THE INFLUENCE OF BEHAVIORAL BIASES ON THE TRADING DECISIONS OF EQUITY FUND INVESTORS: A CASE OF BRITISH AMERICAN (BRITAM) KENYA EQUITY FUND

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DECLARATION

Student Declaration:

I hereby declare that this research project is my original work and has not been presented for a degree by myself or any other person from any other institution known and unknown to me.

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Supervisor Declaration:

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

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I would also like to express my undying gratitude to my mother Mrs. Rosemary Kiugu and my brother Mr. Machel Kiugu for their financial and emotional support, assistance and encouragement that kept me motivated throughout the course of my masters education.

DEDICATION

I dedicate this research project to the almighty God my father and to My Mother and Brother.

ABSTRACT

This paper set out to study behavioral biases of investors in the equity fund market and how they apply in our local situation. The objective of this study was to identify behavioral biases and phenomena present amongst investors in the equity fund market in Kenya and determine how these behavioral biases influence their trading decisions in terms of buying and selling of equity fund scheme shares. This study sought to identify if investors' selling behavior is influenced by the disposition effect and loss aversion and if investors are irrational in their purchasing decisions by irrationally buying shares with high prices or buying shares based on how old the fund is rather than the fund's performance.

The study was an exploratory study. It focused on the British American equity fund scheme as it has been and it still is, the largest equity fund scheme in Kenya, with the most investors. The British American equity fund scheme has a current market share of 54%. Secondary data was collected from British American's equity fund data base and from their publicly available financial statements for the years 2008 to 2011. The data was analyzed using statistical tools such as charts and graphs and using regression analysis.

The study found that investors exhibited both rational behavior and irrational behavior in their trading decisions. It was found that there were a number of investors who were influenced by the disposition effect and by loss aversion in their selling/redemption decisions in that they sold fund shares quickly when prices increased slightly and held on

to shares slightly longer when prices declined below the original fund share price of Kshs. 100. However, there were also a number of investors who retained their shares longer when prices were on an upward trend and sold them when prices had increased even further to higher levels, hence realizing more gains on redemption. With regard to purchasing decisions, the study found that investors were mostly rational, buying shares when prices declined. The study also found that investors purchased more shares in the fund when the performance of the fund improved i.e. when the fund made increased return/profits, which is also rational. It was noted however, that the number of fund shares issued decreased as the fund got older. This is in keeping with other studies that found that there is an irrational tendency of investors to purchase more shares from newer and younger equity fund schemes.

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ABBREVIATIONS

CMA- Capital Markets Authority

FMRI-Functional Magnetic Resonance Imaging

NSE- Nairobi Stock Exchange

SME- Small and Medium Enterprises

USA- United States of America

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Over the years, it has been noted that investors in the financial markets make decisions and choose investments based on both rational and irrational factors. It is common to find that many investors invest in stock or other financial securities based on hot tips or based on the advice of strangers or even based on what everyone else or the masses are doing rather than based on the rational fundamental strengths of the security and the investors investment objectives (Maheran, Muhammad and Ismail, 2010). All this is usually in an attempt to get rich quick or make profits quickly.

According to a survey carried out by Frieder (2004), many of the respondents described investing as playing in the stock market to give themselves a kick out of it! This shows that for many investors, investing constitutes more than simply weighting the risk and returns of various investment assets. Thus being aware of the many considerations and needs beyond risk and return that influence investors' behavior, it is surprising that finance journals are mostly confined to the utilitarian benefits of low risk and high expected returns.

It is also worth mentioning that most investors consider themselves to be risk averse. Olsen (1998), noted that most investors would pick a certain investment with a small return rather than an uncertain investment with higher returns. The level of risk tolerance of most investors however changes with time and circumstances and is based on various factors such as the positive and negative outcomes of their previous investment decisions,

changes with age to their family or work lives, and changes in the performance of national and world wide economy. Thus overtime these changes will influence both the rational and irrational factors considered by investors when making trading decisions and choosing investments.

The overall purpose of this research therefore was to gain knowledge about key behavioral factors that influence Kenyan equity fund investors* decisions, focusing on the irrational behavioral factors that drive their decisions. This paper, focused on the behavior of individual investors when buying and selling equity fund investments scheme shares.

1.1.1 Behavioral Biases

According to Wikipedia, Behavioral Finance, which is a relatively new field of finance, looks at the effects of social, cognitive, and emotional factors on the economic decisions of individuals and institutions and the consequences for market prices, returns, and resource allocation. This field of Finance is primarily concerned with the bounds of rationality of economic agents. The central issue in behavioral finance is explaining why investor behavior results in systematic errors, how such errors affect prices and returns and how they create market inefficiencies and also investigates how other participants arbitrage such market inefficiencies.

Behavioral finance highlights investor behaviors and biases such as under- or over-reactions to information as causes of market trends and in extreme cases of bubbles and crashes. Such reactions have been attributed to behavioral factors such as limited investor attention, overconfidence, over-optimism, mimicry /herding instinct and noise trading.

Behavioral finance theories and studies have made some key observations. There are three main themes predominate in behavioral finance and economics. The first being heuristics which was introduced by Tversky and Kahneman (1973). People often make decisions based on approximate rules of thumb, not strict logic. This is explained by cognitive biases and bounded rationality. Heuristics is responsible for behavioral phenomena such as prospect theory, loss aversion, disappointment, status quo bias, gambler's fallacy, self-serving bias, money illusion etc. The second is framing (Tversky and Kahneman, 1982) which is the collection of anecdotes and stereotypes that make up the mental emotional filters individuals rely on to understand and respond to events. Examples of framing include, cognitive framing, mental accounting and anchoring. And lastly, Market inefficiencies, which include mis-pricings, irrational decision making, and return anomalies. Thaler (2008), in particular, described specific market anomalies from a behavioral perspective.

The above themes have resulted in anomalies in economic behavior such as disposition effect, endowment effect, inequity aversion, reciprocity, inter-temporal consumption, present-biased preferences, momentum investing, greed and fear, herding behavior and sunk-cost fallacy. Also anomalies in market prices and returns such as equity premium puzzle, efficiency wage hypothesis, price stickiness, limits to arbitrage, dividend puzzle, fat tails and the calendar effect.

Barberis, Shleifer and Vishny (1998) as well as Daniel, Hirshleifer and Subrahmanyam (1998) built models based on extrapolation (seeing patterns in random sequences) and overconfidence to explain security market under- and over-reactions, though their source

continues to be debated. These models assume that errors or biases are positively correlated across agents so that they do not cancel out in aggregate. This would be the case if a large fraction of agents look at the same signal (such as the advice of an analyst) or have a common bias. More generally, cognitive biases may also have strong anomalous effects in the aggregate if there is social contagion of ideas and emotions (causing collective euphoria or fear) leading to phenomena such as herding and groupthink. Behavioral finance and economics rests as much on social psychology within large groups as on individual psychology. In some behavioral models, a small deviant group can have substantial market-wide effects (Fehr and Schmidt, 1999).

The following are explanations of some of these behavioral phenomena. The asymmetry between decisions to acquire or keep resources, known as the "bird in the bush" paradox, and loss aversion, is the unwillingness to let go of a valued possession. Loss aversion appears to manifest itself in investor behavior as a reluctance to sell shares or other equity, if doing so would result in a nominal loss. It may also help explain why housing prices rarely/slowly decline to market clearing levels during periods of low demand.

Herding behavior refers to a situation where by investors who initially were skeptical about a certain investments started buying them because everyone seems to be investing. Noise trading occurs when institutional investors all start investing in certain securities because other investors are doing it.

Selective perception is another bias that can explain why housing prices tend to be overestimated, in that people buying houses as an investment tend to believe that house

prices always increase and any information pointing at an overdue correction is ignored and the focus remains on affirming news.

Festinger et al. (1956) introduced a new concept in social psychology: the theory of cognitive dissonance. Cognitive dissonance occurs once an investment incurs a big loss, and then tends to blame the wrong investment decision on someone else. For example, among those blamed for the credit crisis and its losses in affected assets are the mortgage originators, investment banks, real estate speculators, rating agencies, and regulators. Note that investors who were willing to invest in products they did not fully understand simply because they hungered for additional yield are usually not blamed for bubbles and the subsequent crises.

Anchoring is yet another investor behavior bias. Anchoring occurs when assessing the risk of losses. For example when past house price corrections were used as an anchor value for possible future corrections, the higher risk of subprime mortgages and the impact of the new mortgage structures were not properly considered, while the possibility of sharper corrections than seen in the past was also grievously underestimated and this contributed to the financial crisis.

All these behavioral biases have an effect on investor trading behavior and determine their buy or sell decisions and thus affect the level or amount of returns investors make on their investments. These behavioral biases influence investors into making irrational trading decisions that go against the normal expected decisions that are made based on an analysis of the information available on the investment fundamentals.

1.1.2 Trading Decisions of Investors

The trading decisions of investors refer to the buying and selling decisions they make with regard to their investments. Regardless of the type of investment, buying and selling decisions have to be made in order to realize gain and or stop losses depending on the situation. Trading decisions are made on a daily basis in the financial world, by individual investors, brokers, analysts, fund and trust managers, company investments portfolio managers etc.

The decision to buy or sell an investment needs to be made carefully and from an informed perspective. A rational investor will consider the fundamentals relating to the investment and how these fundamentals impact on the expected future returns or gains to be realized from the said investment. Fundamental in this case refer to economic and environmental factors such as interest rates, inflation, number of year or period to maturity, interest or dividend income, political factors-for example the upcoming elections have influenced most investors to adapt a wait and see attitude as they are not sure what the outcome will be and if there will be post-election violence once again like in 2008 ,which influenced interest rates and inflation and other market factors negatively which in turn affected various investments differently etc.

However over the years and in more recent time, it has been observed that investors are sometimes influenced by behavioral biases which lead them to make irrational decision with regard to buying and selling of investments. Trading decisions are considered irrational when they go against the normal expected rational course of action.

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1.1.3 Behavioral Biases and Trading Decisions of Investors

Much of economic and financial theories presume that individuals act rationally and consider all available information in the investment decision-making process. Behavioral finance, throws more light on why people buy or sell stocks - and even why they do not buy stocks at all. It is due to the influence of the various behavioral biases mentioned earlier. There is also emerging evidence that institutional investors behave differently from individual investors, mainly because they are agents acting on behalf of the ultimate investors.

Behavioral finance attempts to better understand and explain how emotions and cognitive errors influence investors, Statman (1999). Selden (1996) wrote Psychology of the Stock Market. He based his book upon the belief that the movements of prices on the exchanges are dependent to a very considerable degree on the mental attitude of the investing and trading public.

Odean (1998) tested and found evidence for the disposition effect, the tendency of investors to sell winning investments too soon and hold losing investments for too long. Kahneman and Tversky (1996) proposed a theory of security markets based on investor overconfidence about the precision of private information and biased self-attribution which causes changes in investors' confidence as a function of their investment outcomes leading to market under and over reactions. Odean (1999) demonstrated that overall trading volume in equity markets is excessive, and one possible explanation is overconfidence. Hong and Stein (1999) modeled a market populated by two groups of bounded-rational agents: "news watchers' and 'momentum traders' which leads to under

reaction at short horizons and overreaction at long horizons. Nofsinger and Sias (1999) found that institutional investors who obtained positive-feedback trade more than individual investors and institutional herding impacts prices more than herding by individual investors.

Psychological research has established that men are more prone to overconfidence than women especially in male-dominated areas such as finance, whilst theoretical models predict that overconfident investors trade excessively. Barber and Odean (1999) found that men trade 45 per cent more than women and thereby reduce their returns more so than do women and concluded that this is due to overconfidence. Grinblatt and Keloharju (2001) identified the determinants of buying and selling activity and found evidence that past returns, reference price effects, tax-loss selling and the fact that investors were reluctant to realize losses were all determinants of trading. Huberman (2001) provided compelling evidence that people had a propensity to invest in the familiar, while often ignoring the principles of portfolio theory.

Empirical tests on the behavior of individual investors have been done predominately on U.S.A individual investor portfolios. The empirical evidence from individual investor portfolios supports the predictions of the overconfidence models. For example using a sample of portfolio holdings of 78,000 U.S.A households over the 1991-97 period, Barber and Odean (2000, 2001) showed that over-confident individual investors trade too much and hold high-risk portfolios. In an attempt to identify the prior performance of stocks that individual investors trade, Bange (2000) found that individuals buy (sell) past winners (losers), which is also consistent with overconfident behavior. The behavior is

also known as positive feedback (or momentum) trading. As argued by Barber and Odean (1999), overconfident investors believe too much in their ability to interpret anecdotal and ambiguous information so they will often be slow to acknowledge and process statistical and relevant information (such as corporate earnings) and the information of others (such as rational informed investors). As a result, overconfident investors will underreact to information, which is consistent with buying (selling) past winners (losers).

Although not directly linked to the overconfidence models, two other findings are applicable. In his examination of individual investors, Odean (1999) showed that excessive trading is especially problematic for traders because the stocks they purchased underperform the stocks they sold. Apparently, overconfident investors are not only harmed by trading costs, but also by poor choices. The other important finding was that investors are sometimes disposed to selling their winners and holding their losers, a behavior that Shefrin and Statman (1985) call the "disposition affect." They suggested that investors may sell winners to realize gains because they want to experience pride, and that they will hold onto losers because they don't want to feel regret.

1.1.4 The Equity Fund Market and British American-Britam Equity Fund

Kenya's private equity market has been on a happy growth curve since 2002 (Anonymous, 2009). New funds have been coming up in Kenya, inspired by the success of private equity funds in Europe and America, and these funds are now welcoming international money, supplemented by a domestic effort that has been inspired by investment groups like Trans-century. Kenyan fund managers have never sounded more

optimistic. The industry is growing, local money mobilizing, and diaspora experts coming home (Anonymous, 2009)

According to Anonymous (2009) economists argue that the time is ripe for Africa to reap meaningful private equity, in the sense of adding value to company growth, in agriculture and mining as the sectors will lift the continent's economy to new heights. According to Deloitte (2012) the 2011 East Africa Private Equity Confidence Survey predicted the rapid growth of private equity in Kenya and the areas especially targeted were infrastructure, healthcare and agriculture. According to Deloitte (2012) results of the second private equity confidence survey carried out in 2011, indicate that there is an increased appetite for investment in private equity ventures in East Africa as evidenced by the fact that private equity funds signed 20 deals in East Africa, representing a total investment of US$188m.

According to Deloitte (2011), the Emerging Markets Private Equity Association stated that private equity investment in sub-Sahara Africa was at an impressive $1.3 billion by the close of 2011 and growing. In the last year an estimated 50 plus private equity firms have set up shop in East Africa, and together they deliver over $700 million in financing that cuts across all developmental sectors.

Further Anonymous (2009) noted that most of the new funds that have come up since 2009 are focusing on smaller deal sizes. Fund managers argue that the small and medium enterprises (SME) sector is an underexploited capital niche between micro-financing and corporate affairs - a missing middle that presents risky yet lucrative opportunities for investors looking to enter the market.

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It is still difficult however to assess the full impact of the global financial crisis on Kenya, not the least because it intermingled with the fallout of the political crisis in early 2008. However, concerns that capital flows to Kenya's Equity funds would come to a halt, did not materialized (Anonymous, 2009). Anonymous (2009) quoted, Eline Blaauboer, investment director for the TBL Mirror Fund, a venture capital fund set up in Kenya in 2007, she said she saw resilience and even growing investor interest from abroad. According to Blaauboer, during the period following the global financial crisis and the post-election violence, institutional investors had less money to spend, but private investors showed a lot of appetite. Individual investors pulled their money out of crumbling western markets and were looking to emerging market finance for stability and opportunity and Kenyan companies presented good investment bets as they were expanding along with the economy, which, while feeling the slowing effect of the crisis, were still registering positive growth at the time in 2009.

Blaauboer, as quoted by Anonymous (2009), noted that after the global financial crisis and the post-election violence, the domestic quoted equities maintained their trend as at the end of 2008 in a downward spiral reaching rock bottom in March 9th 2009 at 2361.36 before achieving a healthy rebound in subsequent months. However, at the end of 31 st December 2009 the NSE 20 share index had regained some momentum closing at 3247.44, largely due to Foreign Direct Investment, a rally of 37.52 percent from its March lows. This showed that equity investments were indeed long-term strategies and normally bounced back when yields on other asset classes particularly bonds decreased.

Britain's equity fund, which is the largest in the equity fund market, when compared to the other 15 equity fund schemes registered and licensed by the Capital Markets Authority (CMA), also performed relatively well financially in the year 2009 despite the after math of the post-election crisis and the global financial crisis. Britain's Financial Statements (2008 to 2011) showed an increase in the asset base/fund value from Kshs. 2,005,650,000 in 2008 to Kshs. 2,830,647,000 in 2009 and also returns moved from a loss of Kshs. 589,557,000 in 2008 to a profit of Kshs. 65,987,000 in 2009. Per their Financial Statements (2008 to 2011), the fund's per annum highest bid price had grown from Kshs. 128.71 in 2009 to Kshs. 172.65 in 2011 and the fund's value had also grown from Kshs. 2,830,647,000 in 2009 to Kshs. 3,295,861,000 in 2011. The fund also continued to earn profit of Kshs. 909,759,000 in 2010 but in 2011 reported a loss due to spiraling inflation and high interest rates. They however expect an improvement in 2012 as the economy has improved and the inflation rate has reduced though this might be influenced further by the upcoming 2013 elections. Despite this, Britam intends to maintain above industry average performance

According to Anonymous (2009), though Kenya's private equity market as a whole is still growing, it is still highly underdeveloped. Few funds exist relative to the business opportunities in the market. Anonymous (2009) also quoted Tony Wainaina, a private equity specialist who recently left the Kenyan investment company Trans-Century Ltd to pursue new fund structuring opportunities, Wainaina said that the Kenyan equity fund market is probably where the US was in the 60s or early 70s when they had fledgling start-ups, early stage companies that had very good entrepreneurs behind them, had sound ideas, but were only able to source capital from angel investors. Most Kenyan

entrepreneurs continue to turn to family and friends for start-up capital, and many enterprising ideas are shelved when these informal networks fall through.

1.2 Problem Statement

Behavioral finance being a new field has also yet to be exhaustively studied. Over the years, behavioral biases such as prospect theory, regret and cognitive dissonance, anchoring, mental accounting, overconfidence, over and under reaction, representativeness, disposition effect, the disjunction effect, gambler's fallacy and speculation, perceived irrelevance of history, magical thinking, quasi-magical thinking, attention anomalies etc. have been found to have a significant influence on investors' behavior, determining their trading decisions, influencing prices and ultimately determining the amount of gains/returns realized. This is because investors are emotional beings and are not always rational in their decisions much as they try to be. These occurrences have contributed to the increasing importance of behavioral biases as they have been seen to have far reaching influence and effect on investors the world over.

Though Kenya's equity fund market has grown steadily over the years, the market is still very under developed, due to the fact that this market is still not fully developed when compared to the equity fund markets in Europe and the United States of America. Hence like behavioral finance studies, there also have not been many studies that have been carried out on the Kenyan equity fund market. This paper thus set out to further study behavioral finance by looking at the influence of certain behavioral biases on trading decisions of Kenyan equity fund investors and intends to thus provide information on an area that is yet to be studied in the Kenyan Market.

Kaneko (2004) studied investor behavior in Japan by looking at buying and selling of investment trusts by individual investors and the study unveiled the loss aversion and disposition effect behavioral phenomena. Maheran, Muhammad and Ismail (2010) carried out a study to determine if Malaysian capital market investors' behavior is rational or irrational and concluded that investors were both rational and irrational and Ameriks, LaBarge and Ren (2010) also reached the same conclusion in their study. This contrasted previous studies conducted by researchers like, Elsayed and Martin (1980), Young and O'Neill (1992) and also Massa and Simonov (2004), who found that investors are irrational in their decision making. Experimental studies in investor behavior have also been carried out. Frydman, Barberis, Camerer, Bossaerts and Rangel (2010) used Functional Magnetic Resonance Imaging (FMRI) to test theories of investor behavior and they found that subjects exhibited strong disposition effect in trading, even though it is suboptimal. In the local market Werah (2006), Mbaluka (2008) and more recently Aduda, Oduor and Onwonga (2012) found that investors in the Kenyan market were both rational and irrational in their decision making, as they exhibited various behavioral biases such as herding behavior, regret aversion, overconfidence, endowment effect and anchoring.

This study sought to identify and determine specific behavioral phenomena and biases and the influence of these biases on investors buying and selling decisions. In this case focus was on Britam Equity funds because Britam is the largest equity funds scheme investment provider and manager in Kenya out of the 16 equity fund schemes registered with the CMA, and therefore served as a good representative of the market.

This study sought to answer the following questions;

1. What are the behavioral biases and phenomena identified amongst Britain equity fund scheme investors?
2. How have these biases influenced the Britam equity fund investors' trading decisions, i.e. their buying and selling decisions?

1.3 Research Objectives

1.3.1 General Objective

The main objective of this research was to study investor decisions from a behavioral finance perspective and to determine if there are behavioral phenomena that influence investors trading decisions of the Britam Equity Fund investors, resulting in irrational buying and selling decisions.

1.3.2 Specific Objectives

1. To identify the behavioral phenomena present in the market amongst Britam equity fund investors.
2. To identify the influence of these behavioral phenomena on the trading decisions of Britam Equity fund investors, that is, their buying and selling decisions.

1.4 Value of the Study

This study will contribute further to the knowledge available in the behavioral finance field and more specifically it will provide more insight into the behavioral biases present

in the Kenyan equity fund market and the influence and effect of these biases on investor trading decisions and the financial performance of the equity fund market.

This study will provide Britam and other the key player in this market with more information to aid them in decision making. Britam and the other players in the equity fund market such as Africa Alliance Kenya, Old Mutual, Suntra and other unit trusts will benefit from this study in that it will provide them with knowledge regarding the moods and behavioral biases of the investors in the market and they could thus use this information to make decisions regarding how their operations are conducted and to tailor their fund product offerings to suit or counter some of these biases as they see fit so as to maintain growth and profitability while enabling their investors to realize high gains/returns.

Information from this study could also help the masses and other investors interested in investing in the equity funds in that they will be aware of some of the behavioral biases and irrational decisions that the masses make and how these affect returns and can thus avoid some of these irrational decision or at least make decision in light of this biases. This could help them make better decision that will result in better or higher returns or that will cost them less.

This study will also capture investor behavior for a number a year and thus might be able to uncover trends and patterns.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The following chapter covers some of the behavioral finance theories that have been put forward over the years from the classical to the neo classical period as well as those developed in more recent times. It will also be reviewing empirical studies that have been carried out over the years to test these theories and the results and conclusions of these empirical studies. These empirical studies looked at the effect of behavioral finance on investor decisions and financial performance in different areas. This chapter also covers the measurements that were used to measure behavioral biases or phenomena in this study.

2.2 Behavioral Finance Theories

2.2.1 Classical Behavioral Finance Theories

During the classical period, microeconomics was closely linked to psychology. Smith (1759) wrote 'The Theory of Moral Sentiments', which proposed psychological explanations of individual behavior, including concerns about fairness and justice, and Bentham (1776) wrote extensively on the psychological underpinnings of utility. The utility theory proposed that people ought to desire those things that will maximize their utility where positive utility is defined as the tendency to bring pleasure or happiness. Such that in a standard model of motivation if a person has a desire Y which will bring them happiness or pleasure or satisfaction, and if they believe that by doing act X, they

can achieve Y, then (assuming there is no barrier to doing X or some stronger desire than Y) they will choose X.

2.2.2 Neoclassical Behavioral Finance Theories

However, during the development of neo-classical economics, economists sought to reshape the behavioral finance discipline as a natural science, deducing economic behavior from assumptions about the nature of economic agents. They developed the concept of "homo-economicus", whose psychology was fundamentally rational. This concept of "rational man" was first introduced by Mill (1836) and later built on by other scholars. This led to unintended and unforeseen errors. Other neo-classical economists employed more sophisticated psychological explanations, including Edgeworth (1881), Pareto (1935) and Fisher (1896) which in the end further contradicted the theory of rational economic man.

Economic psychology emerged in the 20th century in the works of Tarde (1902), Katona (1960) and Garai (1990) when expected utility and discounted utility models began to gain acceptance. The discounted utility theory is just like the utility theory except that now the issue of time was considered, such that not only the gains were considered but also the time when these gains were realized or the time utility will be derived. Later on Nobel prizewinner Allais (1953) challenged the utility model by setting out the Allais paradox, a decision problem which contradicts the expected utility hypothesis. According to the Allais paradox, the independence axiom of expected utility theory may not be a valid axiom. The independence axiom states that two identical outcomes within a gamble should be treated as irrelevant to the analysis of the gamble as a whole. However, this

overlooks the notion of complementarities, the fact your choice in one part of a gamble may depend on the possible outcome in the other part of the gamble. Allais argues that it is not possible to evaluate portions of gambles or choices independently of the other choices presented, as the independence axiom requires, and thus is a poor judge of our rational action.

2.2.3 Modern Behavioral Theories

In the 1960s cognitive psychology began to shed more light on the brain as an information processing device (in contrast to behaviorist models). Cognitive psychology is the branch of psychology that studies mental processes including how people think, perceive, remember and learn. Later Kahneman and Tversky (1979) wrote about the prospects theory in a paper where they used cognitive psychology to explain various divergences of economic decision making from neo-classical theory. Prospect theory is an example of generalized expected utility theory. Although not a conventional part of behavioral economics, generalized expected utility theory is similarly motivated by concerns about the descriptive inaccuracy of expected utility theory.

Using an argument based on the prospect theory, Shefrin and Statman (1985) predict that individual investors will have a greater propensity to sell stocks trading at a gain relative to purchase price, rather than stocks trading at a loss. They label this the "disposition effect" and provide some evidence for it using records of investor trading. More detailed evidence for the effect can be found in Odean (1998), who analyzes the trading activity, from 1987 to 1993, of 10,000 households with accounts at a large discount brokerage

firm. The phenomenon has now been replicated in several other large databases of trading behavior.

Nobel Laureate Becker (1968) also factored psychological elements into economic decision making. He, however, maintained strict consistency of preferences. Nobelist Simon (1957 and 1962) developed the theory of 'Bounded Rationality' to explain how people irrationally seek satisfaction, instead of maximizing utility, as conventional economics presumed. Bounded rationality is the idea that in decision-making, rationality of individuals is limited by the information they have, the cognitive limitations of their minds, and the finite amount of time they have to make a decision.

Psychological traits such as overconfidence, projection bias, and the effects of limited attention are now part of behavioral theory. Tversky and Kahneman (1986 and 1992) and Kahneman and Tversky (1995 and 1996) integrated these insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty.

Behavioral economics has also been applied to inter-temporal choice. Inter-temporal choice is the study of the relative value people assign to two or more payoffs at different points in time. Most choices require decision-makers to trade-off costs and benefits at different points in time. These decisions may be about savings, work effort, education, nutrition, exercise, health care and so forth. For nearly 80 years, economists have analyzed inter-temporal decisions using the discounted utility model, which assumes that people evaluate the pleasures and pains resulting from a decision in much the same way

that financial markets evaluate losses and gains, exponentially 'discounting' the value of outcomes according to how delayed they are in time.

Inter-temporal choice behavior, however is largely inconsistent, as exemplified by Ainslie's (1975) hyperbolic discounting which is one of the prominently studied observations, further developed by Laibson (1997), O'Donoghue and Rabin (1999). Hyperbolic discounting describes the tendency to discount outcomes in near future more than for outcomes in the far future. This pattern of discounting is dynamically inconsistent (or time-inconsistent), and therefore inconsistent with basic models of rational choice, since the rate of discount between time t and t+1 will be low at time t-1, when t is the near future, but high at time t when t is the present and time t+1 the near future.

The pattern can be explained through models of sub-additive discounting which distinguishes the delay and interval of discounting: people are less patient (per-time-unit) over shorter intervals regardless of when they occur. Much of the recent work on inter-temporal choice indicates that discounting is a constructed preference. Discounting is influenced greatly by expectations, framing, focus, thought listings, mood, sign, glucose levels, and the scales used to describe what is discounted. Some prominent researchers questioned whether discounting, the major parameter of inter-temporal choice, actually describes what people do when they make choices with future consequences. Considering the variability of discount rates, this may be the case.

Other branches of behavioral economics enrich the model of the utility function without implying inconsistency in preferences. Rabin (1993) as well as Fehr, Falk and

Fischbacher (2000), studied fairness, inequity aversion and reciprocal altruism, thus weakening the neoclassical assumption of perfect selfishness. This work is particularly applicable to wage setting. Work on intrinsic motivation by Gneezy and Rustichini (2000) and on identity by Akerlof and Kranton (2000) assumes agents derive utility from adopting personal and social norms in addition to conditional expected utility. Conditional expected utility is a form of reasoning where the individual has an illusion of control, and calculates the probabilities of external events and hence utility as a function of their own action, even when they have no causal ability to affect those external events.

Behavioral economics finally caught on among the general public, with the success of books like Ariely's (2008) book. In this book Ariely, challenges readers' assumptions about making decisions based on rational thought.

From all of the above, it is clear that behavioral finance theories have come a long way and all of these theories have contributed by identifying various behavioral biases that influence investors decisions.

2.3 Empirical Studies and Their Results

Massa and Simonov (2004) carried out a study to investigate the way investors react to prior gains/losses. They collected data with detailed information on investors' various components of wealth, income, demographic characteristics and portfolio holdings identified at the stock level. They tested the behavioral theory of loss aversion against the alternative provided by standard utility theory and the house-money effect. In the end, their study produced evidence showing that investors do not react to prior gains/losses as postulated by loss-aversion but react more in line with either the house-money effect or

standard utility theory. That is, previous gains increase investor risk-taking, while previous losses reduce it. Their study also showed that investors do not suffer from the mental accounting bias. Investors consider wealth in its entirety and risk taking in the financial market is affected by gains/losses in overall wealth, financial wealth and real estate wealth.

Maheran, Muhammad and Ismail (2010) carried out a study to determine if investors' behavior is rational or irrational by looking at the factors that influence investor decisions when investing in the Malaysian capital market. The population for the study consisted of individual investors who traded shares at the Bursa Malaysia. One hundred and forty seven questionnaires were distributed and usable. They then used correlation analysis and regression analysis to analysis the data collected. The results of correlation analysis showed a positive and significant correlation among the independent and the dependent variables. However, multiple regression analysis shows significant relationships only exist for economy and frame of references indicating that Malaysian investors rely both on fundamental analysis as well as following others opinion (herding/mimicry).

Ameriks, LaBarge and Ren (2010) also carried out a study on the trading behavior of Vanguard mutual fund investors. They obtained their data set form a data base which showed the trading activities of more than 5 million retirement and nonretirement investors. This client-level transactional data included fund specific exchanges, new purchases, and redemptions during a seven-year period, January 2003 through December 2009. To be included in their analysis, a client must have held account assets of at least $3,000 at some point during this time. They looked for systematic momentum or

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contrarian trading behavior in two ways: by type of trades and by types of investor. The results of their study showed that relatively few individuals exhibited trading behavior that was systematically related to prior-day market changes. Among those who did, there was roughly the same percentage of identifiable momentum traders as contrarian traders. These subtle tendencies underscored the difficulty of identifying robust patterns in individual behavior in the case of this particular study.

Other than the above ex-post facto studies, experimental studies in investor behavior have also been carried out. Frydman et al (2010) used Functional Magnetic Resonance Imaging (FMRI) to test theories of investor behavior that are difficult to distinguish using behavioral data alone. Subjects traded stocks in an experimental market while their brain activity was being measured. Behaviorally, they found that subjects exhibited strong disposition effect in trading, even though it is suboptimal. They then used the neural data to test specifically the theory of the disposition effect, the realization utility hypothesis, which argues that the effect arises because people derive utility directly from the act of realizing gains and losses.

Kaneko (2004) studied investor behavior in Japan by looking at buying and selling of investment trusts by individual investors, and examining such behavior from a behavioral finance perspective. This study unveiled the loss aversion and disposition phenomena which drive investors to realize profits quickly when in the "black", but defer taking losses when in the "red" and "selecting funds based on the level of unit price" rather than based on fundamentals. The study concluded that investors have a strong preoccupation with purchase price, and tend to sell rapidly when unit price exceeds purchase price.

Werah (2006) did a local study to survey the influence of behavioral biases on investor activities at the Nairobi Stock Exchange. The study population composed of both individual and institutional investors at the NSE. The study sought to establish the influence of herding, mental accounting, loss aversion, anchoring, over reaction and under reaction, overconfidence, confirmation bias and regret aversion on investor activities at the NSE. The results suggested that the behavior of investors at the NSE were to some extent irrational when considered from the rationality of the investors in their disregard of fundamental estimations as a result of herd behavior, regret aversion, overconfidence and anchoring.

Mbaluka (2008) also established the existence of behavioral effects on individual Kenyan investors' investment decision making process. His results showed that investors had their rationality affected by psychological aspects. The study found out that investors did not invest as expected as they showed unwillingness to change their portfolio despite unattractive macroeconomic outlook. The endowment effect was identified with investors in the experiment with 23% of them changing their portfolio mix while 77% failed to change even when the economic outlook demanded that change.

Aduda, Oduor and Onwonga (2012) studied some general principles of behavioral finance such as overconfidence, cognitive dissonance, regret theory, and prospect theory. The paper sought to identify such behaviors from individual investors as they set out to make their investment decisions. The paper used both a questionnaire survey and secondary data from the NSE and CMA to identify the individual investor behaviors and determine their financial performance respectively. In conclusion, it was found out that

there were varied behaviors and financial performance of individual investors in trading shares of companies listed at the Nairobi Stock Exchange (NSE), Kenya. Some investors exhibited rational behavior in making their investment decisions. On the contrary, there were investors who were poised to realize negative results due to irrationality and herding behavior.

This study intended to identify behavioral phenomena present amongst the Kenyan equity fund investors and how these behavioral phenomena/biases impacted their trading decisions resulting in irrational buying and selling tendencies. The methodology and measurement variables used in Kaneko's study were used in this particular study and these measurements and the assumptions behind them are described below.

2.4 The Irrational Nature of Buying and Selling Behavior

2.4.1 Irrational Selling Behavior

Kaneko (2004) considers a majority of investors to be rational and though they make rational decisions, they do not have a special ability to make decisions concerning the market. Furthermore, they do not have the ability to make asset management decisions regarding individual stocks and bonds. This is why many investors decide to manage their assets through investing in investment trusts. Investors buy investment trusts or increase their holding when expected future return on investment is high, and reduce their holdings or sell off investment trusts when expected future return on investment is low or negative. Thus issuance and redemption of shares in individual investment trusts represent a pure measure of investor demand such that when investors expect return on

investment to be high, the value of purchases will increase and the value of redeemed shares will decrease and conversely, when expected return on investment is low, the value of purchases will decrease and the value of redemptions will increase.

Kaneko (2004) further argued that because investors do not have any special ability to make decisions about the market, it can be assumed that their expected return on investment is likely to move almost in tandem with recent fluctuations in the price of the assets underlying the investment trust. Therefore, as the unit price of shares in the investment trust increases, the amount of purchases will increase and the amount of redemptions will decrease, and vice versa.

Kaneko (2004) also found that, those in the industry often point out that there are also large numbers of redemptions when the market is rising and this can be corroborated by the NSE stock trading patterns. According to Kaneko (2004), redemptions tended to increase once the unit price exceeds a certain amount, usually an amount not that far from the purchase price. Rational investors should make decisions as to whether or not to redeem their shares based on the future expected rate of return. Whether the unit price is above or below a certain price should not affect redemption decisions. Therefore, this behavior also falls outside the scope of rational investor behavior.

The behavior described above is a manifestation of the 'disposition effect' which is explained by the prospect theory of behavioral finance (Kahneman and Tversky, 1979). When investments have produced a profit, rather than try to obtain further profits, investors prefer to realize their current profits. However, when investments are running at a loss, rather than realize the loss, investors hold on to their investments in the hope of

reducing their losses despite the risk of further losses-loss aversion. Therefore when the price of a security rises and profit is recorded, investors tend to sell the security quickly to realize their profits. However, if the price of a security falls and it is producing a loss, investors tend to postpone the sale of the security and keep holding onto it. This is a manifestation of the disposition effect.

2.4.2 Irrational Purchasing Behavior

Kaneko (2004) considered the case of a rational investor investing in an active fund. An active fund is a fund which aims to secure a higher rate of return than its benchmarks. Kaneko (1004) argued that by looking at a company prospectus, an investor can conceptually understand the characteristic strategies used by the fund managers. However, one cannot know how concretely effective these strategies will be in bringing about above average returns. Therefore, the rational investor is likely to refer to the past performance of the funds and make comparisons before deciding which investment trust to buy into. Such a rational investor would rarely buy funds from newly established funds, but, for the most part, would buy shares in funds which had already been in operation for some time. Since between one and three years of results are necessary to analyze past performance, rational investors would rarely purchase from funds within one to three years of their establishment.

Kaneko (2004) found that the largest amounts of shares are issued by young funds. In particular, a lot of shares are issued by funds that are between one and two years old. If the younger a fund was, the better it performed, and then this behavior could be explained as rational. Of course, it is difficult to accept that such a tendency exists, and therefore

such behavior must be considered to be contrary to the actions of the rational investor. Furthermore, such phenomena shows that the basic strategies of investment trust firms, namely to perform better than similar funds, and thus gradually expand the assets under their management and increase revenue, are not necessarily consistent with reality. Thus this type of investor behavior is not just irrational, it also inhibits the healthy development of investment trusts.

2.5 Measurement of Investor Buying and Selling Behavior

2.5.1 Measuring Selling Behavior-Disposition Effect and Loss Aversion

This study replicated Kaneko's (2004) method of measuring investor buying and selling behavior. By applying prospect theory to equity fund schemes and examining the relationship between unit price and redemption rate, Kaneko (2004) postulated the existence of certain relations between unit price and redemption ratio. When the unit price is lower than the reference point, investors will not try to sell their shares in the trust, and the redemption rate will be low. When the unit price is higher than the reference point, the redemption rate will be high. And finally, when the unit price is higher than the reference point, the redemption rate will gradually decrease as the unit price continues to increase.

The potential hypothesis of Kaneko's (2004) study was that "selling behavior by individual investors is heavily influenced by the disposition effect, and that an investigation of the relation between the unit price and redemption rate supported this assumption."

For the analysis, the reference point was taken to be the original price of one unit of the fund or the average purchase price of one unit of the fund. Since the average purchase price for beneficiaries of the fund could not be exactly determined, the average trust value was used as a proxy. Average trust value was deemed the average acquisition price, and was calculated using the formula below;

$$Cut = \frac{(Ni,t\text{-}i * Ch\text{-}i) - (NR\ u\ xCut\text{-}i) + (NS\ uxPS\ u\text{-}i)}{Ni,t\text{-}i\text{-}NR\ i,t + NS\ i,t}$$

Where;

Ci,t-i: Average purchase price of fund i on day t

PS i.t: Unit trading price of fund i on day t

Ni,t-i: Number of beneficiary accounts for fund i on day t

/

NR i.t: Number of accounts redeemed for fund i on day t

NS i.t: Number of accounts issued for fund i on day t

Kaneko (2004) then compared the unit price of the fund at the time of the analysis i.e. current unit price with the reference point of the original fund share price, and plotted the difference against the redemption ratio for intervals of 30 business days. 30 day intervals were used to avoid overlap in the periods of redemption rate analysis. The redemption ratio was calculated as follows;

$$Redemption\ ratio = \frac{Amount\ of\ redeemed\ shares}{Monthly\ average\ of\ assets\ in\ fund}$$

In addition, Kaneko (2004) termed the ratio of the current unit price to the original unit price of the fund the "unit price level," and the ratio of the average purchase price to the unit price the "valuation profitability ratio." These were used as a proxy instead of the ratio of the reference point to the unit price. Thus

$$\textit{Unit price level} = \frac{\textit{Current Unit Price of the fund}}{\textit{Original unit price of fund}} - 1$$

$$\textit{Valuation profitability ratio} = \frac{\textit{Average purchase price}}{\textit{Original unit price of fund}} - 1$$

2.5.2 Measuring Purchasing Behavior

From Kaneko's (2004) study, for the analysis of purchasing behavior, each of the following components relating to equity fund were calculated for each point of analysis. /

The share issue factors was then be plotted against the unit price factors and a regression analysis of share issue factors over unit price factors and return factors was also conducted. The analysis points for the issue rate and unit price level were 30 days, while the analysis points for the issue rate against the 12 months returns were annual.

Issue rate for the current month calculated as follows;

$$\textit{Issue rate} = \frac{\textit{Issuance amount}}{\textit{Monthly average of assets in fund}}$$

The return rate over the 12-month period up to the previous month calculated as follows;

$$\textit{Rate of Return} = \frac{\textit{Previous 12 month Returns/Profits}}{\textit{Annual net asset value of the fund}}$$

And the Unit price level will be calculated as shown below;

$$\textit{Unit price level} = \frac{\textit{Current Unit Price of the fund}}{\textit{Original unit price of fund}} - 1$$

Kanako (2004) also looked at the number of shares issued per annum against the age of the fund to determine if our theory of investors' irrational purchase of shares from new or younger funds as opposed to older funds was supported.

2.6 Summary of Literature

From the above it is clear that though there has been no unanimous agreement or undisputed evidence, behavioral finance plays a key role in the financial markets as it affects and influences investor decisions and as a result affects the financial performance of investors and of the various investment markets.

Studies with behavioral finance perspectives have yielded varied results with some concluding that investors are rational, (Massa and Simonov, 2004) while other have concluded that investors exhibited behavioral biases and tendencies that lead them to make irrational decisions (Kaneko,2004 and Frydman, et al, 2010).Other studies have been unable to clearly come to a conclusion as to whether investors are rational or irrational, (Ameriks, LaBarge and Ren, 2010) while others like Maheran, Muhammad and Ismail (2010) found that investors exhibited a combination of both rational and irrational decision making tendencies. The latter is most likely the case on the average.

In the local Kenyan scene, few studies have been conducted but these studied have yielded informative results that indicate that investors are influenced by various behavioral biases and phenomena. Also, most of these studies have been conducted with a focus on the NSE. This study will thus aim to fill a gap by providing information on behavioral biases present amongst equity fund investors and how these influence their buying and selling decisions. Not to mention, the equity fund market is also a fairly new investment market that is still yet to develop to levels observed in the American, Asian and European markets.

Critics of behavioral economics typically stress the rationality of economic agents (Smith, 1906 and Ricardo, 1951). They contend that experimentally observed behavior has limited application to market situations, as learning opportunities and competition ensure at least a close approximation of rational behavior. Others note that cognitive theories, such as prospect theory, are models of decision making, not generalized economic behavior, and are only applicable to the sort of once-off decision problems presented to experiment participants or survey respondents.

Rabin (1998) dismisses these criticisms, claiming that consistent results are typically obtained in multiple situations and geographies and can produce good theoretical insight. Behavioral economists have also responded to these criticisms by focusing on field studies rather than lab experiments.

Other proponents of behavioral economics note that neoclassical models often fail to predict outcomes in real world contexts. Behavioral insights can influence neoclassical models. Behavioral economists note that these revised models not only reach the same

correct predictions as the traditional models, but also correctly predict some outcomes where the traditional models failed.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter looks at the procedures and methods that were employed in conducting the study in order to answer the research questions and achieve the objectives. It entails the research design, target population, sampling, data collection, and data analysis.

3.2 Research Design

For the purpose of this research mainly quantitative methods were used. The study was an exploratory case study. Babbie (1989) said that exploratory research is used when problems are in a preliminary stage and when the topic or issue is relatively new and when data is difficult to collect. Exploratory research is flexible and can address research questions of all types (what, why, how). The main purpose of an exploratory research is to obtain information that was previously absent and to contribute to a body of knowledge.

3.3 The Population

This was a case study where by the population of the study was the Britam Equity fund. Britam is the largest equity funds scheme investment provider and manager in Kenya. Britam has also managed maintain a the largest market share out of the total 16 equity fund schemes registered with the CMA over the last 5 year. Britam has one equity fund and we studied all the investors in the fund.

3.4 Data Collection

Secondary data for the various variables under study was collected first hand from Britain's database. Data was collected for the period January 2009 to September 2012. Daily data was collected and the analysis points for this study were done at intervals of 30 days or 12 months depending on the variable being measured as outlined in pages 30 to *32.*

3.5 Data Analysis

The secondary data collected was analyzed using Kaneko's (2004) model which was replicated in this study. The same measurement variables he used as defined from page 29 to 32 in this paper, were applied on the data collected. Secondary data obtained from Britain's data base and was used to calculate the redemption ratio, the issue rate, the unit price level and the value profitability ratio variables which helped to draw conclusions on the buying and selling behaviors of equity fund investors.

Frequency charts and tables were then be used to present the findings which facilitated discussions and helped to draw conclusions on the individual trading behaviors. The issue rate ***(IRit)*** was regressed against the unit price level (***UPit***) and the 12 previous month return ratio ***(ARn)*** using the below linear regression equations;

$$IRit = a + fi\ UPit$$

$$IRit = a + fi\ ARit$$

The results obtained from the above analysis helped draw conclusions on the specific behavioral biases specified above which when related to the individual investors buying or selling behavior helped to explain how good or bad their decisions were.

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CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

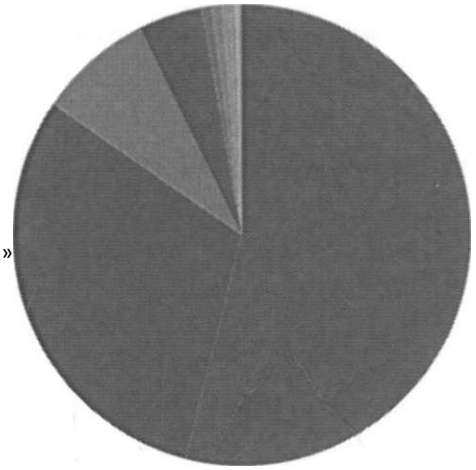
The following chapter consists of the presentation of data collected, an analysis of the data collected and a discussion and evaluation of the results of the data analysis. This chapter identifies and determines if the equity fund investors' selling decisions are influenced by the disposition effect and whether they do exhibit other irrational behaviors in their buying decisions.

4.2. Data Presentation

4.2.1 Equity Fund Share Price, Redemptions, Issues and Net Asset Value Movements

During data collection the study found that Britam has maintained a market share of over 50% of the equity fund market over the last few years and the study found that as of June 2012 the key players in the equity fund market had the following market share as shown in Figure 4.1 below.

Figure 4.1:Equity Fund Market Shares %



- British American 54%
- Old Mutual 30.7%
- Africa Alliance Kenya 8.1%
- ICEA4.5%
- CBA 0.7%
- CIC 0.7%
- Stanbic Investments 0.6%
- Dyer and Blair 0.4%
- Suntra Investment Bank 0.3%
- Standard Investment Bank 0.1%

Source of data: *Data collected from the British American Equity Fund Data Base*

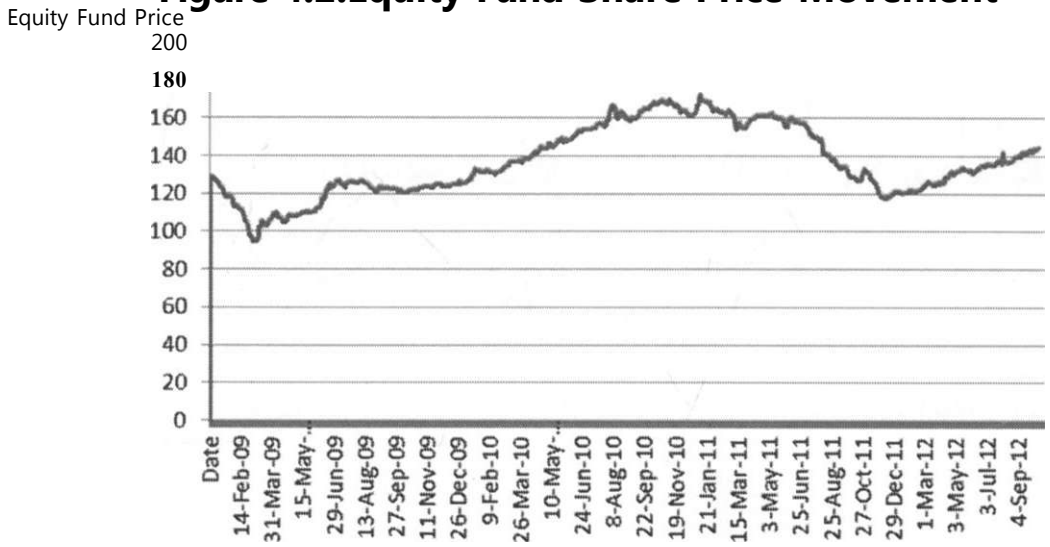
From the above, Britain's Equity fund in still the largest in the market representing 54% of the market and thus the researcher deems this to be a sufficient representative of the equity fund market.

Daily data was obtained for the period from 1st January 2009 to 30th September 2012 for our analysis. The daily number of fund shares redeemed, issued and outstanding, the daily equity fund market prices, the daily average equity fund prices and the daily average net assets of the fund were obtained. The original equity fund share price was also obtained as Kshs. 100 per share.

It was noted that the fund share's market price had generally increased from 2009 to September 2012 thought the prices exhibited both upward and downward movement during the course of the 45 month period. The price took a deep during early 2009 but

then started to increase again and continued in this upward trend over the rest of 2009 and 2010, increasing even further in the late 2010 into earlier 2011 before the price started to decrease again during most of 201 l.The price however, took an upward turn again in early 2012 as shown in Figure 4.2 below.

Figure 4.2:Equity Fund Share Price Movement

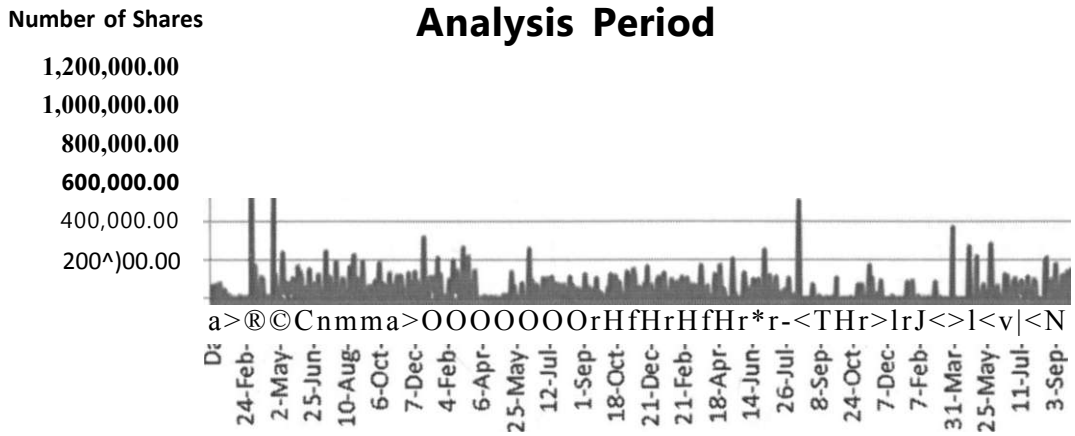


Source of data: *Analysis of data collected from the British American Equity Fund Data Base*

The number of fund shares redeemed and issued each day however fluctuated continuously throughout the 45 month period, not showing any clear trends a first observation. The numbers of fund shares redeemed and issued showed sharp fluctuations over the 45 month period. The number of fund shares issued/purchased were very high in the period of March 2009 when the fund share prices decreased to range between Kshs. 95 to Kshs. 99 which was below the original fund purchase price of Kshs. 100, down

from a range of Kshs. 105 to 120 in earlier January and February of 2009 as shown in Figure 4.3 below.

Figure 4.3:Number of Shares Issued During Analysis Period



Source of data: *Analysis of data collected from the British American Equity Fund Data Base*

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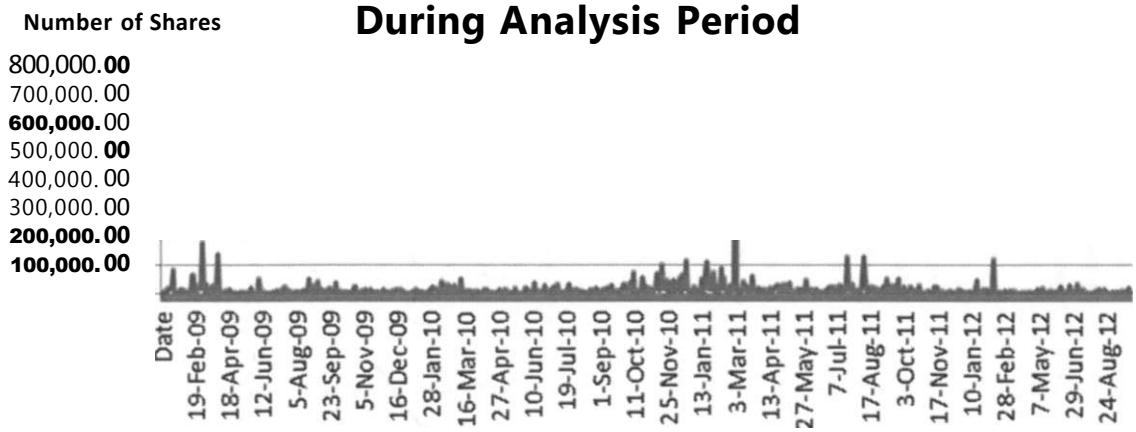
The redemption rate reached its highest point in March 2011 when the fund share price began to decrease to lows of Kshs. 154 from previous highs of 172.65 in January 2011. See Figure 4.4 below.

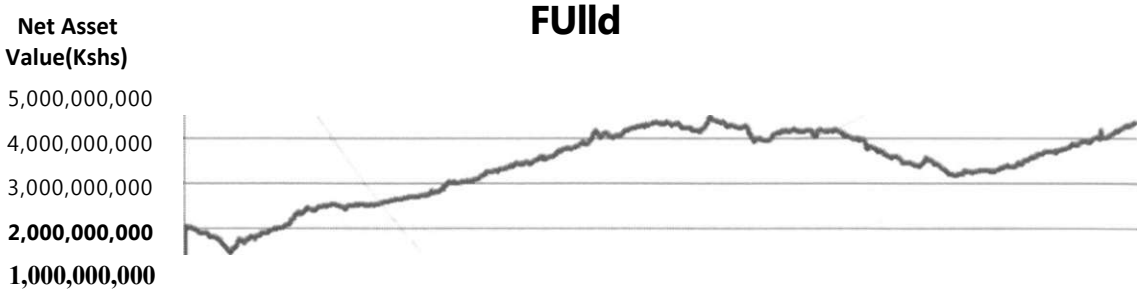
Figure 4.4:Number of Shares Redeemed During Analysis Period



Source of data: *Analysis of data collected from the British American Equity Fund Data Base*

It was further noted that the average net assets value of the fund increased from 2009 to 2012. The movement in the net asset value of the fund was on a brief downward trend in early 2009 but this took an upward turn from late 2009 through to 2010 before the net assets value of the fund started to decline again in early 2011 and continued to do so until end of 201 l.The fund's net asset value started to increase again towards the end of 2011 and into 2012 and has continued to do so up until September 2012.See Figure 4.5 below.

Figure 4.5:Net Asset Value Movement of the FUIld



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Source of data: *Analysis of data collected from the British American Equity Fund Data Base*

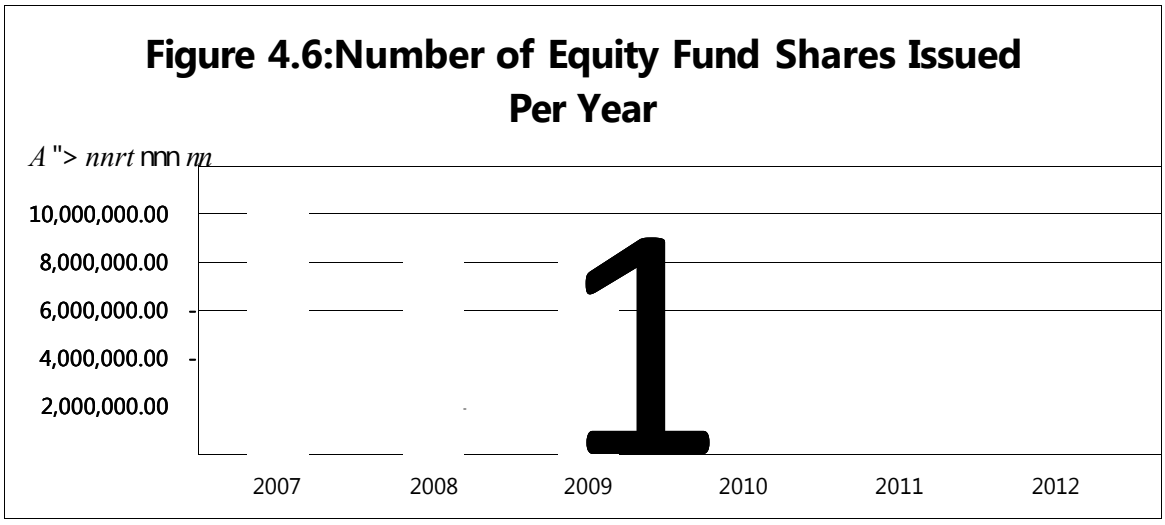
During collection of data, it was further found out that the fund was established in 2005.The fund's annual returns/profits were obtained from the year 2008 to 2011 as a measure of performance from the 45 month period under out study. Table 4.1 below shows the fund's returns for the years 2008 to 2011.

Table 4.1: Financial performance of the fund

Year	Annual Profits Kshs. Amount
2007	172,879,963
2008	(589,557,000)
2009	165,987,000
2010	909,759,000
2011	(1,054,289,000)

Source of Data: *British American Equity Fund Financial Statements for the years 2008 to 2011*

The study also obtained the number of fund shares issued per annum from 2007 to September 2012 and as shown in Figure 4.6 below, the number of shares issued have continued to decrease as the fund as gotten older.



Source of data: *Analysis of data collected from the British American Equity Fund Financial statements for the years 2008 to 2011.*

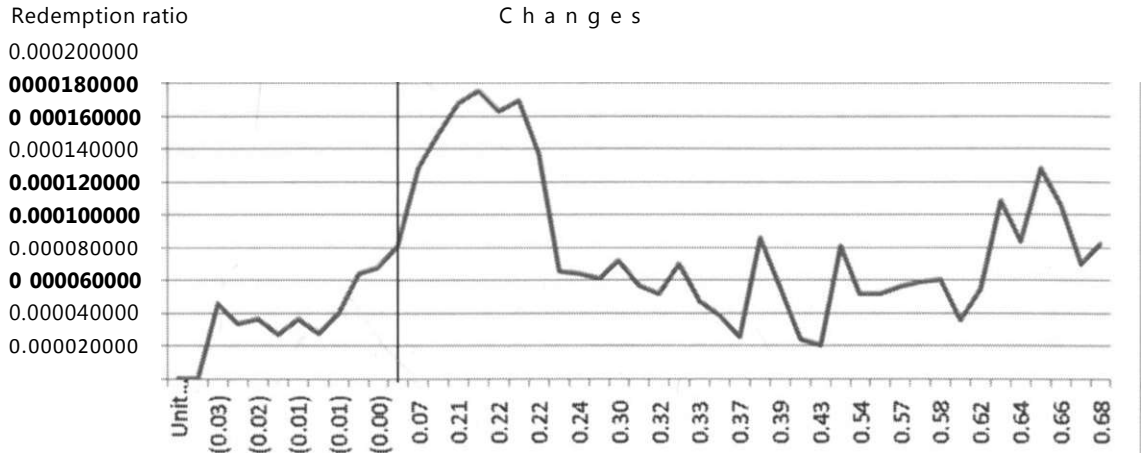
4.3 Data Analysis, Results and Discussions

4.3.1 Investors' Selling Behavior

From the above data, 30 day (monthly) analysis points were selected and the redemption ratio, the unit price level and the valuation profitability ratio were calculated. To measure selling behavior and determine if the disposition effect does manifest itself amongst the equity fund investors, the redemption rate was charted against the unit price level, shown in Figure 4.7, which shows the fluctuation in the number of shares redeemed/sold by investors, based on the extent to which the unit price at a particular point in time deviates

from the original fund price of Kshs. 100. Put simply, the below chart shows the number of fund shares sold as influenced by the changes in the fund share's price.

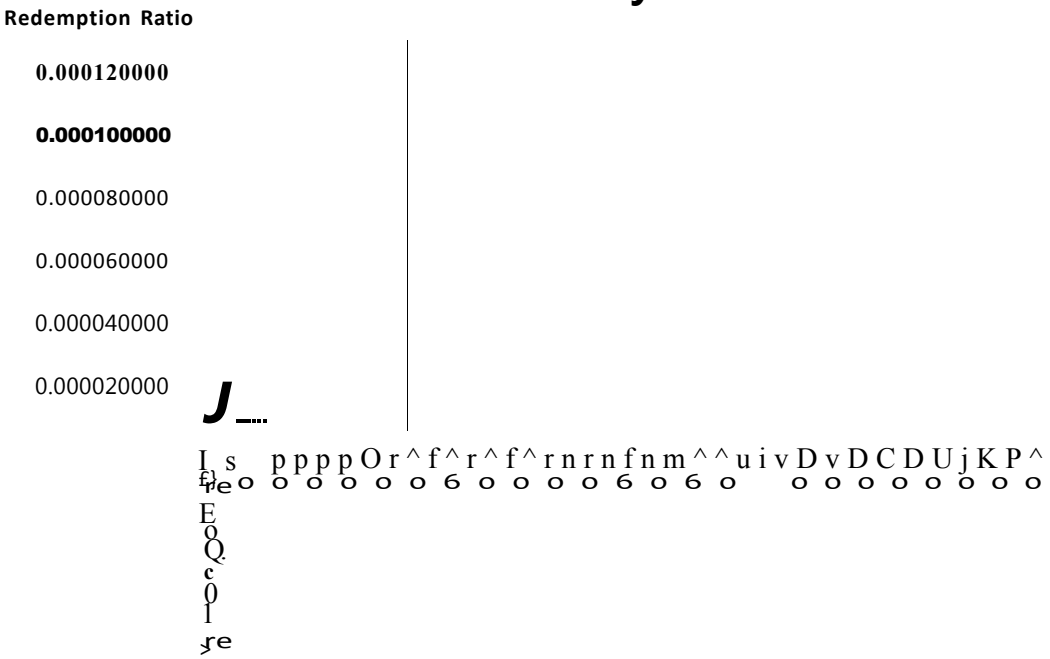
Figure 4.7:Redemption Rate Against Unit Price



Source of data: *Analysis of data collected from the British American Equity Fund Data Base*

To further measure selling behavior and determine if the disposition effect does manifest itself amongst the equity fund investors, the redemption rate was also charted against the valuation profitability, shown in Figure 4.8 below. This shows the fluctuation in the number of shares sold by investors based on the extent to which the average unit price for a period of 30 days deviates from the original fund price

Figure 4.8:Redemption Rate Against Valuation Profitability



Source of data: *Analysis of data collected from the British American Equity Fund Data Base*

From the above Figures 4.7 and 4.8, the redemption rates were highest when the unit price increased slightly from the original unit price of Kshs.100, and again when there were further increases in unit price.

Looking at Figures 4.7 and 4.8, although the redemption rates seem to have continuous sharp up and downward movements, the redemption rate was clearly highest when the unit price level was slightly higher than zero and the redemption rate increased as the unit price level moved above zero. Unit price levels of above zero translate to unrealized gains and the larger the unit price level, the more profit an investor stands to realize/make on selling. It can also be seen that when the unit price level is negative meaning that there is an unrealized loss, the redemption rate is comparatively low.

This observed phenomenon of deferring the sale of securities with an unrealized loss and the rise in the redemption rate that accompanies the rise above zero of the unit price level which translates to unrealized profit, shows investors' tendency to rush to secure profits and defer losses. This shows that investors value gains more than they fear losses. This thus proves what the study set out to discover-that investors are influenced by the disposition effect and loss aversion.

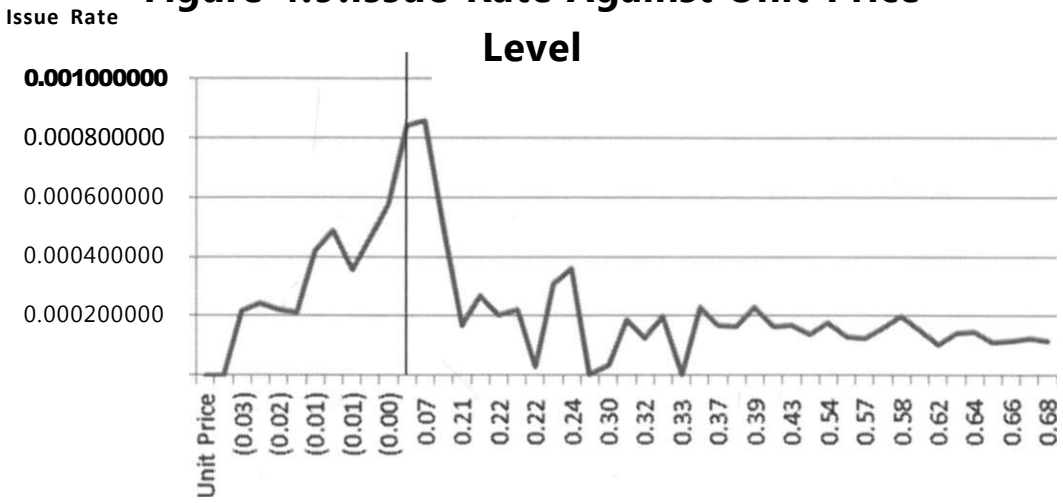
Figures 4.7 and 4.8, also show a higher redemption rates when the unit price level increased even further, meaning that there are just as many fund investors who sold high amounts of shares when the fund share price increased even further. From an analysis of the equity fund prices in Figure 4.2, prices reached new highs in late 2010 into early 2011 and this period coincided with the high redemption rates observed. This means that these investors waited for the fund share price to increase even further so that they can make even more gains on redemption. These investors made decisions that are in line with rational economic behavior. Thus the study results showed that there were also a large number of rational investors in the market during the period of analysis

4.3.2 Investors' Purchasing Behavior

To measure the purchasing behavior and determine if investor exhibit irrational behavior when buying equity fund shares, analysis points of every 30 days (monthly) were selected and the issue rate and the unit price level were calculated and the issue rate was charted against the unit price level to measure the rate at which investors purchase fund shares based on unit price changes. This is shown in Figure 4.9 below. This shows the

movement in the number of shares purchased by investors based on the extent to which the unit price at a particular point in time deviates from the original fund price

Figure 4.9:Issue Rate Against Unit Price Level



Source of data: *Analysis of data collected from the British American Equity Fund Data Base*

From Figure 4.9, it can be seen that the issue rate is high when the unit price level is negative and is highest when the unit level price just passes the zero mark. This indicates that investors purchased more when the fund price was below the original price of Kshs. 100 i.e. they bought more when it was cheaper to do so and also they purchased more when the fund price was at the original Price of Kshs. 100 and also when the prices were just slightly/minimally higher than the original purchase price of Kshs. 100.

Also looking at Figure 4.3, the issue rate fluctuated though out the 45 month period under analysis showing sharp up and down movements. There were however high issue rates in March and April of 2009 and again in July and August of 2011. From Figure 4.2 which shows the equity fund share price movements, it can be observed that in the fore

mentioned periods i.e. March and April 2009 and again in July and August 2011, the unit fund price was on a downward trend indicating that the highest number of purchases in the unit fund were made by investors during period when the fund share price had declined to range between Kshs. 95 to Kshs. 99 which was below the original fund purchase price of Kshs. 100, down from a range of Kshs. 105 to 120 in earlier January and February of 2009 and again in March 2011 when the fund share price began to decrease to lows of Kshs. 154 from previous highs of 172.65 in January 2011. This indicates Contrarian trading.

The annual returns of the fund since 2008 (See Table 4.1) were obtained and these annual returns were selected as the previous 12 months returns. The analysis points at which the issue rate was calculated, was thus January, such that the study looked at the number of shares purchase during the month just after the end of the equity fund's financial period i.e January of 2009, 2010, 2011 and 2012. The issue rate was then regressed over the previous 12 months returns and also over the issue rate. The analysis found the regression coefficient for the return over the past 12 months to be 0.000075748 and the regression coefficient for the unit price level to be -0.000063283.Thus there is a positive correlation between issue rate and return over the past 12 months, whereas there is a negative correlation between the issue rate and the unit price level. Thus the linear regression equations as defined earlier will be as follows;

$$IRit = 0.000172541 - 0.000063283\ UPu$$

$$IRit = 0.000157882 + 0.000075748\ ARa$$

The negative relationship between the issue rate and the unit price level means that the issue rate increased as the unit price level decreased and vice versa. Which shows once again that majority of investors purchased the most number of fund shares when prices decreased and they were cheaper to acquire.

The positive relationship between the issue rate and the return over the last 12 months, means that the number of fund shares issued increased in tandem with increase in fund returns. This shows that more investors bought shares when the performance of the fund improved as indicated by the increased returns.

The above results go against the study's expectation of irrational purchasing behavior as the results shows that investors purchased equity fund shares when the prices decreased, as they were cheaper to acquire, which is rational. Thus it appears that the investors are not irrationally fixated on price as was expected, and that they are aware that a low fund share price does not necessarily mean the fund is performing poorly and vice versa. Investors also purchased more fund shares when the funds returns increased. This is also rational investor behavior.

However, by observing Figure 4.6, it can be seen that the number of shares issued by the fund has decreased over the years thus showing that investor purchase less from equity fund schemes as they get older. If the younger a fund was, the better it performed, then this behavior could be explained as rational. Therefore such behavior must be considered to be contrary to the actions of the rational investor. As discussed earlier, the rational investor is likely to refer to the past performance of the funds and make comparisons before deciding which investment trust to buy into.

CHAPTER FIVE: SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This study set out to contribute further to the area of behavioral finance by identifying and determining if there are certain behavioral phenomena exhibited by equity fund investors and what influence these behavioral phenomena had on these investors trading decisions. The British American (Britam) Equity fund was chosen for this study as a representative of the equity fund market investors because it is the largest equity fund with the largest number of investors, having a market share of 54%. First hand data was collected from Britam's data base and from their publicly available financial statements for the years 2008 to 2011. This data was then organized, rearranged and tabulated for presentation and analysis purposes. The data was then analyzed and charted to identify and determine trends and patterns which answered the questions which the researcher set out to answer at the beginning of the research. Regression analysis was also used to measure relationships between the variables.

The study identified that a number of investors were influenced by the behavioral phenomena of disposition effect and loss aversion when making selling decisions. The study revealed that there are a number of investors who are influence by the disposition effect which causes them to make the irrational selling decisions by selling stock quickly when the prices increase slightly and holding on longer to shares when the prices drop to delay losses-loss aversion. The study also revealed that there are also a number of

investors who held on longer to their shares as prices increased and then sold them later on for a higher price thus realizing higher gains than the irrational investors.

When it came to purchasing behavior, investors were mostly rational purchasing the most number of shares when the prices declined. Investors also displayed rational behavior by purchasing more shares when the funds 12 month returns increased indicating good performance. The study however, noted that the number of shares issued by the fund decreased as the fund got older, indicating that investors invest less in funds as they get older which is not rational behavior.

5.2 Conclusions

<« Human beings have a desire to be rational and believe that they actually behave rationally as has become clear from the investors who sought advice from professionals before trading. However it is clear that individuals do not always choose the alternative that will maximize their utilities and the presentation of the decision problem could lead to a deviation from the rational behavior. This is mainly due to the fact that individuals are not emotionless creatures; they have emotions which in themselves are barriers to rationality. Their choices under uncertainty can be affected by their emotions. Even if individuals can control their emotions for a while, they again behave irrationally because they cannot fix their minds. Individuals have limited computational skills and they have to use some heuristics in order to reduce the mental efforts for simplifying the complex tasks and make the decision process easier. These short cuts many times lead people to some irrational behaviors (Aduda et al, 2012).

From the results of the data analysis documented above, the researcher was able to conclude that investors display both rational and irrational tendencies when making selling decisions and that they were mostly rational when making purchasing decisions.

5.3 Recommendations for Policy

The study results showed that there were just as many irrational investors as there were rational investors in the Kenyan equity fund market. When it came to selling/redeeming shares,it was found that there are still a large number of investors who are making losses by retaining equity fund shares whose prices are declining for longer periods of time (loss aversion) and there are also investors who are missing out on making higher gain by selling their equity fund shares too quickly when prices increase slightly, rather than waiting for prices to escalate further and selling the shares to realize even higher gains (disposition effect).

The researcher thus recommends that the equity fund managers, brokers and analyst who work for equity funds should be equipped with this knowledge so that they can better advice their customers i.e. the equity fund investors and provide these investors with the relevant information to ensure that they are well versed with the prevailing market and economic situations. By advising their customers to make the right investment trading decisions, they can ensure that their customers realize the maximum gains possible and this will also contribute towards improved performance of the equity funds, as investors will have even more funds to invest from profits.

The study also revealed that most investors are rational when it comes to purchase of equity fund shares, except for the observation that the number of fund shares purchased

by investors reduced as the equity fund got older. It is therefore recommended that equity fund managers should change their strategies to perform better than similar funds, and thus gradually expand the assets under their management and increase revenue as the fund gets older, as this is not necessarily consistent with reality. They should now seek to issues as many fund shares as possible in the earlier years to obtain a large assets base and increase their revenues in the earlier years of the fund, as it has been observed that investors prefer to invest in younger funds.

5.4 Limitations of the Study

There were a few limitations encountered during the study. Firstly was difficult to obtain all the data for the first 1 and Vi years of operation for the equity fund, i.e. for the period June 2005 to December 2006. Also during the study, it was difficult to come up with a model/equation that could measure behavior itself i.e. a model to measure disposition effect, or loss aversion and irrational purchasing decision.

At the onset of the study, information from all the 16 equity fund schemes was preferred but companies like Old Mutual, African Alliance and Dyer and Blair were not willing to provide the information required, terming it as sensitive and not available to the public.

5.5 Suggestions for Further Study

For future studies, the researcher recommends that a study on the entire equity fund market be conducted so that the other 15 equity funds schemes investors' trading decisions are also analyzed.

There is need to undertake similar behavioral finance studies focusing on investors from other financial markets such as the mortgage and housing market so as to determine which behavioral biases and phenomena exist and how these influence investors' decisions when taking up mortgages and buying property.

There also is need to formulate studies that can tap into the experience of investment professionals to capture their perceptions on the behavior of individual investors and their respective performances. There is also need to study the behavioral biases amongst fund managers who usually make decisions on behalf of individuals, deciding how to invest their funds so that were can determine if these agents exhibit different behaviors or are influenced differently when compared to individual investors.

In additions there is need to make follow ups on the investors to measure their investment trends over the years, for example a period of more than 5 years, so as to detect cyclical behavioral patterns. This emanates from the fact that investors behavior is subject to the influence of unseen factors.

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