THE EFFECT OF OVER CONFIDENCE BIAS ON STOCK RETURNS OF COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE

KEREN CHITERI MAKOKHA

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DECLARATION

This research proposal is my original work and has not been submitted for any award in any University.

Signature_____**Date**_____

Keren Chiteri Makokha

D61/72655/2012

This Research proposal has been submitted for examination with my approval as the University of Nairobi supervisor.

Signature_____ **Date**_____

Mrs. Zipporah Onsomu

Lecturer

University of Nairobi

Mombasa Campus

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DEDICATIONS

To my parents and siblings who gave me all the support and encouragement to complete this programme despite the many challenges that I was facing during that period.

ABSTRACT

The main objective of this study was to establish the effect of over confidence bias on stock returns of companies listed at the NSE. The target population of this study was the 64 companies listed at the NSE. To conduct the study, secondary data was obtained from NSE. Data collected for this study was analyzed using descriptive statistics and regression analysis. Regression analysis was used to analyze relationship between overconfidence bias and stock returns. The variables studied included profitability, firm size, overconfidence and stock returns. The results indicated that stock returns of the companies listed at the NSE are affected by overconfidence bias.There was a strong positive relationship between stock returns and overconfidence. The co-efficient co-relation of 0.634 indicated that there existed a positive co-relation between the stock returns, overconfidence bias, profitability and firm size. The study also revealed that the overall model did not pass the goodness of fit test since the P value of 0.875 was greater than the level of significance of 0.05.The co-efficients of the variables in the model were 0.008 for overconfidence, 0.058 for profitability and 0.166 for firm size. The study recommends that a regulation framework that would strengthen market over sight and surveillance be put in place.

ABBREVIATION AND ACRONYMS

EMH   Efficient Markets Hypothesis

KRX   Korea Stock Exchange

NSE   Nairobi Securities Exchange

SPSS   Statistical Package for Social Scientists

UAE   United Arab Emirates

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CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The overconfidence effect is a bias in which a person's subjective confidence in his or her judgments is reliably greater than the objective accuracy of those judgments, especially when confidence is relatively high Danthir et al, (2002). Overconfidence causes people to be correct in their judgments far less often than they think they are). Over-confident investors tend to ignore information that lowers their self-esteem and embraces that which allows them to maintain their confidence. Theoretical models predict that overconfident investors are bound to trade excessively a concept known as overtrading.

The theories covered in the study include the following; efficient market hypothesis, prospect theory and heuristics theory. The study was anchored on the Efficient Market Hypothesis, which postulates that stock prices incorporates all available information and prices can be viewed as optimal estimates of true investment value at all times. Rational investors are consistent with the Efficient Market Hypothesis while irrational investors are not consistent with the same (Fama, 1998).The randomness of security prices and returns implies that investors in the capital markets take a quick cognizance of all information relating to security prices, and that security prices quickly adjust to such information. Thus, the efficiency of security prices depends on the speed of price adjustment. The Prospect Theory says that losses have more emotional impact than an equivalent amount of gains. Most investors are risk averse when chasing gains but becoming risk lovers when trying to avoid a loss. Heuristics is defined by behaviorists as the way by which people find things out of themselves usually by trial and error and the trials always leads them to

design "rules of thumb" (Shefrin, 2000).Traditional finance describes it as the use of experience and practical efforts to answer questions or to improve performance.

The Nairobi Securities Exchange is the largest stock exchange in East and Central Africa by number of companies listed and the value of shares. By July 2015 the total number of companies listed at the NSE totaled 64. NSE provides daily share index which is computed from 20 companies. Moreover, NSE provides daily trading statistics between Monday and Friday which includes volume of shares traded, share price changes, highest gainer as well as loser.

1.1.1 Overconfidence Bias

Overconfidence is when investors place too much weight on information they collect themselves due to excessive optimism (Daniel et al, 1998). They depicted that investors tend to ignore information that lowers their self-esteem and embraces that which allows them to maintain their confidence. Overconfidence bias causes investors to trade excessively. Razek (2011) define overconfidence as an overestimation of the probabilities for a set of events. The study argued that the concept is operationally reflected by comparing whether the specific probability assigned is greater than the portion that is correct for all assessments assigned to the given probability. Agrawal (2012) noted that overconfidence causes people to overestimate their knowledge, undervalue risks and overestimate their ability to control events. The study claimed that overconfidence originates in people's biased evaluation of evidence. There is evidence for the presence of the overconfidence bias in different financial decisions

According to Tauni and Zaidi (2012) Investors exhibit overconfidence when they tend to seek information that they consider supportive of favoured hypotheses and overestimate the facts available. They overestimate the probability that their personal assessments of the security's

value are more accurate than the assessments of others. Thus, overconfident investors believe more strongly in their own valuations, and concern themselves less about the beliefs of others. This intensifies differences of opinion, and differences of opinion cause trading (Varian, 1989; Harris and Raviv, 1993).

1.1.2 Stock Returns

Stock returns refer to the gain or loss of a security in a particular period. Stock market indices are designed to show the performance of the stock market. A stock market index is an indicator of the average change in prices of shares quoted on the stock market. In Kenya there are three stock indices: firstly, is the NSE 20 share index, the AIG 27 index and the NSE All Share Index (NASI). The NSE 20 share index is an equi-weighted mean of 20 large ordinary stocks traded in the NSE. It includes companies from different sectors such as Sasini, Kenya Airways, Safaricom, KCB and East African Cables. It has been in use since 1964 and measure the performance of companies with strong fundamentals. The importance of the index is that it acts as a barometer for the economy.

1.1.3 Overconfidence and Stock Returns

Stock prices become biased when overconfident investors become captivated by stories that are inconsistent with the objective data. In forming their beliefs, overconfident investors place too much weight on the stories and not enough on objective data, such as E/P or B/P ratios.Non-growing stocks with especially high or low E/P or B/P ratios are likely to be "story stocks," and subject to overconfidence bias.

Barber and Odean (2000) found out that the majority of the empirical evidence indicates that individual investors, in aggregate, earn poor long-run returns and would be better off had they

invested in a low cost index fund. This evidence of poor performance is particularly compelling when they included transaction costs (e.g., commissions, bid-ask spreads, market impact, and transaction taxes).These observations lead one to wonder why investors trade so much and to their detriment.

Using abnormal trading volume, the previous day's return, and news coverage as proxies for attention, Barber and Odean(2008) found that individual investors in the LDB and FSB datasets execute proportionately more buy orders for more attention grabbing stocks. In summary, some investors fail to take advantage of the full benefits of diversification. Under diversified investors might over invest in company stock, local stocks, familiar stocks, and domestic companies. Doing so may make them feel safe, but it leaves them exposed to increased volatility in their investment returns

1.1.4 The Nairobi Securities Exchange

The Nairobi Securities Exchange is the principal securities exchange in Kenya. It began in 1954 as an overseas stock exchange while Kenya was still a British Colony with permission of the London Stock Exchange. The NSE is a member of Africa Stock Association. The Nairobi Securities Exchange is self-regulating organization for listed instruments (Muga, 1974).The NSE use two indices; the NSE 20-Share Index which has been in use since 1964 and measures the performance of 20 blue chip companies with strong fundamentals and which have consistently returned positive financial results. In 2008, the Nairobi Securities Exchange All Share Index (NASI) was introduced as an alternative index. The index incorporates all traded shares of the day. Its attention is therefore on the overall market capitalization (NSE, 2010)

Barasa (2008) observes that dealing in shares and stocks commenced in the 1920s but on gentleman's agreement with no formal market, results and regulations to govern stock market activities. Trading was done manually with brokers handling a lot of paperwork. To the extent that the stock market was less developed, several key issues plagued the market and these included the low market confidence and perception of low standards of corporate governance characterized by the failure of listed firms such as Uchumi Supermarkets, Francis Thuo Stock brokers and Nyaga Stock brokers. The brokerage firms did not publish their annual reports. There was also growing concern for the lack of competitiveness in the local market and the depth in the NSE product offerings such as in derivatives, options and securitization. The vulnerability to market shocks, the low level of capital market liquidity and the eminent conflict of interest as brokerage firms also acted as dealers and fund managers. There were also increased mutilations, theft or loss of share certificates and the need to minimize bad or wrong deliveries coupled with regulatory problems (NSE, 2010)

1.2 Research Problem

The theory of investor overconfidence provides testable implications assuming investor overestimation of their abilities and private information and biased self-attributions. Overconfidence causes people to be correct in their judgments far less often than they think they are. The more often investors' predictions come true, the more overconfident they become. Overconfidence often enforces over optimism and an illusion of control in investors' minds. Overoptimistic investors underrate their ability to deal with event they cannot control.

Recently, Kenyans have expressed growing interest in shares investment which has been witnessed through participation in initial public offers. Although, Safaricom IPO was oversubscribed immediately after commencement of trading in NSE the price declined. Which

resulted in subsequent fall in demand and further fall in price. This can be attributed to investors' inability to evaluate stocks individually since prior IPO to Safaricom were oversubscribed. This showed aspects of herd behaviour and irrationality among investors.

Odean (1998) tested and found evidence for the disposition effect, the tendency of investors to sell winning investments too soon and hold losing investments for too long.

A review of studies done locally by Werah (2006) at the NSE showed that the behaviour of investors at the NSE were to some extent irrational when considered from the rationality of the investors in their disregard of fundamental estimations as a result of herd behaviour, regret aversion, overconfidence and anchoring. Mbaluka (2008) found that investors had their rationality affected by psychological aspects. The results showed that investors did not invest as expected as they showed unwillingness to change their portfolio despite unattractive macroeconomic outlook. Waruingi (2011) revealed an effect on behavioural factors on the investor decision making behaviour at the NSE.

Previous studies reviewed have shown that behavioural factors influence investment behaviour, however, There is no study reviewed that has considered the effect of overconfidence bias on stock returns. This study therefore seeks to fill the gap and answer the question: Is there an effect of overconfidence bias on stock returns of companies listed at the Nairobi Securities Exchange?

1.3 Research Objectives

To establish the effect of overconfidence bias on stock returns of companies listed at the Nairobi Securities Exchange.

1.4 Value of the Study

Understanding behavioural factors that underlie individual decision making will help investment managers to set better investment outcome and achieve a better advisory relationship with their clients. The study will assist existing and potential investors to make investment decisions soberly now that they would know other factors influencing their behaviour.

The research will make a contribution to academic literature on the field of behavioural finance and in particular Investor Psychology in Kenya, an emerging market where little research has been done on this topic. It will add to the existing body of knowledge in behavioural finance as well as provide a platform for further research in investor psychology raging debate in finance.

The study will assist the practitioners and government agencies to develop programs that will rectify any distortions or anomalies that are in the bourse and which investors encounter while making investment decisions. This will be through policy formulation and regulation by the Capital Markets Authority and the Nairobi Securities Exchange.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviewed relevant literature on the relationship between overconfidence bias and stock returns. It highlighted the theoretical literature review, review of empirical studies, and the summary of the literature reviews.

2.2 Theoretical Literature Review

The study reviewed Efficiently Market Hypothesis theory and Behavioural theories.

2.2.1 Efficient Market Hypothesis Theory

The Efficient Market Hypothesis (EMH) is considered as the backbone of contemporary financial theory and has been the dominant investing theory for more than 30 years. It is the proposition that current stock prices fully reflect available information about the value of the firm, and there is no way one can earn excess profits, more than the market over all, by using this information (Fama, 1970).

The primary purpose of EMH is that stock prices accurately and quickly reflect all available information in such a way that no one can earn abnormal returns. The time for adjusting any information is considered a critical factor. If the markets adjust more rapidly and accurately, it is considered more efficient. Efficient markets, according to economists, 'do not allow investors to earn above-average returns without accepting above-average risks' (Malkiel, 2003). In detail, Efficient Market Hypothesis advocates the efficiency of the financial market in terms of the overwhelming information, news, or communication involved. According to Fama (1970), efficient markets are markets where 'there are large numbers of rational profit maximisers actively competing, with each trying to predict future market values of individual

securities, and where important current information is almost freely available to all participants'. In effect, both individual stocks and the aggregate stock market are characterized as efficient when they 'fully reflect' available information and can integrate it in current stock prices.

There are three forms of stock market efficiency including efficiency in the weak form, semi-strong form and strong form. Efficiency in the weak form implies the stock prices occur in a random fashion where current prices are independent of past prices and the use of past information in the form of pattern or trend analysis should not generate abnormal returns unless there is an anomaly. Efficiency in the semi-strong form implies that current stock prices fully reflect both publicly released and past information and any attempt to use such information should not generate abnormal profits unless there is an anomaly. Efficiency in the strong form implies that the use of private or public or past information should not outperform the average performance of other investors as all such information is fully incorporated in the current stock prices (Copeland, 2005).

The alternative hypothesis is that security market is inefficient and that result of stock price is not accurately reflecting the new information. This might result from the following: the investor is unable to interpret the new information correctly; the investors have no access to the new information; the transaction cost in trading security is an obstruction for free trading; the restriction on short sale; and finally, the investors might be misled by the change in accounting principles Konstantinidis et al, (2012) Investors and researchers have disputed the efficient-market hypothesis both empirically and theoretically. Behavioural economists attribute the imperfections in financial markets to a combination of cognitive biases such as overconfidence, overreaction, representative bias, information bias, and various other predictable human errors in

reasoning and information processing. These have been researched by psychologists such as Kahneman and Tversky (1979), Thaler (1993), and Slovic (2000).

2.2.2 Behavioural Theories

According to Ritter (2003), behavioural finance is based on psychology which suggests that human decision processes are subject to several cognitive illusions. These illusions are divided into two groups: illusions caused by heuristic decision process and illusions rooted from the adoption of mental frames grouped in the prospect theory.

The Prospect Theory says that losses have more emotional impact than an equivalent amount of gains. Consequently people respond differently to equivalent situations depending on whether it is presented in the context of a loss or a gain. Most investors are risk averse when chasing gains but becoming risk lovers when trying to avoid a loss. Prospect theory helps explain how loss aversion, and an inability to ignore sunk costs, leads people to take actions that are not in their best interest. The sting of losing money, for example, often leads investors to pull money out of the stock market unwisely when securities dip, Belsky and Gilovich (1999). This theory if explained by use of the following behavioral factors

Loss Aversion Factor Kahneman and Tversky (1991), sought to provide a theory that describes how decision-makers actually behave when confronted with choices under uncertainty. They identified a sharp asymmetry between the values that people put on gains and on losses. This asymmetry, called loss aversion, has losses weighted about twice heavily as gains that is losing $1 is about twice as painful as the pleasure of gaining. This can also be expressed as the phenomena in which people will tend to gamble in losses i.e. holding on to losing options in the hope that prices will eventually recover.

Mental Accounting Factor frames and mental accounting describes the tendency of people to place particular events into different mental accounts based on superficial attributes (Shiller, 1998).The main idea underlying mental accounting is that decision-makers tend to separate the different types of gambles they face into separate accounts, and then apply theoretical decision rules to each account by ignoring possible interaction between the accounts. Mental accounts can be isolated not only by content, but also in respect to time.

From the prospects theory we get to understand why investors are sometimes disposed to selling their winners and holding their losersa behavior that Shefrin and Statman (1985) call the disposition affect. Investors may sellwinners to realize gains because they want to experience pride, and that they will hold onto losers because theydon't want to feel regret.

Heuristics is defined by behaviourists as the way by which people find things out of themselves usually by trial and error and the trials always leads them to design "rules of thumb" (Shefrin, 2000).Traditional finance describes it as the use of experience and practical efforts to answer questions or to improve performance. Due to the increased flow of information decision making has been complicated implying the use of heuristics becoming inevitable approach, but not always beneficiary. This concept may help to explain why the market sometimes acts in an irrational manner, which is opposite to the model of perfectly informed markets. The interpretation of new information may require heuristic decision-making rules, which might later have to be reconsidered. The whole market can initially react in the wrong way. Heuristics can be explained by the following behavioural characteristics.

Anchoring Heuristic, anchoring refers to the decision-making process where quantitative assessments are required and where the assessments may be influenced by suggestions.

Anchoring (Yates, 1990) is a phenomenon in which in the absence of better information, investors assume current prices are about right. Anchoring describes how individuals tend to focus recent behaviour and give less weight to longer time trends (Shiller, 2000)

Availability heuristic is mental shortcut that occurs when people make judgments about the probability of events by the ease with which examples come to mind. Representativeness heuristic is a mental shortcut used when making judgments about the probability of an event under uncertainty, or judging a situation based on how similar the prospects are to the prototypes the person holds in his or her mind.

It is clear that individuals do not always choose the alternative that will maximize their utilities and the presentation of the decision problem could lead to a deviation from the rational behavior. This can be attributed to the fact that individuals are creatures who have emotions which in themselves are barriers to rationality. Their choices under uncertainty can be affected by their emotions. Even if individuals can control their emotions for a while, they again behave irrationally because they cannot fix their minds. Individuals have limited computational skills and they have to use some heuristics in order to reduce the mental efforts for simplifying the complex tasks and make the decision process easier. These short cuts many at times lead people to some irrational behaviours.

2.3 Determinants of Share Returns

The following factors explained the variability of share returns. Firstly is the dividend levels paid by the company. A company that pays out dividends regularly is more likely to attract high share prices due to investor confidence concerning the future prospects of the firm. Secondly, is the profitability level of the firm? Profit is considered as the prime objective of any firm. A firm that

makes high level of profits will be able to have a high or low pay-out ratio that will have an informational content to the investors and as such affect the share prices positively in the financial markets.

Hence shareholders are likely to interpret a passed dividend payment due or a loss or low earnings as a negative signal which is likely to result in lower stock value. Thirdly, is the growth prospect of the firm. A growth firm is more likely to depend considerably on internal financing through retained earnings whereas a more established firm, on the other hand is in a better position to pay out a large proportion of its earnings as dividends especially if it has ready sources of financing of which is likely to affect the share price positively.

2.4 Review of Empirical Studies

Park et al (2009) did a study in South Korea Stock Exchange (KRX) on Overconfidence Bias, Confirmation, and Investment Performance. The study conjectured that investors would use message boards to seek information that confirms their prior beliefs. This confirmation bias would make them more overconfident and adversely affect their investment performance. It was found out that investor's exhibit confirmation bias when they process information from message boards. The results also demonstrated that investors with stronger confirmation bias exhibit greater overconfidence. Those investors have higher expectations about their performance, trade more frequently, but obtain lower realized returns. Collectively, the results suggested that participation in virtual communities increases investors' propensity to commit investment mistakes and is likely to be detrimental to their investment performance.

Cekauskas and Vytautas Liatukas (2011) did a study on behavioural biases of the disposition effect and overconfidence and their impact on the Estonian stock market. They found out that

that given the opportunity to sell a stock investors in the Estonian stock market are less willing to get rid of the stocks that have lost value as compared to the stocks that have gained value. Stock volatility and stock volume were used to measure the overconfidence bias.

According to Agrawal (2012), overconfidence affects not only the behaviour of secondary market traders but also investors in the primary market. In a recent study, Hsu & Shiu (2010) examined the investment returns of investors in discriminatory auctions taking place in the Taiwan stock market and found that frequent bidders under-perform infrequent bidders. Overconfidence led to aggressive bidding and higher payment for securing the auctioned shares. Frequent bidders also prove to be inferior in terms of stock selection performance. This implies their overestimation of the future cash flow of the initial public offer (IPO) firms, or underestimation of the risk of investment in these firms, or both. According to Subrahmanyan (2007), over confidence about private signals causes overreaction and hence phenomena like the book/market effect and long-run reversals, whereas self-attribution (attributing success to competence and failures to bad luck) maintains overconfidence and allows prices to continue to overreact, creating momentum.

Sheikh and Riaz (2012) did a study on overconfidence bias, trading volume and returns volatility in Pakistan. The results confirmed the presence of investor overconfidence at Karachi Stock Exchange. The study applied judgemental sampling technique to select only companies which were trading in 1999 to 2010. The study applied time series analysis, vector autoregressive analysis to examine the link the link between overconfidence bias and stock return which was measures as Karachi stock exchange stock return for the same period.

Tauni and Zaidi (2012) studied the Influence of Investor's Personality Traits and Demographics on Overconfidence Bias at the Lahore Stock Exchange in Pakistan (LSE). To achieve the purpose, survey methodology was used and a questionnaire was distributed among 200 randomly selected investors out of which 170 questionnaires were used for analysis and rests were discarded due to incomplete or non-serious response. Findings showed that there is a positive relationship between overconfidence bias and Agreeableness, Extroversion & Consciousness; and negative relationship between Overconfidence bias and Neuroticism. The results also showed that there is an association between investment experience and overconfidence bias. Hence, it was concluded that investors of Lahore Stock Exchange (LSE) are not purely rational and the explanations provided by traditional financial theory do not hold true.

Adel and Mariem (2013) did a study on the impact of overconfidence on investors' decisions. They found that the results indicate the importance of bias on confidence in the analysis of the specificities of the Tunisian financial market. Purposive sampling technique was used to select 27 companies which were actively trading in Tunisia securities exchange in 2002 to 2010. Multivariate time series analysis through application of time series test and VAR modelling; ARMA and EGARCH showed that there is a positive significant impact of overconfidence bias on stock in Tunisia

Tanvir et al (2013) did a study to investigate the influence of demographics (residential area, age, gender, marital status, education background) and personality traits (extraversion, openness, conscientiousness, neuroticism, and agreeableness) on the financial behavioural biases (overconfidence, herding/mass behaviours and disposition effect) and risk taking behaviour in Pakistan. Questionnaire survey method was used to collect the data from a Sample size of 225 respondents that includes bankers, finance students as well as investors. Structure Equation

Modelling (SEM) analysis was used to analyse the impact of personality traits and demographics on the investment biases through Amos 20. The results showed that big five personality traits have a significant relationship with overconfidence, herding/mass behaviour and risk taking except disposition effect.

Kiungu (2013) did a study on the influence of behavioural biases on the trading decisions of equity fund investors: a case of British American (britam) Kenya Equity fund and found that there were a number of investors who were influenced by the disposition effect and by loss aversion in their selling/redemption decisions in that they sold fund shares quickly when prices increased slightly and held on to shares slightly longer when prices declined below the original fund share price of Kshs. 100.

Aduda et al. (2012) while conducting their study on "the behaviour and financial performance of individual investors in the trading shares of companies listed at the Nairobi Stock Exchange, Kenya" with the first objective of their study being to find out how individual investors make their investment decisions", they found out that, influence from friends; where most investors relied on advice from friends and colleagues before deciding to go for stocks and; popular opinion about the market and from recent trend in share price movements were clear indication of herd behaviour existing in NSE.

Mbaluka (2008) study established the existence of behavioural effects on individual investment decision making process. His results showed that investors had their rationality affected by the psychological aspects. The study found out that investors did not invest as expected as they showed unwillingness to change their portfolio despite unattractive macroeconomic outlook. The endowment effect was identified with investors in the experiment with 23% of them changing

their portfolio mix while 77% failed to change even when the economic outlook demanded that change.

Onsomu (2014) did a study on the effect of behavioural biases on investor decisions in Kenya.It was found that Overconfidence bias has no significant effect because less than 50% of the investors were affected. There was no significant correlation between Availability bias, Representativeness bias, Confirmation bias, Disposition effect and Overconfidence bias and gender. This is because the P-Values obtained were more than 5%. The descriptive statistics was used together with Pearson Chi-square technique to analyse the data.

2.5 Summary of Literature Review

From the literature review discussed was evident that behavioural factors influenced investors' decisions. Studies showed that both institutional and individual investors are affected by various biases. In other markets various empirical studies contend with the fact that people are affected by behavioural factors in decision making processes. The common data collection method in these studies hasd been the use of secondary data.

Nagyand Obenberger (1994) used a questionnaire to determine that investor behaviour is influenced by factors such as corporate earnings and diversification needs, past performance of stocks and portfolio and stock brokers' recommendation. Al Tamimi (2006) explores the key aspects that guide investor behaviour in the United Arab Emirates belongs to five categories, namely, self-firm image coincidence, accounting information, neutral information, advocate recommendations and personal financial needs. Kim and Nofsinger (2007) studied the behavioural profile of Japanese investors and found that they are risk takers, frequent traders, make poor trading decisions and buy recent winners. Chandra and Kumar (2012) provide

evidence that individual investors depend on heuristics for making investment decisions and their

behaviourinfluencedbybiaseslikeoverconfidenceandrepresentativeness.

Past studies reviewed had shown behavioural factors influence investment behaviour, however, this study seemed to fill the gap by examining the relationship between overconfidence bias and stock returns of companies listed at the NSE.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter contained the methodology which was used to carry out this study. It describes the research design, the target population, data collection and the data analysis techniques.

3.2 Research Design

Research design is the plan and structure of investigation so conceived as to obtain answers to research question. This study will apply descriptive design to investigate the relationship between overconfidence bias and stock returns. The design was appropriate since it was seeking to show the causal relationship between dependent and independent variables (Oso and Onen, 2008).

3.3 Target Population

The study involved individual investors who trade at the Nairobi Securities Exchange so as to establish their level of overconfidence. A census was conducted to carry out the study. The population of the study comprised of the 64 companies listed at the NSE as at 31st December, 2014.

3.4 Data Collection

This study used secondary data from Nairobi Securities Exchange which was collected through the use of data collection sheets. The data collected included price of shares, dividends paid, EPS and volume of shares traded. The data collected will cover 5 year period.

3.5 Data Analysis

As a statistical tool for the investigation of relationship between variables, regression analysis was used to check whether there was a relationship between overconfidence bias and stock returns.

$Y=\alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3.$

Where: Y is the dependent variable which is Stock return

X_1, X_2, and X_3 were the predictor variable

β_1, β_2 and β_3 were the coefficient of the predictor variable

Where? Y=Stock returns, α = was Y intercept, X_1= overconfidence, X_2= Profitability, X_3= size of the firm.

3.5.1 Operationalisation of variables

Stock returns were measured by the sum of Capital Gains and Dividend,

Shown by the equation $\qquad : \frac{P_1 + P_0}{P_0} + \frac{D_1}{P_0}$

The profitability was be measured by the Earnings per share;

EPS = net income / average outstanding common shares

Size of the firm is given by total assets.

The measurement of overconfidence will be monthly average trading volume of companies listed at the NSE as at 31st Dec, 2014 for the study period. The measure of overconfidence will be done using Parkinson formula as stated below:

$$\sigma_{i,t} = \sqrt{12}\sqrt{\frac{ln\left(\left(H_i\frac{t}{L_{i,t}}\right)^2\right)}{4ln(2)}}$$

$\sigma_{i,t}$=measure of overconfidence bias

12= number of months in the year of study

H= Highest volume traded in year of study

L= Lowest volume traded in the year of study

i= high or low volume that NSE might obtain after one month in survey t

t= Survey number

In= natural logarithm

3.6 Test of significance

The test of significance was carried out to analyse the magnitude of the relationship. The significance of these correlations was measured by t-test at 5% of significance. The t- test measured the statistical significance of the parameter estimates or co-efficient. The F test was used to test the significance of the whole model. The co-efficient of determination (r^2) measured the proportion of the total variation that has been explained by the independent variable. The higher the r^2 the more reliable it is.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter presents the data analysis results and discussion of findings on the relationship between overconfidence bias and stock returns of firms listed at the NSE. A Simple Linear Regression Model was used to analyse the relationship between overconfidence bias and stock returns for the 64 listed firms.

4.2 Relationship between Overconfidence Bias and Stock Returns

To facilitate an inferential analysis of the relationship between overconfidence bias and stock returns.

Table 4.1: Interaction of variables of overconfidence bias and stock returns

Year	Y	X_1	X_2	X_3
2010	0.06	61.94	0.301	3680033
2011	0.054	59.83	0.410	3570365
2012	0.063	46.99	0.444	3425677
2013	0.068	68.34	0.458	3466113
2014	0.053	73.21	0.457	2834912

Source: researcher 2015

Source: (Research Data, 2015)

Where Y is average stock return, X_1 is average overconfidence bias; X_2 is average profitability; X_3 is average firm size.

A regression analysis of the relationship between overconfidence bias and stock returns done yielded the results as is shown in Table 4.2

Table 4.2 Regression Analysis model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.634[a]	.403	-1.390	.00969	.403	.225	3	1	.875

a. Predictors: (Constant), firm size, overconfidence, profitability

From Table 4.2, R (0.634) shows a slightly strong positive relationship between overconfidence bias and stock returns. R^2 shows that 40.3% of the variation in the stock returns is explained by the variations in the firm size, profitability and overconfidence.

The overall p-value (0.875) also indicates that the overall model did not pass the goodness of fit test in predicting stock returns for the future since it is also greater than the level of significance given as 0.05. It can also be inferred that all the variables in the model are insignificant since their p-values are greater than the level of significance hence it would therefore not be appropriate to use this model to predict stock returns because all the individual parameters are not significant in explaining the returns.

Table 4.3: Regression Model Coefficients

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	-.026	.128		-.200	.874	-1.654	1.603					
Overconfidence	.008	.059	.129	.137	.913	-.741	.757	-.239	.136	.106	.683	1.464
Prfitability	.058	.096	.613	.604	.654	-1.165	1.281	.100	.517	.467	.581	1.722
Firm size	.166	.223	.868	.741	.594	-2.671	3.002	.429	.596	.573	.436	2.295

a. Dependent Variable: stock return
Source: researcher 2015

From Table 4.3, the following regression model was established:

$$Stock\ \mathrm{Re}turn = -0.026 + 0.008X_1 + 0.058X_2 + 0.166X_3$$

Where X_1 represents Overconfidence;

   X_2 represents Profitability and

   X_3 represents Firm size.

The model shows that all the variables Overconfidence (X_1); Profitability (X_2) and Firm size (X_3) have a positive relationship with stock returns as shown by their coefficient values.

The intercept α (-0.026) signifies that this is the minimum stock returns when overconfidence bias, profitability and firm size do not change assume a zero value.

The slope coefficient for over confidence, 0.008 signifies that a unit change in overconfidence bias will result in a change in stock return of 0.008 and the slope coefficient for profitability .058 signifies that a unit change in profitability will result in a change in stock return of 0.058. The slope coefficient of size, 0.166 indicate that a unit change in firm size will result in change of stock return of 0.166.

The p-values of overconfidence (0.913) indicates that overconfidence is not a significant factor in determining the stock return since it is greater than the level of significance used for the model given as 0.05.

The p-value for profitability (0.654) also indicates that profitability is not a significant factor in determining the stock returns since it is greater than the level of significance used for this model given as 0.05.

The p-value for firm size (0.594) also indicates that firm size is not a significant factor in determining the stock returns since it is greater than the level of significance used for this model given as 0.05.

Table 4.4 Correlation Analysis

Correlations

		Stock return	overconfidence	profitability	Firm size
Pearson Correlation	Stock return	1.000	-.239	.100	.429
	overconfidence	-.239	1.000	.124	-.511
	profitability	.100	.124	1.000	-.610
	Firm size	.429	-.511	-.610	1.000
Sig. (1-tailed)	Stock return	.	.349	.437	.236
	overconfidence	.349	.	.421	.189
	profitability	.437	.421	.	.137
	Firm size	.236	.189	.137	.
N	Stock return	5	5	5	5
	overconfidence	5	5	5	5
	profitability	5	5	5	5
	firmsize	5	5	5	5

Source: researcher 2015

The result of correlation analysis indicated that there was moderately negative correlation between stock returns and overconfidence with a coefficient of -0.239. Stock returns and profitability were positively correlated with a coefficient of 0.10. This showed a weak positive correlation.   The correlation coefficient between stock returns and firm size was 0.429. This indicated that stock returns had a relatively strong positive relationship with size.

The correlation between stock returns and overconfidence had a significance probability of 0.349. Noting that 0.349 is greater than 0.05, the relationship was not statistically significant at the 5% level of significance. The probability of significance for the relationship between stock returns and profitability was not statistically significant at 5% level as 0.437 is greater than 0.05.

The relationship between returns and firm size had a significance probability of 0 .236, since

0.236 is greater than 0.05, the relationship was not significant at the 5% level.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary on the effect of over confidence bias on stock returns of companies listed at the Nairobi Securities Exchange. A conclusion discussing the general findings of the research is highlighted followed by recommendation based on the findings of the study. The limitations of the study and suggestions on areas of further research are discussed at the end of the chapter.

5.2 Summary of the Findings

On the relationship between stock returns and overconfidence bias, profitability and firm size, the research findings revealed that there is a strong positive relationship between stock returns and overconfidence bias, profitability and firm size. A coefficient correlation of 0.634 indicates that there exists a positive correlation between the stock return and overconfidence bias, profitability and firm size.

However, on the analysis of the relationship between the individual independent variables and stock return, as indicated in Table 4.3: Regression Model Coefficients, the results showed that there existed a positive relationship between stock returns and over confidence bias with a coefficient of 0.059, profitability with a coefficient of 0.096 and firm size with a coefficient of 0.223.. R^2 shows that 40.3% of the variations in the stock return are explained by the variation in overconfidence bias, profitability and firm size.

The study also revealed that the overall model did not pass the goodness of fit test since the P value of 0.875 was greater than the level of significance of 0.05. The model further showed that

the individual parameters were insignificant since their P- value were also greater that the level of significance where overconfidence bias had a P- value of 0.913, profitability 0.654 and firm size 0.594 which are greater than the level of significance of 0.05.

5.3 Conclusions of the Study

The study reached a conclusion that investors' overconfidence at the NSE was negatively related to stock returns but the relationship was not statistically significant. It also concluded that stock returns and profitability, stock returns and firm size had a positive relationship but the relationship was not significant. Further the study concluded that overconfidence, profitability and firm size had a positive effect on stock returns. However the effects were not statistically significant. Using the coefficient of determination R^2 it was concluded that overreaction, profitability and firm had moderate explanatory/predictive power on stock returns.

5.4 Recommendations for further studies

The study recommends that a regulation framework that would strengthen market oversight and surveillance be put in place. Market intermediaries to be supervised hence ensuring that information asymmetry does not exist.

5.4 Limitations of the Study

The concept of overconfidence and its effect on stock returns is wide. The study did not cover all the elements that affect stock returns like earnings per share and dividends pay-out ratio, the findings would have been different if all the components were considered. The study assumed

that all the 64 companies are structured the same way, they therefore make loses or profit in a similar manner and under similar conditions which is not practically true.

5.5 Suggestion for Future Studies

This study focused on only one type of bias that is, the effect of overconfidence bias on stock returns of the 64 companies registered at the NSE, further studies can be done on other biases like confirmation bias, Familiarity bias and loss aversion bias

This study was based on a descriptive research design on the effect of overconfidence bias on stock returns of companies listed at the NSE. A similar study could be undertaken through other research designs on the same topic which may produce new insights that generate additional studies.

The study mainly used secondary data to gather information for the research project. A similar research could be done through use of primary data.

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APPENDICES

Appendix A: Volatilities

Survey t	VNSE	Parkinson estimate	Hit Ratio
1	24.86	15.78	81.94
2	24.16	20.74	70.62
3	20.07	19.05	64.25
4	24.86	18.43	79.87
5	27.41	19.94	81.40
6	21.76	27.12	65.56
7	18.19	18.22	57.25
8	18.76	15.33	75.00
9	16.51	17.23	48.28
10	19.31	15.32	72.82
11	37.68	30.11	72.41
12	41.25	23.29	90.24
13	32.25	24.89	79.01
14	24.10	17.95	82.76
15	30.27	23.07	73.91
16	24.38	20.07	71.26
17	26.25	18.59	80.72
18	26.02	19.96	76.92
19	21.89	17.58	69.41
20	21.55	17.61	71.59
21	17.62	16.56	55.42

Significance at 5% level

Appendix B: the Firms Listed at the Nairobi Security Exchange

AGRICULTURAL

1.Eaagads Ltd Ord 1.25

2.Kapchorua Tea Co. Ltd Ord Ord 5.00

3.Kakuzi Ord.5.00

4.Limuru Tea Co. Ltd Ord 20.00

5.Rea Vipingo Plantations Ltd Ord 5.00

6.Sasini Ltd Ord 1.00

7.Williamson Tea Kenya Ltd Ord 5.00

AUTOMOBILES AND ACCESSORIES

8.Car and General (K) Ltd Ord 5.00

9.Sameer Africa Ltd Ord 5.00

10.Marshalls (E.A.) Ltd Ord 5.00

BANKING

11.Barclays Bank Ltd Ord 0.50

12.CFC Stanbic Holdings Ltd ord.5.00

13.I&M Holdings Ltd Ord 1.00

14.Diamond Trust Bank Kenya Ltd Ord 4.00

15.Housing Finance Co Ltd Ord 5.00

16.Kenya Commercial Bank Ltd Ord 1.00

17.National Bank of Kenya Ltd Ord 5.00

18.NIC Bank Ltd 0rd 5.00

19. Standard Chartered Bank Ltd Ord 5.00

20. Equity Bank Ltd Ord 0.50

21. The Co-operative Bank of Kenya Ltd Ord 1.00

COMMERCIAL AND SERVICES

22. Express Ltd Ord 5.00

23. Kenya Airways Ltd Ord 5.00

24. Nation Media Group Ord. 2.50

25. Standard Group Ltd Ord 5.00

26. TPS Eastern Africa (Serena) Ltd Ord 1.00

27. Scangroup Ltd Ord 1.00

28. Uchumi Supermarket Ltd Ord 5.00

29. Hutchings Biemer Ltd Ord 5.00

30. Longhorn Kenya Ltd

31. Atlas Development and Support Services

CONSTRUCTION AND ALLIED

32. Athi River Mining Ord 5.00

33. Bamburi Cement Ltd Ord 5.00

34. Crown Berger Ltd 0rd 5.00

35. E.A.Cables Ltd Ord 0.50

36. E.A.Portland Cement Ltd Ord 5.00

ENERGY AND PETROLEUM

37.KenolKobil Ltd Ord 0.05

38.Total Kenya Ltd Ord 5.00

39.KenGen Ltd Ord. 2.50

40.Kenya Power & Lighting Co Ltd

41.Umeme Ltd Ord 0.50

INSURANCE

42.Jubilee Holdings Ltd Ord 5.00

43.Pan Africa Insurance Holdings Ltd 0rd 5.00

44.Kenya Re-Insurance Corporation Ltd Ord 2.50

45.Liberty Kenya Holdings Ltd

46.British-American Investments Company (Kenya) Ltd Ord 0.10

47.CIC Insurance Group Ltd Ord 1.00

INVESTMENT

48Olympia Capital Holdings ltd Ord 5.00

49.Centum Investment Co Ltd Ord 0.50

50.Trans-Century Ltd

51.Home Afrika Ltd Ord 1.00

52.Kurwitu Ventures

INVESTMENT SERVICES

53.Nairobi Securities Exchange Ltd Ord 4.00

54.Atlas Development and Support Services.

MANUFACTURING AND ALLIED

55.B.O.C Kenya Ltd Ord 5.00

56.British American Tobacco Kenya Ltd Ord 10.00

57.Carbacid Investments Ltd Ord 5.00

58.East African Breweries Ltd Ord 2.00

59.Mumias Sugar Co. Ltd Ord 2.00

60.Eveready East Africa Ltd Ord.1.00

61.Kenya Orchards Ltd Ord 5.00

62.A.Baumann CO Ltd Ord 5.00

63.Flame Tree Group Holdings Ltd Ord 0.825

64.Unga Group Ltd Ord 5.00

Appendix C: Data Collection Sheet

NAME OF THE FIRM	EPS	TOTA ASSETS	DIVIDENDS PAID	VOLUME OF SHARES TRADED

Appendix D: Data collection Sheet for stock return

FIRM NAME	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5	
	P0	P1	P0	P1	P0	P1	P0	P1	P0	P1