

BEHAVIORAL EFFECTS ON INDIVIDUALS' DECISION-MAKING PROCESS
USING THE PROSPECT THEORY: A CASE OF INVESTORS AT THE NSE.

BY:

MBALUKA P. K.

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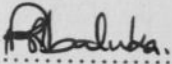
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DECLARATION

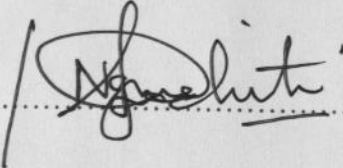
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Signed.....  Date..... 21/11/2008

NAME: MBALUKA, PETER KIMANI

REG. NO.: D/61/7904/2005

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

Signed.....  Date..... 22/11/2008

Mr. Gichana J.M.

Department of Finance and Accounting

Faculty of Commerce University of Nairobi

DEDICATION

To my parents; my hope in moments of dissolution and my siblings; the pressure I needed to push forward.

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Without their contributions and the support, I could not have completed my task.

ABSTRACT

Financial economics has evolved and grown in importance in the last 30 years. Models have been developed and the level of sophistication has increased. One of the many stylised models of market behavior is the Efficient Market Hypothesis statistically tested by the Capital Asset Pricing Model (CAPM).

Twenty years of experimental and empirical research has demonstrated that markets are not as efficient as one might assume. Investors are not as rational and risk preferences are stochastic. In addition to this, prospect theory criticized the standard expected utility hypothesis used to describe utility and investor performance preferences. Kahneman and Tversky (1979) propose a new framework to model the utility and risk preferences of investors. This new "value function" is concave for gains and convex for losses, which implies loss aversion of agents as the primary feature.

This study examined investment scenarios with individual investors indicating that the process of making investment decisions is based on the behavioral economics theory which uses the fundamental aspects of the prospect theory developed by Kahneman and Tversky (1979). The following effects have been tested and identified 1) endowment effect, that makes the participants not to sell the received assets, no matter if better investment options are available; 2) the disposition effect, that refers to the pattern that people avoid realizing paper losses and seek to realize gains; 3) framing, that modifies the investment decision depending on the perspective given to the problem and 4) loss aversion that refers a scenario where greater utility is lost when losing x amount of money than the utility that is gained when obtaining the exact same amount.

The study concluded that the endowment, the disposition and the framing effects influenced the decisions by individual investors. Individual investors had their investment decisions affected by loss aversion.

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CHAPTER I

1.0 INTRODUCTION

1.1 Background of the study

The bedrock on which finance is theorized is the notion that markets are efficient. A market is efficient with respect to a particular set of information if it is impossible to make abnormal profits (other than by chance) by using this set of information to formulate buying and selling decisions (Fama 1970). The term market efficiency has two meanings. One meaning is that investors cannot systematically beat the market. The other is that security prices are rational. Rational prices reflect only utilitarian characteristics, such as risk, not value-expressive characteristics, such as sentiment (Statman 1999).

The traditional finance paradigm seeks to understand financial markets using models in which agents are "rational". Rationality means two things. First, when they receive new information, agents update their beliefs correctly, in the manner described by Bayes' law. Secondly, given their beliefs, agents make choices that are normatively acceptable, in Savage's notion of Subjective Expected Utility (Barberis and Thaler, 2001).

Bayesian theory argues that the probability of an event can be viewed as the degree of belief of an "ideal" person. These ideal persons' beliefs are considered the most efficient ones even if they are completely subjective, as long as they are consistent and follow the basic axioms of probability theory. Accordingly rational decision making and probabilistic reasoning should be based on the key axiom of indifference, where if concrete evidence does not exist regarding the relative likelihood of two events, these events should be considered equiprobable with one another. Bayesian theory provides the

probabilistic framework within which rational investment decisions should be made on the basis of all relevant information. The assumption is that investors evaluate gambles according to the expected utility framework.

Expected utility model is a highly structured procedure for rational decision-making. Experimental work shows that people systematically violate the Expected utility theory when choosing among risky gambles (Barberis and Thaler, 2001). Allais (1953) experimentally found that agents weigh outcomes and the probabilities associated with expected outcomes clearly violating the expected utility theory which requires that expected utility functions be linear in probabilities. Rabin and Thaler (2001), argue that expected utility takes too simplistic a view towards risk. Agents' risk attitudes are determined entirely by the shape i.e. concavity of the utility function.

Based on the deficiency of expected utility theory, alternative theories have been developed by different scholars. The non-expected utility theories include weighted expected utility theory (Chew and MacCrimmon 1979, Chew 1983), implicit expected utility (Chew 1989, Dekel 1986), disappointment aversion (Gul 1991), regret theory (Bell 1982, Loomes Sugden 1982), rank dependent utility theories (Quiggin 1982, Segal 1987, 1989, Yaari 1987), and prospect theory (Kahneman and Tversky 1979, Tversky and Kahneman 1992)

Of the non-expected utility theories, this study used the prospect theory since it is the most promising for financial applications (Barberis and Thaler, 2001). Most of the other

non-expected utility models are quasi-normative models and they try to capture some of the anomalous experimental evidence by slightly weakening the axioms of expected utility theory. However, prospect theory is not a normative theory. It captures people's attitudes to risky gambles as parsimoniously as possible (Barberis and Thaler 2001). Tversky and Kahneman (1986) argue convincingly that normative approaches are doomed to failure, because people routinely make choices that are simply impossible to justify on normative grounds, in that they violate dominance and invariance.

People often fail to respond rationally to new information as they completely fail to follow the idealistic mathematical framework. Kahneman (1979) found that under conditions of uncertainty, human decisions depart from those predicted by standard economic theory. Andrikopoulos, (2006) posits that behavioral finance offers alternative explanations on the key question of why prices deviate from their fundamental values. The tendency of human beings to overreact and under-react in certain circumstances, deviating from Bayesian optimum rational decision-making, arises from psychological biases such as conservatism and the representativeness heuristic (Kaestner, 2005).

Since time and cognitive resources are limited, investors cannot analyze the data the environment provides optimally. Due to the finite nature of human information processing capacity, there is need for imperfect decision making procedures, or heuristics that arrive at reasonably good decisions cheaply. Human judgment may take heuristic shortcuts that systematically diverge from the basic principles of probability (Hirshleifer 2001).

These observations on the limited nature of human capability have opened a wider and intimate debate on the theoretical framework of finance found in the efficient market hypothesis. A growing number of studies in the late 1970s and through early 1980s showed anomalies comparing with this theory casting serious doubts on its efficacy. From the 1990s a lot of focus of the academic discourse shifted away from the analysis of these anomalies comparing the efficient market hypothesis towards a deeper study of human psychology as related to financial market leading to the growth of behavioral finance.

Decourt et al (2005), while studying behavioral finance and the investment decision making process in the Brazilian financial market using an investment simulator tested and identified endowment effect, disposition effect, fear of regret and framing effects. The results showed that investors had their rationality affected by psychological aspects.

Financial psychology has conclusively demonstrated that human cognition has many irrational components even when we are trying to make rational decisions. Cognitive illusions in intuitive judgment are most likely to affect investment decisions (Kahneman and Riepe 1998).

There is no doubt that an understanding of how investor psychology impacts on investment outcomes will generate insights that benefit financial advisory relationship. The enhanced relationship will be a portfolio to which the advisor can comfortably adhere while fulfilling the client's long-term goals. The study of behavioral finance will

help understand what underlies the decisions creating investment goals by individual investors.

Behavioral finance is focused on the application of psychological and economic principles to investigate what happens in markets in which agents display human limitations and complications for the improvement of financial decision-making. It is also defined as the application of psychology in finance (Statman 2006).

1.2 Statement of the Problem

The de facto reigning financial paradigm, the EMH /CAPM duo asserts that securities prices are rational and that they reflect only the fundamental or “utilitarian” characteristic such as risk but not “psychological” or “value expressive” characteristics such as sentiment. Although standard finance represents a great evolution to the understanding of financial market’s mechanisms, it is not a perfect tool. Today’s standard finance is so weighed down by anomalies that reconstructing financial theory along behavioral lines makes sense (Statman 1999).

Thaler (1999) concludes: “In many important ways, real financial markets do not resemble the ones we could imagine if we only read finance textbooks”. The investors’ limited knowledge of the investment process can compromise the risk management mechanisms available today. Better decisions are made by knowing the mechanism for making investment decision and it does constitute an important step to risk control management.

Harbaugh (2003) affirms that simple economic models are often poor predictors of human behavior. The need for more detailed studies of human behavior in the process of making investment decisions cannot be underscored in order to improve theory.

The central focus of this study was to establish whether or not individual investment decisions vary from the assumptions of rationality. Statman (1999) argues that market behavior often diverges from what we would expect in a rational efficient market and that standard finance basically is built on rules about how investors “should” behave rather than on principles describing how they actually behave.

In view of this, it is necessary establish whether behavioral factors influence decisions by individual investors trading at the NSE. Whereas many studies have been carried out in other developed financial markets, little is known about the effects of behavioral factors on individual investors’ decision making in Kenya. Thus, this study aimed at addressing this question “*Do behavioral effects influence investment decision making by individual investors at the NSE?*”

1.3 Objectives of the Study

1. To establish the existence of behavioral effects in individual investment decision-making process.
2. To identify the relative significance of each of these behavioral factors in influencing individual investment decision-making.

1.4 Importance of the Study

The research will make a contribution to academic literature on the field of behavioral finance and in particular investor psychology in Kenya, an emerging market where no known research on this topic has ever been done.

Understanding behavioral factors that underlie individual investor decision-making will likely help investment managers to set better investment outcome and achieve a better advisory relationship with their clients. Knowing how individual investors make decisions will equip investment managers to be better advisors in their careers.

The study will add to the existing body of knowledge in behavioral finance as well as provide a platform for further research in investor psychology, a raging debate in finance.

CHAPTER II

2.0 LITERATURE REVIEW

2.1 Introduction

Modern finance theory is grounded in one basic premise that markets are efficient because investors are always rational and they either maximize returns for an acceptable level of risk, or minimize risk without sacrificing returns. Markowitz (1952) assumes investors care about two statistical properties of his portfolio: the mean return and the variance, later defined as concept of risk. Investor does consider expected return a desirable thing and variance of return an undesirable thing. Rational investor should maximize the desirable factor and minimize the undesirable one.

The great innovation of Markowitz' work was related to the return, given by expected return and the risk, measured by the standard deviation. The investor would like to select portfolios which give rise to the combinations indicated as efficient. The Markowitz model minimizes the variance with diversification. For him diversification means allocating your resources into assets with uncorrelated returns such that when one goes down, the other may go up, or when one goes up just a little, the other may go up a lot.

Sharpe (1963) proposes a more simple technique of portfolio analysis, called diagonal model. The major characteristic of the model is the assumption that the returns of various securities are related only through common relationship with some basic underlying factor. The return from any security is determined solely by random factors and this single outside element: the security's beta.

Sharpe (1964), Lintner (1965) and Mossin (1966) developed the Capital Asset pricing Model (CAPM), which relate the expected return to the standard deviation of assets to verify if a particular asset is being negotiated in the fair price. Sharpe (1964) uses the beta to measure the relevant risk, the systematic risk

The last pillar of modern theory of finance is the Efficient Market Hypothesis (EMH) developed by Fama (1970). Fama defines an efficient market as a market where the current price of a security fully reflects all available information. The price of a security will match that security's intrinsic value. This is the discounted sum of expected future cash flows, where in forming expectations investors correctly incorporate all available information.

2.2 The EMH/CAPM "Crisis"

The standard finance theory of market efficiency propounded by Fama became the model of market behavior. Fama (1970) argues that in an efficient market, prices reflect all what there is to know about a capital asset. That in a securities market populated by many well-informed investors, investments will be appropriately priced and will reflect all available information. Ross, Westerfield and Jaffe (2004) classify the market efficiency into three categories based on what is meant as "available information"- the weak form, semi-strong form and strong form.

The weak form of market efficiency contends that all past market prices and data are fully reflected in securities prices; that is, technical analysis is of little or no value. The

semi strong form of market efficiency contends that all publicly available information is fully reflected in securities prices; that is, fundamental analysis is of no value. The strong form of market efficiency contends that all information is fully reflected in securities prices; that is, insider information is of no value.

A key assumption is that relevant information is freely available to all participants. At any given time thus, in an efficient market, the price of a security will match that security's intrinsic value. This is the discounted sum of expected future cash flows, where in forming expectations investors correctly incorporate all available information.

Sharpe (1964), Lintner (1965), Mossin (1966) and Black (1972) constructed a statistically testable capital asset pricing model (CAPM) that describes the pricing mechanism of capital assets and asserts that "beta" the relationships between firm returns and market returns, is the sole determinants of risk for which investors must be paid a premium. The EMH and CAPM are internally consistent and connected in the sense that the latter provides a means of testing the former.

2.3 Empirical challenges to the Efficient Market Hypothesis

Ample empirical evidence show the existence of "effects" that the CAPM cannot explain or that contradict the efficient market hypothesis in that all relevant information is not fully reflected in prices. They indicate either market inefficiency or inadequacies in the underlying asset-pricing models.

2.4 Market Anomalies

There are three types of market anomalies: Fundamental Anomalies, Technical Anomalies, and Calendar Anomalies (Statman 2006).

2.4.1 Fundamental Anomalies

Fundamental anomalies are irregularities that emerge when a stock's performance is considered in light of a fundamental assessment of the stock's value. Empirical evidence shows that investors consistently overestimate the prospects of growth companies and underestimate the value of out-of-favour companies. Fama and French (1991) performed a study of all equities listed on the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX) and the National Association of Securities Dealers Automated Quotations (NASDAQ). The stocks were divided into 10 groups by book/market ratios (BV/MV) covering between 1963 and 1990.

They found that on average the larger the size of the BV/MV ratio, the larger the return. Growth stocks (glamour stocks) tend to have low BV/MV ratio, are expected to experience rapid increase earnings and are relatively expensive stocks. On the other hand value stocks tend to have high BV/MV ratio, have market prices low relative to measures of, their worth and are relatively "cheapest" stocks in the stocks exchange. Their study suggests that value stocks tend to outperform growth stocks.

2.4.2 Technical Anomalies

Technical anomalies are the inconsistencies revealed by technical analysis with respect to efficient market hypothesis where past securities prices are used to predict future securities. DeBondt and Thaler (1985, 1987) present evidence that is consistent with

stock prices overreacting to current changes in earnings. They report positive (negative) estimated abnormal stock returns for portfolios that previously generated inferior (superior) stock price and earning performance.

2.4.3 Calendar Anomalies

Calendar anomalies include “the January effect” where stocks rebound following year-end tax selling, “the turn –of –the month effect” where individuals stocks have higher returns on the last four days of each month relative to other days (Statman 2006).

2.5 Financial Anomalies

Empirical studies by Thaler (1999) and Thomaidis (2004), on the behavior of individual stocks or the aggregate stock markets have unearthed several phenomena, which are hard to explain using models where agents are rational and markets are efficient. These facts, often mentioned in the literature as anomalies often document that some stocks systematically earn higher average returns than others, although the risk characteristics of such stocks would not prompt for such a thing. Among the most widely accepted facts are:

2.5.1 Volume

According to Thaler (1999), standard models of asset markets predict that participants will trade very little. In a perfectly informationally efficient market, one finds no profit to gathering information since all information is reflected in asset prices, and it follows that there would be little reason to trade. On account of liquidity and rebalancing needs of

people in the real world, trading volumes in stock exchanges may not be fully explained by the standard market models.

2.5.2 Excessive Volatility of Prices Relative to Fundamentals

In a rational world, prices change only when news arrives. Shiller's (1981) work on stock market volatility showed that stock market prices are far more volatile than could be justified by a rational model in which prices are equal to the expected net present value of future dividends. Dividends and other fundamentals simply do not vary enough to rationally justify observed aggregate price movements. But aggregate stock prices appear to move much more than can be justified by changes in intrinsic value. Shiller (1981) concludes that stock and bond prices are more volatile than advocates of rational efficient market theory would expect. Shiller (2002) shows evidence of excess volatility persists in spite of allowing for time-varying risk in the interest rates applied in the present value formula.

2.5.3 Equity Premium Puzzle

In efficient markets, rational investors will seek to maximize returns at any given level of risk. Investors will buy and hold stocks whose return fully covers the risk of their portfolio. Equity premium is defined as the difference between the real rate of return on stocks and fixed income securities such as Treasury bills. Equity premium reflects the relative risk of stocks compared to "risk-free" government bonds. However, although stocks have high average returns, investors are unwilling to hold them. The puzzle arises because the unexpectedly large equity premium implies a suspiciously high level of risk aversion among investors. Siegel and Thaler (1997), argue that it is difficult to explain

equity premium without incorporating some kind of irrationality. Barberis and Thaler (2001), find that investors fear stocks so much that they demand a substantial risk premium in equilibrium.

2.5.4 Short- term trends (momentum)

Jegadeesh and Titman (1985, 1993) showed for the first time evidence of short-term trends or momentum in stock market prices. In their study they suggest that maintaining long positions on past strong performers and shorting on past weak performers could earn investors abnormally large returns over a period of six to twelve- month horizon. They showed that certain movements in individual stock prices that persist over a period of six to twelve months tend to predict future movements in the same direction.

2.5.5 Reaction to non-information

According to EMH, prices move only in response to fundamental news concerning the company, the sector or the economy as a whole. However, often many sharp moves in stock prices do not appear to accompany significant news. Cutler et al (1991) examine the fifty largest one-day stock price movements in the U.S. market after the World War II and find that many of them came on days of no major announcements.

An interesting case study that shows a price reaction to the no-information is the inclusion (exclusion) of stocks in an important index, like Standard & Poor's 500 index. Wrugler and Zhuravskaya (1999) showed that the inclusion on the Standard & Poor's index between the 1976 and the 1996 is accompanied by an increase on the average of the share price of the 3.5%. The stocks consistently detained by the index fund and forming a

relatively sizeable portfolio of the index fund were observed to have a larger increase in the share price. Consequently, these results contrast with the efficient market hypothesis.

This evidence is broadly consistent with Shiller's (1981) findings of excessive volatility of stock returns. Similar conclusions have been reached by Roll (1984, 1988), about futures on orange juice and stocks.

2.5.6 Predictability

In an efficient market, future returns cannot be predicted on the basis of existing information. However several company-specific variables, like the book-to-market (B/M) or the earnings-to-price (E/P) ratios, where some measure of fundamentals is scaled by price, have been proven to have predictive power regarding the average return of a stock. De Bondt and Thaler (1987), Fama and French (1992), and Lakonishok et al. (1994) showed that in a poor market performance the "value" stocks earn higher return than the "growth" stocks and in a growing market the "value" stocks equal at least the performance of the growth stocks. At the same time the performance of the "growth" stock is more volatile around earnings announcement than the "value" stock. Growth stocks are stocks of companies that have experienced, or are expected to experience rapid increase in earnings whereas value stocks are stocks whose market prices seems to be low relative to measures of their worth. The book-to-market ratio is defined as the accounting book value of the company's assets to the market value of its equity. Basu (1977) also observed that stocks with extremely high earnings-to-price ratio earn larger risk-adjusted returns than the ones with low earnings-to-price ratio.

Stock prices are observed to overreact to corporate announcements or events (earnings or dividends announcements, stock repurchases, equity offerings, etc). Bernard and Thomas (1989) find that stocks with surprisingly good news outperform, in terms of returns, those with surprisingly bad news over a period of 60 days after the announcement takes place. It is often hard to tell a rational "story" for why the premia should be concentrated in this way, given that there is no evidence of changes in systematic risk around earnings announcement.

2.6 Behavioral Finance

In the last years from questionings raised about market behavior, emerges what Haugen (2000) calls "New Finance". The markets are no longer considered efficient: once researches evidence that the investors are not always rational in their decision-making.

Behavioral finance, commonly defined as the application of psychology to finance has become a very hot topic, generating new credence with the bursting of the tech-stock bubble in march of 2000. The "dot-com bubble" or sometimes the "I.T. bubble" was a speculative bubble covering roughly 1995-2000 with the National Association of Securities Dealers Automated Quotations (NASDAQ) peaking at 5132.52 points by March 2000. During this period stock markets in western countries realized an exceptional rise in their value from growth in the new internet sectors and related fields.

From 1996 to 2000, the NASDAQ went from 600 to 5,000! A combination of rapidly increasing stock prices, individual speculation in stocks, and widely available venture capital created an exuberant environment in which many of these businesses dismissed

standard business models, focusing on increasing market share at the expense of the fundamentals. The bursting of the dot-com bubble marked the beginning of a relatively mild yet rather lengthy early 2000s recession in the developed world. By the end of 2000, the stock market had crashed to 5,000 and in early 2002, the NASDAQ settled at 800! (Wikipedia). A speculative bubble is “trade in high volumes of stocks at prices that are considerably at variance from their intrinsic value (Investopedia).

Behavioral finance models and interprets phenomena ranging from individual investor conduct to market-level outcomes (Statman 2006). Behavioral finance offers alternative explanations on the key question of why prices deviate from their fundamental values (Andrikopoulos, 2006). Its key argument is based on the claim that human behavior and perceptions represents two crucial elements of financial decision making (Hirshleifer, 2001).

According to Lintner, (1956) Behavioral finance is “the study of how humans interpret and act on information to make informed investment decisions” (cited in Brabazon, 2001). It is also defined as the application of psychology in finance (Statman 2006). Behavioral finance is focused on the application of psychological and economic principles to investigate what happens in markets in which agents display human limitations and complications for the improvement of financial decision-making. The studies on this matter do not imply a rejection of the previous theories developed on the behavior of the financial market. On the contrary these are a very useful theoretical framework that the studies on behavioral finance try to improve.

Financial psychology studies have conclusively demonstrated that human cognition has many irrational components, even when we are trying to make rational decisions. Cognitive illusions in intuitive judgment are most likely to affect investment decisions according to Kahneman and Riepe (1998).

2.6.1 Prospect Theory

The prospect theory is probably the behavioral theory that has more impact on the economic research. The Prospect Theory was first developed by Daniel Kahneman and Amos Tversky in the Prospect theory (1979). It simply captures people's attitudes to risky gambles as parsimoniously as possible.

2.6.1.1 Value Function

The value function is defined over gains and losses than over final wealth positions. This is consistent with the way gambles are generally framed (Kahneman and Tversky, 1979). More generally, it is consistent with the way people perceive attributes such as brightness, loudness or temperature relative to earlier levels. It has a kink at the origin. The value function for losses is convex and relatively steep. In contrast, the value function for gains is concave and not quite so steep. This indicates a greater sensitivity to losses than to gains. People are risk-averse over gains and risk seeking over losses. A value function, which satisfies these properties, is displayed in Figure 1.

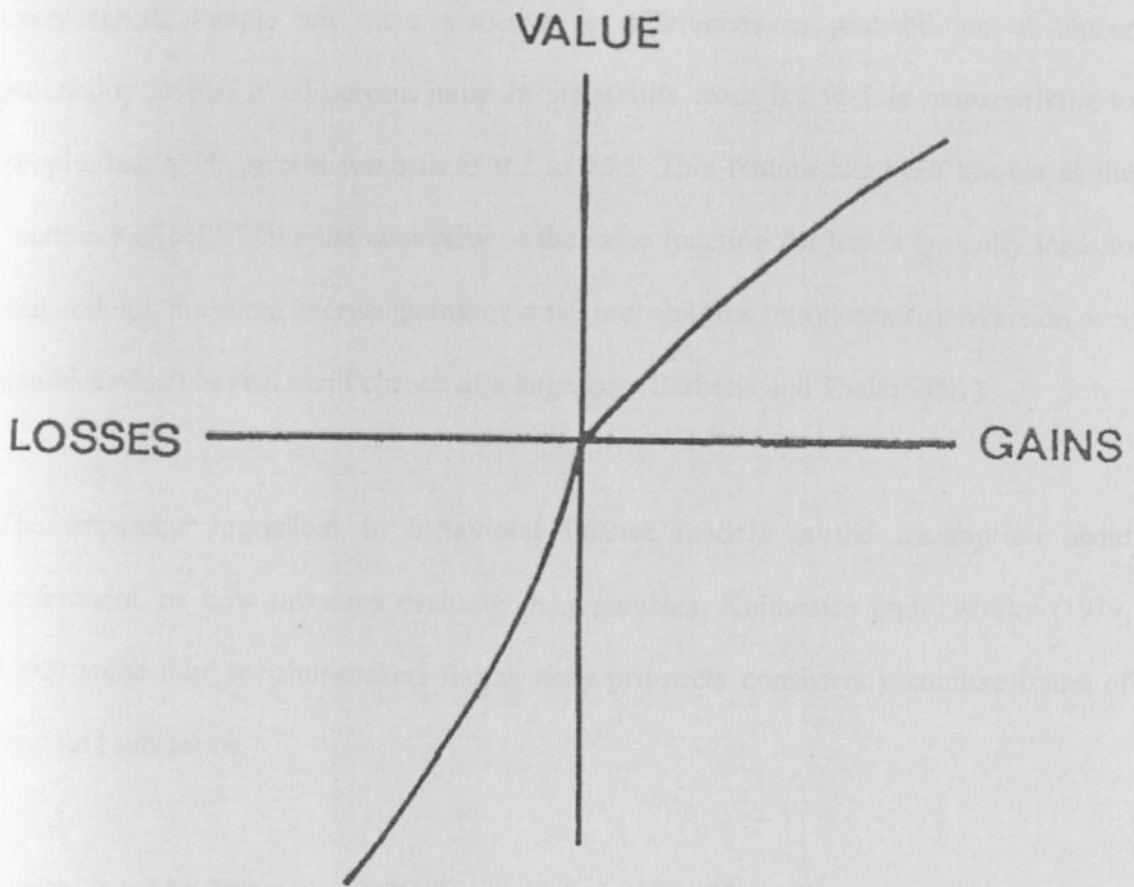


Figure 1 A hypothetical value function
 Figure source: Kahneman and Tversky (1979)

The interpretation of the value function allows concluding that losses hurt more than gains satisfy, implying that decision makers will be risk averse when choosing between gains and risk seeking when choosing between losses

2.6.1.2 Non-Linear Weight

Kahneman and Tversky (1979) determined the weights by a function of true probabilities. People are observed to weight an event extremely improbable as impossible to happen, and they consider the event extremely probable as certain. Small probabilities are

overweighed. People are more sensitive to differences in probabilities at higher probability levels. A 20 percent jump in probability from 0.8 to 1 is more striking to people than a 20 percent jump from 0.2 to 0.25. This feature has been known as the “certainty effect” While the convexity of the value function for losses typically leads to risk seeking, the same overweighting of small probabilities introduces risk-aversion over gambles which have a small chance of a large loss (Barberis and Thaler 2001)

The important ingredient in behavioral finance models is the assumption about preferences, or how investors evaluate risky gambles. Kahneman and Tversky (1979, 1992) argue that decision-makers facing risky prospects consistently confuse issues of form and substance.

Thaler, (cited by Bernstein, 1996) decided to ask a few friends how much they would be willing to pay to eliminate a one-in-1, 000 chance of immediate death and how much they would have to pay to willingly accept an extra one-in-1, 000 chance of immediate death. What he found was that they wouldn't pay much for the extra margin of safety but demanded huge sums to accept additional risk, which is not, strictly speaking, rational. Thaler comments that “the disparity between buying and selling prices was very interesting”. From these evidences Thaler has prepared a list of behavioral anomalies that violate the standard theories in economics.

2.7 Behavioral Anomalies

Several researchers in finance have expounded on the area of behavioral finance. For example Decourt et al (2005) studied Behavioral finance and the investment decision

making process in the Brazilian financial market. Using an experimental research design, they developed a program in ASP and SQL simulating through the internet some investment decisions. The sampled 51 managers enrolled in the local MBA program in Brazil and 218 Brazilian physicians. The simulation presented economic scenarios to the respondents and was carried out in two steps. The results showed that both categories had their rationality affected by psychological aspects. These psychological aspects or behavioral anomalies violate the standard theories in economics.

2.7.1 Endowment Effect

Thaler (1980) described the endowment effect as the fact that people often demand much more to give up an object than they would be willing to pay to acquire it. It implies that when a person comes into possession of a good, he or she gives to it a higher value than before possessing it. The endowment effect has the consequence to lead people to give more weight to a loss than to a foregone gain and, consequently, for this reason it is influenced by the loss aversion.

The endowment effect is founded in Kahneman, Knetsch e Thaler (1991) experiment. 77 students were randomly assigned to three conditions .One group, the Sellers, where given mugs and asked whether they would be willing to sell the mugs .A second group of Buyers were asked whether they would be willing to buy the mug. The third group, called choosers, were not given a mug but were asked to choose, for the prices, between receiving a mug or that amount of money. The choosers behaved more like the Buyers than sellers. Kahneman, Knetsch and Thaler (1991) believe that the endowment effect is an implication of loss aversion.

2.7.2 Regret aversion and the Disposition effect

One of the robust facts about trading behavior of individual investors is the disposition effect. According to Prospect theory, if an individual investor is risk-averse over gains, she should sell a stock that is trading at a gain anchored to the purchase price; and if she is risk seeking over losses she should be inclined to hold on a stock that is trading at a loss (Kahneman and Tversky 1979). Shefrin and Statman (1995) in their seminal paper, as the title of their work showed that the people tend to have “disposition to sell the winners too early and to ride the losses too long”. Weber and Camerer (1998) describe the disposition effect as: ‘the tendency to sell assets that have gained value (winners) and keep assets that have lost value (losers)’. They realized an experiment where subjects bought and sold shares in six risky assets. Subjects did tend to sell winners and keep losers, exhibiting the disposition effect.

Brabazon (2000) explains that being adverse to regret results in people fearing the feeling that they are responsible for a bad decision. People are most likely to regret actions (or even failures to act) that they perceive as being “out of character” for them. If they followed someone’s recommendations in straying from their normal path, the regret will easily turn into resentment and anger. They aim to achieve feats that make them feel proud and avoid those that make them feel shame or regret. Nofsinger (2002) shows that regret aversion results in a ‘disposition effect’ where investors sell well performing stocks too soon and ride poorly performing stocks for too long.

Odean (1999), while studying the US market, obtained data by a brokerage house for 10,000 accounts and tested the disposition effect. He found that there is an investors’

preference to sell winners and to hold the losers, except in December, but this, he said, can be explained by tax reasons. He showed that this investor behavior cannot be motivated by rebalancing portfolio reasons or by reluctance to increase the trades to minimize the transaction costs.

Regret aversion may also result in what is known as herding behavior. An investor may feel more comfortable investing in a popular stock if everyone else believes that it's good one. Responsibility of it falling will be shared with the other investors who originally expected it to do well also (Brabazon, 2000).

The herd behavior occurs when many people make the same action to mime the behavior of others. Shiller (2000) outlines psychological experiment by Deutsch and Gerrard where the human tendency to concur with the majority view was shown. In the experiment people questioned their own opinions if they found everyone else disagreed with it. These human tendencies are individually sensible, but collectively can lead to irrational and herding behavior

Shiller (2000), individual investors who are unsure about what stock to invest in, are adverse to regret and happy to go with majority rulings, decide to opt out of making the decision. Instead they attempt to free ride the information that the first investor must have had. They and others after them invest in the same stock as the original investor. This notion suggests that it is reasonable for, less sophisticated investors to mimic financial

gurus or to seek advice from successful investors, since using their own information/knowledge would incur a higher cost.

This particular aspect of investor behavior can lead to “speculative bubbles” which historically have resulted in stock market crashes. Herding behavior rapidly pushes stock prices through the roof, usually far above the earnings worth of these popular stocks. Shiller calls this irrational exuberance and provides evidence of price earnings ratios as high as 44.3 prior to the 2000 so called ‘dot.com’ bubble bursting, Shiller (2000).

2.7.3 Framing

Tversky and Kahneman (1986) identified that decisions may vary according to framing. A frame can be defined as the form used to describe a decision problem. In traditional finance it is assumed that the frame is irrelevant to the behavior, because it is assumed that it is transparent, but it is not always so. Shefrin (2000) opines that when a person has difficulty seeing through an opaque frame, his decision typically depends on the particular frame he uses.

According to Gonzalez, et al. (2004), the framing effect is observed when a decision maker’s risk tolerance (as implied by their choices) is dependent upon how a set of options is described. Specifically, people’s choices when faced with consequentially identical decision problems framed positively (in terms of gains) versus negatively (in terms of losses) are often contradictory.

2.7.4 Loss aversion

This describes a scenario where greater utility is lost when losing x amount of money than the utility that is gained when obtaining the exact same amount. Tversky and Kahneman (1992) suggest that in the domain of money the people value a loss roughly twice a same size of gain. This asymmetry in the valuation is called loss aversion.

Theoretical papers such as Ang, Berkert and Liu (2004), Barberis Huang and Thaler (2006), Berkelaar, Kouwenberg and Post (2004), Gomes (2005), and Polkovnichenko (2005) show that if individuals are loss-averse they either will not participate in equity markets or will allocate considerably less of their wealth to equities. If individuals are loss-averse the potential pain from stock market declines outweighs the pleasure from gains even with a high equity premium. As a result, loss-averse individuals choose to avoid any exposure to equity. Loss aversion implies that individuals frame events as either gains or losses relative to a reference point, and Loss aversion In investments, this phenomenon is believed to manifest itself in what is known as "disposition effect". People are observed to realize gains too quickly in the fear that they may make a loss.

Barberis and Thaler (2001) argue that the extent of loss aversion will influence the frequency with which investors evaluate their portfolio and that the way investors frame gains and losses is plausibly influenced by the way information is presented to them. Energetic investors those that evaluate their portfolio frequently say on a daily basis are more loss averse. Consequently, they will allocate less of their wealth in equities. They call the combination of loss aversion and frequent evaluations myopic loss aversion.

CHAPTER III

3.0 RESEARCH METHODOLOGY

3.1 Research Design

The study adopted an exploratory approach using descriptive survey design to investigate the behavioral factors that affect investment decision making by individual investors trading shares at the Nairobi stock exchange. Descriptive survey designs are used in preliminary and exploratory studies (Luck and Ruben, 1992) to allow researchers gather information, summarize present and interpret for the purpose of clarification (Orodho, 2002). Consequently, the research conducted a survey on individual investors decisions in trading of shares of listed companies in the NSE.

3.2 Population of Study

The target population of this study was individual investors that buy and sell shares at the Nairobi stock exchange. There are about 750,000 account holders at the NSE (CMA, 2007) operating accounts with the Central Depository Settlement System. There are 19 licensed and operational stock brokerage firms.

3.3 The Sampling procedure and Sample size

It is impractical to study all the individual investors owing to the constraints of time, cost and human resources thus among the individual investors at the Nairobi stock exchange a sample of 100 investors as selected, which was considered appropriate: Among the individual investors five investors were selected as they queued to be served in each of the nineteen brokerage firms, and as they followed the days trading at the public gallery at the Nairobi stock exchange.

3.4 Method of Data Collection

Primary data was collected by an exploratory survey method. A semi structured questionnaire consisting of both open-ended and closed-ended questions was used. A research assistant assisted and guided the individual investors in interpreting and recording the questionnaire. The first part of the questionnaire sought to collect background information of the respondent. This included the respondent age, gender, education background and their trading horizon. The second part of the questionnaire sought to collect investment decisions by presenting to the respondents economic scenarios. This allowed a stage-by-stage decision process enabling the respondent to simulate some investment decisions.

3.5 Data Analysis Procedure

The study adopted the method of data analysis used by Decourt et al (2005) in a study on behavioral finance and investment decision making process in the Brazilian financial market. The method was modified by the prospect theory of Kahneman and Tversky (1979), the lead model of this study. This was achieved in the following steps.

3.5.1 First step

In the first step of data analysis the endowment effect, disposition effects and regret aversion were tested (Decourt 2005). In the first scenario, the study assumed that the respondents were presented with Ksh 180,000 in cash to invest in stocks, dollars and government bonds. The economic outlook was positive and presented good prospects for listed companies. The most rational decision expected was higher investment in stocks than other assets.

In the second scenario, the economic outlook was not favorable for the Kenyan economy. The initial investment would be worth Ksh120, 000. The study assumed that the respondent was presented with Ksh 120,000 in cash to invest in the three assets. Since the economic outlook was considered not be favorable for the Kenyan economy, the expected rational decision was to invest in dollars. The endowment effect was tested with a view of answering the question *“Will investors avoid change and become attached to their investment.”*

3.5.2 Second step

In the second part of data analysis, framing effects and loss aversion were tested.

The respondents were presented with two decision problems that were identical in terms of their final wealth. In the first case, the decision problem was presented as a gain while in the second case; the problem was presented as a loss. In each decision problem frame there were both a sure outcome and a gamble but both were identical in terms of their final wealth. A fully rational decision maker would treat the two decision problems as identical because they were identical when formulated in terms of states of wealth. Such a decision maker would choose either the gamble or the sure thing in both cases. If there were inconsistent choices by the respondent, then framing effects were tested.

If respondents inconsistently choose the gamble for the negatively presented decision frame, it indicated that they were more loss averse that is to say they weight losses more heavily than gains. Loss aversion was tested by computing the mode of the distribution of choices made.

To verify if there were differences in the decisions made due to the differences in the framing, the chi-square Test with alpha level=0.05 was applied.

The research analyzed the applied tests and their effect in each of the questions asked in the research as provided in the following table.

Effect	Test	Objective	Results indicating the existing effect
Endowment	Compare the composition of a portfolio for the scenario of positive and gloomy economic outlook.	Verify if respondents become attached to their assets (Endowment effect).	Significant difference among portfolios. (Students t-test)
Disposition	Compare the difference between the choices taken in selling losing and gaining stocks	Verify if there is a tendency of keeping losing assets (disposition effect).	Significant difference among choices made. (Chi-square)
Loss aversion	Compare the investment decisions under two distinct perspectives with the same terminal wealth.	Verify if respondents frame events as either gains or losses and that they weight losses more heavily than gains	Significant number of respondents inconsistently choose the gamble for the negatively presented decision frame (Chi square test)
Framing	Compare the investment decisions under two distinct perspectives with the same terminal wealth.	Verify if respondents are influenced by the framing of a decision problem	Significant difference among investment decisions. (Chi square test)

CHAPTER IV

4.0 DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The purpose of this study was to establish the behavioral effects of the individual investors' decision making process. A sample size of 100 individual investors in the Nairobi Stock Exchange (NSE) was selected from various stock brokerage firms in Nairobi. The data collected were coded and entered in SPSS package employed for the analysis. Frequency tables and charts were used to present the findings upon which discussion and conclusions were made. The findings of the study are presented in the following sections.

4.2 Demographics of the Respondents

Table 4.1 below shows the demographic information of the investor respondents.

Table 4.1: Gender of the respondents

	Frequency	Percent
Male	56	56.0
Female	44	44.0
Total	100	100.0

Source: Research Findings

As shown in Table 4.1 above, majority (56%) of the respondents were male. Females made up 44% of the sample. The study further sought to find out whether the sex of respondents influenced their behaviors during the investment decision making process.

Table 4.2: Highest academic qualifications

	Frequency	Percent
Primary education	2	2.0
Secondary education	9	9.0
College education	50	50.0
University education	39	39.0
Total	100	100.0

Source: Research Findings

The findings shown in Table 4.2 show that majority (50%) of the respondents had college education while 39% had university education. This suggests that many of the respondents had a level of enlightenment that would necessary to make rational investment decisions and to respond accordingly to changes in the market.

Table 4.3: Duration of trading in the stock market

	Frequency	Percent
Below 5 Years	76	76.0
Above 5 Years	24	24.0
Total	100	100.0

Source: Research Findings

Table 4.3 shows that majority (76%) of the respondents had been trading in the stock market for a period of less than 5 years. This confirms that interest in stock market trading for retail investors in Kenya is a new phenomenon. The study further analyzed the extent to which this affects the individual investment decisions by comparing the choices made by investors in the two groups.

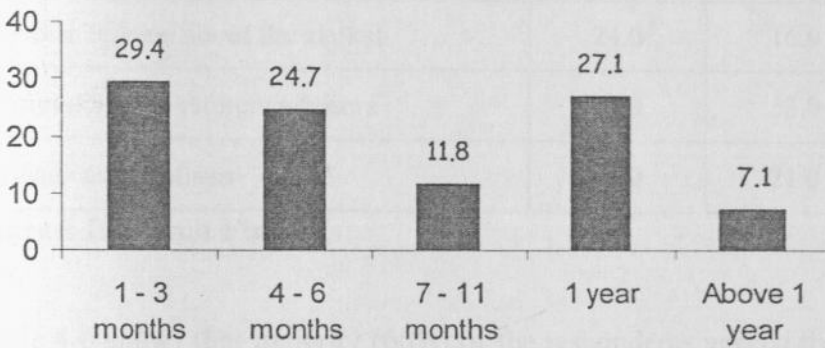
Table 4.4: Number of times respondents transacted in stocks within 3 months

	Frequency	Percent
Less than 10 times	84	84.0
Between 11 - 20 times	15	15.0
Above 20 times	1	1.0
Total	100	100.0

Source: Research Findings

Majority (84%) of the respondents had made share transactions not exceeding ten in the three months preceding the study. This suggests that many of the investors did not actively trade with their stocks.

Figure 4.1: Stock holding period in months



Source: Research Findings

As illustrated in Figure 4.1, 34% of the respondents held to their stocks for a year or longer while 11.8% held on the stocks for a period between 6 months and one year. The average stock holding period was found to be 7.81 months with a standard deviation of 6.021. The results in table 4.4 and figure 4.1 suggest that majority of the investors are short term traders while running a risk of lost opportunities to maximize returns by holding to shares for long without trading.

Table 4.5: Ever seek financial advice from professional investment advisors

	Frequency	Percent
Yes	61	61.0
No	39	39.0
Total	100	100.0

Source: Research Findings

The investors were asked if they ever sought professional investment advisors when making buying and selling decisions. Table 4.5 shows that majority (61%) sought professional financial advice while 39% did not.

Table 4.6: Forces influencing investors' decisions to buy or sell stocks

	Disagree (%)	Neutral (%)	Agree (%)
Popular opinion about the market	24.0	16.0	60.0
Professional investment advisors	45.0	13.0	42.0
Friends and relatives	48.0	21.0	31.0

Source: Research Findings

Table 4.6 shows that majority (60%) of the respondents agreed that they were influenced by the popular opinion about the market in making decisions. Thirty one percent reported to be influenced by friends or relatives. The findings show that many of the investors were happy to conform to the crowd than to follow the advice from professional investment advisors even though majority sought for it. They were susceptible to influences to buy or sell stocks that were not necessarily based on the rational analysis of the situation in the market. This evidences herding behavior by respondents.

4.3 Investor Rationality

This section sought to determine whether or not investors were rational in making investment decisions. A scenario was presented to the respondents where they were required to invest Kshs 180, 000 in three portfolios namely stocks, dollars and government bonds. The investment was to be made in an assumed environment of a positive economic outlook in the country with good prospects of profits for stocks in listed companies and against a backdrop of a losing dollar compared to the Kenya shilling. Table 4.7 shows how the respondents would invest the amounts.

Table 4.7: Respondents investment choices

	Stocks		Dollars		Government bonds	
	Amount	%	Amount	%	Amount	%
Total	115,870	64.37	23,670	13.15	40,460	22.48
Male	104,690*		31,760*		43,550	
Female	130,090*		13,380*		36,530	
<5 years	114,920		21,550		43,530	
>5 years	118,880		30,380		30,750	
Seeks advice	120,780		21,660		37,560	
Never seek advice	108,180		26,820		45,000	

* t-test result shows the differences are statistically significant at $p < 0.05$

Source: Research Findings

Findings in table 4.7 above show that on average majority (64.4%) of the funds would be invested in stocks. An average of 22.5% of the funds would be invested in government bonds while dollars would attract the lowest investment averaging 13%. This shows that the majority of the respondents would make the expected financial decisions in the prevailing economic and market conditions.

Table 4.7 further shows that females would on average invest more (Kshs 130,880) in stocks compared to males (Kshs 104,690). A t-test showed that the means of the two gender groups were significantly different. This shows that the gender of the investor influenced their participation in stocks. The average investment in dollars was significantly higher for males compared to females. Male investors would on average invest more in government bonds than female investors although the means were not significantly different. The findings generally suggest that male investors take more risk seeking than female investors. They also realized greater diversification than female investors.

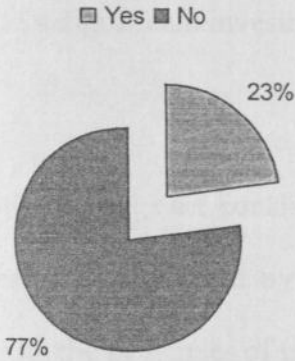
Table 4.7 further shows that investors that had been in the market for more than five years invested more in stocks than their counterparts within stock market experience below five years. The latter would however invest more in government bonds. The means were not different in either of the options. This suggests that the length of presence in the stock market did not significantly affect the investors' investment decisions and risk taking behavior.

The investors that sought professional financial advice on average invested more (Kshs 120,780) in the stocks than those that did not seek such advice (Kshs108,180). The means were however not significantly different. The findings show seeking financial advice did not make significant difference in the investment decisions taken by the respondents.

A second scenario was presented to the investors whereby the economic fortunes had changes resulting in a melt down in the stock market. Consequently, their investments value made in scenario one had been eroded to Ksh 120,000. The respondents were asked

whether they would make a move in the circumstances to make a change in the combination selected above. Figure 4.2 shows the responses obtained.

Figure 4.2: Proportion of respondents that would change combination



Source: Research Findings

4.3.1 Endowment Effects

Figure 4.2 shows that 77% of the respondents would not make a portfolio change while only 23% would change their mix of assets in the unattractive economic scenario. The respondents did not invest as expected by rationality principles since they showed unwillingness to change their portfolio despite the unattractive macroeconomic outlook. The endowment effect was identified with investors in the experiment. 77% of investors avoided changes and became attached to their investment. This is consistent with the findings of Kahneman and Tversky (1979) and Decourt et al (2005). Table 4.8 shows the revised investment layout.

Table 4.8: Respondents revised investment choices

	Stocks		Dollars		Government bonds	
	Amount	%	Amount	%	Amount	%
2	32,455	27.05	33,000	27.50	54,545	45.45

Source: Research Findings

Table 4.8 shows that when faced with unattractive economic outlook and poor prospects in the stock market; majority of those that would make changes would invest in government bonds (45.45%). The investors did not invest as expected by rationality principles as a significant investment should have been made in dollars than in any other asset.

Generally the findings are consistent with the findings of Decourt et al (2005). Investors had their rationality affected by psychological aspects as their investment decisions do not agree with the principles of rationality.

A chi-square test was used to determine whether there were significant differences between groups in their decision to shift or maintain their combinations. Table 4.9 shows the results.

Table 4.9: Chi-Square Tests

	Would you change your combination from the ones you indicated above?		Total
	Yes	No	p-value
<i>Sex</i>			
Male	15 (26.8%)	41 (73.2%)	0.310
Female	8 (18.2%)	36 (81.8%)	
<i>Length at stock market</i>			
Below 5 Years	16 (21.1%)	60 (78.9%)	0.410
Above 5 Years	7 (29.2%)	17 (70.8%)	
<i>Seeks professional advice</i>			
Yes	13 (21.3%)	48 (78.6%)	0.616
No	10 (25.6%)	29 (74.4%)	

Source: Research Findings

The findings in Table 4.9 show that 26.8% of the males compared to 18.2% of the females would change their combinations. The differences were however not significant as evidenced by $p > 0.05$. The findings show that the gender of the investor does not

influence endowment effect. It can also be seen that 29.2% of those that had been trading for more than five years would make changes compared to 21.1% of the investors of less than five years in the stock market. The differences were also not significant at $p < 0.05$. This shows that the length of presence of investor in the stock market does not influence endowment effect. Further, 25.6% of those seeking professional advice would make a shift compared to 21.3% of those that never sought professional advice. The differences were also not significant at $p < 0.05$. This shows that extent of information about the fundamentals of stock markets does not free investors from the endowment effect. This emphasizes the observation that investors are more likely influenced by popular opinion about the market than professional investment advice.

4.4 Testing Disposition effect and regret aversion

The tendency to keep losing assets known as disposition effects was tested. The respondents were asked to state who was more likely to be upset between an hypothetical investor A who initially bought a share at Kshs 100, and hypothetical investor B who had bought the same stock when it was trading at Kshs 200 with the stock closing at Kshs 160 yesterday and currently trading at Kshs 150. Table 4.10 shows the respondents opinion on who between the two investors is more upset.

Table 4.10: Respondents opinion on the more upset investor

	Frequency	Percent
A	21	21.0
B	75	75.0
Neither	3	3.0
All/Both	1	1.0
Total	100	100.0

Source: Research Findings

The results in Table 4.10 shows that the majority (75%) of the respondents believed that investor B was more upset while 21% said A was more upset. When asked why the investor is more upset, majority of the investors showed a tendency to anchor on the purchase price of the stock. Consequently investor B feels a greater loss than investor A

The respondents were asked to assume that they were holding in two different accounts two block of shares A and B but of same company. They were required to state the one they would sell in the prevailing circumstances. Table 4.11 shows the responses obtained.

Table 4.11: Stocks more likely to sell

	Frequency	Percent
A	68	68.0
B	28	28.0
No response	4	4.0
Total	100	100.0

Source: Research Findings

Table 4.11 shows that majority of the respondents (68%) would sell stock A that had made gains while 28% of the respondents would opt to sell stock B to avert further losses. It shows that the latter's sale decision is motivated by a desire to minimize the losses while the former would sell to maximize the gains. The reasons for making the choices are as shown in Table 4.12 and 4.13.

Table 4.12: Reasons for choosing A

	Frequency	Percent
Will make profits	42	61.7
Afraid of further losses	12	17.7
No response	14	20.6
Total	68	100.0

Source: Research Findings

Table 4.12 shows that majority of the respondents (61.7%) that would opt to sell A would do so since A is in the profit. As indicated in Table 4.13, the responses show that those who opted to sell stock B did so to avert further losses (64.3%).

Table 4.13: Reasons for choosing B

	Frequency	Percent
To reduce further loss	18	64.3
Poor Past performance thus possibilities of going back to zero	3	10.7
Will make profits become a speculator	2	7.1
Fluctuating demands.	2	7.1
No response	14	20.6
Total	39	100.0

Source: Research Findings

The findings show that investors have the tendency to sell assets that have gained value (winners) (68.0%) and keep assets that have lost value (losers) (28.0%). The investors were affected by the disposition effect, a tendency of keeping losing assets. This is consistent with the breakthrough findings of Kahneman and Tversky (1979), that, if an individual investor is risk-averse over gains, she should sell a stock that is trading at a gain anchored to the purchase price; and if she is risk seeking over losses she should be inclined to hold on a stock that is trading at a loss.

Another scenario presented to the respondents was of two investors G and L. Investor G is presented to have failed to take up an opportunity to switch from company X to company Y which would have increased his fortune by Kshs 200,000. Investor L on the other hand moves from company Y to company X and also misses the opportunity to make Kshs 200,000 had she stayed on. The respondents were asked to state who of the two investors would be more upset. Table 4.14 shows the responses elicited.

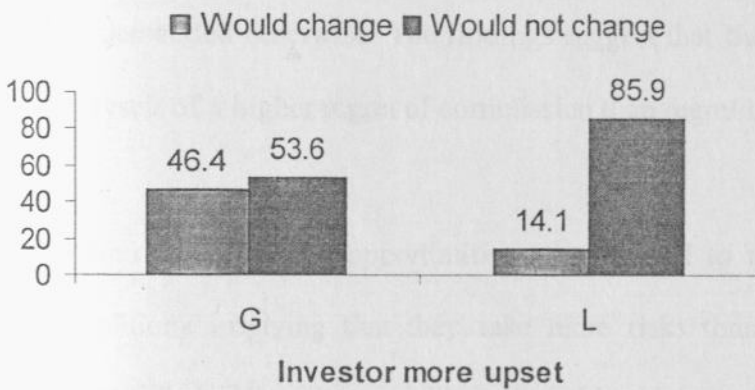
Table 4.14: Respondents opinion on the more upset investor

	Frequency	Percent
G	28	28.0
L	64	64.0
Neither	7	7.0
No response	1	1.0
Total	100	100.0

Source: Research Findings

Many of the respondents reported that L would be more upset (64%) than G (28%). Investor G has missed opportunities while L has failed attempts. This shows that the investors will most deeply regret outcomes of commission than outcomes of omission although in economic terms the outcomes are the same. A chi-square test was used to find out whether there were significant differences between the two groups of respondents.

Figure 4.3: Respondents changing combination by opinion on upset investor



Source: Research Findings

Table 4.15: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	11.215(b)	1	.001		
Continuity Correction(a)	9.506	1	.002		
Likelihood Ratio	10.560	1	.001		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	11.093	1	.001		
N of Valid Cases	92				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.70.

Source: Research Findings

Figure 4.3 shows that 85.9% of the respondents that reported investor L to be more upset would not change their investment combination in scenario one above. On the other hand, 53.6% of those that said investor G to be more upset would not change the combination. The chi-square test results shows that the differences between the two groups were significant at $p < 0.05$. The findings show that the respondents deeply upset by failed attempts were more likely to avoid changing their portfolio even when the market conditions demanded otherwise. The findings suggest that the endowment effect is most likely as a result of a higher regret of commission than regret of omission.

Investors who regret missed opportunities are observed to most likely adjust with the market conditions implying that they take more risks than those people who regret attempts that failed. They are most likely to hold a higher proportion of their wealth in stocks.

4.5 Testing Framing Effects and Loss aversion

Another hypothetical situation was posed to the respondents. They were asked to choose between A; a sure receipt of Kshs 25,000 in addition to Kshs 100,000 already guaranteed and B; a 50% chance to receive an extra Kshs 50,000 and 50% chance to receive nothing extra. Table 4.15 shows the results.

Table 4.16: Option preferred by respondent

	Frequency	Percent
A	73	73.0
B	27	27.0
Total	100	100.0

Source: Research Findings

Table 4.16 shows that majority (73%) of the respondents opted for a sure gain while 27% choose to gamble with the gains. The reasons given for either option is shown in Tables 4.16 and 4.17.

Table 4.17: Reason for choosing A

	Frequency	Percent
Because it is sure money	36	49.3
No risk involved	6	8.2
Does not like gambling	3	4.1
Loss/Fearing reducing my possible gains	4	5.4
No response	24	32.9
Total	73	100.0

Source: Research Findings

The main reason for choice of A was that it was certain (67.1%). This shows that many respondents would prefer sure gains rather than to gamble. This shows that most respondents are risk averse with gains. On the contrary, the main reason given by those choosing option B (66.7%) was that they stood chances of getting more than what was guaranteed. This is however a financial illusion.

Table 4.18: Reason for choosing B

	Frequency	Percent
There are chances of getting more than what's guaranteed	18	66.7
Seeking of investment	2	7.4
Likes gambling	4	14.8
No response	3	11.1
Total	27	100.0

Source: Research Findings

A similar scenario as the one above was presented but this time the choices were between C; a sure loss of Kshs 25,000 from Kshs 150, 000 already given and B; a 50% chance loss of Kshs 50,000 and 50% chance to lose nothing. Results are as shown in Table 4.18.

Table 4.19: What opinion would you choose?

	Frequency	Percent
C	62	62.0
D	38	38.0
Total	100	100.0

Source: Research Findings

Table 4.19 shows that majority (62%) of the respondents would opt for a sure loss of a smaller amount than take a chance and lose more. This demonstrates a high degree of risk aversion among the respondents. The reasons given for either option is shown in Tables

4.20 and 4.21. It can be seen that many of the respondents who choose option C do so because they were sure of the loss to take. On the other hand, the majority of the respondents who chose option D saw a chance to reduce the loss. This group viewed it as a chance to avoid the loss while those taking option C saw it as a choice to minimize the loss.

Table 4.20: Reason for choosing C

	Frequency	Percent
Less risk and known/sure loss	37	59.7
Do not like gambling	2	3.2
No response	23	37.1
Total	62	100.0

Source: Research Findings

Table 4.21: Reason for choosing D

	Frequency	Percent
A chance to reduce the possible loss	21	55.3
Assured & Determined	3	7.9
Like gambling	3	7.9
Guaranteed & Safe	2	5.3
Less and assured loss	1	2.6
No response	2	7.4
Total	38	100.0

Source: Research Findings

Table 4.22: Continuity of Choices

	What option would you choose?	
What option would you choose?	A	B
C	54 (74.0%)	8 (29.6%)
D	19 (26.0%)	19 (70.4%)

Source: Research Findings

Table 4.22 shows 74.0% of respondents who chose option A continued to select the sure loss choice, option C while a minority 26.0% reversed their choices and chose option D. Similarly, 70.4% of respondents who selected option B, the uncertain gain, also selected option D, the uncertain losses while 29.6% reversed their choices and selected the sure loss, option C. To test whether the shifting of choices is statistically significant, a chi-square test is shown in table below.

Table 4.23: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	16.450(b)	1	.000		
Continuity Correction(a)	14.622	1	.000		
Likelihood Ratio	16.289	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	16.285	1	.000		
N of Valid Cases	100				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.26.

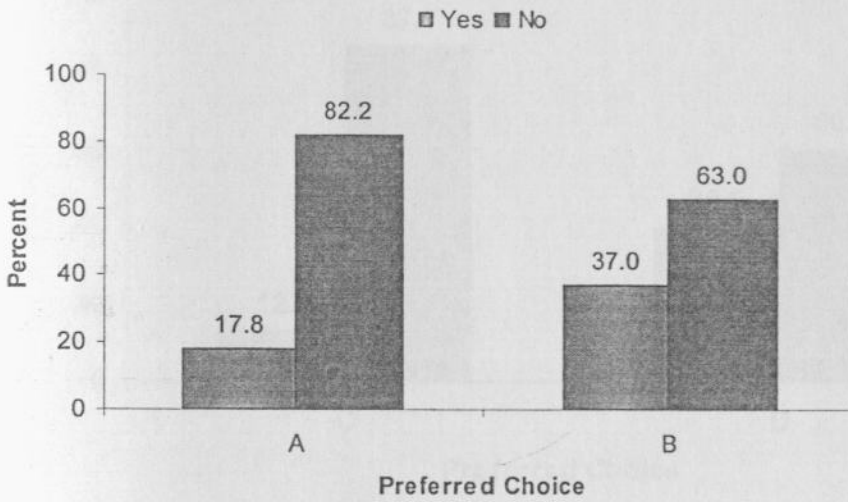
Source: Research Findings

The chi-square test results shows that the differences between the two decision frames were significant at $p < 0.05$. The findings show that the respondents would reverse their

decisions when the decision problems are presented differently. These inconsistent choices are statistically significant.

This is consistent with the findings of Kahneman and Tversky (1986) that decisions may vary according to framing, Gonzalez, et al. (2004), that people's choices when faced with consequentially identical decision problems framed positively (in terms of gains) versus negatively (in terms of losses) are often contradictory.

Figure 4.4: Respondents changing combination by preferred choice



Source: Research Findings

Table 4.24 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.115(b)	1	.043		
Continuity Correction(a)	3.101	1	.078		
Likelihood Ratio	3.864	1	.049		
Fisher's Exact Test				.060	.042
Linear-by-Linear Association	4.074	1	.044		
N of Valid Cases	100				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.21.

Source: Research Findings

Results in Figure 4.4 show that 82.2% of the respondents that would choose option A compared to 63% that would choose option B would not change the portfolio combination. The chi-square results indicate that the differences were statistically significant at $p < 0.05$. The results clearly show that respondents that were risk averse over gains were less likely to make changes in their investment portfolio in the stock market.

Figure 4.5: Respondents changing combination by preferred choice

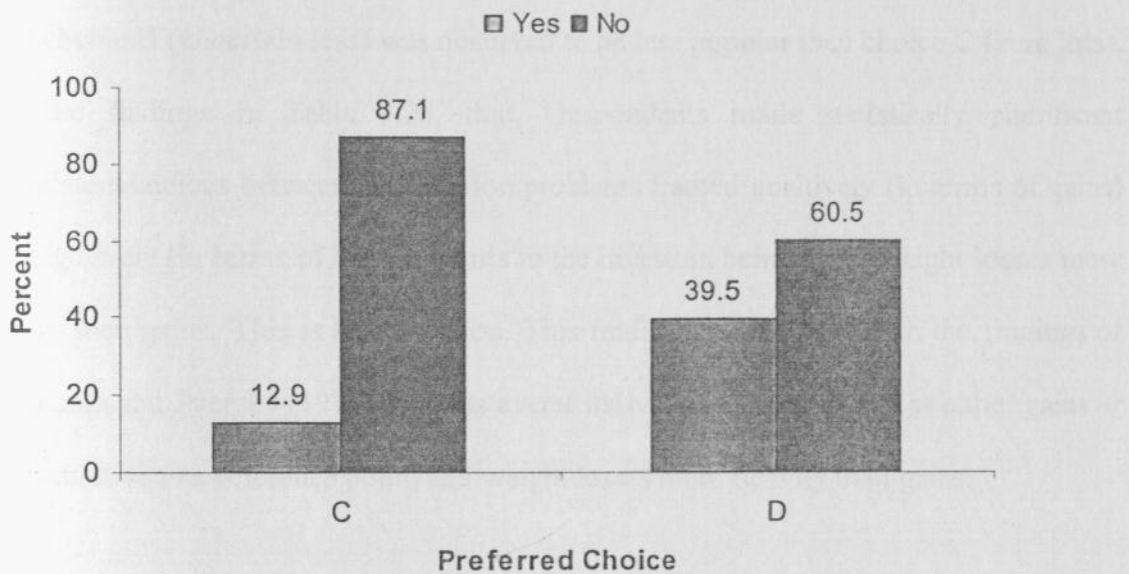


Table 4.25 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.392(b)	1	.002		
Continuity Correction(a)	7.952	1	.005		
Likelihood Ratio	9.190	1	.002		
Fisher's Exact Test				.003	.003
Linear-by-Linear Association	9.298	1	.002		
N of Valid Cases	100				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.74.

Source: Research Findings

Figure 4.5 depicts the same trend as that observed in Figure 4.4. It generally shows that respondents that would opt for a sure loss were less likely to change the combination compared to those that would gamble with the loss. It reiterates the finding that the risk averse investors were more likely to hold on to their badly performing investment at the stock market rather than make changes they are not sure would reverse the trend.

However, the findings do not directly show that investors are risk seeking over losses since choice D (uncertain loss) was observed to be less popular than choice C (sure loss). But, the findings in Table 4.25, that respondents made statistically significant inconsistent choices between the decision problems framed positively (in terms of gains) and negatively (in terms of losses) points to the investors behavior to weight losses more heavily than gains. This is loss aversion. This finding is consistent with the findings of Kahneman and Tversky (1979) that loss averse individuals frame events as either gains or losses relative to a reference point, and weight losses more heavily than gains.

CHAPTER V

5.0 CONCLUSION, SUMMARY OF FINDINGS AND RECOMMENDATIONS.

5.1 Summary of Findings

The study established the existence of behavioral effects in individual investment decision-making process. The results showed that investors had their rationality affected by psychological effects/aspects.

The study found out that investors did not invest as expected by rationality principles since they showed unwillingness to change their portfolio despite the unattractive macroeconomic outlook. The endowment effect was identified with investors in the experiment with 23% of the respondents changing their portfolio mix while 77% failed to change even when the economic outlook demanded such a change. The gender, length of trading in the stock market and consulting financial investment advisors had no effect on endowment effect. Male investors were observed to make a better diversified portfolio than female investors.

The findings also show that the investors deeply upset by failed attempts were more unlikely to change their portfolio unlike investors who regretted missed opportunities . 85.9% of the respondents deeply upset by failed attempts would stick with their investment combination whereas 53.6% of those deeply upset by missed opportunities would not change the combination .The latter group are observed to most likely change with the market conditions implying that they take more risks than those people who

regret attempts that failed. They are most likely to hold a higher proportion of their wealth in stocks. The endowment effect is most likely as a result of a higher regret of commission than regret of omission.

Another behavioral effect found was the disposition effect. The investors were affected by the disposition effect, a tendency of keeping losing assets. Majority of investors, 68.0% showed the tendency to sell assets that have gained value (winners) and (28.0%), keep assets that have lost value (losers). This is consistent with the breakthrough findings of Kahneman and Tversky (1979).

The study also found framing effects. The study found out that 26.0% of respondents who choose the sure gain reversed their choices and gambled with losses whereas 29.6% of respondents, who gambled with gains, reversed their choices and selected the sure loss. These inconsistent choices are statistically significant at $p < 0.05$. The findings show that the respondents would reverse their decisions when the decision problems are presented differently.

Further comparison with volume of funds invested in assets shows that respondents who were risk averse over gains were less likely to make changes in their investment portfolio in the stock market. It also shows that respondents who would opt for a sure loss were less likely to change the combination compared to those that would gamble with the loss.

A closely tied behavioral effect to framing effects is loss aversion .The study found loss aversion as respondents made statistically significant inconsistent choices between the decision problems framed positively (in terms of gains) and negatively (in terms of losses). They were found to weight losses more heavily than gains.

5.2 Limitations of the Study

A limitation of the study lay in the fact that the experiment was carried out using assumed transactions rather than pure transactions which can make the respondents take risk differently than those taken in real life investment. Another limitation relates to the constraints of time and finances that would have been required to undertake a rigorous study. Also some of the respondents showed inadequate knowledge of the financial market requiring more time in assisting them interpret and record the data collection form.

5.3 Conclusion

The collaboration between finance and other social sciences that has become known as behavioral finance has led to a profound deepening of our knowledge of financial markets. This interdisciplinary approach is necessary for future studies to fully understand the underpinnings of investor psychology.

Indeed, we have to distance ourselves from the presumption that financial markets always work well, and that price changes always reflect genuine information. Evidence from behavioral finance helps us to understand, for example, that the recent stock worldwide

stock market boom, and then crash after 2000, had its origins in human foible and arbitrary feedback relations, and must have generated real and substantial misallocation of resources. The challenge for economists is to make this reality a better part of their models.

5.3 Recommendations

In further research, it is important to bear in mind the demonstrated weaknesses of efficient markets theory and maintain an eclectic approach. While theoretical models of efficient markets have their place as illustrations or characterizations of an ideal world, we cannot maintain them in their pure form as accurate descriptors of actual markets.

Further research can also be done to establish whether or not the institutional investors have their investment decisions affected by behavioral effects. To enrich further researches in this field, researchers may conduct a longitudinal study on sampled investors and use quantitative data available from their trading accounts.

The observations of this study point out the need for more efforts to increase investor education to improve knowledge in financial markets. Increased investor education will improve the help reduce the influence of behavioral effects in rational investment decision making process.

REFERENCES

- Andrikopoulos, P. (2006) "Modern finance vs. Behavioural finance: An Overview of Key Concepts and Major Arguments", Working Paper, Leicester Business School, De Montfort University
- Andrikopoulos, P. and Daynes, A. (2004) "An investigation of the value premium in the UK Stock Market 1988-2002: Some New Evidence", Working Paper, University Of Portsmouth.
- Bailey, R. (2005): "*The Economics of Financial Markets*". Cambridge: Cambridge University Press
- Barberis, N., Huang M. and Santos T. (2001) "Prospect Theory and Asset Prices", *Quarterly Journal of Economics* 116: 1-53.
- Barberis, N., Shleifer, A. And Vishny, R. (1998) 'A Model Of Investor Sentiment', *Journal Of Financial Economics*, 49, 3:307-343, September.
- Barberis, Nicholas and Richard H. Thaler (2003) "A Survey of Behavioral Finance" "A Handbook of the Economics of Finance" edited by G.M. Constantinides, M. Harris and R. Stulz, Elsevier Science B.V. Amsterdam, North Holland.
- Basu S., (1977) "Investment performance of common stocks in relation to their price-earnings ratios": A test of the efficient market hypothesis, *The Journal of Finance* 32: 663- 682.
- Bell D. (1982), "Regret in Decision Making Under Uncertainty," *Operations Research* 60 961-981

- Bernard V. and Thomas J. (1989): Pool -earnings announcement drift: delayed price response or risk premium? *Journal of Accounting Research* (Supplement) (1989) 1-36.
- Bernartzi, Shlomo and Thaler R. H. (1995): "Myopic Loss Aversion and the Equity Premium Puzzle" *Quarterly Journal of Economics*, 110, No.1:73-92
- Bernstein, P. L (1996): "Against the Gods: The Remarkable Story of Risk". John Wiley, New York. 184.
- Brabazon, T. (2001) "Behavioural Finance: A New Sunrise Or A False Dawn?"
- Cutler, D., Poterba P., and L. Summers (1991): Speculative dynamics, *Review of Economic Studies* 58 pp529—546.
- Chew S. (1983), "A Generalization of Quasilinear Mean with applications to the Measurement of Income Inequality and Decision Theory Resolving the Allias Paradox," *Econometrica* 51 1065-1092
- Chew S. (1989), "Axiomatic Utility Theories with Betweenness Property" *Annals of operations Research* 19 273-98
- Chew S. and MacCrimmon (1979), "Alpha-nu Choice Theory. An Axiomatization of Expected Utility," Working Paper. University of British Columbia
- Daniel, K, Hirshleifer D., and Subrahmanyam A. (1998): "Investor Psychology and Security Market Under- and Overreactions." *Journal of Finance*, 53, 6:1839-1885.
- De Bondt, W. F. M., and Thaler R. H. (1985): "Does The Stock Market Overreact?" *Journal Of Finance*. 40, Pp. 793-805.

- Decourt R. F., Accorsi A., and Neto S. M., (2005): Behavioral Finance and Investment Decision making process in the Brazilian Financial market. Universidade Federal do Rio Grande do Sul. Brazil
- Dekel (1986), "Axiomatic Characterization of Preferences Under Uncertainty: Weakening the Independence Axiom," *Journal of Economic Theory* 40 304-318
- De Long, J. B, Shleifer A., Summers L. H and Waldmann R. J., (1990) "Noise Trader Risk in Financial Markets." *Journal Of Political Economy*, 98, 703-38.
- De Long, J. B, Shleifer A., Summers L. H and Waldmann R. J., (1990) "Positive Feedback Investment Strategies and Destabilizing Rational Speculation," *Journal Of Finance*. 45 pp. 379-95.
- Fama E. F., (1965): "The Behaviour of Stock Market Prices", *The Journal of Business* 38, 1: 34- 105. January
- Fama, E.F. (1991) 'Efficient Capital Markets: II', *The Journal Of Finance*, 46, 5:1575-1617, December
- Fama E. and K. French, (1992): "The cross-section of expected stock returns", *The Journal of Finance* 47, 2: 427- 465, June
- Fama, E. F. (1970): "Efficient Capital Markets: A review of Theory and Empirical Work", *Journal of Finance* 25, 2: 383-417, May.
- Fama, E.F. (1998): "Market Efficiency, Long-Term Returns and Behavioral Finance" *Journal Of Financial Economics*, 49, 3:283-306, September.
- Gay L. R. (1992). Educational Research: Competence for Analysis and Applications 4th ed. New York. Macmillan Publishers

- Gonzalez, C., Dana J., Koshino H. and Just M. (2005): "The framing effect and risky decisions: Examining cognitive functions with fMRI". *Journal of Economic Psychology*, Vol.26, No. 1, pp.1
- Gul F. (1991), "A Theory of Disappointment in Decision Making Under Uncertainty," *Econometrica* 59 667-686
- Harbaugh R. (2002). "Skill signaling, prospect theory, and regret theory". Claremont, CA: Claremont Colleges, (Working Papers; 03).
- Haugen, R. A. (2000). "The Inefficient Stock Market". Prentice Hall. New Jersey
- Hersh S. (2001): Behavioral Finance (*The International Library of Critical Writings in Financial Economics*), Volumes I-IV, Edward Elgar.
- Hirshleifer, D. (2001) 'Investor Psychology And Asset Prices', *Journal Of Finance*, 56,4:1533-1598, August.
- James P. O' Shaughnessy (2005): What Works on Wall Street. A Guide to the Best Performing Investment Strategies of All Times.
- Jegadeesh, N., and Titman S. (1993): "Returns to Buying Winners and Selling Losers: Implications For Stock Market Efficiency," *Journal Of Finance*. 48, 1 pp. 65-91.
- Kaestner, M. (2005) 'Anomalous Price Behavior Following Earnings Surprises: Does Representativeness Cause Overreaction?', Working Paper, CEROM, University of Montpellier, March.
- Kahneman D., Knetsch J.L. and Thaler, R. (1991): Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias". *The Journal of Economic Perspectives*. Vol. 5. no. 1: 193-206
- Kahneman D., Riepe M. W. (1998): "Aspects of Investor Psychology". *The Journal of Portfolio Management*. Vol. 24, no. 4: 52-65.

- Kahneman, D., Tversky A. (1979): "Prospect Theory: An analysis of decision under risk". *Econometrics*, Vol. 47, pp. 263-292.
- Lakonishok, H.J., Shleifer, A. And Vishny, R. (1994): "Contrarian Investment, Extrapolation And Risk", *Journal Of Finance*, 49 (5), pp1541–1577,
- Lintner, J. (1956). "Distribution of Incomes of Corporations among Dividends, Retained Earnings, and Taxes." *American Economic Review*, vol. 46, no. 2: 97–113. May
- Loomes G. Sugden R. (1982), "Regret Theory. An Alternative Theory to Rational choice Under Uncertainty," *The Economic Journal* 92 805-824
- M. Jensen, (1978): Some anomalous evidence regarding market evidence, *Journal of Financial Economics* 695—101.
- Markowitz, H. M. (1952). "Portfolio Selection". *The Journal Of Finance*, Vol. 7
- Nofsinger John (2007): *Psychology of Investing* 3rd edition. USA: Prentice Hall
- Odean, Terrance. (1996). "Do Investors Trade Too Much?" Working Paper, University Of California At Davis, April 1998b.
- Odean, Terrance. (1996). "Are Investors Reluctant To Realize Their Losses?" Haas School of Business Research Program in Finance Working Paper Series, No. 269, November
- Orodho , A. J. (2004). *Techniques of writing Research and Reports in Education and Social Sciences*. Masola publishers. Kenya
- Quiggin J. (1982), "A Theory of Anticipated Utility," *Journal of Economic Behavior and Organization* 3 323-43

- Segal U. (1987), "Some Remarks on Quiggin Anticipated Utility," *Journal of Economic Behavior and Organization* 3 145-54
- Segal U. (1989), "Anticipated Utility. A Measure Representation Approach," *Annals of operations Research* 19 359-73
- Sharpe, W.F. (1963). "A Simplified Model For Portfolio Analysis". *Journal of Management Science*, Vol. 9, Pp. 277-293.
- Shefrin, Hersh. (2000). *Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing*, Boston MA: Harvard Business School Press.
- Sheleifer A and Lawrence Summers.(1990): "The Noise-Trader Approach to Finance." *Journal of Economic Perspectives*: 4, 19-33.
- Shiller Robert J. (2002): "Bubbles, Human Judgment, and Expert Opinion," *Financial Analysts Journal*.
- Shiller R., (1981): Do stock market prices move too much to be justified by subsequent changes in dividends? *American Economic Review*, 71:421-436.
- Shiller, Robert J. (1982): "Consumption, Asset Markets and Macroeconomic Fluctuations," Volume 10. "What Drives Firm-Level Stock Returns?" *Journal of Finance* 57,
- Shiller, Robert J. (1990): "Market Volatility and Investor Behavior," *American Economic Review, Papers and Proceedings*. 80, pp. 58-62
- Shiller, Robert J. (1990): "Speculative Prices and Popular Models." *Journal of Economic Perspectives*: 4,55-65.

- Shiller, Robert J. (2000): "Measuring Bubble Expectations And Investor Confidence." *Journal Of Psychology And Financial Markets*, 1, 49-60.
- Shiller, Robert J. (2000): *Irrational Exuberance*, Princeton NJ: Princeton University Press.
- Shleifer A. (1986): Do demand curves for stocks slope down? *The Journal of Finance* 41: 579 - 590.
- Shleifer, A. (2000): *Inefficient Markets*, Oxford: Oxford University Press
- Siegel, Jeremy J. (2002): *Stocks for the Long Run*. 3rd Edition. New York: McGraw-Hill
- Statman, M. (1999): "Behavioural Finance: Past Battles And Future Engagements"
- Thaler, R. (1980): "Toward A Positive Theory Of Consumer Choice". *Journal Of Economic Behavior And Organization*, Vol. 1, Pp. 39-60
- Thaler, R. (2003): *Advances in Behavioral Finance II*, New York: Russell Sage.
- Thaler, R. (1999): "The End of Behavioral Finance". *Financial Analysts Journal*, Vol. 55, pp. 12-17.
- Thomaidis N. S. (2005): *The Implication of Behavioral finance for the Modeling of Securities Prices*. University of the Aegean. Greece
- Tversky A. and Kahneman D.(1986). "Rational choice and the framing of decisions" *Journal of Business*, Vol. 59 pp 251-278
- Weber. M.; Camerer, C. (1998): "The disposition effect in securities trading: an experimental analysis", *Journal of Economic Behaviour and Organization*, vol. 33, pp. 167-184.

Wrugler, Jeffery and Etakterina V. Zhuravskaya (1999) "Does arbitrage Flatten Demand Curves for Stocks", Yale School of Management Working Paper No. ICH-99-12.

Yaari M, (1987), "The Dual Theory of Choice Under Risk," *Econometrica* 5 95 115

Electronic sources

: <http://www.jpmorganfunds.com/undiscoveredmanagers/research/pdf/pastbattlesfutureengagements.pdf>

: <http://introduction.behaviouralfinance.net/Brab00.pdf>

www.wikipedia.org

www.investopedia.org

APPENDICES
APPENDIX I
LETTER OF INTRODUCTION

Peter Kimani Mbaluka
University of Nairobi
Faculty of Commerce
P.O. Box 30197
Tel: 0722 635168
Nairobi.
30th September 2008.

Dear Sir/Madam,

I am a Post Graduate Student in the School of Business at the University of Nairobi. I am conducting a Management Research on "Behavioral Effects On Individuals' Decision Making Process Using The Prospect Theory: A Case Of Investors At The NSE"

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

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

Your assistance and co-operation will be greatly appreciated.

Yours sincerely,

.....

Peter Kimani Mbaluka
(Student)

APPENDIX II
QUESTIONNAIRE

This questionnaire is designed to collect information from the individual investors and it is meant for academic purposes only. The questionnaire is divided into two parts. Please complete each part as instructed. Do not write your name or any other form of identification on the questionnaire. All information in this questionnaire will be treated in confidence.

Section A: Background information

1. Please indicate your Gender. Male Female
2. Where do you come from? Kenya Others (please tick where appropriate)

3. What is your highest academic qualification?

- a) Primary education
- b) Secondary education
- c) College education
- d) University education
- e) Any other please specify

4. How long have you been trading in the stock market (please tick where appropriate)

Number of years	Below 5years	Above 5years
Tick		

5. How many times on average do you transact in stocks within 3 months?

Number of times	Less than 10 times	Between 11-20 times	Above 20 times
Tick			

6. For any other longer periods, indicate the number of times you transact in stocks

No of months

No of times

7. How long do you take to sell a stock you had previously bought?

(In months)

8. Do you seek financial advice from professional investment advisors when making your buying and selling decisions?

Yes

No.

9. Using a scale of 1 to 5 where 1 = disagree strongly, 2 = disagree somewhat, 3 = neutral, 4 = agree somewhat and 5 = agree strongly, does the following influence your decision when buying or selling shares at the stock exchange market. (please tick where appropriate)

	1	2	3	4	5
Friends and colleagues	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Professional investment advisors	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Popular opinion about the market	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Section B

Question 1

Scenario one

Assume that the economic outlook in the country is positive and there are good prospects of profits for the stocks in listed companies. However, the dollar is losing compared against the Kenyan currency-the Kenyan shilling and the Kenyan Government bond rates.

If you received Ksh180, 000 in cash to invest all of it in the assets listed, how much will you allocate in each one of them

Type of asset	Stocks	Dollar	Government bonds
Investment in percentage of amount(total percentage should be 100%)			

Scenario two

Assume that after one week there is a great change and the economy is generally doing badly and the value of your initial investment has reduced to Kshs 120,000. Would you then change your combination from the ones you indicated above?

Yes

No

If yes, indicate the new combinations.

Type of asset	Stocks	Dollars	Government bonds
Investment in percentage of amount(total percentage should be 100%)			

Question 2

Investor A owns a block of stock which he originally bought at shs 100 per share.

Investor B owns a block of the same stock for which she bought at shs 200 per share.

The value of the stock was shs 160 per share yesterday, and today it dropped to shs 150 per share.

Who is more upset?

A

or B

or Neither

Imagine that these were your shares but from two companies, A and B, which block of shares would you most likely sell.

A or B

Please give your reason.....

Investor G owned shares in company X. During the past year he considered switching to the stock of company Y but he decided against it. He now finds that he would have been better off by shs 200,000 if he had switched to company Y. Investor L owned shares in company Y. During the past year she switched to the stock of company X. She now finds that she would have been better off by shs 200,000 if she had kept her shares of company Y.

Who is more upset? G or L or Neither

Part Two

In addition to whatever you own, you have been given Ksh100, 000, and that you face a choice between options A or B.

A: a sure receipt of extra ksh 25,000 or

B: a 50% or $\frac{1}{2}$ chance to receive extra ksh50, 000 and a 50% or a $\frac{1}{2}$ chance to receive nothing

What option would you choose? A or B (please tick where appropriate)

Please give your reason.....

Now imagine, in addition to whatever you own, you have been given Ksh 150,000 and that you are compelled to choose between options C or D.

C: a sure loss of Kshs 25,000 or

D: a 50% or $\frac{1}{2}$ chance to lose extra ksh50, 000 and a 50% or a $\frac{1}{2}$ chance to lose nothing.

What option would you choose? C or D (*please tick where appropriate*)

Please give your reason.....

Thank you.