

A SURVEY OF BEHAVIOURAL FACTORS INFLUENCING INDIVIDUAL
INVESTORS CHOICES OF SECURITIES AT THE NAIROBI SECURITIES
EXCHANGE

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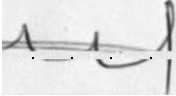

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
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DECLARATION

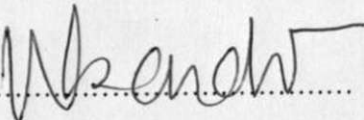
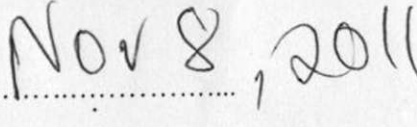
I, undersigned, declare that this project is my original work and has not been submitted for a degree at any other university.

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ACKNOWLEDGEMENT

It is because of the almighty God that I have been able to undertake this program successfully and I have seen His providence in all areas, it is because of Him that I am writing this today.

I am also thankful to my supervisor Ms. Winnie Nyamute for her invaluable support in guiding me in this project through her ideas and support that has seen my research idea developing to an excellent research project.

Much appreciation to the investors at the NSE who took their time to complete my questionnaire which facilitated my data analysis and findings.

Lastly I wish to thank my friend Celestine for her guidance and support during my research.

DEDICATION

To my mum who gave me and has continued give me all the support and encouragement to complete this program despite the many challenges that 1 was facing during this period.

ABSTRACT

Although finance has been studied for thousands of years, behavioural finance which considers the human behaviours in finance is quite a new area. Behavioural finance theories, which are based on the psychology, attempt to understand how emotions and cognitive errors influence individual investors' behaviours.

This study sought to determine the impact levels of behavioural influences on the individual investor choices of securities at NSE in the equity market. It was guided by one main objective seeking to determine the impact levels of behavioural influences on the individual investor choices of securities at NSE in the equity market. To meet the objectives of the study, a descriptive survey design was chosen. Primary data was collected using self-administered drop and pick questionnaires. The questionnaires were semi-structured having both open-ended and closed ended questions. It was based on the 100 individual investors selected from the twenty registered stock brokerage and investment banks. Cronbach's Alpha Test was used to test the internal consistency reliability of measurements, which are in formats of continuous variables 6-point Likert measurements. Factor analysis and descriptive analysis was used to analyse the data.

The study established that there are five behavioural factors affecting the investment decisions of individual investors at the Nairobi Securities Exchange: Herding, Market Prospect Overconfidence-gambler's fallacy, and Anchoring-availability bias.

Overconfidence and gambler's fallacy had higher impact on the decision making of individual investors. The market factor consists of three variables: price changes, market information, and past trends of stocks. The very high influences of market variables can

be linked to the respondents' profiles, which show that most of them had not attended training about stocks. The prospect factor possesses three variables that have significant impacts on the investment decision making: loss aversion, regret aversion, and mental accounting. Loss aversion ranks as the variable having the highest impact on the decision making of the investors, thus investors tend to seek more risk after a prior gain and consequently after a loss, they tend to be more risk averse. The study concludes that there are five behavioural factors that highly impact the investment decisions of individual investors at the NSE.

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ABBREVIATIONS AND ACRONMYS

AIMS	Alternative Investment Market segment
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CAPM	Capital asset pricing model
EMH	Efficient Market Hjpothesis
MIMS	Main Investment Market segment
NSE	Nairobi Securities Exchange
NYSE	New York Stock Exchange
SHSE	Shanghai Stock Exchange
SPSS	Statistical Package for the Social Sciences

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Investment in the stock market (equity investment) is the buying and holding of shares of stocks on a stock market by individuals and funds in anticipation of income from dividends and capital gain as the value of the stock rises. The buying of equity can be done by direct holding where an investor places a buy order through his broker or this can be done via pooled investment vehicles: many of which have quoted prices that are listed in financial newspapers. The mutual funds are typically managed by prominent fund management firms such as Zimele fund, Old Mutual, British American Fund. Such holdings allow individual investors to obtain the diversification of the fund(s) and to obtain the skill of the professional fund managers in charge of the fund(s) (www.bdafrica.com, 2011).

The status of any economy can most always be predicted and understood as a result of the performance of its stock market. This has also been the case with the Kenyan economy. During 2008 and the beginning of 2009, the economy was at a low with a growth rate of around 1.6% and this was directly reflected at the Nairobi Securities Exchange (NSE) whose NSE 20 share index was oscillating between 2,500 - 3,500 points which proved to be a clear indicator being a barometer of the Kenyan economy. With a current projected growth rate of 5%, the NSE 20 share index stood with 4,381 points and this increase is

well reflected in all indicators at the NSE including the NSE All Share Index (NASI) and the NSE market capitalisation indicator (www.cma.com).

The Nairobi Securities Exchange is the largest stock exchange in East and Central Africa by number of companies listed and the value of shares. The total number of companies listed at the NSE adds up to 54 with 7 constituting the Alternative Investment Market segment (AIMS) while the rest form part of the Main Investment Market segment (MIMS). The NSE provided one the highest index performances in the regional market amongst the other players to stand with a 47.36% change between January 2010 and Nov 2010 compared to other big players such as the Johannesburg SE which registered only a 13.46% increase. The NSE share index is constituted by 20 companies: 2 in the Agriculture sector, 4 in commercial and services, 5 in the financial and services sector, 8 in the industrial and allied sector, and one in the alternative and investment sector (www.nse.co.ke).

Behavioural finance is a study of the markets that draws on psychology and is throwing more light on why people buy or sell stocks - and even why they do not buy stocks at all. Behavioural influences as described by Loewenstein (2000) are emotions and feelings experienced at the time of making a decision often propelled by behaviour indirections that were different from those dictated by a weighing of the long-term costs and benefits of disparate actions. Equity pricing involves the weighing of long-term benefits (the right to a share in the future net cash flows due to an equity) and costs (the riskiness of the

future cash flows), so it seems reasonable to speculate that the emotions and feelings of investors influence their pricing of equities.

One of the centre propositions of finance theory has been that markets are efficient. Efficiency means that the price of each security coincides with fundamental value even if some investors commit error due to biases or frame dependence. Although a case may be made against efficient markets, existing evidence does not generally support the ability of investors to consistently produce excess returns. That is, although market inefficiencies may exist they are generally not easy to exploit. If stock prices are efficient and transaction costs and taxes are ignored, investors should not do serious harm to their wealth if they trade frequently or follow specific investing strategies. Traditional finance has therefore developed in a normative manner, that is, traditional finance concerns the rational solution to the decision problem by developing ideas and financial tools for how investors should behave. As a consequence, traditional finance does not focus on actual investor behaviour and its consequences (Thaler et al, 1992).

Although cognitive and emotional weaknesses affect all people, traditional and standard finance ignores these biases because it assumes that people always behave rationally (Statman 1995). The traditional perspective of how people make decisions involving conditions of risk and uncertainty assumes what Loewenstein et al. (2000) describe as a 'consequential perspective*. In this traditional model, the decision-maker is assumed to quantitatively weigh the costs and benefits of all possible outcomes and choose the outcome with the best risk-benefit trade-off. This perspective can be seen in the

traditional finance theories of Markowitz portfolio theory (Markowitz, 1952) and the Capital Asset Pricing Model (Sharpe, 1964).

Behavioural finance contends that people may not always be rational, but they are always human. Thus behavioural finance exposes the irrationality of investors in general and shows human fallibility in competitive markets. Fama (1988) and many others claim not to be persuaded by evidence about behavioural finance and they point out that long term anomalies, which challenge the efficient market hypothesis, are sensitive to methodology.

According to Shleifer (2000), behavioural finance relates the usual assumptions of traditional finance by incorporating observable, systematic and very human departures from rationality into models of financial markets and behaviour. By combining psychology and finance, researchers hope to better explain certain features of securities markets and investor behaviour that appear irrational.

Shefrin (2000) notes that investors are prone to committing specific errors of which some are minor and others fatal. By allowing psychological bias and emotion to affect their investment decision, investors can do serious harm to their wealth. Investors who are prone to these biases will take risks that they do not acknowledge, experience outcomes that they do not anticipate, will be prone to unjustified trading, and may end up blaming themselves or others when outcomes are bad (Kahneman and Riepe, 1998).

1.2 Statement of the Problem

Due to the positive correlation between stock market and economy, the rise of stock market positively affect the development of the economy and vice versa. Consequently, decisions of investors on the stock market play an important role in defining the market trend, which in turn has an influence on the economy. Most behavioural finance studies have been carried out in developed markets of Europe and the USA (Odean. 1999; Rockenbach, 2004; Caparrelli et al.. 2004; Fogel and Berry. 2006). Only a few studies have been completed in emerging markets with no known research having been conducted locally with regard to individual investors.

A previous study done on the NSE by Okoth (2005) tested whether contrarian investment strategy offer profitability opportunity at the NSE. The findings suggested that the strategy offers profitability opportunities at the local security market especially in the short run then. Another study done on the weekend effect at the NSE by Mokuia (2003) showed that stock returns were equal over all the days of the week hence did not appear to be a good indicator of the stock returns at the NSE. A similar study done by Kamau (2003) to test the existence of Turn of the month and January effects at the NSE indicated absence of January effects at the local bourse. Nyambogi (2005) tested the hypothesis that weather in Nairobi is correlated to stock returns at the Nairobi Securities Exchange. The data investigated from NSE and meteorological department revealed that the NSE 20 share index was not affected by the prevailing weather conditions in Nairobi at the time. Rasugu (2005) investigated the existence of holiday effect at the NSE. The results of this study were not significant and therefore did not support the existence of holiday effect at

the NSE. It suggested that technical trading rules could not be applied to attain superior trading results at the NSE at the time. Kimeu (1991) found random walk trend at the NSE while Kingori (1995) found no stock reversals at the NSE.

All these studies set out to establish the existence of irrationality at the NSE. However, they were not intended to and did not establish the factors that drive the actions of investors at the local security market leading to irrationality. The study therefore seeks to establish the influence of behavioural factors on trading activities at the NSE. Thus, this study was aimed at addressing the question; do behavioural factors influence individual investor choice while investing at the Nairobi Securities Exchange?

1.3 Objective of the Study

To determine the impact levels of behavioural influences on the individual investor choices of securities at NSE in the equity market

1.4 Significance of the Study

The findings of this study will be beneficial to the following;

1.4.1 Investors at NSE

The study will assist existing and potential investors to make investment decisions based on many variables. These variables will include not only the fundamental and the technical aspect, but also the psychological biases or factors that are in play within the investor and also in the market.

1.4.2 The Government

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

1.4.3 Future Scholars

This study will form a basis for further study in this area that has no known research that has been published in Kenya and that has also not been widely explored in the emerging markets. The study will provide a useful basis upon which further studies on behavioural factors and investment choices could be conducted.

CHAPTER TWO

LITERATURE REVIEW

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2.1 Introduction

This chapter will review studies done by various scholars and theories that address the behavioural factors that influence individual investors while investing in the securities exchange market. Theoretical review on market efficiency and anomalies, behavioural finance, investment behaviour and the research gap are discussed.

2.2 The Efficient Market Hypothesis (EMH)

The efficient-market hypothesis emerged as a prominent theory in the mid-1960s. Paul Samuelson had begun to circulate Bachelier's work among economists. In 1965 Eugene Fama published his dissertation arguing for the random walk hypothesis, and Samuelson published a proof for a version of the efficient-market hypothesis. In 1970 Fama published a review of both the theory and the evidence for the hypothesis.

Bodie (2009) argues that because security prices adjust to all new information the security prices should reflect all information that is publicly available at any point in time. Therefore, the security prices that prevail at any time should be an unbiased reflection of all currently available information, including the risk involved in owning the security. Therefore, in an efficient market, the expected returns implicit in the current price of the security should reflect its risk, which means that investors who buy at these

informationally efficient prices should receive a rate of return that is consistent with the perceived risk of the stock.

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The alternative hypothesis is that security market is inefficient and that result of stock price is not accurately reflecting the new information. This might result from the following: the investor is unable to interpret the new information correctly; the investors have no access to the new information; the transaction cost in trading security is an obstruction for free trading; the restriction on short sale; and finally, the investors might be misled by the change in accounting principles (Dyckman and Morse, 1986).

There are three classic misconceptions about EMH: Any share portfolio will perform as well as or better than a special trading rule designed to outperform the market. The EMH says that after first eliminating unsystematic risk by holding broadly based portfolios and then adjusting for the residual systematic risk, investors will not achieve abnormal returns (Bodie, 2009). Secondly, there should be fewer price fluctuations. If shares are efficiently priced, why is it that they move every day even when there is no announcement concerning a particular company? This is what we would expect in an efficient market. Prices move because new information is coming to the market every hour, which may have some influence on the performance of a specific company (Bodie, 2009). Lastly, only a minority of investors is actively trading, most are passive therefore efficiency cannot be achieved. This too is wrong. It only needs a few trades by informed investors using all the publicly available information to position (through their buying and selling actions) a share at its semi-strong form efficient price (Bodie, 2009).

Investors and researchers have disputed the efficient-market hypothesis both empirically and theoretically. Behavioural economists attribute the imperfections in financial markets to a combination of cognitive biases such as overconfidence, overreaction, representative bias, information bias, and various other predictable human errors in reasoning and information processing. These have been researched by psychologists such as Daniel Kahneman (1979), Amos Tversky (1979), Richard Thaler (1994), and Paul Slovic (2000).

2.3 Anomalies

Anomalies are empirical results that seem to be inconsistent with maintained theories of asset-pricing behaviour. They indicate either market inefficiency (profit opportunities) or inadequacies in the underlying asset-pricing model (Fama, 1970).

2.3.1 Accounting Anomalies

At its core, the goal of the literature is to understand how accounting numbers relate to firm value and how quickly and accurately investors assess the information in financial reports. Indeed almost any role for accounting numbers relies, implicitly or explicitly, on their association with firm performance and value (Richardson et al, 2010).

One of the literature's key results is that earnings, cash flows, accruals, valuation ratios, and asset growth predict cross-sectional variation in expected stock returns Fama (1970).

In order to test whether returns are anomalous, we must know what expected returns

should be in the absence of mispricing. This problem is especially acute for many accounting anomalies because plausible risk and mispricing explanations both exist.

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Mispricing stories for accounting anomalies are only loosely grounded in theoretical models of investor behaviour and rely, instead, on the generic idea that investors do not understand the properties of earnings and accruals. For post-earnings-announcement drift, the standard argument is that investors underreact to quarterly earnings announcements and, in particular, do not fully appreciate the persistence of seasonally differenced earnings (Bernard, 2003). For the accrual anomaly, the simplest story is that investors fixate on bottom-line earnings and do not fully appreciate the differential reliability of its cash flow and accrual components. For the value anomaly, the traditional argument is that investors overreact to firms' past performance, failing to fully appreciate its transitory nature (Richardson et al, 2005).

Risk-based stories for the anomalies have evolved and the basic argument is simply that different types of stocks are exposed to different amounts of systematic risk and, therefore, carry different expected returns. For example, Fama and French (1988) suggest that 'distressed' value stocks might be risky because they are especially sensitive to economic conditions. The risk-based models above largely ignore the crucial issue of how to measure risk; they take the asset pricing factor(s) as given and focus, instead, on how risk is likely to vary cross-sectionally and through time as a function of firm characteristics (Sloan. 2008).

2.3.2 Fundamental Stock Market Anomalies

There is a large body of evidence documenting the fact that historically, investors mistakenly overestimate the prospects of growth companies and underestimate value companies. Shleifer et al (1992) concluded that "value strategies yield higher returns because these strategies exploit the mistakes of the typical investor and not because these strategies are fundamentally riskier." They concluded that common measures of risk do not support the argument that the return differential is a result of the higher riskiness of value stocks, but rather, in their opinion, is due to behavioural considerations and the agency costs of delegated investment management.

There have been anomalies based on fundamentals and value that have been documented to outperform the market in long-term studies. The effects are related to varying degrees and investors using the different techniques will commonly select many of the same stocks (Shleifer et al, 1992). A classic study on the performance of low price to book value stocks was by Eugene Fama and Kenneth R. French. It covered the period from 1963-1990 and included nearly all the stocks on the NYSE, AMEX and NASDAQ. The stocks were divided into ten groups by book/market and were re-ranked annually. The lowest book/market stocks outperformed the highest book/market stocks 21.4% to 8% with each decile performing worse than the previous. Fama and French also ranked the deciles by beta and found that the value stocks had lower risk and the growth stocks had the highest risk (Fama, 1965).

High dividend yield has had anomaly effects that have been documented through numerous studies and have concluded that high yielding stocks tend to outperform. In High Yield, Low Payout, Patel et al of Credit Suisse (2006) found that while high dividend yield stocks did indeed outperform their lower yield counterparts, the 8th decile stocks produced the best returns.

2.3.3 Neglected Stocks

Neglected stocks commonly are selected by those that follow a contrarian strategy of buying stocks that are out of favour. Werner F.M. DeBondt and Richard Thaler conducted a study of the 35 best and worst performing stocks on the New York Stock Exchange (NYSE) from 1932 through 1977. They studied the best and worst performers over the preceding five and three year periods. They found that the best performers over the previous period subsequently underperformed, while the poor performers from the prior period produced significantly greater returns than the NYSE index (Thaler et al, 1977).

According to T. J. Peters and R.H. Waterman's in their research on "Lessons from *f* America's Best-Run Corporations" (1982), the two formed a list of "Excellent" companies based on a number of factors including asset growth, book value growth, and return on assets. Following up on their work, Clayman et al (1987) studied the performance of the "excellent" firms and another group she termed "excellent" (by going "in search of disaster") and found that the characteristics of the excellent companies quickly reverted to the mean in the years following their excellent performance. The

"excellent" companies also reverted to the mean and showed substantial improvement. The stocks of the "excellent" firms significantly outperformed the excellent companies over the years that followed.

Jeff Anderson and Gary Smith in July/August (2006) studied Fortune's ten "most admired companies in the US from 1983-2004 and they outperformed. They concluded that a portfolio consisting of the stocks identified annually by Fortune magazine as America's most admired companies outperformed the S&P 500 even with various lags after publication date, representing a clear challenge to the efficient market hypothesis since Fortune's picks are readily available public information and they found no compelling explanation for this anomaly.

2.3.4 Financial Market Anomalies

2.3.4.1 Cross-Sectional Return Patterns

Given certain simplifying assumptions, the CAPM states that the return on a security is linearly related to the security's non-diversifiable risk (or beta) measured relative to the market portfolio of all marketable securities. If the model is correct and security markets (

are efficient, security returns will on average conform to this linear relation (Markowitz, 1952).

Empirical tests of the CAPM first became possible with the creation of computerized databases of stock prices in the U.S. in the 1960's. To implement the tests, researchers often estimate cross-sectional regressions of the form:

$$R_i = a_0 + \beta_i R_m + e_i$$

Where β_i is the security's beta which measures its covariance with the return on the market and c_{ij} represents security-specific characteristic j (size, earnings yield, etc.) for security i . The CAPM predicts that the β_j , for $j > 1$, are zero. Early tests supported the CAPM (e.g., significant positive values for β_1 , insignificant values for β_j , for $j > 1$). The explanatory power of beta came into question in the late 1970s when researchers identified security characteristics such as the earnings-to-price ratio and market capitalization of common equity with more explanatory power than beta (Markowitz, 1952).

2.3.4.2 The Value Effect

The value effect refers to the positive relation between security returns and the ratio of accounting based measures of cash flow or value to the market price of the security. Examples of the accounting-based measures are earnings per share and book value of common equity per share. Investment strategies based on the value effect have a long tradition in finance and can be traced at least to Graham and Dodd (1940). Ball (1978) argues that variables like the Earnings-to-Price ratio (E/P) are proxies for expected returns. Thus, if the CAPM is an incomplete specification of priced risk, it is reasonable to expect that E/P might explain the portion of expected return that is compensation for risk variables omitted from the tests.

Basu (1977) was the first to test the notion that value-related variables might explain violations of the CAPM. He found a significant positive relation between E/P ratios and average returns for U.S. stocks that could not be explained by the CAPM. Reinganum

(1981) confirmed and extended Basu's findings. Rosenberg, Reid and Lanstein (1985), DeBondt and Thaler (1987) and many others have documented a significant positive relation between returns and the Book-to-Price ratio.

2.3.4.3 The Size Effect

The size effect refers to the negative relation between security returns and the market value of the common equity of a firm. Banz (1981) was the first to document this phenomenon for U.S. stocks. Banz found that the coefficient on size has more explanatory power than the coefficient on beta in describing the cross section of returns. Indeed, Banz finds little explanatory power for market betas. Like the value effect, the size effect has been reproduced for numerous sample periods and for most major securities markets around the world (Hawawini and Keim, 2000).

2.4 Traditional Finance Theory and Behavioural Finance

Behavioural finance attempts to explain human behaviours in markets, importing theories of human behaviour from the social sciences (Shiller, 1998). Psychologists and economists have researched this field since the early 1970s (Thaler, 1994). The pioneering work is found as early as the 1950s, for example, Allais (1953) and Ellsberg (1961).

Behavioural economists study how people behave, learn and make economic decisions in reality, and what happens when we relax the assumption that everyone is rational all of the time (Thaler, 1994). Behavioural finance emphasises that rationality cannot be

assumed as something that people should feature, whereas the term 'irrationality' in conventional economics means something that would and should be eliminated in a competitive market.

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Researchers have uncovered a surprisingly large amount of evidence that contradicts this view. Bernstein (1996) states that the evidence reveals repeated patterns of irrationality, inconsistency, and incompetence in the ways people arrive at decisions and choices when faced with uncertainty. Against this background, behavioural finance has evoked much interest in relation to investment decision-making.

2.4.1 Behavioural Factors Influencing Investor Decision Making

Behavioural finance theories are based on cognitive psychology, which suggests that human decision processes are subject to several cognitive illusions. These cognitive illusions can be grouped into two classifications: illusions due to heuristic decision processes and illusions caused by the adoption of mental frames, which are conveniently grouped in the prospect theory. These two categories form the basis of the behavioural theories: (Waweru, 2008).

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2.4.1.1 Heuristic Driven Biases

Heuristics are rules of thumb, which people use to make decisions in complex, uncertain environments. Decision-making is not strictly rational where all relevant information is collected and objectively evaluated: rather the decision-maker takes mental shortcuts

(Kahneman and Tversky, 1979). Examples of illusions resulting from the use of heuristics include: Representativeness, Anchoring, and Overconfidence.

2.4.1.2 Representativeness

Representativeness can manifest itself when investors seek to buy 'hot' stocks and to avoid stocks, which have performed poorly in the recent past. Investors may form judgements based on patterns that are simply random in a data and not representative of the facts. This behaviour could provide an explanation for investor overreaction (DeBondt and Thaler, 1995). People tend to categorise events as typical or representative of a well-known class, and to overstate the importance of such a categorisation. For example, share prices often rise when a company reports increased earnings several quarters in a row, because investors tend to infer a high long-term earnings growth rate (Barberis, 2001).

2.4.1.3 Anchoring

Anchoring arises when a value scale is fixed (anchored) by recent observations. Investors usually use their purchase price as a reference point (Kahneman and Riepe, 1998) and react to changes in price relative to the initial purchase price. According to Shiller (1998), prices of today are often determined merely by those of the past. Anchoring can lead investors to expect a share to continue to trade in a defined range or to expect a company's earnings to be in line with historical trends, leading to possible under-reaction to trend changes. Investors usually form an opinion about an item and they become unwilling to change their mind-set despite that there is new information that has huge

significance and may be contrary to what they presently believe. Investors also tend to become more optimistic when the market rises and more pessimistic when the market falls. Shiller (2000) found that at the peak of the Japanese market, 14% of investors expected a crash, but after it did crash, 32% expected a crash.

2.4.1.4 Overconfidence

Overconfidence leads investors to overestimate their predictive skills and believe that they can time the market. Studies have shown that one side effect of investor overconfidence is excessive trading (Evans, 2006; Allen and Evans, 2005). There is evidence (Evans, 2006) that financial analysts are slow to revise their previous assessment of a company's likely future performance, even when there is strong evidence that their existing assessment is incorrect. People are overconfident in their own abilities, and investors and analysts are particularly overconfident in areas where they have some knowledge (Shiller, 1998; Evans, 2006).

Odean (1999) analysed position data of 10,000 discount brokerage accounts maintained by a national wide brokerage in the U.S. He found that those investors did tend to sell more past winners than losers, traded excessively, and their returns were reduced through trading. Statman and Thorely (1999) reported that high stock returns were associated with high trading volume in the subsequent periods and the crash of 1987 brought low volume for years afterwards, which was consistent with the overconfidence theory. Bange (2000) reported evidence in line with overconfident behaviour that individuals sold past losers and bought past winners as if past market performance could be extrapolated into the

future. The findings of those studies on the U.S. individual investors were consistent with the behavioural hypotheses, namely, overconfidence and the disposition effect.

2.4.2 Prospect Theory

Prospect theory provides a framework that explains how behavioural aspects influence risk tolerance in investment decisions. Value is assigned to gains and losses rather than to the final net assets, while probabilities are replaced by decision weights (Pious, 1993). Kahneman and Tversky (1979) found that people underweigh outcomes that are probable in comparison with those that are certain. They also found that people respond differently to equivalent situations depending on whether they are presented in the context of losses or gains. Lebaron (1999) suggests that people become considerably more distressed at the prospect of losses than they are pleased by equivalent gains. In situations where the probability of loss is quite large, people exhibit risk-seeking rather than risk-averse behaviour (Tversky, 1990).

Prospect theory describes several states of mind that can be expected to influence an individual's decision-making processes. The key concepts include: Regret, Loss aversion, mental accounting, and herd behaviour.

2.4.2 .1 Loss Aversion

Loss aversion recognises that the mental penalty associated with a loss is greater than the mental reward from a similar size gain (Shiller, 2000). According to Gomes (2005), Polkovnichenko (2005), and Thaler (2006), if individuals are loss-averse they will either

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 instruments, this phenomenon is believed to manifest in what is known as "disposition effect". People are believed to realize gains too quickly in the fear that they may make a loss.

2.4.2 .2 Mental Accounting

Mental accounting is the propensity for individuals to organize their world into separate mental accounts. Investors tend to treat each element of their investment portfolio separately, which can lead to inefficiency, and inconsistency in making investment decisions (Shiller, 2000). According to Richard Thaler (2006), every financial decision should be based on rational calculation of its effects on overall wealth position. He further states that individuals separate their money into various mental accounts where they treat money differently depending on its source. Individuals were found to be more spendthrift on money received as bonus or dividends than money meant to cater for tasks such as health or education. If investors have a tendency of recognizing immediately in their mental accounts but postponing acknowledging their bad decisions, they may sell stocks that have performed well and hold on poorly performing stocks, namely, the "disposition effect" (Odean, 1998).

2.4.2 .3 Regret Aversion

Regret refers to people's emotional reaction on making a mistake (Pious. 1993). Investors consistently engage in behaviour that they regret later (Evans, 2002). They avoid selling shares that have decreased in value, and readily sell shares that have increased in value (Shiller, 1998; Lebaron. 1999). Fogel and Berry (2006) found that investors reported regrets about holding a losing stock too long than about selling a winning stock too soon and this led to the disposition effect.

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 could be explained by tax reasons. He showed that this investor behaviour cannot be motivated by rebalancing portfolio reasons or by reluctance to increase the trades to minimise transaction costs.

Regret aversion may also result in what is known as herding behaviour. Shiller (2000) outlines psychological experiment by Deutsh and Gerrard where the human tendency to concur with the majority view was shown. In the experiment, people questioned their own opinions if the found everybody disagreed with it. These human tendencies are individually sensible, but collectively can lead to irrational and herding behaviour. Any investor may feel more comfortable investing in a popular stock if everybody else believed that it is a good one. Responsibility of it falling will be shared with the other investors who originally expected it to do well (Brabazon, 2000).

2.4.3 Herding Behaviour and Social Influences

This describes how individuals in a group can act together without planned direction. The term pertains to the behaviour of animals in herds, flocks, and schools and to human conduct during activities such as stock market bubbles and crashes. Large stock market trends often begin with and end with periods of frenzied buying (bubbles) or selling (crashes) (Robert Shiller, Ivo Welch, et al. 2004).

In "herding" models, it is assumed that investors are fully rational, but only have partial information about the economy. In these models, when a few investors buy some type of asset, this reveals that they have some positive information about that asset, which increases the rational incentive of others to buy the asset too. Even though this is a fully rational decision, it may sometimes lead to mistakenly high asset values (implying, eventually, a crash) since the first investors may, by chance, have been mistaken (Shiller et al, 2004).

2.4.4 Impact of Behavioural Factors on Investment Decision Making

Shefrin (2000) contends that heuristic-driven bias and framing effects cause market prices to deviate from fundamental values. Olsen (1998) suggests that behavioural finance may explain empirical evidence, which casts doubt on existing financial models based on rationality. DeBondt and Thaler (1995) argued that because investors rely on the representativeness heuristics, they could become overly optimistic about past winners and overly pessimistic about past losers and that this bias could cause prices to deviate from their fundamental level. Anchoring and overconfidence may lead investment

analysts not to adjust their earnings" estimates sufficiently to reduce the impact of unanticipated events on the stock markets (Allen and Evans, 2005).

DeBondt and Thaler (1995) contend that if the tenets of behavioural finance are correct, several implications may arise regarding possible behavioural patterns in financial markets. Additionally, DeBondt and Thaler (1995) were convinced that there may be over- or under-reaction to price changes or news; extrapolation of past trends into the future; lack of attention to fundamentals underlying a stock; focus on popular stocks and seasonal price cycles.

Several studies document that investors are systematically reluctant to sell stocks for a loss (Shefrin and Statman, 1985; Odean, 1998; Grinblatt and Kelohajju, 2001). Less is known about how they make purchases. There are three indications of how likely stocks catch investors' attention: daily abnormal trading volume, daily returns, and daily news (Odean, 1998b). Institutional investors are more likely to be net buyers on days with low abnormal trading volume than on those with high abnormal trading volume (Odean, 1998b). Their reaction to extreme price moves depends on their investment style. The tendency of individual investors to be net buyers of attention-grabbing stocks is greatest on days of negative returns (Odean, 1998b). Informed investors would observe the same signal whether they are deciding to buy or to sell a stock. Odean (1999) proposed that investors manage the problem of choosing among thousands of possible stock purchases by limiting their search to stocks that have recently caught their attention. Contrarian investors, for example, will tend to buy out-of-favour stocks, while momentum investors

will chase recent performers. Rational investors are more likely to sell their past losers, thereby postponing taxes: behaviourally motivated investors are more likely to sell past winners, thereby postponing the regret associated with realising a loss (Shefrin and Statman, 1985).

Most of the research that has been conducted on the influences of behaviour factors on investors while investing at the stock market has been done in Europe, Asia, and the Middle East while very few studies have been undertaken in the emerging markets. Kenya's Nairobi Securities Exchange has had no known study undertaken on individual investor behavioural influences apart from a study on institutional behavioural influences by Waweru et al (2008).

In this study by Waweru et al (2008), institutional investors were found to have relied on fundamental analysis as the most widely used decision making model at the NSE. However, heuristic processes and prospect theory were found evident with heuristics strongly dominating prospect theory in explaining the behaviour of institutional investors operating at the Nairobi Securities Exchange. Market information and the fundamentals of the underlying stock were found to have the highest impact on the investment decision making by institutional investors.

A Gallup-SET research study was designed to better understand and explain the behaviour of the Thai retail investor. The program, which began in late 2004, included a series of investigations into the capital market using a range of methodologies:

qualitative diagnosis, quantitative assessment, and secondary data analysis. Gallup used the results, along with its experience in measuring investor behaviour, to develop a conceptual framework for evaluating the attitudes and behaviours of active, potential, and inactive investors. The model assumed that a potential investor's attitude towards investing in the stock exchange was influenced by many factors, including political, environmental, social, and technological ones. The model also included important psychonomic, or attitudinal and psychographic, variables that shape investors' reactions to external factors, such as risk tolerance and perceptions or beliefs about shares as an investment tool.

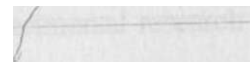
The research identified five key segments among potential investors, three segments among active investors, and two among inactive investors. The segments were unique both in their behavioural profiles as well as their psychographics. The first segment was the potential investors whose analysis revealed five key segments: young risk takers, optimistic and confident, shaky but willing, cautious and risk-averse, and unaware but interested. Two segments - young risk takers and optimistic and confident - showed the most potential. The second category included active Investors which among the three key segments - adventurers, cautious optimists, and risk averse - the first two segments had greater potential; the risk averse were more fearful and tended to have small portfolios. The last segment of inactive investors revealed two key segments: long-term investors, who were holding their stocks and waiting for the right time to maximize returns on their investments, and quitters, who were likely to exit the market soon due to investment losses. The study further concluded that rather than making investment decisions using a

strictly rational thought process, investors were significantly influenced by personal beliefs and attitudes that were more emotional than they are rational (Gallup, 2006).

In another study, Wang (2005) aimed at investigating the behaviour and performance of individual investors in the emerging China's market using the market level data uniquely available from the Shanghai Stock Exchange (SHSE). China's stock market has been dominated by over sixty millions of individual investors and the fastest growing stock market in the world over the past decade. In this study, Wang analysed both the levels and changes of individual ownership to detect the behaviour and performance of individual investors. He established that Chinese individual investors had a tendency to hold stocks with high risk (as measured by firm size, beta, and volatility), high book-to-market ratios, high turnover, and high float ratios. Moreover, individual investors as an aggregate tended to sell stocks that outperformed the market over the previous 6 months, and hold on to the underperforming stocks. However, stocks that were associated with high individual ownership or a large increase in ownership significantly underperformed those with low individual ownership or a large decrease in ownership over the subsequent 6 months. His findings were consistent with the behavioural finance theories that investors were overconfident and displayed the disposition effect. Wang further established that investors were predisposed to sell past winners and hold on to past losers in both the bull and bear markets, however, they appeared to be more overconfident in making investment decision in the bull market than in the bear market, that is, investors tended to own (purchase) stocks with relatively higher risk, higher turnover, and lower float ratios in the bull market than in the bear market (Wang, 2005).

2.5 Conclusion

This chapter highlights findings that have emerged as a result of the empirical work on the study of behavioural influences on human behaviour in investment decision making. From the study of the stock market anomalies, it is established that there were varying levels of efficiency in the stock market. This was how; for the less liquid stocks in the stock exchange the market usually reacted slowly to news affecting a particular stock. However, for a highly liquid stock there was increased and quick reaction to news relating to that stock. This implied that the less liquid stocks did not react efficiently to the information in the market. Herd behaviour also came out as a major factor influencing human behaviour in the choice of their investment options. Individuals investors would invest in a share since the public is investing in the same but ignore any fundamental and technical analysis that is necessary while undertaking any form of investment. However, much more research needs to be undertaken with regard to the behavioural factors that influence individual investors in their choice of equity investment at the bourse.



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the procedures that will be used to collect data. The study will involve various individual investors that have been involved in the Nairobi Securities Exchange (NSE). The research is seeking to find out the factors that influence individual investor in his choice of equity at the NSE.

3.2 Research Design

Research design is the plan and structure of investigation so conceived as to obtain answers to research questions. The plan is the overall scheme or program of the research. According to Cooper & Schinder (2001), there are many definitions of research design but no one definition impacts the full range of important aspects.

The method used for data collection was based on the exploratory nature of the research using descriptive survey design. This is a type of non-experimental research design for collecting and analysing data in order to describe the problem in its current status. It was a case study. Descriptive surveys design was used in preliminary and exploratory studies to allow researchers gather information, summarise, present and interpret for the purpose of clarification (Orodho, 2004). This method is appropriate due to its capacity to establish how the decision making framework and behaviour of investors in reality is consistent with the existing theories of finance.

3.3 Population

The study involved surveying individual investors who trade at the Nairobi Securities Exchange so as to establish their decision-making processes. There are twenty member firms at the Nairobi Securities Exchange which act as either stock brokers or investment banks. However, two of the brokerage firms- Discount Securities Ltd and Nyaga Stock Brokers- are under statutory / management (www.cma.com 2010).

3.4 Sample

Out of the investors trading at the Nairobi Securities Exchange, a sample of 100 individual investors was chosen using stratified random sampling technique. The sample of individual investors was selected from each of the twenty registered stock brokerage and investment banks with five investors selected from each. This was as a result of the large number of investors trading, limitations of time, financial constraints and limited human resource in undertaking the study.

3.5 Data Collection

Primary data was collected using an exploratory survey method where a standard questionnaire with both closed and open ended questions was administered to capture the important information about the population. The selected individuals were given the questionnaire to fill where those with any difficulties were guided by a research assistant who also assisted in disseminating and collecting the questionnaires. The questionnaire incorporated two sections with the first section enquiring respondent's background information, while the second part consisted of the firm's image, market information,

financial needs, and other economic scenarios. This research was based on the theories of behavioural finance: Heuristic theory. Prospect theory, and other theories about impacts of behavioural factors on investors' decision making, which are mentioned by Waweru et al, (2008) and many other authors cited in the literature review, to synthesize a set of questions related to behavioural factors influencing investment decisions. A 6-point likert scales, which are rating scales widely used for asking respondents' opinions and attitudes was utilized to ask the individual investors to evaluate the degrees of their agreement with the impacts of behavioural factors on their investment decision. The 6 points in the scale are respectively from 1 to 6: extremely disagree, highly disagree, somewhat disagree, somewhat agree, highly agree, and extremely agree.

3.6 Data Analysis and Presentation

Data was analysed using the statistical package for social sciences SPSS software package and the content analysis used in summarising the finding. The data was coded to enable the responses to be grouped into various categories. Internal consistency of the multi-item scales was tested using Cronbach's alpha. Factor analysis was used to test the reliability of the items in the multi-item scales. Descriptive statistics was used to summarise the data. This included percentages and frequencies. Tables and graphs were used to present the data.

3.6.1 Reliability and Validity

According to Neuman and Kreuger (2003), "Reliability and validity are central issues in all measurements. Both concerns how concrete measures are connected to constructs.

Reliability and validity are salient because constructs in social theory are often ambiguous, diffuse, and not directly observable. Perfect reliability and validity are virtually impossible to achieve. Rather, they are ideals researchers strive for".

Reliability means dependability or consistency, and validity means truthfulness. It refers to the bridge between the construct and the data (Neuman and Kreuger 2003). When an interview is conceived as an opportunity for construction of meaning, one "cannot expect a replication of answers because they emerge from different circumstances of production" (Holstein & Gubrun, 1995). Thus, the trustworthiness of the data can only be evaluated by the participants themselves.

Cronbach's Alpha Test will be used to test the internal consistency reliability of measurements, which are in formats of continuous variables (for example, 6-point Likert measurements). It includes a statistical summary that describes the consistency of a specific sample of respondents across a set of questions or variables, that is it help to estimate the reliability of participants' responses to the measurements (Helms et al, 2006). Cronbach's alpha is usually used in social and behavioural researches as an indicator of reliability (Liu, Wu & Zumbo, 2010). As such, the Cronbach's alpha is totally suitable for this research because the questionnaire consists of 6-point Likert measurements and the research is in behavioural finance.

Nunnally (1978) suggests that Cronbach's alpha should be at least 0.7 to make sure that the measurements are reliable. However, many statisticians believe that it can be

acceptable if the Cronbach's alpha is over 0.6 (Shelby, 2011). Besides, statisticians recommend that it is necessary to consider the corrected item-total correlations when using the Cronbach's alpha index. The corrected item-total correlations, which reflect the correlation of variables or items designated with the total score for all other items, should be at the acceptable score of 0.3 or higher (Shelby, 2011). This research chooses the acceptable Cronbach's alpha is 0.6 or more, with the corrected item-total correlation index is 0.3 or more because the measurements of financial behaviour are new to the stockholders of the Nairobi Securities Exchange.

Measurement validity deals with the question of whether a measure can actually provide measurements of a concept (Bryman & Bell, 2011). As the questionnaire is designed based on the theoretical models from previous studies, indicators for measurements are well applied to reflect truly the concept of "behavioural factors influencing investors' decisions". Besides, the 6-point Likert measurements remove the neutral opinions, which increase the measurements' accuracy. In addition, collected data are processed and analysed by employing SPSS software to explore the factors affecting investors' decisions and their correlations with investment performance and satisfaction. Thus, measurement validity is obtained throughout this study.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND PRESENTATIONS

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4.0 Introduction

This chapter presents the results and findings of the study whose general objective was to determine the impact levels of behavioural influences on the individual investor choices of securities at NSE in the equity market.

4.1 The Response Rate

The response rate is expressed as the return rate calculated as a percentage of the total number of questionnaires that the researcher gave out. Out of the total 100 questionnaires the researcher administered, only 64 were returned. The response rate was therefore 64%. This percentage was therefore fair and representative. Mugenda and Mugenda (2003) stipulate that a response rate of 50% is adequate for analysis and reporting. A response rate of 60% is good and a response rate of 70% is over very good. It is therefore an adequate rate to base the study conclusions.

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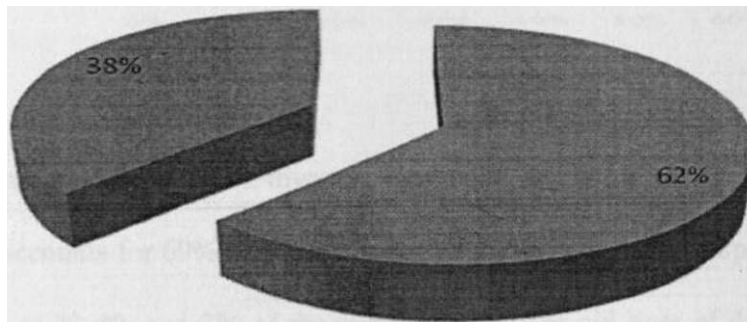
4.2 Background Information

This section of the study sought to capture the respondents' details. The results were as follows;

4.2.1 Respondents' Gender

This section sought to establish the gender of the respondents. The findings were as presented in Figure 4.1.

Figure 4.1 Respondents' Gender

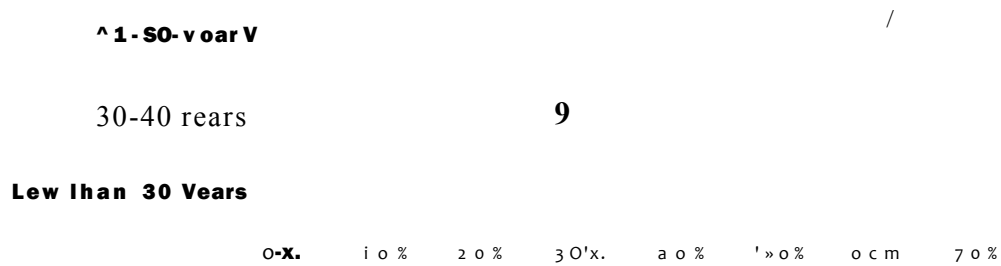


• Male • Female

Figure 4.1 shows that the numbers of female and male investors in the sample are different and this shows that issues related to gender bias are considered for this study. The majority of the respondents, 62% were males.

4.2.2 Respondents' Age

Figure 4.2 Respondents' Age



The study revealed that the stock investors are mainly at the young ages of less than 30 years, which accounts for 69% of the total sample, while 28% of the respondents being at the age-range of 30-40, and 3% of the sample having the old ages of 41-50 years. This sample reflects the fact that a high proportion of individual investors at the NSE are younger than 40 years, and this research may highly reflect the investment behaviours of these investors.

4.2.3 Marital Status

Figure 4.3 Respondents' Marital Status

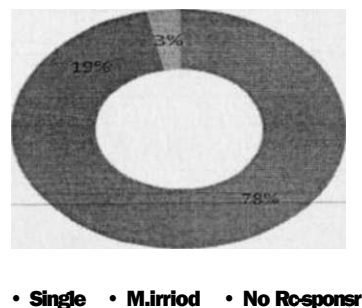
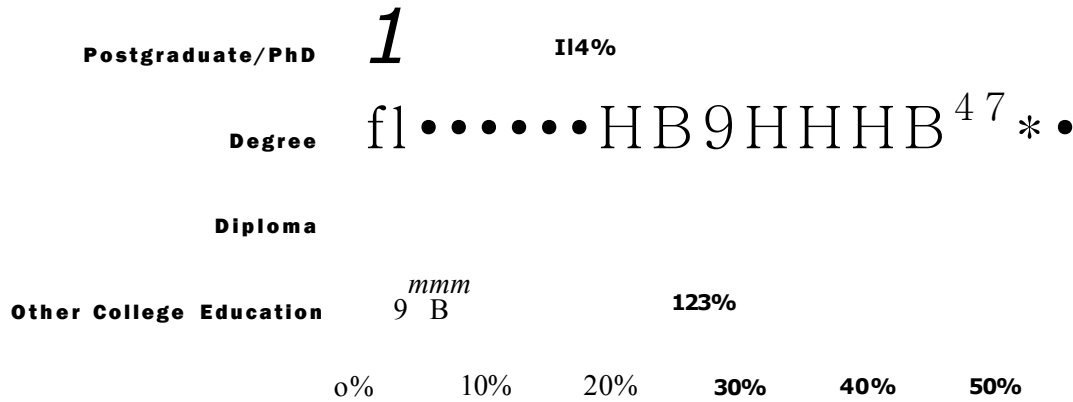


Figure 4.3 presents that a large proportion of the sample. 78% is investors who are single, as opposed to 19% who are married.

4.2.4 Level of Education

Figure 4.4 Respondents' Level of Education

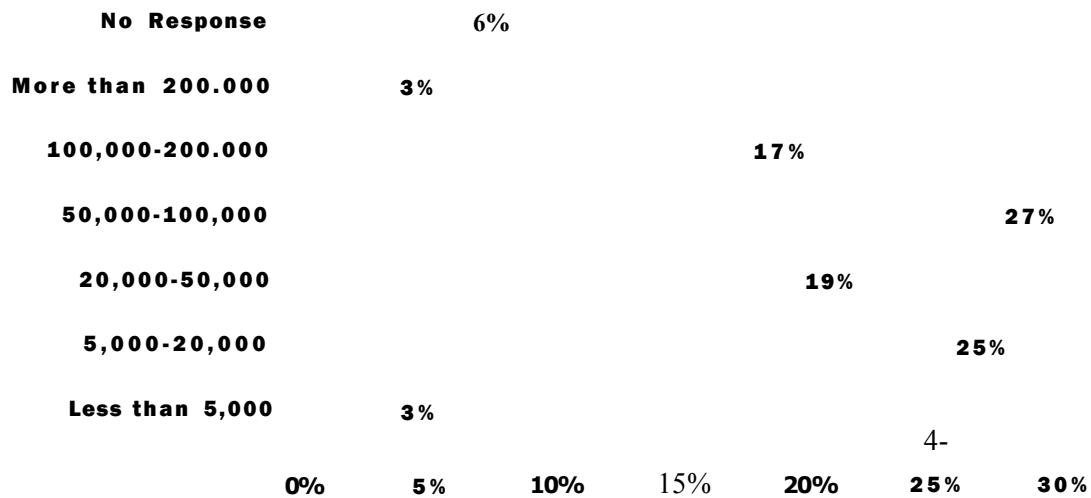


It was disclosed that the investors were well educated, with the majority, 47% being degree graduates, followed by 23% of the respondents who had Other College Education level. Those from were Diploma holders constituted 16% whereas 14% had the highest level of qualifications, being post graduate level.

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4.2.5 Estimated Average Monthly Income (Kshs)

Figure 4.5 Estimated Average Monthly Income



Although the respondents cover all the ranges of investment from Ksh. 5,000 to Ksh. 200,000, the higher percentages of individual investors in the surveyed sample invest with ranges from Ksh. 5,000 to Ksh. 100,000. Twenty seven percent of the respondents invested between Ksh. 50,000 and Ksh. 100,000, 25% invested between Ksh. 5,000 and Ksh. 20,000, and 19% invested between Ksh. 20,000 and Ksh. 50,000. Only 3%, each either invested relatively large amount of money; more than 200,000 or relatively small amount of money, less than Ksh. 5,000.

4.3 Factor Analysis of Behavioural Variables Influencing Individual Investment Decisions

The questions coded Q7a to Q7v were designed to explore the levels of behavioural variables' impacts on the individual investment decisions at the NSE. The exploratory

factor analysis (EFA) is used for these behavioural variables to identify the factors which these variables belong to. The requirements of factor analysis are satisfied to reduce the variables. After some rounds of removing the unsuitable variables, the analysis results that the remaining variables are grouped into five factors of behavioral variables at the Eigenvalue = 1.247, KMO = 0.427 (sig. = 0.000), % of total variance explained = 83.02%, as shown in Appendix III.

4.4 Measurement Reliability Test using Cronbach's Alpha

Cronbach's Alpha is used to test the reliability of items included in the factors. This test is done to make sure that the measurements are reliable for further uses. The results of Cronbach's alpha test are shown in Appendix IV. The Cronbach's alpha is 0.651, which indicates a high level of internal consistency for the scale. Appendix IV presents that Cronbach's Alpha indexes of all factors are greater than 0.6 and the corrected item-total correlation of all items are more than -0.4. Besides, Cronbach's alpha of each factor if its any item is deleted is less than the factor's Cronbach's Alpha, a kind of test to make sure the suitability of using Cronbach's Alpha technique for the data, is less than 0.05.

4.5 Impact Levels of Behavioural Factors on the Individual Investment

Choices

The impact levels of behavioural variables on the investment choices are identified by calculating the values of sample mean of each variable. Because 6-point scales are used to measure the impact levels of these variables, the mean values of these variables can decide their impact levels on the investment decision making as the following rules:

Mean values are less than 2 shows that the variables have very low impacts

Mean values are from 2 to 3 shows that the variables have low impacts

Mean values are from 3 to 4 shows that the variables have moderate impacts

Mean values are from 4 to 5 shows that the variables have high impacts

Mean values are more 5 shows that the variables have very high impacts

4.5.1 Impact of heuristic variables on the investment decision making

The heuristic variables are grouped into two factors: Overconfidence-Gambler's fallacy and Anchoring-Availability bias. The impacts of these factors are shown in Table 4.1.

Table 4.1 Impacts of Heuristic Variables on the Investment Decision-Making

Factor	Variables	Mean	Std. Deviation
Overconfidence and Gambler's fallacy	I believe that my skills and knowledge of stock market can help me to outperform the market	8.56	20.262
	I am usually able to anticipate the end of good or poor market returns at the Nairobi Securities Exchange.	6.55	17.055
Anchoring and availability bias	I buy 'hot' stocks and avoid stocks that have performed poorly in the recent past	3.59	1.444
	I prefer to buy local stocks than international stocks because the information of local stocks is more available.	4.25	1.522

Source: Author (2011)

As in the literature review, behavioural variables of heuristic dimension that impact the investment decisions consist of representativeness, overconfidence, gambler's fallacy, anchoring, and ability bias. However, in this project, the variables of representativeness are not reliable enough to be considered as the behavioural variables influencing on the decisions of individual investors at the NSE. The variables of overconfidence and gambler's fallacy have very high impact on the decision making of individual investors with mean values of 8.56 and 6.55 respectively. Anchoring and ability bias have moderate and high impacts on the decision making of individual investors with mean values of 3.59 and 4.25 respectively. As such, among the heuristic variables, overconfidence and gambler's fallacy has the strongest impact on the investors when they decide to trade stocks. This means individual investors at the NSE tend to rely on their skills and knowledge of stock market and the anticipation of market returns.

4.5.2 Impact of Prospect Variables on the Investment Decision Making

Table 4.2 Impacts of Prospect Variables on the Investment Decision-Making

Factor	Variables	Mean	Std. Deviation
Prospect	After a prior gain, I am more risk seeking than usual.	8.84	20.181
	I avoid selling shares that have decreased in value and readily sell shares that have increased in value.	4.51	1.424
	I tend to treat each element of my investment portfolio separately.	4.16	1.493

1
Source: Author (2011)

All the three kinds of prospect behaviour: loss aversion, regret aversion, and mental accounting have their representative variables influencing the decision making of investors' stock investment. Individual investors at the NSE have regret aversion and / mental accounting at high degree, with the means of variable of 4.51 and 4.16 respectively. On the other hand loss aversion had a very high impact with a mean of 8.84. This means that investors have a high tendency of seeking more risk especially after a prior gain.

4.5.3 Impact of Market Variables on the Investment Decision Making

Changes of stock price, market information and past trends of stocks are the variables of market that influence the individuals' investment decisions at the NSE. The results are shown in the Table 4.3.

Table 4.3 Impacts of Market Variables on the Investment Decision-Making

Factor	variables	Mean	Std. Deviation
Market	I consider carefully price changes of stocks that I intend to invest in.	7.78	16.543
	Market information is important for my stock investment.	8.06	16.498
	I put the past trends of stocks under my consideration for my investment.	4.78	1.228

Source: Author (2011)

Table 4.3 presents that the changes of stock price and market information variables very highly impacts on the investment decision making with means of 7.78 and 8.06 respectively. The past trend of stocks has a high impact on the investment decision making with mean of 4.78; This means that investors tend to consider the information of stock market: general information, past trends of stock price and current stock price changes carefully before making their investment.

4.5.4 Impact of Herding Variables on the Investment Decision Making

Table 4.4 Impacts of Herding Variables on the Investment Decision-Making

Factor	Variables	Mean	Std. Deviation
Herding	Other investors' decisions of choosing stock types have impact on my investment decisions.	5.05	12.002
	Other investors' decisions of the stock volume have impact on my investment decisions.	5.19	11.993
	Other investors' decisions of buying and selling stocks have impact on my investment decisions.	8.34	20.335
	I usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market.	7.55	20.499

Source: Author (2011)

As in Table 4.4, individual investors at the NSE follow very highly the other investors' trading decisions. They consider the others' behaviour of choosing types of stock (mean

= 5.05) and stock volume for trading (mean = 5.19) as well as others' decisions of buying and selling stocks (mean = 8.34) and quick reaction to the changes of other investors' decisions (mean = 2.96) to make their own decisions.

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4.6 Duration of participation at Nairobi Securities market

Figure 4.6 Duration of participation at Nairobi Securities Market

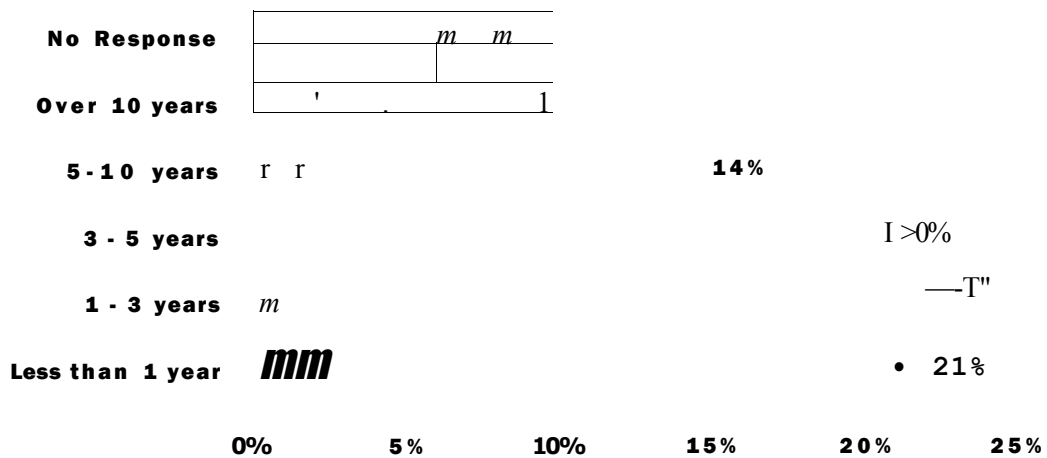
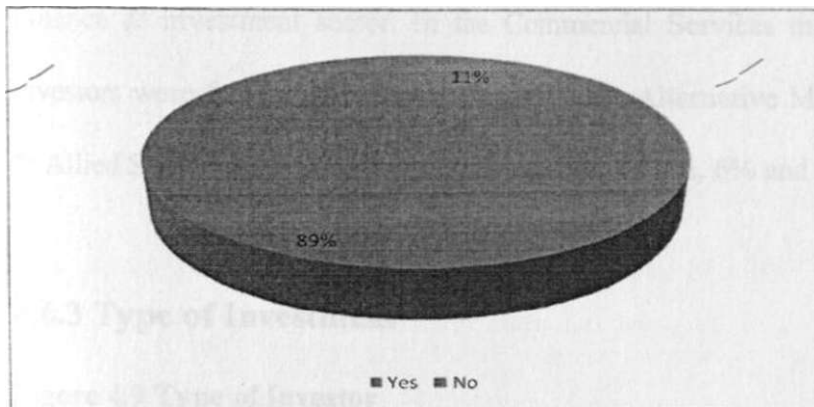


Figure 4.6 presents that a large proportion of the investors, 25% have attended the stock market for the duration of between 1 and 3 years. This was closely followed by investors who had participated at NSE for less than a year at 21% and then investors who have attended the stock market for the duration of between 3 and 5 years. Only 9% of the investors have attended the stock market for the longest time of more than 10 years. Most of individuals have just paid their attention to stock market in the recent years.

4.6.1 Attendance of Stock Exchange Course

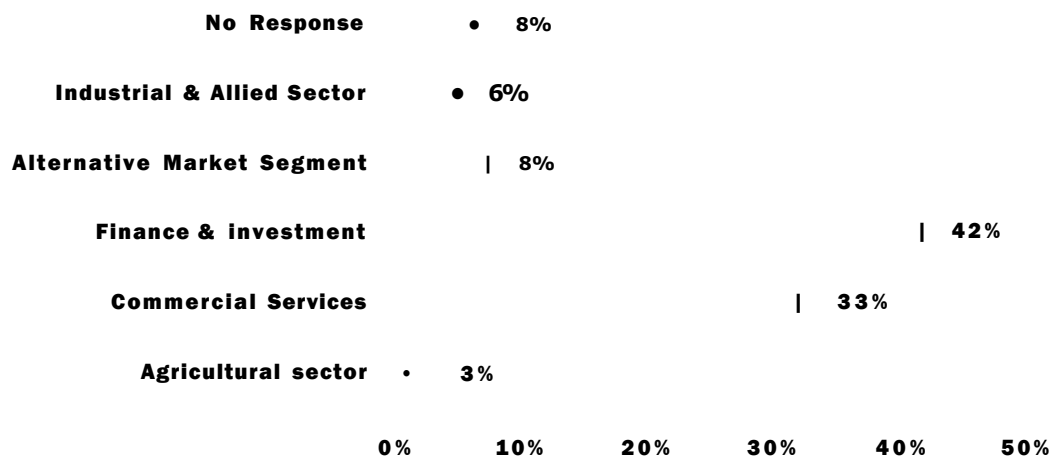
Figure 4.7 Attendance of Stock Exchange Course



The study showed that the individual investors in the surveyed sample who had attended a course on stock trading only account for 11 per cent while the majority, 89% had not yet taken any course of this field.

4.6.2 Investment Market Sector

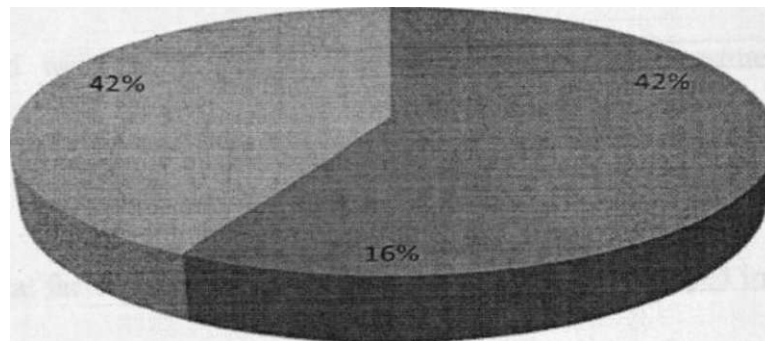
Figure 4.8 Investment Market Sector



The study revealed that the individual investors had a spread in the investment segments they did invest in. as such, 42% of the respondents, being the majority invested in Finance & investment sector. In the Commercial Services market sector. 33% of the investors were found. Individual investors in the Alternative Market Segment, Industrial & Allied Sector and Agricultural sector constituted 8%, 6% and 3% respectively.

4.6.3 Type of Investment

Figure 4.9 Type of Investor



- **Speculative (short-term)**
- **Capital (long term)**
- **Both**

The study revealed that most of the individual investors, 42%, each either was a Speculative (short-term) investor or both a Speculative and Capital investor. Meanwhile, 16% of the individual investors were Capital (long term) investors.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary and conclusion from the research findings as per the objective of the study. Based on the findings, recommendations have been given.

5.1 Summary of Findings and Discussions

Most of the individual investors in the surveyed sample had not yet taken any course in this field, and were indifferent on speculative (short-term) investment or both a speculative and capital investment and had participated at NSE for less than 3 years.

The behavioural factors affecting investment decisions are not grouped into four factors as proposed in the literature review chapter that is; Heuristics, Prospect, Market, and Herding, instead the results show that heuristics factors are divided into two sub factors; over-confidence and gambler's fallacy and anchoring and availability bias. This part discusses the impact levels of these factors on the investment decisions of individual investors at NSE.

Among the four heuristic variables (ability bias, overconfidence, anchoring, and gambler's fallacy) which are tested to have the acceptable reliability and consistency of measurements, overconfidence and gambler's fallacy have the highest impact on the decision making of individual investors, with means of 8.56 and 6.55 respectively. This

means that investors believed that their skills and knowledge of stock market could help them to outperform the market and also they were able to anticipate the end of good or poor market returns at NSE and that they normally have the ability to anticipate the ends of good or poor market. Anchoring had a moderate impact which implies that there are two schools of forecasting the future stock prices for the investment decision making; one that depends on recent price to forecast future prices and that which is not affected by the recent price. This can be explained that the high and unexpected fluctuations of stock price trend at the NSE make the investors to think of the more reliable ways to predict the changes of stock prices than the prices that they experienced in the past.

Among the three prospect factors (loss aversion, regret aversion, mental accounting), loss aversion ranks as the variable having the highest impact on the decision making of the investors at NSE with a mean of 8.84. This result confirms that investors tend to seek more risk after a prior gain and consequently after a loss, they tend to be more risk averse.

These are normal reactions of investors because the prior investment success encourages them so much whereas the failure surely depresses them a lot. However, loss aversion is not always a good strategy because of the principle "high risk - high return". Similar to mental accounting, regret aversion has a high effect on decision-making of the investors. It infers that investors seem to be more willing to sell shares increasing in value than decreasing ones. Many people think that they do not lose until they sell the losing stocks, thus, they refuse to sell them although selling may be the best solution at this time. In

other words, investors are afraid of losing money, hence they try to keep those stocks and wish for reverse trend.

Market factor including the market information (about the customers, company's performance) and the price changes of stocks in the market are very important to the investors and usually taken under their considerations for the making investment decisions. These variables had very highly impacts on the investment decision making with means of 8.06 and 7.78 respectively. The very high influences of market variables can be linked to the respondents' profiles, although most of them have not attended training courses about stocks. However, they understand the importance of market information to the price movement as well as the importance of technical analysis in forecasting. The most reliable source of information is the official announcements, but information is always spread out before it is official released, thus, investors should look around for unofficial information which may have negative effects on the investment results. According to Odean, (1999), the available information can make the investors focus on some stocks after being impressed by some attention-grabbing events.

5.2 Conclusions and Recommendations

There are five behavioural factors that impact the investment decisions of individual investors at the NSE; Herding, Market, Prospect. Overconfidence and gamble's fallacy, and Anchoring-ability bias. The herding factor includes four behavioural variables; following the decisions of the other investors (buying and selling; choice of trading stocks; volume of trading stocks; speed of herding).

Overconfidence and gambler's fallacy had higher impact on the decision making of individual investors. This means that investors believed that their skills and knowledge of stock market could help them to outperform the market and also they were able to anticipate the end of good or poor market returns at NSE and that they normally have the ability to anticipate the ends of good or poor market.

The market factor consists of three variables: price changes, market information, and past trends of stocks. The very high influences of market variables can be linked to the respondents' profiles, which show that most of them have not attended training courses about stocks. However, they understand the importance of market information to the price movement as well as the importance of technical analysis in forecasting.

The prospect factor possesses four variables that have significant impacts on the investment decision making: loss aversion, regret aversion, and mental accounting. Loss aversion ranks as the variable having the highest impact on the decision making of the investors, thus investors tend to seek more risk after a prior gain and consequently after a loss, they tend to be more risk averse.

$$f \sim \frac{\dots}{\dots} .7$$

Since overconfidence had positive impacts on the investment decision, individual investors at the NSE should only be overconfident at an acceptable level to utilize their skills and knowledge to improve the investment results. In the uncertainty, the overconfidence is useful for the investors to do difficult tasks and help them to forecast the future trends and should be used in clever and suitable ways.

Individual investors are recommended to choose good investment partners or alliance to consider as references for their investment. Investors should establish the forums to support each other in finding reliable information of stock market. The cooperation of a crowd of investors can help limit the risks and increase the chances to have good investment results. Investors should carefully consider the investment options independently before allowing for other investors' decisions of buying and selling stocks.

Recommendations given to investors are that they should carefully consider before making investment decisions, but should not care too much about the prior loss for their later investment decisions. This can limit the good chances of investment and impact badly the psychology of the investors and lead to unfavourable investment performance. Besides, the investors should not reduce their regret in investment by avoiding selling decreasing stocks and selling increasing ones, since this can lead to investors keeping all losing stocks and this impact negatively the investment performance. Also, the investors should not divide their investment portfolio into separate accounts because each element of the portfolio may have a strict relation to the others and the treating each element as an independence can be result a unfavourable investment performance.

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Apart from the individual investors who directly benefit from the findings of this study, the security organizations should use these findings as reference for their analysis and prediction of the trends of the security market. The joint-stock companies, which raise the capital from stockholders, should use the results of this study for good decision making to attract the investors to buy their stocks.

5.3 Limitations of the Study

The main challenge faced was the administration of the questionnaires; most individual investors were not comfortable with the questionnaires with the main argument being that their privacy was being infringed. As such, a lot of time was taken in explaining that the study was for academic purposes only and also in gathering data.

The researcher was not able to accomplish the 100% response of 100 questionnaires for the twenty registered stock brokerage and investment bank. However the 64 questionnaires which were returned constituted the response rate of 64% of the total population which was therefore considered sufficient to do the analysis and make the conclusions.

Although the sample size is relative high ($N = 100$) and satisfy the requirements of statistical methods; however, it is suggested to have a larger sample size in further research to reflect more accurately the realistic situation of NSE.

The data obtained from this study is likely to lack details or depth on the topic being investigated- behavioural influences on the individual investor choices of securities.

Securing a high response rate to a survey was also hard to control.

Behavioural finance and its measurements are very new to investors in Kenya. There is very limited number of references for applications of behavioural finance. Some investors may not know their own expected return rates for their investments as well as the average return rate of the stock market.

5.4 Suggestions for Further Research

This study is one of the investors' volunteers using behavioural finance in Kenya with the measurements of 6-point Likert. It is necessary to have further researches to confirm the findings of this research with the larger sample size and the more diversity of respondents.

Further researches are suggested to apply behavioural finance to explore the behaviours influencing the decisions of institutional investors at the NSE. These researches can help to test the suitability of applying behavioural finance for all kinds of securities markets with all components of investors.

The study mainly used primary data to gather information for the research project. Further researches should be done through secondary data. Secondary data analysis saves time that would otherwise be spent collecting data and, particularly in the case of quantitative data, provides larger and higher-quality databases than would be unfeasible for any individual researcher to collect on their own.

This study was based on a descriptive survey research design on the stock brokerage and investment banks. Future studies should be undertaken through a case study of investors in a particular stock brokerage or investment bank. Case study helps in finding in-depth investigation of a single group, or event and may produce new insights that generate additional studies.

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APPENDICES

Appendix 1: Questionnaire

Section A: Background of the Respondent

1. Gender: Male Female
2. Age : Less than 30 Years 31-40 Years
41-50 years More than 50 Years
3. Marital Status: Single Married Divorced
4. What level of education have you completed?
Primary Certificate Secondary Certificate
Other College Education Diploma
Degree Certificate Postgraduate/PhD
5. What is your nature of employment
Selfemployment (Farming) Self employment (Business)
Formal employment Both Formal and Self employment
6. Please estimate your average monthly income (KSHS)
Less than 5,000 5,000-20,000 20,000-50,000
50,000-100,000 100,000-200,000 More than 200

Section B: behavioural Factors Influencing Investment Decisions

Please evaluate the degree of your agreement with the impacts of behavioural factors on your investment decision making:

Behavioural Factors Influencing Investment Decisions	Extremely	Highly	Neutral	Somewhat	Highly	Extremely
Herding Factors (buying and selling, choice and volume of trading stocks, speed of herding)						
Other investors' decisions of choosing stock types have impact on my investment decisions.						
Other investors' decisions of the stock volume have impact on my investment decisions.						
Other investors' decisions of buying and selling stocks have impact on my investment decisions.						
I usually react quickly to the changes of other investors' decisions and follow their reactions						
to the stock market.						
Prospect Factors (Loss Aversion, Regret aversion and Mental accounting)						
After a prior loss, I become more risk averse.						
I avoid selling shares that have decreased in value and readily sell shares that have increased in value.						

i tend to treat each element of my investment portfolio separately.						
1 I ignore the connection between different investment possibilities					/	
Market Factors (Price changes, Market information Past trends of stocks)						
I consider carefully the price changes of stocks that I intend to invest in.						
Market information is important for my stock investment.						
1 I put the past trends of stocks under my consideration for my investment.						
Overconfidence and Gambler's fallacy Factors						
1 I believe that my skills and knowledge of stock market can help I to outperform the market.						
I am normally able to anticipate the end of good or poor.						
Anchoring and Ability bias Factors					/	
I forecast the changes in stock prices in the future based on the recent stock prices						
I prefer to buy local stocks than international stocks because the information of local stocks is more available.						

8. How long have you been participating in the stock market

Less than 1 year 1 - 3 years 3 - 5 year
5 - 10 years- Over 10 years

9. Please name the security company(s) that you are holding an account for stock
investment. /

10. Have you attended any course of Stock Exchange?

Yes No

11. Which market sector do you usually participate in?

Agricultural sector Commercial Services

Finance & investment Alternative Market Segment

Industrial & Allied Sector

12. What kind of an investor are you?

Speculative (short-term) Capital Long (long term) Both

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Appendix II: List of NSE Member Brokerage Firms

- I. **ABC Capital** Ltd IPS Building, 5th floor
- African Alliance (Kenya) Securities Ltd 1st Floor, Trans-national Plaza
3. Afrika Investment Bank Ltd Finance House, 9th Floor
4. ApexAfrica Capital Ltd Rehani House. 4th Floor
- CFC Stanbic Financial Services CFC Stanbic House
6. Discount Securities Ltd. (Under Statutory management) Nairobi
7. Drummond Investment Bank Limited Hughes Building, 2nd floor
8. Dyer & Blair Investment Bank Ltd Pension Towers. 10th floor
9. Faida Investment Bank Ltd Windsor House. 1st floor
10. Genghis Capital Ltd Prudential Building, 5th Floor
11. Kestrel Capital (EA) Limited ICEA Building, 5th floor
12. Kingdom Securities Ltd Co-operative Bank House,5th Floor
13. Ngenye Kariuki & Co. Ltd. (Under Statutory Management) Comer House, 8th floor.
14. NIC Securities Limited Ground Floor, NIC House. Masaba Road
15. Nyaga Stockbrokers (Under Statutory management).
16. Reliable Securities Ltd IPS Building. 6th Floor

\l Renaissance Capital (Kenya) Lid Purshottam Place. 6th Floor, Westland

18. Standard Investment Bank Ltd ICEA Building, 16th floor

19. Sterling Investment Bank Ltd Barclays Plaza, 5th Floor

20. Suntra Investment Bank Ltd Nation Centre,7th Floor

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Appendix III: Factor Analysis for Behavioural Variables

K M O and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.427
Bartlett's Test of Sphericity	Approx. Chi-Square	1834.363
	df	231
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.326	19.665	19.665	3.688	16.764	16.764
2	3.278	14.901	34.565	2.968	13.492	30.256
3	2.403	10.923	45.488	2.302	10.465	40.721
4	2.208	10.039	55.527	2.207	10.031	50.752
5	1.962	8.919	64.446	2.188	9.944	60.695
6	1.492	6.783	71.229	1.892	8.598	69.293
7	1.346	6.116	77.345	1.656	7.525	76.819
8	1.247	5.669	83.015	1.363	6.196	83.015
9	.765	3.478	86.492			

10	.663	3.012	89.505			
11	.580	2.635	92.140			
12	.550	2.499	94.638			
13	.368	1.672	96.310			
14	.318	1.444	97.754			
15	.210	.957	98.711			
16	.169	.770	99.480			
17	.102	.466	99.946			
18	.006	.025	99.971			
19	.003	.013	99.984			
20	.002	.009	99.993			
21	.001	.004	99.997			
22	.001	.003	100.000			

Extraction Method: Principal Component Analysis.

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Appendix IV: Cronbach's Alpha Test for Items of Factors

Reliability Analysis - scale (alpha)

Cronbach's Alpha /	Cronbach's Alpha Based on Standardized Items	N of Items /
.6510	.6510	22

Cronbach's Alpha Test for Items of Factors

Factors	Variables	Scale Mean if Item Deleted	Corrected Item-total Correlation	Alpha if Item Deleted
Anchoring and Ability bias	Q7a	125.1967	0.0766	0.6517
	Q7g	124.5574	-.0959	0.6539
Overconfidence & I Gambler's fallacy	Q7c	119.8689	.3608	0.6211
	Q7f	122.1639	.0998	0.6596
Prospect	Q7i	119.7213	.1966	0.6504
	Q7j	124.3443	-.2871	0.6559
	Q7l	124.6393	-.0844	0.6537
Market	Q7m	120.9344	.2848	0.6329
	Q7n	125.4918	.1552	0.6507
	Q7o	120.6230	.0586	0.6647
Herding	Q7r	122.7869	.4776	0.6136
	Q7s	123.7049	.4977	0.6110
	Q7t	123.5082	.4844	0.6125
	Q7u	120.3115	.5918	0.5760

(Source: Author)