and finds a discrepancy in the ability to predict. It is weaker in Japan than in the US markets. Over the past five years the National Securities Exchange share index of 20 together with Nairobi all share index (NASI) have delivered average returns of -9% and 2.24% respectively. The highest returns realised during the same period was in 2017 where the indices posted gains of 17.59% and 30.39% for NSE 20 and NASI respectively. Performance of specific counters has however outperformed the index benchmarks in both 2017 and 2018. This study therefore sought to ascertain the strength of the earnings yield to forecast returns of stock at the Nairobi Securities Exchange (NSE).

1.1.1 Earnings Yield

Earnings yield according to Abraham (2017) denotes ratio of net income to price. In addition, earning yield is defined as the reciprocal of the ratio of price-earnings. Essentially, earnings yield is the percentage of changes in the stock value that is relatable to changes in company profitability. As per David and Randall (1997) earning yield is the capacity of organizations to earn profits from the sale of possessions together with services. Intuitively, the terminology could also mean the key capacity to prosper in using assets to generate a variety of product which attract a developing clientele base. Based on value creation, earning yield is a true measure of business performance. This measure separates earnings yield from other market-related indicators based on headlines, unreasonable hopes and analyst hype, combined with herd hysteria (David & Randall, 1997).

Earnings yield from a business perspective increases the accuracy of performance measurement over earnings, that might be influenced using earnings administration. Executives maybe assessed on the grounds of earnings, so that they may delay necessary funds in teaching together with improving equipment to demonstration higher earnings. On the other hand, earnings yield links earning to price to reflect earnings inflation when the stock prices are reduced along with negative effects on returns on equity and return on assets. According to Abraham, Harris and Auerbach (2017), earnings returns warrant deliberation as a distinct entity, as earnings have high volatility in comparison to dividends, such that the change in stock returns exceeds that of dividends.

Earnings yield as per Abraham (2017) is Earnings per Share (EPS) over the stock price (E/P). It is the reciprocal of the P/E ratio. Therefore, Earnings Yield = EPS / Price = 1 / (P/E Ratio), stated as a percentage. The earnings yield helps investors directly understand if the return is commensurate with the investment risk. The yield is a good Return on Investment (ROI) metric and can be used to measure a stocks rate of return (David & Randall, 1997).

1.1.2 Stock Returns

Stock return according to Mugambi and Okech (2016) is the gain or loss of the value of a share in a given time typically cited as a percentage. It entails capital gains together with any income gained by the shareholder from the stock as per Mun, Siong and Thing (2008) stock market return is a measure applied in quantifying profits from a savings throughout a stint of possession of stocks. Normally it can be capital gains or dividends earned in the stock marketplace by the shareholder. Stock return as per Jordan and Fischer (2002) is the driving force plus the key prize in the investment procedure. Investors apply stock return to relate the substitute investments choices that the can embarked on. The authors submit that there are

two aspects to the return, which are the basic component of the periodic cash receipts for investment, or dividends along with the change for money invested, i.e. capital gain or loss.

Stock returns indicate the effectiveness together with efficiency the marketplace and shares of equity allocation to investors as well as availability of market information (Taofik & Omosola, 2013). When the output of the stock is high, it means that there is a better productivity that translates a higher growth rate of every firm in this business and vice versa (Aliyu, 2011). Consequently, doubt of output from stock market, helps aggregating economy as an unstable development tendency in an economy therefore difficult to finance together with consume as per Erdugan (2012).

The commonly used measure of stock performance is the Stock market indexing. This measure of stock market performance can be market size, stock liquidity, and the capability of financiers to purchase together with sell securities at ease. The rest can be All Share Index; that imitate market conditions as well as its stability, turnover ratio, and market liquidity mirrors the presentation together with the condition of the stock market, as well as degree of the cost of production as per Daferighe and Sunday (2012). Stock returns is typically calculated in Kenya by NSE 20 share index since the index is generally the benchmark in establishing stock marketplace presentation (Mugambi & Okech, 2016). However, since the returns of the individual stocks is going to be done in this study, the formulae will entail the increase in the price together with any dividends paid, divided by the novel price of the marketplace stock (Taofik & Omosola, 2013).

1.1.3 Earnings Yield and Stock Returns

Fama & French (1988) documents stock returns could be projected using dividend yield. As per Pontiff & Schall (1998) also indicate ratio of book to market can be used estimate stock returns. Lewellen (2004) extends research for predicting stock returns to the three-predictor variables (book-market, earnings, and dividend yields) then finds they can predict forthcoming stock returns.

Earnings yield metric focuses on growth in earnings instead of the growth in dividends because earnings better reflect the cash flow potential of a company than short term dividends. Ibrahim and Nor (2011) indicates that the changes in ratio of price to earnings is largely attributed to expected growth earnings, dividend per share and dividend pay-out policies. The foundations on projecting ability of ratio of price earnings on stock returns has been laid down by the empirical literature with the argument being that it exhibits independent forecasting ability for excessive stock returns apart from the dividend yield (Ibrahim & Nor, 2011).

There are standard features captured in these ratios that give them an upper hand in prediction of stock returns in that prices of stock are high when the projected returns are low thus giving a measure of the price relative to fundamentals. When stock prices are high, the ratios are also on their lows indicating overpricing and thus forecast low forthcoming returns since costs return to basics as per mispricing concept. They also check time variations in interest rates in that the ratios are usually low when the discount tariffs are high thus able to foretell returns since they seizure info regarding premium risk according to the rational-pricing concept. They also share same time-series attributes, for instance, at a once-a-month rate,

they possess close autocorrelations, and majority of their movements are due to price changes in the denominator (Lewellen, 2004).

In successive studies, Rogers (1988) and Cheung, Leung, and Wong (1994) witnessed greater stock earnings for small, high earnings yield collections on the American Stock Exchange together with Korean Stock Exchanges, in that order. Barton, Hansen, and Pownall (2010), Hjalmarsson (2010), and Jaffe, Keim, and Westerfield (1989) established that earnings yield was related with stock returns plus added to its unsolved variance. Barton, Hansen, and Pownall (2010) established that the capability to predict the coming period's cash flows and to take advantage of on adverse news found in cash flows in an opportune manner, predicted earnings. Thus, earnings are useful in giving expectations of forthcoming cash flows that harbour such news. Ang and Bekaert (2007) prolonged these findings to time periods up to five years, results that earnings yield meaningfully foretold upcoming cash flows in the 1-year together with the 5-year time periods for US data for a time period from 1935-200 using data from the United States, United Kingdom, France together with Germany. Based on the theoretical background and evidence of similar studies done globally and at the NSE; the research expected to discover that the ratios have the capability to predict stock returns both individually and collectively at the NSE.

1.1.4 Nairobi Securities Exchange

In the year 1954, the Nairobi Securities Exchange (NSE) was founded by stockbrokerS as a voluntary association and was given the responsibilities to regulate the trading activities and also develop the securities market. It has developed to be one of the leading African Exchanges and more even it acts as an iconic trading facility not only to local investors but also international investors who aims of gaining entrance to the economic growth of Kenya

and Africa at large. It deals with both variable and fixed income securities and has 64 listed companies, an Income Real Estate Investment Trust (I-REIT), an Exchange Traded Fund (ETF) and a futures derivatives market (CMA, 2016).

The exchange plays an important part in the Kenyan economy through promoting savings and investments and also assisting both local and foreign companies obtain cost effective capital. NSE was the founding associate of the both the African Securities Exchanges together with the East Africa Exchanges Association. The NSE is also a partner in the United-nation led sustainable stock exchange initiative and more so a member of Association of Future markets. The Capital Market Authority regulates the NSE.

There exists an extra return averaging 0.5% per month on portfolio as per the book to market ratio and 2.34% on portfolio based on earnings yield (Thuku, 2009). The value premium at the NSE is driven by large-cap firms, which register a value premium in excess of small-cap firms. The large companies deliver a return premium. It is however vital to recognize that at NSE the large companies are the most liquid hence attracting foreign and other investors who increase the companies' trading activity. Safaricom for instance controls over 40% of the total market capitalization at the Nairobi Securities Exchange hence could influence overall findings. The capability of the earnings yield to predict returns however remains consistent (Ngacha, 2009).

1.2 Research Problem

Traditionally value investing was the norm whereby expected stock returns were solely based on intrinsic valuation and a dividend expectation. Recently, more risk factors have been examined to supplement CAPM, for instance those factored in as per Fama and French (1992,

2012) three and five-factor models respectively. Determination of whether the valuation ratios incorporated in this study can predict stock returns can help aid investors accurately select stocks that will consistently generate higher returns overtime.

Over the past five years the NSE 20 and Nairobi all share index (NASI) have delivered average returns of -9% and 2.24% respectively. The highest returns realised during the same period was in 2017 where the indices posted gains of 17.59% and 30.39% for NSE 20 and NASI respectively. Performance of specific counters has however outperformed the index benchmarks in both 2017 and 2018 thus giving rise to the question on whether more comprehensive stock selection methods can be validated through expected return prediction (Ngacha, 2009). For instance, Equity, KCB and Safaricom returned 32.5%, 49% and 39.69% respectively for the year 2017 and -0.12%, -0.12% and -0.17% respectively in 2018 outperforming the indices in both years. This study therefore seeks to analyse whether such returns could be predicted in advance by the earnings yield at the NSE (Thuku, 2009).

Several researches have been undertaken in advanced economies' stock markets, including Penman (1989); Larcker (1992); Thiagarajan (1993), Banz (1980), Rosenberg et al. (1985). They have all established a strong stock return predictive power by the earnings yield, and by extension, dividend yield, and price earnings ratios. Studies on the same have, however, remained scanty in emerging and developing economies. The few also exhibit mixed evidence with the significant reason being the status of the stock markets as indicated by Konjin, Kraussl & Lucas (2011).

At the NSE, studies have been carried out, touching on influence of valuation ratios on share price movement and overall stock returns. Chelang'at (2017) examines "the evidence of the

predictive power of the book-to-market ratio" and observes that the portfolio for institutions having low ratio of book-to-market made significantly greater returns than for organizations with higher book to market ratios. Githinji (2011) examines "the relationship between price to earnings ratio and share prices at the NSE". He concludes that neither the P/E nor the price-earnings growth (PEG) ratios significantly influence share price performance. On the contrary, Osano (2010) studied the predictive ability of P/E together with P/B ratios to decide impending stock return. He finds that firms with low P/E together with P/B ratios perform meaningfully better than firms with high P/E and P/B ratios. Regarding effect of dividend yield on stock returns, Munyua (2014) finds a strong positive association amongst dividends paid and share values. He concludes by stating share prices are influenced by dividends paid out.

This research is thus meant to establish whether the earnings yield ratio can be used to validate an equity selection method that will enable investors consistently achieve higher returns compared to the benchmarks. It is also meant to add to the existing local research base in this area and to give a wide variation of investment information at the NSE. The study intends to address research question; what is the effect of the earnings yield ratio on the stock returns of companies listed at Nairobi Securities Exchange?

1.3 Research Objectives

The objectives of this research were;

i. To establish the effect of the earnings yield ratio on the stock returns of companies listed at Nairobi Securities Exchange.
ii. To ascertain the relationship between the dividend yield ratio and stock returns of companies listed at Nairobi Securities Exchange.

iii. To investigate the effect of the price to earnings ratio on the stock returns of companies listed at Nairobi Securities Exchange.

iv. To determine the effect of firm size on the stock returns of companies listed at Nairobi Securities Exchange.

1.4 Value of the Study

Factors that influence stock returns are of great significance to stock market stakeholders, government via the industry regulator, investors and scholars. Theoretically, this research is meant to add information to prevailing research and would assist stock selection and optimal portfolio construction. To the researchers and academicians: the study will provide a useful basis that future research on the factors that affect the stock returns. This study will advance not only researcher's knowledge of the factors, but also the stakeholders' hence gaining experience to the industry as a whole. The study findings will be used as referral by later scholars keen in research on the factors that affect the stock returns on regulated stock capital markets.

To officials and policy makers, this study will provide grounds for outlining strategies to boost the performance of the regulated capital markets as well strategies of controlling shocks to the financial system and shielding the sector from economic crises while recommending measures to counter those threats. The findings will assist the regime in strategy formulation concerning financial deepening and enhancing capital markets.

Empirical literature has evidenced that ability to envisage stock returns has significant economic advantages. It guides in creating policies needed to attract both foreign and local investor's hence increasing the market activity by attracting new and existing capital flows. It

also helps deepen financial markets as it gives invaluable information about the capital markets. Other benefits to the study include; Investment advisors in share advisory services; fund managers in portfolio construction and management; individual investors in making their investment decisions; academicians to further research and add to the body of information.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The section entails appropriate literature relatable to the study. It entails theories that underpin the research. It also includes a description of bank specific factors influencing commercial banks profitability and literature interrelated to the factors. It focuses on assessing the extent to which earnings yield influence the returns of stocks listed at the NSE. This chapter also illustrates the conceptual framework, and also contains the summary and information gaps recognized.

2.2 Theoretical Background

A theory is created to identify, elaborate, and comprehend certain phenomenon and in other instances, to challenge the present knowledge on this within the brackets of present bounding assumptions. A theory entails many concepts brought together and existing approaches used for a particular study. The theories utilized in this study are the Efficient Market Hypothesis (EMH), the random walk hypothesis, the Capital Asset Pricing Model (CAPM).

2.2.1 The Efficient Market Hypothesis

"Efficient Market Hypothesis" (EMH) was propagated classically by Roberts (1967) and Fama (1970). They argued share prices show all the obtainable and relevant info hence always fairly priced, no investor can earn abnormal returns in the marketplaces minus captivating on added risks (Malkiel, 2003). This theory makes an assumption that the markets are rational and that there is no single irrational participant. Fama (1970) categorizes the forms of market efficiency into three; strong, semi-strong and weak form efficiencies. The weak form market efficiency denotes info on stock costs and volume figures are all showed in the current stock costs. "Semi-strong" form incorporates openly existing info into security

prices in addition to the information on costs and volume figures. “Strong form” market efficiency incorporates private information in the stock prices; thus, an investor cannot as well use private information to earn abnormal returns. More recently however, a new breed of economists has come to consider prices of stock are to some degree probable established on historical stock price arrays and necessary valuation parameters.

The opponents of “efficient market hypothesis” further argue psychological, behavioural, and additional factors such as size and time of the year have been explained to influence movement of stock values. Kahneman and Tversky (1973) published several studies in this field with most of the works focusing on various psychological concepts relating to behaviour in finance. They introduced the availability of cognitive biases and heuristics, which affects people to engage in conduct, which is irrational and unanticipated. Thaler (1980) followed on the prospect theory as done by Kahneman and Tversky (1973) and argued being situations in which customers act in an inconsistent manner with economic theory. Thaler (1980) realized that psychological theory rather than conventional economics could help account for the irrationality. Several instances in recent financial markets history show proof stock prices could not be set by balanced stock market behaviour but rather out of psychological considerations. An example is the “stock market crash of October 1987” and the “internet bubble of the late 90s and early 2000s”.

This theory will be relevant for the current study, as it will enable the researcher to know how the security prices guarantee investments in the market. It will also give the researcher precise information of the type of the market whether in any of the three forms and the various price security associated with them**.** In a weak-form capital market, share prices

should reflect the past information. Thus, investors should not utilize earnings yield, which entails past information, to predict the stock returns.

2.2.2 Random Walk Hypothesis

According to this theory which was proposed by Malkiel (1973), stock prices shift in a random manner, making it hard to predict their patterns. The argument is built on the foundation that efficient markets exist and that the key world exchanges are good indicators of such. It considers technical and fundamental analysts undependable since technicians purchase or sell securities after an established trend. Fundamental analysts are also prone to imperfect quality information and its ability to be misinterpreted. Opponents of the theory argue that stocks maintain historical price patterns and that it is possible to carefully select equity entry and exit points through price patterns.

Malkiel (2003) reviews some of the patterns that can be used to predict returns as proposed by the researches on norms of stock values. They include momentum movement, and under reaction or excessive reaction to new information, periodic and day of week patterns, long-run return reverses plus the prediction ability of valuation parameters. Mwilu (2012) investigated whether behaviour of stock prices at NSE follows random walk model in the period 2008 to 2011. The study findings indicate that the prices do not follow random patterns hence implying stock prices can be forecast at the NSE. Though there exist irregularities not addressed by efficient market hypothesis, Fama (1998) argues that the theory still remains the best model for predicting economies. He further notes that the irregularities seen by the critiques of efficient market hypothesis are short-lived events, which are eventually corrected in the long haul. Research on market efficiency reveals many elements of behavioural finance are in contradiction with one another and that behavioural

finance may itself be a combination of anomalies, all of which could be demonstrated by market efficiency (Fama, 1998).

This theory will be relevant for the current study, as it will enable the researcher to know how the security prices guarantee investments in the market. It will also give the researcher precise information of the type of the market whether in any of the three forms and the various price security associated with them**.** Since stock prices shift in a random manner, making it hard to predict their patterns, thus investors should not utilize earnings yield to predict the stock returns.

2.2.3 Capital Asset Pricing Model

This model was advanced by Treynor (1961), Sharpe (1964), Mossin (1965) and Lintner (1966), as a build-up to Harry Markowitz's modern portfolio theory. It is a theoretical model that is used to ascertain the rate of return required to entice a risk averse investor to take on a risky asset. CAPM is extensively applied across finance for valuing risky securities and obtaining expected returns for securities given their risk and the minimum required rate of return to investors.

Several distinct factors are documented having a strong predicting power on stock returns as beta has minor power in some markets. Some of the most known factors include the size of firm, book to market and earnings-price (E/P) ratio (Banz, 1981). Returns delivered by portfolios of large company stocks are less than those delivered by small firm portfolios and this quite differs from those predicted by the CAPM model, Reinganum (1981). Jegadeesh (1992), argues that the cross sectional differences on median returns if portfolios are designed such like there are small associations amongst beta and size of firm is not explained by the

changes in pricing of stock with respect to overall marketplace movements. The market return outperformance tendencies were explained by Fama & French (1992) when he expanded the CAPM model to include the marketplace threat, outpresentation of small organizations versus big organization together with outperformance of high book versus low book organizations to marketplace organizations in what he referred as three factor model. More recent studies such as French & Fama (2012) five factor model sought to formulate additional reliable asset pricing models by totalling risk aspects other than the factor of market risk. Practically, market anomalies exist; this study, however, echoes Fama (1998) sentiments that prices are more often higher or lower than their fair values relative to what can be depicted by the business fundamentals. They, however, tend to converge at some point hence enabling investors to capitalize on the deviations.

This theory will be relevant for the current study, as it will enable the researcher to know how the security prices guarantee investments in the market. It will also give the researcher precise information of the type of the market whether in any of the three forms and the various price security associated with them**.** Although stock returns in the CAPM framework, are a function of risk that discounts the market premium entailing the variance amongst the marketplace rate of return together with the risk free rate of return, earnings yield can be an alternative predicting tool on stock returns, given that the beta has minor power predictive power in some markets.

2.3 Determinants of Stock Returns

This section elaborates on how earnings yield, and other stock valuation ratios that entail dividend yield and price earnings ratio impact on stock returns of companies listed at the NSE. Firm size will be an additional control variable included in the study.

2.3.1 Earnings Yield

Earnings yield according to Abraham (2017) denotes ratio of net income to price. In addition, earning yield is defined as the reciprocal of the ratio of price-earnings. Essentially, earnings yield is the percentage of changes in the stock value that is relatable to changes in company profitability. As per David and Randall (1997) earning yield is the capacity of organizations to earn profits from the sale of possessions together with services. Intuitively, the terminology could also mean the key capacity to prosper in using assets to generate a variety of product which attract a developing clientele base. Base on value creation earning yield is a true measure of business performance. This measure separates earnings yield from other market-related indicators based on headlines, unreasonable hopes and analyst hype, combined with herd hysteria (David & Randall, 1997).

In successive studies, Rogers (1988) and Cheung, Leung, and Wong (1994) witnessed greater stock earnings for small, high earnings yield collections on the American Stock Exchange together with Korean Stock Exchanges, in that order. Barton, Hansen, and Pownall (2010), Hjalmarsson (2010), and Jaffe, Keim, and Westerfield (1989) established that earnings yield was related with stock returns plus added to its unsolved variance. Barton, Hansen, and Pownall (2010) established that the capability to predict the coming period's cash flows and to take advantage of on adverse news found in cash flows in an opportune manner, predicted earnings. As a result, earnings are useful in giving expectations of the future cash flows that hold such news. Ang and Bekaert (2007) have expanded these results to time periods of up to five years, with the result that earnings yield substantially forecasted incoming cash flows in the first year along with 5-year time periods for US data in the 1935-200 period, utilizing data from the United States, United Kingdom, France and Germany.

2.3.2 Dividend Yield

Dividend yield is the expected dividend or a stock investment return. If the dividend is not increased or reduced, the yield will increase as the value of the stock declines. Conversely, this will reduce as the stock price rises. According to Maina (2000), since dividend yields adjust relative to the stock price, it can all too often appear to be unusually high for stocks that are rapidly falling in value. Upcoming companies that are relatively small and yet rapidly growing may pay a lower average dividend compared to established companies within the same industry. Simply put, mature companies that do not develop very rapidly pay the highest dividend yields. Customer non-cyclical stocks that sell staple products or services are illustrations of the entire sector paying the highest average yield (Zhou & Ruland, 2006; Pandey, 2004). Dividend yield is calculated as the ratio of dividends issued out in a certain period and the share price (Botha, 1985).

EPS has a significant impact on Stock Prices. Moreover, Dividend Yield (DY) is positively related to stock prices. Investors require dividends as it provides bearing about the future prospects of the company (Kanwal et al., (2011). Paying dividends lowers the risk to firms and therefore affects the stock price. In addition, dividend yields and payout ratios are used as indicators for the level of expected growth opportunities (Bitok, 2004). However, there are a variety of reasons why companies pay dividends and the dividend payment greatly impact the share price of the company in question. Several reasons can cause a high dividend yield to post low returns. One is the lack of opportunities for investment that offers sufficient returns. In short, the cash position of a company is essential for the timing of dividends (Karanja, 1987).

2.3.3 Price Earnings Ratio

Solomon and Pringle (1978) consider that the price earnings (P/E) ratio is typically the most commonly used primary measure on the stock market. The P/E ratio is the current stock price divided by the organization's trailing 12-month earnings per share from uninterrupted activities. The P/E ratio of a company, which compares the price of the company's stock with its 12-month earnings per share, is computed by dividing the two parameters. There are various versions of the P/E ratio, depending on whether the earnings are expected or known, along with the form of earnings. Trailing P/E uses net income over the last 12 months, divided by the weighted average number of common shares issued during the duration. Forward P/E applies the estimated net earnings for the subsequent twelve months. Through comparing the price and EPS for a company, it is possible to measure the value of a company's stock market and its securities in relation to the income that the organization actually produces.

There is an inherent association amongst stock prices together with the P/E ratios (Hammel & Hodes, 1967). As per Bower and Bower (1969), higher P/E yields higher earnings growth along with prices and lower P/E yields similarly low earnings growth and also lower price growth and higher price volatility. According to Basu (1977), who was the leading researcher to carry out systematic value research in accordance with the growth of stock investment approaches. The study found that the return on an annual holding period of a low PE portfolio was higher in comparison to a high PE portfolio throughout the period from August 1956 to September 1971.

As per Shen (2000) who investigated the historical association amongst price-earnings ratios and following stock market presentation, established a strong historical evidence that high

price-earnings ratios have been accompanied by unsatisfactory stock market presentation in the short together with long term. Specifically, high price-to-earnings ratios have been characterized by slow long-term stock price growth. Furthermore, if high price-to-earn ratios decreased stock returns compared to other investment returns, short-term stock market performance also suffered. However, notwithstanding this evidence, the report found that it is not possible to disregard the likelihood that these historical associations are of slight significance today because of the major changes in the economy.

2.3.4 Firm Size

Firm size is the scale of a business entity's operations (Ehikioya, 2009). There are mainly three company size measures which are; total assets, sales together with market value of equity. According to Guest (2008), the named measures are the more prevalent organization size proxies in empirical business fiscal study. Some characteristics of a firm, for instance, leverage and firm size are related with firm value (Dogan, 2013). Amongst other attributes of a firm, Firm size is the one that is constantly perceived as related to firm value. Large firms are normally considered to have the capability of exploiting both the economies of scale and scope, ability to diversify and more so being greatly formalized in aspect of procedures. Because big firms have a larger capital resource compared to small firms, they can always grasp any profitable opportunity that may arise.

From another point of view, bigger firms due to their bigger firm size incline to have organizational rigidity and therefore there are many bureaucratic hindrances that unnecessary, which may lead to loss of profitable opportunities that required more urgent attention and this can make large firm to be less profitable compared to small ones with simple decision making and this can adversely affect the large firms performance negatively (Goddard et al.,

2005; Banchuenvijit, 2012). According to these arguments, firm size is anticipated to be a significant predictor for firm value. However, the connection amongst firm size and performance has varying evidence. For instance, Amran and Ahmad (2009), Coleman and Biekpe (2006), and Hossain et al (2001), established an inverse association amongst firm size and performance. On the contrary, Haniffa and Hudaib (2006), Ehikioya (2009) and Guest (2008), revealed a positive association amongst the firm size and company performance. Belkhir (2009) and Ehikioya (2009) measure firm size by using natural logarithm of over-all properties.

2.4 Empirical Studies

Globally, stock selection decisions are to some extent guided by valuation ratios of price-earnings together with price to book (Penman et al. 2005). As such, diversified literature exists in this area touching on different aspects of the valuation ratios and their correlation to stock returns. Even though study concentration was initially in the US and other advanced markets, several studies have been replicated in different markets and the outcomes are diverse. On a broader perspective, capability of valuation parameters in predicting stock marketplace returns differs across markets.

In the global scene, Hjalmarsson (2010) tested the propensity in predicting stock returns in industrialized and evolving economies using the dividend yield, interest tariffs, earning yield and period spread. Monthly observations were made from 40 international markets involving 16 emerging and 24 developed economies. The short interest tariffs and period range appeared to be justly vigorous forecasts of stock returns in the industrialised marketplaces. However, no reliable and consistent evidence of predictability was established when considering the earnings yield together with dividend yield ratios. The study conducted using

pooled data, which could have partly contributed to the outcome on earnings and dividend yield ratios. It is apparent that different markets exhibit diverse characteristics due to the level of regulation and activity hence pooling data together could lead to an outcome that does not give a true reflection of the different markets as depicted in the following studies.

Banz (1980) established that small businesses' stocks exhibit greater threat -adjusted returns related to common stocks of huge ones in what was denoted as size influence. The research was grounded on the empirical association amongst returns together with total market value of stocks quoted at NYSE for the period 1926-1975 using once-a-month price and return information and amount of shares due by end of every month. Rosenberg et al. (1985) establishes association amongst stock returns together with book value to market value of common equity (BE/ME) using 1,400 of the largest US companies from the NYSE in the period 1973-1984. He also finds a positive association amongst stock returns and BE/ME. Stocks with greater value of BE/ME earned a higher yield than those stocks with a lower value of BE/ME in what was termed as the value effect. In some instances, however the practical outcome could be contrary depending on the type of Assets held in the company balance sheet, some Assets asset values as reported in the financial statements are hardly realisable on liquidation. Investors thus can discount the higher BE/ME ratio.

Fama and French (1988) examined the influence of dividend yield on stock returns applied dividend return to predict yields on "value and equal-weighted portfolios of the New York Stock Exchange (NYSE) stocks for return horizons from one to four years over the period 1927-1986". Using regression, returns on dividend yield disclose time discrepancy in anticipated returns financial records for minor fractions of variances of short-horizon yields. Dividends yields state less than 5% of variances of once-a-month or trimestral yields and

more than 25% of variance two – four year returns". In conclusion predictive power of dividend yield (DY) is used to determine stock yields and ability of dividend yield to forecast stock revenues as denoted by r squared rises with yield horizon which could be attributed to the fact that the earning ability of a company and its ability to distribute more dividends increases with time. The greater the dividend yield, the greater stock returns expected.

Lewellen (2004) also used dividend and earning yields together with book to market ratio in research prediction of returns at the New York Stock Exchange with short horizon tests for the period 1946 and 2000. The ratios predicted returns during the period 1963-2000. Evidence provided further shows dividend yield has a stronger projecting ability related to earnings yield and ratio of book to market. Earnings yield represents how much the company generates per shilling invested which is not necessarily what the investor receives as earnings distribution hence explaining the lower predictive ability when compared to the dividend yield.

Chan, Hamao and Lakonishok (1991) examined cross-sectional variances in stock returns in the Japanese markets. He finds probable returns are greatly affected by price-earnings, the dividend yield, book-market together with firm size. An indirect relationship is however noted amongst earnings yield stock returns. In contrast firm size and earnings yield; book to market together with dividend yield are meaningfully linked to stock returns. The survey was conducted on data collected in the period 1971-1988, including manufacturing and non-manufacturing companies. The strength of predicting power on the Japanese markets is, however, weaker than that on the US markets. Aono & Iwaisako (2011) compared the predicting power of the valuation ratios in the Japan and US markets and found that the predicting power in Japan was weaker than in the US then confirm it. This alludes to the fact

the markets are at different status levels hence cannot yield the same outcomes when it comes to stock return prediction.

Other than the advanced markets, studies on the same have also been replicated in emerging and developing markets revealing diverse outcomes. Kheradyar, Ibrahim & Nor (2011) used the dividend and earnings yields and ration of book-to-market to study role of named ratios used in predicting stock returns in hundred listed companies in Malaysia from 2000-2009". The results reveal there is power to forecast stock returns and that predictive power of B/M ratio is more significant than dividend return plus earnings yield. Similarly, valuation ratios can increase predictability if combined in "multiple predictive regression model".

Lau, Lee & Mcinish (2002) also investigated influence of valuation ratios on stock returns of 163 organizations quoted on the Malaysia Stock Exchange and 82 institutions quoted at Singapore stock exchange throughout 1988 to 1996 and established Malaysian firms' price earnings ratios predicted much on stock returns. Power of book-market ratio to forecast was however found to be weaker. The findings for firms in Singapore showed both earnings to price and book to market ratios were insignificant in forecasting marketplace stock returns. Power of book to market to forecast stock returns depends on specific company an investor is looking at and how the Asset values as reported in the financial statements can be realised on liquidation.

Fun and Basana (2012) explored capability of P/E ratio to predicting stock returns in Indonesian stock market during the period 2005-2010. Findings indicated high P/E stocks' returns differed with low P/E returns in short term for example a holding period of six months. However, there was no significant difference amongst both portfolio stock returns

once held for a period of more than one year. The survey also establishes the association between stock return and (trailing) P/E ratio is insignificant hence suggesting that the ratio is insignificant in estimating long and short term returns. P/E ratio displays investor pays for each shilling earned and focuses more on the future earnings potential rather than current earnings. A lower ratio can thus fail to explain expected stock returns because the investor has discounted the future earnings potential of the company. Wijaya (2015) extended the predictor variables to return on Assets, earnings yield, book- market ratios together with dividend yield then noted that all determinants significantly explained expected stock returns.

Khan, Gul, Rehman, Razzaq & Kamran (2012) examined stock returns predictability using earnings and dividend yields ratios and ration of book to market. Findings of this survey indicate a positive relationship amongst stock return and dividend and earnings yield while book to market correlation is significantly negative. This research conducted on a hundred non-financial corporation's sample listed in Karachi Stock Exchange in 7 years since 2005-2011. They further note ratio of book to market had a greater predictability associated to dividend and earnings yields. Moreover, when the three ratios are combined, their ability to predict of stock returns increases thus echoing Kheradyar et al. (2011) findings were ratios can increase the predictability stock return when fused with regression model of multiple predictive in the Malaysian stock markets.

Zeytinoglu, Akarim, & Çelik (2012) sampled insurance firms quoted in Turkish Stock Exchange to explore effect of price to earnings, earnings per share, and ratio of marketplace to book on returns of present and future years. The findings indicated ability of ration of price to earnings and earnings per share ratio to predict earnings were not significant. The study only validated the market to book value ratio as an excellent forecaster of the market returns.

As stated earlier, the price earnings ratio is a factor of future earnings potential thus affected by several factors including the wider macro factors as compared to the earnings yield ratio which out rightly measures return for each shilling invested hence giving a straight forward measure of expected returns.

In the regional front, Maxwell & Kehinde (2012) explored effect of valuation ratios on stock returns in Nigerian Stock Exchange and established a linear association between the P/E and stock returns. This study was done on fifty firms during period 2001-2006. Auret & Sinclaire (2006) examined impact of valuation ratios in stock returns predictions in South Africa. Tests findings also showed book to market value ratio having a positive impact on stock returns while effect of P/E ratio was established to be irrelevant.

In the local arena, Thuku (2009) delved into the impact of size on significance of institutions quoted in Nairobi Securities Exchange. He observed return patterns of six selections grounded on size, book to market and earnings yield over period 2004 to 2008 and reported that there exists an extra return averaging 0.5% per month on portfolio as per the book to market ratio and 2.34% on portfolio based on earnings yield. The study further establishes that large-cap firms, which register a value premium in excess of small-cap firms, drive the value premium at the NSE. Ngacha (2009) who studied the performance between value and development stocks emphasizes the same. He used combination of ratios of book- market and earnings yield then his findings show that in the period 1999 to 2007, the value portfolios consistently exceeded the growth portfolios in eight of the nine years. As per the study findings, the large companies delivered a return premium through the research period. It was however vital to recognize that at NSE the large companies are the most liquid hence attracting foreign and other investors who increase the companies' trading activity. Safaricom

for instance controls over 40% of the total market capitalization at the Nairobi Securities Exchange hence could influence overall findings. The capability of the earnings yield to predict returns has however remained consistent for all the other studies.

Githinji (2011) evaluated association amongst price-earnings and share prices at NSE and established that both price earnings and price earnings growth had insignificant explanatory power on the variance in share price performance. Findings were based on data analysed over a four-year period of 2007 to 2010. Mburu (2014) who also established association amongst stock returns and P/E ratios was insignificant, exhibits similar findings. He however established positive association on stock returns with return on equity and ratio of market to book. Ratio of price to earnings is inversely to ration of earnings yield, while the earnings yield ratio directly shows how much a stockholder makes for every shilling capitalized, the price earnings ratio shows how much an investor pays for each shilling earned thus dependent on a number of factors including macro and company specific variables hence causing the contradictions on their ability to predict stock returns.

Osano (2010) evaluated the price to book and earnings as stock returns predictors at NSE and provided a test on the extent to which ratio of price to book and ration of price earnings determine expected future earnings during the period 1998 to 2002. The study focuses on those portfolios with ratios of high priced earning and price to book versus those of earnings with less rate and price to book ratios. Observable returns for subsequent years from 2003-2007 was utilized to ascertain projecting power of the two valuation multiples and the conclusions were that the low price earnings and price to book portfolios achieved significantly well than those with high ratios of price earnings and price to book. Price earnings ratio appeared to be a better returns' predictor compared to the price to book. His

findings thus contradict with the studies done by Githinji (2011) and Mburu (2014) which could also insinuate that other factors come into play when it comes to stock return prediction.

In other studies, Kihenjo (2016) studied the size effect on stock market between the time frame 2008 and 2015 and established a solid relationship with an r=0.74 between stock returns and small firms. Amended r-square of 0.964 further inferred 96.4% of total variance in market stock returns can be attributed to changes in small firm stock returns and big firm stock returns. The study establishes existence of a positive and statistically noteworthy minor firm effect at the NSE. Munyua (2014) also examined how dividend policies affect the performance of share prices between the time frame 2004 to 2013 and he established a positive connection amongst dividend per share and share prices. He established being a strong positive connexion amongst stock prices together with dividends for companies named in NSE. This also implies being other elements influencing stock returns that investors need to look at when making investment decisions.

2.5 Conceptual Framework

Rocco and Plakhotnik (2009), stipulates that a conceptual framework lays the foundation for research objectives and questions by grounding a study in the right knowledge constructs. The independent variables in the research were; earnings yield, dividend yield together with the price earnings ratio. The dependent variable will be stock returns while the control variable will be the firm size.

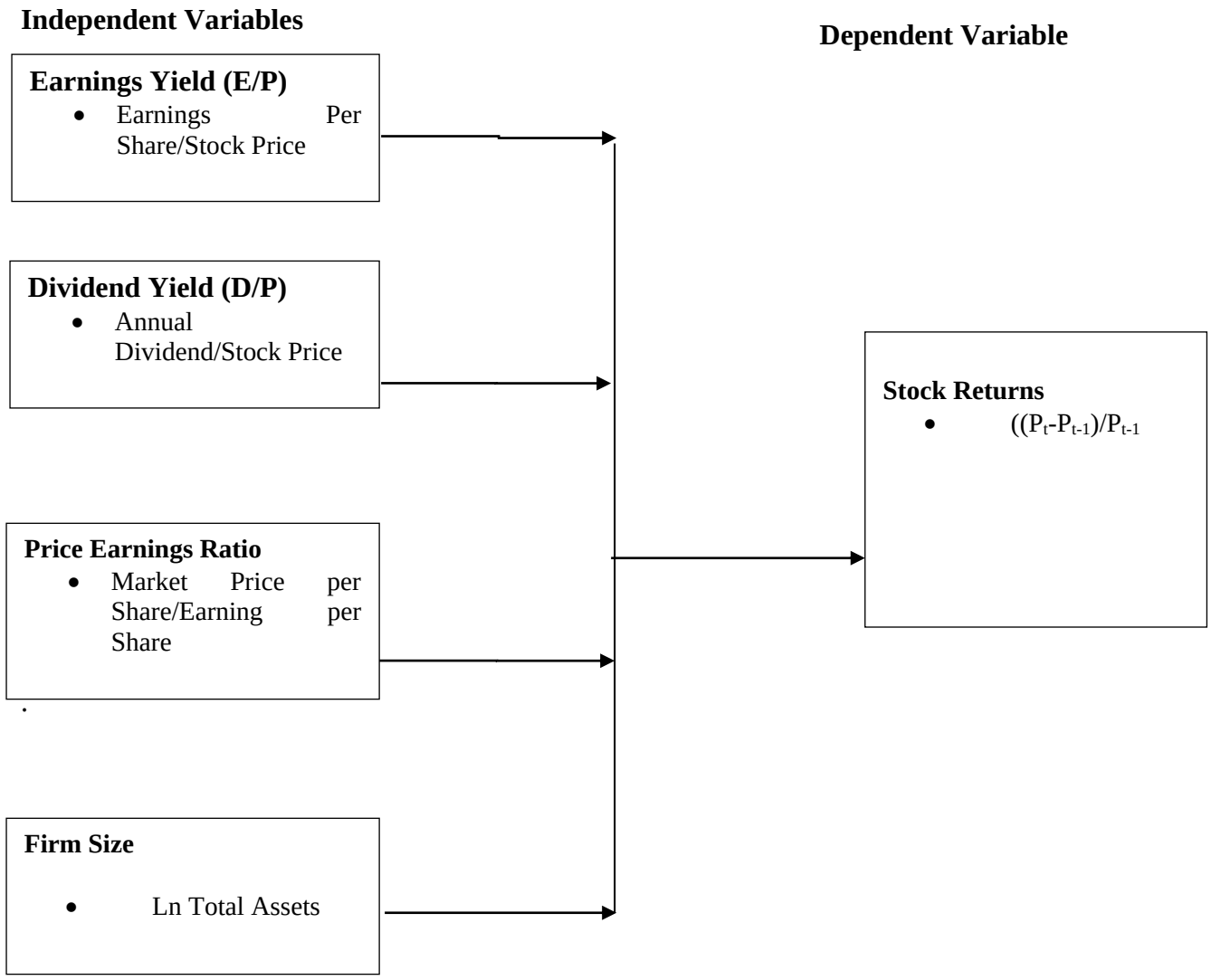

Figure 2.1: Conceptual Model

Rogers (1988) and Cheung, Leung, and Wong (1994) opined greater stock returns for small, high earnings yield selections on the American Stock Exchange together with Korean Stock Exchanges. Barton, Hansen, and Pownall (2010), Hjalmarsson (2010), and Jaffe, Keim, and Westerfield (1989) established that earnings yield is related with stock returns and backed to its unsolved variance. Dividend Yield (DY) is positively related to stock prices. Investors require dividends as it provides bearing about the future prospects of the company (Kanwal et al., (2011). However, there are varied explanations as to why organizations pay dividends together with the dividend expense directly influences the share price of the firm in question. Several reasons can cause a high dividend yield to post low returns. One of them is non-

existence of savings chances, which possibilities sufficient returns. In summary, a cmpany's cash position is the most vital deliberation of timing of dividends (Karanja, 1987). There is an inherent association amongst stock prices together with the P/E ratios (Hammel & Hodes, 1967). As per Bower and Bower (1969), higher P/E yield greater earnings development together with prices and that lower P/E equally yielded low earnings development as well as lower price growth and higher price volatility

2.6 Summary of Research Gaps

The earnings yield and the valuation ratios in focus have been proven to affect stock returns; the results have, however, not been consistent in all markets. Studies done in Kenya by Thuku (2009), Ngacha (2009), Chelengat (2017), and Osano (2010) observed ratio of price to earnings has a considerable impact on portfolio earnings in that those portfolios constructed with lower P/E ratios gotten considerable higher returns related to the high P/E portfolios. Similar studies conducted by Githinji (2011) and Mburu (2014) however contradict the above findings indicating that the ration of price earnings had insignificant descriptive authority on variance in share price performance. This implies that other factors other than the stated risk aspects could clarify variation in share price performance in a given time period. This study, therefore, is meant to affirm the effect of earnings yield, and by extension, other valuation ratios on stock returns at NSE.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In this section, the research methodology that was applied is laid out. This chapter contains several sections, which includes research design explaining the design applied, the population, data collection to explain procedure for gathering data, and the data analysis methods applied.

3.2 Research Design

This research applied a causal research design because it sought to determine the cause and effect relationship between variables. Thus, this design was utilized because it addresses the aim of research in examining the association amongst variables of the research. The study was a formal study because it employed relevant theories and literature to guide it. It was also an ex post facto study because the variables were not be manipulated but simply measured. It was a field setting with the unit of analysis being the country. This design took into account aspects like method of analysis, the variables used in the research, and data gathering methods.

3.3 Target Population

The study employed the 65 firms named in NSE on or before 31st December 2016 as the study population. This research sample was selected based on the criteria that the companies should have been listed before the study period, should not have been suspended from the Exchange for more than 1 year or delisted within the study period, and the dividend yield of the firms should also not be zero in a period exceeding 1 year.

3.4 Data Collection

This research implemented secondary information gathered from Nairobi Securities Exchange. Unit of analysis will be annual, annual stock price data will be obtained for the period from 2016 to 2019. Earnings and dividends per share, price to earnings ratio, and total assets were obtained from respective firm's financial reports at the end of each reporting period.

3.5 Data Analysis

Data collected was organized, tabulated, and simplified so as to make it easier to analyze, interpret and understand. Because panel data will be employed for the study, STATA version 13 was the statistical analysis program utilized for the study because it is able to perform panel multiple linear regression. Correlation analysis was used to show whether and how strongly changes in the valuation ratios and firm size are related to stock returns while regression analysis was employed to determine the association amongst the valuation ratios and firm size and stock returns. The quantitative reports obtained from the investigation was presented using tabulations.

The study adopted a confidence interval of 95%. The results were set to be statistically significant at the 0.05 level, which indicates that significance value should be less than 0.05. A statistical inference technique was used in making conclusions relating to the accuracy of the model in predicting the stock returns. The model significance was tested using the significance values at 95% confidence. The meaning of the association amongst every predictor variable to the response variable was determined by the significance values.

3.5.1 The Model of Analysis

The objectives of the research were attained through use of a multiple linear regression analysis, which tested whether predictor variables have any effect on financial performance. The statistical tests were conducted at 95% significance level meaning that the study allowed for an error of up to 5%. The model is illustrated as shown;

$$\mathbf{Y_{i(t+1)} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon}$$

Where:

$Y_{i(t+1)}$= Stock Returns at greater time period

α = Constant

$\beta_1 - \beta_4$ = Beta coefficients

X_{1it} = Earnings Yield

X_{2it} = Dividend Yield

X_{3it} = Price Earnings Ratio

X_{4it} = Firm Size

ϵ = error term

3.5.2 Diagnostic Tests

For the validity of regression analysis, a number of assumptions are done in conducting linear regression models. These are; no multi-collinearity, observations are sampled randomly, conditional mean ought to be zero, linear regression model is "linear in parameters", spherical mistakes: there exist homoscedasticity but no auto-correlation, and the elective assumption: error terms ought to be distributed normally. According to the Gauss-Markov

Theorem, the first 5 assumptions of the linear regression model, the regression OLS estimators, are the Best Linear Unbiased Estimators (Grewal *et al*., 2004).

The aforementioned assumptions are of great importance since when any of them is violated would mean the regression estimates will be incorrect and unreliable. Particularly, a violation would bring about incorrect signs of the regression estimates or the difference of the estimates would not be reliable, resulting to confidence intervals that are either too narrow or very wide (Gall et al., 2006).

The diagnostic tests are conducted so as to guarantee that the assumptions are met to attain the Best Linear Unbiased Estimators. Regression diagnostics assess the model assumptions and probe if there are interpretations with a great, unwarranted effect on the examination or not. Diagnostic examinations on normality, linearity, multicollinearity, and autocorrelation were done on the collected data to establish its suitability in the formulation of linear regression model. Normality was tested by the Shapiro-Francia test, which is suitable for testing distributions of Gaussian nature which have specific mean and variance. Linearity indicates a direct proportionate association amongst dependent and independent variable such that variation in independent variable is followed by a correspondent variation in dependent variable (Gall et al., 2006). Linearity was tested by determining homoscedasticy, which was determined by the Breusch-Pagan Cook-Weisberg Test for Homoscedacity.

Tests for multicollinearity of data was carried out using variance inflation factors (VIF) to determine whether the predictor variables considered in the research are significantly correlated with each other. According to Grewal *et al*. (2004) the main sources of multicollinearity are small sample sizes, low explained variable and low measure reliability

in the independent variables. Auto-correlation test was carried out through the Durbin-Watson Statistic.

Additionally, to avoid spurious regression results unit root test was carried out on the panel data. The aim of conducting unit root test is to check whether the macroeconomic variables under study are integrated of order on (1, 1) or not before estimation procedure can be proceeded into. Unit root test was conducted through the Fisher-type unit root test. The study also utilized the Hausman specification test to ascertain if the variables used in the study posses fixed influence overtime or if they have varying and random influence over time. The null hypothesis is that that the variables have a random effect and the alternate hypothesis is that the variables have a fixed effect. If the significance value is less than α (0.05), the null hypothesis will consequently rejected and if the significance value is greater than α (0.05), the null hypothesis will not be rejected.

Table 3.1: Operationalization of the Study Variables

Variable	**Measurement**
Stock Returns	Will be denoted as; $((P_t + D)-Pt_{-1})/P_{t-1}$
Earnings Yield	Will be denoted as; (Earnings Per Share/Stock Price)
Dividend Yield	Will be noted as; (Annual Dividend/Stock Price)
Price Earnings Ratio	Will be denoted as; (Market Price per Share/Earning per Share)
Bank Size	Will be denoted as the natural logarithm of average book value of entire assets of the firm during the period.

CHAPTER FOUR: DATA ANALYSIS, RESULTS, AND FINDINGS

4.1 Introduction

The section involves analysing the data, interprets the findings and discusses the results. The chapter is further categorized in four sub sections that are diagnostic tests, inferential statistics, and interpretation and the arguments regarding the outcomes. More specifically the chapter provides the summary of data presentations, analysis, interpretations, and discussions.

4.2 Response Rate

All the 65 listed firms in the NSE, whose list is provided in Appendix I, were the target population in the study. The study employed a census approach and the entire population was to be examined. However, thirty-five firms were either suspended from the Exchange for more than 2 years, delisted within the study period, did not publish their financial statements for than two financial periods, or they did not give out dividends for more than two years during the study period. Thus, 30 listed firms were utilized for this analysis.

4.3 Diagnostic Tests

Diagnostic tests that are a precursor to conducting linear regression were conducted. Diagnostic tests done in this study included; normality tests, homoscedasticity tests, multicollinearity tests, and autocorrelation tests. Normality test was carried out using the Shapiro-Francia test and the homoscedasticity test was conducted through the Breusch-Pagan Cook-Weisberg Test for Homoscedacity. Test on Multicolinearity of data was carried out using Variance Inflation Factors (VIF) while the autocorrelation test was done through the Durbin-Watson statistic. Unit root test was conducted through the Fisher-type unit root test. Additionally, the Hausman test was conducted to determine whether fixed or variable effects panel regression should be conducted.

4.3.1 Normality Test

Table 4.1 below shows the findings of the normality tests of the variables used in this study.

Table 4.1: Shapiro-Francia Test for Normality

Variable	Obs	W'	V'	z	Prob>z
Return	118	0.95283	4.923	3.184	0.00073
EY	118	0.48043	54.222	7.978	0.00001
DY	118	0.88839	11.648	4.905	0.00001
PE	118	0.57875	43.961	7.559	0.00001
FirmSize	118	0.96667	3.479	2.491	0.00638

In the test, the null hypothesis holds that the data has a normal distribution. The level of significance adopted in the study is 5%. The significance values of all the data series employed in the study are less than α (0.05), thus the null hypothesis is rejected. Hence, the data series of the variables are not normally distributed. Thus, the variables were standardized as a remedy for normalizing skewed data.

4.3.2 Homoscedacity Test

The homoscedacity tests for all the predictor variables employed in the study are enlisted in Table 4.2.

Table 4.2: Breusch-Pagan/Cook-Weisberg Test for Homoscedacity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Return
chi2(1) = 4.76
Prob > chi2 = 0.0291

The null hypothesis is that there is homoscedacity. The level of significance adopted in the study is 5%. Since the significance value is less than α (0.05), the null hypothesis is rejected. Hence, the data series of all the predictor variables are heteroscedastic. Thus, robust standard

errors', which is a technique to obtain unbiased standard errors of OLS coefficients under heteroscedasticity, was applied.

4.3.3 Test for Multicollinearity

Results on Test for Multicolinearity of data carried out using Variance Inflation Factors (VIF) are displayed in Table 4.3.

Table 4.3: VIF Multicollinearity Statistics

Variable	VIF	1/VIF
EY	5.43	0.184011
PE	4.27	0.23396
DY	1.93	0.517973
FirmSize	1.18	0.850615
Mean VIF	3.2	

The common rule in statistics is that the VIF values should be less than 10 and greater than 1. The findings indicate that the individual and mean VIF values fall below 10 and are greater than 1. Hence, there is no presence of multicollinearity amongst the predictor variables utilized in the study.

4.3.4 Tests for Autocorrelation

Test for Autocorrelation of data was carried out using the Durbin Watson statistic. The findings displayed that Durbin-Watson d-statistic (5, 118) = 2.311456. The Durbin-Watson statistic ranges from point 0 and point 4. If there exist no correlation between variables, a value of 2 is shown. If the values fall under point 0 up to a point less than 2, this is an indication of an autocorrelation and on the contrast a negative autocorrelation exist if the value falls under point more than 2 up to 4. As a common rule in statistics, value falling under the range 1.5 to 2.5 is considered relatively normal whereas values that fall out of the range raise a concern (Shenoy & Sharma, 2015). Field (2009) however, opines that values

above 3 and less than 1 are a sure reason for concern. Therefore, the data used in this panel is not serially autocorrelated since it meets this threshold.

4.3.5 Unit Root Test

The results for the unit root test conducted for the data series stock returns is displayed in Table 4.4.

Table 4.4: Unit Root Test for Stock Returns

Fisher-type unit-root test for Return			
Based on augmented Dickey-Fuller tests			
Ho: All panels contain unit roots		Number of panels =	30
Ha: At least one panel is stationary		Avg. number of periods =	3.93
AR parameter: Panel-specific		Asymptotics: T -> Infinity	
Panel means: Included			
Time trend: Not included			
Drift term: Not included		ADF regressions: 0 lags	
		Statistic	p-value
Inverse chi-squared(60)	P	431.8170	0.0000
Inverse normal	Z	-9.2731	0.0000
Inverse logit t(144)	L*	-20.4558	0.0000
Modified inv. chi-squared	Pm	33.9421	0.0000

The null hypothesis is that stock returns has a unit root and the alternate hypothesis is that the variable is stationery. Since the significance values for the P, Z, L* and Pm tests are all less than the critical value (α) at the 5% confidence level, then the null hypothesis is rejected. Thus, the panel data series is stationery.

The results for the unit root test conducted for the data series earnings yield is displayed in Table 4.5. The null hypothesis is that earnings yield has a unit root and the alternate hypothesis is that the variable is stationery. Since the significance values for the P, Z, L* and

Pm tests are all less than the critical value (α) at the 5% confidence level, then the null hypothesis is rejected. Thus, the panel data series is stationery.

Table 4.5: Unit Root Test for Earnings Yield

Fisher-type unit-root test for EY				
Based on augmented Dickey-Fuller tests				
Ho: All panels contain unit roots			Number of panels =	30
Ha: At least one panel is stationary			Avg. number of periods =	3.93
AR parameter: Panel-specific			Asymptotics: T -> Infinity	
Panel means: Included				
Time trend: Not included				
Drift term: Not included			ADF regressions: 0 lags	
		Statistic	p-value	
Inverse chi-squared(60)	P	254.7139	0.0000	
Inverse normal	Z	-4.2233	0.0000	
Inverse logit t(139)	L*	-10.7186	0.0000	
Modified inv. chi-squared	Pm	17.7749	0.0000	

The results for the unit root test conducted for the data series dividend yield is displayed in Table 4.6 below.

Table 4.6: Unit Root Test for Dividend Yield

Fisher-type unit-root test for DY				
Based on augmented Dickey-Fuller tests				
Ho: All panels contain unit roots			Number of panels =	30
Ha: At least one panel is stationary			Avg. number of periods =	3.93
AR parameter: Panel-specific			Asymptotics: T -> Infinity	
Panel means: Included				
Time trend: Not included				
Drift term: Not included			ADF regressions: 0 lags	
		Statistic	p-value	
Inverse chi-squared(60)	P	159.4726	0.0000	
Inverse normal	Z	0.0521	0.5208	
Inverse logit t(139)	L*	-3.8690	0.0001	
Modified inv. chi-squared	Pm	9.0806	0.0000	

The null hypothesis is that dividend yield has a unit root and the alternate hypothesis is that the variable is stationery. Since the significance values for the P, L* and Pm tests are all less than the critical value (α) at the 5% confidence level, then the null hypothesis is rejected. Thus, the panel data series is stationery.

The results for the unit root test conducted for the data series price to earnings is displayed in Table 4.7.

Table 4.7: Unit Root Test for Price to Earnings

Fisher-type unit-root test for PE				
Based on augmented Dickey-Fuller tests				
Ho: All panels contain unit roots			Number of panels =	30
Ha: At least one panel is stationary			Avg. number of periods =	3.93
AR parameter: Panel-specific			Asymptotics: T -> Infinity	
Panel means: Included				
Time trend: Not included				
Drift term: Not included			ADF regressions: 0 lags	
		Statistic	p-value	
Inverse chi-squared(60)	P	103.8260	0.0004	
Inverse normal	Z	1.6156	0.9469	
Inverse logit t(144)	L*	-0.4101	0.3412	
Modified inv. chi-squared	Pm	4.0008	0.0000	

The null hypothesis is that price to earnings has a unit root and the alternate hypothesis is that the variable is stationery. Even though the significance values of both the Z, L* are greater than zero, the significance values for both the P, and Pm tests are all less than the critical value (α) at the 5% confidence level. In case of conflict in the tests, the Inverse chi-squared and Modified inv. chi-squared are picked. Thus, then the null hypothesis is rejected. The panel data series is stationery.

The results for the unit root test conducted for the data series firm size is displayed in Table 4.8.

Table 4.8: Unit Root Test for Firm Size

Fisher-type unit-root test for FirmSize			
Based on augmented Dickey-Fuller tests			
Ho: All panels contain unit roots		Number of panels =	30
Ha: At least one panel is stationary		Avg. number of periods =	3.93
AR parameter: Panel-specific		Asymptotics: T -> Infinity	
Panel means: Included			
Time trend: Not included			
Drift term: Not included		ADF regressions: 0 lags	
		Statistic	p-value
Inverse chi-squared(60)	P	237.6153	0.0000
Inverse normal	Z	-1.9844	0.0236
Inverse logit t(139)	L*	-7.2810	0.0000
Modified inv. chi-squared	Pm	16.2140	0.0000

The null hypothesis is that firm size has a unit root and the alternate hypothesis is that the variable is stationery. Since the significance values for the P, Z, L* and Pm tests are all less than the critical value (α) at the 5% confidence level, then the null hypothesis is rejected. Thus, the panel data series is stationery.

4.3.6 Test for Random and Fixed Effects

The Hausman test was conducted to establish whether the variables have a fixed effect over time or whether the variables have a changing and random impact over time. Before the Hausman test was conducted, the variables had to be transformed because they did not meet the conditions of normality and homoscedacity. The variables that did not meet the conditions of normality were standardized as a remedy for rectifying normality. Due to the data series employed in the study displaying heteroscedasticity, "robust standard errors', which is a

method to find out ubiased standard errors of OLS coefficients under heteroscedasticity, was utilized. The finding on the Hausman test of specification is presented in Table 4.9.

Table 4.9: Hausman Test of Specification

	---- Coefficients ----			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
EY	-.2473309	-.1237084	-.1236225	.22788
DY	1.890467	1.108052	.782415	.7511906
PE	.0085533	.0137614	-.0052081	.0254217
FirmSize	-.2597453	-.0243092	-.2354361	.1868397

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic
chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
2.37
Prob>chi2 = 0.6674

The null hypothesis assumes that variables have a random effect and the alternate hypothesis is that the variables have a fixed effect. If the significance value is less than the α (0.05), the null hypothesis is consequently rejected; if it is greater than the α (0.05), subsequently, the null hypothesis will not be rejected. When the Hausman chi-square test statistic is negative, the alternate hypothesis is adopted because asymptotically, the p value is equal to 1. From the findings in the study (Prob>chi2=0.6674), the variables have a random effect and a random effect panel model shall be utilized. This is because the significance value is greater than the α (0.05), hence the null hypothesis is rejected.

4.4 Inferential Statistics

Inferential statistics were used in determining the direction, relationship, and strength of the association between the predictor variables and the response variable. The section entails the

inferential statistics employed in the study, which included correlation and panel multiple linear regression analysis.

4.4.1 Correlation Analysis

Correlation analysis shows whether there is a relationship amongst two variables. The relation ranges from strong negative correlation to perfect positive correlation. This study utilized Pearson correlation. This study employed a Confidence Interval of 95% and a two-tail test. The correlation test was done to ascertain the association between financial risk and financial performance.

Table 4.10: Correlation Analysis

	Return	EY	DY	PE	FirmSize
Return	1.0000				
EY	0.0851 0.3598	1.0000			
DY	0.1442 0.1194	0.6856* 0.0000	1.0000		
PE	0.1367 0.1399	0.8531* 0.0000	0.5379* 0.0000	1.0000	
FirmSize	-0.2362* 0.0100	0.1010 0.2763	0.1595 0.0844	-0.1040 0.2626	1.0000

Table 4.10 displays that only firm size is significantly correlated at the 5% significance level to stock returns. It has a negative association with stock returns. Earnings yield, dividends yield, and price to earnings do not have a significant association with stock returns at the 5% significance level.

4.3.2 Multiple Linear Regression

The random effects panel regression model assessed the effect of the valuation ratios and firm size on stock returns. The regression analysis was established at the 5% significance level. The significance critical value exhibited from the Analysis of Variance and Model Coefficients were compared with the values obtained in the analysis. The findings are displayed in Table 4.13.

Table 4.11: Panel Multiple Linear Regression

```
Random-effects GLS regression                   Number of obs      =       118
Group variable: A                               Number of groups   =        30

R-sq:  within  = 0.0419                         Obs per group: min =         3
       between = 0.3159                                        avg =       3.9
       overall = 0.0925                                        max =         4

                                                Wald chi2(4)       =     16.36
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0026

                                        (Std. Err. adjusted for 30 clusters in A)
------------------------------------------------------------------------------
             |               Robust
     ZReturn |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         ZEY |  -.1206778   .2221104    -0.54   0.587    -.5560062    .3146506
         ZDY |    .212985   .1033692     2.06   0.039     .0103852    .4155849
         ZPE |   .0993275   .1962674     0.51   0.613    -.2853497    .4840046
  ZFirmSize |  -.2476884    .081918    -3.02   0.002    -.4082447   -.0871321
       _cons |  -3.64e-09   .069848    -0.00   1.000    -.1368995    .1368995
-------------+----------------------------------------------------------------
     sigma_u |           0
     sigma_e |  1.0229061
         rho |           0   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

On overall R2 shows changes in the response variable as a result of variations in the predictor variables. The overall R^2 value is 0.0925, a discovery that 9.25% of the deviations in stock returns are caused by valuation ratios and firm size, which is utilized as the control variable. Other variables not included in the model justify 90.75 per cent of fluctuations in stock returns.

The null hypothesis is that the model consisting of valuation ratios and the control variable, firm size, do not significantly influence stock returns. The significance value established in the study (Prob > F =0.0026) is below the 0.05 critical value. Hence, the null hypothesis is rejected. Thus, valuation ratios and the control variable, firm size in unison influence stock returns. Thus, they can be utilized to significantly predict stock returns.

The null hypothesis was that there was no significant relationship between earnings yield, dividend yield, price earnings and firm size in isolation to stock returns. The study findings exhibited both dividend yield and firm size have a significant relationship with stock returns. This is because their significance values are less than the critical significance value (α) of 0.05. Thus, the null hypothesis is rejected in both instances. Dividend yield has a significant positive effect on the stock returns while firm size has a significant negative effect. Earnings yield and price to earnings however do not have a significant effect on stock returns. This is because their significance values are greater than the critical significance value (α) of 0.05. The following model was thus developed;

$$\mathbf{Y = -3.64e\text{-}09 + 0.212985X_1 - 0.2476884X_2}$$

Where;

Y = Stock Returns

X_1 = Dividend Yield

X_2 = Firm Size

This implies that when there is no dividend yield and firm size, a stock return of -3.64e-09 is exhibited. Subsequently, when dividend yield increases by one unit, there is an increase in

stock returns by 0.212985 units. In addition, when firm size increases by one unit, there is a decrease in stock returns by 0.2476884 units.

4.4 Interpretation and Discussion of Findings

The study endeavoured to establish the effect of the earnings yield ratio on the stock returns of companies listed at Nairobi Securities Exchange. The study also sought to establish effects of dividend yield, price to earnings, and firm size on the stock returns of listed firms at the Nairobi Securities Exchange. The variables had to be transformed because they did not meet the conditions of normality and homoscedacity. The variables that did not meet the conditions of normality were standardized as a remedy for rectifying normality. Due to the data series employed in the study displaying heteroscedasticity, "robust standard errors', which is a method used in obtaining unbiased standard errors of OLS coefficients under heteroscedasticity, was utilized.

The study findings established only firm size is significantly correlated at the 5% significance level to stock returns. It has a negative association with stock returns. Earnings yield, dividends yield, and price to earnings do not have a significant association with stock returns at the 5% significance level. Additionally, the study findings revealed that the model consisting of valuation ratios and the control variable, firm size, in unison influence stock returns and they can be utilized to significantly predict stock returns. Further findings were Dividend yield has a significant positive effect on the stock returns while firm size has a significant negative effect. Final findings were that earnings yield and price to earnings however do not have a significant effect on stock returns.

The research findings that valuation ratios can significantly predict stock is not congruent to the weak form market efficacy of Efficient Market Hypothesis by Fama (1970) which denotes information on stock values and volume information are all revealed in the current stock values. Consequently, the NSE can be concluded as a weak form efficient. The study results are alike to Random Walk Theory, that denotes stock values shift in a haphazard manner, making it hard to predict their patterns. Thus, the NSE stock returns exhibit a random behaviour because they cannot be predicted using the financial ratios.

However, the study findings are in agreement to the Capital Asset Pricing Model that several distinct factors having documented to have a strong predicting power on stock returns which entail; firm size, book-to-market and price earnings ratio (Banz, 1981). The study findings that the valuation ratios cannot significantly forecast stock returns differing with results of the studies conducted by Shanken and Kothari (1997) and Lewellen (2004) that book to marketplace, dividend yield plus projected marketplace returns indicate reliable proof for estimation of actual returns on US stock market.

This study finding are in tandem with findings by Chan, Hamao and Lakonishok (1991), and Kheradyar, Ibrahim and Nor (2011) which projected returns are greatly influenced by price-earnings, the dividend yield, book to market and firm size in Japanese and Malaysian financial markets. They also are in sync with findings by the study Mwilu (2012) that the stock prices do not trail random patterns hence implying that stock rates can be projected at NSE.

The study findings by Khan, Gul, Rehman, Razzaq and Kamran (2012) and Kheradyar et al. (2011) show being a noteworthy correlation and association amongst stock yields and

valuation ratios including; dividend and earnings yields and book to market correlation is in conformity with the current research findings. The findings by Hjalmarsson (2010) that no reliable and dependable proof of predictability was established when bearing in mind the earnings yield and dividend yield ratios is not consistent with the current study findings.

The findings by Fun and Basana (2012), and Maxwell and Kehinde (2012) that Price Earnings ratio (P/E) having insignificant association and relationship with stock revenues is in tandem with the current study findings. The study findings that book- market value has an insignificant impact on returns of stock is a departure from the findings of the studies conducted by Rosenberg, Reid & Lanstein (1985) and Rosenberg et al. (1985) that the stocks with a higher value of B/M recorded higher performances than the stocks with lower B/M.

The study findings by Githinji (2011) that the ratio of price to earnings had insignificant power on variance in share price performance is consistent with the present research findings. This research finding by Zeytinoglu, Akarim, and Çelik (2012) show ability of ration of price to earnings and earnings per share ratio to predict returns were not significant is comparable to present study results. The study finding by Githinji (2011) that the ratio of price earnings has insignificant explanatory power on variance in share price performance is dependable with the current research findings.

The study findings by Auret & Sinclaire (2006) that P/E ratio was established to be insignificant is consistent with current study findings. Finally, the study findings by Mburu (2014) which established that the association amongst stock earnings and P/E ratios are insignificant is in agreement with current research findings.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This section shows the study findings summary, offered conclusions, and recommendations on the effect of the earnings yield ratio on the stock returns of firm listed at Nairobi Securities Exchange. Additionally, the research limitations and further research suggestions are also outlined.

5.2 Summary of Findings

The study endeavoured to assess the effect of the earnings yield ratio on the stock returns of companies listed at Nairobi Securities Exchange. The study also sought to establish the effect of to establish effects of dividend yield, price to earnings, and firm size on the stock returns of listed firms at the Nairobi Securities Exchange. The study employed the use of correlation and regression analyses.

Unit period of analysis was annual and data was collected for the period from 2016 to 2019. The period comprised of four years and the data was collected for 30 firms listed in the securities exchange, which constituted the study sample. The study population was all the 65 listed firms at the NSE. It was necessary to get a sample of the population because some firms had delisted during the study period while some had not listed during the commencement of the study period. Some firms did not issue dividends for a period of more than one year during the study period.

The correlation analysis employed in the study established that only firm size is significantly correlated at the 5% significance level to stock returns. It has a negative association with

stock returns. Earnings yield, dividends yield, and price to earnings do not have a significant association with stock returns at the 5% significance level.

The fixed effects of panel multiple linear regression revealed that the model consisting of valuation ratios and the control variable, firm size, in unison influence stock returns and they can be utilized to significantly predict stock returns. Further findings were Dividend yield has a significant positive effect on the stock returns while firm size has a significant negative effect. Final findings were that earnings yield and price to earnings however do not have a significant effect on stock returns.

5.3 Conclusion

The study concluded that valuation ratios have a predictive capability on stock returns. Further conclusions are that dividend yield is the only valuation ratio that has a significant effect on stock returns, earnings yield and price to earnings ratio do not have a significant effect on stock returns. Generally, the NSE can be concluded to be a weak form efficient and the stock returns of the firms listed therein exhibit a random behaviour.

The study conclusions are in tandem with the weak form market efficacy the Efficient Market Hypothesis by Fama (1970) which states that information on stock prizes are all reflected in present stock returns. The study conclusions are also similar to the Random Walk Theory, that establishes stock values shift in a haphazard manner, making it hard to predict their patterns.

5.4 Recommendations

Recommendations on policy is since this study has established that valuation ratios have no significant predictive powers over stock returns, Capital Markets Authority can establish that NSE is weak form efficient and focus on establishing the semi strong and strong form market efficiency. These findings will guide in creating policies needed to attract both foreign and local investor's hence increasing the market activity by attracting new and existing capital flows.

The study findings can encourage individual and institutional, and fund managers can be encouraged to invest in the NSE because of its efficiency, which ensures that securities are fairly priced. They should focus making their investment decisions based on firm fundamentals and current public information because it has already established that NSE has weak form efficient. Firms trading in NSE should strive to improve their fundamentals in order to enhance their market values because past info is already assimilated in share values. Other benefits to research include; Investment advisors in share advisory services; fund managers in portfolio construction and management; individual investors in making their investment decisions; academicians to further research and add to the body of knowledge.

5.5 Limitations of the Study

As a result of time and cost confines, the research scope was restricted to four years, between 2016 and 2019. Thus, it has not been resolute if result findings would hold for a lengthier time frame. Moreover, it was undefined whether comparable results would hold past 2019.

Since the research employed secondary sources of data, some of this data was not readily available, especially data on certain firms, and it took great lengths and costs to obtain it.

Some information could not be implemented in their raw state, for instance the valuation ratios, and further calculations and manipulations of the data was required. Consequently, delay was impending as information was to be corrected and additional processed before researcher could compile it.

The study intended to utilize the whole population of the sixty-five listed firms but some of the firms delisted in the study period while some listed in the bourse during the study period. Also, some firms did not issue dividends for the whole or major part of the study period. Thus, these firms had to be dropped from the analysis. There are numerous valuation ratios, but the study only included three ratios. The model used did not explain much deviations in stock returns as exhibited in the study's model summary. Many additional factors affect stock returns which were not included in the model.

5.6 Recommendations for Further Study

Based on information collected and knowledge acquired from this research, the researcher has recommended further research studies. First, other factors impact on stock returns apart from the valuation ratios employed in the study. Further research can be done to identify and analyze them.

The current study's scope was limited to four years; further research can be done beyond four years to ascertain if the findings would hold. Thus, prospect researches could use a wider time array, like, 1970 to present which could be useful to confirm or object the results of this research. Scope of this research was also restricted to Kenyan context where the country's securities exchange, the NSE, was examined. Scholars in other countries can conduct the research in these jurisdictions to establish if the present research findings would hold.

In this study Secondary data was used, further study should use primary sources of data like in-depth questionnaires and structured interviews to be administered to all the stock market participants. These can then support or condemn the current study findings. Multiple linear regression and correlation analysis were implemented in the research, future studies may adopt use of other techniques like factor analysis, discriminant analysis, cluster analysis and granger causality.

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APPENDICES

Appendix I: Companies Listed at the NSE on or before 31st December 2013.

Agricultural	
Ticker	**Company Name**
EGAD	Eaagads Limited
KUKZ	Kakuzi Limited
KAPC	Kapchorua Tea Company Limited
LIMT	Limuru Tea Company Limited
SASN	Sasini Tea and Coffee
WTK	Williamson Tea Kenya Limited
Automobiles and Accessories	
Ticker	**Company Name**
G&G	Car & General Kenya
Banking	
Ticker	**Company Name**
BBK	Barclays Bank of Kenya
CFC	CfC Stanbic Holdings
DTK	Diamond Trust Bank Group
EQTY	Equity Group Holdings Limited
HFCK	Housing Finance Company of Kenya
I&M	I&M Holdings Limited
KCB	Kenya Commercial Bank Group
NBK	National Bank of Kenya
NIC	National Industrial Credit Bank
SCBK	Standard Chartered of Kenya
COOP	Cooperative Bank of Kenya
Commercial and Services	
Ticker	**Company Name**
XPRS	Express Kenya Limited
KQ	Kenya Airways
LKL	Longhorn Kenya Limited
EVRD	Eveready East Africa
SCAN	Scangroup
NMG	Nation Media Group
SGL	Standard Group Limited
FIRE	Sameer Africa Limited
TPSE	TPS Serena
UCHM	Uchumi Supermarkets
Construction and Allied	
Ticker	**Company Name**
ARM	ARM Cement Limited

BAMB	Bamburi Cement Limited
BERG	Crown-Berger (Kenya)
CABL	East African Cables Limited
PORT	East Africa Portland Cement Company
Energy and Petroleum	
Ticker	**Company Name**
KEGN	Kengen
KENO	KenolKobil
KPLC	Kenya Power and Lighting Company
TOTL	Total Kenya Limited
UMME	Umeme
Insurance Segment	
Ticker	**Company Name**
BRIT	British-American Investments Company
CIC	CIC Insurance Group
CFCI	Liberty Kenya Holdings Limited
JUB	Jubilee Holdings Limited
KNRE	Kenya Reinsurance Corporation
PAFR	Sanlam Kenya Plc
Investments	
Ticker	**Company Name**
ICDC	Centum Investment Company
OCH	Olympia Capital Holdings
HAFR	Home Afrika Ltd
TCL	TransCentury Investments
Investment Services	
Ticker	**Company Name**
NSE	Nairobi Securities Exchange
Manufacturing and Allied	
Ticker	**Company Name**
BOC	BOC Kenya Limited
BAT	British American Tobacco Limited
CARB	Carbacid Investments Limited
EABL	East African Breweries
EVRD	Eveready East Africa
ORCH	Kenya Orchards Limited
MSC	Mumias Sugar Company Limited
UNGA	Unga Group
Telecommunication and Technology	
Ticker	**Company Name**
SCOM	Safaricom

Appendix II: Data Collection Form

Name of Company						
	Year					
Data	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Stock Price						
Stock Price (t-1)						
Stock Returns						
Net Income						
Outstanding Shares						
Stock Price						
Earnings Yield						
Dividends						
Dividend Yield						
Market Price per Share						
Price to Earnings Ratio						
Total Assets						
Firm Size						

Appendix III: Research Data

		Year	Return	E/Y	D/Y	P/E	Firm Size
1	BARCLAYS BANK OF KENYA (BBK)	2019	-0.04367	0.133333	0.104167	0.845833	19.73972
		2018	-0.03518	0.149451	0.10989	0.857143	19.6003
		2017	-0.05208	0.113971	0.073529	0.5375	19.41974
		2016	-0.1254	0.092216	0.05988	0.420958	19.37511
2	STANBIC HOLDINGS PLC	2019	-0.0082	0.135556	0.064815	1.032222	19.49468
		2018	0.140845	0.158723	0.074468	1.084965	19.4537
		2017	-0.11875	0.150424	0.074545	1.176364	19.33191
		2016	-0.27632	0.111774	0.007661	0.752661	19.18467
3	DIAMOND TRUST BANK OF KENYA (DTK)	2019	-0.21357	0.123594	0.013542	0.90099	19.77194
		2018	0.2	0.217373	0.022034	1.243559	19.74966
		2017	-0.28485	0.127754	0.013369	0.652834	19.71075
		2016	-0.0898	0.102603	0.011234	0.540067	19.60866
4	EQUITY GROUP HOLDINGS (EQTY)	2019	-0.24649	0.125786	0.050314	0.620881	20.32827
		2018	0.05298	0.146	0.066667	0.724	20.16707
		2017	-0.22078	0.11475	0.05	0.478	20.07789
		2016	-0.15789	0.0908	0.036	0.338	19.97611
5	I&M HOLDINGS LTD (I&M)	2019	-0.26087	0.136667	0.058333	0.893333	19.42874
		2018	0.132075	0.181818	0.079545	0.862273	19.33151
		2017	-0.19266	0.142	0.108	0.6294	19.29661
		2016	-0.1453	0.1008	0.0864	0.4192	19.1652
6	KENYA COMMERCIAL BANK (KCB)	2019	-0.19027	0.150409	0.070175	0.808421	20.61632
		2018	0.13245	0.223652	0.104348	1.095304	20.38683
		2017	-0.14815	0.148343	0.045714	0.605714	20.28735
		2016	-0.20455	0.097719	0.035088	0.432807	20.20447
7	NIC BANK (NIC)	2018	-0.2169	0.174381	0.032595	1.44133	19.14422
		2017	0.007553	0.236464	0.042301	1.630288	18.94812

		2016	-0.28752	0.147253	0.025432	0.865209	18.92622
8	STANDARD CHARTERED BANK KENYA (SCBK)	2019	-0.19161	0.101779	0.019131	0.577004	19.5264
		2018	-0.01768	0.096779	0.081731	0.639087	19.46942
		2017	0	0.139365	0.10582	0.687037	19.47054
		2016	-0.03077	0.102393	0.096866	0.684274	19.3389
9	COOPERATIVE BANK OF KENYA	2019	-0.34564	0.110149	0.056385	0.39257	19.94021
		2018	-0.18286	0.12125	0.05	0.74125	19.84058
		2017	0.132343	0.196364	0.072727	0.947273	19.77357
		2016	-0.18276	0.133333	0.053333	0.566	19.67865
10	TPS EASTERN AFRICA LTD (TPSE)	2019	-0.17264	0.082184	0.029994	0.443911	16.70513
		2018	-0.23333	0.011077	0.010769	1.548	16.6833
		2017	0.460674	0.026341	0.017073	2.560976	16.67696
		2016	-0.02381	-0.0652	0.01	2.1264	16.64773
11	WPP SCANGROUP LTD (SCAN)	2019	-0.28571	0.036486	0.036486	1.544757	16.3652
		2018	-0.09968	0.063158	0.039474	1.245263	16.48449
		2017	-0.06173	0.061708	0.027548	1.280992	16.4372
		2016	-0.0925	0.037333	0.016667	0.757	16.41719
12	BAMBURI CEMENT LTD (BAMB)	2019	-0.29825	0.033149	0.01105	0.498343	17.70906
		2018	-0.25978	0.025222	0.022222	0.508167	17.73465
		2017	-0.03226	0.09025	0.075	0.513469	17.66997
		2016	-0.05882	0.082686	0.074286	0.465371	17.52446
13	CROWN PAINTS KENYA LTD (BERG)	2018	0.136364	0.070504	0.086331	0.577173	15.51583
		2017	0	0.03925	0.0075	0.308625	15.58564
		2016	0.103448	0.044048	0.014286	0.522619	15.43669
14	TOTAL KENYA LTD (TOTL)	2019	0.043478	0.007049	0.009836	0.311475	17.44158
		2018	-0.24691	0.022432	0.047297	0.511622	17.48569
		2017	-0.07563	0.185106	0.055319	1.44766	17.45342
		2016	0.105882	0.208824	0.062353	1.808235	17.40417
15	BRITISH AMERICAN INVESTMENTS CO (KENYA) (BRIT)	2019	-0.20588	0.082477	0.044665	0.39362	16.90366

		2018	0.059524	0.05781	0.038853	0.2597	16.7245
		2017	-0.31507	0.020225	0.026217	0.873408	16.69502
		2016	0.055336	0.126	0.03	0.919	16.73327
16	CIC INSURANCE GROUP LTD (CIC)	2019	-0.29577	-0.03846	0.023077	0.701538	17.37949
		2018	-0.36585	0.044034	0.010084	0.371765	17.31342
		2017	-0.16087	0.032143	0.021429	0.516071	17.23341
		2016	0.365854	0.018421	0.028947	0.739474	17.10491
17	JUBILEE HOLDINGS LTD (JUB)	2019	-0.17391	0.069355	0.017742	0.472581	18.55318
		2018	-0.22013	0.04375	0.010417	0.2875	18.46916
		2017	-0.19851	0.119599	0.018036	0.716373	18.32161
		2016	0.134091	0.112336	0.019082	0.679627	18.22683
18	KENYA REINSURANCE CORP (KNRE)	2019	0.076903	0.097068	0.019318	0.658795	17.73477
		2018	-0.13879	0.129282	0.022856	0.693009	17.60791
		2017	-0.1275	1.128035	0.187638	8.578366	17.57047
		2016	-0.12717	0.856128	0.142096	6.124334	17.46602
19	LIBERTY KENYA HOLDINGS (CFCI)	2019	0.153689	0.933333	0.142857	5.969524	17.45892
		2018	0.174497	1.051643	0.164319	6.704225	17.41499
		2017	-0.05147	0.12623	0.040984	1.091803	17.42963
		2016	0.070175	0.088973	0	0.911787	17.36858
20	CENTUM INVESTMENT LTD (ICDC)	2019	-0.02952	0.070256	0	0.564615	18.43816
		2018	-0.19588	0.092043	0.017204	0.463656	18.38286
		2017	0.122807	0.088989	0.026966	1.718652	18.29722
		2016	0.085366	0.317391	0.034783	2.155072	18.17291
21	B.O.C KENYA LTD (BOC)	2019	-0.12658	0.255435	0.021739	1.413043	14.50497
		2018	-0.11538	0.164567	0	0.912283	14.57713
		2017	-0.16667	0.018879	0.048598	0.771215	14.61692
		2016	0.150538	0.078902	0.063415	1.055122	14.61475
22	Eaagads Ltd	2019	-0.04094	0.074608	0.05098	0.860588	13.7561
		2018	-0.26619	0.09408	0.0416	0.71584	13.71668

		2017	0.208333	0.043895	0.056579	0.103158	13.73517
		2016	-0.10272	0.046579	0.047305	0.096766	13.54261
23	EAST AFRICAN BREWERIES LTD (EABL)	2019	0.088623	0.063389	0.063185	0.112777	18.28217
		2018	0.059379	0.046861	0.046806	0.089504	18.08166
		2017	-0.08403	0.03749	0.028958	0.058533	18.01522
		2016	0.061475	0.033669	0.026978	0.049424	17.93856
24	UNGA GROUP LTD (UNGA)	2019	0.018315	0.037237	0.024671	0.055526	16.1807
		2018	-0.01299	0.029011	0.019435	0.040671	16.11134
		2017	0.353448	0.016198	0.033058	2.144132	16.06209
		2016	-0.12319	0.127059	0.029412	2.212941	15.93796
25	CARBACID INVESTMENTS LTD (CARB)	2019	0.007407	0.112727	0.02139	1.502674	15.06927
		2018	0.176101	0.079692	0.023077	1.744	15.03079
		2017	-0.12351	0.105344	0.053435	0.875573	15.01154
		2016	0.091667	0.099324	0.047297	0.708784	14.94101
26	SAFARICOM LTD (SCOM)	2019	-0.01003	0.091445	0.041298	0.573451	19.07548
		2018	-0.31515	0.06955	0.025225	0.305225	18.93613
		2017	0.12449	0.044516	0.035484	0.099677	18.90117
		2016	0.252525	0.067222	0.053889	0.149444	18.88556
27	KAKUZI LIMITED (KAKZ)	2019	-0.09774	0.056213	0.04497	0.172189	15.6813
		2018	0.111842	0.046921	0.037537	0.153079	15.5974
		2017	-0.03125	0.0918	0.0213	0.6702	15.56404
		2016	0.0613	0.0929	0.0194	0.6344	15.43775
28	SASINI LTD	2019	0.0266	0.07400	0.0158	0.5427	16.50161
		2018	0.0326	0.04540	0.0208	0.84600	16.37748
		2017	-0.2	0.05740	0.03774	1.8725	16.39543
		2016	0.0192	0.18780	0.0831	3.3911	16.63799
29	LONGHORN PUBLISHERS	2019	-0.0599	0.26116	0.07645	3.6361	14.66747
		2018	0.13937	0.00690	0.01724	3.6655	14.69411
		2017	0.692	0.15952	0.08333	0.9086	14.43541

		2016	-0.2222	0.09703	0.05941	0.68713	14.43981
30	NATION MEDIA GROUP	2019	0.05208	0.11580	0.0614	0.6105	16.30844
		2018	0.338	0.10060	0.0216	0.2006	16.23125
		2017	-0.2389	0.05948	0.08621	0.37336	16.24211
		2016	0.07407	0.09570	0.1075	0.4962	16.31482