BEHAVIORAL BIASES EFFECT ON THE PERFORMANCE OF STOCKS LISTED IN THE NAIROBI SECURITIES EXCHANGE (NSE) KENYA

BY

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UNITED STATES INTERNATIONAL UNIVERSITY AFRICA

SUMMER 2018
BEHAVIORAL BIASES EFFECT ON THE PERFORMANCE OF NAIROBI SECURITIES EXCHANGE (NSE)

BY

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A Research Project submitted to the Chandaria School of Business in Partial Fulfillment of the Requirement for the Degree of Master of Business Administration (MBA)

UNITED STATES INTERNATIONAL UNIVERSITY AFRICA

SUMMER 2018
STUDENTS DECLARATION

I the undersigned, hereby declare that this research project is my original work and has not been presented to any other University, college or institution for higher learning or otherwise other than the United States International University-Africa.

Signed: ........................................... Date....................................

Anitha Kayani (Student ID-629864)

This research project has been presented for examination with my approval as the appointed supervisor.

Signed ........................................... Date ....................................

Dr. Elizabeth Kalunda

Signed ........................................... Date ....................................

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ABSTRACT

The purpose of this study was to examine how behavioral biases effect on stock market performance. This study was guided by the following research question: How does disposition effect influence stock market performance? To what extent does overconfidence effect influence stock market performance? To what extent does herding effect influence stock market performance?

This study adopted a descriptive survey design. The study population was 338 out of which a sample of 183 was utilized. Stratified and random sampling was used to select investment advisors from the 24 licensed stock brokerage firms. A structured closed-ended questionnaire tool was used to collect primary data. Data was analyzed for descriptive and inferential statistics using Statistical Package for Social Studies (SPSS) version 23 and presented using Tables and Figures.

The first research question sought to examine whether disposition effect influences stock market performance. The findings show there exists a statistically significant relationship between disposition effect and stock market performance.

The second research question sought to determine the extent to which overconfidence effect influences stock market performance. The findings show that there exists a statistically significant relationship between overconfidence effect and stock market performance.

The third research question sought to determine whether herding effect influences the stock market. The findings show that there exists a statistically significant relationship between herding effect and stock market performance.

This study concludes that the bias of disposition effect particularly on price runs-ups, good asset pricing, poor asset pricing, and speculation does significantly influence stock market performance. Equally, this study concludes that overconfidence in stock market prices and activities, overestimation of stocks performance, and miscalibration of the stocks do negatively influence the stock market. This study also concludes that heading effect can either influence the stock market positively or negatively depending on the nature and experience of the herders on the market. Information cascade and reputational herding do have a negative effect on the market in markets with behavioral biases.
This study recommends that investment advisors trading on the stock market should be trained on how to identify, and interpret disposition biases prevalent at the market place in terms of price run-ups, good asset pricing, and also bad asset pricing so as to make good trading without negatively affecting the stock market performance. This study also recommends that investment advisors should be trained on reading and detecting presence or prevalence of overconfidence, overestimation, and miscalibration on specific stocks on the stock market, and be able to determine whether these stocks have fundamental underlying value aligned with their pricing. Finally, this study recommends that regulatory mechanisms should be put in place to curtail insider trader information cascades particularly from investors with insider trading information that fuel herding effect at the stock market.
ACKNOWLEDGMENT

My acknowledgment goes to my supervisor Dr. Elizabeth Kalunda, Ph.D. for guiding me throughout this research project
DEDICATION

I would like to dedicate this research project to my family members who have supported me and encouraged me throughout my Master's studies, and in writing this research project. I would also like to dedicate this research to my friends for their unwavering support and encouragement. Thank you.
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Behavioral biases have been a great puzzle to most decision scientists attempting to understand motivation drivers of the human mind in decision-making processes. For instance, Kahneman and Tversky (1979) notes that while traditional finance theories were founded on the assumption that people are rational and make decisions that maximize their utility, behavioral theories, on the other hand, have attempted to deconstruct this notion, by arguing that individual's behaviour is key as it tries to satisfice rather than maximize utility. Further, individuals do not always reference themselves against some standards which are objective in nature, but against some internal standards (Shapira & Venezia, 2016). As such, decision making as pertains to personal finance would be subject to various beliefs and preferences which guide the investors' investment choices (Pompian, 2016). These beliefs, which will be referred to in this study as biases an individual towards the investment decisions, which the individual believes to be more favorable. Hence the biases act as filters which enable the individual to make a choice among numerous alternatives.

According to Shefrin and Statman, (2000), explained the importance of understanding investment decisions as they have both emotional and financial consequences over time. Odean (2014) stated that the investment process is influenced by a number of interdependent variables and driven by dual mental systems, the interplay of which contributes to bounded rational behavior where investors use various heuristics and may exhibit behavioral biases. According to Kahneman and Tversky (2014), behavioral biases are the designs of the human mind and are a tool that the mind uses to make sense of the information overload and reach to a decision. Hence investors’ behaviors are shaped collectively by internal and external forces, namely, psychological, sociological and biological factors.

Psychological factors are decision-making biases that are produced internally by individuals through the two systems of human thinking, namely, the dual cognitive-affective process (Kahneman & Tversky, 1979). These thinking systems are claimed to
induce errors in individual decision-making. Specifically, the cognitive system produces errors that are collectively known as cognitive heuristics or the tendency to use rules of thumb in the decision-making process to simplify complex decision situations (Carle, 2016). Whereas, biases in decision-making produced by the affective system are sentiment or feelings, emotion, and mood (Coleman, 2014).

The sociological factors are external forces that induce decision-making biases on part of individual because of social influence in the social networks (Fenzl & Pelzmann (2012). This evidence is consistent with earlier prediction by Coleman, 2014) that social interaction influences individual decisions by way of believing what others think and following what others do. From the field of ecology, ecologists coined that the financial institutions, ranging from large institutional investors to investment banks, have substantial social and ecological impacts at a global level through their investment decisions. The theory of social mood hypothesizes that social mood determines the types of decisions made by consumers, investors and corporate managers alike. The culture-based theory postulates that culture can affect finance through three channels. First, the values that are predominant in a country depend on its culture. Second, culture affects institutions practice. Third, culture affects how resources are allocated in an economy (Goetzmann, & Massa, 2008). In behavioral finance application, Summers and Duxbury (2012) argue cultural differences may influence investor behavior that matters in understanding the individual in the different culture investment decision-making process.

The biological origin of human irrationality has been explained by Murphy (2012) while individual financial risk tolerance based on biological perspective has been provided by Harlow and Brown (2014). The main idea is that natural and psychological traits influence the formation of preferences and decision-making process. Odean (2014) also highlighted that personality characteristics such as sensation-seeking and extroversion, as well as various components of the complex set of human neurochemical systems, influence the individual financial risk tolerance. Based on this theoretical premise, Murphy (2012) provides the underlying biological explanations for time-varying risk aversion and temporal changes in expectations. The basic premise is that the brain states which are
induced by internally produced biological chemicals could explain irrational investor behaviors that cause mispricing and inefficiency of the stock markets.

Disposition effect investors if one of the factors that affect investors a choice in the stock market (Odean, 2014). Kahneman and Tversky (2014) on the other hand define disposition effect as an anomaly that usually occurs on the stock market when investors tendency to sell stocks whose prices has increased, while at the same time, keeping stocks whose price has dropped. Disposition effect is a behavior that investors assume to realize gains on the stock market while being reluctant to recognize losses (Shefrin & Statman, 1985).

Globally, stock markets have experienced varying degrees of behavioral biases on their stock markets. Studies on New York stock exchange have not depicted disposition effect over the years, as stock prices rise and fall over the trading circles. Notably, the strong behavioral impact was experienced on investors stock repurchase decision at the New York stock exchange. However, measuring behavioral effect beyond disposition effect was a challenge since investors do not readily divulge their motivation for actions in the stock market (Nofsingera & Varmab, 2013). In the United Kingdom, behavioral biases have equally been experienced in varying degrees. Hirt and Block (2012) study established that the heading behavioral effect has a significant influence on the behavior of buyers and sellers on the stock market. However, the extent to which this behavior influenced long-term effect on the stock market was not established.

In the ASEAN markets, Luong and Thu Ha (2011) examined the Malaysian stock market and noted the existence of disposition effect. However, this has a moderate impact on investors’ decision to buy or sell. On the other hand, Kengatharan (2014) who examined China and Japanese stock exchange noted that behavioral factors did exhibit a significant impact on investors’ decision and choice of stock on the stock market. Since ASEAN markets are not homogenous, the finding cannot apply universally to all the ASEAN markets. However, China being the largest stock market in the ASEAN region provides an insight on how the extent to which behavioral biases can affect or influence stock markets in Asia (Kengatharan, 2014)
In African stock Markets, Akinsomi (2016) examined the effect of gold market speculations on the REIT returns in South Africa and established that the effect of speculation has a significant impact on the stock market. Investors’ decisions were largely influenced by the perceived speculation on the performance of gold trading firms, compared to the non-gold trading firms on Johannesburg stock exchange (JSE). In Kenya, there exist few studies that have examined the effect of behavioral biases on stock market performance at the Nairobi Securities Exchange (NSE). A study by Wamae (2013) examined the effect of herding and established that this behavioral bias positively influenced investor decisions. Conversely, Ayuko’s (2015) study on heading effect established that between 2001 and 2014, there no significant herding effect on investor decisions at the NSE. Most of the studies conducted at the NSE seem to focus mainly on herding effect while not examining other behavioral biases such as disposition effect, and overconfidence.

The Nairobi Securities Exchange (NSE) is the only Stock market in Kenya. It was established in 1954 and is one of the fastest growing Africa stock Market Exchanges. The NSE has more than six decades of trading equity and debt securities. In 2014, the NSE went through demutualization and self-listing. The NSE is located in Westlands in Nairobi, and currently, the NSE has 67 listed companies trading in equities and debt securities; 57 government bonds, and 28 commercial bonds. The NSE has two indices: The all share index, and the NSE 20 share index (NSE, 2017). The NES operates under the Capital Markets Authority of Kenya. And is a member of World Federation of Exchange, a founder member of Africa Securities Exchanges Association, and the East African Securities Exchange (NSE, 2015). About 52.4% of stocks on the NSE are held by local investors, 25.4% are held by local corporates; 20.4% by foreign corporates, 0.13% by East Africa individuals, and the remaining 0.6% are held by East African Corporates (CMA, 2015). In 2015, the International Finance Corporation (IFC) rated the NSE as the best performing stock market in the world with a 179% return (NSE, 2015).

The effects of behavioral biases on the NSE have received been examined by some scholars. For, a study by Wamae (2013) examined the impact of herding and established that this behavioral bias positively influenced investor decisions. Conversely, Ayuko’s (2015) research on heading impact found that between 2001 and 2014, there no significant
herding effect on investor decisions at the NSE. Most of the studies conducted at the NSE seem to focus mainly on herding effect while not examining other behavioral biases such as disposition effect, and overconfidence.

### 1.2 Statement of the Problem

The question on whether behavioral biases affect the performance of stock markets globally is exceptionally variant, and unreliable as a benchmark from one regional stock market to the other. Nairobi Securities Exchange (NSE) is an exception. The NSE has over the years experienced different degrees of behavioral biases including price speculation, stock value speculation, stock performance speculation, price overconfidence, herding of stocks, and disposition effect of investors at the market. However, limited studies exist that have examined the effect of this behavioral biases on the NSE, and on investor decisions and choices.

Various scholars have conducted studies on the behavioral role of behavioral finance on the performance of stock markets. For instance, Gärling, Blomman, and Alexander (2017) conducted a study on the German and Swedish stock exchange to determine the effect of disposition affect account of disposition effect and consequences for the stock market. The study found that investors prefer to sell when prices are high, and sell when prices are declining. The study also found that affect-driven disposition effect does intensify trends in stock prices depending on the demand and supply at the market.

Another study that was conducted by Lin (2011) in the Chinese and Taiwanese stock market to examine whether disposition effect exits in Taiwan and Chinese stock markets. The findings concluded that disposition effect significantly exists in bullish periods, but not in bearish period. As such, determination of finance behavioral biases and their influence on the stock markets were limited only to the bullish and bearish periods.

A study by Park (2008) examined whether herding behavior leads to volatility in stock market performance in South Africa, Johannesburg stock exchange. The study concluded that herding behavior does lead to increase market performance volatility. Another study conducted by Khalil (2015) on Egyptian stock exchange to examined whether investment
trading and noted that investment behavior at the stock markets does correlate with market performance.

Wamae (2013) focused on the effect of herding on NSE and whether the herding effect affected NSE market performance. The study concluded that herding significantly contributed to the market stability and performance. Most of these studies examined herding, leaving out but did other behavioral biases that might affect performance and investor decisions at the stock market.

The survey by Ayuko (2015) on whether there existed any herding on NSE for the periods of 2001-2007; 2010; and 2011-2014, the study concluded that there was no evidence of herding on NSE for the stated periods, and therefore, the stock market was not impacted by herding behavioral biases.

Based on this the above studies, it is evident that there exists a gap in research particularly in examining comprehensive behavioral biases; disposition effect, overconfidence behavior, and herding effect. Therefore, this study seeks to fill this gap by examining the effect of behavioral biases of disposition effect, overconfidence effect, and herding effect on performance Nairobi Securities exchange. This adds value not only to the existing literature but also provides significant information on behavioral biases for investors at the NSE.

1.3 Purpose of the Study

The purpose of the study was to examine how behavioral biases affect the performance of stocks listed in the NSE, Kenya.

1.4 Research Questions

This study seeks to answer the following three research questions:

1.4.1 How does disposition effect affect the performance of the stock market?
1.4.2 To what extent does overconfidence effect affect the performance of the stock market?
1.4.3 To what extent does herding effect affect the performance of the stock market?
1.5 **Significant of the Study**

1.5.1 **Leadership and Management**

Leadership and management of Nairobi Stock Exchange will also benefit from the findings of this study by being able to establish how to tackle the issue of behavioral biases in dealing with the stock market. The findings can, therefore, be adopted as a standard for the enhancing competitive advantage in the Nairobi Stock Exchange.

1.5.2 **Researchers and Academicians**

The findings of this study are significant to researchers and academicians in terms of testing hypothesis to confirm or compare the findings of this study with other studies. Equally, this study can be used to enhance the body of empirical literature on the role of behavioral biases of disposing effect, overconfidence and loss aversion on the stock market.

1.6 **Scope of the Study**

The geographical scope of this study is at the Nairobi Stock Exchange. The population of the study is 67 companies listed in the Nairobi Stock Exchange, and 24 traders. The study was conducted in the month of May and June 2018. Limitation of the study is that only market investment advisors were contacted to take part in this study. This is because investment advisors are usually the ones who conduct business on behalf of investors, and therefore, have sufficient information on the effect of behavioral biases compared to an individual investor or listed companies.

1.7 **Definition of Terms**

1.7.1 **Behavioral Biases**

Behavioral biases are the designs of the human mind and are a tool that the mind uses to make sense of the information overload and reach to a decision (Kahneman & Tversky, 2014)
1.7.2 Disposition Effect

Disposition effect is a phenomenon in which investors’ exhibit a tendency to realize the gains, while reluctant to recognize losses (Shefrin & Statman, 1985).

1.7.3 Overconfidence

Overconfidence is a cognitive bias in which people have an unwarranted faith in their intuitive reasoning, judgments and cognitive abilities (Pompian & Wood, 2016).

1.7.4 Herding Effect

Herding effect is the trading behavior where investors and traders tend to follow the trading pattern of a single influential trader or investor on the stock exchange. (Kahneman & Tversky, 1979).

1.7.5 Stock Market

Stock market refers to the collection of markets and exchanges where the issuing and trading of equity, bonds, and other sorts of securities take place, either through formal exchanges or over the counter markets (Murphy, 2012).

1.8 Chapter Summary

This chapter has presented the background information on the impact of behavioral biases of disposition effect, overconfidence and loss aversion on a stock market. The statement of the problem is also presented followed by the purpose of the study, research questions, significance of the study and definition of terms. Chapter two discusses literature based on study research questions while chapter three presents the study methodology.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter analyzes literature review as presented by various scholars for each research question of the study. Literature review on effects of disposition effect on stock market prices is presented first, followed by literature on the effect of overconfidence on prices of shares on the stock market, and finally, the extent to which the disposing effect impacts the stability of the stock market.

2.2 Disposition Effect on the Performance of Stock Market

Disposition effect is a situation in which an investor in the stock market exhibits the tendency to raise gains, while at the same time, reluctant to realize losses (Shefrin & Statman, 2000). Most investors who deal with the stock market do invest for the purposes of making gains and not losses; therefore, any information concerning a stock that seems unprofitable is usually acted upon swiftly, at the time, based on the behavioral bias of disposition effect. Loses in the stock market usually make investors more risk-averse, mainly, after experiencing gains, while at the same time, risk seekers after experiencing a loss (Kahneman & Tversky, 2014).

A study conducted by Odean (2014) (an economist from University of California) on the US New York exchange sought to determine what happens to determine the effect of disposition effect, particularly in the risk-averse stock market environment. The study found that stock investors the opposite of disposition effect happened. Stocks that investors had sold due to disposition effect outperformed the stocks they did not sell by 3.4%. This finding depicted that even professional investors can be vulnerable to disposition bias. However, this kind of bias has hardly been documented in behavioral studies. In as much as this might be the case, investors who seek disposition profit pay more in taxes than necessary. Under disposition effect, a failure for investors to maximize taxes represents a wealth transfer mostly, from investor to the society.
A study by Shapira and Venezia (2016) conducted a study on US stock markets using agent-based model simulations. The study sought to explore which traders were successful in utilizing disposition based biases and their experience, to succeed in the market. The results of the study revealed that agents with higher experience survived longer at the market. Disposition bias was more effective with experience than the marginal trading trends, or averseness to loss. Thus, the systematic behavior by investors can affect both the stock performance on the stock market and drive a wedge between the fundamental values of the stock market and even the share prices (Shapira & Venezia, 2016).

In another study in the US, Odean (2014) analyzed the 10,000 customers’ accounts from a nationwide discount brokerage and their empirically study noted that under disposition effect, investors are engaged in loss realized selling at the end of the year, i.e., December to mitigate uncertainties associated with new year economies. Similarly, Dhar and Zhu (2016) study noted that disposition effect exists in mutual fund’s purchase and sale decision of investors, particularly when short-term gains are anticipated. They noted that investors sell their funds when they anticipate positive returns, while at the same time, are reluctant to sell the loss-making funds. Furthermore, Shapira and Venezia (2016) documented that individual investors are more prone to disposition effect than the professional investors. Dhar and Zhu (2016) analyzed the difference in the disposition effect among individuals and reported that nonprofessional and the low-income group investors exhibit more disposition effect than others. In an experiment, Shafran et al., (2013) investigated that investors are prone to disposition effect but also affected by the trading conditions. On the other hand, Goetzmann and Massa (2012) study reported a negative correlation between turns, market volatility and stock performance at the stock market.

In the stock market, most investors select stocks that are likely to bring them gain either in the long term or in the short term, based on the price and relativity to the value (Goetzmann & Massa, 2012). Earlier studies by Shefrin and Statman (1985) indicated the existence of a significant relationship between disposition effect and price of shares at the stock market. The study conducted in the United States, further noted that market investors take advantage of short jumps in market prices to implement short sells so as to make gains on their shares. The net impact of such actions is that when a large number of investors are
engaged in short sell, the stock shares to fall, which might hurt the price in the long term (Kahneman & Tversky, 2014).

Notably, other studies have also drawn a link between disposition effect and stock market performance. For instance, Frazzini (2006) study established that in the presence of investors prone to disposition effect since stock market usually react to news, thereby drifting prices either positively or negatively, and thus affecting the performance of the stock market. Grinblatt and Han (2005) developed an equilibrium stock market price model linking disposition effect to explain the tendency why past winners outperform past losers, where he noted the ability to read price trends was fundamental. Odean (1998) on the other hand identified a positive correlation between price changes and trading volume in the stock market as a result of disposition effect. In cases where large volumes were disposed of, the share price had guaranteed investors a good return on their investment that was not anticipated with the continuous holding of the stock. Inadvertently, this means that most stock market investors prefer a stock price that would yield profitability. However, this is not always necessarily the case, negative wealth effect of the disposition effect could mean investors are disposing of their stock at a marginal price that could cut further losses, and in that case, obtain lower returns (Carle, 2016; Das, 2012).

Thus, is a disposition effect is purely based on price movements, or rather if price movements inform and influence investor behavior at the stock market, then this would explain why the volume of trading is usually high during the price run-ups, and thin trade during price crashes

2.3.1 Stock Price Performance

At the stock market, price run-ups are usually a sudden up-serge in a stock price due to various factors including news of new product lines, mergers or acquisitions, new management, new market share among others (Das, 2012). As noted by Shefrin and Statman (1985) traditional finance theories are constructed on the hypothesis that investors are rational. As such, during stock disposition effect portends situations where rational investors would rush to make profits when prices run up. This inadvertently might cause investors to run marginal losses in other stocks they sell to acquire the booming shares. According to Hirshleifer, (2001) momentum or contrarian prices are a result of price run-
ups partly associated with disposition effect. In most instances, the rush is usually to maximize profits. Models by Hong and Stein (1999) have tried to explain the behavioral biases of different investors seeking to maximize profits due to overreaction to stock price information. This means that with all factors constant, price runs attract short-term positions that enhances individual investor profits, which in the long run might positively or negatively affect stock performance at the stock market.

Fama (1998) claims that under or overreaction to price run-ups cancel each other and therefore, does not necessarily constitute or explain disposition effect. However, Bloomfield and Hales (2002) argued that price and disposition effect of under overreaction on the stock market is only significant when the market unsystematic. Meaning, trends are not easily predictable. In cases where information is easily available, under or overreaction is usually systematic, and investors are able to use predictable trends and hence disqualifying disposition effect. According to Hong and Stein (1999), under-reaction to new information on prices usually results in a price drift or momentum over time, which investors are keen to take advantage off. Conversely, Kahneman and Tversky (2014) note that uninformed investors usually engage in momentum trading, which results in overreaction to market news, and which further, promotes short-term price sells. However, in the long run, the market tends to correct price reversals to equilibrium stock market value. This finding is in line with Lin and Rassenti (2012) who confirmed in their study that asymmetric information contributes to price under-reaction at the stock market. Therefore, to argue price run-ups are squarely responsible for disposition effect is not entirely accurate. As has been demonstrated by Bloomfield and Hales (2002) and Lin and Rassenti (2012), information is a key driver causing disposition effect while pricing responses are but secondary, and reactionary.

2.3.2 Asset Pricing

Disposition effect influences asset pricing in a manner consistent with traditional finance theories and hypothesis, particularly the demand and supply, and equilibrium self-correction in stock markets (Kahneman & Tversky, 2014; Pompian & Wood, 2016). Asset pricing is defined as the attribution of monetary value to a stock or a share at the exchange based on some underlying factors, both tangible and intangible. For instance, Shapira and Venezia (2016) argue that various stock underlying fundamentals influence pricing. This
includes the underlying technology in use, the proven leadership quality embedded within a stock, quality of the stock, stability, and desirability. In as much as each underlying factor influences the asset price differently, human behavior, particularly disposition biases can tank or overestimate the value within asset pricing (Murphy, 2012).

A study by Grinblatt and Han (2005) in the UK focused on examining the effect of prospect theory, mental accounting, and momentum. The study examined the tendency of investors to hold to stocks driven by biases formed under prospect theory. Meaning investors tend to hold to stocks they believe are underperforming. The study demonstrated that momentum effect in asset pricing is connected to disposition effect, and individual investors biases towards the long term and short term returns and profitability. A dispositional investor will seek to maximize profit, and thus, would like to see the value of a commodity or stock being traded go as high as possible to realize the maximum returns (Shafran et al., 2013). However, a rational trader seeks to for long-term market stability that guarantees consistent, continuous returns, that allows both short and long-term trading.

Murphy (2012) argues that when the investor has certain gains in a given stock, they prefer to sell it because of disposition effect. As a result, and based on the volumes traded, the asset price could rise or decline. Asset price is equally susceptible to news within the market sector. If the news in the market is positive towards a given company, the company’s asset price on the stock market tends to respond by going up and vice versa (Frazzini, 2006). Consequently, as the asset price goes down, disposition investors will not sell for fear of making a loss, however, over the long haul, the asset price will correct itself. The initial momentum reaction in the direction of the market is an indication of the power of disposition effect on asset pricing in the stock market. However, Rotheli (2011) disputes this argument stating that markets usually react to external forces without necessarily instigating disposition effect. Rotheli’s position is contentious, since as demonstrated by Lin and Rassenti (2012); Kahneman and Tversky (2014) and Pompian and Wood (2016), that, individual investors are subject to disposition biases and need for profit maximization, which in turn lures them to react either by selling or buying a given asset at a given price. This instigates an asset price hike or falls based on demand, supply, and volumes of a given stock or asset being moved on the market.
On the nature of disposition effect on asset prices, Frazzini (2006) has noted that assets with unrealized aggregate capital gain are more important to investors than unrealized aggregate capital loss. Stated differently, this means that capital gains increase the value of a stock or an asset and thus makes it attractive at the stock market. To disposition investors, this is a great thing, as they are moved to make their profit on enhanced asset price. Goetzmann and Massa (2008) contend that behavioral biases inherent with individual investors can tip asset pricing positively or negatively. As such, stock with larger unrealized gains on the stock market underreacts to positive earnings, while act normally to negative surprises. This means that a stable stock price, mostly in the bullish state, is not affected significantly by disposition winds of the stock market (Carle, 2016).

Rotheli (2011) argues that most investors deal with market volatility by engaging in what is referred to as the resistance and support levels. Asset pricing should not cross this levels in the short term to fend off disposition effect. However, if they do, this only continues in the short term until the market corrects itself. Similarly, asset pricing can be subject to disposition effect in what is referred to as the January effect (Goetzman & Kumar, 2008). Studies show that asset prices on the stock market are usually higher in January than in the previous months (Carle, 2016; Rotheli, 2011; Shafran et al., 2013). However, other scholars are of the opinion that tax-loss in the previous year is usually to blame rather than disposition effect on asset stock pricing (Barber & Odean, 2000; Odean, 1998). Investors with loss realization at the end of a year might utilize tax benefits available to enhance asset pricing so as to regain losses made, a behavior that is consistent with what Carle (2016) refers to as asset pricing patterns. Therefore, in as much as stock markets correct anomalies created by asset pricing, disposition effect usually dampens quicker equilibrium normalization since disposition investors move their earning either out of the system or to other targeted stock.

Asset pricing under disposition effect is a quest to show that investors follow a rational pattern in investing in the stock market (Bloomfield & Hales, 2002). Volatility notwithstanding, investors have a need to make not only sense for their investments but also a decent return on their investments. This assertion is in agreement with Kahneman and Tversky (2014) who in their study noted that rational choice enables investors to consider a set of alternatives when making buy or sell decisions at the stock market. One
of this decision includes whether a short sell maximizes their desire for profitability over long-term capital gains. If such is the case, then the construction of disposition effect is validated. However, is the converse is true, then the rational choice can equally be credited for decision making on long-term capital gains. Therefore, it asset pricing can both enhance disposition investors’ quest for profitability or professional investors’ quest for aggregate capital gains.

2.4 Overconfidence Effect on Performance Stock Market

In different stock markets around the globe, there has been significant interest in the behavior and consequences investors’ overconfidence in financial decision making, and functioning of the financial markets (Rabin, 2002). Overconfidence is defined as the state in which traders and investors in the stock market have a bullish view of the market to yield above-average returns, and as such investments in the market is high (Das, 2012). There are several theoretical models that have been used by scholars to explain the nature of overconfidence in the stock market and the related disposition effect on the same.

Gervais and Odean (2001) and Odean (1998) have examined stock market models for US, Japan, and the UK, using investor prospect theory, particularly effects of market overconfidence. They noted that overestimation of the precision of investors significantly influences stock market performance. Biased information can trigger overconfident investors underestimating variance contained in need for stock market products/services. Stated differently, overconfidence is achieved when there is an increase in trading volume at the stock market, coupled with increased price volatility, excess risk-taking, and lower utility expectation (Hoelzl & Rustichini, 2005).

A study conducted by Barberis and Xiong (2009) and Kaustia (2010) using prospect theory revealed the existence of a significant relationship between overconfidence in the stock market and disposition effect. The study indicated that individual biases drive investors to make a decision on perceived information, resulting in more than normal trade, at the expense of their wealth. As such, overconfidence can be attributed to under-diversification of stocks, which in turn affects the performance of the stock market. When an investor fails to diversify their investments in the stock market, they feel obliged to jump every time there
is a price shift in the stock they are holding. If a stock market has a significant number of this kind of investors, they trade would usually trigger disposition effect.

This has also been demonstrated in market level studies (Statman et al., 2006; Chuang & Lee, 2006) that examined the returns of stock-market-based bull markets or overconfidence. This studies concluded that usually associated with higher volume of stock trading, as such investors, particularly disposition investors trade aggressively to realize maximum returns when the stock is still bullish. Empirical studies in behavioral finance do link market outcomes and investor overconfidence through correlation proxies such as gender of the investor, and other economic variables such as market stability, the value of monetary unit among others (Moore & Hearly, 2008).

A study by Kaustia and Perttula (2012) on internet-based stock market game examining the extent to which traders in the market exhibit stand-alone and referential overconfidence in the Asian markets. The study utilized de-biasing methods to measure the extent of overconfidence among finance professionals impacted final stock buy or sell decision. The study revealed that self-attribute bias plays a significant role in overconfidence at the stock market. Overconfidence and self-attribute were correlated as an attribute of disposition effect. For instance, study findings show that finance professionals are usually overconfident in probability calibration on the performance of the stock market. This is born out of the knowledge acquired through years of learning and practice. This notwithstanding, debiasing attempts on finance professionals do equally yield mixed success. On the one hand, there is reduced overconfidence in the market based on disposition effect, while at the same time, the reduced overconfidence does not cover miscalibration based overconfidence. Which means that even finance professionals are subjects to individual biases that do enhance disposition effect, whether positive or negative to the market.

Other studies conducted on the subject of overconfidence have examined whether overconfidence can be reversed based on disposition effect to become underconfidence. For example, a study by Hoelzl and Rustichini (2005) conducted an experiment where stock market professionals were required to select among different options where a task complexity was manipulated to be high and low. The study revealed that the behavior of this professionals drastically changed from overconfidence to underconfidence with
changes in the task from easy to familiar to difficult, and non-familiar. This explains how disposition effect can affect even the most level-headed investors, particularly when profitability is involved, moving stocks on speculation, or responding to news that might tilt prospects of a stock performing well on the market. Mathuraswamy and Rajendran (2015), posits that the shifts in confidence levels in the stock market are pegged to monetary rewards or expectation for any given stock sale or purchase. Thus, in making a financial decision, investors can glide from being overconfident in a given stock, to acting irrationally, or underconfident following a significant loss in another stock. The willingness to pay (WTP) and willingness to accept (WTA) are some of the key struggles that both professional investors and disposition investors (Hoelzl & Rustichini, 2005). Consequently, if an investor is willing to accept the rate of returns of willing to pay for a given stock at given prevailing market rates. If this is the case, investors will be mostly likely be acting on their overconfidence perception of the market; however, if the converse is true, then investors will be acting on their under confidence in the market (Massa & Simonov, 2005). Under disposition effect, overconfidence decreases as WTA/WTP increase, implying that investors have become less overconfident in their perception of stock market uncertainty. According to Hoelzl and Rustichini (2005) overconfidence as a result of disposition effect can be expressed in two different forms: overestimation of stock market value, and miscalibration.

2.4.1 Overestimation

An overestimation is a form of overconfidence in the stock market that is usually coupled with individual investor biases, estimation ability, and perceived chances of success (Moore & Hearly, 2008). Overestimation of ability is usually used by disposition investors to predict the future of stock market returns. In most cases, as argued by Glaser and Weber (2007) a self-attribution bias helps disposition investors indulge in overconfidence at the stock market since they believe their cognitive process of arriving at a stock decision is vested in their personal abilities. Conversely, Shefrin and Statman (1985) deconstruct overestimation, particularly self- attribution bias as relevant in disposition effect, since disposition investors have to rely on external news or hyperbole concerning a given stock for them to act. It is hardly the case that an investor wakes up with an intuition to sell or buy given stock, and proceeds with such a decision purely on intuition.
Rotheli (2011) argues that when investors credit their own talents and cognitive processes in arriving at financial decisions at the stock market at the expense of salient financial models, then disposition effect takes root. Since psychologically, human behavior is different and subject to different internal and external stimuli. As such, when investors make decisions based on cognitive processes alone, the stock market suffers from speculative trading, which leads to high volatilities in stock pricing and market stability (Kilka & Weber, 2012; Pompian & Wood, 2016; Murphy, 2012). Significantly, Chuang and Lee (2006) posit that during losses, disposition investors who relied on the cognitive process to overestimate the stock market worth, usually blame it on bad luck.

2.4.2 Miscalibration

Miscalibration is defined as the excessive belief in the accuracy of one’s beliefs (Nelson, Bloomfield, Hales & Libby, 2001). In most behavioral financial literature, miscalibration is also referred to as overprecision of investors in the stock market (Murphy, 2012). Barberis and Xiong (2009) content that miscalibration affects the strength of information, and related credibility at the stock market, which in turn fuels disposition investing. Few studies have attempted to examine whether miscalibration does influence stock market performance.

A study by Nelson et al., (2001) for instance, utilized experimental studies to examine how important features of financial accounting influences stock market behavior. The study was conducted in the US an focused on how managers and auditors utilize financial information, and how their decisions affect the stock market. More focus was placed on assessing the strength of financial information and how decisions made by this group contributed to individual and market level miscalibration, in line with traders’ investment behavior. The study found that individual value estimate, market stock price, shares traded and profit were much more based on access to financial information that triggered market level miscalibration. This study also demonstrated that market information with high strength and low weight had more overconfidence that the converse situation. However, the study equally found that individual investors with more extreme estimates traded just as aggressively as with less extreme forecast. As such, Nelson et al., (2001) concluded that trading decisions on the stock market neither exacerbated nor mitigated individual bias and thus, deconstructing disposition biases and its effect. However, Biais, Hilton, Mazurier &
Pouget, (2005) study noted that overconfidence reduces trading performance, which is a sign of disposition effect in the stock market. In as much as Biais et al., (2005) noted that overconfidence reduces trading performance, the study fails to establish a relationship between overconfidence and trading volume as a standalone variable. The study did, however, find no correlation between gender miscalibration and disposition effect. In another study conducted by Kirchler and Maciejovksky (2002) examined whether two forms miscalibration, that is, objective accuracy and subjective certainty. The study found overconfidence traders earned less that traders experimental market traders, there was no evidence to show trading volume under disposition investors negatively correlated with individual investor earnings on the stock market. As such, one can conclude that individual disposition investors are not usually consistently overconfident, as a result, make it difficult to measure the rate of overconfidence over a long period of time, and what resultant impact this might have on the stock market, and disposition is investing.

2.5 Herding Effect on Performance of the Stock Market

Heading effect in the stock market is defined as the behavioral bias or tendency of investors to follow the trading behavior of other traders at the stock market (Waweru, Munyoki & Uliana, 2008). According to Sias (2004), investor’s tendency to act or behave in a similar manner is referred to as herding. This tendency may be as a result of influence by other players in the market who may have private information, or how have developed certain conclusions by observing the trends at the stock market. According to Waweru et al., (2008), herding is considered to have a significant impact on the market performance, since herders are mostly lured by risky venture investors, who most often, do not have sufficient information to make accurate stock market predictions.

In any given stock market, there exist leaders of trendsetters who gain the trust of other brokers and traders at the stock market. The driving factor behind the herding effect is that investors usually believe that specific players at the market do have adequate information and experience on the trajectory of the stock market on given stock, and thus, they might be right in predicting the trend of a given stock (Barberis & Thaler, 2013). In cases where herders have wrong information concerning the performance of the stock market, this can.
result into heightened volatility that can negatively impact the performance of the stock market (Sias, 2004).

According to Waweru et al., (2008), professional practitioners at the stock market usually consider the existence of herding in a market, since significant herding can affect the performance and stability of a stock market. Equally, academic scholars usually pay attention to herding effect at the stock market because herding effect does impact stock market prices, which impacts the development of finance and returns models and pricing theories (Tan, Chang, Mason & Nelling, 2008). According to Caperrelli, Arcangelis, and Cassuto (2014) contend that there exists a significant relationship between herding effect and performance of the stock market. In behavioral biases at the stock market, herding can take different shapes; this can include conformity biases.

Conformity is defined as the tendency for investors to stick a given stock without selling or buying, as a result as other players, or player doing so (Barberis & Thaler, 2013). This is usually the case in that a leader, opinion leader, or leading stockbroker can decide to hold to a given stock for unspecified speculative reasons. However, those who follow or monitor the stockbrokers trading behavior might interpret this to mean that there is fortune, and favorable returns in holding the stock too, and as a result, the emulate the key players in conforming to the prevailing market conditions as pertains to a given stock, or stocks (Tan et al., 2008). Under conformity, investors may prefer herding if they do believe that herding position will enable the investors to extract useful information that can use to their advantage in the near future trading. According to Gao and Schmidt (2005), herding conformity works when low ability investors mimic or follow the trading behaviors of high ability investors and traders on the stock market.

Stock market herding can either be rational or irrational. If a given investor or group of investors have limited knowledge or information concerning which stock they what to invest in or to buy, usually, an analyst who has good past experience may give a reasonable recommendation. As such, it will be considered rational if an investor or group of investors follow such guidance (Kim & Nofsinger, 2008). Conversely, investors may choose to herd for various reasons including limited time constraints, and speculation, which may result in irrational behavior. This kind of behavior center on investors psychology, which states that investors follow each other without any rational analysis. (Gao & Schmidt, 2005).
Generally, in herding, investors are either influenced directly or indirectly. Some of the causes of indirect influence include common knowledge concerning specific stocks, fads, common stock investment strategies, or similar compensation schemes (Kim & Nofsinger, 2008). Common knowledge, which is also referred to as investigative herding refers to the tendency for investors to follow the same correlated signals or information concerning given stocks at the market (Sias, 2004). Fads, on the other hand, refer to investors who purchase a given stock, simply because the stock has become popular, and other brokers are purchasing it. In other instances, investors at the stock market may systematically follow a certain pattern or style of investing such as the momentum of stock trading on the market. For instance, if an investor purchases a stock of a given industry in a given quota, and happens to get substantive returns on the purchase, other investors may purchase similar stock in the following quota expecting similar high returns (Caperrelli, Arcangelis, & Cassuto, 2014). Conversely, direct herders are influenced by information cascades concerning stocks on the stock market, or reputational herding, which refers to the investors' ability to make choices that deviate from the consensus by imposing costs for investors who may follow such a path (Sias, 2004).

2.5.1 Information Cascades

In cases where people have uncertain private information that they use to make a later decision, and as such, publicly, is referred to as information cascades (Caperrelli, Arcangelis, & Cassuto, 2014). According to Kallinterakis, Munir and Markovic (2010), information cascade significantly impacts stock market performance. This is particularly the case when information is cascaded to a sequence of investors at the stock market, causing these investors to abandon their private information when making a decision to purchase or sell a stock. At this point in time, the investor's behavior becomes imitative, as thus, results in herding. The market can thus be affected positively or negatively in terms of performance when a series of investors do make identical decisions on similar stocks. Inducing private information on investors who have made decisions based on information cascade may result in sudden dramatic shifts in decisions to purchase or sell at the stock market. Such erratic, unpredictable behavior and biases can have a significant impact on the performance of the stock market (Goodfellow, Bohland, & Gebka, 2009).
Information cascades provide a rationale through which stock market imitative behavior is observed among investors. However, doubts have continued to emerge on the rationality of information cascades. A study by Anderson, Henker and Owen (2005) revealed that only 36% of all decisions in their study were rational, and a small number of investors making rational decisions could state correct reasons of why they thought their investment decision was rational.

2.5.2 Reputational Herding

Reputational herding has a significant impact on the performance of the stock market, just like the information cascade (Sias, 2004). For reputational herding to occur, there have to be interdependencies among individual investors. Whereas information cascade results from individual investors incomplete information at the stock market, reputational herding results from the pressure, or motivation to earn a social approval among other investors, or motivation to avoid disapproval (Caparrelli, Arcangelis, & Cassuo, 2014).

According to Lin and Rassenti (2012), financial analysts and stock broker usually prefer to release their forecasts that reflect or project future earnings. This is done as a way to boost or positively reflect the impression investors have in the analysis capability. In turn, analysts feel justified to charge higher fees. In essence, herding is usually evident in these cases, particularly, when one analysts’ announced market forecasts is similar to that announced by other analysts operating in the same market (Kahneman & Tversky, 2014). As such, in reputational herding, an investor or analyst acting differently from the rest imposes an additional cost on the investor, which forces the investor or market analysis into conformity. Reputational herding provides investors with a veneer of security in conformity in that if the decision taken at the stock market is wrong, then, the investor can hide and shared the blame (Lin & Rassenti, 2012). In this case, unprofitable investment harms the investor considerably less, when other investors have similar investment decisions. As such, it if for reputational reasons that an investor normally ignores private information in favor of trading with the herd (Goodfellow et al., 2009).

According to Barberis and Thaler (2013), younger investors who have career concerns are more often stronger on reputational herding compared to older asset managers in the stock
market. In this case, younger asset managers deviate less from market decisions. Studies done by Lin and Rassenti (2012) have demonstrated that professional stock market analysts, brokers, and investors rely on reputational herding frequently to carry out their market trading. The extent to which individual herders’ decision influences the stock market performance is not well established, however, several studies (Barberis & Thaler, 2016; Kahneman & Tversky, 2014; Goodfellow et al., 2009) have demonstrated that when a large number of investors at the stock market adopt reputational herding position, this has significant impact on the stock market performance. Mostly, consistent reputational herding can result in purchases or trading that have hinge on speculation, which in turn may damage the stability of the stock market (Anderson et al., 2005).

Empirical data show that herding behavior at the stock market can negatively impact market performance, particularly in cases where investors with significant sway decide to dump the specific stock, and herding effect causes other investors to follow suit, without any considerable market information or fundamentals to do so (Waweru et al., 2009). One of the challenges with stock market performance is that daily trends are somewhat influenced by private information of specific traders, who in turn, have the capability to arouse herding as a result of their trading patterns. There is usually the probability that a highly reputed trader makes informed decisions concerning specific stock to maximize stock market gains, and such, following such a trader’s decision could result in similar gains, which is not always the case (Kahneman & Tversky, 2014; Caperrelli, Arcangelis, & Cassuto, 2014)

2.6 Chapter Summary

This chapter has examined literature by different scholars on the subject of how behavioral biases of disposition effect and overconfidence influences the stock market. The literature on the disposition effect on stock market performance was presented first, followed by literature on the effect of overconfidence on stock market performance and finally, herding effect on the performance of the stock market. Chapter three focuses on research methodology adopted for this study.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on research methodology that was used to conduct the study. The research design that adopted for the study is presented first, followed by population and sampling design, then data collection method and data analysis and presentation methods are presented. Finally, the research procedures that were adopted are presented at the end of the chapter.

3.2 Research Design

A research design is a framework that guides a study (Cooper & Schindler, 2014). For a researcher to conduct a study effectively, he/she has to have a blueprint that guide his resources within the project are allocated, and when such resources are allocated. Various research designs do exist for conducting studies. This includes the descriptive survey design, mixed design (qualitative and quantitative), exploratory design and observatory designs. This study adopted a descriptive survey. Descriptive survey design is a research design that enables a researcher to collect both qualitative and quantitative data without influencing the study environment (Creswell, 2007). In this instance, a descriptive survey was appropriate for this study since the researcher seeks to collect both quantitative and qualitative data that can be described, grouped or summarized in a manner that makes sense. This included the use of percentages, frequencies, correlations, and regression. This kind of description enabled the researcher to compare the findings with other related studies and be able to deduce authoritative discussions and conclusions.

3.3 Population and Sampling Design

3.3.1 Population

For a study to be conducted effectively, it has to have a population. A study population is defined as a total set of elements or units that a researcher seeks to study and make a generalized inference (Cooper & Schindler, 2014). The population of this study was 338 investment advisors in the 24-license stock trading brokerage firms on the NSE
3.3.2 Sampling Design

A sampling design is defined as the guideline that determines how a study framework is selected, how a study sample is selected, and the techniques that are used to select the sample (Saunders, Thornhill & Lewis (2012)).

3.3.2.1 Sample Frame

A sample frame is a population list from which a sample is picked (Creswell, 2007). The importance of establishing a sample frame in research is that it enables a researcher to deal with authentic subjects of the study, and thus enhance the credibility of the study findings. The sample frame for this study was obtained from the investment advisors from the brokerage firms.

3.3.2.2 Sampling Technique

A sampling technique is a process or methodology employed by a researcher to be able to select a sample size from the main population, by ensuring that each member of the study has an equal opportunity of being selected (Cooper & Schindler, 2014). There are two main types of sampling techniques used in research: probability sampling and non-probability sampling. Probability sampling utilizes scientific methods that can be replicated to give similar results. This includes random sampling, and stratified sampling (Creswell, 2007). A non-probability sampling includes convenient sampling, judgmental or purposive sampling, and snowball sampling (Cox & Hassard, 2010). In random sampling, a researcher establishes a scientific way to randomly select a sample from a population while in stratified sampling, a study population is grouped into stratum from which a sample is selected. This study randomly selected investment advisors from the 24 licensed stock brokerage firms on the NSE.

3.3.2.2 Sample Size

A sample size is defined as the selected representation of a population upon which the findings of a study were influenced. For this study the population was 338, from which Yamane’s formula was used to determine a sample size of 183 as follows:

\[ n = \frac{N}{1+N(\epsilon)^2} \]

\[ 183 = \frac{338}{1+338(0.05)^2} \]
The sample distribution is highlighted in Table 3.1

**Table 3.1: Sample Size Distribution**

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Population of Investment Advisors</th>
<th>% (Percentage)</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dyer &amp; Blair Investment Bank Ltd</td>
<td>24</td>
<td>7%</td>
<td>13</td>
</tr>
<tr>
<td>2.</td>
<td>Francis Drummond &amp; Company Limited</td>
<td>18</td>
<td>5%</td>
<td>10</td>
</tr>
<tr>
<td>3.</td>
<td>Suntra Investment Bank Ltd</td>
<td>18</td>
<td>5%</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>Old Mutual Securities Ltd</td>
<td>12</td>
<td>4%</td>
<td>6</td>
</tr>
<tr>
<td>5.</td>
<td>SBG Securities Ltd</td>
<td>8</td>
<td>2%</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Kingdom Securities Ltd</td>
<td>4</td>
<td>1%</td>
<td>2</td>
</tr>
<tr>
<td>7.</td>
<td>AIB Capital Ltd</td>
<td>11</td>
<td>3%</td>
<td>6</td>
</tr>
<tr>
<td>8.</td>
<td>ABC Capital Ltd</td>
<td>16</td>
<td>5%</td>
<td>9</td>
</tr>
<tr>
<td>9.</td>
<td>Sterling Capital Ltd</td>
<td>22</td>
<td>7%</td>
<td>12</td>
</tr>
<tr>
<td>10.</td>
<td>Apex Africa Capital Ltd</td>
<td>20</td>
<td>6%</td>
<td>11</td>
</tr>
<tr>
<td>11.</td>
<td>Faida Investment Bank Ltd</td>
<td>13</td>
<td>4%</td>
<td>7</td>
</tr>
<tr>
<td>12.</td>
<td>NIC Securities Limited</td>
<td>8</td>
<td>2%</td>
<td>4</td>
</tr>
<tr>
<td>13.</td>
<td>Standard Investment Bank Ltd</td>
<td>28</td>
<td>8%</td>
<td>15</td>
</tr>
<tr>
<td>14.</td>
<td>Kestrel Capital (EA) Limited</td>
<td>12</td>
<td>4%</td>
<td>6</td>
</tr>
<tr>
<td>15.</td>
<td>African Alliance Securities</td>
<td>12</td>
<td>4%</td>
<td>6</td>
</tr>
<tr>
<td>16.</td>
<td>Renaissance Capital (Kenya) Ltd</td>
<td>24</td>
<td>7%</td>
<td>13</td>
</tr>
<tr>
<td>17.</td>
<td>Genghis Capital Ltd</td>
<td>18</td>
<td>5%</td>
<td>10</td>
</tr>
<tr>
<td>18.</td>
<td>CBA Capital Limited</td>
<td>11</td>
<td>3%</td>
<td>6</td>
</tr>
<tr>
<td>19.</td>
<td>Equity Investment Bank Limited</td>
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<td>5%</td>
<td>10</td>
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<tr>
<td>20.</td>
<td>KCB Capital</td>
<td>12</td>
<td>4%</td>
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<td>Barclays Financial Services Limited</td>
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<td>Securities Africa Kenya Limited</td>
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<td>2%</td>
<td>4</td>
</tr>
<tr>
<td>23.</td>
<td>EFG Hermes Kenya Limited</td>
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<td>4%</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>338</strong></td>
<td><strong>100%</strong></td>
<td><strong>183</strong></td>
</tr>
</tbody>
</table>
Ngenye Kariuki & Co. Ltd is under statutory management and therefore eliminated from the list

3.4 Data Collection Methods

Cox and Hassard (2010) define data collection method as the process or technique that a researcher uses to collect data that was used in a study. Data collection methods are important in a study since they help a researcher to examine the methodology that is appropriate for the study. Without a properly defines data collection methodology, a researcher’s data cannot be easily verified, analyzed, and even credible. According to Saunders, Thornhill and Lewis (2012) a researcher has to pick a methodology that is verifiable, and mostly scientific. In research, several data collection methodologies can be adopted including survey, interviews, focus group discussions, and observations. This study utilized a survey as data collection method. The survey is appropriate for this study in that it enabled the researcher to develop a survey tool that can be distributed to different companies under the study, and have respondents fill in and remit back the survey tool for analysis.

A structured closed-ended questionnaire tool was used to collect data. Since this study is majorly a quantitative study, a structured questionnaire provides a specific scope within which respondents are restricted when answering questions. This is important as it makes it tenable to conduct descriptive data analysis.

3.5 Research Procedures

Research procedures help a researcher structure the step by step processes that were engaged in a given order to be able to accomplish research work and fulfill the study objectives (Cooper & Schindler, 2014). To ensure adequate procedures and steps were followed for this study, the researcher sought permission from the United States International University (USIU) to use the school name and authority to carry out the study. After this is granted, a letter of introduction was be developed and sent to NSE, and the 24-brokerage firm taking part in the study to seek permission to carry the study. After study permissions are granted, the researcher engaged research assistants who dropped the questionnaire to the respective stock brokerage firms. Respondents were requested to fill in the questionnaire within 72 hours, upon which the research assistants physically collect
the questionnaires back. To ensure high response rate, the research assistants place follow up calls to companies that had not submitted their questionnaire after the 72 hours. This was done to ensure a high response rate.

3.6 Data Analysis Methods

Data analysis is the process through which a researcher summarizes study findings from abstract raw data into meaningful information (Creswell, 2007). The statistical package for social studies (SPSS) version 23 was used to analyze both descriptive and inferential statistics. Descriptive statistics were analyzed for frequencies, and percentages, while inferential statistics were analyzed for correlations and regression. Descriptive analysis was essential for this study enabled the researcher to describe each response from respondents in a manner that can be compared to previous studies in percentages. This made it easy for the researcher to respond to each study question exhaustively. Inferential statistics, on the other hand, provided the researcher with the mechanisms to conduct a comparative analysis on the extent to which disposition effect influences the stock market. Data has been presented using tables and figures

3.7 Chapter Summary

This chapter has presented the methodology that was adopted for this study. The study research design is presented first, followed by the study population and sampling design. Equally presented in this study is the data collection and analysis methods adopted and the procedures that were adopted for the study.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction

The findings of this study are presented in this study, and are guided by the research objectives. The findings are presented both under descriptive then inferential analysis.

4.1.1 Response rate

This study had a response rate of (61%); out of 183 respondents, 112 questionnaires were returned.

4.1.2 Reliability analysis

A reliability analysis was conducted using Cronbach Alpha to determine whether the study instrument was reliable. The finding indicated that study tool variable questions had a Cronbach value above 0.7 as indicated in Table 4.1. A study tool to be considered reliable, it has to have a reliability value above 0.7 (Creswell, 2007).

Table 4.1: Reliability Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>No. of Items</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock Market Performance</td>
<td>7</td>
<td>0.782</td>
</tr>
<tr>
<td>Disposition Effect</td>
<td>9</td>
<td>0.716</td>
</tr>
<tr>
<td>Effect of Overconfidence</td>
<td>9</td>
<td>0.848</td>
</tr>
<tr>
<td>Herding Effect</td>
<td>8</td>
<td>0.774</td>
</tr>
</tbody>
</table>

4.2 Demographic Information

The demographic data for this study included the respondents’ age, gender, and years of work with their respective organizations. The findings are presented as follows:
4.2.1 Respondents Gender

The findings show that 70% of respondents were male, while 30% were female as highlighted in Figure 4.1. The implication of this finding is that there are male stockbrokers at the NSE, as compared to female stock brokers.

![Figure 4.1: Respondents Gender](image)

4.2.2 Respondents Age

The findings show that 31% indicated they were aged 42-49 years; 27% were aged 34-41 years; 26% were above 50 years of age; 15% were aged 26-33 years, while the remaining 1% were aged 18-25 years as summarized in Figure 4.2. The average age was between 34-41 years, meaning that most stock brokers at the market are seasoned traders.

![Figure 4.2: Respondents Age](image)
4.2.3 Respondents Level of Education

Results on level of education, revealed that 43% reported they had bachelor’s degree, 39% had a college degree, while the remaining 18% had master’s degree as highlighted in Figure 4.3. This finding indicates that majority of stock brokers at NSE have a university degree

![Figure 4.3: Respondents Level of Education](image)

4.2.4 Number of Years with the Organization

When respondents were asked how long they had worked for their respective organizations, 31% indicated 10-15 years, and above 15 years respectively; 21% indicated 5-10 years, 11% indicated 1-5 years; while 6% indicated less than 1 year as highlighted in Figure 4.4

![Figure 4.4: Number of Years with the Organization](image)
4.3 Disposition Effect on Performance of Stock Market

Descriptive summary on disposition effect on performance of the stock market is presented as in Table 4.2. On the question on whether disposition effect influenced the pricing of the stock market, 63% strongly agreed, 31% agreed, 5% remained neutral, while the remaining (1%) disagreed; Mean was 4.57, with standard deviation of 0.625. This means that disposition effect influences how pricing is done at the stock market by stock brokers.

When respondents were asked whether disposition effect on pricing was not good for the stock market, 63% strongly agreed, 31% agreed, 6% were neutral. The mean was 4.56, with a standard deviation of 0.612. This finding shows that disposition effect can negatively impact the actual pricing of stocks on the market. Similarly, on the question on whether disposition effect had caused price run-ups on the stock market, 50% of respondents strongly agreed on this to be the case, 37% agreed, 11% were neutral, while the remaining 2% disagreed. The question had a mean of 4.34 and standard deviation of 0.778.

Respondents of this study were asked whether disposition effect on price runs-ups negatively affects stock market stability. The response had a mean of 4.52, and standard deviation of 0.697. Majority 61% of respondents strongly agreed that this was the case at the stock market, 33% agreed, 3% were neutral, while 3% disagreed. The question on whether good asset pricing positively affects stock market performance had a mean of 4.45, and standard deviation of 0.708. Majority 55% of respondents strongly agreed, 38% agreed, 5% were neutral, while the remaining 3% disagreed. On the question on whether bad asset pricing at the stock market negatively affected stock market performance, the majority 70% of respondents strongly agreed, and 22% agreed, 4% were neutral and disagreed respectively. The question had a mean of 4.58 and standard deviation 0.743.

This finding implies that disposition bias of can influence bad pricing, which in turn, can negatively affect stock market performance. Respondents of the study were asked whether speculative pricing negatively affected stock market performance. The question had a respondents mean of 4.50, and standard deviation of 0.747. The findings show that majority 62% of respondents strongly agreed on this to be the case at NSE, 28% agreed, 7% were neutral, while 3% disagreed.
On the question on whether speculative pricing was not good stock market performance, the mean was 4.79, and standard deviation of 0.468. Majority 82% of respondents strongly agreed, 15% agree, while 3% remained neutral. As noted by the findings of this study, speculative pricing is based on disposition bias of traders at the stock market, and it is not good for stock market performance. When respondents were asked to indicate whether stable asset pricing enhances stock market performance; the majority 70% strongly agreed on this to be the case, 23% agreed, 4% were neutral, while 3% disagreed. The question had a mean of 4.62 and standard deviation of 0.688. This finding implies that in as much as disposition bias affects stock market performance, stable pricing on the market is desirable since the tend to enhance the stability of market performance. As summarized in Table 4.2

Table 4.2: Disposition Effect on Performance of Stock Market

<table>
<thead>
<tr>
<th>Disposition Effect on Performance of Stock Market</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>n</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disposition effect on pricing affects stock market performance</td>
<td>1% (1)</td>
<td>5% (5)</td>
<td>35% (31)</td>
<td>63% (71)</td>
<td>112</td>
<td>4.57</td>
<td>0.625</td>
</tr>
<tr>
<td>Disposition effects on pricing are not good for stock market performance</td>
<td></td>
<td></td>
<td>6% (7)</td>
<td>31% (35)</td>
<td>63% (70)</td>
<td>112</td>
<td>4.56</td>
</tr>
<tr>
<td>Disposition effect causes stock price run-ups affecting stock market performance</td>
<td></td>
<td></td>
<td>2% (3)</td>
<td>11% (12)</td>
<td>37% (41)</td>
<td>50% (56)</td>
<td>112</td>
</tr>
<tr>
<td>Disposition effect price run-ups can affect stock market performance stability</td>
<td></td>
<td></td>
<td>3% (3)</td>
<td>4% (4)</td>
<td>33% (37)</td>
<td>61% (68)</td>
<td>112</td>
</tr>
<tr>
<td>Good asset pricing positively affects stock market performance</td>
<td>3% (3)</td>
<td>5% (5)</td>
<td>38% (42)</td>
<td>55% (62)</td>
<td>112</td>
<td>4.45</td>
<td>0.708</td>
</tr>
<tr>
<td>Bad asset pricing positively affects stock market performance</td>
<td>4% (4)</td>
<td>5% (5)</td>
<td>22% (25)</td>
<td>70% (78)</td>
<td>112</td>
<td>4.58</td>
<td>0.743</td>
</tr>
<tr>
<td>Speculative pricing negatively affects stock market performance</td>
<td>3% (3)</td>
<td>7% (7)</td>
<td>28% (31)</td>
<td>63% (70)</td>
<td>112</td>
<td>4.50</td>
<td>0.747</td>
</tr>
<tr>
<td>Speculative pricing is not suitable for stock market performance</td>
<td>3% (3)</td>
<td>15% (17)</td>
<td>82% (92)</td>
<td></td>
<td>112</td>
<td>4.79</td>
<td>0.468</td>
</tr>
<tr>
<td>Stable asset pricing can enhance stock market performance</td>
<td>3% (3)</td>
<td>4% (4)</td>
<td>23% (26)</td>
<td>71% (79)</td>
<td>112</td>
<td>4.62</td>
<td>0.688</td>
</tr>
</tbody>
</table>

33
4.4 Overconfidence Effect on Performance of Stock Market

This study sought to examine whether overconfidence behavioral biases affect the performance of the NSE stock market. Descriptive summary on the findings on effect of overconfidence are presented in Table 4.3. Respondents of the study were asked whether stock brokers’ overconfidence affects stock market performance. The findings show that majority 75% strongly agreed on this to be the case, while 25% agreed. The question had a mean of 4.75 and standard deviation of 0.435. This finding means that overconfidence can influence negative or positive effect on the stock market performance. On the question on whether investor overconfidence affected the performance of the stock market. The findings of the study show that 71% of respondents strongly agreed that investors overconfidence does affect stock market performance, 23% also agreed on this to be the case, 5% were neutral, while the remaining 1% disagreed. This question had a mean of 4.65 and standard deviation on 0.611.

The question on whether speculative trading affects stock market performance had a mean of 4.70, and standard deviation of 0.613. Majority 79% of respondents strongly agreed that speculative trading affects stock market performance; 17% agreed, 5% were neutral, while 1% disagreed. This means that behavioral bias of overconfidence has an impact on the trading behavior at the stock market, which in turn determine the performance of the market. When respondents were asked whether overestimation of stocks affects stock market performance, 56% strongly agreed, 35% agreed, while 9% remained neutral. This question had a mean of 4.47, and standard deviation of 0.657. Just like other forms of behavioral biases, overestimation has a negative effect on the stock market performance.

On the question on whether investor biases affect stock market performance, the majority 66% of respondents strongly agreed on this to be the case, 31% agreed, while 3% were neutral. This question had a mean of 4.63, and standard deviation of 0.537. The implication of this finding is that investor does have biases, and when these biases are acted upon, the effect the performance of the market since the biases are mostly speculative. When respondents were asked whether stock broker biases affect the stock market performance, the majority 71% strongly agreed, 23% agreed, while 5% remained neutral. The question had a mean of 4.66, and standard deviation of 0.578. This finding shows that the behavioral
biases of stockbrokers can be transferred to trading stocks, which in turn affects stock market performance.

The question on whether investor miscalibration affects market performance had a mean of 4.62 and standard deviation of 0.659. Majority 71% of respondents strongly agree that investor miscalibration affects market performance, 23% agreed, 4% were neutral, while 2% disagreed. These findings reveal that behavioral biases of miscalibration do affect stock market performance. On the question on whether stockbrokers’ miscalibration affects stock market performance, 61% strongly agreed, and 39% agreed. The respondents mean was 4.62 and standard deviation of 0.659. These findings show that behavioral biases of broker miscalibration do affect stock market performance at the NSE.

Respondents of this study were asked on whether miscalibration volatility effects stock market performance. The majority 79% strongly agreed, while 21% agreed. The question had a mean of 4.79 and a standard deviation of 0.406. As indicated by this finding, miscalibration is a behavioral bias by brokers and investors that enhances volatility, thus affecting stock market performance. Descriptive summary on effect of overconfidence bias on performance of the stock market is highlighted in Table 4.3.
Table 4.3: Effect of Overconfidence on Performance of Stock Market

<table>
<thead>
<tr>
<th>Questions</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>n</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overconfidence Effect on Performance of Stock Market</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overconfidence by brokers affects stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overconfidence by investors affects stock market performance</td>
<td>1% (1)</td>
<td>5% (5)</td>
<td>23% (26)</td>
<td>71% (80)</td>
<td>112</td>
<td>4.65</td>
<td>0.611</td>
</tr>
<tr>
<td>Speculative trading can negatively affect stock market performance</td>
<td>1% (1)</td>
<td>5% (6)</td>
<td>17% (19)</td>
<td>77% (86)</td>
<td>112</td>
<td>4.70</td>
<td>0.613</td>
</tr>
<tr>
<td>Overestimation of stocks on the market affect market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investor biases do affect the perception of stock market performance</td>
<td>3% (3)</td>
<td>31% (35)</td>
<td>66% (74)</td>
<td>112</td>
<td>4.63</td>
<td>0.537</td>
<td></td>
</tr>
<tr>
<td>Stock broker biases do affect the perception of stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscalibration by investor do affect the perception of stock market performance</td>
<td>2% (2)</td>
<td>5% (5)</td>
<td>23% (26)</td>
<td>71% (79)</td>
<td>112</td>
<td>4.62</td>
<td>0.659</td>
</tr>
<tr>
<td>Miscalibration by brokers do affect the perception of stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscalibration volatility affects stock market performance</td>
<td>21% (24)</td>
<td>79% (88)</td>
<td></td>
<td>112</td>
<td>4.79</td>
<td>0.406</td>
<td></td>
</tr>
</tbody>
</table>

4.5 Herding Effect on Performance on Stock market Performance

This study sought to determine stock market herding had an effect on stock market performance. Descriptive findings are highlighted in this section.

Respondents of this study were asked whether herding influenced by private market information had affected stock market performance. The findings show that majority 72% of respondents strongly agreed on this to be the case, 26% agreed, while the remaining 2% were neutral. This question had a mean of 4.71 and a standard deviation of 0.496. This finding shows that when private information concerning certain stock gets into the market,
particularly by influential traders, this is bound to influence the trading behavior of investors and this affects stock market performance. On the question on whether cascading of stock market information by investors’ influences stock market performance, 69% strongly agreed, 30% agreed, while the remaining 1% were neutral. The question had a mean of 4.68 and a standard deviation of 0.488. The implication of this finding is that as most investors pass market information among themselves, a factor that might impact market performance particularly if the investor act of this information.

This study sought to determine whether inaccurate information cascaded in the market can negatively affect stock market performance. The findings had a mean of 4.73, and a standard deviation of 0.502. Majority 76% of respondents strongly agreed on this to be the case, 21% agreed, while 3% were neutral. This finding illustrates the negative effect inaccurate information can have on the performance of a stock market. On the question on whether accurate stock market information had a positive impact on stock market performance, the majority of respondents 69% strongly agreed on this to be the case, and 31% also agreed. This question had a mean of 4.69 and a standard deviation of 0.466. This finding also illustrates that when positive information is cascaded within the stock market, it positively influences the activities of the stock market.

The question on whether reputational herding by investors affects the performance of the stock market had a mean of 4.68 and a standard deviation 0.557. The findings also show that 72% of respondents strongly agreed on this to be the case, 23% also agreed that reputational herding of investors does influence stock market performance, and the remaining 5% remained neutral. As such, this finding implies that investors with a high reputation at the market have a lot of sway in determining the stock market performance. On the question on whether herding effect of investor information concerning specific stocks does an influence stock market performance, 59% of respondents strongly agreed, 40% agreed, and the remaining 1% were neutral. This question had a mean of 4.58 and a standard deviation of 0.514.

This study sought to establish whether reputational herding influences the stability of stock market performance. The findings show that this question had a mean of 4.74, and standard deviation of 0.440. The findings also show that 74% of respondents strongly agreed, and
26% also agreed that reputational herding does affect the stability of the stock market performance. Based on this finding, it could be noted that as more herding information on different stocks goes around, different investors and brokers react differently. As such, the movements of stocks in buying and selling based on reputational herding does affect the stability of the stock market and its performance. Respondents of this study were asked reputational herding was not good for the stock market and thus undesirable. The findings show a mean of 4.71, and a standard deviation of 0.473. Majority 72% strongly agreed, (27%) agreed, while 1% disagreed. This means that different herding information emanating from various reputed investors and brokers can bring confusing in the market and thus influence the behavior of traders at the market, which can hurt the stability of stock market performance. Descriptive findings summary of herding effect on performance of the stock market is indicated in Table 4.4

Table 4.4: Herding Effect on Performance of the Stock Market

<table>
<thead>
<tr>
<th>Questions</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>n</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herding influenced by private market information affects stock market</td>
<td>2% (2)</td>
<td>26%</td>
<td>72% (81)</td>
<td>112</td>
<td>4.71</td>
<td>0.496</td>
</tr>
<tr>
<td>performance</td>
<td></td>
<td>(29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herding influenced by a cascade of stock information to other investors</td>
<td>1% (1)</td>
<td>30%</td>
<td>69% (77)</td>
<td>112</td>
<td>4.68</td>
<td>0.488</td>
</tr>
<tr>
<td>affects stock market performance</td>
<td></td>
<td>(34%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inaccurate information cascaded can negatively affect market performance</td>
<td>3% (3)</td>
<td>21%</td>
<td>76% (85)</td>
<td>112</td>
<td>4.73</td>
<td>0.502</td>
</tr>
<tr>
<td>Accurate information cascade can positively affect market performance</td>
<td>31% (35)</td>
<td>69%</td>
<td></td>
<td>112</td>
<td>4.69</td>
<td>0.466</td>
</tr>
<tr>
<td>Reputational herding information for investors to buy certain stocks</td>
<td>5% (5)</td>
<td>23%</td>
<td>72% (81)</td>
<td>112</td>
<td>4.68</td>
<td>0.557</td>
</tr>
<tr>
<td>affects stock market performance</td>
<td></td>
<td>(26)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reputational herding information for investors to buy certain stocks</td>
<td>1% (1)</td>
<td>40%</td>
<td>59% (66)</td>
<td>112</td>
<td>4.58</td>
<td>0.514</td>
</tr>
<tr>
<td>affects stock market performance</td>
<td></td>
<td>(45)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reputational herding does affect the stability of stock market performance</td>
<td>26% (29)</td>
<td>74%</td>
<td></td>
<td>112</td>
<td>4.74</td>
<td>0.440</td>
</tr>
<tr>
<td>Reputational herding is not good for stock market performance</td>
<td>1% (1)</td>
<td>27%</td>
<td>72% (81)</td>
<td>112</td>
<td>4.71</td>
<td>0.473</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(30)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.6 Correlation Analysis

A correlation analysis was conducted to determine whether there existed any relationship between the study variables. The findings show that herding effect had the strong relationship with stock market performance, $r (0.542); p$-value $< 0.01$, meaning the relationship was statistically significant. This was followed by the weak relationship between disposition effect and stock market performance, $r (0.453); p$-value $< 0.01$, meaning the relationship was statistically significant. Finally, the relationship between overconfidence effect and stock market performance was weak, $r (0.288); p$-value $< 0.01$, meaning the relationship, though weak, was statistically significant as summarized in Table 4.5.

Table 4.5: Correlation Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock Market</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposition Effect</td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
<td>$.453**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td>$.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td></td>
<td></td>
<td>112</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overconfidence</td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
<td>$.288**</td>
<td>.105</td>
<td>1</td>
</tr>
<tr>
<td>Effect</td>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td>$.002</td>
<td>.271</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td></td>
<td></td>
<td>112</td>
<td></td>
<td>112</td>
<td></td>
</tr>
<tr>
<td>Herding Effect</td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
<td>$.542**</td>
<td>.274**</td>
<td>.075</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td>$.000</td>
<td>.003</td>
<td>.432</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td></td>
<td></td>
<td>112</td>
<td></td>
<td>112</td>
<td>112</td>
</tr>
</tbody>
</table>

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

4.7 Regression Analysis

Since the independent study variables exhibited positive relationships with stock market performance, a regression analysis was conducted to establish the level and extend of the
relationship when the variables are combined. The findings show that this study has an adjusted R-value (0.442), meaning that about (44%) of variability in stock market performance is attributable to herding effect, overconfidence effect, and disposition effect and biases at the stock market. The other 56% of factors influencing stock market performance were not covered by this study. This finding is summarized in Table 4.6

Table 4.6: Regression Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. The error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.665(^a)</td>
<td>.442</td>
<td>.427</td>
<td>.1066</td>
</tr>
</tbody>
</table>

\(^a\) Predictors: (Constant), Herding Effect, Overconfidence Effect, Disposition Effect

Similarly, the Analysis of Variance (ANOVA) was conducted to determine whether there were any significant differences in the mean of the variables. The findings show \(F_{(3,108)} = 28.566; p\)-value = 0.00; meaning the mean for the variables were statistically significant since \(p\)-value < 0.05 as indicated in Table 4.7

Table 4.7: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2.212</td>
<td>3</td>
<td>.737</td>
<td>28.566</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>2.788</td>
<td>108</td>
<td>.026</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5.000</td>
<td>111</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Dependent Variable: Stock Market Performance
\(^b\) Predictors: (Constant), Herding Effect, Overconfidence Effect, Disposition Effect

Finally, the regression coefficients show that herding effect had the highest standardized Beta coefficient, \(\beta\) (0.440); \(p\) value = 0.000; followed by disposition effect standardized Beta coefficient, \(\beta\) (0.309); \(p\) value = 0.003; and finally, overconfidence Beta coefficient, \(\beta\) (0.223); \(p\) value = 0.000. The coefficients model was statistically significant across all the variables since \(p\) value was < 0.05 as summarized in Table 4.8

40
Table 4.8: Regression Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-0.685</td>
<td>0.604</td>
<td>-1.135</td>
<td>.259</td>
</tr>
<tr>
<td>Disposition Effect</td>
<td>0.311</td>
<td>0.076</td>
<td>4.113</td>
<td>.000</td>
</tr>
<tr>
<td>Overconfidence Effect</td>
<td>0.267</td>
<td>0.087</td>
<td>3.078</td>
<td>.003</td>
</tr>
<tr>
<td>Herding Effect</td>
<td>0.575</td>
<td>0.098</td>
<td>5.889</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Stock Market Performance

Therefore, the regression model for variable relationships is presented as follows:

Stock Market Performance = -0.685 + 0.309DE + 0.223OE + 0.440HE + e

Where

DE = Disposition effect standardized Beta
OE = Overconfidence effect standardized Beta
HE = Herding effect standardized Beta

4.8 Chapter Summary

This chapter has presented the results and findings of this study. The major findings of the study show that herding effect had the strong relationship with stock market performance, r (0.542); p-value < 0.01, meaning the relationship was statistically significant. This was followed by the weak relationship between disposition effect and stock market performance, r (0.453); p-value < 0.01, meaning the relationship was statistically significant. Finally, the relationship between overconfidence effect and stock market performance was weak, r (0.288); p-value < 0.01, meaning the relationship, though weak, was statistically significant.
CHAPTER FIVE

5.0 DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

Discussion, conclusion, and recommendations derived from the findings of this study are presented in this chapter. The entire study summary is presented first, followed by discussion for each research question. Conclusion and recommendations are presented in a similar manner for each research question.

5.2 Study Summary

The purpose of this study was to examine how behavioral biases effect on stock market performance. This study was guided by the following research question: How does disposition effect influence stock market performance? To what extend does overconfidence effect influence stock market performance? To what extent does herding effect influence stock market performance?

This study adopted a descriptive survey design. The study population was 338 out of which a sample of 183 was utilized. Stratified and random sampling was used to select investment advisors from the 24 licensed stock brokerage firms. A structured closed-ended questionnaire tool was used to collect primary data. Data was analyzed for descriptive and inferential statistics using Statistical Package for Social Studies (SPSS) version 23 and presented using Tables and Figures.

The first research question sought to examine whether disposition effect influences stock market performance. The findings show there exists a statistically significant relationship between disposition effect and stock market performance. Major findings of the study show that disposition effect on pricing affects stock market performance and is not good for stock market performance. Similarly, price run-ups that affect stock market performance, are attributable in most cases, to disposition effect. This study also established that asset pricing positively affects stock market performance. Additionally, this study established that speculative pricing also negatively affects stock market performance. The stock market speculative pricing is also affected by disposition effect.
The second research question sought to determine the extent to which overconfidence effect influences stock market performance. The findings show that there exists a statistically significant relationship between overconfidence effect and stock market performance. The major findings of this study show that overconfidence by investors negatively affects stock market performance. Additionally, investor biases do affect the perception of stock market performance. This is because investors do trade on the stock market. Any biases they have concerning different stocks do affect stock market activities. This study also established that miscalibration by investor do affect the perception of stock market performance. In most instances, stock market miscalibration volatility affects the stability of the stock market performance.

The thirst research question sought to determine whether herding effect influences the stock market. The findings show that there exists a statistically significant relationship between herding effect and stock market performance. This study established that herding at the stock market was influenced by a cascade of stock information to other investors at the stock market performance. In most instances, inaccurate information cascaded by investors can negatively affect market performance. Equally, this study found that reputational herding of information to investors on how to buy certain stocks does affect stock market performance. Brokers and investors rely on information from reputable investors to determine how trading activities at the market will be conducted.

5.3 Discussion

5.3.1 Disposition Effect on Performance

One the research question of this study was to determine whether disposition effect does influence stock market performance. The findings of this study have revealed the existence of a statistically significant relationship between disposition effect and stock market performance. This finding confirms study conducted by Odean (2014) an economist from University of California in the USA on the US New York exchange that behavioral biases of disposition effect did influence investors behavior at the stock market, and as a result, affected the performance of the stock market as a whole. This was as a result of the fact that investors tended to believe that buying stocks when prices were low and selling stocks
when prices were high maximized their returns. As such engaging in financial behaviors that maximize return output was considered desirable, though it negatively influenced the market performance. For instance, on the same stock market, investors who sold due to disposition effect outperformed the stocks they did not sell by 3.4%. This means that there is a significant incentive for investors to rely on disposition biases when trading as a mechanism to enhance their investment outputs.

Similarly, a study by Shapira and Venezia (2016) conducted a study on US stock markets using agent-based model simulations, that sought to explore which traders were successful in utilizing disposition-based biases and their experience to succeed at the market. The study revealed that behavioral bias of disposition effect comes with experience, and investors and brokers with a higher experience survived longer at the market. This means that disposition bias was more effective with experience than the marginal trading trends, or averseness to loss. The more this investors become fixated on their returns, the more their trading patterns might influence the stock market performance, particularly, if the market has more disposition investors and traders.

This study also established that stock market price run-ups are partly a result of disposition effect in the stock market. The sudden up- serge in a stock price due to various factors including news does affect how disposition buyers react to trading at the stock market, and as a result, may influence either positive or negative trading at the market. This finding is similar to the arguments made by Hirshleifer, (2001) who argued that momentum or contrarian prices are a result of price run-ups partly associated with disposition effect. In most instances, the rush is usually to maximize profits. This behavioral bias can leave a significant negative impact on the stock market affecting its performance, particularly when more investors or traders are influenced and act on disposition bias of a few traders on price run-ups.

Conversely, arguments that had been placed by Fama (1998) that under or overreaction to price run-ups do eventually cancel each other and therefore, does not necessarily constitute or explain disposition effect lack significant credibility since biases that inform activity on the stock market would have already taken place. Meaning, if the overreaction was major and negative, the stock market would be affected negatively in a significant way and vice versa. Therefore, for a market that is prone and sensitive to disposition biases, price up runs
can be a major trigger for stock market performance. On the other hand, Bloomfield and Hales (2002) had argued that price and disposition effect, particularly under overreaction to prices can only impact a stock market that is unsystematic. Similarly, Kahneman and Tversky (2014) had argued that uninformed investors usually engage in momentum trading, which results in overreaction to market news, and which further, promotes short-term price sells. However, in the long run, the market tends to correct price reversals to equilibrium stock market value. These arguments were based on the fact that systematic markets have market correction mechanisms that reduce the severe impact on the stock markets. However, in as much as this is the case, if those acting on disposition bias information are significant in terms of trading numbers, then, both systematic and unsystematic stock markets will be affected.

5.3.2 Overconfidence Effect on Stock Market Performance

This study sought to establish whether overconfidence effect influenced stock market performance. The study findings have revealed that there exists a statistically significant relationship between overconfidence effect and stock market performance. This finding agrees with Gervais and Odean (2001) and Odean (1998) who also noted through their findings that there exists a relationship between overconfidence effect and stock market performance. In the studies, Gervais and Odean (2001) and Odean (1998) conducted in US, Japan, and UK stock markets using investor prospect theory market overconfidence found that overestimation of the precision of investors significantly influences stock market performance. Biased information triggered overconfident investors underestimating variance contained in need for stock market products/services. As such, most investors in this markets were driven to sell or buy different stocks based on the how overconfident they felt towards those stocks, without significantly scrutinizing the validity of their overconfident biases.

Similarly, a study conducted by Barberis and Xiong (2009) and Kaustia (2010) using prospect theory revealed the existence of a significant relationship between overconfidence in the stock market and disposition effect, which is in line with the findings of this study. The studies indicated that individual biases drive investors to make decision on perceived information, resulting in more than reasonable trade, at the expense of their wealth. The primary motivation for most of this traders is enhancing profitability. In most instances, the
overconfidence could be attributed to under-diversification of stocks. This means that the fewer the stocks investors had, the more compelled they were to maximize returns, as compared to more diversified investors who did not over-rely on single or few stocks to earn profitability. Ultimately, when an investor fails to diversify investments in the stock market, they feel obliged to take advantage of any stock that shows slight bullish signs. If a stock market has a significant number of this kind of investors, they trade would usually trigger overconfidence effect, which as demonstrated by this study, does affect the performance of a stock market.

This study also found that overestimation of activities of the stock market does affect the performance of the stock market. In most instances, investors and brokers on the stock use overestimation to predict the future of stock market returns. In such cases, as argued by Glaser and Weber (2007) a self-attribution bias helps disposition investors indulge in overconfidence at the stock market since they believe their cognitive process of arriving at a stock decision is vested in their personal abilities to predict the activities of the market accurately. This is usually not the case since stock markets react to different news and information in the course of a trading day. Therefore, it could be argued that the presence and prevalence of overestimation of stock market activities by investors can have both positive and negative impact. The positive impact when the overestimation in synch with stock underlying value and trajectory, and negative, when the overestimation is out of synch with stock underlying value and trading trajectory.

Conversely, Shefrin and Statman (1985) findings argued that overestimation, particularly self- attribution bias was largely attributable to overconfidence effect. Further, they argue that since investors have to rely on external news or hyperbole concerning a given stock for them to act, overconfidence builds on the nature of information and reputation of those providing this information. It is hardly the case that an investor wakes up with an intuition to sell or buy given stock, and proceeds with such a decision purely on intuition. Therefore, overestimation might be significant, but it is usually tied to or triggered by other behavioral biases at the stock market.

This study also found that miscalibration of investors and traders at the stock market does affect stock market performance. This is equally in line with the study by Nelson et al., (2001) who utilized experimental studies to examine how important features of financial
accounting influences stock market behavior. The study was conducted in the US and focused on how managers and auditors utilize financial information, and how their decisions affect the stock market. More focus was placed on assessing the strength of financial information and how decisions made by this group contributed to individual and market level miscalibration, in line with traders’ investment behavior. The study found that individual value estimate, market stock price, shares traded and profit were much more based on access to financial information that triggered market level miscalibration. This study also demonstrated that market information with high strength and low weight had more overconfidence that the converse situation, and thus affecting stock market performance in a variant manner.

5.3.3 Herding Effect on Performance of the Stock Market

One of the research questions of this study was to establish whether herding effect of investors and traders influences stock market performance. The finding of this study shows that there exists a significant relationship between herding effect and stock market performance. Similar findings have been established by Waweru et al., (2008) who noted that herding had significant impact on the market performance, since herders are mostly lured by risky venture investors, who most often, do not have sufficient information to make accurate stock market predictions; and Caperrelli, Arcangelis, and Cassuto (2014) contented that there exists a significant relationship between herding effect and performance of the stock market.

In behavioral biases, the driving factor behind the herding effect is that investors usually believe that specific players at the market do have adequate information and experience to influence the trajectory of the stock market. Based on the findings of this study, cases where herders have wrong information concerning the performance of the stock market, and they use this information to influence trading, this can result in heightened volatility and impact performance of the stock market. In cases where the herding effect follows well-structured market norms of an investor, then, the impact might be positive, but when they follow an investor who makes market decisions without underlying market fundamentals, then, the market will be affected negatively.
Common knowledge herders are usually investigative herding and have a tendency to follow investors some correlated signals or information concerning given stocks at the market, and thus, their banding and herding with this kind of investors is generally desirable and considered to have minimal impact on stock market performance (Sias, 2004). However, Fads on the other purchase stocks because the stock becomes popular; or because other brokers are purchasing it. In such instances, as has been confirmed by the findings of this study, negative herding and speculative herding has negative impact on the performance of the stock market.

The findings of this study have established that cascaded herding impacts the performance of a stock market. Cascaded herding is basically when few respected herders decide to cascade insider information, of speculative information to more traders so as to influence the activity of the stock market in their favor. Kallinterakis et al., (2010), had argued that as information is cascaded down to stock market traders, the more it triggers desirable or undesirable effect on the behavior of traders either to buy or to sell. If this behavior is severe or significant enough, then the stock market will experience a considerable tangent flow that negatively or positively impact the market. This is particularly the case when information is cascaded to a sequence of investors in the stock market, causing these investors to abandon their private information when making a decision to purchase or sell a stock. At this point in time, the investors’ behavior becomes imitative, as thus, results in herding. These behavioral biases do affect the performance of the stock market.

The findings of this study have also revealed that reputational herding has a significant impact on the performance of the stock market. This is in line with findings and argumenta advance by Sias (2004). For reputational herding to occur, there have to be interdependencies among individual investors. Similarly, Lin and Rassenti (2012) had noted that stock broker and investors usually rely on reputational information from specific investors to engage with the stock market. In most instances, traders on the stock market usually have a level of confidence or have a positive impression of the reputational investor, and as such, they can follow the actions or information provided by this investor to do trading. The challenge with this kind of trading is that the reputational investor in some instances have biases that would like to peddle or stocks they would like to push on the market. This means that the probability reputational investors are pushing stocks that are
favorable to their profitability is high. If other traders jump on this bandwagon, there is a high likelihood that the stock market can be influenced negatively without financial fundamentals backing bearish or bullish on the stocks on the market.

5.4 Conclusion

5.4.1 Disposition Effect on Performance of the Stock Market

The study findings established the existence of a statistically significant relationship between disposition effect and performance of the stock market. Therefore, this study concludes that the bias of disposition effect particularly on price runs-ups, good asset pricing, poor asset pricing, and speculation does significantly influence stock market performance. This study concludes that speculative pricing is not suitable for stock market performance, while stable asset pricing does enhance stock market performance.

5.4.2 Overconfidence Effect on Performance of the Stock Market

The study findings show that there exists a statistically significant relationship between overconfidence and the performance of the stock market. Therefore, this study concludes that overconfidence in stock market prices and activities, overestimation of stocks performance, and miscalibration of the stocks do negatively influence the stock market. Overconfidence by brokers affects stock market performance, and miscalibration volatility have the most effect on stock market performance. Inaccurate information cascaded and reputational herding have the most negative effect on the stock market performance.

5.4.3 Herding Effect on Performance of the Stock Market

The study findings show that there exists a statistically significant relationship between herding effect and stock market performance. Therefore, this study concludes that heading effect can either influence the stock market positively or negatively depending on the nature and experience of the herders on the market. Secondly, information cascade and reputational herding do have a negative effect on the market in markets with behavioral biases.
5.5  Recommendations

5.5.1  Recommendation for Improvement

5.5.1.1 Disposition Effect on Performance of the Stock Market
Since the findings of this study have established the existence of a significant relationship between disposition effect and performance of stock market; this study recommends that investment advisors trading on the stock market should be trained on how to identify, and interpret disposition biases prevalent at the market place in terms of price run-ups, good asset pricing, and also bad asset pricing so as to make good trading without negatively affecting the stock market performance.

5.5.1.2 Overconfidence Effect on Performance of the Stock Market
The findings of this study established the existence of a significant relationship between overconfidence and performance of the stock market; this study recommends that investment advisors should be trained on reading and detecting presence or prevalence of overconfidence, overestimation, and miscalibration on specific stocks on the stock market, and be able to determine whether these stocks have fundamental underlying value aligned with their pricing. This will help eliminate cases of investors and traders over-indulging in overconfidence that can negatively affect stock market performance.

5.5.1.3 Herding Effect on Performance of the Stock Market
Since the findings of this study have established the existence of a significant relationship between herding effect and performance of the stock market; this study recommends that regulatory mechanisms should be put in place to curtail insider trader information cascades particularly from investors with insider trading information. Investment advisors and traders should also be trained on how to decipher positive market information from negative market information that influences herding effect, and thus, make decisions that are both good for their investors and the stock market as a whole.

5.5.2  Recommendation for Future Research
This study focused on the effects of behavioral biases of on the performance of the stock market. The study variables examined in this study were disposition effect, overconfidence effect, herding effect, and stock market performance. These factors are not exhaustive in
determining the performance of the stock market. Further studies should focus on structure and mature of stock exchanges, regulatory frameworks, and impact of a countries economy on the performance of the stock market.
REFERENCE


55


APPENDICES

APPENDIX I: COVER LETTER

Anitha Kayani
P.O Box 402-00100
Nairobi

Dear Respondent,

RE: REQUEST FOR YOUR PARTICIPATION

My name is Anitha Kayani, currently pursuing a Master of Business Administration (MBA) degree from the United States International University – Africa. Towards the partial fulfillment of my degree, I am required to do a research project in the area of my study. My project topic is: “Behavioral Biases Effect on the Performance of Nairobi Securities Exchange.”

You have been selected randomly to take part in this study since you are part of the 24 licensed brokerage firms on the NSE. Kindly spare some few minutes of your time to provide answers to the questionnaire to the best of your knowledge.

The information you provide for through this questionnaire is confidential, and will only be used for the purpose of this study.

Your participation will be highly appreciated.

Yours Sincerely,

Anitha Kayani
APPENDIX II: RESEARCH QUESTIONNAIRE

SECTION I: DEMOGRAPHIC INFORMATION

Kindly tick the response to your answer, or provide your answer in space provided.

1. Gender.
   
   Male  
   Female  

2. Age
   
   18-20 yrs.  
   21-23 yrs.  
   24-26 yrs.  
   27-29 yrs.  
   30-35 yrs.  

3. Level of education
   
   Doctorate Degree  
   Master’s Degree  
   Bachelor’s Degree  
   Other (Specify)___________________________

4. How long have you been with the organization?
   
   Less than 1 year  
   1-5 Years  
   5-10 Years  
   10-15 years  
   Above 15 Years
SECTION II: Stock Market Performance

Kindly answer the following questions by stating your level of agreement with the statement using the following Likert Scale (5 = strongly agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree)

<table>
<thead>
<tr>
<th>A) Statements</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Disposition effect affects NSE market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Volatility in Stock pricing affects the performance of the stock market</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7. Overconfidence influences NSE market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Overestimation of stocks affects market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. The herding of private market information affects NSE market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Accurate information cascade can positively affect market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Reputational herding affect NSE market performance</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

SECTION III: Disposition Effect on Stock Market Performance

Kindly answer the following questions using the following Likert Scale (5 = strongly agree, 4 = Agree, 3 = Neutral, 2 = disagree 1 = strongly Disagree)

<table>
<thead>
<tr>
<th>A) Stock Price Performance</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Disposition effect on pricing affects stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Disposition effects on pricing are not good for stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Disposition effect causes stock price run-ups affecting stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Disposition effect price run-ups can affect stock market performance stability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| B) Asset Pricing |   |   |   |   |   |
16. Good asset pricing positively affects stock market performance

17. Bad asset pricing positively affects stock market performance

18. Speculative pricing negatively affects stock market performance

19. Speculative pricing is not suitable for stock market performance

20. Stable asset pricing can enhance stock market performance

SECTION III: Effect of Overconfidence on Stock Market Performance

Kindly tick (√) the appropriate answer where appropriate using the Likert scale as in the previous section

<table>
<thead>
<tr>
<th>Overestimation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. Overconfidence by brokers affects stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Overconfidence by investors affects stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Speculative trading can negatively affect stock market performance</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>24. Overestimation of stocks on the market affect market performance</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Miscalibration (Overprecision)

| 25. Investor biases do affect the perception of stock market performance |     |     |     |     |     |
| 26. Stock broker biases do affect the perception of stock market performance |     |     |     |     |     |
| 27. Miscalibration by investor do affect the perception of stock market performance |     |     |     |     |     |
| 28. Miscalibration by brokers do affect the perception of stock market performance |     |     |     |     |     |
| 29. Miscalibration volatility affects stock market performance |     |     |     |     |     |
SECTION IV: Herding Effect on Stock Market Performance

Kindly tick (✓) the appropriate answer.

<table>
<thead>
<tr>
<th>Information Cascade</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>30. Herding influenced by private market information affects stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. Herding influenced by a cascade of stock information to other investors affects stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. Inaccurate information cascaded can negatively affect market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. Accurate information cascade can positively affect market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reputational Herding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Reputational herding information for investors to buy certain stocks affects stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. Reputational herding information for investors to buy certain stocks affects stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. Reputational herding does affect the stability of stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. Reputational herding is not good for stock market performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

The End

Thank you for your participation.
APPENDIX III: LIST OF NSE BROKERAGE FIRMS

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dyer &amp; Blair Investment Bank Ltd</td>
</tr>
<tr>
<td>2.</td>
<td>Francis Drummond &amp; Company Limited</td>
</tr>
<tr>
<td>3.</td>
<td>Ngenye Kariuki &amp; Co. Ltd. (Under Statutory Management)</td>
</tr>
<tr>
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<td>Suntra Investment Bank Ltd</td>
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<td>Securities Africa Kenya Limited</td>
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<td>EFG Hermes Kenya Limited</td>
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