Influence of Behavioral Biases on Professional Investment Decision in Kenya

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Abstract:

Investment professionals at the NSE are believed to be rational and base their decisions on traditional finance models such as the modified portfolio theory. Recent studies have however shown the existence of behavioral biases and found that they affect the way investment decisions are made. This study therefore sought to determine the influence of behavioral biases on professional investment decision in Kenya. The study focused on cognitive dissonance, optimism,
hindsight and status quo biases. The study covered in depth analysis of limits to arbitrage, prospect theory and herding theory which tries to explain the fundamental forces on which behavioral finance is anchored. It also critiqued empirical literature on behavioral finance. The research used a cross sectional research design and gathered primary data using questionnaires and interviews. The data was analyzed using multiple regression analysis. The results have been presented using tables. The study found that behavioral biases have an influence on professional investment decision making. The study specifically found that cognitive dissonance, optimism, hindsight and status quo biases influence the decisions made by professional investors. The study found that 64.5% of the variation in professional investment decision making was explained by the variations in the four behavioral biases studied. This was as a result of the R^2 value being 0.645 after running a regression of the dependent variable (professional investment decision making) and independent variables (cognitive dissonance bias, optimism bias, hindsight bias and status quo bias). The study therefore recommends that professional investors should be aware of cognitive biases that affect their decision making and take appropriate measures such as use of analytical tools in decision making.
Key Words*: Behavioral biases; Modified portfolio theory;Cognitive dissonance; Optimism; Hindsight; Status quo.*

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I. Introduction

1.1 Background of the study.

For a long time in the study of finance and economic theory, it has always been assumed that agents are rational and logical. Rationality means two things. Firstly, that agents update their believes correctly in the manner described by Bayes's law. Secondly, given their believes, agents make choices that are normatively acceptable, in the sense that they are consistent with Savage's notion of Subjective Expected Utility (SEU), (Thaler, 2005).

It is on these assumptions that rational finance is built hence the arbitrage principles of Modigliani and Miller,the portfolio principles of Markowitz, the capital asset pricing theory of Sharpe, Lintner, and Black, and the option-pricing theory of Black, Scholes, and Merton.

However, as time went on, academics in both finance and economics started to find anomalies and behaviors that couldn't be explained by theories available at the time. While these theories could explain certain "idealized" events, the real world proved to be a very messy place in which market participants behaved very unpredictably. To explain these events, behavioral finance emerged as an area that studies the influence of psychology on the behavior of financial practitioners and the subsequent effect on markets. Behavioral finance is of interest because it helps explain why and how markets might be inefficient.

Behavioral finance models and interprets phenomena ranging from individual investor conduct to market level outcomes and can be broken down into two sub topics: Behavioral finance Micro (BMFI) and Behavioral finance Macro (BFMA).

BFMI seeks to understand whether individual investors are perfectly rational or their decisions are impacted by cognitive and emotional errors. BFMA is concerned with market efficiency and its susceptibility to

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behavioral biases. In this context, behavioral finance challenges the two basic concepts of rational finance namely rational markets and rational economic man.

Decision theorist Howard Raiffa introduced to the analysis of decisions three approaches that provided a more accurate view of a real person's thought process and thus challenged the prevailing decision making models (Raiffa 1968, in Pompian 2011). Kahneman and Riepe (1998) tied together Raiffa's decision theory and financial advising. In their research, they stated that advisors need to have a clear understanding of the emotional as well as cognitive weaknesses of investors that affect their decision-making.

Cognitive psychologists Daniel Kahneman and Amos Tversky (Pompian, 2006) are considered the fathers of behavioral finance. Kahneman's empirical findings challenged the assumption of human rationality prevailing in modern economic theory. Kahneman & Tversky (1973) established a cognitive basis for common human errors that arise from heuristics and biases. Kahneman & Tversky (1979) developed prospect theory, a descriptive theory of decision making in risky situations. According to this theory, outcomes are evaluated against a subjective reference point and investors are loss averse, exhibiting risk seeking behavior in the face of losses and risk averse behavior in the face of gains.

Economist Richard Thaler is credited for the evolution and advancement of behavioral finance. While kahneman and Tversky developed the psychological theories that formed the foundation of behavioral finance, Thaler is credited with identifying real life anomalies that prove shortcomings in conventional economic theories as relates to people's behaviors. Thaler & Sunstein (2008) coined the term choice architecture, showing that the design in which choices are presented will have an impact on decision making.

Existing studies carried out in Kenya seem to have a mixed view with Waweru, Munyoki, and Uliana (2008) in support of market rationality and use of market fundamentals to make investment decisions. Werah (2006) suggested that the behavior of investors at the NSE is to some extent irrational in regard to fundamental estimations as a result of anomalies such as herd behavior, regret aversion, overconfidence and anchoring. Werah (2006) proved irrationality at NSE while Aduda and Muimi (2011) tested overreaction hypothesis at the NSE as an anomaly in the stock market and the conclusion was in support of overreaction as an anomaly. Investigations into the IPO market in Kenya by Fredrick (2012) showed that, on average, IPOs provided abnormal return in the immediate aftermarket to investors who purchased at the initial offering.

Aduda*et al.*, (2012) findings show that there were varied behaviors and financial performance of individual investors in Kenya with some investors exhibiting rational behavior while making investment decisions.Ndiege (2012) examines the factors influencing investment decision in equity stocks at the Nairobi stock exchange among teachers in Kisumu Municipality. The study noted that majority of the investors preferred to invest in real estate as opposed to investment stocks in which only small proportion of 28 per cent of the respondents invested. The study findings also show that decisions to invest in equity stocks were influenced by expected dividends, capital appreciation and affordability of shares. The herd mentality was also found to play a role as explained by investment decisions based on shares in high demand and friends and co-workers' recommendation.

Waweru et al. (2014) found that behavioral factors have a strong impact on property investments. They established that anchoring and representativeness are the major behavioral factors that influence property investment decision making.

This study sought to establish the influence behavioral finance factors have on investment decision making by investment professionals.

1.2 Statement of the problem.

In traditional finance theory, it is held that investment professionals rely on fundamental and technical analysis when making decisions. These include relying on Capital asset pricing model (CAPM), Modern portfolio theory (MPT) and arbitrage pricing theory (APT), which were advanced by scholars such as Modigliani, Miller, Sharpe and Markowitz.

The traditional framework is appealingly simple. However, it has become clear that basic facts about the aggregate stock market, the cross section of average returns and individual trading behavior are not easily understood in this framework. Behavioral finance is a new approach to financial markets that has emerged at least in part, in response to the difficulties faced by the traditional paradigm.

Rational finance model assumes that economic decisions by individuals are governed by the principles of perfect self-interest, perfect rationality and perfect information. Behavioral finance strongly challenges these three underlying assumptions. It argues that rationality is not the sole driver of human behavior since human intellect is actually subservient to human emotion. Therefore, human behavior is less the product of logic than of subjective impulses such as fear, love, hate, pleasure and pain. Humans use their intellect only to achieve or to avoid these emotional outcomes (Pompian, 2006). Furthermore, people are not perfectly self-interested, if they were, then virtues such as philanthropy and volunteering would not exist. Perfect information is also not

practically possible since there is an infinite amount to know and learn, and even the most successful investors don't master all disciplines.

This shows that investors are sometimes irrational and make decisions based on heuristics and emotions. This has led to development in the area of behavioral finance which seeks to identify and measure the impact of cognitive biases on decision making. Behavioral finance as a subject gained prominence after Prof. Daniel Kahneman of Princeton University was awarded the Nobel Memorial prize in Economic Sciences in the year 2002 for his works challenging the assumption of human rationality prevailing in modern economic theory. Khaneman and Tversky (1979) proved that prospect theory is evident among investors such that losses hurt more than equivalent gains are pleasing.

Thaler (1980) argues that there are circumstances when consumers act in a manner that is inconsistent with economic theory and he proposes that Kanneman and Tversky's prospect theory be used as the basis for an alternative descriptive theory. Topics discussed are: underweighting of opportunity costs, failure to ignore sunk costs, search behaviour, choosing not to choose and regret, and precommitment and self-control. The paper introduced the notion of `mental accounting'. Shiller (1981) discovered that stock price volatility is far too high to be attributed to new information about future real dividends.

In Kenya several studies on this area have been done and findings were consistent with the works of leading scholars abroad. Kisaka (2015) assessed the impact of certain-return bias, loss aversion, regret aversion and random walk framing on decision making by individual investors. Aduda J. et.al (2012) studied how overconfidence, cognitive dissonance, regret theory, and prospect theory influence the behavior and performance of individuals trading shares listed at the Nairobi Securities Exchange. Waweru (2014) studied how anchoring and representativeness influence investment decision making in the Kenyan property market.

However, these studies only focused on individuals and left out a number of cognitive biases such as Cognitive dissonance, Optimism, Hindsight and Status quo. This study therefore set out to bridge the gap left by these studies by focusing on investment professionals who play a big role in advising investors and making decisions. It also assessed the effects cognitive dissonance, optimism, hindsight and status quo biases have on the decisions the professionals make.

1.3 Objectives
1.3.1 General Objective
The objective of this study was to establish the influence of behavioral biases on professional investment decision in Kenya.
1.3.2 Specific Objectives
1) To assess the influence of cognitive dissonance bias on professional investment decision in Kenya
2) To analyze the influence of optimism bias on professional investment decision in Kenya.
3) To examine the influence of Hindsight bias on professional investment decision in Kenya.
4) To investigate the influence of status quo bias on professional investment decision in Kenya.

1.4 Justification
This research adds value to students and scholars in the academic field of behavioral finance in Kenya which is still developing and has not been widely studied. It also provides investment professionals with more insight on how to best manage psychological biases in the market so as to make good returns for their clients.

The study intends to act as an eye opener to professional investors in explaining to them the pertinent issues and misperceptions in the market which are primarily influenced by psychological thinking which end up in more pain than gain.

Furthermore, the study addresses the information deficiency to the seekers of capital and finance from the NSE on the psychological factors that influence the uptake of their respective securities in the bourse and as such act as a basis of strategy formulation on how to maximize the NSE as a source of capital.

Regulators such as CMA will also benefit from this study because it will enable them be more aware of the role played by cognitive and emotional biases in the decisions made by players in the market. They will thus be able to formulate better regulations that address challenges that arise from irrationality and emotion driven actions of investors.

1.5 Scope
This study investigated the influence of behavioral biases on professional investment decision in Kenya. The study focused on professional investors in the NSE. These are decision makers in pension funds, mutual funds, stock brokerage firms and investment banks. It focused on the investment decisions that they made in the last ten years (2008-2018) with focus on the role of behavioral finance biases.

II. Literature Review

2.1 Theoretical Literature Review

This section looks at the key theories on which behavioral finance is anchored.They include; limits to arbitrage, prospect theory and herding theory.

2.1.1 Limits to Arbitrage

Friedman (1953) postulates that rational traders will quickly undo any dislocations caused by irrational traders. This is such that arbitrageurs correct any anomalies that may arise by selling overpriced stocks and buying undervalued ones. This will lead to prices reflecting their true intrinsic values and no investor will be able to make abnormal losses. This is however not the case since many cases of mispricing have been documented meaning that behavioral biases among investors exist and affect prices and returns on a sustained basis.

Sheifler and Vishny (1997) show that arbitrageurs need long horizons to be able to bet successfully on slow moving market mispricing, and since real world arbitrageurs need to bet with other people's money in order to have sufficient capital to affect prices, they need their investors to have long horizons. Sheifler and Vishny (1997) showed that when prices temporarily move even further away from rationality, arbitrageurs lose money and as a result their investors may withdraw funds.

Mitchell et al. (2002) documented 82 cases in which the market value of a company is less than the market value of the company's stake in its subsidiary. These situations imply arbitrage opportunities leading to swift correction of the pricing anomaly, but the authors find a degree of persistence that indicates barriers to arbitrage.

Lamont and Thaler (2003) review examples in which the market value of spun-out subsidiaries of tech companies exceeded that of the parent company that retained a majority stake in the spinout. In the midst of the internet bubble, 3Com announced a spin-off of their Palm division, maker of handheld computers. 3Com held a successful IPO for Palm, in which a small portion of shares were sold, the rest to be distributed in a few months to 3Com shareholders. It turned out that the market value of 3Com was for several months less than the value of the Palm shares they owned. In these cases, short selling of the spinout was difficult, expensive, or impossible, reducing or eliminating the arbitrage opportunity.

Barberis and Thaler (2003) outline the various issues that create limits to arbitrage. One of them is lack of fairly priced close substitutes such that arbitrageurs are faced with fundamental risk in that they are unable to effectively hedge their position in the mispriced asset from adverse changes in fundamentals. Even if a close substitute is available, arbitrageurs face noise trader risk. Because trading by uninformed investors may cause the mispricing to increase before it corrects, the arbitrageur may be unable to maintain the position in the face of margin calls, especially when trading with other people's capital, as in institutional investment management. Other issues include high implementation costs for any arbitrage trade. At the extreme, taking a short position in an overpriced security may be impossible if, for example, stock lending is prohibited, or no shares are available to borrow

2.1.2 Prospect Theory

Khaneman and Tversky (1979) developed prospect theory as an alternative to expected utility theory. It is a descriptive model of decision making under risk, originally developed to help explain the numerous violations of the expected utility paradigm documented over the years. It postulates that people attach more value to losses than gains (Thaler, 2005). The theory divides the choice process into two phases. The first phase involves framing by which mental accounts are created and the second phase involves the evaluation of these mental accounts and making a choice.

The theory states that people make decisions based on the potential value of losses and gains rather than the final outcome as is the case in MPT, and that people evaluate these losses and gains using heuristics. Furthermore, probabilities are replaced by weights. The value function is dependent on deviations from a reference point and is normally concave for gains (implying risk aversion), commonly convex for losses (risk seeking) and is generally steeper for losses than for gains (loss aversion). Decision weights are generally lower than the corresponding probabilities, except in the range of low probabilities. The theory which they confirmed by experiment predicts a distinctive fourfold pattern of risk attitudes: risk aversion for gains of moderate to high probability and losses of low probability, and risk seeking for gains of low probability and losses of moderate to high probability.

According to Wood (1996), investors are able to frame situations creating a feeling of a possible loss or gain, which would yield pain or pleasure. Lebaron (1999) observes that, prospect of losses is more distressful to a human being than they are pleased by equivalent gains. Tversky (1990) noted that, people exhibit risk seeking rather than risk averse behavior when faced with higher chances of loss.

The most studied concepts of prospect theory include; regret aversion, loss aversion and mental accounting. Regret aversion is whereby people fear taking decisive action because they fear that later on, the course they select will prove less than optimal. Loss aversion is when investors feel a stronger impulse to avoid losses than to acquire gains whereas mental accounting is the tendency to treat different sums of money differently based on where the sums are categorized, for example the way it was obtained or its intended use (Pompian, 2006).

According to Shiller (1998) investors avoid selling shares that have decreased in value, and readily sell shares that have increased in value. Berry and 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 errors in judgment affect investors making them grief or sorrowful.

2.1.3 Herding Theory

Herding theory has its roots in Keynes, who focused on the motivations to imitate and follow the crowd in a world of uncertainty (Keynes, 1930). Keynes conceived herding as a response to uncertainty and individuals' perceptions of their own ignorance: people may follow the crowd because they think that the rest of the crowd is better informed. This can generate instability and in financial markets herding is a key factor generating speculative actions.

Bakar et al. (2016) describe herd behaviour as 'follow the leader' mentality. It is the tendency for individuals to follow the crowd because the decisions made by the majority are assumed to be correct. Individually, however, most people would not necessarily make the same choice. There are a couple of reasons why herd behaviour happens. The first is the social pressure of conformity which can be a powerful force. This is because most people are very sociable and have a natural desire to be accepted by a group, rather than be branded as an outcast. Therefore, following the group is an ideal way of becoming a member.

The second reason is the common rationale that it's unlikely that such a large group could be wrong. After all, even if one is convinced that a particular idea or course or action is irrational or incorrect, they might still follow the herd, believing they know something that they don't. This is especially prevalent in situations in which an individual has very little experience.

Herd behaviour was exhibited in the late 1990s as venture capitalists and private investors were frantically investing huge amounts of money into internet-related companies, even though most of them did not at the time have financially sound business models. The driving force that seemed to compel these investors to sink their money into such an uncertain venture was the reassurance they got from seeing so many others do the same thing.

According to Hirt and Block (2012), herding is more prevalent with institutional investor than with individual investorsA strong herd mentality can even affect financial professionals. The ultimate goal of a money manager is to follow an investment strategy to maximize a client's invested wealth. The problem lies in the amount of scrutiny that money managers receive from their clients whenever a new investment fad comes up. For example, a wealthy client may have heard about an investment that is doing well and inquires whether the money manager is investing in the same.

Kuhnen and Knutson (2005) identify deviations from rational behaviour in financial decision-making and use functional magnetic resonance imaging (fMRI) evidence to identify a role for emotion and affect. These analyses, and others, suggest that emotions and moods have significant impacts on economic / financial decisions and there may be similar interactions between tendencies to herd and specific psychological characteristics

Raafat, Chater and Frith (2009) proposed an integrated approach to herding, describing two key issues, the mechanisms of transmission of thoughts or behaviour between individuals and the patterns of connections between them. They suggested that bringing together diverse theoretical approaches of herding behaviour illuminates the applicability of the concept to many domains, ranging from cognitive neuroscience to economics.

Large stock market trends often begin and end with periods of frenzied buying (bubbles) or selling (crashes). Many observers cite these episodes as clear examples of herding behaviour that is irrational and driven by emotion—greed in the bubbles, fear in the crashes. Individual investors join the crowd of others in a rush to get in or out of the market.

Hey and Morone (2004) analysed a model of herd behaviour in a market context. Their work is related to at least two important strands of literature. The first of these strands is that of herd behaviour in a non-market context. The seminal references are Banerjee (1992) and Bikhchandani, Hirshleifer and Welch (1992), both of which showed that herd behaviour may result from private information not publicly shared. More specifically, both of these papers showed that individuals, acting sequentially on the basis of private information and public knowledge about the behaviour of others, may end up choosing the socially undesirable option. The second of the strands of literature motivating this paper is that of information aggregation in market contexts. This arises

from the argument that uninformed traders in a market context can become informed through the price in such a way that private information is aggregated correctly and efficiently. Overall, it was shown that it is possible to observe herd-type behaviour in a market context. The results refer to a market with a well-defined fundamental value. Even if herd behaviour might only be observed rarely, this has important consequences for a whole range of real markets – most particularly foreign exchange markets**.**

2.2 Conceptual Framework

The conceptual framework has been developed from the literature review and shows the behavioral biases that affect professional investment decision. This is illustrated in figure 2.1 where the four behavioral biases to be investigated are summarized.
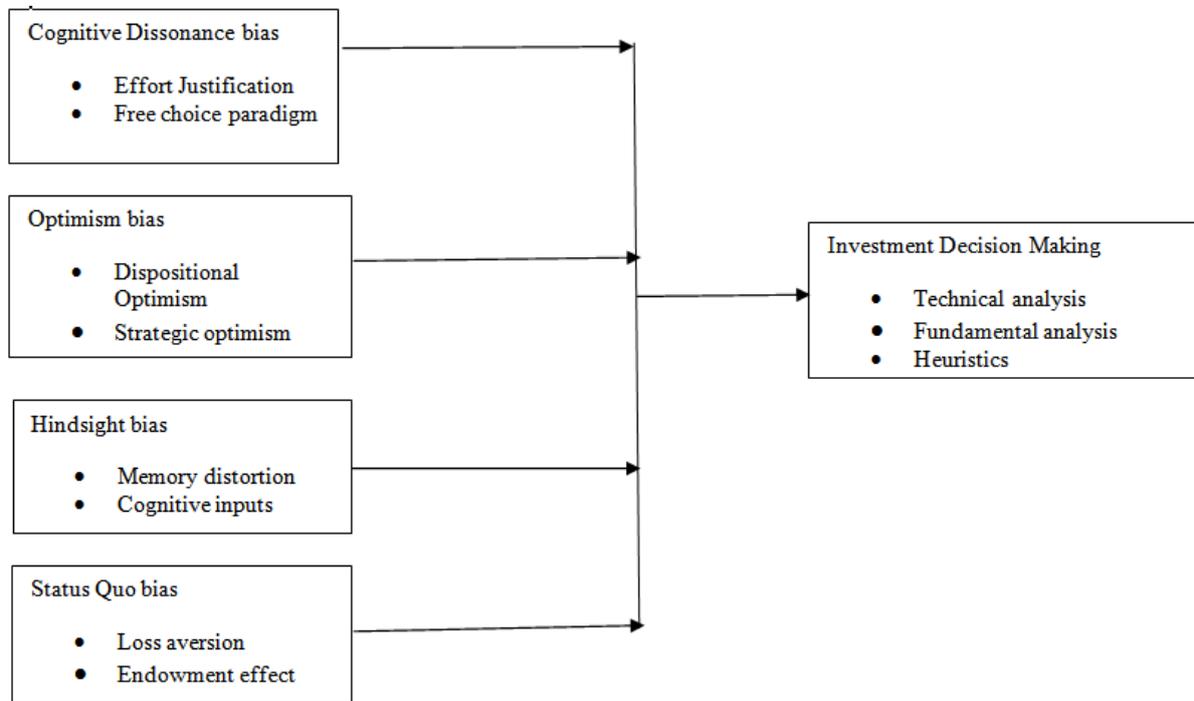
Figure 2.1: Conceptual Framework

2.3 Empirical Literature Review

Traditional finance and economic theories assume that individuals act rationally and the law of one price holds. This implies that under traditional finance, economic decision makers are rational and utility maximizing. The modern portfolio theory (MPT), capital asset pricing model (CAPM), and arbitrage pricing theory (APT) are the quantitative models that propel the rational expectations-based theories (Markowitz, 1952; Sharpe, 1964; Ross, 1976).

However, several studies indicate that this is not always the case. These studies have shown evidence of irrationality and inconsistency in the way human beings make decisions when faced with uncertainty. This element of irrationality and failure of arbitrage forces gave rise to the emergence of behavioral finance as an important area of study.

Behavioral finance is categorized into two; behavioral finance micro and behavioral finance Macro. Behavioral finance micro examines behaviors or biases of individual investors that distinguish them from the rational actors envisioned in classical economic theory. On the other hand, behavioral finance macro detects and describes anomalies in the efficient market hypothesis that behavioral models may explain.

Pompian (2017) further categorizes biases into cognitive and emotional. Cognitive biases involve how people think while emotional biases are how people feel. Cognitive errors result from faulty reasoning whereas emotional biases lead to reasoning influenced by feelings.

Kisaka (2015) found that behavioral finance played a key role in decision making. The study used cross sectional survey research design with survey questionnaires filled by a sample of 60 respondents. The study established that behavioral factors account for 26.5% of investor's decision making in the NSE while other factors accounted for 73.5%.

Onsumu (2014) also sought to determine of behavioral biases on investor decisions. Furthermore, she investigated the relationship between gender and the behavioral biases. The results indicated that investors are

affected by Availability bias, Representativeness bias, Confirmation bias and Disposition effect. 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.

2.3.1 Cognitive Dissonance

Leon Festinger (1956) advanced the concept of cognitive dissonance focusing on how humans strive for internal consistency. It is a psychological phenomenon in which people experience mental discomfort when newly acquired information conflicts with preexisting understandings. It is a state of imbalance that occurs when contradictory cognitions intersect. For example, an investor can buy a stock believing it to be the best available. However, if a new cognition that favours a substitute stock arises, Cognitive dissonance occurs in an attempt to relieve the discomfort with the notion that perhaps the investor did not buy the right stock.

Pompian (2017) postulates that investors with this bias continue to invest in a security or fund they already own after it has gone down instead of objectively making a decision based on new evidence.

An individual who experiences inconsistency (dissonance) tends to become psychologically uncomfortable, and is motivated to try to reduce this dissonance—as well as actively avoid situations and information likely to increase it

Goetzman and Morgan (1997) examined the tendency of investors to 'stick' irrationally, with struggling mutual funds. Their theory was that cognitive dissonance played a significant role in compelling investors to hold losing fund positions. The researchers theorized that people do not permit themselves to accept new evidence that suggests that it might be time to evaluate a fund because they feel committed to whatever rationale initially inspired the purchase.

Goetzman and Morgan (1997) presented evidence from questionnaire studies of mutual fund investors about recollections of past fund performance. They found that investor memories exhibit a positive bias, consistent with current psychological models. The degree of bias was found conditional upon previous investor choice, a phenomenon related to the well-known theory of cognitive dissonance.

SEI (2015) in an assessment of the market environment found that cognitive dissonance is a behavioral pattern that people call on to alleviate discomfort and affirm their beliefs when making investment decisions.

2.3.2 Optimism

Investors tend to be overly optimistic about the markets, the economy, and the potential for positive performance of the investments they make. Many overly optimistic investors believe that bad investments will not happen to them – they will only afflict others. DALIBAR Inc. (2003) did a study in which they demonstrated that investors do not outperform the market decisively as they think they do. Such oversights can damage portfolios because people fail to mindfully acknowledge the potential for adverse consequences in the investment decisions they make. John Maynard Keynes (1936) wrote that, "Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than on a mathematical expectation, whether moral or hedonistic or economic' .

The hypothesis of relative optimism was originally advanced in the work "Why did the Nikkei Crash?" by Robert Shiller, Fumiko Kon-Ya and Yoshiro Tsutsui (1996). The idea put forth in this work is that local investors view the fundamental economic prospect in their home country more optimistically than would other investors viewing the same country from a foreign perspective.

Torben Lutje and Lukas Menkhoff (2004) of the University of Hannover examined the propensity towards 'home bias' among institutional and individual asset managers. Their multivariate analysis indicated that home bias, as exhibited by these sophisticated investors, mainly relates to relative optimism. The researchers inquired about the expectations for the ten-year stock return in the major markets of the world. The findings showed that the preference for home assets was positively related to a relatively better expectation for the German market.

Kaustia et al (2017) carried out a study on investment skills and optimism. They found that highly skilled professionals tend to have moderate expectations and thus lose overoptimistic clients. On the other hand, less skilled professionals compensate for their lower skills by attracting clients with high optimism. They conclude that overoptimistic self-serving beliefs develop endogenously through selection into the profession or while acquiring job specific expertise.

2.3.3 Hindsight

Described in simple terms, hindsight bias is the impulse that insists: I knew it all along (Roese, 2012). Once an event has elapsed, people afflicted with hindsight bias tend to perceive that the event was predictable even if it wasn't. This behavior is precipitated by the fact that actual outcomes are more readily grasped by

people's minds than the infinite array of outcomes that could have but didn't materialize. Therefore, people tend to overestimate the accuracy of their own predictions.

RasoulSadi et. al. (2011) in their paper 'Behavioral Finance: The Explanation of Investors' Personality and Perceptual Biases Effects on Financial Decisions' demonstrated the role of hindsight bias among curious, creative and flexible investors. They sought to determine if there is a relationship between openness and investor's perceptional errors. They administered two sets of questionnaires to determine personality (extroversion, agreeableness, conscientiousness, neuroticism and openness) and perceptional errors (over confidence bias, availability, hindsight, escalation of commitment, randomness). They then used descriptive statistics and spearman's correlation to analyse the data. Spearman's correction co efficiency between openness and hindsight was found to be 0.259, hence significant as per the parameters of the study. They thus concluded that openness personality predisposes one to have hindsight bias.

Bansal and Zahera (2018) in their systematic review of behavioral biases in decision making found that hindsight is dangerous because investors form cause and effect relationship between two events even when the relationship is not associated at all and thus results in irrational decisions.

2.3.4 Status Quo

This is an emotional bias that predisposes people facing an array of choice options to elect whatever option ratifies or extends the existing condition in lieu of alternative options that might bring about change. It is simply preference for things to stay the same. This is because Choice is often difficult (Iyengar, 2000) and decision makers may prefer to do nothing to maintain their current course of action because it is easier. Status quo alternatives often require less mental effort to maintain (Eidelman & Crandall, 2009).

Kahneman, Thaler, and Knetsch (1991) created experiments that could produce this effect reliably. Samuelson and Zeckhauser (1988) demonstrated status quo bias using a questionnaire in which subjects faced a series of decision problems, which were alternately framed to be with and without a pre-existing status quo position. Subjects tended to remain with the status quo when such a position was offered to them

Samuelson and Zeckhauser (1998) provide an excellent practical application of status quo bias. In the study subjects were told they had each inherited a large sum of money from an uncle and could choose to invest in any one of four possible portfolios. Each portfolio offered a different level of risk and a different rate of return.

This scenario was repeated twice; in the first instance subjects were not told how the conferring uncle would have invested the money himself. In the second trial, the subjects were informed that that the uncle prior to his death had invested the sum in a moderate risk portfolio – one of the four options available to the subjects at present.

The moderate risk portfolio proved far more popular in the second trial, when it was designated as the status quo, than in the first trial, when all options were equally new. Thus the study reinforced the idea that investors prefer upholding the present status.

Romagnoli and Maltz (2017) investigated the determinants of status quo bias. They found that the bias does not arise when the status quo option and the alternative are both risky or both ambiguous (known probabilities and unknown probabilities respectively). However, they determined that the bias emerges under asymmetric presence of ambiguity, that is when the status quo option is risky and the alternative ambiguous, or vice versa.

2.4 Critique of the Existing Literature

The review of literature shows that behavioral biases have an effect on investor decision making. (Chaarlas& Lawrence, 2012) conducted a survey of 519 Indian equity investors and found that majority of investors encountered anchoring bias followed by framing bias and loss aversion bias. This study centered on equity investors and left out other critical investments such as treasury bills and bonds. It also left out professionals and institutional investors as it focused on retail investors.

Nyamute (2016) sought to determine the relationships among investor behaviour, investor demographic characteristics, investment style and individual investor portfolio performance at the Nairobi Securities Exchange in Kenya. She collected data from 348 respondents using random sampling which was then analyzed using descriptive statistics, correlation analysis and inferential statistics.The findings show that investor behaviour influences individual portfolio performance and the investment style adopted by the investor. Further, the results indicate that demographic characteristics moderate the relationship between investor behavior and portfolio performance while investment style has no mediating role in the relationship between investor behaviour and portfolio performance. This study however took a more general approach and the current study will seek to build on it by taking a more specific approach to identified behavioral biases.

Kisaka (2015)investigated the behavioral finance factors influencing investment decisions in the Kenyan NSE with a particular interest in Machakos County.The researcher utilized field surveys for data

collection and development and had a sample of 60 respondents randomly obtained from three stock brokerage firms. The study found that certain return bias, loss aversion, fear of regret and random walk framing influenced the investors' decisions. This study was however limited in scope as it focused on Machakos county with only three stock brokerage firms. This left out many leading stockbrokerage firms as the majority are based in the capital Nairobi. It also left out other critical institutions in the financial markets such as investment banks and mutual funds.

Onsumu (2014) sought to identify behavioral biases which affect individual investors at the NSE. She also investigated the relationship between gender and the behavioral biases. To conduct the study, questionnaires were issued to investors in the NSE. A total of 58 investors responded of which 69% were men and 31% were women. Data collected for the study was analyzed using descriptive statistics and Pearson Chi-square test. The results indicated that investors are affected by Availability bias, Representativeness bias, Confirmation bias and Disposition effect. This study used a much smaller sample of respondents compared to (Chaarlas& Lawrence, 2012) and may have led to more emphatic and conclusive results being left out. This study sought to remedy this by having a larger sample as guided by Aduda*et al.* (2012).

2.5 Research Gaps
The field of behavioral finance is relatively new in Kenya and has not been extensively researched as evidenced by the few published local papers. Moreover, most studies focus on individual investors with little attention given to the professionals who control the largest share of the portfolio in the market. There is also limited research on institutional investors such as pension funds and investment banks.Kisaka (2015) researched on the effect behavioral biases have on individual investors and so did Werah (2006) and Nyaribo (2010). This study therefore sought to fill this gap by investigating the influence behavioral biases have on professional investment decision in Kenya.

III. Methodology
This chapter describes the research design, research site, target population, sampling design, data collection tools and procedures, data analysis and presentation.

3.1 Research Design
The study used a cross sectional survey research design. Research design is the strategy, plan and structure of conducting a research project (Carriger, 2000). The design enabled easy description of behavioural biases at play in shaping investment decision making. It is also justified by the fact that the study relied on primary data collected from the individual investment professionals (Cooper & Schindler, 2007).

A previous study by Norman (2011) and Aduda*et al.,* (2012) used a similar research design due to similarity in its population structure.Myers (1997) argued that the methodology to be adopted has to be based on the nature of the research. Furthermore, the justification of the methodology adopted has to be in line with the research statement and the problem formulated (Crotty, 1998). Cassell and Symon (1994) argue that qualitative research should include an array of interpretive techniques that seek to describe the phenomena in the social world.

3.2 Research Site
The study was conducted in Nairobi County. This was because the leading investment companies who employ many investment professionals are based in the country's headquarters which also happens to be the region's financial hub.

3.3 Target Population
A population is defined as a complete set of individuals, cases or objects with some common observable characteristics (Mugenda & Mugenda, 2003). The study targeted investment professionals in particular fund managers, actuaries, stockbrokers, financial advisors, financial and investment analysts. The professionals listed are targeted because they interact with clients on a regular basis who seek their advice on investment. They also advise their employers on critical investment decisions. To ensure that bona fide professionals are targeted, the study focused on professionals who work in firms licensed by the Capital Markets Authority.

3.4 Sampling Technique
A sample is a subset of a particular population (Mugenda & Mugenda, 2003). The study used probability to ensure that every element in the population has an equal chance of being selected. It specifically used simple random sampling where each element was selected independently of the other elements. A simple random sample is defined as a special case in which each population element has a known and equal chance of

selection (Cooper and Schindler, 2000). This method was used so as to ensure that the sample is representative of the population.

3.5 Sample Size
There are sixteen investment banks, ten stockbrokers, twenty seven fund managers, fifteen investment advisors and nine REIT managers that are licensed in Kenya (CMA, 2019) resulting in a total population of seventy seven (77) licensed institutions.
From this population, the study used Yamane's formula to determine the sample size. Yamane (1967) formula is as follows;

$$n = \frac{N}{1 + N(e)^2}$$

Where (n) is the sample size, (N) is the population size and (e) is the margin of error. The calculated sample is therefore;

$$n = \frac{77}{1 + 77(0.1)^2}$$
$$n = 44$$

3.6 Data Collection
3.6.1 Sources of Data
The study relied on primary data. Primary data refers to information that a researcher gathers from the field.
3.6.2 Data Collection Instruments
The study relied on structured questionnaires with both closed ended and open ended questions. The questionnaires were self-administered to also enable the researcher conduct structured interviews. Questionnaires were selected because the information gathered can be stored for further references, and the cost of administering questionnaires is lower than other research instruments.
3.6.3 Validity, Reliability and Piloting of Research instruments
A Reliable research instrument is considered one that is uniform and stable thereby producing precise and predictable results every time (Kumar, 2011). The researcher did a pretest or trial test of the questionnaires which involved a small number of respondents to test whether the questions are clear and appropriate. The study used Cronbach's alpha formula to test reliability. The feedback from the small number of respondents gave evidence of the reliability of the questionnaire.
3.6.4 Data Collection Procedure
The structured questionnaires were administered through a drop and pick procedure. The researcher sought authority from the management of sampled firms so as to ensure cooperation.
3.7 Data Processing
This is the manipulation of data through coding and transcription to enable interpretation and also facilitate drawing of accurate conclusions. For accuracy of the data, the study checked for and addressed econometric challenges of multicollinearity, heteroskesdacity and autocorrelation.
3.7.1 Multicollinearity
This is the situation in which the independent variables are correlated. This is a violation of OLS assumptions and thus there should be no problem of multicollinearity, that is *corr(X_1, X_2) =0.*
Multicollinearity of the regression model was tested to establish whether the coefficients of independent variables are statistically significantly correlated. Examination of Variance Inflation Factor (VIF) was done to measure how the variances are exaggerated. This was computed from simple correlation coefficient as per Nyamute (2016).
3.7.2 Heteroskedasticity
This is a case in which the variance of the error term is not constant, a violation of OLS assumptions. This problem is common in cross sectional data and means that the estimated parameters will be biased, inefficient and inconsistent.
The study used Spearman's rank correlation. If the correlation coefficient is very high, it suggests the presence of heteroskedasticity. The study was guided by Bakara S. and Yia A.C (2015), who used a similar test.
3.7.3 Autocorrelation
The problem of autocorrelation occurs when the error terms in different time periods are correlated. This is known as spatial correlation in cross sectional data. This can arise from model specification error, persistence of an observational error, the cobweb phenomenon (variables that move in cycles) among others. The consequence of autocorrelation is that it results in the enlargement of the disturbance term and the estimators. Thus the tests of significance and confidence intervals will be misleading leading to unreliable t and F tests.

The study used autocorrelation relationship test. This test involves the generation of regression residuals and fitting such data onto different autocorrelation relationships. The advantage of the test is that it provides the value of the autocorrelation coefficient which is necessary for correcting the problem.

3.8 Data Analysis

In consistency with Srivastava and Rego (2012), the study used multiple regression analysis to assess the impact of several independent variables individually or jointly together on the dependent variable.

Regression analysis is a statistical technique for investigating and modeling the relationship of a dependent variable (Influence of behavioral biases on professional investment decision) and a set of independent variables (Cognitive dissonance, Optimism, Hindsight, Status quo), Kothari,(2004). The relationship is expressed in the form of an equation connecting the dependent variable Y and one or more independent variables X_1, X_2….X_n. The regression equation involves some parameters which must be estimated from the data. In this case, the regression equation or model for the research study formed a relationship that will link the dependent variable with the independent variables.

3.9 Model Specification

The model is specified below;

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

Where;

Y = Professional investment decision

β_o = Constant

$\beta_1, \beta_2, \beta_3, \beta_4$ = Regression Coefficients

X_1 = Cognitive dissonance bias

X_2 = Optimism bias

X_3 = Hindsight bias

X_3 = Status quo bias

U_i = Error term

IV. Findings and Discussion

This chapter presents the findings, interpretations and discussions on the influence of behavioral biases on professional investment decision making. The findings and discussions are guided by the objectives of the study.

4.1.1 Questionnaire response

The study targeted professional investors working in entities licensed by CMA. Forty-four questionnaires were distributed out of which thirty four were completely filled and returned, giving a response rate of 77%. (Mugenda and Mugenda, 1999) asserts that a response rate of more than 70% is very good to proceed with data analysis. Therefore, the response rate was sufficient.

4.2 Demographic data

Demographic information sought by the research was gender, age, level of education, work experience in years and level of seniority.

4.2.1 Gender

The research set out to establish the gender of the respondents.

Table 4. 1: Gender

gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	22	64.7	64.7	64.7
	Female	12	35.3	35.3	100.0
	Total	34	100.0	100.0	

The study found that men formed the majority of the respondents at 64.7% compared to women who accounted for 35.3% of total respondents.

According to Nyamute (2016), herding is more prevalent in men than women. This means that behavioral biases are more prevalent in men than women. The results of the study which show that professional investors are influenced by behavioral biases is thus reinforced by the fact that there were more male respondents than females.

4.2.2 Age
The study sought to determine the age of the respondents.
Table 4. 2: Age

age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	9	26.5	26.5	26.5
	26-30	8	23.5	23.5	50.0
	31-35	10	29.4	29.4	79.4
	36-40	4	11.8	11.8	91.2
	Above 40	3	8.8	8.8	100.0
	Total	34	100.0	100.0	

The study found that at 29.4%, majority of the respondents were aged below between thirty one and thirty five years. 26.5% were aged between eighteen and twenty five years, 23.5% between twenty six and thirty, 11.8% between thirty six and forty and 8.8% above forty.

Nyamute (2016) found that respondents between the age of 31 and 40 exhibited higher incidents of cognitive biases such as overconfidence compared to those above the age of 50. This study had respondents below the age of 40 accounting for 91.2% of the total. This means that the respondents in the study were in an age bracket in which they were more likely to be influenced by behavioral biases in decision making.

The study found that the four behavioral biases investigated influence the professional investors decision making. Thus having 91.2% of the respondents below the age of fourty contributed to having the findings as noted by Nyamute (2016).

4.2.3 Level of education
Table 4. 3: Level of education

Education_Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undergraduate degree	25	73.5	73.5	73.5
	Masters degree	9	26.5	26.5	100.0
	Total	34	100.0	100.0	

The study found that 73.5% of the respondents had a university degree and 26.5% had a masters degree.
This means all respondents had university education and were thus knowledgeable in the research topic. They were therefore in a position to understand and respond to the questions. Furthermore, they were cognizant of the importance of the research topic and were keen to contribute to the study.

4.2.4 Experience
The study investigated the experience level of the respondents.
Table 4. 4: Experience

Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below two years	11	32.4	32.4	32.4
	3 to 5 years	10	29.4	29.4	61.8
	6 to 8 years	6	17.6	17.6	79.4
	Above 9 years	7	20.6	20.6	100.0
	Total	34	100.0	100.0	

It found that 32.4% of the respondents had experience of less than two years, 29.44% had experience of three to five years, 17.6% had experience of six to eight years and 20.6% had experience above nine years.
The findings on experience show that 67.6% of the respondents had experience of more than two years. This means they had been involved in the investment profession for long enough to be involved in decision making. The respondents were thus in a position to relate the questions to their work and give sufficient and reliable answers. Furthermore, they could relate how behavioral biases are at play in the execution of their day to day duties and how they respond to them.

4.2.5 Job category

The study investigated the job category of the respondents.

Table 4. 5: Job category

Job_category

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Top management	4	11.8	11.8	11.8
	Middle level management	12	35.3	35.3	47.1
	Non management	18	52.9	52.9	100.0
	Total	34	100.0	100.0	

11.8% of the respondents belonged to top management, 35.3% were middle level management and 52.9% were in non-management level.

The study found that 47.1% of the respondents were in middle and top-level management. This means that a significant portion of the respondents were in positions of decision making. They were thus well versed with how critical investment decisions are arrived at and the biases they have to contend. This also means that they were in a position to give well informed responses to the questions asked and the objectives they sought to achieve.

4.3 Reliability Analysis

A reliability test for cognitive dissonance, optimism, hindsight, status quo and professional investment decision making was done and the results shown below.

Table 4. 6: Reliability Analysis

Variable	Cronbach's Alpha	No. of Items
Cognitive dissonance	.834	6
Optimism	.921	6
Hindsight	.895	4
Status quo	.902	6
Professional investment decision making	.850	6

Table above shows that all the measures were above the 0.7 threshold as recommended by Dennick (2011). Pilot test discoveries showed that cognitive dissonance scale had a Cronbach's reliability alpha of 0.834, optimism scale had an Alpha value of 0.921, hindsight had Alpha value of 0.895, and status quo 0.902 Alpha value and professional investment decision making had 0.850 reliability value. The pilot test showed that the scales measuring the objectives had sufficient reliability after a few amendments.

4.4 Influence of cognitive dissonance on professional investment decision making
4.4.1 Descriptive of cognitive dissonance on professional investment decision making

The first objective of the study was to determine the influence of cognitive dissonance bias on professional investment decision making. Respondents were asked to what extent they agreed or disagreed with a set of statements following a five point Likert scale in which 1= strongly disagree, 2=Disagree, 3=Neutral, 4= Agree and 5= strongly agree.

The results are summarized in the table below.

Table 4. 7: Descriptive Statistics for Cognitive dissonance bias

Cognitive dissonance	N	Mean	Std. Deviation
I always regret selling investments that were rising in value only for them to continue rising	34	1.35	.597
When my investments are not doing well, I still hold the belief that I made the right decision	34	1.29	.524
I move along with decisions I do not necessarily agree with when other members of the team overrule me	34	1.21	.410
I find it conflicting when outcomes do not match the effort expended.	34	1.24	.431
Confronted with similar but mutually exclusive investment choices, I select the one I can strongly justify	34	1.35	.597
When I come across new information, I find it hard to change decisions I already made	34	1.47	.706
Valid N (listwise)	34		

The study found that professional investors regret selling investments that were rising in value only for them to continue rising (mean 1.35, standard deviation 0.597). It also found that professional investors still hold

the belief that they made the right decision when their investments are not doing well (mean 1.29, standard deviation 0.524), professional investors move along with decisions they do not necessarily agree with when other team members overrule them (mean 1.21, standard deviation 0.410). Furthermore, the study found that investment returns do not match the research effort expended (mean 1.24, standard deviation 0.431), professional investors select an option they can strongly justify when confronted with similar but mutually exclusive investment choices (mean 1.35, standard deviation 0.597). Professional investors also find it hard to change decisions they already made when they come across new information (mean 1.47, standard deviation 0.706).

4.4.2 Regression analysis of Cognitive dissonance bias and professional investment decision making

Regression analysis between cognitive dissonance bias and professional investment decision making was done. The results as per table 4.7 below found that R^2 value was 0.160 hence 16.0% of the variation in professional investment decision making was explained by variations in cognitive dissonance bias.

Table 4. 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.400[a]	.160	.134	1.069

a. Predictors: (Constant), Cognitive_dissonace

4.4.3: Anova and coefficients of cognitive dissonance bias

Anova analysis was done between cognitive dissonance (independent variable) and professional investment decision making (dependent variable).

Table 4. 9: ANOVA[a]for the regression of cognitive dissonance on decision making

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.964	1	6.964	6.090	.019[b]
	Residual	36.595	32	1.144		
	Total	43.559	33			

a. Dependent Variable: Decision_Making

b. Predictors: (Constant), Cognitive_dissonace

With confidence level set at 95%, the F statistic value was 6.090 and p value 0.19.
The results show that there is a statistically significant relationship between cognitive dissonance bias and professional investment decision making since $p < 0.05$.

Table 4. 10: Coefficients[a]the regression of cognitive dissonance on decision making

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.889	2.881		-1.003	.324
	Cognitive_dissonace	1.665	.675	.400	2.468	.019

a. Dependent Variable: Decision_Making

4.4.4: Hypothesis testing

In order to determine the influence of cognitive dissonance bias on professional investment decision making, the study tested the null hypothesis stated below.
Ho: Cognitive dissonance bias has no influence on professional investment decision making.
The coefficient results of cognitive dissonance and decision making in Table 4.3.4 above shows that p=0.019 and since $p < 0.05$, we reject the null hypothesis and conclude that cognitive dissonance bias influences professional investment decision making.

4.4.5: Model formulation

From table 4.9 above, the following model was formulated.;
$Y = \beta_0 + \beta_1 X_1 + \varepsilon$
$Y = -2.889 + 1.665 X_1 + 1.069$

Where:

Y is the dependentvariable (professional investment decision making);

β_0 is the regression constant;

β_1 is the coefficient of cognitive dissonance bias;

X_1 is cognitive dissonance bias; and

ε is the error term.

The model shows that professional investment decision making will be limited by -2.889 when cognitive dissonance is zero. The coefficient 1.665 shows that a unit increase in cognitive dissonance while holding other factors constant will increase investment decision making by 1.665.

4.5 Influence of Optimism bias on professional investment decision making
4.5.1 Descriptive of optimism on professional investment decision making

The second objective of the study was to determine the influence of optimism bias on professional investment decision making. Respondents were asked to state to what extent they agreed with the statements below. A likert scale of five points was used with 1= strongly disagree, 2=Disagree, 3=Neutral, 4= Agree and 5= strongly agree.

Table 4. 11: Descriptive Statistics for Optimism bias

	N	Mean	Std. Deviation
I always expect better returns than those predicted by experts and other players in the market	34	4.56	.561
For every investment decision I make, I always have a stong feeling the returns will exceed expectations	34	4.68	.475
I dont fear making high risk investments because I always feel I can control the outcome	34	4.56	.504
I always anticipate good returns even during unfavourable economic conditions	34	4.50	.564
Unfavourable economic conditions have little impact on my investment strategy	34	4.56	.504
I don't sell my investments even when I anticipate there will be a decline in returns	34	4.56	.561
Valid N (listwise)	34		

The study found that professional investors expect better returns than those predicted by experts and other players in the market (mean 4.56, standard deviation 0.561). It also found that they always have a strong feeling the returns will exceed expectations (mean 4.68, standard deviation 0.475).

Professional investors were also found not to fear making high risk investments because they feel that they can always control the outcome (mean 4.56, standard deviation 0.504). Furthermore, they always anticipate good returns during unfavourable economic conditions (mean 4.50, standard deviation 0.564) and that unfavourable economic conditions have little impact on their investment strategy (mean 4.56, standard deviation 0.504). Professional investors were also found not to sell investments when they anticipate decline in returns (mean 4.56, standard deviation 0.561).

4.5.2 Regression analysis of Optimism bias and professional investment decision making

Regression analysis between optimism bias and professional investment decision making was done. The results as per table 4.11 below found that R^2 value was 0.130 hence 13.0% of the variation in professional investment decision making was explained by variations in optimism bias.

Table 4. 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.361[a]	.130	.103	1.088

a. Predictors: (Constant), Optimism

4.5.3: Anova and coefficients of optimism bias

Anova analysis was done between hindsight bias (independent variable) and professional investment decision making (dependent variable).

Table 4. 13: ANOVA[a] for regression of optimism on decision making

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.673	1	5.673	4.791	.036[b]
	Residual	37.886	32	1.184		
	Total	43.559	33			

a. Dependent Variable: Decision_Making

b. Predictors: (Constant), Optimism

With confidence level set at 95%, the F statistic value was 4.791 and p value 0.36.

The results show that there is a statistically significant relationship between optimism bias and professional investment decision making since p<0.05.

Table 4. 14: Coefficients[a]for regression ofoptimism on decision making

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.825	3.217		-.878	.387
	Optimism	1.539	.703	.361	2.189	.036

a. Dependent Variable: Decision_Making

4.5.4: Hypothesis testing
In order to determine the influence of optimism bias on professional investment decision making, the study tested the null hypothesis stated below.
Ho: Optimism bias has no influence on professional investment decision making.
The coefficient results of hindsight and decision making in Table 4.13 above shows that p=0. 036 and since p<0.05, we reject the null hypothesis and conclude that optimism bias influences professional investment decision making.

4.5.5: Model formulation
From table 4.13 above, the following model was formulated.
$Y = \beta 0 + \beta 1 X1 + \varepsilon$
$Y = -2.825 + 1.539 X_1 + 1.088$
Where:
Y is the dependentvariable (professional investment decision making);
$\beta 0$ is the regression constant;
$\beta 1$ is the coefficient of optimism bias;
X1 is optimism bias; and
ε is the error term.
From the model above, value of professional investment decision making is -2.825 when optimism bias is zero. A unit increase in optimism bias will increase professional investment decision making by 1.539.

4.6 Influence of Hindsight on professional investment decision making
4.6.1 Descriptive of hindsight on professional investment decision making
The research sought to determine the influence of hindsight bias on professional investment decision making. Respondents were asked to state to what extent they agreed with the statements in the table below. A likert scale was used to measure the responses with 1= strongly disagree, 2=Disagree, 3=Neutral, 4= Agree and 5= strongly agree.

Table 4. 15: Descriptive Statistics for Hindsight bias

	N	Mean	Std. Deviation
I have a good ability to predict returns when making investment decisions	34	4.59	.557
I don't get surprised by my investments' returns,whetherfavourable or adverse	34	4.68	.475
My investments turn out the way I expected	34	4.59	.500
I rely on my skills more than the opinion of other professionals	34	4.53	.563

From the table above, it was found that professional investors have a good ability to predict returns (mean 4.59, standard deviation 0.557). The study also found that professional investors don't get surprised by investment returns whether favourable or adverse (mean 4.68, standard deviation 0.475). The professional investors usually have their investments turn out the way they expected (mean 4.59, standard deviation 0.500). Most of the professional investors were found to rely on their own skills more than the opinion of other professionals (mean 4.53, standard deviation 0.563).

4.6.2 Regression analysis of Hindsight bias and professional investment decision making
Regression analysis between hindsight bias and professional investment decision making was done. The results as per table 4.15 below found that R^2 value was 0.398 hence 39.8% of the variation in professional investment decision making was explained by variations in hindsight bias.

Table 4. 16: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.398[a]	.158	.132	1.070

a. Predictors: (Constant), Hindsight_mean

4.6.3: Anova and coefficients of hindsight bias

Anova analysis was done between hindsight bias (independent variable) and professional investment decision making (dependent variable).

Table 4. 17: ANOVA[a]for the regression of hindsight on decision making

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.900	1	6.900	6.023	.020[b]
	Residual	36.659	32	1.146		
	Total	43.559	33			

a. Dependent Variable: Decision_Making
b. Predictors: (Constant), Hindsight_mean

With confidence level set at 95%, the F statistic value was 6.023 and p value 0.20.
The results show that there is a statistically significant relationship between hindsight bias and professional investment decision making since $p < 0.05$.

Table 4. 18: Coefficients[a]for the regression of hindsight on decision making

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.072	3.378		-1.205	.237
	Hindsight_mean	1.801	.734	.398	2.454	.020

a. Dependent Variable: Decision_Making

4.6.4: Hypothesis testing

In order to determine the influence of hindsight bias on professional investment decision making, the study tested the null hypothesis stated below.
Ho: Hindsight bias has no influence on professional investment decision making.
The coefficient results of hindsight and decision making in Table 4.17 above shows that p=0. 020 and since p<0.05, we reject the null hypothesis and conclude that hindsight bias influences professional investment decision making.

4.6.5: Model formulation

From table 4.17 above, the following model was formulated.
$Y = \beta_0 + \beta_1 X_1 + \varepsilon$
$Y = -4.072 + 0.398 X_1 + 1.070$
Where:
Y is the dependentvariable (professional investment decision making);
β_0 is the regression constant;
β_1 is the coefficient of hindsight bias;
X_1 is hindsight bias; and
ε is the error term.
From the model above, professional investment decision is -4.072 when hindsight bias is zero. The regression coefficient of 0. 398 obtained in this case implies that a unit increase in hindsight bias variable would lead to 0. 398 increase in investment decision making.

4.7 Influence of Status quo on professional investment decision making
4.7.1 Descriptive of status quo on professional investment decision making

The last objective of the study was to determine the influence of status quo bias on professional investment decision making. Respondents were asked to state to what extent they agreed with the statements in the table below. A likert scale was used to measure the responses with 1= strongly disagree, 2=Disagree, 3=Neutral, 4= Agree and 5= strongly agree.

Table 4. 19: Descriptive Statistics for status quo bias

	N	Mean	Std. Deviation
I hardly make changes in the portfolio I already hold	34	4.56	.561
Most of my investments are within a determined risk range	34	4.65	.884
I would rather make modest returns from investments I already hold than earn high returns from new high risk ventures	34	4.59	.500
I hold onto losing investments in the hope they will make a turnaround	34	4.79	.479
My current investment decisions are mostly similar to the decisions I made in the past	34	4.82	.387
I prefer holding onto investments for a long time	34	4.76	.431
Valid N (listwise)	34		

From the descriptive table above, the study found that professional investors hardly make changes in the portfolio they already hold (mean 4.56, standard deviation 0.561); most of their investments are within a determined risk range (mean 4.65, standard deviation 0.884).

The study also found that professional investors; would rather make modest returns from investments they already hold than earn high returns from new high risk ventures (mean 4.59, standard deviation 0.500), hold onto losing investments in the hope they will make a turnaround (mean 4.79, standard deviation 0.479). It also found that current investment decisions they make are mostly similar to the decisions they made in the past (mean 4.82, standard deviation 0.387) and that they prefer holding onto investments for a long time (mean 4.76, standard deviation 0.431).

4.7.2 Regression analysis of status quo bias and professional investment decision making

Regression analysis between status quo bias and professional investment decision making was done. The results as per table 4.19 below found that R^2 value was 0.398 hence 39.8% of the variation in professional investment decision making was explained by variations in hindsight bias.

Table 4. 20: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.361[a]	.130	.103	1.088

a. Predictors: (Constant), Status_quo

4.7.3: Anova and coefficients of status quo bias

Anova analysis was done between hindsight bias (independent variable) and professional investment decision making (dependent variable).

Table 4. 21: ANOVA[a]for regression of status quo on decision making

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.666	1	5.666	4.785	.036[b]
	Residual	37.892	32	1.184		
	Total	43.559	33			

a. Dependent Variable: Decision_Making
b. Predictors: (Constant), Status_quo

With confidence level set at 95%, the F statistic value was 4.785 and p value 0.036.
The results show that there is a statistically significant relationship between status quo bias and professional investment decision making since $p<0.05$.

Table 4. 22: Coefficients[a] for regression of status quo on decision making

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.872	3.697		-1.047	.303
	Status_quo	1.720	.786	.361	2.188	.036

a. Dependent Variable: Decision_Making

4.7.4: Hypothesis testing

In order to determine the influence of status quo bias on professional investment decision making, the study tested the null hypothesis stated below.

Ho: Status quo bias has no influence on professional investment decision making.
The coefficient results of hindsight and decision making in Table 4.21 above shows that p=0. 036 and since p<0.05, we reject the null hypothesis and conclude that status quo bias influences professional investment decision making.

4.7.5: Model formulation
From table 4.21 above, the following model was formulated.
$Y = \beta_0 + \beta_1 X_1 + \varepsilon$
$Y = -3.872 + 1.720 X_1 + 1.088$
Where:
Y is the dependentvariable (professional investment decision making);
β_0 is the regression constant;
β_1 is the coefficient of status quo bias;
X1 is status quo bias; and
ε is the error term.
The model shows that the value of professional investment decision making is -3.872 when status quo bias is zero. A unit increase in status quo bias increases professional investment decision making by 1.720.

4.8 Professional Investment Decision Making.
The study sought to investigate the extent to which respondents relied on heuristicsto make investment decisions. A Likert scale was used to measure the responses with 1= Never, 2=Rarely, 3=Neutral, 4= Frequently and 5= Always.
The findings were summarized using descriptive measures of central tendencyas illustrated in the table below.

Table 4. 23: Descriptive Statistics for professional investment decision making

Investment Decisions	N	Mean	Std. Deviation
Deciding on the portfolio to buy.	34	4.24	.890
Deciding on the portfolio to sell.	34	4.15	.925
Deciding on how long to hold the portfolio.	34	4.29	.799
Decision on volume to trade.	34	4.35	.884
Deciding on the industry to invest in.	34	4.32	.912
Valid N (listwise)	34		

4.9 Tests of Linear Regression Assumptions
Linear regression analysis makes several assumptions when assessing whether one or more dependent variables has an influence on the dependent variable. The assumptions are that there is a linear relationship, multivariate normality, little or no multicollinearity, no autocorrelation and homoscedasticity.
The study thus performed tests on multicollinearity, normality and heteroscedasticity.

4.9.1 Multicollinearity Test
Multicollinearity is a situation in which the independent variables are highly correlated, Ho (2006). The presence of multicorrelation in a regression analysis implies that the researcher is using redundant information in the model which can easily lead to unstable regression coefficient estimates, Marcoulides and Raykov(2006). The study tested for multicollinearity by conducting collinearity diagnostic tests. The outcome of the test is the tolerance and variance inflation factor (VIF). Tolerance of less than 0.1 and VIF greater than 10 indicates the presence of multicollinearity. The findings of the test are indicated in table 4.23 below.

Table 4. 24: Collinearity statistics

Variables	Collinearity Statistics	
	Tolerance	**VIF**
Cognitive dissonance	.887	1.128
Optimism	.950	1.053
Hindsight	.216	4.639
Status quo	.200	5.000

The table above shows all variables had a VIF of less than 10: Cognitive dissonance had a VIF of 1.128, Optimism 1.053, Hindsight 4.639 and Status quo 5.000. This shows that there was no multicollinearity thus all the variables are retained.

4.9.2 Heteroscedasticity
Homoskedasticity is the assumption that the variance of the error term is constant. Violation of this assumption gives rise to the case of heteroskedasticity which is a violation of the OLS assumption.
The study used White's general test to check for heteroskedasticity. The test assumes the functional relationship $Y = \alpha + \beta1X1 + \beta2X2 + \beta3X3 + \varepsilon$. To check for heteroskedasticity, the test demands that from the auxiliary regression, we obtain the coefficient of determination R^2 (unadjusted) and then work out nR^2 where n is the sample size. The nR^2 is said to follow a chi- square distribution, and is thus the calculated chi-square (X^2).
We then compare nR^2 and critical chi-square (X^2) from the chi-square tables.
If calculated chi-square is greater than critical chi-square, ($X_{cal}^2 > X_{crit}^2$), reject the null hypothesis and conclude that Heteroskedasticity is a problem and vice versa.

Table 4. 25: Model Summary of professional investment decision making and co factors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.803[a]	.645	.596	.341

a. Predictors: (Constant), Cognitive_dissonance, Optimism, Hindsight, Status_quo

From the table above, unadjustaed R2 is 0.645. Multiplying this by n which in our case is 34, we get 21.93. The critical chi square is 50.469 as per the table 4.25 below. Since 21.93 is less than 50.469, we accept the null hypothesis and conclude that heteroskedasticity is not a problem.

Table 4. 26: Chi square tests

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	50.469[a]	14	.000
Likelihood Ratio	15.213	14	.364
Linear-by-Linear Association	7.982	1	.005
N of Valid Cases	34		

a. 23 cells (95.8%) have expected count less than 5. The minimum expected count is .03.

4.10 Inferential Statistics
4.10.1 Multi correlation
The study carried out a multi correlation analysis to establish the relationship between professional investment decision making and cognitive dissonance, optimism, hindsight and status quo. The Pearson correlation results are presented in the table below.

Table 4. 27: Multi correlation of decision making and Co factors

		DM	CD	O	H	SQ
Decision Making	Pearson Correlation	1	.492[**]	.362[*]	.418[*]	.647[**]
	Sig. (2-tailed)		.003	.036	.014	.000
	N	34	34	34	34	34
Cognitive	Pearson Correlation	.492[**]	1	.028	.167	.284

Dissonance	Sig. (2-tailed)	.003		.874	.345	.103
	N	34	34	34	34	34
Optimism	Pearson Correlation	.362*	.028	1	.172	.216
	Sig. (2-tailed)	.036	.874		.330	.219
	N	34	34	34	34	34
Hindsight	Pearson Correlation	.418*	.167	.172	1	.881**
	Sig. (2-tailed)	.014	.345	.330		.000
	N	34	34	34	34	34
Status Quo	Pearson Correlation	.647**	.284	.216	.881**	1
	Sig. (2-tailed)	.000	.103	.219	.000	
	N	34	34	34	34	34

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

*. Correlation is significant at the 0.05 level (2-tailed).

Key: DM=Professional investment decision making; CD= Cognitive dissonance; O=Optimism;H= Hindsight; and SQ=Status quo.

From the table above, the study found a positive relationship between investment decision making and cognitive dissonance. The correlation factor of 0.492 was also found to be statistically significant since the significance value was 0.003 which is less than confidence level of 0.05.

Optimism was also found to have a positive relationship with professional investment decision making. The correlation coefficient was 0.362 with the significance value being 0.036. This was statistically significant since it is less than 0.05.

The relationship between hindsight and decision making was also positive with the correlation coefficient being 0.418. The significance value of 0.014 is less than confidence level of 0.05 hence statistically significant.

Status quo was also found to have a positive relationship with decision making since the correlation coefficient was 0.647. The significance value was 0.000 hence statistically significant since it is less than 0.05.

4.10.2 Regression Analysis
The study analyzed relationship between the dependentvariable (professional investment decision making) and cognitive dissonance bias, optimism bias, hindsight bias and status quo bias.

The results showed that the R^2 value was 0.645 hence 64.5% of the variation in professional investment decision making was explained by the variations in the four behavioral biases studied as illustrated in Table 4.9.2 below.

Table 4. 28: Model Summary of professional investment decision making and co factors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.803[a]	.645	.596	.341

a. Predictors: (Constant), Cognitive_dissonance, Optimism, Hindsight, Status_quo

4.10.3: Anova and coefficients of decision making and co factors
Anova analysis was done between the independent variables namely cognitive dissonance, optimism, hindsight and status quo biases with professional investment decision making (dependent variable).

Table 4. 29:ANOVA[a]for professional decision making and co factors

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.148	4	1.537	13.183	.000[b]
	Residual	3.381	29	.117		
	Total	9.529	33			

a. Dependent Variable: Decision Making

b. Predictors: (Constant), Cognitive dissonance, Optimism, Hindsight, Status quo

With confidence level set at 95%, the F statistic value was 13.183 and p value 0.000. This means that the independent variables are statistically significant.

Table 4. 30: Coefficients[a] for professional decision making and co factors

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-11.715	3.109		-3.768	.001
	Cognitive dissonance	.495	.198	.293	2.495	.019
	Optimism	1.134	.554	.232	2.045	.050
	Hindsight	1.974	.848	.554	2.327	.027
	Status quo	3.752	.926	1.002	4.052	.000

a. Dependent Variable: Decision_Making

4.10.4: Hypothesis testing

In order to determine the influence of the four behavioral biases under study on professional investment decision making, the study tested the null hypothesis stated below.

Ho: Behavioral biases have no influence on professional investment decision making.

The significance results of cognitive dissonance, optimism, hindsight and status quo biases with decision making in Table 4.6.4 above shows that p=0.019, 0.050, 0.027 and 0.00 respectively. Since p<0.05 for all the independent variables, we reject the null hypothesis and conclude that the four behavioral biases under study namely cognitive dissonance, optimism, hindsight and status quo influences professional investment decision making.

4.10.5: Model formulation

From table 4.29 above, the following model was formulated.

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$

$Y = -11.715 + 0.495X_1 + 1.134 X_2 + 1.974 X_3 + 3.752 X_4 + 0.341$

Where:

Y is the dependent variable (professional investment decision making);

β_0 is the regression constant;

B_1- β_4 are coefficients of the independent variables;

X_1 is Cognitive dissonance bias;

X_2 is Optimism bias;

X_3 is Hindsight bias;

X_4 is Status quo bias;

ε is the error term.

$Y = -11.715 + 0.495X_1 + 1.134 X_2 + 1.974 X_3 + 3.752 X_4 + 0.341$

The regression model above indicates that the value of professional investment decision making is limited by 11.715 if all the independent variables were zero. The study found that a unit increase in cognitive dissonance while holding other factors constant would increase professional investment decision making by 0.495.

A unit increase in optimism bias will lead to an increase in professional investment decision making by 1.134 when other factors are held constant. With other factors held constant, a unit increase in hindsight bias will increase professional investment decision making by 1.974. A unit increase in status quo bias on the other hand will increase professional investment decision making by 3.752 when other factors are held constant.

The study thus found that all the four behavioral biases investigated have a positive influence on professional investment decision making.

4.11 Discussion of the Findings

The study found that the four behavioral biases investigated namely cognitive dissonance, optimism, hindsight and status quo have a positive influence on professional investment decision making.

The Anova tests carried out found all the independent variables to be statistically significant at 95% confidence interval. Furthermore, tests on linear regression assumptions found there was no multicollinearity and heteroskedasticity was not a problem.

These findings are consistent with Sadi et al. (2011)) who found that personal biases among investors affect their financial decision making.

The findings for each independent variable are discussed in detail below.

4.11.1 Cognitive dissonance

The study found that cognitive dissonance bias influences professional investment decision making. Results of the descriptive statistics found that professional investors usually regret selling investments that were

rising in value only for them to continue rising. It also found that when their investments are not doing well, they still hold the belief that they made the right decision. Furthermore, the descriptive statistics found that the professional investors find it hard to change decisions they had already made in the wake of new information.

The regression analysis resulted in an R^2 of 0.16 meaning that 16% of variation in professional investment decision making is explained by cognitive dissonance.

With confidence level set at 95%, the F statistic value was 6.090 and p value 0.019. This means that there is a statistically significant relationship between cognitive dissonance bias and professional investment decision making since p<0.05.

The findings thus strengthen the arguments of pioneering researcher in cognitive dissonance Leon Festinger (1956) that people experience mental tension when they hold two cognitions that are psychologically inconsistent.

The findings are also reinforced by Olsen, R. (2008), who found that where decision makers have incurred great costs to acquire their current beliefs or positions of status and where the benefits of accepting an alternative viewpoint are uncertain, resistance to belief change will be strong and self justification almost overwhelming. Also, the more costly a changed position, in terms of time, money, effort and the more irrevocable its consequences, the greater will be the dissonance and the felt need to reduce it.

This shows that cognitive dissonance is always at play and professional investors should always be aware of this.

4.11.2 Optimism

Optimism bias was found to have an influence on professional investment decision making. The descriptive statistics determined that professional investors always expect better returns than those predicted by experts and other players in the market. It also found that for investment decisions made, professional investors usually have a strong feeling that the returns will exceed expectations. Furthermore, they were found to always anticipate good returns even during unfavorable economic conditions.

Regression analysis of optimism bias on professional investment decision making had an R^2 value of 0.13. This means that 13% of variation in professional decision making is explained by optimism bias. With confidence interval set at 95% the F statistic was 4.791 and the p value 0.036, meaning that a statistically significant relationship exists between the dependent and independent variable.

Optimism has thus been found to play a role in the decision making process. Professional investors tend to have a feeling that the economic outlook will be good and thus their investments will perform well. This is usually not the case because unforeseen events usually come to pass, and the economy is negatively impacted.

The findings on optimism also agrees with Dugar and Nathan (1995) who provide evidence that analysts exhibit greater optimism for firms that are underwriting and investment banking clients. They found that optimism helps the analyst by maintaining/building client relationships. This is because analysts face a conflict between issuing good forecasts and pleasing their firms' clients or risking their displeasure by issuing accurate forecasts. The bias thus predisposes them to give projections of positive outlook in order to maintain good relations even though there may be empirical evidence of a contrary outcome.

4.11.3 Hindsight

Descriptive statistics found that hindsight bias has an influence on professional investment decision making. The study found that professional investors do not get surprised by the returns of their investments. The study also found that most professional investors rely more on their own skills than the input of other professionals.

Regression analysis of hindsight bias on professional investment decision making had an R^2 value of 0.398. This means that 39.8% of variation in professional decision making is explained by hindsight bias. With confidence interval set at 95% the F statistic was 6.023 and the p value 0.020, meaning that a statistically significant relationship exists between the hindsight bias and professional investment decision making.

The findings show that professional investors are afflicted by hindsight bias. Their inability to correctly remember prior expectations after observing new information, hinders their information processing. The presence of this bias makes them not surprised by new information as they 'knew it all along'.

These findings also agree with Weber and Biais (2007), who determined that biased agents incorrectly remember their prior expectations. When choosing portfolios, these agents rely on biased expected returns, exaggerating the information content of recent signals. Due to forming incorrect conditional expectations and variances, hindsight biased agents will choose inefficient portfolios and achieve inferior financial performance.

4.11.4 Status quo

The study found that status quo bias influences professional investment decision making. Descriptive statistics found that professional investors hardly make changes in the portfolio they already hold. It also

established that the professional investors would rather make modest returns from investments they already hold than earn high returns from new high-risk ventures. Furthermore, the study found that for most professional investors, their current decisions are mostly similar to the decisions they made in the past.

The coefficient for regression of status quo on professional investment decision making results found that p=0. 036, and since p<0.05, the study rejected the null hypothesis and concluded that status quo bias influences professional investment decision making.

The findings above are consistent with Lim (2012) who examined the relationship between psychological biases, namely the overconfidence bias, status quo bias, herding and regret and the decision making of investors in the Malaysian share market. He found out that overconfidence, conservatism bias and regret have positive significant impacts on investors' decision making.

Professional investors were found to prefer holding onto performing stocks and reluctant to take more risks for higher returns. This bias therefore hinders the professional investors from taking advantage of other opportunities because of the higher risk premium.

V. Summary of Findings, Conclusions and Recommendations

This chapter presents the summary of findings, conclusions based on the findings, recommendations and areas for further research.

5.1 Summary of Findings

The first objective of the study was to investigate the influence of cognitive dissonance bias on professional investment decision making. The study found that cognitive dissonance bias influences the decisions made by professional investors.

The study found that professional investors find it hard to adjust to new information that contradicts the information they had before.

The second objective of the study was to examine the influence of optimism bias on professional investment decision making. Optimism bias was found to have an influence on decision making. The study found that professional investors always expect better returns than those predicted by experts and other players in the market. They were also found to have strong feelings that the returns will exceed expectations.

The other bias the study investigated was hindsight. The research determined that hindsight bias has an influence on professional investment decision making. Professional investors were found to hold the belief that the results of their investments were just they way they anticipated. They were also found to rely on their own skills more than those of other professionals.

The last objective of the study was to investigate the influence of status quo bias on professional investment decision making. Status quo bias was found to have an influence on decision making. The professional investors were found to have difficulty making changes in the portfolio they already hold. It was also found that they hold onto losing investments in the hope that they will make a turnaround. Furthermore, professional investors were found to prefer holding investments for a long time.

5.2 Conclusions

The study concluded that behavioral biases have an influence on professional investment decision making. The study specifically concludes that cognitive dissonance, optimism, hindsight and status quo biases influence the decisions made by professional investors.

The study concluded that 64.5% of the variation in professional investment decision making was explained by the variations in the four behavioral biases studied. This was as a result of the R^2 value being 0.645 after running a regression of the dependent variable (professional investment decision making) and independent variables (cognitive dissonance bias, optimism bias, hindsight bias and status quo bias).

The study also concluded that that the independent variables are statistically significant. This is as result of confidence level being set at 95%, and the F statistic value being found to be 13.183 and p value 0.000.

5.3 Recommendations of the Study

The study recommends that professional investors should strive to be aware of cognitive biases that influence their decision making. This will make them be able to overcome the negative effects it may have on their decision making process.

The study also recommends that employers invest in analytical tools to overcome challenges that come with making decisions based on heuristics. Professional investors should also work in teams so that they can mitigate wrong decisions that may arise from individual decisions that have been influenced by behavioral biases.

5.4 Areas for Further Research

The study focused on cognitive dissonance, optimism, hindsight and status quo biases. There are however many behavioral biases that play a role in professional investment decision making.

The study encourages other researchers to carry out studies on the other biases not investigated in this study.

The study covered professional investors in Nairobi county and recommends that other studies cover other regions of the country that were left out.

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