

IMPACT OF HEURISTIC BIASES ON INDIVIDUAL INVESTOR DECISION MAKING PROCESS AT NAIROBI SECURITIES EXCHANGE: A SURVEY OF INDIVIDUAL INVESTORS IN MERU COUNTY

Kirera, F.K. and Mburugu, B.M.

*BetterCent Consulting Limited, P. O. Box 27513-00506, Nairobi. Email: fridahkirera63@gmail.com
Chuka University, P. O. Box 109-60400, Chuka, Email: bmwarania@chuka.ac.ke, bmburugu23@gmail.com*

ABSTRACT

Although finance has been studied for many years, behavioural finance is quite a new area. Behavioural finance theories, which are based on psychology, attempt to understand how emotions and cognitive errors influence individual investors' decisions. The concept of investors' decision-making process informs the design and delivery of investment opportunities. Traditional finance proposes a rational, risk-averse investor seeking to maximize returns, making the right decisions at the right time with correct information at hand and is not diverted by emotions and feelings. Recent empirical research has identified deficits in the traditional finance view. Investor irrationality, multiple risk attitudes for the same investment, and other investor behaviours cannot be explained fully by the traditional finance models. A significant insight of behavioural finance has been the manner in which individuals compress massive information into simple rules, known as heuristics, to simplify and speed up complex decision-making. This study analyzed the influence of heuristics variables on the individual investor decision making process in Meru County, with overconfidence, information availability, anchoring, gamblers fallacy, representativeness and hindsight measured as the indicative parameters. The target group was individual investors residing in Meru County with regular trading at the bourse. A descriptive survey was adopted and purposive sampling used to select the 144 individual investors to whom a pre-tested questionnaire was administered through use of Kobo Collect Toolbox. Data was analyzed using Factor Analysis aided by SPSS software version 2.0. Information availability bias had the highest impact on investment decisions, implying that investors rely on readily available and familiar information for their stock investment decisions. Other heuristics biases that impacted investor decision making process moderately were overconfidence and anchoring biases while Gambler's fallacy and representativeness biases had low impacts on the decision making process. The influence of the factors has both positive and negative influence on the individual investor. This study contributes to behavioral finance research, and provides insights on "how investors think" to develop and market investment products, and development planners and policy makers.

Keywords: Behavioral Finance, Hindsight, Gamblers Fallacy, Overconfidence, Availability, Anchoring

INTRODUCTION

A securities market is a market where stocks and bonds are bought and sold (Zuravicky, 2004). In an economy, securities market plays the role of financing investment and signals managers regarding investment decisions (Samuel, 1996). Securities market is best known for being the most effective source of raising an organization's capital (Zuravicky, 2004). Earning dividends, Long term growth on capital invested and hedging against inflationary erosion of purchasing power are some of the reasons people are interested in stocks (Yu, 2016). Liquidity also makes the stock market more attractive (Jaswani, 2008). Most people invest in stocks to be owners of the firm hence benefit by earning dividends paid by respective companies or when stock prices increase (Croushore, 2006).

In Kenya, securities are traded at the Nairobi Securities Exchange. NSE plays a major role in the Kenyan economy by enabling mobilization of savings for investment in productive enterprises instead of putting savings in bank deposits or outright consumption

(Gitau Mwangi, 2012). The stock market also facilitates equity financing and enhances access to finance to both new and small companies, which might otherwise find it hard to access finance. Public disclosure of information is emphasized by the NSE through encouraging high standards of accounting and management of resources (Wamae, 2013).

Trading at the NSE is an easy process that begins by deciding what company to buy in. Choosing the company to invest in is not an easy job, different methods such as technical and fundamental analysis maybe used (Diba, 2012). After deciding the company to invest in, selection of a stockbroker/investment bank to use is the next step. The two are the only ones that make an order to buy or sell securities (Diba, 2012). When the stockbroker receives the order, they relay the order to the floor traders. The floor traders do all the actual buying and selling, since they hold a seat in the stock exchange. The investment bank/stockbroker does the rest of the work to seal the transaction.

Finance can be broadly defined as an understanding of how rare resources are allocated among individuals and how the said resources are managed, acquired and invested over time (Rozeff & Kinney, 2006). There are two key assumptions within the traditional Theory of Finance: i) Market agents are perfectly rational – meaning that any available information is interpreted in the correct manner, and ii) Markets are Efficient - The Efficient Market Hypothesis (EMH) states all relevant information are reflected in the prices instantaneously and completely. When the hypotheses hold, prices are right, and there is 'no free lunch' i.e. there is no investment strategy which can earn excess risk-adjusted average returns consistently (Fama, 2011).

LITERATURE REVIEW

An 'efficient' market is defined as a market where there are large numbers of rational, profit-maximising individuals, try to compete with each other when predicting future values of individual stocks and in most cases information is normally available to all participants (Fama, 2011). The Efficient Market Hypothesis (EMH) has been a central finance paradigm for over 40 years, probably the most criticized too. Fama (1970) defined an efficient market as one in which security prices fully reflect all available information, and this hypothesis states that real world financial markets are efficient. The theoretical foundation of EMH is based on three key arguments: investors are rational and value securities rationally, in case some investors are irrational, their trades are random and cancel each other out without affecting prices, and rational arbitrageurs eliminate the influence of irrational investors on market. The fact that Efficient Market Hypothesis was not purely based on rationality alone but also predicted efficient markets in cases where rationality did not exist, gave the theory a lot of credibility (Fama, 1970).

Fama (1965) distinguishes between three forms of the EMH (i) the “weak” form efficiency where all past market prices, returns and other information are fully incorporated in prices, which makes it impossible to earn excess risk-adjusted profits based on historical data. This renders technical analysis useless (ii) the “semi-strong” form states that it is impossible for investors to earn superior returns using publicly available information since they would already be incorporated in the prices. This renders fundamental analysis useless (iii) the “Strong” form of EMH states that all information, public and private, are fully reflected in securities prices (Fama, 1965). This would mean that even insider information would not help an investor get superior returns. Much of the evaluations have been based on the weak and semi-strong form efficiency since it was difficult to accept the strong

form, and there was also evidence that insiders did, in fact, earn abnormal returns even while trading legally.

(Rozeff and Kinney, 2006) distinguishes between three forms of the EMH (i) the “weak” form efficiency where all past market prices, returns and other information are fully incorporated in prices, which makes it impossible to earn excess risk-adjusted profits based on historical data. This renders technical analysis useless (ii) the “semi-strong” form states that it is impossible for investors to earn superior returns using publicly available information since they would already be incorporated in the prices. This renders fundamental analysis useless (iii) the “Strong” form of EMH states that all information, public and private, are fully reflected in securities prices. Kahneman and Riepe (2008) showed that people deviated from the standard decision making model in key fundamental areas for e.g. based on varying risk appetite levels. Kahneman and Tversky (2010) provided psychological evidence that people did not deviate from rationality in a random manner. They showed that investors were unlikely to randomly trade between each other, and more likely to buy or sell at the same time.

Like Efficient Market Hypothesis, traditional finance theories consist of Arbitrage Theories of Miller and Modigliani, the Portfolio Theories of Markowitz, the Capital Asset Pricing Model of Sharpe, Lintner & Black, and the Option-Pricing theory of Black, Scholes and Merton. All the theories view the investor as a rational investor always trying to maximize his utility or return from his investment for a given level of risk. In other words, rational investors have an investment objective of maximising their risk-return trade-off. Kumar and Goyal (2015), found that investors behave rationally and they provide more emphasis to risk-return trade-off of their investments.

In Behavioural Finance, investors are normal and not rational or intuitive so that they can take decisions about investments based upon Company's performances, facts and profits. In 1980's, the consistency of the efficient markets was starting to be challenged. One issue that troubled markets acceptance was the problem of excess volatility, (Kumar and Goyal, 2015). Behavioural researchers have taken the view that finance theory should take into account the observed human behaviours. They use research from psychology to develop an understanding of financial decision making and create the discipline of Behavioural Finance. Research in psychology has documented a range of decision-making behaviours called biases. These biases can affect all types of decision making but have particular implications in relation to money and investing, Mahina, Muturi and

Memba, 2017. Behavioural Finance is an add-on paradigm of finance, which seeks to supplement the standard theories of finance by introducing behavioural aspects to the decision making process. Contrary to the approach, Behavioural Finance deals with individuals and ways of gathering and using information. Behavioural Finance analyses the ways that people make financial decisions. Behavioural Finance seeks to understand and predicts systematic financial market implications of psychological decision process. In addition, it focuses on the application of psychological and economic principles for the improvement of financial decision-making. Markets are assumed to be inefficient in Behavioural Finance. Behavioural Finance is the combination of psychology, sociology and maximization of profits. Behavioral finance is hinged on the idea that not all decision makers act rationally always (Joo and Durri, 2015).

Heuristics refers to rules of thumb, which humans use to make decisions in complex and uncertain environments (Brabazon, 2000). Man is not capable to process all the information that one is presented with on a daily basis. While accumulating experience through the process of doing something, those experiences gives an impression of how something works. This process creates rules of thumb that can then be used when a similar situation is encountered (Debont, 2010). This phenomenon is called the use of heuristics. This is especially relevant in modern trading, when the number of instruments and the density of information have increased significantly. Using heuristics allows for speeding up of the decision-making compared to rationally processing the presented information. The most attractive aspect of this is the time that can be saved while the main drawback is the dependence on previous experience (Brabazon, 2011). Traditional financial models assume the exclusion of heuristics, and assume all decisions being based on rational statistical tools, (Raines and Leather, 2011). Heuristics theory is based on overconfidence, representativeness, gamblers fallacy, availability, anchoring, and hindsight biases.

Overconfidence pertains to how well people understand their own abilities and the limits of their knowledge. Individuals who are overconfident about their abilities tend to think they know much than they actually do. The same applies to knowledge. In Germany, Glaser and Weber (2013) in their study on overconfidence and magnitude of trading volumes found that investors who possessed reasonable level of investment skills and those who had experienced fortunes traded more. Over-confidence does not mean that individuals are incompetent. Rather, it means that their view of themselves is better than they actually

are. A common trait among investors is a general overconfidence of their own ability to choose stock to investment in and when to exit or enter the stock market (Waweru et al., 2008).

Raines and Leather (2011) posits that the ability to infer numerical predictions on the values of securities that is representative of the descriptions of the companies but ignoring the reliability of those descriptions results in overreliance on stereotypes and the underweighting of base rate information. Agrawal (2012) explained that, in the situation where people are under the influence of the representativeness bias, events are organized in a way of being representative of a well-known class. The result of such a tendency is that probability estimates are made in a way that overemphasizes the significance of the categorization without adequate attention to the evidence about the underlying probabilities

Gambler's fallacy is a misconception of the fairness of the laws of chance. One major impact on the financial market is that investors suffering from this bias are likely to be biased towards predicting reversals in stock prices (Banerjee, 2011). Shikuku (2012) did a study to investigate the effect of behavioral factors on investment decision-making by unit trusts involved assessment of 11 registered unit trust companies in Kenya. Data was collected through a questionnaire. The study found out that, even though unit trusts are managed by experts their investment decisions are sometimes affected by emotional and psychological factors.

Availability heuristic is a mental shortcut that relies on immediate examples that come to a given person's mind when evaluating a specific topic, concept, method or decision. This bias operates on the notion that if something can be recalled, it must be important, or at least more important than an alternative solution which is not as readily recalled (Teoh, 2011). Subsequently, under availability, heuristic people tend to heavily weigh judgment towards more recent information, making new opinions based on latest news.

Anchoring is a psychological short cut said to occur when investors give unnecessary importance to statistically random and psychologically determined 'anchors', leading to investment decisions that are not essentially 'rational'. When required to estimate a good buy price for a share and investor is likely to start by using an initial value – called the "anchor" – without much analysis (Gitau Mwangi, 2012). According to Marchand (2012), when investors need to make a decision they often fail to do enough research because there is just too much data to collect and analyses.

Instead they proceed based on a single figure or fact, while ignoring the important information. This irrational behavior is called anchoring.

The several biases that influence decision making includes loss aversion, regret avoidance, cognitive dissonance, herding behaviour, overconfidence, over optimism, representativeness, limited attention, familiarity bias, over- and under-reaction, framing, conservatism, disposition, status quo bias, availability bias, hindsight bias, escalation of commitment, randomness bias, self-control, self-attribution, belief perseverance, conservatism, gamblers' fallacy, mental accounting, regency bias, endowment effect, and disposition (Virigineni and Rao, 2017).

Waweru, Munyoki and Uliana (2008) surveyed the institutional investors at the Nairobi Stock Exchange. The study investigated the role of behavioural finance and investor psychology in investment decision making. The study established that behavioural factors such as Representativeness, Overconfidence, Anchoring, and Gamblers' Fallacy, Availability, Loss Aversion, Mental Accounting and Regret Aversion affected the decisions of institutional investors operating at the Nairobi Stock Exchange

Maheran, Muhammed and Ismail (2012) investigated the relationship between investment decision making of an investor and their rationality in investing in the Malaysian capital market. The findings of the study indicated that the economic condition and frame of references influence investor decision-making behaviour. The study concluded that Malaysian investors are partially rational in their decision-making.

Statement of the Problem

Traditional finance assumes that investors rationally maximize their wealth by following basic financial rules and making investment decisions on the risk return considerations. Recent research in both finance and economics has been finding anomalies and behaviours that could not be explained by the financial theories such as Capital Assets Pricing Model, Arbitrage Pricing Theory, and Post-Modern Pricing Theory (Kahneman and Tversky, 1979). One of the most fundamental assumptions that traditional finance makes is that people are rational wealth maximizers who seek to increase their own well-being. In most cases, this assumption does not reflect how people behave in the real world, and they frequently behave irrationally (Waweru, Mwangi, and Parkinson, 2014)

These anomalies prompted researchers to look to cognitive psychology to account for the apparent irrational and illogical behaviour that traditional

finance had failed to explain, (Mwangi, 2011). Hence, the emergence of behavioural finance provides a basis for understanding and explaining feelings and cognitive errors affecting decision-making. Studies have found that unlike classical finance theories, individual investors do not always make rational decisions (Jetter and Walker, 2016). Research has paid more attention to institutional investors while few studies have been done on individual investors. This study therefore sought to determine the impact of heuristics biases on the decision making process among individual investors at the Nairobi Securities Exchange.

Research Objectives and Questions

This study was guided by the following objectives: To determine the influence of overconfidence bias, information availability, anchoring, representativeness and gamblers fallacy on the investment decision making process among individual investors at the NSE. The following pertinent questions guided the study: Does overconfidence or information availability bias influence decision making process? Does anchoring, representativeness and gamblers fallacy have an impact on the decision making process?

RESEARCH METHODOLOGY

This study was conducted among individual investors in Meru County registered under the four brokerage firms. Individual investors were the principal focus for this study because they are responsible for making the investment selection decisions. Descriptive design was used since the study sought to explain how individual investors made investment decision. This allowed for an enquiry into the thinking processes of the investors. The population frame comprised of the 320 individual investors in the selected investment banks, out of which 160 respondents were sampled for the study.

Purpose sampling was used to select investors who visited their brokers. Questionnaire was used to collect data, because it was a low cost option and allowed respondents time to think about questions. They were administered to respondents who visited the brokerage firm in the period of study and a link was shared on email to regular traders and their response was received through the Kobo Collect Toolbox database. The study is envisaged to give an accurate description of the association between dependent variables (decision making) and independent variables (heuristics biases).

The samples had 160 respondents, of which 50% were accessible. The 50% is a representative sample. Mugenda and Mugenda (2003) recommend a 30% or more for descriptive survey studies. Purposive sampling technique was applied in this research.

Total Population

Group category	Kingdom Securities	NIC Investments	Equity Investments	Sterling Investments Bank	Total Population
Number of Investors	54	36	80	150	320

Sampling Frame

Group category	Population	Percentage	Sample
Kingdom Securities	54	50	27
NIC Investments	36	50	18
Equity Investments	80	50	40
Sterling Investment Bank	150	50	75
Total	320		160

DATA ANALYSIS

The collected data was processed and analysed by use of Factor analysis aided by SPSS software. The data was first cleaned by removing questionnaires with poor quality such as including too many missing values or bias ratings. Factor Analysis technique was used in analyzing the various factors influencing investment decisions. This method was suitable for analyzing the structure of interrelationship among many variables by defining a set of common underlying dimensions (Ghauri and Grohaug, 2005).

Factor Analysis is a method of data reduction by seeking underlying unobservable (latent) variables that are reflected in the observed (manifest) variables. Principal Component was used to conduct factor analysis. After the initial extraction, Direct Oblimin rotation was applied which allows factors to be correlated with one another. The variable items were measured by a 5 point like scale where 5 denote 'Strongly Agree', 4 represents 'Agree', 3 refers to 'Neutral', 2 signify 'Disagree' and 1 indicates 'Strongly Disagree'.

The total 144 observations were collected from the four brokerage firms in Meru County, 19% of the respondents belonged to Kingdom Securities of

Cooperative Bank, 10% respondents belonged to NIC Investments of NIC Bank, 24% belonged to Equity Investments of Equity Bank and 47% belong to Sterling Investment Bank.

Reliability and Validity

In order to ensure validity and reliability, the questionnaires were composed of carefully constructed questions to avoid ambiguity and in order to facilitate answers to all research questions. A pilot test was carried out through a sample of 15 respondents before the actual study, after which corrections and adjustments was done to ensure validity. The reliability of the research instrument was tested for internal consistency by use of Cronbach Alpha with a 0.6 acceptance level. The instrument was then presented to experts to ascertain its face validity.

According to Sakaran (2001), testing goodness of data by testing the reliability and validity of the measures is a Pre-requisite for data analysis. The consistency of measure for this study was done by use of Cronbach Alpha, a reliability coefficient that indicated how well the items in the data collection instruments were positively correlated to one another (Hatcher, 1994).

Table 1: Frequency test

Group Category	Frequency	Percent	Valid Percent	Cumulative Percent
Kingdom Securities	27	19.0	19.0	19.0
NIC Investments	15	10.0	10.0	29.0
Equity Investments	34	24.0	24.0	53.0
Sterling Investment Bank	68	47.0	47.0	100.0
Total	144	100	100	

Table 2: Cronbach's alpha test for items of factor (N=144)

Factors	Variables	Cronbach Alpha	Cronbach alpha if item deleted	F (sig).
Representativeness	P2Q06	.86	.42	23(0.000)
Availability Bias	P2Q08	.60	.57	15(0.000)
Over Confidence	P2Q05	.81	.43	20(0.000)
Gamblers Fallacy	P2Q07	.81	.64	2(0.05)
Anchoring	P2Q09	.79	.39	23(0.000)
Decision making process	P2Q28	.81	.67	9(0.000)
	P2Q31			
Total	320		144	

The table, above shows Cronbach's alpha index greater than 0.6 and Cronbach' alpha of each factor if its item is deleted, as well as the significant of F test for each factor. The Cronbach's Alpha for all the factors is above the minimum accepted value of 0.5. These indexes show that items included in the factors: representativeness, availability bias, over-confidence, gamblers fallacy and decision making process are reliable enough for further analysis.

RESULTS AND DISCUSSION

Results revealed the profile of individual investor at the NSE was a young person with moderate investment holding in publicly traded securities. 89% of the investors were under 45 years old with an investment of less than 0.5 M and less than 7 years trading.

Factor Analysis of Independent Variables

The exploratory factor analysis (EFA) is used for the behavioural variables to identify the factors which these variables belong to. The requirements of factor analysis were satisfied to reduce the variables. After some rounds of removing the unsuitable variables, the analysis results that the remaining variables are grouped into five factors (4 factors of behavioural variables and 1 factor of decision making process), at the Eigen value=1.007, KMO=0.867 (sig. =0.000), % of total variance =66.35%, and all factor loadings are more than 0.5. These indexes prove that factor analysis for these variables is totally suitable and accepted. The relationship of each variable to the underlying factor is expressed by the factor loadings (Table 3).

Table 3: Factor loadings

Factors	Variables	Loadings
I rely on my previous experiences in the market for my next investment	P2Q06	.655
I tend to forecast the changes in stock prices based on the recent stock prices	P2Q08	.805
Am able to anticipate the end of good or poor returns at the NSE	P2Q05	.607
Information from friends and relatives is reliable reference for my investment	P2Q07	.794
Since information of local stocks is readily available, I prefer to buy local stocks instead of international stocks	P2Q09	.671
I make decisions in a logical and systematic way	P2Q14	.896
Am capable of making better investment decisions if I make the effort	P2Q1	.789

Impact of Heuristics Variables on the investment decision making process

The impact levels of behavioral variables on the investment decisions are identified by calculating the values of sample mean of each variable. In this part, only variables which meet the requirements of above factor analysis and Cronbach's Alpha test are chosen to demonstrate their scores. A 5-point likert scale was used to measure the impact levels of these variables, and the mean values of these variables was used to decide their impact levels on the investment decision making as the following rules:

- i. Mean values less than 2 shows that the variables have very low impacts.
- ii. Mean values from 2 to 3 shows that the variables have low impacts.
- iii. Mean values from 3 to 4 shows that the variables have moderate impacts.
- iv. Mean values from 4 to 5 shows that the variables have high impacts.
- v. Mean value above 5 shows that the variables have very high impacts.

Table 4: Impact of heuristic variables on decision-making process (n=144)

Factors	Variables	Mean	Std deviation	Significance level
Overconfidence	I rely on my previous experiences in the market for my next investment	3.52	1.13	0.05
Gamblers Fallacy	Am able to anticipate the end of good or poor returns at the NSE.	2.84	1.09	0.05
Anchoring	I tend to forecast the changes in stock prices based on the recent stock prices	3.44	1.23	0.05
Availability Bias	Since information of local stocks is readily available, I prefer to buy local stocks	4.23	1.53	0.05
Representativeness	Information from my friends and relatives is a reliable reference for my investment	3.05	1.47	0.05

DISCUSSION

The study findings suggest that the individual investor at the NSE is young and relies on information availability to make investment decisions. The study found that the average investor is under 45 years old, holds a modest portfolio of less than half-a-million shillings and has been active in the NSE for a relatively short period of time. The NSE remained a preserve of institutional investors and a few savvy individual investors for many years.

Understanding its operations and how to invest through it is a recent phenomenon in Kenya that can be traced to the large public offerings in the last 30 years (Kenya Airways; KenGen; Safaricom). This is reflected in the average age of the retail investor in the study. The size of investment may testify to the to the Kenyan retail investor's psyche, where real estate investments (land and buildings) still remain the premier choice; or indicative of the wealth levels of young persons.

Overconfidence

Overconfidence is unwarranted faith in one's reasoning, judgments and cognitive abilities (Pompian, 2006). Overconfidence cause people to overestimate their knowledge underestimate risk and exaggerate their ability to control events. From the table 4 above it shows that investors are moderately influenced by their previous experiences when making investment decisions with mean value of 3.52. This means that the individual investors at the bourse are have moderate confidence in their previous experiences in the market and would to some extent rely on their past experiences in the bourse to make investment decisions. This is the second bias that influences individual investor while investing at the bourse.

Gamblers fallacy

The gambler's fallacy is the tendency of individuals to erroneously believe that the onset of a particular random event is more or less likely to happen

following another event or a series of events. Logically, this line of thinking is incorrect; past events do not affect the probability that certain events will occur.

In this research, the bias of gambler fallacy with a mean value of 2.84 shows that gamblers fallacy has a low impact on the investment decisions. This shows that most investors can't accurately predict the good or poor returns in the stock market.

Anchoring

Anchoring occurs where investors base their investment on a supposed 'anchor' such as previous stock prices. From the data above, anchoring has a mean value of 3.44 meaning that when making investment decisions, anchoring has moderate impact on the decisions. Some investors forecast the changes in the stock prices based on the recent stock prices.

Availability

Availability bias is a cognitive bias that leads to decisions being based on information and events that are more recent, that were observed personally, and are more memorable. It operates on the notion that if something can be recalled, it must be important, or at least more important than alternative solutions which are not as readily recalled. Under the influence of this bias, we rarely check the reliability of the information we have readily available nor do we try to search for patterns beyond a time horizon our memory can serve.

This research shows that most investors are influenced by the availability bias when making investment decisions. A mean value of 4.23 shows that this bias has high impacts on the decision making process, thus, investors prefer to buy local stock instead of international stocks because information of the local stocks is readily available. The result implies that investor's decisions are driven by the available information. The investors at the NSE prefer to buy

locals stocks than international stocks because they can get information of local stocks more easily compared to international stocks. The findings concur with the findings of Waweru et al (2008) which reveal that 96% of surveyed investors are home-market bias without considering the principles of portfolio diversification.

Representativeness

Representativeness heuristics can lead investors astray. For example, investors might be tempted to forecast future earnings using the short histories of high earnings growth observed in the past. These estimates are then used to price the company's stock and could thus lead to overpricing. In this case, investors are failing to take into account the fact that the high earnings growth could just be due to chance. The high earnings growth is unlikely to repeat itself and might actually lead to disappointment.

When future earnings are lower than forecasted, the stock price could drop considerably. With a mean value of 2.05, this shows investors are rarely influenced by the decisions of their friends and relatives when making their investment decisions. Thus, investors do not refer to information from friends as a reliable reference when making decisions.

CONCLUSION

The research study concludes that the decision making process of an individual investor is affected by many behavioural factors in particular heuristic biases. This biases impact on decision making vary to different degrees. Availability bias was found to have the largest impact on the investment decision-making process. The availability heuristic, also sometimes referred to as availability bias, is a cognitive bias that can cause people to incorrectly assess the likelihood of events. In particular, when we are asked to estimate the likelihood of a particular event, we will often rely on our memory. This makes sense. If it's easier for us to recall an instance of an event in the recent past, then it's probably more likely to occur than events for which we have no recollection. However, the extent to which we can remember an example of an event strongly upward biases our estimates on likelihood of events. The Kenyan retail investor is therefore influenced by the known and readily available information in making the decision. Overconfidence has a moderate influence, which may reflect the behavior of young persons of trusting own ability and feeling invincible. Information availability remains vital to understanding the Kenya individual investor's decisions.

RECOMMENDATIONS

Investors should make constant attempts to increase their awareness in behavioral finance by educating

themselves on the field. Studying about the biases and reflecting on their decisions are likely to help them achieve better self-understanding and achieving financial goals set. Investors with satisfactory awareness of the biases should maintain a chart of the biases they are more vulnerable to. This should be often reviewed to refresh their memories and give them a chance to make improved financial decisions in the stock market.

Behavioral Finance should be given more importance in Curriculum, if it has not already been taught it's due. The schools do an excellent job in equipping students with knowledge of the sciences and various techniques, which definitely serves as a foundation to a great career. If they are equipped with excellent knowledge in Behavioral Finance this will lead to better and informed investment decisions.

Developers of investment products, advisors and policy makers would be best served by tailoring activities and actions to provide information to investors because this has the largest single influence on the investment decisions they make.

Results from the study are more indicative in nature, than confirmative. However, the findings do open up various research opportunities where the number of biases studied could be reduced and the attempts can be made to produce confirmative results under detailed experimentation.

Subjects should be randomly split into two groups. One group should be given a knowledge session about a certain bias. Then both groups should be presented with a scenario, which tries to induce the subjects into committing the bias

Subjects should be provided with a scenario where they are to be influenced by a certain bias. Then they should be given a knowledge based session on the bias. A similar scenario should be presented to the same group a day later, to see if the new awareness has any impact on their decision making.

Further research is suggested to apply behavioral finance to explore behaviour influencing decisions of institutional investors at the bourse. This can help test suitability of applying behavioral finance to all kinds of security markets with all components of investors.

REFERENCES

Allen, W.D. and Evans, D.A. 2005. Bidding and overconfidence in experimental financial markets. *Journal of Behavioural Finance*, 6(3):108-120.

- Brabazon, T. 2000. Behavioural Finance: A new sunrise or a false dawn. 28th August.
- Barber, B. M., and Odean, T. 2007. All that glitters: The effect of attention and news on the buying behavior of Individual and institutional investors. *The review of financial studies*, 21(2):785-818.
- Chandra, A. 2008. Decision making in the stock market: Incorporating psychology with finance. In: National Conference on Forecasting Financial Markets of India.
- Cianci, A.M. 2008. The impact of investor status on investors' evaluation of negative and positive, separate and combined information. *The Journal of Behavioral Finance*, 9(3):117-131.
- Cipriani, M. and Guarino, A. 2011. Herd Behaviour in Financial Markets. An experiment with financial markets professionals. IMF working paper WP 8 (141).
- Diba, M., Tapia, F., Boccaccini, A.R., and Strobel, L. A. 2012. Magnesium-containing bioactive glasses for biomedical applications. *International Journal of Applied Glass Science*, 3(3):221-253.
- Fama, E.F. 1998. Market efficiency, long-term returns, and behavioral finance. *Journal of financial economics*, 49(3):283-306.
- Fama, E.F. 1995. Random walks in stock market prices. *Financial Analysts Journal*, 51(1):75-80.
- Gitau, G.G., Kiragu, D.N.U., and Riro, G.K. 2019. Effect of Heuristic Factors and Real Estate Investment in Embu County, Kenya
- Gao, L., and Schmidt, U. 2005. Self is never neutral: why economic agents behave irrationally. *The Journal of Behavioral Finance*, 6(1):27-37.
- Glaser, M., and Weber, M. 2007. Why inexperienced investors do not learn: They do not know their past portfolio performance. *Finance Research Letters*, 4(4):203-216.
- Grou, B. and Tabak, B.M. 2008. Ambiguity aversion and illusion of control: Experimental evidence in an emerging market. *Journal of Behavioral Finance*, 9(1):22-29.
- Grossman, S. and Stiglitz, J.E. 1980. On the impossibility of informational efficient markets. *American Economic Review*, 70 (3):393-408.
- Jaswani, T. 2008. Function and purpose of stock market. Article Base, September, 29.
- Joo, B.A., and Durri, K. 2015. Comprehensive review of literature on behavioural finance. *Indian Journal of Commerce and Management Studies*, 6(2):11.
- Kahneman, D. and Tversky, A. 2013. Prospect theory: An analysis of decision under risk. In: *Handbook of the fundamentals of financial decision making: Part I*, p. 99-127.
- Kumar, S., and Goyal, N. 2015. Behavioural biases in investment decision making: A systematic literature review. *Qualitative Research in financial markets*, 7(1):88-108.
- Mahina, J.N., Muturi, W.M., and Memba, F.S. 2017. Influence of Loss Aversion Bias on Investments at The Rwanda Stock Exchange.
- Tversky, A. and Kahneman, D. 1974. Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157):1124-1131.
- Pompian, M. (2006): Behavioral Finance and Wealth Management—How to Build Optimal Portfolios That Account for Investor Biases. *Financial Markets and Portfolio Management*, 21(4):491-492.
- Sewell, M. 2007. *Behavioural Finance*. University of Cambridge, 1-14.
- Shikuku, O.C. 2014. The effect of behavioural factors on individual investor choices at the Nairobi securities exchange. Master of Science in Finance in the School of Business, University of Nairobi.
- Wamae, J.N. 2013. Behavioural factors influencing investment decision in stock market: A survey of investment banks in Kenya. *International Journal of Social Sciences and Entrepreneurship*, 1(6):68-83.
- Waweru, N.M., Munyoki, E. and Uliana, E. 2008. The effects of behavioural factors in investment decision-making: a survey of institutional investors operating at the Nairobi Stock Exchange. *International Journal of Business and Emerging Markets*, 1(1):24-41.
- Waweru, N.M., Mwangi, G.G., and Parkinson, J.M. 2014. Behavioural factors influencing investment decisions in the Kenyan property market. *Afro-Asian Journal of Finance and Accounting*, 4(1):26-49.
- Yu, R. 2016. Stress potentiates decision biases: A stress induced deliberation-to-intuition (SIDI) model. *Neurobiology of Stress*, 3:83-95.
- Zuravicky, O. 2004. *The Stock Market: Understanding and applying ratios, decimals, fractions, and percentages*. Rosen Publishing Group, Inc.