PREDICTABILITY OF STOCK RETURNS USING VALUATION RATIOS:

EMPIRICAL EVIDENCE FROM NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

I confirm that this is my original work and has not been submitted for presentation at the University of Nairobi or any other institution of higher learning.

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

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God bless you all!

DEDICATION

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ABBREVIATIONS

ANOVA-   Analysis of Variance

B/M   -   Book to Market Ratio

CAPM -   Capital Asset Pricing Model

D/P   -   Dividend Yield

EMH   -   Efficient Market Hypothesis

E/P   -   Earnings Yield

ETF   -   Exchange Traded Fund

I-REIT-   Income Real Estate Investment Trust

NSE   -   Nairobi Securities Exchange

NYSE -   New York Stock Exchange

NSE 20 -   Nairobi Securities Exchange 20 share Index

NASI -   Nairobi All Share Index

P/B   -   Price to book

P/E   -   Price to earnings

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 ability of valuation ratios to predict stock returns at the Nairobi Securities Exchange (NSE). The study was also aimed at reviewing the growing body of theoretical and empirical literature that examines the range of magnitude and effects of the ability of valuation ratios to determine stock returns. The study employed a panel survey design with the target population being all the 57 firms listed at the NSE before 31st December 2013. The sample was represented by thirty-one firms, which had already listed as at January 2014 and was still listed at the end of 2018. The companies also needed to have issued dividends for at least three years of the study period. Secondary sources of data were employed, and data was collected on; the stock prices, net income, outstanding shares, dividends issued, and the book values. The unit period of analysis was annual, and data was collected for the period 2014 to 2018 comprising of five years. The study applied correlation analysis and multiple linear regression equation with the technique of estimation being Ordinary Least Squares (OLS) to establish the the predictive ability of stock returns using valuation ratios. The study findings were that valuation ratios have no predictive power over stock returns. The findings also established that the earnings yield, dividends yield, and book to market ratios do not have a significant association and relationship with stock returns. The study conclusion is that the Nairobi Securities Exchange is weak form efficient and recommends that the Capital Markets Authority (CMA) focus on creating policies that will strengthen the market to the semi strong and strong form of market efficiency. Further recommendations are that retail and institutional investors should focus on making investment decisions based on current public available information and firm fundamentals. It's 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 reflected 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 with high earnings, dividends and book to market value ratios. Company's stock price is considered to be undervalued and would generate higher returns if the equity book value exceeds the market value. A higher book value indicates that the 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; there is a compromise that little is retained to grow the company. A high-profit pay-out jeopardises the returns an investor receives through capital appreciation.

The research is established on "efficient market hypothesis", "the random walk theory" and the "capital asset pricing model". Efficient market hypothesis was developed by Roberts (1967) and Fama (1970) and it argues that it's not possible to make abnormal returns because share prices depict all available and relevant information. 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 that equity security prices change in a haphazard manner and that it's not possible to use historical price patterns to predict future prices. The capital asset pricing model (CAPM) gives a theoretical outline for pricing of risky assets (Bollerslev, Engle & Wooldridge, 1988, pp 116). It introduces a risk premium to woo non-risk takers to take risk by determining the appropriate return they would require to compensate for the extra risk taken.

Rosenberg, Reid & Lanstein, (1985) while examining the "persuasive evidence of market inefficiency" employed the book to price strategy to test efficiency in the US stock markets using 1,400 largest US companies in the period 1973-1984. He finds that the stocks with a higher value of B/M recorded higher performances than the stocks with lower B/M in what he referred to as the value effect. Based on the study, he concludes that the NYSE is inefficient. His conclusions thus give a headroom that stock prices can be predicted. Shanken and Kothari (1997) also studied the equity B/M, DY and anticipated equity returns and his findings indicate a reliable proof for estimation of actual returns on the US equity market.

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's weaker in Japan than in the US markets. This study therefore seeks to ascertain the strength of the equity book-market, earnings and dividend yield to forecast equity security yields at the NSE. The three valuation variables among others have been used by analysts at the NSE to give investment recommendations either solely or as supplements to other valuation methodologies, a continuous thorough analysis is thus inevitable.

1.1.1 Stock Return Prediction

Brealey, Myers &Allen (2006) define stock return as the total income received by the stockholder from the investment and includes dividends and capital gains/losses. They again define dividends as the periodic cash distribution from the firm to the shareholders. Bodie, Khan & Marcus (2004) emphasize that the returns are realized

through the dividends paid by the company or through trading the stocks in a secondary stock market.

The ability to estimate stock returns influences stock selection and portfolio construction making it a key aspect in investments. A rise in share prices directly impacts investments and hence overall wealth and consumption levels. Before investing, investors first evaluate the expected return in a given holding period. A share valuation is done based on the earnings an investor anticipates to receive or through similar asset relative comparisons and the discrepancy between the determined prices and the market prices informs the investment decision.

Empirical studies have shown that distinctive factors besides the CAPM can indicate the direction of stock prices. Banz, (1981) gives the most prominent predictor factors being the size of the firm, the earnings price and ratios of book to market. Reinganum, (1981) in a paper titled "misspecification of capital asset pricing" also states that those portfolios constructed based on the predictor factors experience returns that systematically differ from those constructed based on the CAPM. Reinganum findings thus insinuate that other risk factors need to be considered alongside the CAPM in pricing assets and that the capital markets are inefficient. In technical analysis, analysts/chartists use the historical market prices and volume data to identify patterns and predict future prices.

1.1.2 Valuation Ratios

These ratios measure the quantity of an asset or flow, Piotroski (2000). For instance, earnings attached to ownership of a particular asset claim such as a security or company

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ownership, Piotroski (2000). Equity valuation mostly involves the projection of future cash flows guided by a specific equity valuation model such as the dividend discount or free cash flow model. Ratio based valuation as covered in this study however recognises typical financial relations that determine interrelations between components of the financial statements and the earnings and book values, (Ohlson, 1995) and (Feltham & Ohlson 1995).

The Earnings Yield (EY) directly compares return generation for every shilling invested between two or more securities. A higher earnings yield, therefore, means a higher expected return. Secondly, when the stock is trading at an equity book to market that's more than one vetoes that the realised value will be higher when its liquidated, that is, trading at a price lower than its net assets. Value investors, therefore, prefer constructing portfolios with higher ratios of book to market, which insinuates that the company could be trading at low prices in the market. It could also insinuate that the company has strong future growth potential if the market values the company at a premium to the company's net assets. The third ratio is the dividend yield and is usually affected by profitability and specific company dividend policies. Companies that have strong future growth potential tend to pay fewer dividends than companies that are at mature stages in the business cycle.

The equity book to market ratio compares the company's net assets as provided by the statement of financial position to the equity market value. According to Cakici & Topyan (2015), the ratio of book to market is computed by dividing the book value to its trading value. According to French & Fama (1992), the correlation on the ratio of book to market and equity returns can predict market returns. It reflects the investor's

assessment on what is perceived to be the economic value of equity versus what is reported in the financial statements as the book value. The earnings yield (EY) is the earnings divided by the equity security price as indicated by Abraham (2017). It's the inverse of the price-earnings ratio and helps investors directly understand if the return is commensurate with the investment risk. Lastly, the Dividend yield represents the dividend distribution to shareholders as a proportion to the stock price.

1.1.3 Valuation Ratios and Stock Returns

Fama & French (1988) documents that equity returns can be estimated using the dividend yield. Pontiff & Schall (1998) also indicate that the ratio of book to market also can be used estimate stock returns. Lewellen (2004) extends the research for predicting stock returns to the three predictor variables (book-market, earnings and yields) and finds that they all have the ability to forecast future equity returns.

The 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 & Nor (2011) indicates that the changes in the ratio of price to earnings is largely attributed to the expected growth in earnings, dividends and dividend pay-out policies. The foundations on the predictive ability on the 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 stock prices are high when the expected 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 estimate less future returns since equity values return to fundamentals as per the mispricing concept. They also check time variations in interest rates in that the quotients are usually low when the rates required are high thus able to forecast returns since they seizure information regarding uncertainty premium according to the rational-pricing concept. They also share same time-series attributes, for instance, at a monthly interval, they possess close autocorrelations, and most of their movements are due to price changes in the denominator (Lewellen, 2004).

Based on the theoretical background and evidence of similar studies done globally and at the NSE; the study expects to find that the ratios have the capability to forecast equity returns both individually and collectively at the NSE.

1.1.4 Nairobi Securities Exchange

The NSE has existed since 1954. It started as a stockbrokers' association and is responsible for advancing the securities market and regulation of trading activities. It has developed to be one of the leading African Exchanges and offers a world-class platform for domestic and foreign investors who want to expose their investments to Kenya and sub Saharan Africa. It handles both variable and fixed income securities and has 64 listed companies, an I-REIT, an ETF and a futures derivatives market.

The fixed income securities give determinable/fixed rates of return and they mainly include treasury and corporate bonds. Equity returns on the other hand are variable and uncertain. Dividend payments depend on a company's profitability and its dividend

pay-out policies while capital gains depend on the counter's market demand and supply as well as what is perceived by investors to be the share's fair price given its growth potential. The determination of expected returns, standard deviation and correlation is thus critical in investor decision making and the construction of optimal portfolios at the NSE.

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 by 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. 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 can be predicted in advance using valuation ratios at the NSE.

Research 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 variables. 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, research has been carried out, touching on the influence of valuation ratios on share price movement and overall equity 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 a low ratio of book to market made meaningfully greater returns than for companies with higher ratios of book to market.

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 ratio of price to earnings and the ratio of price to book to forecast equity returns. He finds that firms with low ratios of price to earnings and price to book perform meaningfully higher than firm's with higher multiples. Regarding effect of dividend yield on stock returns, Munyua (2014) finds a strong positive association on dividends paid and share values. He concludes by stating that share prices are affected by dividends paid out.

This study is thus meant to establish whether the valuation ratios can be used to validate an equity selection method that will enable investors consistently achieve higher returns compared to the benchmarks. It's 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 the question; is it possible to predict stock returns of companies listed at the NSE?

1.3 Research Objective

The research aims to validate the power of the valuation ratios to predict equity returns for companies listed at NSE.

1.4 Value of the Study

Theoretically, the research is meant to add to the existing knowledge body and to help aid stock selection and optimal portfolio construction. Stock selection can be geared towards the stocks with high ratios of book to market; dividend and earnings yield given their yield advantage.

The empirical literature has evidenced that the ability to envisage stock returns has significant economic advantages. It guides in creating policies needed to attract both foreign and local investors 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

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their investment decisions; academicians to further research and add to the body of information.

<div align="center">**CHAPTER TWO**</div>

<div align="center">**LITERATURE REVIEW**</div>

2.1 Introduction

Chapter two gives literature on theoretic aspects and the applicable practical evidence. It commences with section 2.2, which offers an assessment of underlying theories, section 2.3 explains the predictability of stock returns, supported by empirical evidence in section 2.4. Part 2.5 gives conceptual framework and research gaps are summarised in section 2.6.

2.2 Theoretical Review

Over the years, stock return prediction has attracted different schools of thought. Some argue that stock movements can be predicted, others argue that stock movements are unpredictable because of their dynamic and random nature. Below are the underlying theories in the stock markets.

2.2.1 The Efficient Market Hypothesis

Roberts (1967) and Fama (1970) propagated the theory classically. Their argument was that share prices show all the obtainable and relevant information hence always fairly priced. No investor can earn abnormal returns in these markets without taking on additional risks, Malkiel (2003). This theory makes an assumption that the markets are rational and that there is no single irrational participant. Fama (1970) categorizes market efficiency into three; strong, semi strong and the weak form. The weak form market efficiency says that information on equity prices and volumes are all shown in the current stock prices. "Semi-strong" form incorporates all information available in the public domain into the security prices, in addition to the information on equity prices

and volume statistics. "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, a new breed of economists has come to believe that equity prices can be determined to an extent centred on historical equity price patterns and intrinsic valuation parameters.

The opponents of the EMH further argue that psychological, behavioural and other factors such as size and time of the year have been explained to influence the movement of stock prices. Kahneman and Tversky published several studies in this field with most of the works focusing on various psychological concepts relating to behaviour in finance. In 1973 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 and argued that there are circumstances in which consumers act in a manner that are inconsistent with economic theory. He realizes that psychological theory rather than conventional economics could help account for the irrationality. Several instances in recent financial markets history show proof that equity prices couldn't be set by logical equity 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".

2.2.2 Random Walk Hypothesis

According to this theory, 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 unreliable because technicians buy or sell securities after a trend has already been established. 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's 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 insinuated by the research on norms of equity prices. They include momentum movement, and under reaction or excessive reaction to new information, periodic and day of week patterns, long-run return reverses, and the prediction ability of valuation parameters. Mwilu (2012) investigated if the behaviour of stock prices at the NSE follows a random walk model in the period 2008 to 2011. The study findings indicate that the prices do not follow random patterns hence implying that stock prices can be forecast at the NSE.

Though there exists irregularities not addressed by the 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 can be demonstrated by market efficiency, Fama (1998).

2.2.3 Capital Asset Pricing Model

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.

Several distinct factors have been documented to have a strong predicting power on stock returns whereas beta has insignificant power in some markets. Some of the most known factors include the firm size, the ratio of book to market and earnings price, (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 normal returns if portfolios are designed to have small correlations between beta and firm size is not explained by the changes in equity prices with respect to the overall market price movements.

The market return outperformance tendencies were explained by Fama & French (1992) when he expanded the CAPM model to include the market place uncertainties, outperformance of small firms versus big firms (SMB) and the outperformance of high book to market vs. low book to market firms (HML) in what he referred as the three factor model. More recent studies such as French & Fama (2012) five factor model seek to formulate more reliable asset pricing models by adding risk factors other than the market risk factor. 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.

2.3 Determinants of Stock Returns

Critics of the EMH have documented that equity prices can be predicted to some extent due to several specific variables including:

2.3.1 Short Term Momentum and Historical Prices

Psychological and behavioural factors sometimes occasion stock movements, there seems to be some momentum in the short-run. Investors would be drawn into the market in situations where prices are rising in what is termed as the herd effect. For instance, Shiller (2000) termed the "US bull run" in the late 1990s a result of a combined force of indifferent thinking across millions of people in what he referred to as irrational exuberance. Technical analysts also tend to predict stock prices using historical movements in the belief that past patterns will always repeat. Mamaysky and Wang (2000) indicate that technical scrutiny indicators like the head and shoulder creations and the double bottoms have practical prediction ability.

2.3.2 Seasonal and Time of Week Patterns

Research has shown that equity returns differ on different seasons of the year. For instance, the "January effect" where returns incline abnormally high in the initial 2 weeks of the year. Time of the week patterns also tends to show some high returns on particular days of a given week. Haugen & Lakonishok (1988) reports high returns in the years initial month in the book titled "the incredible January effect". French (1980) indicate that different days of the week show different return patterns, for instance, the

return for Monday is three times the expected return for the remainder days. Return patterns also appear about the turn of the month, Smidt and Lakonishok, (1988) and during holiday (Ariel, 1990).

2.3.3 Valuation Ratios

The ratio of book to market, earnings and dividend yield are the main independent factors in this study. Studies document that these ratios have a considerable predictive ability on equity market returns. The studies show that stocks with lesser ratio of price to book and price earnings and high ratio of dividend yields tend to generate higher yields. Campbell & Shiller (1988) together with Fama & French (1988) established that dividend yield can predict as high as 40% of the future stock return variances depending on the forecast horizon. Fama & French (1992) also conclude that a considerable estimation ability for impending equity returns is exhibited by the ration of price-to-book-value and size together. The three ratios also capture volatility in discount rates due to the price factor in their denominators.

2.4 Empirical Studies

Globally, stock selection decisions are to some extent guided by valuation ratios, 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.

2.4.1 Global Studies

On a broader perspective, the ability of valuation parameters to predict stock market returns differs across markets. Hjalmarsson (2010) tested the propensity in predicting

stock returns in advanced and evolving economies using the dividend yield, interest rates, the earning yield and term spread. Monthly observations were made from 40 international markets involving 16 emerging and 24 developed economies. The short-term rates and the term structure spread appeared to be robust equity return estimators in the advanced markets.

However, no reliable and consistent evidence of predictability was established when considering the earnings yield together with the dividend yield ratios. The study was conducted using pooled data which could have partly contributed to the outcome on the earnings and dividend yield ratios. It's 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 company equity securities exhibit higher returns compared to those of large companies in what he referred to as the effect of size. The research was founded on the empirical association between returns and total market value of stocks quoted at NYSE in the period 1926-1975 using price and equity return data and the amount of outstanding shares on a monthly basis. Rosenberg et al. (1985) also checked the correlation between equity returns and the ratio of book to market value of common stock (BE/ME) using 1,400 of the largest US companies from the NYSE in the period 1973-1984. He also finds a positive association between equity returns and BE/ME. Stocks with a higher value of BE/ME earned a higher return 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 & French (1988) while examining influence of dividend yield on stock returns applied the DY 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 expose time deviation in anticipated returns explains lesser fractions of the deviations of short-term yields. Dividends yields support less than 5% of variances of short term returns and more than 25% of the variance of two-four year returns".

In summary, predictive power of dividend yield is used to determine stock yields and ability to forecast returns 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 the DY, EY and the B/M ratios to study 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 that the DY has a stronger ability to predict in comparison to the ratio of the earnings yield and the ratio of the book to market. The 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 & Lakonishok (1991) checked cross sectional variances in stock returns in Japan. He finds that anticipated returns are greatly influenced by the ratio of price earnings, the ratio of dividend price, ratio of the book to market and the firm size. An indirect relationship is however noted on the ratio of the earnings price and stock returns. Ratio of the book to market together with the DY have a bigger influence on stock returns compared to the size of the firm and the ratio of the earnings yield. The survey was conducted on data collected in the period 1971-1988, including manufacturing and non-manufacturing companies. The strength of the predicting power on the Japanese markets is, however, weaker than that on the US markets. This is then confirmed by Aono & Iwaisako (2011) who 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. This alludes to the fact that 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, ratio of earnings yield and the ratio of book to market to study influence of valuation ratios in determining stock yields in hundred listed companies in Malaysia from 2000-2009". The results reveal there is power to forecast stock returns, that predictive power of the B/M ratio is more significant than dividend

return, and earnings yield. Similarly, valuation ratios can rise predictability if combined in the "multiple predictive regression model".

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

Fun & Basana (2012) explored the capability of the P/E ratio to predict stock prices in Indonesia in 2005-2010. Findings indicated that high P/E stocks' returns differed with those of low P/E in the short term. There was however no significant difference between both portfolio stock returns once held for a period of more than one year. The survey also establishes that the association between stock return and (trailing) P/E ratio is insignificant hence suggesting that the ratio is insignificant in estimating both long and short-term equity returns. The P/E ratio displays how much an 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 ratios. He then noted that all the variables significantly explained expected stock returns.

Khan, Gul, Rehman, Razzaq & Kamran (2012) examined the equity returns predictability using the earnings and dividend yields ratios, and the ratio of book-market. Findings of this survey indicate a positive relationship on stock returns, dividend and earnings yield while the book to market correlation is significantly negative. The research conducted on hundred non-financial companies in 7 years from 2005-2011. They further note that the ratio of the book to market had a greater predicting ability in comparison to the dividend yield and earnings yield. Moreover, when the three ratios are combined, their ability to predict stock returns increases. This echoes Kheradyar et al. (2011) findings that the ratios can increase the stock return predictability when combined in the multiple predictive regression model in Malaysia.

Zeytinoglu, Akarim, & Çelik (2012) sampled listed insurance firms in Turkey to explore effect of the ratio of price to earnings, earnings per share, and the ratio of book-market on the stock prices of present and future years. The findings indicated that the ability of the P/E and EPS ratios to predict returns were not significant. The study only validated the market to book value ratio as an excellent predictor of the market equity 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.

Closer home, Maxwell & Kehinde (2012) explored effect of valuation ratios on stock returns in the Nigeria and established a linear association between the P/E and stock returns. This study was done on fifty firms during the period 2001-2006. Auret & Sinclaire (2006) examined the impact of valuation ratios in stock returns prediction in South Africa tested the significance of the valuation ratios in predicting stock returns in South Africa. The tests findings also showed book to market value ratio having a positive impact on stock returns while effect of P/E ratio was found to be insignificant.

2.4.2 Local Studies

Thuku (2009) delved into the impact of size on value of companies quoted at the NSE. He observed the return patterns of six portfolios based on size, the B/M and earnings yield over 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 the value premium at the NSE is driven by large-cap firms, which register a value premium in excess of small-cap firms. The same is emphasized by Ngacha (2009) who studied the performance between value and growth stocks. He used a combination of B/M and E/Y ratios and his findings show that in the period 1999 to 2007, the value portfolios consistently exceeded the growth portfolios in 8 of the nine years. As per the study findings, the large companies delivered a return premium during the study period. It is however important to note that at the 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 ability of the earnings yield to predict returns has however been consistent for all the other studies.

The book to market's capability to forecast stock returns is examined by Chelang'at (2017) who focused on two portfolios of firms, those which consistently have the highest ratios of book to market and those with least ratio of book-to-market between the time frame 1996 and 1998. He used the subsequent five years (1999 to 2002) to analyze the forecasting ability and concluded that the portfolio for companies with low ratios of book market performed better than the portfolios for firms with high ratios of book to market. Statistically, firms with lower book market stocks had a return of 2% in the period 1999 to 2002 while the portfolio with high book market ratios had returns of -10% in the same time. As stated earlier, the capability of the book to market to forecast equity returns depends on the type of assets held in a company's financial statement whereby sophisticated investors first assess the ability to realize their values on liquidation.

Githinji (2011) evaluated the association between P/E and share prices at the NSE and established both P/E and price earnings growth had insignificant explanatory power on the variance in share price performance based on data analysed over four years 2007-2010. Mburu (2014) exhibits similar findings, he established that the association between stock returns and P/E ratios are insignificant. He however established a positive correlation on stock prices with return on equity and the ratio of book to market. The P/E ratio is the inverse of the EY ratio, while the earnings yield ratio directly shows how much an equity holder earns for each shilling invested, the price earnings ratio shows how much he pays for each shilling earned thus dependent on a number of factors including macro and company specific variables. This causes the contradictions on their ability to predict stock returns.

Osano (2010) evaluated the P/B and P/E as predictors of prices at the NSE and provided a test on the magnitude to which the P/B and the P/E ratio determine expected future equity returns during the period 1998 to 2002. The study focuses on those portfolios with higher P/E and P/B multiples and those with low similar variables. Observable returns for the subsequent years 2003 to 2007 were utilized to ascertain the forecasting power of the two valuation multiples and the conclusions were that those portfolios with lower P/E and P/B ratios performed significantly better than those portfolios with higher similar multiples. The P/E ratio appeared to be a better returns' predictor compared to the price to book. His findings thus contradicts 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 equity market returns in the period 2008 and 2015 and established a solid relationship with an r=0.74 between stock returns and small firms. An r-square of 0.964 further inferred that 96.4% of total variance in market stock returns can be attributed to changes in small firm stock returns and big firm stock returns. He concludes that there exists a positive and statistically significant small firm effect at the NSE. Munyua (2014) also examined how dividend policies affect the performance of share prices in the period 2004 to 2013 and he established a positive correlation on the dividend per share and share prices. He concludes that a positive correlation exists on stock prices and dividends for listed companies. The studies also infer that other elements influence stock prices that investors need to look at when making investment decisions.

2.5 Conceptual Framework

The relationship between the ratio of the B/M, E/Y and DY to stock returns has been theoretically explained and evidenced by several research findings. This study, therefore, assumes the general outcomes as indicated by the previous studies that stocks with higher ratios of book to market, dividend and earnings yield generate higher returns and that a combined predictor model enhances stock return prediction.

Figure 1: Conceptual Model
Independent Variables
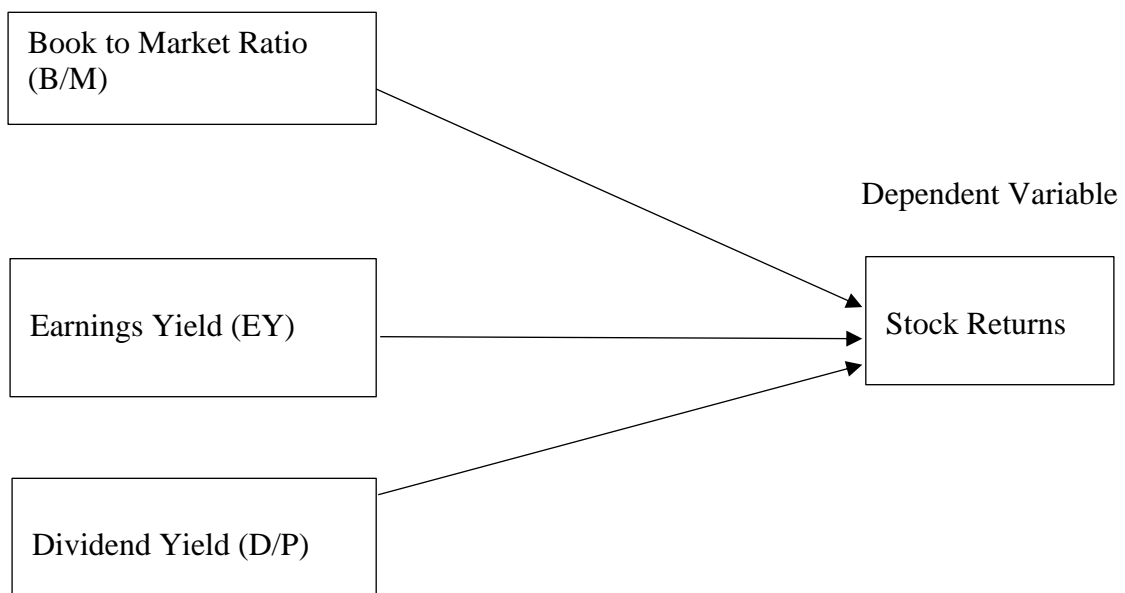
Source; Researcher 2019

2.6 Summary of Research Gaps

Investors, in addition to the fundamental approaches consider several risk factors before making equity investments. The valuation ratios are some of the risk factors they look into, thus the need for continuous studies and tests. As the empirical evidence indicates, the CAPM may not address asset pricing conclusively in all markets. This brings the need to incorporate more risk factors that can influence asset pricing and asset returns.

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 that the P/E ratio has a considerable impact on portfolio returns in that those portfolios constructed with lower P/E ratios performed considerable better in comparison to the high P/E portfolios. Similar studies conducted by Githinji (2011) and Mburu (2014) however contradicts the above findings indicating negligible explanatory power on the variance in share price performance from the P/E ratio. This implies that other factors other than the stated risk factors could explain the variation in share price performance in a given time period. This study, therefore, is meant to affirm the predicting ability and return effect of these risk factors on stocks at the NSE.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Chapter three provides the logical framework followed in conducting this research. It specifically outlines the research design, populace and sample design, information gathering and finally illustrates what form of data analysis was utilized to analyse the data gathered.

3.2 Research Design

Research was carried out using both descriptive and experimental research design. The design provides the structure for evaluating the causal link on the independent and dependent variables and circumstances of experiment can be replicated such that other independent researchers can attempt to repeat the results of the investigation. One of the essential elements of this research design is requisite of disregarding the effects of antecedent variables. Hence, use of basic model, cause (X) results to a consequence (Y). However, a third variable (Z) could have an impact on (Y), and (X) could not be the actual reason. Z is then an antecedent variable. The descriptive statistics research design is then used to explain the data and the findings with ease as it enables the presentation of data in a more meaningful way including the use of the measures of central tendency and dispersion.

3.3 Population and Sample Design

The study employed 57 companies listed at the NSE before 31st December 2013 as the study population. The study sample was selected based on the conditions that the companies should have be listed before the study period, should not have been

suspended from the Exchange for more than 1 year or delisted within the study period, the dividends for the firms should also not be zero for a period exceeding 1 year.

3.5 Data collection

The research was undertaken using secondary information gathered from the NSE and the specific firm's financial statements. Unit of analysis was annual, annual stock price data was obtained for the period 2014 to 2018. Earnings and book values per share and dividends per share used were obtained from the respective company's financial reports at the end of each reporting period.

3.6 Data Analysis

The data was first examined to establish its reliability and consistency. Autocorrelation was used to test for validity of the data and also employed two autoregressive unit root tests. Normality test was done to confirm whether data displays a normal distribution by employing Shapiro Wilk and Kolmogrove Sminorv tests of normality. Multicollinearity test were conducted using Tolerance and Variance Inflation Factors. Multicollinearity exists when there is a correlation of independent variables (Kothari, 2004). The independent variables should be linearly independent to each other.

The data was then manipulated to establish the predictive ability of each of the independent variables to stock returns using regression analysis and correlation to identify association amongst the variables and descriptive statistics to explain the outcome of the variables with ease. Analysis of variance (ANOVA) will also be carried out on the data to establish whether the returns of those stocks with high ratios of book

market, dividend and earnings yield are significantly different from those stocks with low dividend and earnings yield and low book market ratios.

3.6.1 Analytical Model

Both the simple and multivariate regression models were utilized to establish the association amongst the independent (EY, B/M, DY) and the dependent factors. Simple regression model is used to find out the predictive ability of each variable while the multivariate model is used as the predictor model that formulates the association of stock returns and the combined valuation ratios. Simple regression model has the following form;

$$R_{it} = \beta_o + \beta_i X_{it(t-1)} + \varepsilon_{it},$$

Where;

R_{it} return of the ith portfolio

β_o estimated constant

β_i predictable coefficient of the ith portfolio

$X_{it(t-1)}$ independent variable of the ith portfolio in $t-1$ time period

ε_{it} random error term.

Predictor model that formulates the association on future stock returns and the combined valuation parameters is tested by multiple regression model which is in the form;

$$R_{it} = \beta_o + \beta_{i1} DY_{i(t-1)} + \beta_{i2} EY_{i(t-1)} + \beta_{i3} B/M_{i(t-1)} + \varepsilon_{it}$$

Where;

R_{it} return of the ith portfolio

β_o estimated constant

β_{i1} predictable coefficient for the factor 1 which is the dividend yield

β_{i2} predictable coefficient for the factor 2 which is the earnings yield

β_{i3} predictable coefficient for the factor 3 which is the book to market

$DY_{i(t-1)}$ dividend yield of the ith portfolio in the time period $t - 1$

$EY_{i(t-1)}$ earnings yield of the ith portfolio in the time period $t - 1$

$B/M_{i(t-1)}$ book to market factor of the ith portfolio in the time period $t - 1$

ε_{it} random error term.

3.6.2 Tests of Significance

The nature and the direction of the relationship was determined through correlation coefficient while the strength of the relationship was established through coefficient of determination. Significance statistic were utilized to establish significance of individual co-efficient and the significance of the overall model.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.0 Introduction

Analysis and discussions of research results were done in this chapter. It's divided into three sections which include; diagnostic tests, inferential statistics, and the interpratation and discussion of findings.

The research analysed the ability of valuation ratios to determine stock returns on firms listed at the NSE. Valuation ratios included earnings yield, dividend yield, and book market ratio. The study was conducted for a period of five years, 2014-2018. Data was obtained from the NSE, Bloomberg data terminal and the specific company financial reports.

4.2 Correlation Analysis

It was used to establish if there exists an association amongst two variables which lies between (-) strong negative and (+) perfect positive correlations. Pearson correlation was employed to analyse level of relationship amongst valuation ratios and stock returns. This study employed a confidence interval of 95%, as it is the most utilized in social sciences. A two tailed test was utilized.

Table 4.1: Correlation Analysis

		Returns	EY	DY	BM
	Pearson Correlation	1	.092	.140	.142
Returns	Sig. (2-tailed)		.311	.120	.115
	N	124	124	124	124
	Pearson Correlation	.092	1	.684**	.852**
EY	Sig. (2-tailed)	.311		.000	.000
	N	124	124	124	124
	Pearson Correlation	.140	.684**	1	.535**
DY	Sig. (2-tailed)	.120	.000		.000
	N	124	124	124	124
	Pearson Correlation	.142	.852**	.535**	1
BM	Sig. (2-tailed)	.115	.000	.000	
	N	124	124	124	124

**. Correlation is significant at the 0.01 level (2-tailed)

The study results in Table 4.1 shows that valuation ratios are not significantly correlated at the 5% significance level to stock returns. The noteworthy correlation at the 5% significant level between all the predictor variables indicates presence of multi-collinearity. Multicollinearity exists where perfect or exact association exists amongst predictor variables. When there is multicollinearity, it is challenging to come up with reliable estimates of the variables individual coefficients. Thus, leading to incorrect deductions about the relationship between outcome variable and predictor variables. Since all the predictor variables are significantly correlated at the 5% level of significance, one variable can be retained and the other two discarded since it implies redundancy.

4.3 Regression Analysis

The stock returns were was regressed against the valuation ratios. Regression analysis was carried out at 5% significance level. Critical value of 0.05 attained from Analysis

of Variance (ANOVA) and model coefficients was compared with significance values obtained in the analysis and results displayed.

A test to determine normality was introduced because normality is a pre-condition to running a regression on a model. Normality test was done through the Shapiro Wilk test, which was supplemented by the Kolmogorov-Smirnov test. The results are presented in Table 4.2.

Table 4.2: Tests for Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**Df**	**Sig.**	**Statistic**	**Df**	**Sig.**
Returns	.051	124	.200[*]	.960	124	.001
EY	.280	124	.000	.487	124	.000
DY	.109	124	.001	.884	124	.000
BM	.256	124	.000	.587	124	.000

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

The null hypothesis infers normally distributed data. The level of significance adopted in the study is 5%. The significance value for the Shapiro-Wilk test is less than the α (0.05) but the significance value for the Kolmogrov-Sminorv test is more than the α. In case of conflict of the two complementary tests, the Kolmogrov-Sminorv tests takes precedence over the Shapiro-Wilk test since it is more conclusive. Thus, the data series return is normally distributed. Since the significance values in both tests for the rest of the data series are less than the α, the null hypothesis is rejected. Hence, the data series are not normally distributed.

Homoscedacity tests was conducted by use of Breusch-Pagan test, the findings are exhibited in Figure 4.3 below.

Table 4.3: Test for Homoscedacity

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity Ho: Constant variance		
Variables: fitted values of ROA	chi2(1)	Prob > chi2
EY	27.623	1.00
DM	34.291	1.00
BM	42.836	1.00

The null hypothesis is that there is homoscedacity. The level of significance adopted in the study is 5%. Since the significance values in both tests for all the variables are greater than the α (0.05), the null hypothesis is not rejected. Hence, the data series of all the predictor variables are homoscedastic.

Table 4.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.092[a]	.008	.000	.17862	
2	.140[b]	.020	.004	.17834	
3	.196[c]	.038	.014	.17737	2.199

a. Predictors: (Constant), EY

b. Predictors: (Constant), EY, DY

c. Predictors: (Constant), EY, DY, BM

d. Dependent Variable: Stock_Returns

Coefficient of determination, R square, indicates deviations in the response variable as an outcome of discrepancies in predictor variables. Table 4.4 shows R Square of earnings yield is 0.008 which indicates that 0.8% of the deviations in stock returns are expounded by the predictor variable. The additional explanatory power of dividend yields is 1.2% as indicated by the incremental R square. This implies that 1.2% of the variations in stock returns are expounded by this predictor variable.

The additional explanatory power of book to market value is 1.8% as indicated by the incremental R square. This implies that 1.8% of the variations in stock returns are explained by this predictor variable. The overall value of R square was 0.038, a finding that 3.8% of the deviations in stock returns are caused by the predictor variables included in the study. Additional factors not comprised in the model justify 96.2% of variations in stock returns.

To test for autocorrelation, Durbin-Watson statistic was applied which gave an output of 2.199 as displayed in Table 4.4. Durbin-Watson statistic between 0 and 4. A value of 2 reveals no autocorrelation in the sample. 0 to less than 2 values indicate positive autocorrelation and more than 2 to 4 values show negative autocorrelation. Generally, test statistic values of 1.5 to 2.5 are relatively normal. Values outside of this range are a reason to worry. Field (2009) however, proposes numbers below 1 or greater than 3 are a concern. Therefore, the data used in this panel is not serially auto correlated because it meets this threshold.

Table 4.5: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.033	1	.033	1.037	.311[b]
	Residual	3.893	122	.032		
	Total	3.926	123			
2	Regression	.077	2	.039	1.217	.300[c]
	Residual	3.848	121	.032		
	Total	3.926	123			
3	Regression	.151	3	.050	1.596	.194[d]
	Residual	3.775	120	.031		
	Total	3.926	123			

a. Dependent Variable: Stock_Returns
b. Predictors: (Constant), EY
c. Predictors: (Constant), EY, DY
d. Predictors: (Constant), EY, DY, BM

The null hypothesis developed in the study is that the model is significant to predict stock returns. An overall significance value of 0.194 was obtained in the study, which was greater than critical 0.05 values. Null hypothesis therefore was not rejected. Thus, overall model is not significant to predict the stock returns of companies listed at the NSE. Individual predictor variables are also not significant in determining stock returns.

Significance of individual coefficients was established using the significance values. The null hypothesis was, individual variables do not significantly affect stock returns. If significance values are greater than 0.05, null hypothesis is rejected. It is not rejected if the significance values are less than 0.05. Overall, all the predictor variables have significance values which are greater than 0.05, thus they do not significantly affect stock returns at the 95% confidence interval.

Table 4.6: Model Co-efficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-.060	.020		-2.990	.003	-.099	-.020
	EY	.096	.094	.092	1.018	.311	-.091	.282
2	(Constant)	-.082	.028		-2.979	.003	-.136	-.028
	EY	-.008	.129	-.008	-.064	.949	-.263	.247
	DY	.771	.653	.146	1.181	.240	-.522	2.063
3	(Constant)	-.095	.029		-3.312	.001	-.152	-.038
	EY	-.259	.209	-.248	-1.243	.216	-.672	.154
	DY	.897	.655	.170	1.370	.173	-.399	2.193
	BM	.037	.024	.263	1.525	.130	-.011	.085

a. Dependent Variable: Stock_Returns

4.4 Interpretation and Discussion of Findings

The research sought to determine the ability of valuation ratios predict stock returns using valuation ratios. Selected ratios for the study included earnings and dividend yields and book to market value. Effect of each of the independent variable on the dependent variable was analysed to check strength and direction.

The tests for normality exhibit variables included in the research are not normally distributed. This may cause biasness in the study findings. The test for multicollinearity showcases that there existed association between the predictor variables. The tests for homoscedacity and autocorrelation exhibit that all the study variables display homoscedacity, and lack of presence of autocorrelation. This indicates that the study findings lack biasness.

The test for correlation displays that no predictor variable show a noteworthy association with stock returns. In the regression analysis, the analysis of variance displayed model developed is not substantial as evidenced by the significance value obtained in the study when compared to the critical value. This implies that the various valuation ratios employed in the study are not suitable in predicting stock returns for the stated study period. The model coefficients exhibit that the valuation ratios do not have an effect on stock returns.

The research findings that the valuation ratios cannot significantly predict stock prices is congruent to the weak form market efficiency which denotes, information on stock values and volumes are all revealed in the current stock values. Consequently, the NSE can be concluded as weak form efficient. The study also concurs with 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 stated valuation ratios.

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

This study findings differ from findings by Chan, Hamao and Lakonishok (1991), and Kheradyar, Ibrahim and Nor (2011) that expected returns are highly influenced by the price-earnings, the dividend yield, book to market and the firm size in the Japanese and Malaysian financial markets. Also differs from findings on the study by Mwilu (2012) that the stock prices do not trail random patterns hence implying that stock values can be forecasted at the NSE.

The study findings by Khan, Gul, Rehman, Razzaq and Kamran (2012) and Kheradyar et al. (2011) that there is a substantial correlation between stock returns and the valuation ratios including; dividend and earnings yield, and book to market contradicts the current study findings. The findings by Hjalmarsson (2010) that no reliable and dependable proof of predictability was established on the earnings yield and dividend yield ratios is consistent with the current study findings.

The findings by Fun and Basana (2012), and Maxwell and Kehinde (2012) that Price Earnings ratio (P/E) has insignificant association with stock prices also concurs with the current study findings. The study findings that book-market value has an insignificant impact on returns of stocks 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 research findings by Githinji (2011) that the ratio of price earnings had insignificant expounding power on the variance in share price performance is consistent with the current study findings. The study findings by Zeytinoglu, Akarim, and Çelik (2012) that the ability of ratio price to earnings and earnings per share to predict returns were not significant is similar to the current study findings. However, the additional finding that the book market value ratio is an excellent predictor of the market stock returns contradicts the current study findings.

The study findings by Auret & Sinclaire (2006) that the P/E ratio was established to be insignificant is consistent with the current study findings. Nevertheless, the additional finding that the book to market value ratio had a positive influence on stock prices contradicts the current study findings. Finally, the study findings by Mburu (2014) which established that the association amongst stock prices and P/E ratios are insignificant is in agreement with the current study findings. However, the additional findings that there is an association amongst stock returns and both earnings yield and book to market ratio is in disagreement with the current study results.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

Chapter 5 discusses research summary findings and provides deductions and recommendations of the research on predictive ability of valuation ratios on stock returns at the NSE. Further, the chapter states study limitations and gives suggestions for further study.

5.2 Summary

This study aimed at determining the predictive capability of valuation ratios on stock returns. The valuation ratios selected for the study were; earnings and dividend yields and ratio of book to market. The unit period of analysis was annual and data was collected for the period 2014-2018. The period comprised of five years and data was collected for 31 firms, which constituted the study sample.

The study employed the use of correlation and regression analysis to establish the ability of valuation ratios to predict equity returns. On correlation analysis, the study established that no significant association existed amongst each valuation ratio employed in the study and stock returns.

On the regression analysis, the combined coefficient of determination (R square) was 3.8% implying that only 3.8% of the deviations in stock returns are caused by the predictor variables. Additional factors not factored in the model thus justify 96.2% of the deviations in stock returns. The significance value of 0.194 obtained from the

model, which was greater than the critical 0.05 value indicates that overall, model is not substantial in forecasting stock returns at the NSE.

5.3 Conclusion

The study concluded that valuation ratios have no predictive capability on stock returns. Thus, it can be concluded that the NSE is weak form efficient and that the stock returns of the firms listed therein exhibit a random behaviour. The research also concludes that neither earnings yield, dividends yield, nor the ratio on book-market had a significant influence on equity returns.

The study conclusions are in tandem with the weak form efficiency, which states that information on stock prices, and volumes data are all reflected in the current stock prices. The study conclusions are also similar to the Random Walk Theory that states stock values shift in a haphazard manner, making it hard to predict their patterns.

The findings resonate with the actual performance of the NSE for the last five years. The average NASI return over the last five years is 2.24%, which is much lower than the fixed income returns over the same period. This indicates that more capital was geared towards the fixed income market compared to equities over the last five years thus significantly reducing equity market activity and hence price discovery. This therefore automatically renders the predictor variables insignificant in stock return prediction.

5.4 Recommendations

On policy, since the study has established that valuation ratios have no significant predictive powers on stock returns, the Capital Markets Authority (CMA) can incorporate the findings and focus on establishing the semi and strong form efficiency. Findings will also 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 aid individual and institutional investors to focus on making their investment decisions based on firm fundamentals and current publicly available information because security prices already incorporate past price and volume information hence cannot be used to make meaningful investment decisions. Firms trading at the NSE should also strive to improve their fundamentals in order to enhance their market values because past information is not relevant.

Other benefiters 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 knowledge.

5.5 Limitations of the Study

Because of time and cost confines, the research scope was restricted to five years, 2014-2018. It is therefore difficult to make a conclusion that the results would hold for a longer period. Moreover, it was undefined whether comparable results would hold past 2018.

The study intended to utilize the whole population of the sixty-four 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 concentrated on three ratios. The model used did not explain much deviation in stock returns as exhibited in the study's model summary. Many additional factors affect stock returns, which were not included in the model.

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

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 affect 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 five years; further research can be done beyond five years to ascertain if the findings would hold. Thus, prospect researchers 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 in sub-Saharan Africa and other global jurisdictions can conduct the research to establish if the present research findings would hold.

Secondary data was solely utilized in the study; alternative research can be employed using primary sources of data like in-depth questionnaires and structured interviews to be administered to all the stock market participants. These can then approve or disapprove the current study findings.

Regression and correlation analysis was used in this research; further research can incorporate other analysis methods like factor analysis, cluster analysis, granger causality and discriminant analysis.

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APPENDICES

Appendix I: Introduction Letter

UNIVERSITY OF NAIROBI
SCHOOL OF BUSINESS

Telephone: 020-8095398
Telegrams: "Varsity", Nairobi
Telex: 22095 Varsities

Tel: 020 8095398
Nairobi, Kenya

DATE: 30/09/219

TO WHOM IT MAY CONCERN

The bearer of this letter TEDDY YANGA POLE of Registration Number D63/67991/2013 is a Master of Business Administration (MBA) student of the University of Nairobi.

He/she is required to submit as part of his/her coursework assessment a research project report
We would, therefore, appreciate if you assist him/her by allowing him/her to collect data within your organization for the research.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organization on request.

Thank you.
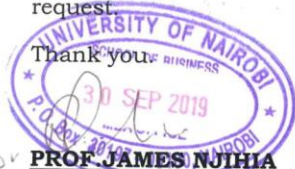
PROF. JAMES NJIHIA
DEAN, SCHOOL OF BUSINESS

Appendix II: 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 III: Data Collection Form

Name of Company				Sector	
	Year				
Data	1	2	3	4	5
Stock Price					
Stock Price (t-1)					
Stock Returns					
Net Income					
Outstanding Shares					
Earnings Yield					
Dividends					
Dividend Yield					
Book-Value per Share					
Book to Market Value					

Appendix IV: Companies Utilized in the Analysis

        Company

1	BARCLAYS BANK OF KENYA (BBK)
2	STANBIC HOLDINGS PLC
3	DIAMOND TRUST BANK OF KENYA (DTK)
4	EQUITY GROUP HOLDINGS (EQTY)
5	I&M HOLDINGS LTD (I&M)
6	KENYA COMMERCIAL BANK (KCB)
7	NIC BANK (NIC)
8	STANDARD CHARTERED BANK KENYA (SCBK)
9	COOPERATIVE BANK OF KENYA
10	TPS EASTERN AFRICA LTD (TPSE)
11	WPP SCANGROUP LTD (SCAN)
12	BAMBURI CEMENT LTD (BAMB)
13	CROWN PAINTS KENYA LTD (BERG)
14	TOTAL KENYA LTD (TOTL)
15	UMEME LTD (UMME)
16	BRITISH AMERICAN INVESTMENTS CO (KENYA) (BRIT)
17	CIC INSURANCE GROUP LTD (CIC)
18	JUBILEE HOLDINGS LTD (JUB)
19	KENYA REINSURANCE CORP (KNRE)
20	LIBERTY KENYA HOLDINGS (CFCI)
21	CENTUM INVESTMENT LTD (ICDC)
22	B.O.C KENYA LTD (BOC)
23	BRITISH AMERICAN TOBACCO KENYA (BAT)
24	EAST AFRICAN BREWERIES LTD (EABL)
25	UNGA GROUP LTD (UNGA)
26	CARBACID INVESTMENTS LTD (CARB)
27	SAFARICOM LTD (SCOM)
28	KAKUZI LIMITED (KAKZ)
29	SASINI LTD
30	LONGHORN PUBLISHERS
31	NATION MEDIA GROUP

Appendix V: Research Data

		Year	Return	E/Y	D/Y	B/M
1	BARCLAYS BANK OF KENYA (BBK)	2018	-0.04367	0.133333	0.104167	0.845833
		2017	-0.03518	0.149451	0.10989	0.857143
		2016	-0.05208	0.113971	0.073529	0.5375
		2015	-0.1254	0.092216	0.05988	0.420958
2	STANBIC HOLDINGS PLC	2018	-0.0082	0.135556	0.064815	1.032222
		2017	0.140845	0.158723	0.074468	1.084965
		2016	-0.11875	0.150424	0.074545	1.176364
		2015	-0.27632	0.111774	0.007661	0.752661
3	DIAMOND TRUST BANK OF KENYA (DTK)	2018	-0.21357	0.123594	0.013542	0.90099
		2017	0.2	0.217373	0.022034	1.243559
		2016	-0.28485	0.127754	0.013369	0.652834
		2015	-0.0898	0.102603	0.011234	0.540067
4	EQUITY GROUP HOLDINGS (EQTY)	2018	-0.24649	0.125786	0.050314	0.620881
		2017	0.05298	0.146	0.066667	0.724
		2016	-0.22078	0.11475	0.05	0.478
		2015	-0.15789	0.0908	0.036	0.338
5	I&M HOLDINGS LTD (I&M)	2018	-0.26087	0.136667	0.058333	0.893333
		2017	0.132075	0.181818	0.079545	0.862273
		2016	-0.19266	0.142	0.108	0.6294
		2015	-0.1453	0.1008	0.0864	0.4192
6	KENYA COMMERCIAL BANK (KCB)	2018	-0.19027	0.150409	0.070175	0.808421
		2017	0.13245	0.223652	0.104348	1.095304
		2016	-0.14815	0.148343	0.045714	0.605714

		2015	-0.20455	0.097719	0.035088	0.432807
7	NIC BANK (NIC)	2018	-0.2169	0.174381	0.032595	1.44133
		2017	0.007553	0.236464	0.042301	1.630288
		2016	-0.28752	0.147253	0.025432	0.865209
		2015	-0.19161	0.101779	0.019131	0.577004
8	STANDARD CHARTERED BANK KENYA (SCBK)	2018	-0.01768	0.096779	0.081731	0.639087
		2017	0	0.139365	0.10582	0.687037
		2016	-0.03077	0.102393	0.096866	0.684274
		2015	-0.34564	0.110149	0.056385	0.39257
9	COOPERATIVE BANK OF KENYA	2018	-0.18286	0.12125	0.05	0.74125
		2017	0.132343	0.196364	0.072727	0.947273
		2016	-0.18276	0.133333	0.053333	0.566
		2015	-0.17264	0.082184	0.029994	0.443911
10	TPS EASTERN AFRICA LTD (TPSE)	2018	-0.23333	0.011077	0.010769	1.548
		2017	0.460674	0.026341	0.017073	2.560976
		2016	-0.02381	-0.0652	0.01	2.1264
		2015	-0.28571	0.036486	0.036486	1.544757
11	WPP SCANGROUP LTD (SCAN)	2018	-0.09968	0.063158	0.039474	1.245263
		2017	-0.06173	0.061708	0.027548	1.280992
		2016	-0.0925	0.037333	0.016667	0.757
		2015	-0.29825	0.033149	0.01105	0.498343
12	BAMBURI CEMENT LTD (BAMB)	2018	-0.25978	0.025222	0.022222	0.508167
		2017	-0.03226	0.09025	0.075	0.513469
		2016	-0.05882	0.082686	0.074286	0.465371
		2015	0.136364	0.070504	0.086331	0.577173
13	CROWN PAINTS KENYA LTD (BERG)	2018	0	0.03925	0.0075	0.308625

		2017	0.103448	0.044048	0.014286	0.522619
		2016	0.043478	0.007049	0.009836	0.311475
		2015	-0.24691	0.022432	0.047297	0.511622
14	TOTAL KENYA LTD (TOTL)	2018	-0.07563	0.185106	0.055319	1.44766
		2017	0.105882	0.208824	0.062353	1.808235
		2016	0.005917	0.140822	0.042192	1.531507
		2015	-0.23958	0.094167	0.029167	1.087083
15	UMEME LTD (UMME)	2018	-0.03571	0.046352	0.016434	0.801322
		2017	0.067729	0.177761	0.039317	0.803919
		2016	-0.20588	0.082477	0.044665	0.39362
		2015	0.059524	0.05781	0.038853	0.2597
16	BRITISH AMERICAN INVESTMENTS CO (KENYA) (BRIT)	2018	-0.31507	0.020225	0.026217	0.873408
		2017	0.055336	0.126	0.03	0.919
		2016	-0.29577	-0.03846	0.023077	0.701538
		2015	-0.36585	0.044034	0.010084	0.371765
17	CIC INSURANCE GROUP LTD (CIC)	2018	-0.16087	0.032143	0.021429	0.516071
		2017	0.365854	0.018421	0.028947	0.739474
		2016	-0.17391	0.069355	0.017742	0.472581
		2015	-0.22013	0.04375	0.010417	0.2875
18	JUBILEE HOLDINGS LTD (JUB)	2018	-0.19851	0.119599	0.018036	0.716373
		2017	0.134091	0.112336	0.019082	0.679627
		2016	0.076903	0.097068	0.019318	0.658795
		2015	-0.13879	0.129282	0.022856	0.693009
19	KENYA REINSURANCE CORP (KNRE)	2018	-0.1275	1.128035	0.187638	8.578366
		2017	-0.12717	0.856128	0.142096	6.124334
		2016	0.153689	0.933333	0.142857	5.969524

		2015	0.174497	1.051643	0.164319	6.704225
20	LIBERTY KENYA HOLDINGS (CFCI)	2018	-0.05147	0.12623	0.040984	1.091803
		2017	0.070175	0.088973	0	0.911787
		2016	-0.02952	0.070256	0	0.564615
		2015	-0.19588	0.092043	0.017204	0.463656
21	CENTUM INVESTMENT LTD (ICDC)	2018	0.122807	0.088989	0.026966	1.718652
		2017	0.085366	0.317391	0.034783	2.155072
		2016	-0.12658	0.255435	0.021739	1.413043
		2015	-0.11538	0.164567	0	0.912283
22	B.O.C KENYA LTD (BOC)	2018	-0.16667	0.018879	0.048598	0.771215
		2017	0.150538	0.078902	0.063415	1.055122
		2016	-0.04094	0.074608	0.05098	0.860588
		2015	-0.26619	0.09408	0.0416	0.71584
23	BRITISH AMERICAN TOBACCO KENYA (BAT)	2018	0.208333	0.043895	0.056579	0.103158
		2017	-0.10272	0.046579	0.047305	0.096766
		2016	0.088623	0.063389	0.063185	0.112777
		2015	0.059379	0.046861	0.046806	0.089504
24	EAST AFRICAN BREWERIES LTD (EABL)	2018	-0.08403	0.03749	0.028958	0.058533
		2017	0.061475	0.033669	0.026978	0.049424
		2016	0.018315	0.037237	0.024671	0.055526
		2015	-0.01299	0.029011	0.019435	0.040671
25	UNGA GROUP LTD (UNGA)	2018	0.353448	0.016198	0.033058	2.144132
		2017	-0.12319	0.127059	0.029412	2.212941
		2016	0.007407	0.112727	0.02139	1.502674
		2015	0.176101	0.079692	0.023077	1.744
26	CARBACID INVESTMENTS LTD (CARB)	2018	-0.12351	0.105344	0.053435	0.875573

		2017	0.091667	0.099324	0.047297	0.708784
		2016	-0.01003	0.091445	0.041298	0.573451
		2015	-0.31515	0.06955	0.025225	0.305225
27	SAFARICOM LTD (SCOM)	2018	0.12449	0.044516	0.035484	0.099677
		2017	0.252525	0.067222	0.053889	0.149444
		2016	-0.09774	0.056213	0.04497	0.172189
		2015	0.111842	0.046921	0.037537	0.153079
28	KAKUZI LIMITED (KAKZ)	2018	-0.03125	0.0918	0.0213	0.6702
		2017	0.0613	0.0929	0.0194	0.6344
		2016	0.0266	0.07400	0.0158	0.5427
		2015	0.0326	0.04540	0.0208	0.84600
29	SASINI LTD	2018	-0.2	0.05740	0.03774	1.8725
		2017	0.0192	0.18780	0.0831	3.3911
		2016	-0.0599	0.26116	0.07645	3.6361
		2015	0.13937	0.00690	0.01724	3.6655
30	LONGHORN PUBLISHERS	2018	0.692	0.15952	0.08333	0.9086
		2017	-0.2222	0.09703	0.05941	0.68713
		2016	0.05208	0.11580	0.0614	0.6105
		2015	0.338	0.10060	0.0216	0.2006
31	NATION MEDIA GROUP	2018	-0.2389	0.05948	0.08621	0.37336
		2017	0.07407	0.09570	0.1075	0.4962
		2016	-0.38	0.06180	0.0524	0.2486
		2015	-0.0402	0.04981	0.03802	0.1768