

Effect of Behavioural Biases On Market Performance of Shares of Firms Listed at The Nairobi Securities Exchange

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Abstract

The study sought to evaluate the effect of behavioral biases on market performance of shares of firms listed at the NSE which is also the overriding objective of the study. The study was guided by three objectives; to determine the effect of herd behavior, to establish the effect of mental accounting on market performance of shares of firms listed at the NSE. It is in line with four review theories which are efficient market hypothesis (EMH) and prospect theory. Longitudinal research design was used to enhance data collection from the same target population at different points in time in order to study changes over time for a period of time and to allow for the analysis of the relationship between the independent and the dependent variables over a period of time. Dependent variable was measured by use of share returns based on share price. Independent variables are herd behavior, overconfidence and mental accounting and were respectively measured by use of returns dispersion, trade volume and price-dividend ratio. The study targeted sixty-six firms listed in the NSE. Census survey was used to draw samples from target population. Document analysis and checklist were used for collecting secondary data from print and electronic media. Data collected were analyzed using quantitative and qualitative means. Quantitative data was analyzed using descriptive statistics such as measures of central tendencies. The study covered a period of one year (twelve months) from September 2018 through September 2019. The study found that behavioural biases are significant predictors in modeling market performance in bivariate analysis. Furthermore, mental accounting was negatively correlated with market performance.

1. Introduction

Investor's behavior is based on two important assumptions. An investor is said to be rational when he keeps updating himself with new information and as such, makes appropriate choice among the many alternatives (Cherono 2018). Despite the rational resolves that investors make on investment goals, needs and objectives, there are numerous constraints which affect their investment decisions. Behavioral finance experts do argue that investors' decisions are affected by several factors which are generally categorized in four namely psychological, social, economic and demographic (Asad, Khan & Faiz 2018). Hence, there is no possibility for an individual or firm to make continuous successful decision governed by psychological factors without considering social, economic and demographic factors (Kafayat, 2014).

Psychological factors actually have dominating influence over decisions made by investors. These factors include overconfidence, anchoring, cognitive dissonance, regret aversion, gamblers' fallacy, hot-hand fallacy, mental accounting, representativeness, herding, disposition effect and hindsight bias. Social factors mainly concern social norms whereas economic factors comprise dividend policy, expected corporate earnings and get-rich-quickly attitude. On the

other hand, demographic factors cover income level, age, gender, market-knowledge, city, occupations, qualifications and marital status. All these factors have influence over investment decisions in one way or another thus, it is necessary to point out which factor or factors play a pivotal role in explaining the behaviour of investors and how such behaviours affects market performance in an emerging economy of which Kenya is inclusive (Asad, Khan & Faiz 2018).

Behavioral finance explains how factors like overconfidence, herding-behavior of investor and over optimism affect investor's behaviour. It also studies financial markets and give explanations on market anomalies such as speculative market bubbles and market crashes. Behavioral finance therefore helps in explaining why and how markets become inefficient (Asad, Khan & Faiz 2018). According to Shefrin and Statman (2011), behavioral finance is the study of how human psychology affects financial decision making process and financial markets. The aim of this research study was therefore to create an understanding about behavioral finance and behavioral biases so as to evaluate the outcome of these biases on market performance at the Nairobi Securities Exchange.

An investment in equity is described as the buying and holding of shares within a share market. This is done by individuals or firms in anticipation of earning dividends and as well for capital gain (Wasiu & Temitope, 2015). It is imperative to state that individuals and firms that provide their funds for others should naturally be rewarded. As such, among the rewards provided for in equity investment include residual rights, voting rights and rights to make decisions on key transactions. It is vital to note however, that investing in infant companies (venture capital investment) has high risks compared to investing in listed companies. Hence, as a matter of fact, factors that influence investor decisions are essential influencers of the share market trades (Pompian, 2012). It's therefore important to note that investor's behaviour determines the behaviour of asset prices and market behaviour hence, there is need to understand the nature of behaviour of an investor and its effect to the market (Asad, Khan & Faiz 2018).

Globally, investor decisions differ, and often characterized by psychological factors, demographic factors and socio-economic background (Wasiu & Temitope, 2015; Olweny, Namusonge & Onyango, 2012). This makes it difficult for an individual investor to adopt resolutions made by others in making appropriate investment decisions. Hence it is a reality that an investment decision made by an individual investor is likely not to be plausible to other investors in different economies. According to Pompian (2012), investor decisions are often dependent on factors that include profitability, past stock price (return), government policy, information on past and future firms' profitability, firms' public information, stock price and future growth, dividend policy, government support and grants, business line, members of the boards, and friends.

Investors' behaviour to hold unprofitable stock for a long period and to sell profitable stock immediately is referred to as disposition effect. A careful and keen examination on investors' trade records in the Finnish stock market shows that capital losses reduce the selling tendency trend of investors with no known negative effect in regard to capital gains. However, for these findings indicates no direct support to the disposition effect, the results therefore do suggest that investors are loss averse (Cherono, 2018).

Africa is a collectivistic society where people are united in a strong relation, cohesive groups and extended families in which one another is highly protected against any unquestioning loyalty. These forms of relations in the African societies provide the African members a safety web which does not exist in individualistic cultures such as America and Europe. It's therefore a reality that in collectivistic society, people are less risk averse as compared to individualistic societies and this is because the relatives and in-groups will provide a cover incase of any failure (Cherono, 2018).

Kenya is a country within Africa where the culture practiced is collectivist. Being an African country, Kenyan investors' decisions are purely affected by the norms and cultural practices found in Africa just as in the rest of other African nations. A few years ago, the NSE witnessed conditions of stock market reaction due to unexpected and extreme high price volatility which suggested the possibility of underlying inefficiencies devaluing shareholders' wealth in the stock market (Cherono, 2018). Mbaluka (2008), in a study also pointed out instances of stock market reactions in the Nairobi Securities Exchange geared by investor irrational behavior such as herd behavior, loss aversion, overconfidence and mental accounting. The occasions were witnessed in 2008 when Safaricom's IPO was excessively subscribed and traded below the nominal value of Kshs. 5 for over 5 years after the IPO with a market price of Kshs. 2.00. The reason for Safaricom's shares trading below par was because of investor's irrational behavior fueled by past abnormal and lucrative returns witnessed in the 2006 KenGen IPO where the firm's share price tripled after listing the offer at Kshs.11.90 per share. This was a true indication for the existence and impact of behavioral biases on individual investor's decision making process at the NSE.

Stock returns are mainly determined by three factors which are the level of dividends paid out by a firm to its shareholders. A firm that declares and pays dividends to its shareholders regularly is more likely to attract high share prices. This is due to investors' confidence regarding the future prospect of such a firm. The second factor is profitability which are the gains realized in an investment to the firm. A firm that realizes good profits annually is considered to be stable hence communicates high dividend pay-out ratio and as such, affects share prices positively in the security market. The third factor is the firm's growth prospect. The growth prospect of a firm depends mainly on internal financing ability through retained earnings. It communicates to prospective investors the firm's future ability to pay out a high proportion of its earnings as dividends hence have positive effect on the firm's share prices as determined by forces of demand and supply.

1.1 Statement of the Problem

Investors' behavioral biases such as overconfidence, herding and mental accounting provides testable implications due to investors' overreaction caused by assumptions to private information and overestimation of abilities as well as being biased and self-judgmental. Being overconfident causes investors to be more accurate in their opinion and judgment far less often than they may think they are. Investors in most cases are hesitant to realize their loss which is an evidence of disposition effect which is the practice of investors to dispose of winning investments immediately and to hold on losing investments for long (Makokha 2015).

In his study, Werah (2006) on examining investors' behavior at the NSE identified that the behaviour of investors at the NSE are somehow irrational when viewed from rationality point of view since they usually disown their own fundamental and basic assessments as a result of herd behavior, regret aversion, overconfidence and anchoring. Mahina J.N., Muturi W & Memba F,

(2017); in a study to establish the effect of individual investor behavior on decision making process revealed that investors' psychological aspect does affects their rationality and as such, they do not commit in investment as expected of them as they show unwillingness to change their investment portfolio despite attractive and favorable investment environment. Makokha, (2015) in another citation accepted that in deed there is an effect of behavioral factors on investors' decision making process at the NSE. However, there is no study reviewed that has taken into account the effects of investors behavioral biases on stock market performance of firms listed at the Nairobi Securities Exchange. To accomplish this, a longitudinal survey was conducted using census survey technique of sampling to all the firms listed in the NSE so as to establish/determine the effect of behavioral biases on market performance of shares of firms listed at the NSE.

1.1 Objectives of the study

To establish the effect of behavioral biases on market performance of shares of firms listed at the NSE.

1.2 Specific objectives

1. To determine the effect of herd behaviour on market performance of shares of firms listed at the NSE
2. To establish the effect of overconfidence on market performance of shares of firms listed at the NSE

2. Literature Review

2.1 Theoretical Framework

2.1.1 The Efficient Market Hypothesis (EMH)

Random walk hypothesis was published by Fama in his dissertation in 1965. Samuelson, also, published a proof for an efficient market hypothesis version (Anderson & Eriksson, 2013). Makhoka (2015) defined efficient market hypothesis (EMH) as one where many rational, profit maximizing and active investors exist with each participant trying to predict future market values of individual securities and where important contemporary information is nearly costless in the market.

Farooq and Sajid (2015) pointed that in an efficient market; the actual price of a security equals to or estimates its intrinsic value. The rationale is that it is not possible to outperform the market because in an efficient market, prices will always reflect and incorporate all the existing information. The proponents of this theory further argue that stocks will most of the time trade at their fair value thus, it is not possible for investors to purchase undervalued or overvalued stocks and if such stocks were to be undervalued then all investors would shift counters thereby creating more demand hence the forces of demand and supply will stabilize prices to equilibrium (Makokha, 2015).

A review version of the theory and hypothesis was published later in 1970 by Fama, whereby the author contended that investors often perceive current market price as a full reflection of the available information about securities and their expected returns especially when there is a constant price that is not only consistent but also conforms to the associated risk. Thus presenting

an efficient market theory based on a fair game philosophy (Wasiu & Temitope, 2013) and the notion that investors are rational beings, whose intention is to maximize returns and minimize losses as well as process all the required information efficiently (Makokha, 2015).

Efficient market hypothesis (EMH) of Fama (1970) therefore is the proposition that current stock prices fully reflect available information about the value of the firm, and there is no way to earn excess profits using this information. EMH deals with one of the most fundamental and exciting issues in finance - why prices change in security markets and how those changes take place (Anderson & Eriksson, 2013).

Efficient market hypothesis was sub-divided into three separate parts, weak form (EMH) which presumed that existing stock process is a reflection of the information available in the securities market, semi-strong form (EMH) asserts that security prices change rapidly soon after information is released to the public domain, while the strong (EMH) insists that information from both private and public sources are an indication of the stock prices (Farooq and Sajid, 2015). Hence it could be concluded that investment decisions are highly depended on market information, which is the main reason as to why many investors tends to trade on popular stocks. The happenings within the securities exchange market often impacts the investors' decision through catching attention in spite of lack of adequate information on whether such events were likely to result into good investment returns in the future or not (Ghelichi, Nakhjavan & Gharehdaghi, 2016).

2.1.2 Prospect Theory

The theory was developed by two German psychologists namely; Daniel Kahneman and Amos Tversky in 1979 to explain investors' behavior in situations involving risks. The theory assumed that losses and gains are valued differently and thus investors make decisions based on perceived gains instead of perceived losses. According to this theory, investors' preference is inconsistent with traditional function where investors are viewed in terms of expected utility. The theory therefore is all about how people make choices amongst different options or prospects and it's designed to better describe, explain and predict choices made by investors in a world of uncertainty as people sacrifice to achieve certainty (Mahina, Muturi & Memba, 2017).

According to the proponents of this theory, investors view potential choices by evaluating gains and losses from a given security in relation to a particular reference point such as purchase price of the investment, performance history, investor expectations and utility outcome expected. The theory posits that investors are more concerned and stressed about losses as compared to the level of happiness that is derived from a gain of an equal amount. The theory further clarifies that investors exert more effort to avoid losses and less effort to make gains and as such, will hold on to losing stocks hoping they will increase in value hence, investors' decision to invest in a given security highly depends on how much losses or gains are anticipated from that investment (Awuor, 2017).

The theorists in their argument posits that under conditions of uncertainty, investors decisions change from those predicted earlier by the Standard Finance theory and due to limited cognitive capacity, they cannot analyze data optimally hence the power of conscious mind becomes irrational even when trying to make rational decision. Prospect theory and psychological literature on heuristic biases plays a role in providing a better model which explains why

investors make decisions for what seem to be non-rational and how they derived utility not only from investment gains but also from changes in the value of their financial wealth (Cherono, 2018). The theory also explains how losses have more emotional effect than an equivalent amount of gain hence, investors respond differently to equivalent situations depending on whether it is presented in the context of a loss or a gain. It therefore emerges that Investors are generally risk averse when pursuing gains but becomes risk lovers when avoiding losses. Prospect theory also assists in explaining how loss aversion and inability to ignore sunk costs leads investors to take actions that are not in their interest. Thus the pain of losing money often leads investors to withdraw money out of the stock market unwisely hence affects stock performance in the stock market.

The theory is relevant in this study because investors' behavior such as herding, overconfidence and mental accounting biases are factors which cannot be easily tolerated in financial decision making.

2.2 Conceptual Framework

The conceptual framework described the relationship between behavioral biases and market performance which are respectively the independent and dependent variables of the study. It also reviewed behavioral factors that affect performance of shares of quoted companies. The variables were operationalised as follows: Herd Behaviour, Mental Accounting factors which are the independent variables were gauged using returns dispersion, Price-dividend ratio and Trading volume respectively whereas Stock market returns (based on share prices) was used to measure the dependent variable which is Market Performance. These are as illustrated in fig 1 below:

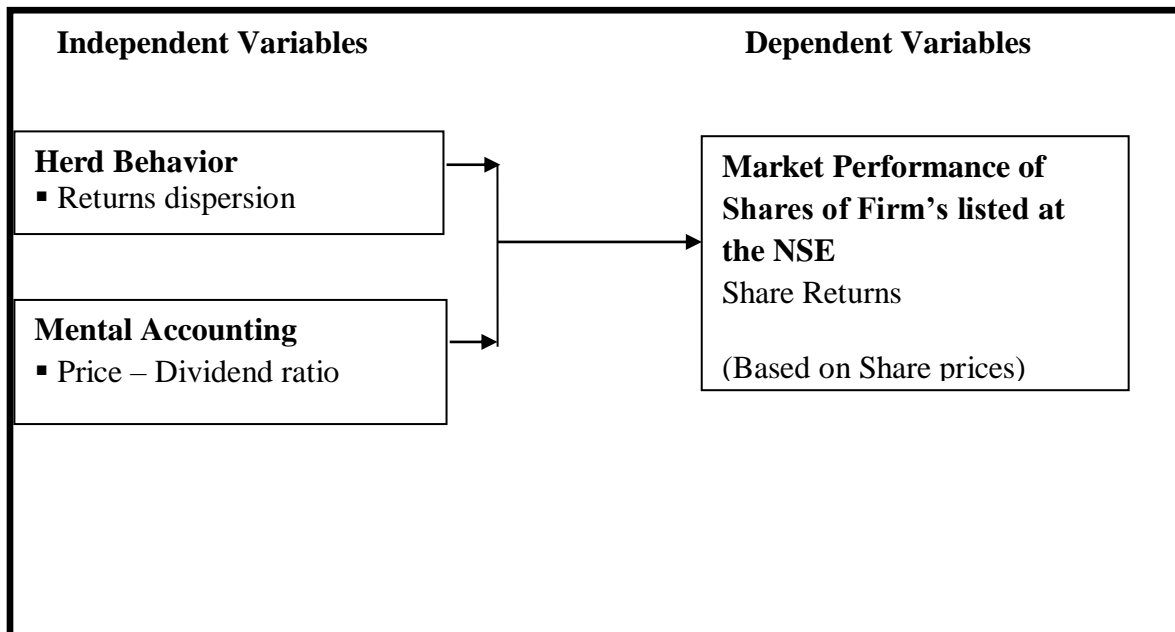


Figure .1 Conceptual Framework

2.3 Empirical Literature Review

2.3.1 Herding Behaviours and Share Market Performance

Hsieh (2013) noted that institutional investors develop herding behaviour than individual investors and those investors' decisions do occur similarly and concurrently in the stock market which means that investors decision making depends on prior actions by other investors in the stock market. It is therefore apparent that investors hold information which is important as they rely on other investors who are in a position to take an investment decision.

Wasiu and Temitope (2015) conducted studies in Nigeria on investor decisions and indicated five major influencing factors that determine investor decisions in the Nigerian capital market. Based on the order of importance, the author further stated past performance of a company stock, capital increase/ bonus/ expected stock split, dividend policy information, expected corporate earnings and Get Rich Quickly. The study indicated that the five distinct factors are often categorized as wealth maximizing criteria (Wasiu & Temitope (2015). On the other hand, while conducting research on financial performance and individual investor behaviors in the trading shares of listed companies in Nairobi securities exchange, (Aduda, Oduor & Onwonga 2012) based their objectives on determining how individual investors make their investment decisions and affirmed that most of the investors rely on advice from colleagues and friends. As such other evidence indicated that most investors exhibited both rational and irrational behaviors when making investment decisions (Pompian, 2012).

2.3.2 Mental Accounting and Share Market Performance

Bakar, & Yi, (2016).in a study established the presence of behavioral traits on individual investment decision making process. His results indicated that investors had their rationality influenced by the psychological aspects. The study pointed out that investors did not invest as expected as they showed unwillingness to change their portfolio despite unattractive macroeconomic outlook. The endowment effect was identified with investors in the experiment with 23% of them changing their portfolio mix while 77% failed to change even when the economic outlook demanded that change.

Werah (2006), conducted a survey on the influence of behavioral factors on investment activities at the Nairobi Stock Exchange and the study revealed that mental accounting is a factor that is more prevalent in individual investors than institutional investors. A study by Oso W.Y. (2013); as cited in Ratemo (2016), exhibited that over 60% of traders treat each basket of their goods separately. However, the tendency of investors to create mental accounting is propelled by investment conditions in which investors feel more pain when they realize a loss and controversially they derive more pleasure when a gain is achieved from a particular investment. As a result they end up looking at each stock separately as opposed to analyzing their portfolio as a whole. The resultant of such treatment is that investors end up making inconsistent and inefficient investment choices. Such choices are made on the basis of investors' perceived realities and to them each element of their investment has no connection to the other investments in the portfolio held.

Cherono (2018) cited a study with the main objective of examining controversy concerning the effect of dividend yields on stock returns and if the positive association between common stock returns and dividend yields reported in a number of empirical studies can be attributed entirely to

information effects. The research design used was quantitative research design. Pooled Time Series and Cross Section Test model were employed. Dependent variable was dividend yield. Independent variable was stock returns. The outcome indicated that there was a positive and non-linear relationship between stock returns and expected dividend yield an indication of mental accounting.

Mascarenas and Yan (2017), carried a study with the main objective of analyzing the relationship between investors mental accounting and investment portfolio design from psychological and financial perspectives. The results of risk and return experiment showed that, despite having the same investment portfolio and the same investment environment and due to the fact that investors investment risk preferences changed, their expected return and investment decision-making was different.

3. Methodology

The study employed longitudinal (developmental) survey research design which is descriptive to establish effect of behavioral biases on market performance of shares of firms listed at the NSE.

The target population of this study were the 66 firms listed at the NSE according to CMA report (2018). In this study, the researcher used document analysis, data collection sheets and check list as tools for collecting and analyzing secondary data. Descriptive statistics included measures of central tendency, and Inferential statistics

4. Discussions of findings

Table 1 below presents basic statistics on the behavioral biases and market performance. The average market performance between 2014 and 2018 was 13.597 with standard deviation of 32.677, and skewness of 4.047. This suggests, therefore that market performance is heavily positively skewed and thus the need to transform the variable to a relatively normal distribution. Applying a log-transformation once rectifies the anomaly and prepares the data for linear regression with fairly white noise residuals. On the other hand, Herd behaviour had a mean of 0.167, standard deviation of 2.890 and skewness and kurtosis of 6.858 and 52.722 respectively. Clearly, this is also an implication of strong departure from normal distribution and thus the assumption of normal error term in linear regression would be violated, similarly herd behavior was log-transformed once. Overconfidence had a mean of 4405.819 whereas mental accounting had a mean of 46.129. The latter was closely normally disturbed.

Table 1.

Statistics	Market Performance	Herd Behaviour	Mental Accounting
Mean	13.597	0.167	46.129
Variance	1067.758	8.352	4133.883
SD	32.677	2.890	64.295
Kurtosis	20.747	52.722	8.876
skewness	4.047	6.858	2.416
Max	198.396	22.188	322.476
Min	-1.373	-2.962	0.000
Cv	2.403	17.274	1.394

Table 1: Descriptive Information on Variables of Interest (*Source Researcher, 2019*)

Figure 1 below shows a pie chart of the distribution of market performance of firms listed at the NSE. British American Tobacco (BAT) had the highest share at 21.92% followed by Williamson Tea Kenya (WTK) at 16.22%, Standard Chartered Bank Kenya (SCBK) at 9.41%, Bamburi Cement (BAMB) (5.74%) and Nation Media Group comes fifth at 5.44%. Clearly these are the top 5 (7.57%) companies that collectively share 50% (49.73%) of market performance at NSE while the remaining 92.43% constitute the other 50% of the total share returns.

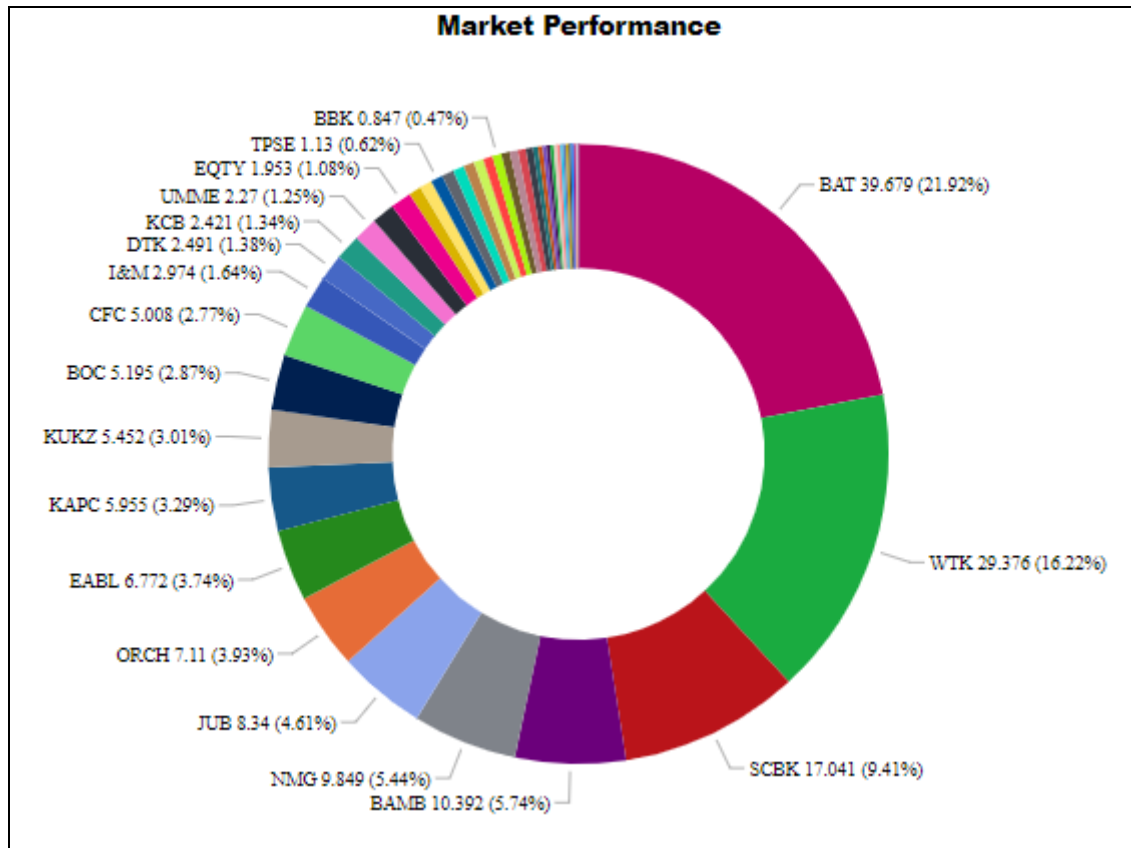


Figure 2: Market Performance - Based on Share Returns (*Source Researcher, 219*)

4.2 Relationship between Herd Behaviour and Stock Returns

Herd behaviour exhibits a different trend as compared to market performance in terms of distribution across the 66 companies over 5 years since 2014. On average, Kurwitu Ventures Limited owns 70.71% of herd behaviour followed at a distant by Kakuzi Plc with 11.66%, British American Tobacco (7.67%), Jubilee Holdings (6.34%), and lastly Kenya Orchards Limited (3.34%). The rest of the companies have negative herd behaviour. Therefore, 5 companies (7.57%) comprise the bulk (97%) of herd behaviour at NSE as shown in **Figure 2** below. This is further illustrated by the bivariate regression with robust standard errors on market performance against herd behaviour (**Table 2**) where the study found that herd behaviour is a statistically significant predictor of market performance (p-value = 0.002, R-Squared = 0.5%). Herd behaviour can only account for 0.5% of the observed variation in market performance, which is of significant impact.

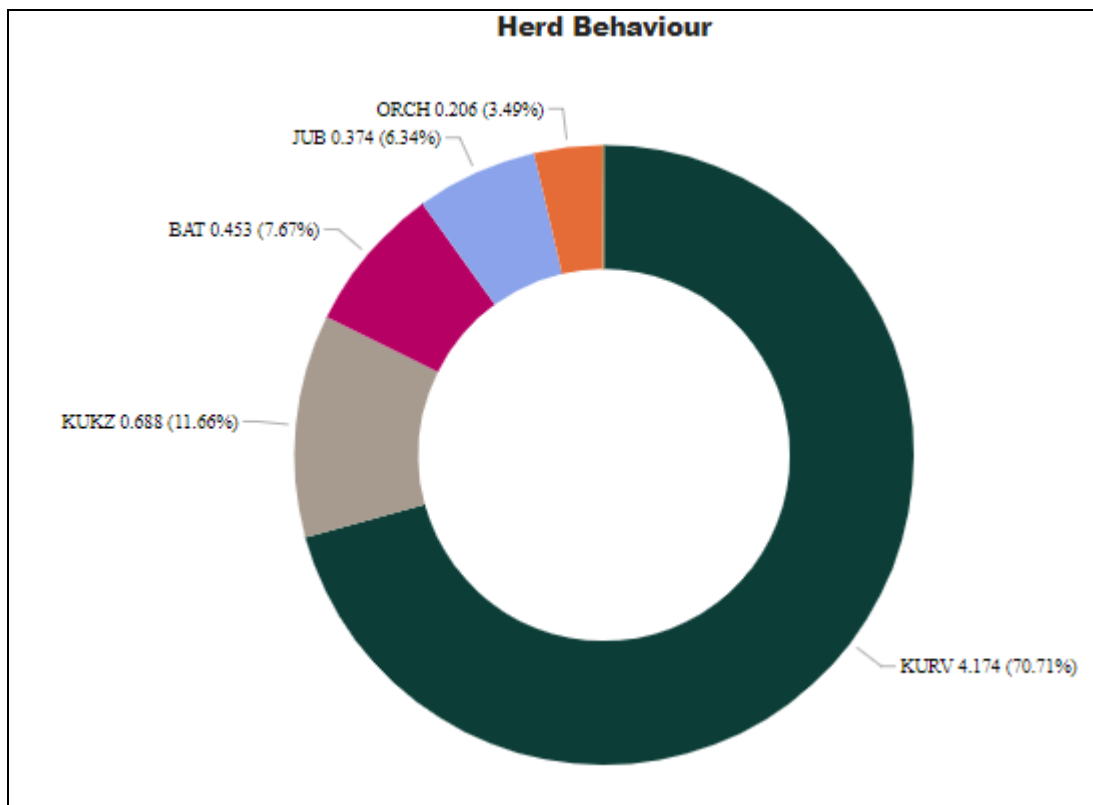


Figure 2: Herd Behaviour (*Source Researcher, 2019*)

Table 2.

Market Performance	Coefficient	Robust SE	T-statistics	P-value	Lower 95% CI	Upper 95% CI
Herd Behaviour	0.033	1.040	0.030	0.002	0.001	2.111
Intercept	13.592	4.002	3.400	0.001	5.597	21.586

Table 3: Bivariate Regression of Market Performance against Herd Behaviour (*Source Researcher, 2019*)

4.2 Relationship between Mental Accounting and Stock Returns

According to the findings, Mental Accounting bias is fairly equally shared by majority of companies as compared to herd behaviour and overconfidence. In the top five, Limuru Tea Company (LIMT) takes the lead with 10.59%, followed closely by National bank of Kenya (NBK) at 9.59%, ARM Cement Plc (ARM) at 6.87%, Trans-Century Plc (TCL) at 5.81% and WPP Scangroup Plc(SCAN) at 5.74%. The five companies therefore make up 31.86% of mental accounting bias. **Figure 2** below summarizes this information.

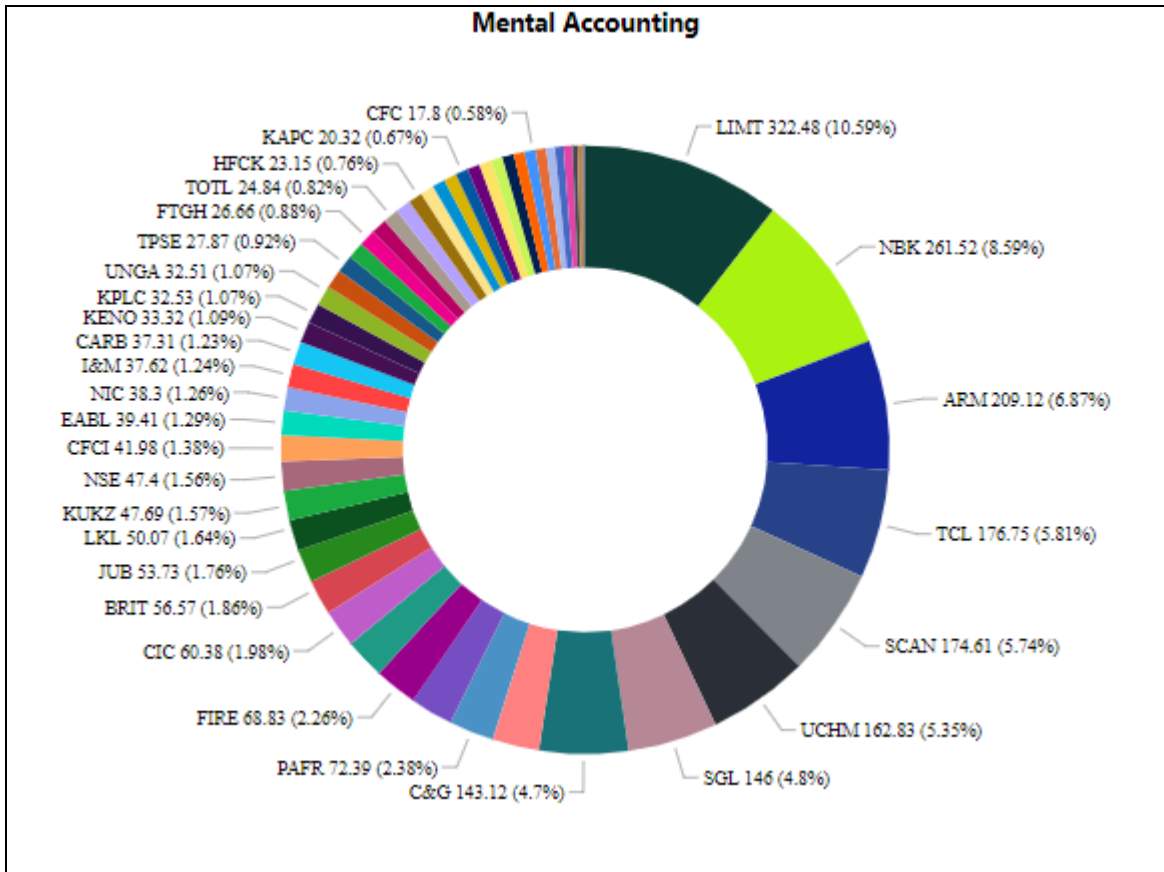


Figure 2: Mental Accounting (*Source Researcher, 2019*)

Bivariate regression of mental accounting against market performance with robust standard errors show that mental accounting is a significant predictor of the latter (p-value = 0.048, R-squared of 1.8%) We can therefore solely rely on mental accounting to predict market performance as it only contributes 1.8% of the variation in the outcome. This is as illustrated in **Table 3** below.

Table 3.

Market Performance	Coefficient	Robust SE	T-Statistic	P-value	Lower 95%CI	Upper 95%CI
Mental Accounting	-0.068	0.035	-1.930	0.048	-0.139	-0.002
Intercept	16.743	5.385	3.110	0.003	5.984	27.501

Table 3: Bivariate Analysis of Mental Account against Market Performance (*Source Researcher, 2019*)

Evidently all the three biases are significant predictors of market performance since all the p-values are below the threshold alpha of 0.05, including the intercept. A unit increase in mental accounting significantly decreases market performance by 0.068 keeping herd behaviour and mental accounting constant. If all the biases are kept at zero, market performance stands at

16.743. While herd behaviour has a positive impact on market performance and mental accounting have negative effects on market performance as per the findings of this study.

5. Conclusions and Recommendations

The study concluded that herd behavior had a positive significant effect on market performance of shares of firms listed at the NSE. The outcome indicated that herd behaviour is a statistically significant predictor of market performance. This showed that herd behavior variable had effect on market performance. The conclusion was that herd behavior was an important variable and investors should consider assessing its effect on market performance.

The study also concluded that mental accounting behavior had a negative significant effect on market performance in Kenya. This showed that investors should be more concerned about mental accounting.

This study recommended that in order to achieve vision 2030, NSE should look into checking behavioral biases that control market performance and for NSE to realize the required market performance, its trading system should be consistently monitored and improved so as to increase information and allocation efficiency in the market. This means creating increased awareness of investor opportunities at the NSE. Increased information and allocation efficiency builds investors' confidence to participate in the market; it also increases the liquidity in the market indirectly due to the increased number of participants.

Investors should consider taking care of market sentiment as they consider investing their funds in the shares of firms listed at the NSE. Mental accounting significantly influences market performance hence it has to be considered so as to achieve the vision 2030 and improve market performance. This study was done using secondary data. The researcher recommends for a similar study using Primary data.

References

- 1) Aduda, J., & Muimi, P. (2011). Test for investor rationality for companies listed at the Nairobi Stock Exchange. *Journal of Modern accounting and auditing*, 7(8), 827.
- 2) Aduda, J., Oduor, O. E., & Onwonga, M. (2012). The Behaviour and Financial Performance of Individual Investors in the Trading Shares of Companies Listed at the Nairobi Stock Exchange, Kenya. *Journal of Finance and Investment Analysis*, 1(3), 33-60.
- 3) Anderson, E., & Eriksson, H. J. (2013). Rationality of individual investors: The case of placer. UMEA University.
- 4) Asad, Khan & Faiz, (2018); Behavioral biases across the stock market investors: Evidence from pakistan. *Pakistan economic & social review* volume 56, No.1. pp.185-209
- 5) Awuor J.L. (2017) Behavioural factors that influence individual investment decisions at the NSE. Un published MBA project University of Nairobi
- 6) Bakar, S., & Yi, A. N. C. (2016). The Impact of Psychological Factors on Investors' Decision Making in Malaysian Stock Market: A Case of Klang Valley and Pahang. *Procedia Economics and Finance*, 35, 319-328.

- 7) Cherono, I (2018); Effect of Investor Behaviour on stock Market Reaction. Unpublished PhD Project, Jomo Kenyatta University of Agriculture and Technology.
- 8) CMA report (2018); NSE website. Retrieved on February 10, 2019.
- 9) Farooq and Sajid (2015). Factors Affecting Investment Decision Making: Evidence from Equity Fund Managers and Individual Investors in Pakistan. *Research Journal of research and accounting*, V6(9).
- 10) Ghelichi, M. A., Nakhjavan, B., & Gharehdaghi, M. (2016). Impact of Psychological Factors on Investment Decision Making In Stock Exchange Market. *Asian Journal of Management Sciences & Education* Vol, 5, 3.
- 11) Hsieh, S.F. (2013), Individual and institutional herding and the impact on stock returns: Evidence from Taiwan stock market, *International Review of Financial Analysis*, vol. 29, pp. 175-188
- 12) Hsu, Y. & Shiu. (2010); The overconfidence of investors in the primary market. *Pacific-Basin Finance Journal*, 18(2), 217-239.
- 13) Kafayat, A. (2014). Interrelationship of biases: effect investment decisions ultimately. *Theoretical and Applied Economics*, 21(6 (595)), 85-110.
- 14) Mahina J.N., Muturi W & Memba F, (2017); Effect of Behavioural Biases on Investments at the Rwanda Stock Exchange. *International Journal of Accounting, Finance and Risk Management*. Vol. 2, No. 4, 2017, pp. 131-137. doi: 10.11648/j.ijafrm.20170204.11
- 15) Makokha K.C., (2015); The effect of overconfidence bias on stock returns of companies listed at the Nairobi Stock Exchange. Unpublished MBA project. University of Nairobi.
- 16) Mascarenas & Yan, (2017); How people apply mental accounting philosophy to investment risk. *International journal of economics and financial issues*, 2017,7(3)145-151.
- 17) Mbaluka, P. K. (2008). Behavioral effects on individuals' decision-Making process using the prospect theory: A Case of investors at the NSE, Unpublished PhD Dissertation, Nairobi: University of Nairobi.
- 18) Olweny, T., Namusonge, G. S., & Onyango, S. (2012). The Influence of Social Cultural Background on Individual Risk Tolerance at Nairobi Stock Exchange, Kenya. *International Journal of Arts and Commerce*, 1, 87-106.
- 19) Oso W.Y. (2013); Principles and Practice of Educational research. Amoud university. Somaliland.
- 20) Pompian, M. (2012). *Behavioural Finance and Investor Types: Managing Behaviour to Make Better Investment Decisions*. New York, US: John Wiley & Sons.
- 21) Ratemo S.N. (2016); The effect of individual behavioral biases on investment choices at the NSE: A case of Kisumu county investors. Unpublished MBA project. Univesity of Nairobi.
- 22) Shefrin, H., & Statman, M. (2011). *Behavioral finance in the financial crisis: Market efficiency, Minsky, and Keynes*. Santa Clara: Santa Clara University.

- 23) Wasiu, O. I., & Temitope, M. W. (2015), Financial Market Integration and Economic Growth: An Experience from Nigeria.
- 24) Werah, A. O. (2006). A survey of the influence of Behaviourial Factors on Investor activities at the Nairobi Stock Exchange, Unpublished PhD dissertation, Nairobi: University of Nairobi.