THE EFFECT OF DEMOGRAPHIC CHARACTERISTICS ON INVESTOR BEHAVIOUR AT THE NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

This research project is my original work and has not been presented for the award of a degree in any other university.

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SUPERVISOR'S DECLARATION

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

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DEDICATION

This study is dedicated to the following amazing people in my life; my parents, Antony Mwaka and Agnes Mwikali, Denis Massai, Chloe Mwikali, Dylan Massai, Charles Mwaka, and Alex Mwaka. You are the greatest gift on earth, without you, I would not have come this far. I love you all and God Bless you.

ABSTRACT

Traditionally investors have been viewed as economically rational individuals who make decisions based on all available information. Most recent studies propose that investors are irrational and systematically over react to good and bad information events. The concept of rational investors has been supported by Efficient Market Hypothesis and Modern Portfolio Theory. Other studies have opposed the notion of rational investors have identified psychological biases that influence decision making process of an investor and leading them to make irrational decisions. Investors are irrational and make decisions based on some biases.

This study applies Behavioral Finance Theory to explain the effect of demographic characteristics on investor behaviour. The demographic characteristics investigated are gender, age, education and income. The behavioral factors tested include overconfidence, anchoring, herding and loss aversion.

The study concluded that the demographic characteristics have an effect on the way investor made their investment decisions. Those biases which varied with gender of an investor were overconfidence which was more prominent with the male investors, while herding and loss aversion affected female investors more. The younger investors were more affected by the biases than the older investors. The investors with high level of education were overconfident and less affected by herding.

The study recommends that investors should include behavioral factors as part of their consideration when making investment decisions.

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LIST OF ABBREVIATIONS

EMH	- Efficient Market Hypothesis
NSE	- Nairobi Securities Exchange
IPO	-Initial Public Offer

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The traditional financial paradigm explains financial markets by use of models which are developed rationally with the assumption that markets are efficient and investors are rational. The term rationality shows that when the investors receive new information, they update their believes correctly and immediately in accordance to Bayes Law and with their beliefs, the investors make choices that are acceptable (Barbaris & Thaler, 2001). They describe rationality as where investors' beliefs are correct and they make choices that are normatively acceptable and are consistent with the market trends. They explained that traditional financial framework is simple, appealing and would suffice if its predictions were reflected in empirical research findings. This includes standard finance theories that consider markets to be highly analytical and are represented by the portfolio theory, the arbitrage principle, the capital asset pricing model and the option pricing model.

Behavioral finance is a new paradigm of finance which seeks to supplement the standard finance theories by introduction of behavioral aspects to the decision making process. It combines economics and psychology and explain how people make irrational or illogical decisions when making investment decisions (Belsky et al., 1999). Statman (1999) defined behavioral finance as the application of psychology in finance. It is focused on the application of economic and psychological principles to find out what takes place in markets where agents display human complications and limitations so as to improve decision making.

Ricciardi (2005) ascertains that behavioral investigates the emotional issues and mental factors that traders, financial experts and individuals display within the securities market. Waweru et al. (2008) investigated the role of behavioral finance and investor psychology in investment decision making and concluded that certain behavioral factors affected the decision making behaviour of the investors. It gained momentum since in stock market decisions are not guided by rationality but greed, emotions and lack of knowledge in the operations of the stock market in a highly overloaded information environment.

According to Shiller (1998) behavioral finance attempts to enhance the understanding of financial markets by use of human behaviour through theories borrowed from other social sciences such as sociology and psychology. This can be attributed to the inability of traditional finance theories in explaining certain investor decision making because the assumptions do not reflect reality. The assumption that economic agents are rational and that market are efficient.

Behavioral finance study how people learn, behave and make decisions in reality, and what takes place in a standard economic model since it does not assume that everyone is rational all the time (Thaler, 1999). It provides empirical and theoretical explanations for the many anomalies and irregularities observed in the financial market. An understanding of how investor psychology impacts on investment will yield insights that benefit financial advisory relationship.

1.1.1 Demographic Characteristics

Demographics are the quantifiable statistics of a given population. It is used to identify the study of quantifiable subsets within a given population which characterize that population at a specific point in time or over a specific period of time. The commonly examined demographics include gender, age, income levels, education, location, ethnicity and employment status. Demographics

are used by governments, corporations and non-governmental organizations to learn more about a population's characteristics for purposes of policy development and economic market research.

The demographic characteristics of investors will include the gender of the investor whether male or female. The age of the investor also will show if they are younger investors or older experienced investor. Another one is the education level of the investor. Some investors are highly educated with postgraduate qualification and others have low levels of education. The income levels of investor show whether they are highly paid or not and this determines their saving capability. The employment status of the investors will be in terms of self employment, permanently employed or no employment.

1.1.2 Investor Behaviour

Investor behaviour is defined as how the investors judge, predict, analyze and review the procedures for decision making, which includes investment psychology, information gathering, defining and understanding, research and analysis. Investors need to make rational decisions for maximizing their returns based on the information available by taking judgments that are free from emotions (Brabazon, 2000). Investor behaviour is characterized by overexcitement and overreaction in both rising and falling security markets and various factors influences their decision making processes.

The investor behaviour is influenced by the price changes. Investors are reluctant to sell a stock at a loss. They often want to hold a stock until it goes back up to the price paid for it no matter how long it takes. Such a decision is based on the desire to avoid awful feeling associated with admitting a mistake. When investments are generating strong returns the investors feel excited and euphoric and this sparks a powerful urge to buy when the markets are high than to buy when

the market is low. When there are poor returns investors are anxious and panicky and would want to sell instead of buying.

People do not act rationally all the time as they are affected by their moods, beliefs that mislead them and moreover the capabilities also use to be limited so they tend to be irrational at times if not most of the time. According to Simon (1957) people have limited capacity of processing information in solving complex problems. Shefrin (2000) argued that people are imperfect processors of information and are usually biased, commit mistakes and have perceptual problems. Barber and Odean (2000) document that individuals trade too much and tend to hold on to loser stocks too long while selling winners too early.

Tversky and Kahneman (1981) explain that many anomalies in behavioral finance stem from the way information is framed, the way such information is viewed and interpreted before making a decision. They introduced framing that people often change their mind when the same issue is presented to them in different ways. They proved that the psychological principles that govern the perception of decision problems and the evaluation of probabilities and outcomes produce predictable shifts of preference when the same problem is framed in different ways. They show that many people vary their response to a question depending on how the question is asked or framed.

1.1.3 Effect of demographic characteristics on investor behaviour

There is a relationship between demographic characteristics of investors and investor behaviour. Gender mainly explains the difference in behavioral biases. In areas such as finance men are more confident than women. This leads to the fact that men will trade more than women and that the performance of men will be hurt more by excessive trading than the performance of women.

Barber and Odean (2001) concluded that men are more prone to overconfidence than women and that they also trade more. As for the herding, females tend to follow other investors blindly doing the same investment decisions than their male counterparts do. Females display a greater loss aversion than males do. Women are more risk averse than men when they invest (Barskey et al., 2011). Barber and Odean (1995) observed that women have different attitudes towards money and investing from men. They maintained that men take more investment risks.

Age is another demographic characteristic that affects investors' behaviour. Lin (2011) found out that younger investors are more prone to herding than the older ones. The older investors are more confident than the younger ones since they can use the wealth of knowledge they have accumulated over time.

Individual savings level affects the financial behaviour factors in investment decisions. The level of individual savings has an interaction with four of the behavioral biases and this includes overreaction, herding, cognitive bias and irrational thinking (Gunay & Demirel, 2011). There is a positive relationship between the level of individual savings and overreaction. As the savings level increases so does overreaction. The level of individual savings has an interaction with herding behaviour. Herding behaviour is maximum for the people with highest savings and minimum for the people with low or no savings. The investors who have high level of savings tend to follow what their peers are doing and will invest in similar investments. For the people with low savings they will invest and make decisions sorely on themselves according to their monetary ability. The level of individual savings has interaction with cognitive bias and irrational thinking. There is a positive relationship between the individual savings and cognitive bias and irrational thinking. It is clear that there is a difference among groups of savings level in terms of cognitive bias and irrational thinking (Gunay and Demirel, 2011).

Education also explains the differences in investor behaviour. The level of education has a meaningful and direct relationship with high confidence. Higher education will increase the level of confidence. Therefore, most educated investors invest based on their own knowledge, abilities and their confidence (Babak et al., 2011). Menkhoff et al. (2006) found that the people without college degree are more prone to herding. The people with low level of education will tend to blindly follow what others are doing and are most affected by herding behaviour.

Education or knowledge of the investment increases the risk tolerance of investors (Grable, 2000). Educated people prefer more risk than uneducated ones for higher returns. They can analyze the situation due to their educational experiences and qualifications. Their decisions are based upon their knowledge (Hifza et al., 2011). The individual with greater education about the financial markets having the risk preferences more efficiently and effectively and thus perceives the risk in a more logical way than one not having knowledge of it. The response of such individuals is more rapid and they are healthier decision makers. Education broadens the horizon of individual and thus gives confidence to take risk in a rational way (Hifza et al., 2011).

1.1.4 Nairobi Securities Exchange

The NSE was constituted as Nairobi Stock Exchange in 1954 as a voluntary association of stockbrokers in the European Community registered under the societies Act. In 1991 the Nairobi Stock Exchange was incorporated under the Companies Act of Kenya as a company limited by guarantee and without a share capital. In July 2011 it changed its name to Nairobi Securities Exchange as a strategic plan to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. Subsequent development of the market has seen an increase in the number of stockbrokers,

introduction of investment banks, establishment of custodial institutions and credit rating agencies and the number of listed companies have increased over time. Securities traded include equities, bonds and preferences shares. They are around 60 listed firms with the NSE. The NSE has a double responsibility for development and regulation of the market operations to ensure efficient trading (Ngugi, 2003). Recently the NSE has adapted an automated trading system to keep pace with other major world securities exchange.

1.2 Statement of the Problem

According to Pompian (2012) behavioral biases refers to the tendency of decision making that results in irrational financial decisions which are caused by faults in cognitive reasoning or reasoning that is influenced by emotions. Behavioral biases describe a replicable pattern in perceptual distortion, inaccurate judgment, illogical interpretation or irrationality. The investors' either trade too much, buy and sell at precisely wrong times, allow emotions to overrule logic, misjudge probabilities and futilely chase performance. Behavioral finance recognizes that our financial decisions are impacted by our human psychology and uses the term quasi rational to describe how, when and why investors sometimes behave irrationally. Investors behave quasi rationally because they are human and cannot help but experience a range of emotions as investment prices move. These emotional reactions can inadvertently conflict with rational minds to distort the way market activities are perceived or misperceived.

The NSE is the largest securities exchange in East Africa. It has experienced a lot of growth since its inception although it was affected by the post election violence in 2008. At the NSE security price move in excess of the fundamental market expectations. The most recent being the

IPO where the Safaricom shares were oversubscribed by almost twice and some investors went to the extent of taking loans to purchase the shares which resulted to losses as the share price did not increase as expected. This is a case of herding in that the investors bought the shares because everybody did. This is also witnessed during the corporate earnings announcement. When the performance of the company is good the share price goes up for a short while then they fall in prices. This is attributed to disposition effect where investors rush to sell the stock when the prices are up in the fear that it may go down.

In Kenya, several studies have been done. A study done by Mbaluka (2008) testing the influence of prospect theory on investors found that investor biases do exist in investor behaviour at the NSE. Another study by Werah (2006) showed that from a traditional finance point of view the behaviour of investors was irrational. The biases which influenced investor behaviour included herd behaviour, regret aversion, overconfidence, mental accounting and anchoring. Chelangat (2011) did a study on the relationship between age and gender and investor decision making behaviour at the NSE and found that in terms of gender men were more confident than females and hence tended to trade more. Females were more affected by herding and regret aversion. She concluded that investors should include behavioral factors when making investment decisions. Kimani (2011) also carried out a survey of behavioral factors influencing individual investors' choices of securities at the NSE. The findings showed that herding, overconfidence, anchoring and prospect biases were at play.

Despite increase activities in behavioral finance studies, the trend in research has not provided sufficient justification for the link between demographic characteristics and investor behaviour. Besides empirical evidence emerging from various studies only show trends in behavioral biases which are sometimes not properly situated in any particular market. Research has shown that

most of the studies on investor behaviour that have been reported were carried out in mature markets. This means that there is a gap in relevant literature on developing countries markets particularly Kenya with an emerging security market. The study attempts to fill the gap in literature by examining the situation in Kenya and providing empirical evidence on the effect of demographic characteristics on investor behaviour.

1.3 Objective of the Study

To establish the effect of demographic characteristics on investor behaviour at the Nairobi Securities Exchange.

1.4 Value of the Study

The research will help the individual investors to analyze the stock market trend and to consider investment behaviours before making suitable investment decisions.

The research will contribute to academic literature in the field of behavioral finance and mostly investor psychology in Kenya. The study will provide a platform for further research in investor psychology and add more insights to the body of knowledge in behavioral finance.

The study will help the investment managers have a better advisory relationship with their clients by understanding the behavioral factors that underlie individual investor decision making.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter examines the importance of theory in academic writing and the developments in theory. The different theories are discussed from the traditional finance theories to behavioral theories.

2.2 Theoretical Literature Review

The theories in literature will be documented starting with the traditional finance theories to the standard finance theories. Due to the inability of these theories in explaining the anomalies in security price movements, the behavioral theories will try to explain the influence of behavioral finance on investors' decision making behaviour.

2.2.1 Traditional Finance Theories

For a long time Efficient Market Hypothesis has dominated finance. According to EMH, investors are rational and the securities are valued rationally. The individuals consider all the available information before making any investment decision. The decisions are made in a systematic way so that they are in agreement with one another (Fama, 1965). The decision makers in most of the time they pursue self interest. The traditional finance theories pay no attention to the significance of behaviour of investors in the investment decision making.

2.2.2 Efficient Market Hypothesis Theory

According to EMH, financial prices take into account all the available information and the prices are true estimates of the investment value at all times Fama (1998). Shiller (1998) asserts that EMH is based on the notion that individuals behave rationally and that they process all available information. Bodie (2009) argues that the security prices should reflect all publicly available information at any point in time since the security prices adjust to all new information. Therefore, the security prices that prevail at any time should be an unbiased reflection of all information that is currently available and should include the risk involved in owning the security. In an efficient market the expected returns in the current price of the security should reflect its risk. This means he investors who buy at the informational efficient prices should get a rate of return which is consistent with the risk of the stock. Since all information is contained in stock prices it will be impossible to make an above average profit and beat the market without taking excess risk.

2.2.3 Standard Finance Theories

The Portfolio Theory of Markowitz, the Capital Asset Theory of Sharp, the arbitrage theory of Modigiliani and Miller and the Black and Scholes option pricing model are the pillars which the standard finance body of knowledge is built. Statman (1999) argues that these theories use minimum tools to come up with a unified theory which tries to answer certain facets of financial security trade outcomes. Modigiliani and Miller (1958) wrote on irrelevance theory of capital structure. They noted that the market value of a firm is independent of its capital structure. Markowitz (1952) shows how to construct an efficient portfolio by use of mean variance

analysis. He explained how to combine assets into efficiently diversified portfolio. Scholes (1997) developed a model for pricing derivative instruments.

The traditional finance theories are inadequate in explaining some security price movements and market anomalies (Olsen, 1998). The introduction of behavioral finance was to explain the deviations from rationality. This includes use of rules of thumb to make decisions and use of one's own experience to outdo the market.

2.2.4 Behavioral Theories

Behavioral finance is based on psychology which asserts that human decision processes are subject to cognitive illusions. There are two broad classifications of these cognitive illusions namely heuristic decision process and illusions caused by the adoption of mental frames grouped in the prospect theory. These two categories form the basis of the behavioral theories (Waweru, 2008).

2.2.4.1 The Prospect Theory

The theory asserts that the emotional impact of losses is more than an equivalent amount of gain. People respond to equivalent situations differently depending on whether it is presented as a loss or gain (Chelangat, 2011). Human beings place more weight to outcomes that are more certain as compared to outcomes that are just probable (Kahneman and Tversky, 1979). The theory assigns more value to gains than losses. According to Wood (1996), investors frame situations creating a feeling of possible gain or loss and this leads to pain or pleasure. Lebaron (1990) observes that, to a human being the prospect of losses is more distressful than the pleasure of equivalent gains. Tversky (1990) noted that, people when faced with higher chances of loss they exhibit risk seeking rather than risk averse behaviour.

Pious (1993) notes that regret refers to people's emotional reaction to make a mistake while Evans (2002) states that those investors consistently engage behaviour that they regret later. According to Shiller (1998) investors readily sell shares that have increased in value and avoid selling shares that have decreased in value. Fogel (2006) found that investors reported regrets about holding a losing stock too long than about selling a winning stock too soon. Statman (1999) argued that investors are affected when they make an error in their judgment and this makes them sorrowful.

2.2.4.2 Mental Accounting Factor

This is the propensity for individuals to organize their world into separate mental accounts. According to Shiller (2000), investors tend to treat each element of their portfolio separately and this can lead to inefficiency and inconsistency in making investment decisions. It describes the tendency of people to place particular events into different mental accounts based on superficial attributes (Shiller, 1998). Decision makers often separate the different types of gambles they encounter into different separate accounts and they make decisions to each account and they ignore the possible interaction between the accounts. Shefrin and Statman (1994) sought to explain how to establish and maintain a new mental account. When a new stock is purchased, a new mental account is opened for that particular stock. The purchase price is the reference point. A score is maintained for this account showing gains or losses relative to the purchase price. When another stock is bought a separate account is created. Decision makers encounter considerable difficulty in closing a mental account at a loss.

2.2.4.3 Loss Aversion Theory

Loss aversion recognizes that the mental penalty associated with a loss is greater than the mental reward from a similar size of gain (Shiller, 1998). Investors are risk averse. Odean (1998) argues that loss aversion may be a common feature of investor behaviour, but it yields bad decision making and thus affects the wealth of investors. Kahneman and Tversky (1991) found out that people behave differently when confronted with choices under uncertainty. They identified a sharp asymmetry between the values that people put on gains and losses. The asymmetry is the loss aversion and it weights losses twice as heavily as gains. According to Bernatzi and Thaler (1995), myopic loss aversion is the combination of a greater sensitivity to losses than to gains and having to evaluate outcomes frequently. Investors' behaviour is said to be myopic and short sighted in that it ignores what might happen after the end of the single period time frame and so investors plan for a one identical holding period. Loss aversion explains the tendency of investors to hold onto loss making stocks while selling the winning stocks too early. Shefrin and Statman (1995) called this happening as selling winners too early and riding losers too long as the disposition effect. Risk seeking in losses makes investors to hold on too long when the prices declines and thus cause the price of stocks with negative momentum to overstate.

2.2.4.4 Regret Factor (Cognitive Dissonance)

According to Chelangat (2011), there is a human tendency to feel the pain of regret for having made errors even they are very small. The theory implies that investors avoid selling stocks that have gone down so that they don't finalize the error made and this way they avoid feeling regret. The investors sell the stocks that have gone up in order not to feel the regret of failing to do so before the stock later fell. Cognitive dissonance is the mental conflict that people experience

when faced with prove that their abilities are wrong. It is classified as a sort of pain of regret, regret over mistaken beliefs.

2.2.4.5 Disposition Effect

Investors become loss averse when losses occur although they become risk averse when they enjoy making gains (Shefrin and Statman, 1985). Thus investors are eager to sell stocks of value and hold on to stocks that have decreased in value. This bias is based on a mental accounting framework according to Statman et al. (2006). There is evidence to support the existence of disposition effect (Barber et al., 2007; Odean, 1998; Shapira and Venezia, 2001; Weber and Camerer, 1998). Bremer and Kato (1996) carried out a study on the Japanese Stock Market and the study revealed that the abnormal turnover rate of the stocks in value is increased but it is not the case for the stocks that have lost value. This verified the existence of disposition effect.

2.2.5 Heuristics Decision Processes

Heuristics are rules of thumb, which people use to make decisions when they are in complex and uncertain environments. Kahneman and Tversky (1979) noted that investors do not behave rationally when making decisions. They observed that the art of collecting all the relevant information and objectively evaluating it is not followed but instead investors take mental shortcuts. The mental shortcuts are not necessarily bad depending on the timing of decisions.

According to Shefrin (2000), heuristics is the way by which people find things out for themselves through trial and error and these trials often lead them to design rules of thumb. It is the use of experience and practical efforts to answer questions and to improve performance. Decision making has become complicated because of the increased flow of information and this implies that the investors use heuristics.

2.2.5.1 Representativeness

In financial markets representativeness manifests itself when investors seek to buy hot stocks and to avoid stocks which have performed poorly in the past. People tend to relate events to a good happening and to overstress the importance of such a relation. For example, share prices often rise when a company reports increased earnings several quarters in a row, because the investors tend to infer high long term earnings growth rate (Barberis, 2001).

2.2.5.2 Overconfidence

Overconfidence is the tendency of people to exaggerate their talents, skills, knowledge and abilities and to under estimate the likelihood of bad outcomes (Chelangat, 2011). The combination of overconfidence and optimism makes people to overestimate the reliability of their knowledge, underestimate risks and to exaggerate their abilities to control events which lead to excessive trading. Daniel et al. (1998) asserts that an overconfident investor is one who overestimates the precisions of his private information signals, but not the information signals that are publicly available for all. Overconfidence gives investors courage and makes them to overestimate their predictive skills and believe they can outdo the market. Studies have shown that one side effect of overconfidence is excessive trading (Evans, 2006). Naturally, people always believe beyond their own abilities and again investors and analysts are particularly overconfident in areas where they have some knowledge (Shiller, 1998; Evans, 2006).

Investors expect good things to happen to themselves more often than to their peers (Weinstein, 1980; Kunda, 1987). When some investors overestimate their ability to do well on investment decisions, there exists overconfidence. When the situation is perceived to be controllable these overestimates increase (Weinstein, 1980), and when it is of personal importance (Frank, 1935).

Market behaviour is greatly influenced by price reactions to information. Barberis et al. (1998) uncovered two regularities. The under reaction of stock prices to news such as announcement of earnings and the overreaction of stock prices to a series of good or bad news. Overreaction is where investors overreact to some news such as news about companies, politics or economy. It refers to the predictability of good and bad future returns of investment by comparing them with the returns of past performance (De Bondt and Thaler, 1985). It is the over and under reaction that is one of the causes of trends, fads and momentum.

2.2.5.3 Herding

Graham (1999) defined herding behaviour as often said to occur when many people take the same action, perhaps because some mimic the actions of others in making investment. It is where individuals are led to conform to the majority of the individuals present in the decision making environment by following their decisions (Chelangat, 2011). Herd behaviour can lead people astray when they follow blindly. According to Prechter (1999), herd behaviour in humans results from impulsive mental activity in individuals responding to signals from the behaviour of others. Sherif (1960) defined herd behaviour as a behaviour that blindly follows the decisions of the majority rather than relying on rational thinking. The investor risk and return characteristics may be influenced by the related behaviour effects on stock price movements (Tan et al., 2008).The reason why people's judgments are similar at times is that the people are reacting to same information. The social influence has an immense power on individual judgment (Chelangat, 2011). Herd behaviour can play a role in generation of speculative bubbles as there is a tendency to observe winners closely especially when good performance repeats itself.

2.2.5.4 Anchoring

According to Yates (1990), anchoring is a phenomenon in which investors assume current prices are right in the absence of better information. People in their mind have some reference points which are the anchors, for example the previous stock prices. It arises when investors place too much weight to the recent performance. The investors assume that the current prices are right and they normally use the purchase price as a reference point (Kahneman and Riepe, 1998). According to Shiner (1998), investors fix prices in relation to the last price. Anchoring can lead investors to expect a share to continue to trade in a defined range or to expect a company's earnings to be in line with historical trends, leading to possible under reaction to trend changes. Investors tend to be optimistic in times of good market performance and pessimistic when the market dips (Mwangi, 2011). Anchoring describes how individuals tend to focus on recent behaviour and give less weight to long time trends (Shiller, 2000).

2.2.5.5 Availability Bias

Availability bias refers to a situation where investors overly on the most available information to make decisions. Investors give more weight to easily available information (Mwangi, 2011). Thus, investors always prefer what they know and are familiar with. This explains why investors strongly favour to invest in local companies regardless of the fundamental principles of portfolio investment, that diversification is important for optimization (Barberis, 2001).

2.3 Empirical Literature Review

A study by Lin (2011) titled 'Elucidating rational investment decisions and behavioral biases: Evidence from the Taiwanese Stock Market', examined how rational decision making and

behavioral biases varies in different demographic characteristics. He examined how personal characteristics influenced behavioral biases. He used a sample of 450 individual investors from the Taiwan Stock Market. Primary data was collected through questionnaires. Cross section analysis was used via structure equation modeling. He found out that gender explains the difference in behavioral biases. Females display a greater disposition effect than males. Males are more overconfident than the females. Females are most affected by herding as they tend to follow blindly other investors doing the same investment decisions. The results further revealed that younger investors are more prone to herding than the older investors. There is no significant evidence between the level of income and behavioral biases.

Barber and Odean (2001) conducted a study with the title 'Boys will be boys: Gender, overconfidence and common stock investment'. They sampled 35,000 households from a large discount brokerage firm from February 1991 to January 1997. They found out that human beings are overconfident about their abilities, knowledge and future prospects. Psychology predicts that men are more confident than women in areas such as finance. This difference yields two predictions where men will trade more than women and the performance of men will be hurt more by excessive trading than that of women. They found out that men who are more overconfident trade more and therefore lowering their returns more than women. Men trade 45% more than women and thus trading reduces men's net returns by 2.65% points a year as opposed to 1.72% points for women. The differences in turnover and return performance are more pronounced between single women and single men. The single men trade 67% more than single women and thus reduce their returns by 1.44% points annually than do single women.

Another study by Gunay and Demirel (2011) titled 'Interaction between Demographic and Financial Behaviour Factors in Terms of Investment Decision Making' carried out in Turkey which targeted 397 respondents. They carried a study to show that there is an interaction between demographic and financial behaviour factors in investment decisions. They found out that gender has an interaction with five of the financial behaviour factors namely, overreaction, herding, cognitive bias, irrational thinking and overconfidence. The second finding was that the level of individual savings has an interaction with four of the financial behaviour factors which includes overreaction, herding, cognitive bias and irrational thinking. There is no interaction between age and behaviour finance factors in the study. They concluded that gender and savings level are effective demographic factors that interact with behavioral finance factors in investment decisions. They also found out that behavioral finance factors are effective in individual's investment decisions.

Waweru et al (2008) did a study to investigate how behavioral factors affected the decisions of institutional investors operating at the Nairobi Securities Exchange. The prospect theory was evidenced through the following behaviour characteristics; loss aversion, mental accounting and regret aversion. The prospect theory explains about 47% of the behaviour of investors. Mental accounting ranked highest at 78.2% followed by regret aversion at 39.1%. The respondents did not display loss aversion behaviour. This was contrary to the findings of Tversky and Kahneman (1974) that people become more distressed at the prospects of losses and would show risk seeking behaviour than risk averse. They found out that most investors were unwilling to sell a losing investment even when the account showed a loss. The past trends of stocks had a low impact on the decision making behaviour of the institutional investors

Another study done by Chelangat (2011) on the relationship between gender and age and investor decision making behaviour at the Nairobi Securities Exchange which targeted 150 individual investors. The results showed that male investors are more overconfident as compared to the female investors. They believe in the precision of their knowledge. Female investors are affected more by herding where they seek advice from friends and observe what others are doing. They are also prone to regret aversion bias. Other biases affected both the male and female investors alike, the differences in effect being negligible. The study also revealed that the age of investors matters in the way they make their investment decisions. The older investors who have much experience at the NSE were more rational in making investment decisions and they displayed overconfidence bias as they believe they can predict the market correctly. Younger investors are prone to herding as the trend in the market seems to affect their decisions. They are also prone to other biases more than the older investors.

Werah (2006) carried out a study on the influence of behavioral factors on investors at the Nairobi Securities Exchange. The study targeted 100 individual investors and 40 institutional investors. The results revealed that as per the loss aversion, 49.01% of individual investors choose to gamble and hold the stock for one month in order to have the possibility breaking even and they also face an equal risk of increasing the losses, 39.54% were willing to sell the stock and realize a loss and then 11.45% of the individual investors would hold the stock until it breaks even. For the institutional investors 56.52% would choose to gamble and hold the stock for one month in order to break even while 34.09% would sell the stock and realize a loss. The

preference to hold the stock longer shows that both the individual and institutional investors are risk averse.

2.4 Summary of Literature Review

From the literature it is evident that demographic characteristics affect the investors' behaviour. It is clear that when it comes to investment men are more overconfident than women and they will tend to trade more. Men are also risk takers as compared to women who are risk averse and like stability in investment. Women are more affected by herding behaviour than men. It is also clear that the more educated investors are confident as they invest based on the knowledge they have. They are less prone to herding behaviour. As for age, younger investors are more prone to herding than the older investors .The educated investors also prefer more risk than the less educated because they will get higher returns. The income levels of investors also affect their investment behaviour. The investors with high income are more confident and are affected by herding behaviour than the investors with low income. The study will test the following biases; herding, overconfidence, anchoring, loss aversion and mental accounting.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design and methodology that was used to carry out the research. It presents the research design, the population, sample size and sampling procedure, data collection, data analysis, validity and reliability.

3.2 Research Design

In this study, descriptive research design was adopted. Descriptive research design involves measuring a set of variables as they exist naturally (Gravetter and Forzano, 2011). A descriptive research design is a conclusive research that aims to describe phenomena associated with a subject population that have certain characteristics. The design provides in depth information about the characteristics of subjects within a particular field and thus it can help identify relationships between variables.

3.3 Population

The population for this study was the individual investors who trade at the Nairobi Securities Exchange. There are more than one million account holders at the NSE but the actively trading investors are 250,000 who are targeted for this research (Chelangat, 2011).

3.4 Sample and Sampling Procedure

A sample of 150 individual investors was selected using the convenient sampling technique. This was due to a large number of investors trading, limitations of time, financial constraints and limited human resource in undertaking the study.

3.4.1 Data Reliability and Validity

Reliability is synonymous with repeatability or stability where a measurement that yields consistent results over time is said to be reliable. Reliability therefore is the degree to which measures are free from error yielding consistent results. To ensure consistency, the respondents should be able to interpret the questions in the same way and should produce consistent findings at different conditions. A valid questionnaire enabled accurate data to be collected, and one that is reliable means that this data is collected consistently.

Validity is concerned with the accuracy of our measurement in the context of the sample representativeness. It is related to the ability to create questions that reflect the issues being researched. It has to be made sure that key related subjects are not excluded. To be valid a study has ; internal validity which is the ability of the questionnaire to measure what one intends to measure. What is found in the questionnaire actually represents the reality of what one is measuring. External validity establishes the domain to which a study's findings can be generalized. The respondents were chosen randomly and the study sample was fairly representative. Content validity refers to the extent to which the questions in the questionnaire provide adequate coverage of the investigative questions. This ensures that the questions are useful in testing various behavioral factors. Content validity of the questionnaires is verified by discussions with experts. Construct validity refers to the data collection procedure. The extent to

which the measurement questions display the presence of those constructs intended to be measured like aptitude and personality tests.

To ensure validity and reliability of the data collected in this study, the questions were carefully designed in a simple understandable language and the questionnaire pilot tested to check how respondents responded before the main data was collected.

3.5 Data Collection

The study entailed the collection of primary data. The primary data was gathered through a semi-structured questionnaire which was administered by the researcher. The questionnaire had closed ended questions to capture the important information from the respondents. The questionnaire incorporated two sections where the first section was to enquire the respondents' background information, while the second part was to collect investment decisions by presenting economic scenarios to the respondents.

3.6 Data Analysis

The data was analyzed by use of descriptive statistics using the Statistical Package for the Social Sciences. The mean and the standard deviations of the samples were calculated to establish to what extent behaviour factors influence decisions. The mean helped to establish the level of influence. The standard deviation showed whether there are significant or insignificant levels of consideration for the factors among the investors. For presenting the data graphs, charts and tables were used because of their ability to bring out a relative form to the abstract nature of results.

The results were then subjected to test the extent of relationship using the following simple regression equations model.

$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Where

Y - Investor behaviour; herding, overconfidence, anchoring and loss aversion

β_o - Constant

β_1- β_4 - Slope

X_1 - Gender

X_2 - Age

X_3 - Education

X_4 - Income level

ε - Error term

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the data that was found out on the effect of demographic characteristics on investor behaviour at the NSE.

The research was conducted among 150 individual investors at the NSE. The data was collected in the form of a questionnaire and it used likert scale with a scale of 5 points in collecting and analyzing data. Out of the 150 questionnaires distributed only 10 were discarded after coding of the data. This gives a response rate of 93.33%. This was achieved because the researcher employed the drop and pick technique and hence it's efficient. This study employed descriptive analysis and regression analysis and the results presented in tables as appropriate with explanations being given.

4.2 Background information

Gender

The respondents' gender was captured in table 1 below:

Table 1: Gender

Gender	Frequency	Percentage
Male	84	60%
Female	56	40%
Total	**140**	**100%**

Source: Research Data

Table 1 shows that 84 (60%) of the respondents were male and 56 (40%) were females. This confirms the fact that most investors in the security market are men. Finance and investing is often seen as male dominated field, although women also invest in the security market, but most of the activities in the security market are carried out by men.

Age

The respondents were grouped into different age groups, the researcher expected those of the same age group to have almost the same investment goals which are expected to affect their decision making behaviour.

Table 2: Age

Age	Frequency	Percentage
Below 25 years	8	5.7%
26-30 years	20	14.3%
31-35 years	54	38.6%
36-45 years	26	18.6%
46-55 years	20	14.3%
Over 55 years	12	8.6%
Total	**140**	**100%**

Source: Research Data

With respect to age distribution of the respondents, table 2 shows that 8 (5.7%) of the respondents are below 25 years, 20 (14.3%) of the respondents are within the age group 26-30 years, 54 (38.6%) are within the age group 31-35 years, 26 (18.6%) of respondents are within the age group 36-45 years, 20 (14.3%) are within the age group 46-55 years and 12 (8.6%) of the respondents are over 55 years. This implies that most of the respondents are within the economic active age group of 25-50 years which represents 74.36% of the total respondents.

Level of Education

The respondents were required to state their highest level of education and the findings are stipulated in the table below:

Table 3: Level of Education

Level of Education	Frequency	Percentage
Primary	4	2.9%
Secondary	14	10.0%
College	22	15.7%
Degree	88	62.9%
Post graduate	12	8.6%
Total	**140**	**100%**

Source: Research Data

The results on educational qualification of the investors reveals that 4 (2.9%) of the respondents have primary education, 14 (10.0%) of the investors have secondary education, 22 (15.7%) of the respondents have college education, majority of the respondents which represents 88 (62.9%) have university education and only 12 (8.6%) of the respondents have post graduate education.

The findings show that most of the investors are educated with 122 (87.2%) of the respondents having college, degree and post graduate education. The result obtained is expected, the educational qualification of the respondents is very important in determining the respondents interest in the security market and the management of security and therefore expected to make decisions rationally when investing.

Income levels

The respondents were required to state their income levels and the results are as follows in the table below:

Table 4: Income Levels

Income	**Frequency**	**Percentage**
Less than 5,000	3	2.1%
5,000 -19,999	11	7.9%
20,000 – 49,999	34	24.3%
50,000 – 99,999	76	54.3%
100,000-199,999	11	7.9%
more than 200,000	5	3.6%
Total	**140**	**100%**

Source: Research Data

The study findings indicates that 3 (2.1%) of the respondents earn below Kshs. 5,000, 11 (7.9%) of the investors earn between Kshs. 5,000 and Kshs. 19,999, 34 (24.3%) of the investors earn between Kshs. 20,000 and Kshs. 49,999, most of the respondents which is 76 (54.3%) earn between Kshs. 50,000 and Kshs. 99,999, about 11 (7.9%) earn between Kshs. 100,000 and Kshs. 199,999 and only 5 (3.6%) of the respondents earn above Kshs. 200,000.

4.3 Descriptive statistics of the Variables

Table 5 below displays the mean and the standard deviation for the four variables of over confidence, anchoring, herding and loss aversion. All the variables show the level of perception of the respondents and their attitude on each of the variables which indicates whether they are biased or not. Statistic values were used to form opinion based on measurement of scale. The

respondents indicated their perceptions using a scale of 5 for strongly agree to 1 for strongly disagree.

To examine the statement “I trade excessively in the security market because I am sure of what step to take at all times to increase the worth of my investment” which appears question 5 in the questionnaire: a variable to test whether the respondents over rates own skill (over confidence). The test variable returns a mean of 3.70. For question 6 in the questionnaire which tests anchoring and is represented by the statement “I rely on the high rate of return achieved in the market before as the benchmark for estimating future return on investment”. The variable gives a mean of 3.15. With regard to the variable herding which is question 7 in the questionnaire, we examine the statement “I sometimes do not use the available information to make investment decisions but I follow what my friends and other investors are doing”. This returns a mean of 3.95. With respect to loss aversion which is question 8 in the questionnaire, we examine the statement “I feel more pain when I lose on an investment than the pleasure I feel when I gain by the same amount”. The variable yields a mean of 3.00.

Table 5: The Mean and the Standard Deviation of the variables

Variable	**Mean**	**Standard deviation**
Overconfidence	3.70	1.29
Anchoring	3.15	1.43
Herding	3.95	1.48
Loss Aversion	3.00	1.35

The findings suggest that herding with a mean of 3.95 featured prominently as the variable that influences investor behaviour. Most of the investors do not rely on the available information to make investment decisions but instead mimic the action of their friends and follow what other investors are doing. The findings concur with Chelangat (2011) who noted that investors tend to mimic the action of their friends when making investment decisions. The findings further suggest that overconfidence (mean 3.70) is the second variable that mostly influences investor behaviour. Most of the investors over rates their skills and are sure of what action to take to increase their net worth.

The other variables were also exhibited by the investors but less strongly than for over confidence and herding. For anchoring with a mean of 3.15 depicted that investors set the value of investment basing on recent selling or buying price. The findings are in line with those of Kahneman and Riepe (1998) who noted that investors assume that current prices are right and usually use their purchase price as a reference point. Loss aversion with a mean (3.00) ranked fourth. It shows that most of the investors are not affected by the bias.

4.3.1 Analysis of the effect of Gender on Investor Behaviour

The researcher sought to investigate the effect of gender on the behavioral variables of over confidence, anchoring, herding and loss aversion. The investors were grouped into male and female. The mean and the standard deviation of the variables were calculated and the results are presented in the tables below.

Table 6: Response by Male Investors

Variables	Mean	Standard Deviation
Overconfidence	3.84	1.29
Anchoring	3.08	1.46
Herding	3.10	1.43
Loss Aversion	3.37	1.37

Research Data

From Table 6 it is clear that male investors are mostly affected by over confidence since it has a mean of 3.84. The male investor is confident that the stock will perform well. The other variable which affects the male is Loss aversion with a mean of 3.37. This shows that the male investor will want to avoid losses. They are also affected by herding which shows a mean of 3.10. The last factor which affects male investors is anchoring with a mean of 3.08. This means that they don't rely on the current prices and usually don't use their purchase price as a reference point.

Table 7: Response by Female Investors

Variables	Mean	Standard Deviation
Overconfidence	3.45	1.32
Anchoring	3.06	1.45
Herding	3.96	1.18
Loss aversion	3.68	1.28

Research Data

From Table 7, the female investors are most affected by herding behaviour which shows a mean of 3.96. It means they follow the actions of their friends when they are making investment decisions. The female investors are also loss averse (3.68). This means that they will feel more pain when they lose than if they gain by the same amount. The other factor which affects them is overconfidence (mean 3.45) and anchoring with a mean of 3.06.

The results reveal that male investors are overconfident and are less affected by herding behaviour. The female investors are greatly influenced by herding behaviour. They are less confident and are more loss averse. The male investors don't avoid losses and will not be affected greatly by the loss. The variable of anchoring affects both investors and there is no much difference.

4.3.2 Analysis of the effect of Age on Investor Behaviour

To be able to analyze the effect of age on investor behaviour, the researcher divided the ages of the respondents into two groups. These groups include;

Table 8: Classification of Age

Age Group	**Frequency**	Percentage
Below 35 Years	82	58.6%
Over 35 Years	58	41.4%

Research Data

The effect of age on the behavioral variables of over confidence, anchoring, herding and loss aversion was established. The investors were grouped into two age groups. The mean and the standard deviation of the variables were calculated and the results are presented in the tables below.

Table 9: Below 35 Years

Variables	Mean	Standard Deviation
Over confidence	3.51	1.41
Anchoring	3.67	1.34
Herding	3.89	1.21
Loss Aversion	3.74	1.27

Research Data

It is clear from Table 9 that the younger investors are greatly affected by the biases due to the high values of the mean. The younger investors are mostly affected by herding behaviour as they follow what their peers are doing. The other factor which affects them is loss aversion. It is

evident that the younger investors are affected by anchoring and lastly they depict low levels of over confidence.

Table 10: Over 35 Years

Variables	Mean	Standard Deviation
Over confidence	3.97	1.23
Anchoring	3.28	1.48
Herding	3.31	1.39
Loss Aversion	3.43	1.30

Research Data

From Table 10 it is clear that the older investors are very confident as it is shown with a mean of 3.97. The other factors that influence their investment decisions are loss aversion, herding and anchoring. The older investors are not affected much by the biases like the younger investors.

The results on the effect of age on investor behaviour reveal that younger investors are mostly affected by herding behaviour. The younger investors follow the trend on the market to make investment decisions and also follow their friends. The younger investors are also greatly affected by anchoring bias as they don't analyze other factors when making decisions but instead they only look at the price. The younger investors have low levels of over confident and are loss averse. The older investors are overconfident due to many years of experience in the security market. They are not affected by herding bias as they don't follow their friends and what others

are doing in order to make decisions. The older investors do not rely on the current price as anchors but instead look at all other factors when analyzing stock.

4.3.3 Analysis of the effect of Education on Investor Behaviour

The researcher sought to investigate the effect of education on the behavioral variables of over confidence, anchoring, herding and loss aversion. The investors were grouped into two levels of education. The investors with low levels of education were grouped together and there were only 4 investors. The investors with high levels of education were the majority having college education and the rest degree and post graduate education. The mean and the standard deviation of the variables were calculated and the results are presented in the tables below.

Table 11: Investors with low levels of Education

Variables	**Mean**	**Standard Deviation**
0verconfidence	3.23	1.54
Anchoring	3.45	1.38
Herding	4.01	1.02
Loss Aversion	3.78	1.29

Research Data

The results from Table 11 shows that the investors with low levels of education are mostly affected by herding bias (mean 4.01). They are loss averse (mean 3.78) as the pain of losing is

more than gaining by the same amount. The investors are less confident as they have low level of education. The investors are also affected by anchoring bias.

Table 12: Investors with high levels of Education

Variables	**Mean**	**Standard Deviation**
Overconfidence	3.85	1.12
Anchoring	3.43	1.34
Herding	3.28	1.50
Loss Aversion	3.39	1.46

Research Data

The results show that the investors with high levels of education are more confident as they make decisions based on their own skills and knowledge. They are not greatly affected by herding as they use their knowledge to make decisions and the actions of their friends do not affect them. The bias of anchoring (mean 3.43) and loss aversion (mean 3.39) also affect them but at small extent.

From the analysis of the effect of education on investor behaviour the results shows that investors with high levels of education are more confident. Higher education will increase the level of confidence and most educated investors invest based on their own knowledge, abilities and their confidence. Investors without college degree are more prone to herding. The people with low level of education will tend to blindly follow what others are doing and are most

affected by herding behaviour. From the findings the anchoring bias affects all investors regardless of their level of education.

4.3.4 Analysis of the effect of Income on Investor Behaviour

The effect of income on the behavioral variables of over confidence, anchoring, herding and loss aversion was established. The investors were grouped into two income groups. The investors with low levels of income were 14 while those with high income were 126. The mean and the standard deviation of the variables were calculated and the results were presented in the tables below.

Table 13: Investors with low Income

Variables	**Mean**	**Standard Deviation**
Overconfidence	3.54	1.34
Anchoring	3.22	1.55
Herding	3.23	1.53
Loss Aversion	3.41	1.41

Research Data

From Table 13 the results show that the investors with low income are affected by overconfidence, followed by loss aversion and then herding. The anchoring bias affects them the

least. The investors do not follow what their friends are doing but instead invest based on the little they save.

Table 14: Investors with high Income

Variables	**Mean**	**Standard Deviation**
Overconfidence	3.59	1.31
Anchoring	3.28	1.56
Herding	3.97	1.04
Loss Aversion	3.49	1.43

Research Data

The investors with high income as shown in Table 14 are affected by herding (mean 3.97) as they follow what their peers are doing. The other factor which affects them is overconfidence and loss aversion. The least factor which affects them is anchoring with a mean of 3.28.

From the results, it is evident that the investors with high income are affected by herding behaviour more than those with low income. They follow what others are doing. They are also confident than those with low income. The other biases of anchoring and loss aversion affect both the investors at the same degree as there is no much difference in the means.

4.4 Analysis of the Regression Model

The results were then subjected to test the extent of relationship using the following simple regression equations model.

$$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where Y is the Investor behaviour; herding, overconfidence, anchoring and loss aversion, X_1 is gender, X_2 is age, X_3 is education and X_4 is income level. The following results were obtained as discussed below.

Dependent Variable: Overconfidence

When the value of Y is taken to be Overconfidence the model equation yields the following results as depicted in Table 15 and 16 below:

Table 15: Model Summary for Overconfidence

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.808[a]	.653	.642	.769

Predictors: (Constant), income (Kshs)., education, age ,gender

The coefficient of determination, R^2 is 64.2%. This means that 64.2% of the variation in overconfidence is explained by the variation in gender, age, education and income. This implies that 35.8% variance is unexplained by some independent variables not tested by the researcher in this study like marital status and the city of residence.

Table 16: Coefficients[a] Results for Overconfidence

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.408	.505		12.689	.000
	Gender	-2.106	.135	-.805	-15.574	.000
	Age	.051	.051	.052	1.005	.317
	Education	.037	.074	.026	.503	.616
	Income (Kshs).	-.022	.071	-.016	-.306	.760

a. Dependent Variable: Overconfidence

The following regression analysis was obtained:

$Y = 6.408 – 2.106X_1 + 0.051X_2 +0.037X_3 -0.022X_4 +0.591$

Whereby Y is Overconfidence, X_1 is gender, X_2 is age, X_3 is education and X_4 is income. The model illustrates that when all variables are held at zero, the value of Overconfidence would be 6.408. The result shows that there is a negative relationship between overconfidence and gender and income. Age and education gives a positive relationship with overconfidence.

Dependent variable: Anchoring

When the value of Y is taken to be Anchoring the model equation gives the following results as depicted in Table 17 and 18 below:

Table 17: Model Summary for Anchoring

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.220[a]	.048	.0453	1.419

Predictors: (Constant), income (Kshs)., education, age ,gender

The coefficient of determination, R^2 is 45.3%. This means that 45.3% of the variation in anchoring is explained by the variation in gender, age, education and income. This implies that 54.7% variance is unexplained by some independent variables not tested by the researcher in this study like marital status and the city of residence.

Table 18: Coefficients[a] Results for Anchoring

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.222	.932		2.384	.019
	Gender	.176	.250	.060	.705	.482
	Age	.218	.094	.198	2.331	.021
	Education	.059	.137	.036	.428	.669
	Income (Kshs).	-.085	.132	-.055	-.643	.522

a. Dependent Variable: Anchoring

The following regression analysis was obtained:

$Y = 2.222 + 0.176X_1 + 0.281X_2 + 0.059X_3 - 0.085X_4 + 2.014$

Whereby Y is Anchoring, X_1 is gender, X_2 is age, X_3 is education and X_4 is income. The model illustrates that when all variables are held at zero, the value of Anchoring would be 2.222. The result shows that there is a negative relationship between anchoring and income. Age, gender and education give a positive relationship with anchoring.

Dependent variable: Herding

When the value of Y is taken to be Herding the model equation yields the following results as depicted in Table 19 and 20 below:

Table 19: Model Summary for Herding

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.813[a]	.660	.650	.877

Predictors: (Constant), income (Kshs)., education, age ,gender

The coefficient of determination, R^2 is 65%. This means that 65% of the variation in herding is explained by the variation in gender, age, education and income. This implies that 35% variance is unexplained by some independent variables not tested by the researcher in this study like marital status and the city of residence.

Table 20: Coefficients[a] Results for Herding

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.832	.576		6.651	.000
	Gender	1.963	.154	.651	12.726	.000
	Age	-.189	.058	-.165	-3.259	.001
	Education	-.716	.085	-.426	-8.466	.000
	Income (Kshs).	-.051	.081	-.032	-.629	.531

a. Dependent Variable: Herding

The following regression analysis was obtained:

$Y = 3.832 + 1.963X_1 - 0.189X_2 - 0.716X_3 - 0.051X_4 + 0.769$

Whereby Y is Herding, X_1 is gender, X_2 is age, X_3 is education and X_4 is income. The model illustrates that when all variables are held at zero, the value of herding would be 3.832. The result shows that there is a negative relationship between herding and age, education and income. Gender gives a positive relationship with herding.

Dependent variable: Loss Aversion

When the value of Y is taken to be Loss Aversion the model equation yields the following results as depicted in Table 21 and 22 below:

Table 21: Model Summary for Loss Aversion

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.779[a]	.607	.595	.901

Predictors: (Constant), income (Kshs)., education, age ,gender

The coefficient of determination, R^2 is 59.5%. This means that 59.5% of the variation in loss aversion is explained by the variation in gender, age, education and income. This implies that 40.5% variance is unexplained by some independent variables not tested by the researcher in this study like marital status and the city of residence.

Table 22: Coefficients[a] Results for Loss Aversion

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.451	.592		.762	.447
	Gender	2.213	.158	.768	13.970	.000
	Age	-.076	.059	-.070	-1.284	.201
	Education	-.075	.087	-.047	-.863	.389
	Income (Kshs).	-.013	.083	-.008	-.153	.878

a. Dependent Variable: Loss Aversion

The following regression analysis was obtained:

$Y = 0.451 + 2.213X_1 - 0.076X_2 - 0.075X_3 - 0.013X_4 + 0.812$

Whereby Y is Loss Aversion, X_1 is gender, X_2 is age, X_3 is education and X_4 is income. The model illustrates that when all variables are held at zero, the value of loss aversion would be 0.451. The result shows that there is a negative relationship between loss aversion and age, education and income. Gender of the respondents gives a positive relationship with loss aversion.

4.5 Discussion of Findings

The study was carried out at the NSE to examine the effect of demographic characteristics on investor behaviour. The investors were required to respond to questions posed by the researcher which sought information on the background of the investor and also which tested the various behavioral biases. Then the investors were classified into two age groups, the younger investors were those below 35 years while the older investors were those above 35 years. 58.6% 0f the investors were below 35 years of age while 41.4% were above 35 years.

The behavioral biases tested includes over confidence, herding, anchoring and loss aversion. These biases affected various investors differently while others did not have much difference in the way they affected the different group of investors.

Male and female investors were affected by the biases differently. The male investors displayed a high level of overconfidence as compared to the female investors as they believe in the precision of their knowledge. Herding affected the female investors more than the male ones as they would most seek advice from their friends before making decisions. The female investors are less confident and are more loss averse. The male investors don’t avoid losses and will not be affected greatly by the loss. The variable of anchoring affects both investors and there is no much difference.

As for the age of the investors, the result shows that investors of different ages make investment decision differently. The younger investors are more affected by the biases than the older investors. The younger investors are mostly affected by herding behaviour. The younger investors follow the trend on the market to make investment decisions and also follow their friends. They are affected by anchoring bias as they don't analyze other factors when making decisions but instead they only look at the price. They have low levels of over confident and are loss averse. The older investors are overconfident due to many years of experience in the security market. They are not affected by herding bias as they don't follow their friends and what others are doing in order to make decisions. The older investors do not rely on the current price as anchors but instead look at all other factors when analyzing stock.

The results on the effect of education reveal that investors with high levels of education are more confident. Higher education will increase the level of confidence and most educated investors invest based on their own knowledge, abilities and their confidence. Investors without college degree are more prone to herding. The people with low level of education will tend to blindly follow what others are doing and are most affected by herding behaviour. From the findings the anchoring bias affects all investors regardless of their level of education.

As for income levels, the result show that the investors with high income are affected by herding behaviour more than those with low income. They follow what others are doing. They are also confident than those with low income. The other biases of anchoring and loss aversion affect both the investors at the same degree as there is no much difference in the means.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary, conclusions and recommendations of the main findings on the effect of demographic characteristics on investor behaviour at the NSE.

5.2 Summary of the Findings

The researcher found out that investors at the Nairobi Securities Exchange consists of both genders, but male investors are more than the female investors. Their ages vary from the age of 22 years to over 55 years, the older investors are fewer compared to the younger ones. The investors are educated as most of them have college education and above. The majority of the investors have university degree certificates. Majority of the investors earn between Kshs. 50,000 to Kshs. 99,999 and this shows they have some money for investment purposes.

The research showed that demographic characteristics of investors determine the investors' decision making behaviour. Investors of different demographic characteristics made decisions differently. Some investors made decisions rationally but most of them were affected by behavioral biases. The biases tested include herding, over confidence, anchoring and loss aversion. All these biases affected investors as they traded in shares though others were more prominent than others.

Some biases affected one gender more than the other. Male investors were shown to be overconfident than the female investors. Female investors were more affected by herding bias and are less confident. The female investors are loss averse and the pain they experience when they lose is more than the pleasure derived if they gain by the same amount. Both male and female investors are affected by anchoring.

Age of an investor also seem to affect the way the investors made decisions. Some biases affect younger investors more than the older ones. Overconfidence affects the older investors than the younger ones. The younger investors are affected by herding and anchoring more than the older investors.

The investors with high levels of education are more confident. Higher education will increase the level of confidence and most educated investors invest based on their own knowledge, abilities and their confidence. Investors without college degree are more prone to herding. The people with low level of education will tend to blindly follow what others are doing and are most affected by herding behaviour. From the findings the anchoring bias affects all investors regardless of their level of education.

As for income levels, the investors with high income are affected by herding behaviour more than those with low income. They follow what others are doing. They are also confident than those with low income. The other biases of anchoring and loss aversion affect both the investors at the same degree as there is no much difference in the means.

5.3 Conclusion

The conclusions are drawn in line with the objective of the study; the effect of demographic characteristics on investor behaviour at the Nairobi Securities Exchange. The study tested whether the effect of behavioral biases differed between investors of different demographics. From the study it was established that male investors are more than the female investors. The younger investors outweigh the older ones. Most of the investors are educated as they have college certificates and university certificates. Most of the investors have good income.

The results of the study suggested that several behavioral biases affected investors of different gender differently. Male investors are more overconfident compared to the female investors. They believe in the precision of their knowledge. This is consistent with the findings of Barber and Odean (2001). The female investors are affected by herding where they seek the advice from friends and observe what others are doing.

The researcher concludes that the age of an investor matters in the way they make their investment decisions. The older investors who most have a longer experience at the securities market will be more rational in the way they make their investment decisions, though they display overconfidence bias as they believe they can predict the market correctly. Younger investors are more prone to herding as the trend in the market seems to affect their decisions. They are also prone to other biases more than the older investors,

Conclusions drawn in respect to education are that investors with high levels of education are more confident. Higher education will increase the level of confidence and most educated investors invest based on their own knowledge, abilities and their confidence. Investors without college degree are more prone to herding. The people with low level of education will tend to

blindly follow what others are doing and are most affected by herding behaviour. From the findings the anchoring bias affects all investors regardless of their level of education.

The researcher also concludes that, the investors with high income are affected by herding behaviour more than those with low income. They follow what others are doing. They are also confident than those with low income. The other biases of anchoring and loss aversion affect both the investors at the same degree.

5.4 Recommendations

The recommendation drawn from the findings of this study is that investors should be aware of behavioral biases which is a crucial step in ensuring that the decision making process is not adversely affected by the biases. The individual investors should be aware of the potential impacts behavioral biases can have in their investment decision making process at all levels. Rational decisions are more likely when there is sufficient information available to decision makers and when that information is presented and analyzed to recognize common pitfalls.

5.5 Limitations of the Study

The researcher encountered the problem of time as the research was undertaken in a short period. Some of the respondents approached were reluctant to give information while others were so busy to respond to the questionnaires. They had to be persuaded to give information.

Since the study was to cover all the actively trading investors, most of them don’t trade at the NSE and therefore getting them to fill the questionnaires was quite a challenge.

Balancing the investors among the different demographics like gender and age was also a problem.

5.6 Suggestions for Further Study

The study would recommend the following studies to be carried out:

A study can be done to test whether behavioral biases affect the prices of common stock at the Nairobi Securities Exchange.

A similar study can be carried out but to include institutional investors to document if they are affected by behavioral biases.

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APPENDICES

Appendix 1: Letter of Introduction

Mwaka Susan Waeni,

University of Nairobi,

School of Business,

P.O BOX 30179,

Nairobi.

5th August, 2011.

Dear Sir/Madam,

I am a postgraduate student in the School of Business at the University of Nairobi. I am conducting a research on "The Effects of Demographic Characteristics on Investor Behaviour at the Nairobi Securities Exchange".

The research will be conducted on individual investors as they get served in their stock brokerage firms. This is therefore to request for your assistance in filling the attached questionnaire. The information you will give will be treated with strict confidentiality and is needed purely for academic purposes. You are advised not to provide any name or form of identification.

A copy of the final report will be made available to you upon request.

Your assistance will be greatly appreciated.

Yours Sincerely,

……

Mwaka S Waeni.

APPENDIX II: QUESTIONNAIRE

This questionnaire aims at gathering information on the effects of demographic characteristics on investor behaviour at the NSE. The behavioral factors include: Overconfidence, Herding, Loss aversion and Anchoring. The information is needed for academic purposes only and no information/data will be disclosed to a third party.

Please tick appropriately.

Section 1: Background

1. What is your Gender?

Male { } Female { }

2. Please indicate your age group

Below 25 years { } 26-30 years { }

31-35 years { } 36-45 years { }

46-55 years { } over 55 years { }

3. What is your highest level of education?

Primary certificate { } secondary certificate { }

College education { } degree certificate { }

Post graduate { }

4. Please estimate your average monthly income (Kshs).

Less than 5,000 { } 5,000 -19,999 { }

20,000 - 49,999 { } 50,000 - 99,999 { }

100,000-199,999 { } more than 200,000 { }

Section B: Factors That Influence Investors Decision Making

Using a scale of 1 to 5 where **1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree**, does the following influence your decision when buying or selling shares at the securities exchange market. (Please tick where appropriate).

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
5. I trade excessively in the security market because I am sure of what step to take at all times to increase the worth of my investment					
6. I rely on the high rate of return achieved in the market before as the benchmark for estimating future return on investment					
7. I sometimes do not use the available information to make investment decisions but I follow what my friends and other investors are doing					
8. I feel more pain when I lose on an investment than the pleasure I feel when I gain by the same amount					

Thank you.

Raw Data

No.	GENDER	AGE	EDUCATION	INCOME	5.	6.	7.	8.
1	1	1	5	4	5	5	2	2
2	1	3	3	4	5	4	3	1
3	1	4	3	6	5	2	1	3
4	1	3	4	3	4	3	2	2
5	1	2	2	5	3	2	5	1
6	1	3	3	4	5	1	4	2
7	2	5	4	2	3	5	3	5
8	2	3	4	4	4	4	4	4
9	2	2	3	3	1	2	5	3
10	2	1	4	3	2	3	5	4
11	2	3	3	4	3	1	4	5
12	1	6	1	1	5	5	5	2
13	1	5	4	4	5	4	2	1
14	2	2	3	2	2	5	4	5
15	2	4	2	5	3	4	5	4
16	1	3	4	4	4	5	3	3
17	1	2	4	4	4	4	1	2
18	2	5	5	3	1	5	2	3
19	2	6	3	3	3	4	4	4
20	2	2	3	4	2	2	5	5
21	1	4	4	5	5	5	2	1
22	1	3	4	4	4	4	3	2
23	1	5	4	4	5	2	1	2
24	1	1	4	3	4	3	4	1
25	1	6	2	3	4	1	5	3
26	1	4	4	4	5	4	2	2
27	1	2	4	3	4	3	2	1
28	1	3	4	4	4	2	1	3
29	1	5	4	2	5	1	1	1
30	1	6	3	5	5	5	3	1
31	1	3	4	4	4	3	2	2
32	1	3	4	4	5	1	2	3
33	2	4	4	3	4	5	5	5
34	2	5	1	3	3	4	4	4
35	2	1	2	4	1	2	5	5
36	2	6	4	4	2	3	4	4
37	2	3	4	3	3	1	5	3
38	2	4	4	3	2	5	4	5
39	2	3	4	6	1	4	5	3
40	2	3	4	4	4	3	4	4
41	1	6	2	4	3	5	4	2
42	1	3	5	2	4	4	2	1

43	1	5	4	3	5	2	1	3
44	1	1	4	4	4	3	3	1
45	1	3	4	5	5	1	1	2
46	1	4	2	2	4	5	5	3
47	1	2	4	4	5	2	3	2
48	1	5	4	3	5	3	2	1
49	1	6	5	4	4	1	1	4
50	2	3	4	4	3	5	3	5
51	2	4	4	1	4	4	4	4
52	2	1	4	4	1	2	5	3
53	2	3	2	3	2	3	5	4
54	2	2	1	4	3	1	4	5
55	1	6	3	6	5	5	1	2
56	1	3	4	4	5	4	2	3
57	1	4	4	4	4	2	2	1
58	1	3	4	3	4	3	3	2
59	1	2	2	4	5	1	5	3
60	1	5	5	4	5	5	1	2
61	1	6	4	4	5	2	1	1
62	1	3	4	3	5	3	2	1
63	1	4	3	2	4	1	3	4
64	1	3	4	5	4	4	2	3
65	1	5	4	4	4	3	2	2
66	1	1	4	4	5	2	4	1
67	2	3	4	4	3	5	5	5
68	2	6	4	3	2	4	4	4
69	2	5	2	4	1	2	5	3
70	2	3	4	4	4	3	5	4
71	2	3	3	4	3	1	4	5
72	2	4	4	4	2	5	5	4
73	2	2	4	3	1	2	4	5
74	2	6	4	4	3	4	3	3
75	2	3	4	4	2	1	5	5
76	2	5	3	4	1	3	4	4
77	2	3	5	2	2	5	5	5
78	1	4	2	5	5	5	4	2
79	1	6	4	3	5	4	1	1
80	1	4	4	4	4	2	2	3
81	1	3	4	4	4	3	1	2
82	1	2	3	4	5	1	2	4
83	1	3	4	3	5	5	1	1
84	1	3	4	4	5	2	2	5
85	1	4	4	6	4	3	3	2
86	1	3	4	4	4	1	1	3
87	1	2	2	3	5	4	5	1

88	1	3	3	3	5	5	2	2
89	1	3	4	4	4	2	2	3
90	1	4	4	4	4	4	1	1
91	1	3	4	4	5	1	3	2
92	2	3	2	4	3	5	5	5
93	2	3	5	5	2	4	4	4
94	2	4	4	2	4	2	3	5
95	2	2	4	3	1	3	5	3
96	2	3	4	4	2	1	4	5
97	2	1	4	4	3	5	5	4
98	2	4	5	1	1	2	4	5
99	2	3	4	4	4	3	5	4
100	2	3	4	3	3	1	3	5
101	2	5	3	3	2	4	5	4
102	1	4	4	4	4	5	3	2
103	1	3	4	4	5	4	2	1
104	1	3	4	4	5	2	3	3
105	1	3	4	4	5	3	1	1
106	1	2	3	3	4	1	2	2
107	1	5	2	4	4	5	5	1
108	1	3	1	4	4	2	5	4
109	1	4	4	4	5	4	3	3
110	1	3	4	4	5	1	2	2
111	1	5	4	3	5	3	1	1
112	1	4	4	2	4	2	1	3
113	1	2	3	5	5	5	3	2
114	1	3	4	4	4	1	2	1
115	1	5	4	3	4	5	1	3
116	1	3	4	4	5	3	1	4
117	1	3	5	4	5	4	1	1
118	2	4	4	3	4	5	5	5
119	2	5	4	4	3	4	4	4
120	2	3	3	4	2	2	5	5
121	2	2	4	4	1	3	4	4
122	2	3	4	3	3	1	5	3
123	2	2	4	4	2	5	3	5
124	2	4	4	5	3	2	5	5
125	2	5	4	2	2	4	4	4
126	2	3	3	4	1	1	5	5
127	1	3	4	4	5	5	2	2
128	1	4	4	4	4	4	1	1
129	1	2	5	6	5	2	1	3
130	1	4	4	4	4	3	2	2
131	1	5	4	4	5	1	3	1
132	1	3	3	3	5	5	1	3

133	1	2	5	4	4	2	1	4
134	1	3	4	5	4	1	2	3
135	1	4	4	4	5	4	2	1
136	1	3	2	3	5	3	5	2
137	1	4	4	3	5	5	2	1
138	2	3	3	2	4	5	5	5
139	2	5	4	4	2	4	4	4
140	2	2	5	4	3	3	5	5